

Evaluation of Digital Prototype

Main Design Cycle

INFO30008 Interactive Technology Project

Group 1

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EXECUTIVE SUMMARY

This report initially clarifies the main design concept which uses the findings of the previous report as its foundation. This main design concept outlines the key shareholders involved, the paradox that exists between them and how this design is intended to alleviate this frustration. While this establishes the conceptual basis of the design, a review of the relevant technology explores the physical viability of the prototype while seeking inspiration from lesser connected technologies.

Utilising the findings of these two sections, key features of the design were developed and prototyped before being consolidated into one cohesive prototype. The design of this application was then conceptually reinforced by the usability design rationale which explores the prototype from an academic scope. Furthermore, personas and scenarios were developed, refining the overall design. By placing the prototype into these fictional, strenuous situations, the group was able to identify possible points of weakness. These scenarios collectively informed the photo scenarios which allowed an interaction with the design to be explored in-depth.

Finally, the report evaluates the main design prototype through user testing and observation to reveal the usefulness, usability and user experience of the design. The findings illustrate that this application is useful and affords a point of progression towards a new Covid normal while highlighting key usability flaws. This provides a basis of further development while confirming a generally enjoyable user experience. Overall, this report finds that this application is not only a viable solution to the concerned paradox but also a key moment of learning through design.

MAIN DESIGN CONCEPT

The main design concept is to design an application that makes checking in more motivational by firstly, implementing a tap-in system that is quick and simple using NFC technology, and secondly is inviting through community focused aesthetics. Our idea is to create an application that citizens can download onto their phone. When a citizen reaches a check-in location (for example a venue or retail store) they simply open the app and tap on the check-in point in order to check-in.

The main design concept aims to alleviate the paradox that exists between the government and the citizens where the government wants citizens to consistently check in to venues in order to effectively contact trace, but citizens being hesitant and lazy to check-in but still wanting to return to Covid normal, which requires for them to check-in and follow the restriction guidelines appropriately.

This main design concept is developed in response to the conclusions reached in the last report with 80% of stakeholder interviewee’s expressing frustration about the current state of the check-in process. As highlighted by Mark (P1), a venue manager, stating, “it’s not very effective” and that some customers “actively avoided checking in”.

As illustrated in the rich picture and reinforced by the stakeholder interviews, this is an incredibly complex issue with stakeholders such as the Government, Healthcare, Businesses and Citizens coming into conflict. Upon further investigation, this conflict occurs not only between these stakeholder groups but also within them, with many members of the citizen group having conflicting beliefs and motivations.

Stakeholder	Needs and concerns	How Key-19 addresses their their needs
Citizens (Primary users)	<ul style="list-style-type: none"> • Want to stay covid safe. • Do not want to be impacted by Covid in their daily life. • Might not care, do not have time, do not have the means or do not have the ability (e.g do not own a smartphone) to check in using the current QR code system. 	<ul style="list-style-type: none"> • Will feel less impacted by Covid-19 in their everyday lives as checking in will be as simple as making an eftpos payment. • Lower citizens' sense of frustration surrounding checking in.
Government	<ul style="list-style-type: none"> • Enforcing all visitors and workers at workplaces to check in (Currently using the Service Victoria QR Code app). 	<ul style="list-style-type: none"> • The ease of checking in that key-19 brings will encourage more people to check-in and follow the Covid-safe restrictions.
Contact tracers	<ul style="list-style-type: none"> • In order to manage the spread of Covid-19, contact tracers want everyone to check in to assist the 	<ul style="list-style-type: none"> • The ease of checking in that key-19 brings will encourage more people to check in. As a result it will heighten

	<p>efficiency and effectiveness of contact tracing.</p> <ul style="list-style-type: none"> Concerned about people not checking in therefore making contact tracing harder. 	<p>the accuracy of and increase the accuracy and speed of contact tracing.</p>
Business	<ul style="list-style-type: none"> Do not want to sacrifice their staff to check if all visitors have checked in. Do not want to sacrifice a staff member to count the number of people in their store to comply with density limits. Observe and have to deal with customers frustrated about checking in. 	<ul style="list-style-type: none"> Will not have to assist as many people check in and not have to deal with customers frustration surrounding the current check in system.
Healthcare	<ul style="list-style-type: none"> Want the general public to stay covid safe to lower the pressure on the healthcare system. 	<ul style="list-style-type: none"> Increased accuracy of contact tracing will lower the pressure on the healthcare system.

Early attempts to alleviate this issue resulted in the development of an e-tag system, which was highlighted in the prototype interviews as the most useful concept. As Rose states, “I would feel less impacted by Covid-19 in my daily life. It would also reduce the time spent by me and my colleagues asking and helping people check-in.” Key features that made this system so attractive was the minimal amount of effort required, the increased accuracy of each checkin and a greater control of information.

The concept is to create an app that is fundamentally different from the Covid-Safe app that the Government launched at the start of the year. This application was designed to motivate the user out of a sense of comradery and community rather than fear and danger. This type of design thinking was influenced by Dorst’s writing in *Frame Innovations* (2015) as we believe that the solution to this issue didn’t lie in any physical aspect of the application but in the user’s relationship with it.

REVIEW OF RELEVANT TECHNOLOGIES

Review 1: Suica - Manami

Suica is a prepaid rechargeable contactless smart card, electronic money used as a fare card on public transportation in Japan, introduced in 2001. It can be used on any public transportation in any region of Japan, and it is also accepted as a form of electronic money like a debit card in stores. Individuals can also add this card to your phone such as Apple Wallet for easier access.

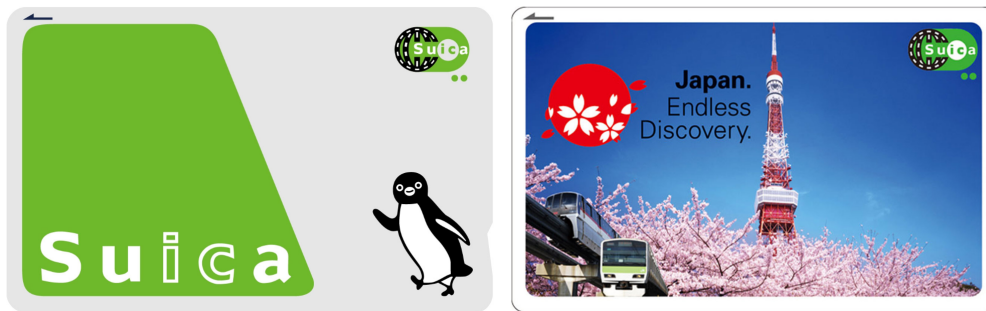


Figure 1: Suica rechargeable card

In Japan, where the majority commute using public transport and rush hour consists of millions of people passing through the gates in train stations, technology with high data transmission rate and short data processing time was demanded. The East Japan railway company introduced Suica using a magnetic AFC system on a prepaid card initially. This card can be rewritten more than 60 times and has a lifetime of up to five years.

FeliCa Technology:

Almost all Japanese contactless smart cards are implemented by FeliCa. To solve the congestion mentioned above, JR East invited tenders for the card system which can examine one card in 0.1 second. That is, it has to communicate at 211.875 kbit/s.

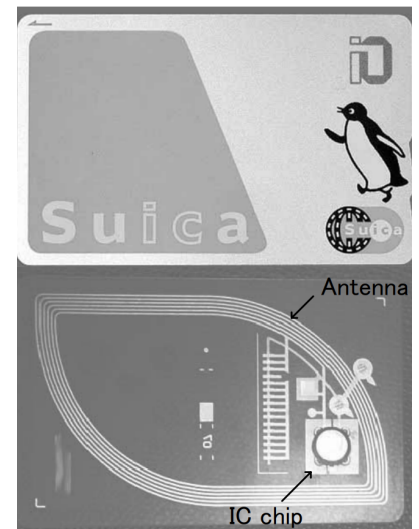


Figure 2: Example of IC chip and antenna

It can also operate without a battery using electromagnetic induction. Thus it is thin and light in weight. The coil like a leaf shown in the figure is an antenna. The leaf form is a device for reading two or more cards. When the antenna comes close to the reader, an electric current is generated. FeliCa reads and writes data with the power. It can implement various applications, if only software in the reader is rewritten. Moreover, the security of FeliCa has been certified by ISO/IEC 15408. These FeliCa functions are suitable for the smart card of public

transportation. However, FeliCa has been rejected by the RFID international standard (ISO/IEC 14443, 2008). It has been certified by the NFC (Near Field Communication) international standard later (ISO/IEC 18092, 2004).

Individuals can choose to use their mobile phones as an alternative to the physical card. Iphone 8 and later models can be set up to serve as a Suica card by adding a Suica card to Apple Pay. Android phones can be used as IC cards through the "Mobile Suica" and "Mobile Pasma" apps; however, the apps are targeted at residents of Japan and difficult or impossible to use for visitors to Japan (they require Osaifu Keitai compatibility which is not provided by most phones sold outside of Japan, come in Japanese only and require an address in Japan and possibly a credit card that has been issued in Japan).

Limitations:

- Language barrier within the app (e.g. Osaifu Keitai)
- Concession card/ specific region card only available to residents of Japan
- Can not be shared by multiple travelers at the same time

Review 2: Square - Nicola

The square reader is a small device (66mm x 66mm x 10mm) that accepts payments from chips on cards and NFC payments, for example Apple Pay and Google Pay. The square reader payment system was founded in 2009 by Jack Dorsey and McKelvey. Square is an American based in San Francisco, California. It was created in response to a situation where McKelvey, who worked in a glass studio, only accepted cash payment therefore lost a potential customer who wanted to pay with cash. The aim of the square reader was to design the payment experience to “allow people to [make payments] very easily, and quickly, within 10 seconds” (Dorsey 2009 from Loeb 2016).



Figure 3: Square Reader

Not only does square make the square reader but they also have a range of other products. For example the Square Terminal which is a compact and all-in-one device. Unlike the square reader which is simply a scanner only, the Square Terminal features an interface where the cashier can type the payment amount directly into the terminal and also includes a receipt printer. The Square Stand goes a step further to be a fully operational point of sale as it is designed to be used on an iPad. These payment type machines are a more sleek design compared to the older style eftpos terminals that are seen at almost every store in Australia.



Figure 4: Square Terminal (Left) & Square Stand (Right)

Square is a successful company, making 9.49 billion USD in revenue in 2020 (Macrotrends 2021). In Australia particularly, Square (2021) commented that the Covid-19 pandemic has intensified “the love of contactless payments”. Prior to the start of the pandemic 1 out of 12 businesses were operating as cashless, however in 2021 it is now 1 in every 4 (Square 2021). Square (2021) has noticed that “consumers have become accustomed to the ease and convenience of eCommerce over the course of the pandemic” which is a key factor to why

contactless payments are becoming the preferred payment method. There is also a preference to minimise contact with physical currency to be more Covid-safe.

Given that businesses and consumers now favour digital contactless payments over physical cash for ease of use, speed and security, tap technology has become more intuitive. The concept of contactless payment using NFC technology is the key design concept that could be applied into our current design project. Instead of a contactless payment it would be a contactless check-in or check-out. The small scale NFC square reader could be used as inspiration for the check-in point readers. It's compact size is convenient and versatile, and could potentially be attached to a wall of a retail store or set up like a myki reader at train stations. Another key design factor is the consumers receive audio feedback from the square reader and haptic feedback from their phone to indicate that their payment has been successful. This is something that should be considered when a user is tapping to check-in.

Review 3: Airdrop & Bluetooth - Paris

The brand Apple Inc. created Airdrop to be used as a service to transfer files and information including photos and data and relies solely on close-range wireless communication. Apple Inc released the proprietary ad hoc service on 20th July, 2010, over 10 years ago and it currently only operates on the system iOS 7 and later. Airdrop works by creating a near-to-near Wi-Fi connection between two devices and allows for large file transfer within 9 metres. The user selects the media and then proceeds to select the 'Share' button in which the Airdrop logo can be viewed. By clicking on this, all available devices within the immediate vicinity will appear. The user is able to select whom they receive media requests from, allowing them to control the security level.



Figure 5: AirDrop Logo

Sharing of media is commonly a painful experience due to data loading times that can last up to minutes to hours. Airdrop incorporates many positive aspects of bluetooth technology including:

- Using a lower power consumption
- Very cost efficient
- Typically free to use if already installed
- Can be adopted to suit many different products
- Avoids interference from other devices
- Fast and easy upgrades

Problems with airdrop appear with elderly users or where a user is unfamiliar with technology as it can be slightly tricky to use or learn the concept. Many users rely on texting or emailing images and videos rather than use the bluetooth functionality. Android beam is a variant of Airdrop that uses the NFC technology within a device to send files and media. The difference relies on the data being transferred as NFC is a lower range bandwidth provider and Bluetooth has larger capabilities. The similarities rely within the function and purpose. Google is currently developing a service called 'Nearby Sharing' previously known as Fast Share with the concept to function on all Android devices, Windows and Linux. Airdrop and Bluetooth is an amazing service that creates a fast, reliable and efficient platform to share bulk media or information with no file size limit. In 2019 approximately a billion people are using Apple devices including 1.4 billion devices. While a mere 13% of the population are Apple (Airdrop) users, the majority (87%) remain faithful to Android products, however showing the vast amount of people that have access to Airdrop or a similar technology like NFC.

Review 4: Amazon Go - Sam

Amazon has created an automated shopping experience for its visitors. While still early into its establishment, these stores can be found in London, Seattle, New York, Chicago, and San Francisco. The key component that separates these stores from more conventional convenience stores is that the customers can purchase products without being checked out by a cashier. Instead, the store utilises Amazon's Just Walk Out technology, which is a combination of sensors, computer vision and deep learning to track what each customer has selected. It requires the customer to download an app which will automatically charge the customer when they leave the store. This was developed as a radically new model for shopping, moving towards the total automation of this industry.

It exists relatively alone in its market with other automated retail systems functioning more like a vending machine than an actual store. Unlike these systems, payment for the Amazon Go store is initiated when the customer leaves the store and charged to their account rather than conventional forms of payment.

Its success can be seen in its expansion to Amazon Go Grocery stores, larger stores that function as a full-sized grocery store. Furthermore, its value lies also in its advancement of the technologies associated with the store. It is the first of its kind and allows the company to get a 'head-start' in terms of improving the user experience and interface associated with the stores.

However, there are several issues that have arisen because of this technology. The first is primarily technological one, with limitations to the current sensor's ability to track multiple movements at once, its ability to sense children or two people with a similar physical structure. Secondly, it was seen as discriminating against less wealthy people who might not have access to a phone or electronic forms of money. In response to this issue, several stores have a cashier that can checkout using cash.

While the technological demands might not be applicable for the development of the current design project, the focus on the customer's ease of movement is. The Amazon Go store prioritises a seamless procedure to entering and exiting a store. This ease is one of the key reasons for the technology's success, catering for its user's laziness. Similarly, this is one the responses that was received in the initial prototype interviews which praised the ease of use behind the e-tag system.

Review 5: RFID - Vaishali



Figure 6: Soviet Union Seal

RFID (Radio Frequency Identification) was officially patented by Charles Walton in 1983 and uses radio waves to transfer the unique identity of the object. One of the first uses was by the Soviet Union to broadcast and access information through a ceremonial seal presented to a US ambassador. The seal had an antenna that was activated by radio waves that were directed at the US embassy by the Soviets. RFID was also used to monitor railway carriages in the 1970s and is now used in many organisations and big retail chains to track assets, manage stock and control quality processes. After further technological advances, RFID can be used to track almost anything in hotel management, medical industry, event management, campus security management, transport application, social media interaction, and so on. (Paragon-ID, 2021)



Figure 7: RFID-embedded into gym bracelet

When focusing on the use of RFID-embedded physical technologies in gyms, it is evident how it can be applied to help track and assist with Covid-19 related situations like contact tracing. This is assisted by RFID readers' ability to register the embedded object from a distance which can then be transmitted to a backend computer system. Hence, the user does not need to touch the reader or orient the tag in a certain direction. These radio waves are low-powered in items that are wearable like the RFID gym wristbands are an asset for the following reasons (Goa-RFID, 2021):

- Allows members easy access without much fumbling and accuracy as it automatically grants access to members and then transmits the required information to a backend computer system
- 24-hour facilities can function with minimum staff reducing the cost of administrative effort and personnel costs
- Can track frequency of visits and length of stay of customers and employees
- Can assist in understand the employees' focus better

- Can be used to unlock lockers
- Possible as an additional cash-less option for payments
- Services can be better organised via the bracelets
- Eliminates paper-based notes

This clarifies that RFID can be used in the entrance of multiple places and can ease entry and track employees and customers entry times and durations. It is possible that such technologies can assist Covid-19 contact tracing.

If a physical object like a membership bracelet is used, people might even buy the item as an accessory if a customisation option is available. Such an advantage can be used as a tactic to make the accessories more attractive and less imposing for the users.

Possible band types (AsiaRFID 2021):

Type	Benefits	Appropriate events/locations
Silicone	Comfortable, waterproof, durable	Most events/locations
Fabric	Good for marketing	Festivals, branded events
PVC	Comfortable, fairly durable	Medical field prefers this
Paper	Disposable, light, low-cost	Large scale

RFID types:

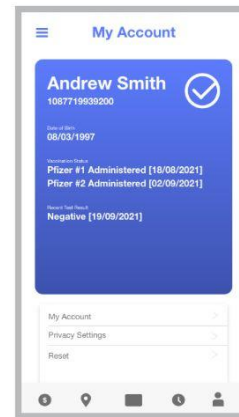
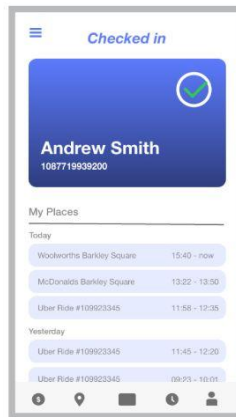
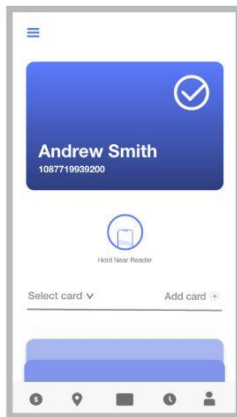
Based on energy source (AsiaRFID 2021):

1. Active - It has a built-in battery. This makes it suitable for baby security, warehouse goods batch management, applications which need to read and locate the occasion for remote management.
2. Passive - It has no built-in battery, charges to send signal through the current only.
3. Semi-passive - It works like passive RFID but it utilises a battery. This makes the service life longer than the active RFID.

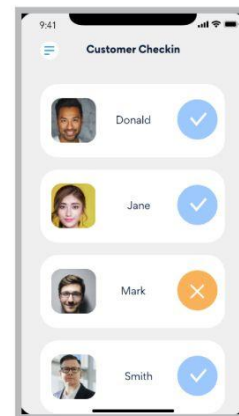
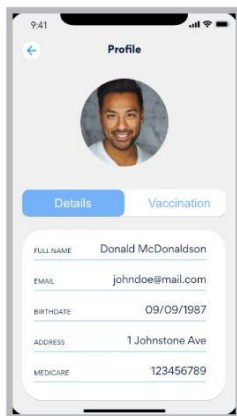
Based on frequencies (AsiaRFID 2021):

1. Low - this is the minimum reading range, storage capacity, and transmission speed. With this frequency, only a few tags can be read at a time.
2. High - larger memory and medium-speed data transfer. This is suitable if there are high requirements of confidentiality and security.
3. Ultra high - this is used for those applications that require remote identification and reading.

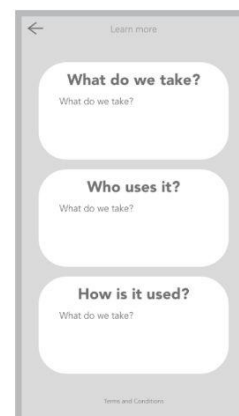
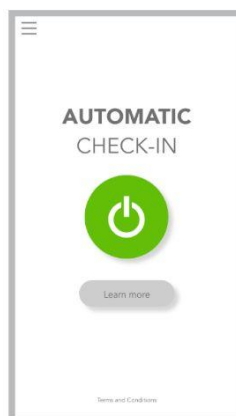
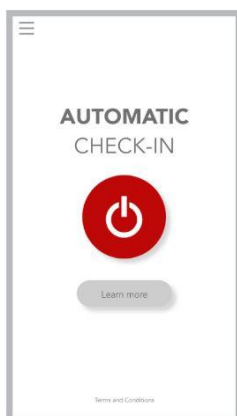
MAIN PROTOTYPE DEVELOPMENT



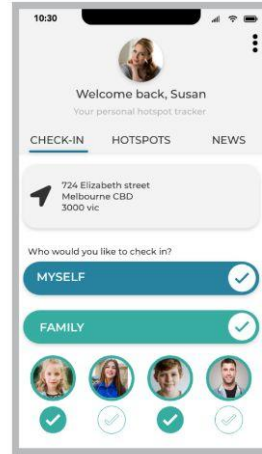
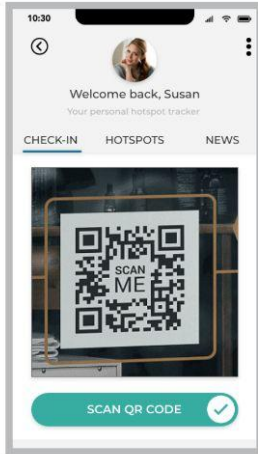
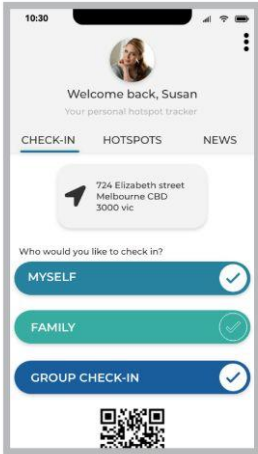
Development
E-tag feature



Development
Profile feature



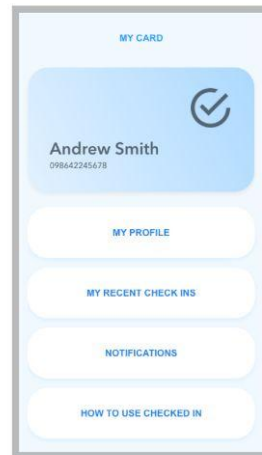
Development
Automatic check-in



Development
Group check-in



Development
Check-in History



FINAL PROTOTYPE

Link to final prototype

<<https://xd.adobe.com/view/f3054588-1f06-4fda-ba6b-8501cda66834-a656/?fullscreen&hints=off>>

Key feature

The key feature of Key-19 is its tap-in feature that utilises NFC technology similar to Myki. This feature allows the user to bring their phone near a check-in point .

Group check-in

Secondary features include being able to register and check-in groups, either close friends or family members, which would further increase the efficiency especially when visiting hospitality venues. Being able to check-in multiple people at once is convenient from both a personal and industry perspective.

Automatic check-in

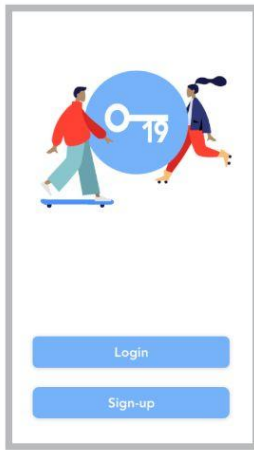
Furthermore, an auto-check in feature that utilises wider range technology was prototyped. This would allow users to enable auto - check in so that they don't manually have to check in themselves. As Mark highlights, personally for him it's good because he may forget to check in every time but it would be really hard to enforce on an industry level.

Check-in history

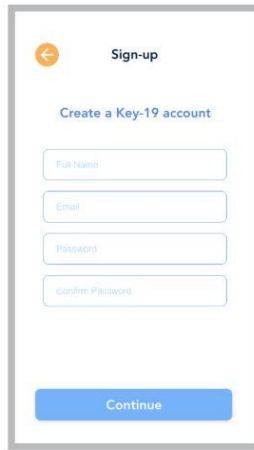
A check-in history was developed that is linked to a notification system. This system will alert the user if they come into contact with a Covid-19 case with advice on what to do next.

Hosting function

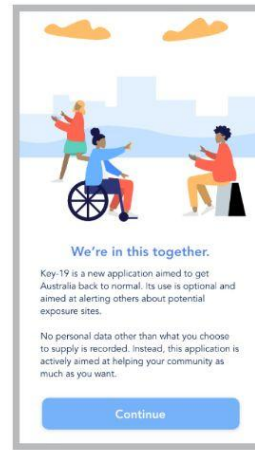
A user is able to become a host allowing other users to tap onto the phone to check-in to a gathering. “Something about hosting” James was excited about the idea and suggested that you could link people through a generated QR code similar to snapchat.



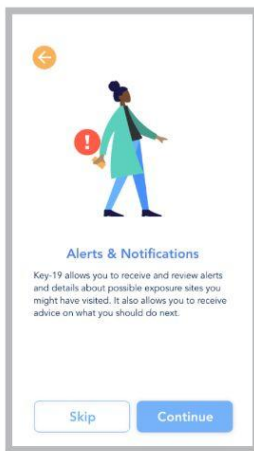
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Splash**



**Final
Sign-up**



**Final
Onboarding**



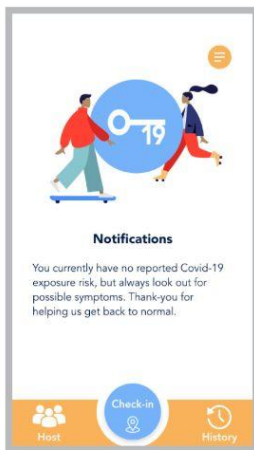
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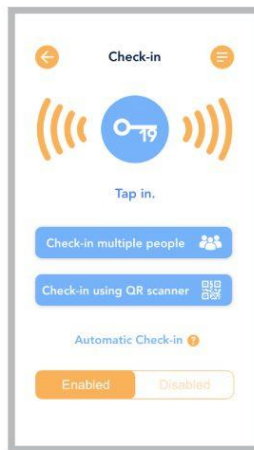
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**Final
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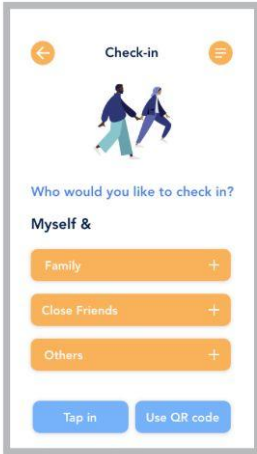
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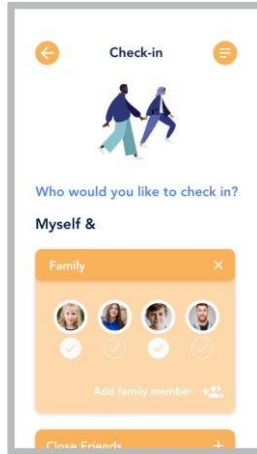
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Tap-in**



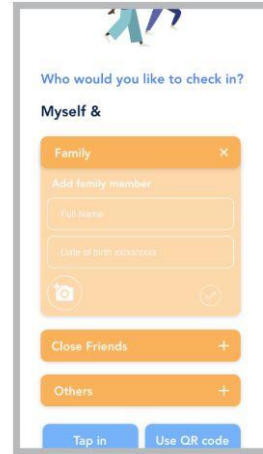
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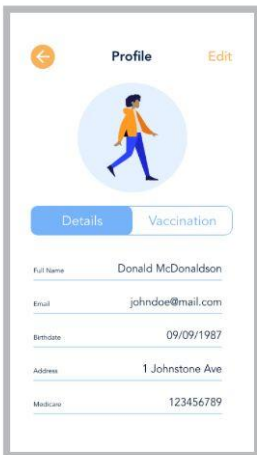
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Group check-in



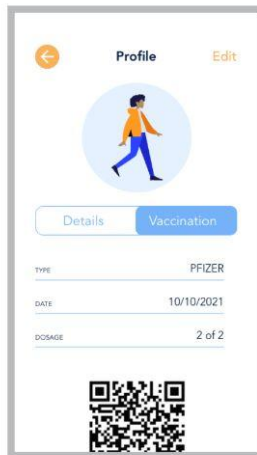
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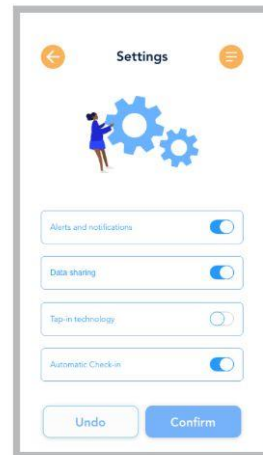
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Group check-in



Final
Profile



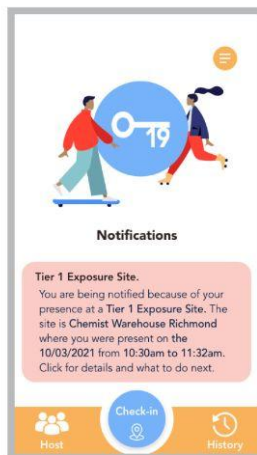
Final
Profile



Final
Settings



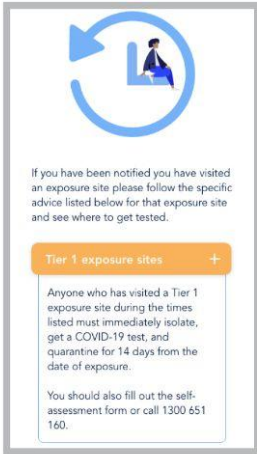
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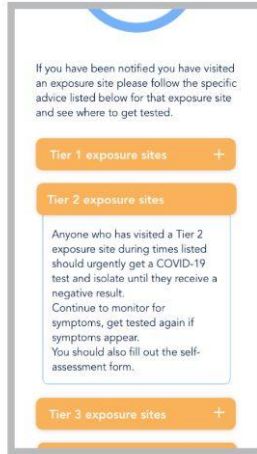
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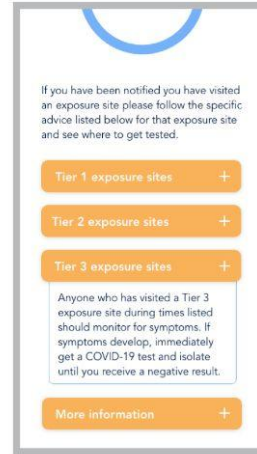
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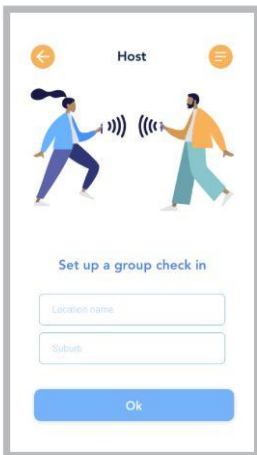
Final Advice



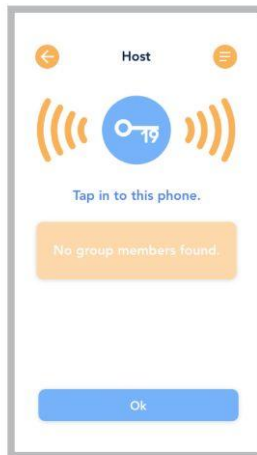
Final Advice



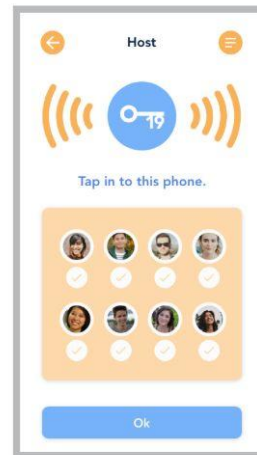
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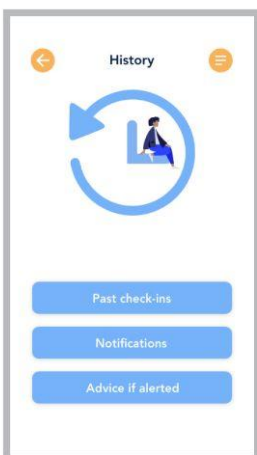
Final Host



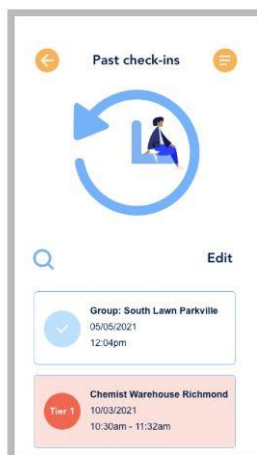
Final Host



Final Host



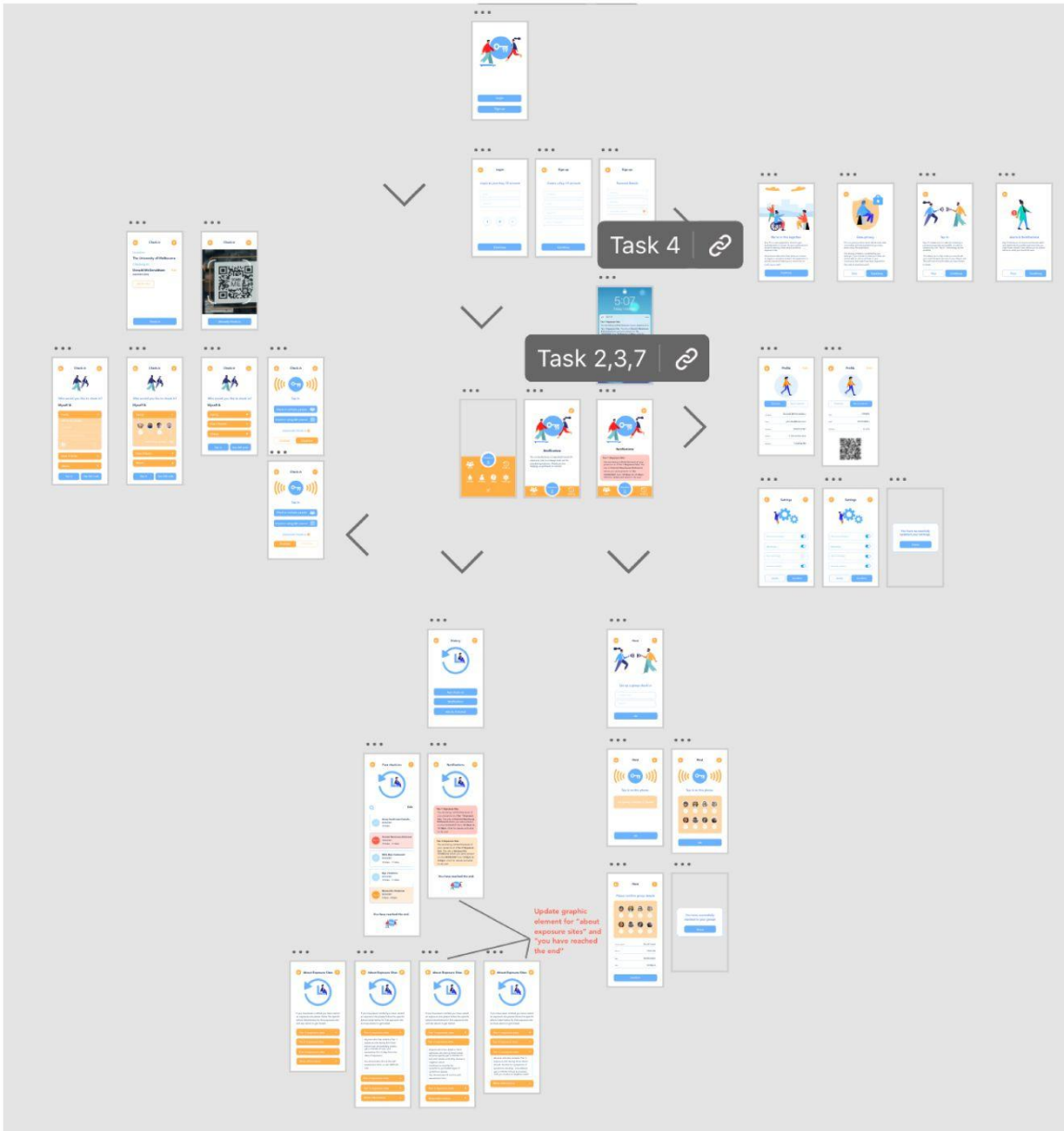
Final History



Final History



Final History



Final Structure

USABILITY DESIGN RATIONALE

Quesenbery (2004) defines five categories to evaluate the usability of a design:

1. The effectiveness of the system, defining how it supports the user in completing the task.
2. The efficiency of the design, describing how possible actions have been streamlined.
3. The engagement of the design, illustrating how immersed the user felt by the interface.
4. The error tolerance of the design, defining how well the interface prevents errors and supports recovery.
5. How easy the design is to learn, describing how the prototype accommodates new users.

By defining these measurements of usability early in the project, clearer and more direct applications of Don Norman's Usability Principles (2013) and Nielsen's Usability Heuristics (1994) were allowed. While Norman's principles and Nielsen's heuristics were both present and influential in the design process, there were some that were more explicitly applied in the final prototype.

The first of these is Norman's principle of feedback, which discusses the communication of the results of an action. It is an important concept that allows the user to cross, what Norman describes as, "the gulf of evaluation", supporting the users in their use of the system by demonstrating that their action had a clear effect. This principle was implemented throughout the design but most prominently in the check-in feature which provides several forms of feedback. When the user checks-in via the tap-in or automatic check-in methods, their device will return haptic feedback by vibrating to signal that their action is complete. Additionally, if the user is within the application when this action is taken, it will also return a completion message. Lastly, evidence of their action can be seen in their check-in history. These design considerations were guided by Norman's principle of feedback (2013, pg24-25) which states that feedback must be "immediate" and "informative" without being "excessive". This design draws on the user's existing mental model surrounding contactless payment methods and the supporting information allows for the feedback to be informative. This was supported in the evaluations through several user statements, for example Mina[P6] believes that "tapping in is definitely more efficient and self-explanatory than current check-in systems" while Mark[P1] linked the feature to the existing Myki system which allowed the feedback to match his expectation.

The second principle used is Nielsen's (1994) first usability heuristic 'Visibility of System Status'. According to Harley (2018), this principle requires systems to "always keep users informed about what is going on, through appropriate feedback within reasonable time". The integration of this principle during the check-in process is critical because of the rapid nature of a tap in interaction requiring user's to get instant feedback. This principle is implemented in our design through the inclusion of tactile, auditory and visual feedback. After a user has tapped their phone at a check in point, their phone will vibrate, a notification will pop-up on their screen and the check-in station will make a noise. This helps indicate to the user that their check-in or check-out was

successful. This interaction is similar to existing technologies like Apple Pay and Square pay, where the phone vibrates after a payment has been accepted. Our prototype is not developed enough at this point to be able to test this in the interviews. Additionally, such feedback increases accessibility for people who may have an optical or auditory impairment.

The third principle that was considered is Nielsen's seventh usability heuristic 'Flexibility and Efficiency of use'. There are two main aspects of creating a both flexible and efficient system. Firstly, a task should have more than one way to be completed so the user can choose their preferred method. Secondly, accelerators should be incorporated into the design to help speed up the interaction of advanced users while not impacting novice users (Laubheimer, 2020). This is an important principle that was considered in the design because of the repetitive nature of checking in. Once a user is familiar with how the system works, it is essential that checking in is as simple as possible in order to motivate users to always check in. After a user creates an account, they will be taken through a series of on-boarding screens that act as a tutorial and disclose how privacy is handled in Key-19. For existing users, if they need to log in again the on-boarding screens are skipped and if it is needed, the menu has a help tab where the user can re-read that information. In terms of checking-in, a novice user is able to access the tap-in page by clicking on the blue 'check-in' button. However, advanced users are able to switch on the automatic check-out function which accelerates the process. The inclusion of the automatic check-out was backed by our interviews where Mark(P1) found that it "gives [him] a sense of the progress of moving back to normal".

The final principle that heavily influenced the final prototype is Nielsen's (1994) eighth usability heuristic 'Aesthetic and Minimalist Design' that "seeks to simplify interfaces by removing unnecessary elements or content that does not support user tasks" (Fessenden, T 2021). This is an essential principle to consider because visual design is a major part of establishing first impressions of the app in addition to changing the relationship that people may have with it. Due to the conflicting perception surrounding Covid-19 for citizens, the overall aesthetic and feel of the app was very important to position it away from a government designed app (as seen with the Covid-safe app) to a more 'community based' aesthetic. It was also essential that Key-19 is not overwhelming to use for users who are not too familiar with technology. This is implemented by splitting up Key-19 into multiple pages on the app based on their function rather than overloading each page with information. Each page includes cartoon style graphics to illustrate the function of each page, making it feel softer and more inviting. To keep the design minimalist, the san-serif font 'Avenir' along with the blue and orange colour palette is used consistently throughout Key-19. James[P2] emphasised in his interview that the simplistic aesthetic of Key-19 "makes it welcoming and feel very inclusive". Hannah[P4] had a similar view as she felt the use of colour and the inclusion of soft rounded high resolution graphics made Key-19 stand out as a "friendly, official, family-friendly and approachable" app. Rose[P3] observed that she did not feel overwhelmed using Key-19 because "it is not filled with too much writing and paragraphs text" compared to similar apps she has used before.

PERSONAS & SCENARIOS

Persona 1 - Manami

Lazy Hesitant User



"It doesn't affect me personally so I don't care"

Name Adam Henderson
Age 26
Work Carpenter
Family Single
Location Bendigo, Victoria

Personality

Introvert Extrovert

Thinking Feeling

Sensing Intuition

Traits

Lazy

Stubborn

Hardworking

Goals

- Wants a more convenient form of QR code check-ins
- If privacy is guaranteed, will abide by the rules

Frustrations

- Thinks checking in via QR code is a hassle
- Apprehensive towards checking in using QR codes so prefers to be checked in automatically, but concerned about his privacy

Biography

Adam believes that privacy is important. He does not want the government to track his whereabouts through the COVID-19 check-in system. He likes being able to do his own thing without worrying about being tracked. He is worried about privacy and he is hesitant to check in to venues. He thinks it is also a hassle to take out his phone every time he enters a venue. As a carpenter, he visits multiple houses, shops and sites a day and thinks it is a waste of time to open his phone and check-in everytime. His privacy concern and his laziness together makes his outlook on QR code check-ins negative and his motivation to check-in low.

Motivation

Incentive

Fear

Growth

Power

Social

Brands and Influences



Preferred Channels

Traditional

Social Media

Referral

Scenario 1 - Manami

Adam is a 26 year old Carpenter from regional Victoria. He has always been cautious of sharing personal information on social media and other applications on his phone, as he is a firm believer of personal privacy. He is worried about the government's ability to access individual's personal information through social media and mobile applications, thus he is not a frequent social media user.


As a part of his job, he often goes in and out of shops and venues on a daily basis, however is hesitant about using the QR code check-in every time he visits a site as it requires him to open his phone camera and scan the QR code every time, which often is not time efficient.

As a carpenter, his job requires him to interact with many people even during lockdown and when restrictions are in place. In July 2020, a guy he bought some tools from tested positive to Covid-19 a day after they had their interaction. However, Adam was not aware nor contacted about it until two weeks later, which means he did not isolate and follow the government guidelines. Fortunately, Adam did not contract Covid-19 this time, however, he is anxious that one day he may contract Covid-19 without knowing and pass it onto his colleagues and friends because of the current system in place or the lack of.

He would be happy to use an application that allows him to easily check-in to venues but allows him to control the information that is accessible, such as location. He would be interested in an application that would make it easier and more time efficient to check-in and out whenever he visits a venue. He'd also appreciate a feature where he could track people he interacts with in order to make contact tracing easier if he contracts Covid-19. An application that would allow him to automatically check-in to venues without physically taking his phone out and scanning a QR code, but enables him to turn the feature off when he does not wish to be location tracked would incentivize him to check-in to venues more often, making contact tracing easier and keeping the community safe.

Persona 2 - Nicola

Elderly User



Trying her best to adjust to a new Covid normal life

Name	Carol
Age	76
Work	Retired
Family	Grandmother
Location	Melbourne, Victoria

Personality

Introvert ————— Extrovert

Thinking ————— Feeling

Sensing ————— Intuition

Traits

Warm

Modest

Anxious

Goals

- Eager see family and grandchildren again.
- Tries her best to wear masks and check-in.
- To socialise again with her friends at the local coffee shop.

Frustrations

- Feeling isolated as she is unable to see family during lockdowns.
- Apprehensive towards checking in using QR codes so prefers to check in manually.
- Afraid of catching Covid-19 so limits the amount of time outside of the house.

Biography

Carol is a retired Melbournian who is nervous about potentially catching Covid-19. Although she has a second-hand iPhone 7, she is often stressed about the current QR code checking in system and prefers to manually check in. As Carol wears glasses, she takes advantage of the accessibility features on her iPhone for example the larger text function. She is very eager to get back to normal life so she can see her children and grandchildren again.

Motivation

Incentive

Fear

Growth

Power

Social

Brands and Influences



Preferred Channels

Traditional

Social Media

Referral

Scenario 2 - Nicola

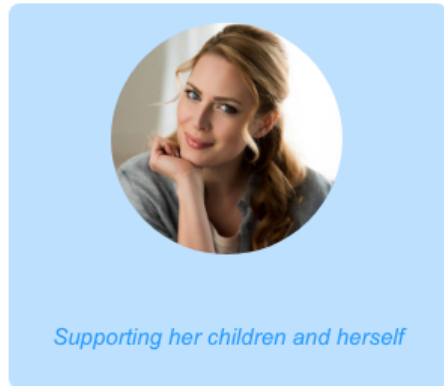
Carol, 76, a retired Melbournian who is nervous about potentially catching Covid-19, wants a better system to keep track of her daily check-in's. Although she owns an iPhone and is currently using the current Service Victoria QR check in system, it has been somewhat challenging for her. Sometimes her phone does not pick up the QR code so misses checking in. During June of 2021 Coles in Chadstone Shopping Centre was a tier 2 exposure site. Carol saw this on the DHHS exposure site a few days after it had been posted and had remembered she had visited on that day. However, her phone was not working properly and she did not manage to check-in and she could not remember what time exactly she had visited the store. She became highly anxious and frustrated because of this and decided to get tested and isolated until she received a negative result just to be certain.

She would be happy to download something like an app to help track her check-in's, but she is a little bit apprehensive towards learning new technology. Therefore, she hopes that the app would include a guide that would help her understand how to use the technology better. She is a visual learner so would prefer the guide to have diagrams. As she gets overwhelmed easily with complicated new technologies, she would prefer a minimalist and simple design that makes all the functions clear with as little text as possible. She also hopes that the app would cater to her accessibility needs. She currently uses the 'large text' accessibility function on her iPhone which enlarges the text so she can read the information more clearly without her reading glasses.

Carol is very interested in the idea of a scan-type check-in system which will help relieve some of the unease she has experienced with the QR code system not working as expected. When she visits a store she can simply touch her phone to the check-in point and it will automatically check her in and then again she can touch as she is leaving. By doing this she will have peace of mind knowing she is able to have a record of the exact time she has visited certain locations. She believes she would try her best to follow this new system in order to get into a Covid-normal state and be reunited with her grandchildren once again.

Persona 3 - Paris

Parent with Children



Name Hayley Lewis

Age 38

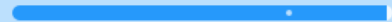
Work Primary School Teacher

Family Married

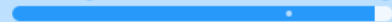
Location Melbourne CBD, Victoria

Personality

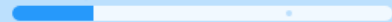
Introvert Extrovert



Thinking Feeling



Sensing Intuition



Traits

Friendly

Social Butterfly

Caring

Goals

- Support her family through challenging times
- Maintain a social life and her strong friendships
- Avoid catching Covid

Frustrations

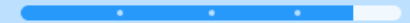
- Husband is a Pilot and travels leaving Hayley a single parent in the week.
- Monitoring the kids checkins is always a struggle and time consuming.

Biography

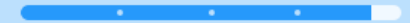
Hayley is a social butterfly with big social circles in the local area. Hayley is always volunteering at the children's primary and secondary schools. She is always the first to bake something for Lily's bake sale or offer to bring the oranges to Oscars football games. Often has to take on the responsibility as a single parent as her Husband travels a lot for work. The children keep her hands full and as they are still young she cannot leave them unattended at home. Lucky that she can keep her children in school during Covid lockdowns as she is a teacher and is labelled an essential worker. This makes her life a little easier, yet still has to do all the housework, cooking and cleaning.

Motivation

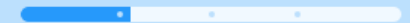
Incentive



Fear



Growth



Power



Social



Brands and Influences



Preferred Channels

Traditional



Social Media



Referral



Scenario 3 - Paris

500 words

Hayley Lewis, 38, is a primary school teacher living and working in the Melbourne CBD area. She is a socialite that loves to catch up with the other school mums, however is worried about the risk of catching Covid-19 in clustered group areas such as 'the Tan' (a popular local walking track) or at her favourite coffee shop. She always uses the Victorian Covid-19 checkin app for herself and her children, however when her husband is at work she is solely responsible for the safety and wellbeing of her children. She finds it difficult sometimes to keep track of her children if she visits the park with the families around. She has three children, Oscar (11), Riley (13) and Lily (16) who all love to go for walks with their friends, especially Lily who is always out and about keeping busy during lockdown.

One day Hayley ran into her friends at the local cafe and on her morning coffee walk. She had her three children with her and luckily her friend's children came along also. The parents decided to drink their coffees in the park and let the children play. A few weeks later she was contacted by the Government with the news that she had been in contact with a Tier-1 Covid Site. She knew that she must inform the ladies at the park however she could not remember exactly who had been there. If there was a way to create a Check In at the park via their phones. She hopes that this sort of technology could be developed so that her children could check-in with their friends.

Persona 4 - Sam

Ideal User



Just doing their bit to get back to

Name Donald McDonaldson

Age 28

Work Professional

Family Single

Location Melbourne, Victoria

Personality

Introvert Extrovert

Thinking Feeling

Sensing Intuition

Traits

Easy Going

Considerate

Attentive

Goals

- Just wants to get back to normal.
- Happy to check-in or follow any advice given by the government.
- Excited by being back at the local for a cold one

Frustrations

- Wants to be rewarded for doing the right thing.
- Annoyed by others not following advice.

Biography

John is a young professional who moved to Melbourne before the lockdowns started to occur. He's really excited to be back out in the city like normal and is happy to follow any advice given to him by the government. His point of view is that he knows about the his industry and he's pretty sure scientists know a lot about theirs. He is willing to make any lifestyle changes to get back to normal like checking into venues or wearing masks.

Motivation

Incentive

Fear

Growth

Power

Social

Brands and Influences



Preferred Channels

Traditional

Social Media

Referral

Scenario 4 - Sam

Donald is a young professional working in the health services in Melbourne. He's in the early years of his career and really enjoys the social aspects of his life. Due to the impacts of Covid-19 and the restrictions, being social has become a lot harder. Donald has kept up with the Government's advice and is happy to check-in or get vaccinated if it means he can see his friends and family sooner. His workplace has mandated that all members of staff are vaccinated due to their role in healthcare. In order to show his vaccination status, Don would like an application that can show this information rather than keeping his vaccination card in his wallet because he's worried that he'll forget it at home one day.

Each day when arriving at work, the workers must show their vaccination status to the security at reception. But due to having to physically show the security each day means that there's often a line at the entrance in the mornings. He hopes that a quicker way to check-in might be developed so he doesn't have to leave home so early.

Donald hopes that with his vaccination, he might be able to visit his friends sooner because he has been so proactive about doing the right thing. He gets frustrated that so many people seem to be flaunting the rules and that it impacts him. He hopes that a system is introduced that rewards people like him and is just excited to resume the social aspects of his life that he has been missing for the past year.

Persona 5 - Vaishali

Accessibility



Wants to make it easier to run her public errands without stress

Name Nadia Mahadiwala
Age 24
Work Professional
Family In a relationship, owns a dog
Location Ballarat, Victoria

Personality



Traits

Driven

Affectionate

Curious

Goals

- Wants to go back to being independent again
- Wants to be able to follow social-distancing and checking-in more
- To be able to help Amy more

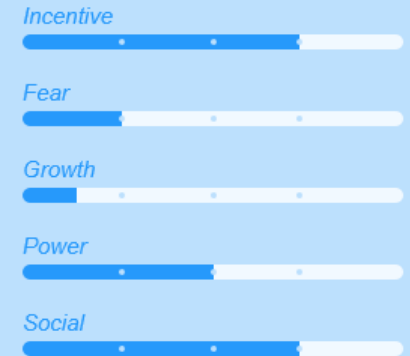
Frustrations

- Feels unsupported with the new government rules without accessible execution
- One of her visually-impaired friend has resorted to staying home due to similar frustrations and has suffered some mental health issues.

Biography

Sarah is a visually-impaired individual that has grown up in Victoria. She has noticed that her dependency on other people has increased and she takes pride in her independency. She feels that the new restrictions have made it harder for her to navigate the new layouts, finding QR codes, and maintaining social distances Sarah follows the restrictions as much as possible. As a result, one of her friends, Amy, who is also visually-impaired has decided to stay at home throughout lockdowns, effecting their mental health.

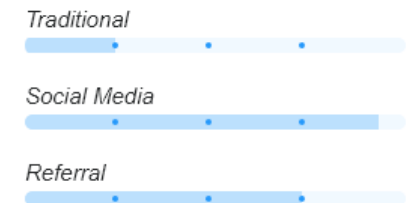
Motivation



Brands and Influences



Preferred Channels



Scenario 5 - Vaishali

Nadia is a 24-year-old, visually impaired, Victorian woman who is unsatisfied with the implementation of the Covid-19 restrictions. She is a single woman that has a dog named Bouncer that is also her guide-dog. In her perspective, ideally, the restrictions would ease but she is willing to follow the rules and does not place her personal judgments on them. However, Nadia has grown some resentment towards the restrictions as it made her more dependent on other people or go online for her needs. She has mostly used Service Victoria check-in. She uses the voice-over function on her iPhone to be aware of the contents of the page and has learnt how to navigate the app quickly over time. When she is near the entrance of a store, she feels for the QR code sheet or asks someone nearby to locate it for her. Nadia then waves the phone around the paper until the alert pops up, accepts the check-in and walks in (Antonia O'Flaherty 2021).

One day, Nadia entered a remote store that had no customers at the time. Nadia called out for the person-in-charge when she couldn't find the sheet but the receptionist/helpers were not within hearing distance and so she waited until they came back. She expected that there would certainly be some check-in system that didn't prioritise vision by now. On another day when the stores were fuller, Nadia felt anxious that she might be holding back a lot of people while trying to check-in. Additionally, she finds it difficult to navigate while maintaining social distance as her guide dog isn't trained for that yet (Australian Government: Department of Health 2019). She was also frustrated that there has been change in layouts in stores that have been the same her whole life (Royal National Institute of Blind People 2020). These same frustrations have made her best friend Amy, who is also visually impaired, stay at home all the time. Since Nadia and Amy already have intimate partners, it has made it difficult for her to visit Amy during severe lockdowns. Nadia has had some increasing worries about Amy's mental health and would like for things to be easier for her in the outside world (Haynes 2021).

Nadia would love to be able to check-in without having to put so much effort to find the sheet. Nadia believes that an automatic check-in would be perfect for her and other people as well. She is a bit scared of her data being taken randomly, so she would appreciate transparency in what is being taken. Ideally, she would like a separate object containing data specific to the purpose of checking in. She also sees it being useful as a phone app so that she can cross-check the check-in points easily. Nadia prefers the app to be clear in its hierarchy and for the content to be organised properly. This way the voice-over function and any screen-readers can understand and vocalise the content for her. It would be best if the app has auditory confirmations. She also recommends for the content to be visually clear with high contrast and including a dark mode. Although she is completely blind, she has learnt that this is more useful for people with varying degrees of visual impairment. Her focus during this time is to follow the guidelines and for Victoria to go back to a Covid-normal.

PHOTO SCENARIO

Current Issue:



Hannah and Emily are both university students who live in Melbourne, VIC. The government has finally eased restrictions so that 5 vaccinated people can gather outdoors. Hannah and Emily both miss hanging with their friends but they follow the current COVID-19 government guidelines so that Melbourne can return to Covid normal as soon as possible.

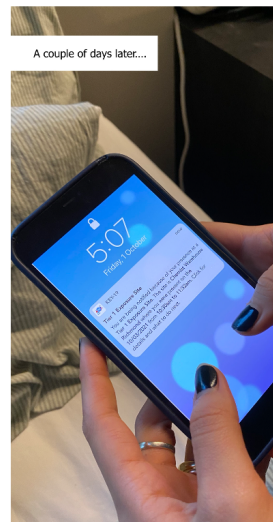
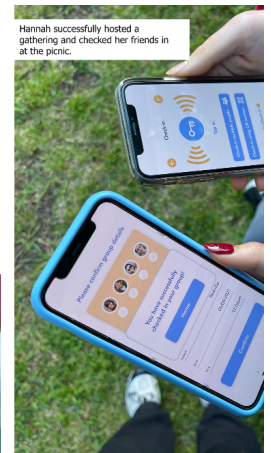
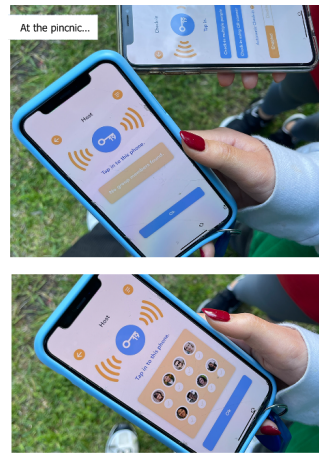


PHOTO SCENARIO CONT.

Solution:



Hannah and Emily are both university students who live in Melbourne, VIC. The government has finally eased restrictions so that 5 vaccinated people can gather outdoors. Hannah and Emily both miss hanging with their friends but they follow the current COVID-19 government guidelines so that Melbourne can return to Covid normal as soon as possible.



OBSERVATIONAL EVALUATION OF MAIN PROTOTYPE

Overview of the Evaluation Method

A user-based observational evaluation of the main prototype was conducted. It was designed as a task based live usability walkthrough where the moderator walked through the 'simulated' interaction sequence with the participant and asked probing questions.

6 participants were chosen as the interviewees (see interviewee table below), however due to lockdown restrictions in Melbourne these participants were the groups close contacts. Five out of the six interviewees are the same as the stakeholder interview in A1. The moderator of the live usability test was also the observer in this circumstance. Each evaluation was conducted in our own homes in person.

Interviewee Matrix

Number	Pseudonym	Age range	Gender	Stakeholder group	Duration of interview	Date of interview	Interviewed by
P1	Mark	30-35	M	Hospitality	25:00	07/10/21	Sam
P2	James	30-35	M	Travel	20:00	07/10/21	Sam
P3	Rose	19-24	F	Retail worker	34:53	07/10/21	Nicola
P4	Hannah	15-19	F	Student	29:07	08/10/21	Vaishali
P5	John	50-60	M	CEO	28:50	07/10/21	Paris
P6	Mina	20-30	F	Student (Hesitant to check-in)	23:32	05/10/21	Manami

Due to the small pool of participants, each participant was asked to complete all 7 of the tasks (see Scenario Matrix below). At the end of each task, participants were asked questions about their user experience. After all seven tasks were completed the moderator will walk through our group's prepared questionnaire and record their answers. To conclude each participant completed the SUS questionnaire (Brooke, 1996) and collected demographic data. To ensure we have accurate data to analyse, all tests were conducted in accordance with the test protocol [see Appendix 1 for test procedure]. Each session was recorded and analysed by our group members.

Scenario Matrix

Task ID	Task	Function to evaluate	Scenario	Walk through steps
T1	Checking user profile	<ol style="list-style-type: none"> 1. Creating account 2. Logging in 3. Navigation to profile page 	<p>You have just heard about a new app called Key-19 that helps make checking in simple and effective. You have just downloaded the app and decide to sign up for an account and check your profile page.</p>	<ol style="list-style-type: none"> 1. Start on the login page 2. Click 'Create account' 3. Walkthrough the 'Onboarding' 4. Click on menu icon 5. Navigate to profile page 6. Read profile information
T2	Individual check in	<ol style="list-style-type: none"> 1. Navigation to home 2. Checking in for one person 	<p>After successfully signing up for an account you decide to go shopping at your nearest supermarket. When you reach the front of the store you are asked to tap in with your phone to check in..</p>	<ol style="list-style-type: none"> 1. Click the back arrow 2. Navigate back to home page 3. Navigate to Check-in page 4. Click the 'Tap In' button (or click scan QR code)
T3	Family check in	<ol style="list-style-type: none"> 1. Navigation to "Family check-in" 2. Checking in specific members. people" button 	<p>You have just arrived at a cafe in Melbourne with your younger brother. Your younger brother does not own a phone so you decide to check him in along with yourself.</p>	<ol style="list-style-type: none"> 1. Locate "Check in multiple people" button 2. Selecting "Family" button 3. Select family members (pre-selected) 4. Check in
T4	Opening notification, locating exposure site information	<ol style="list-style-type: none"> 1. Notification on home screen 2. Locating notification message 	<p>You have just received a notification on your phone that you visited a Tier 1 exposure site. Please use Key-19 to find the relevant information regarding what to do after visiting a tier 1 exposure site.</p>	<p>Go back to home page</p> <p>PATH A</p> <ol style="list-style-type: none"> 1. Find notification message 2. Click on the notification message 3. Read up on what to do <p>PATH B</p> <ol style="list-style-type: none"> 1. Click hamburger icon 2. Click "Check-in history" 3. Click "Notifications" 4. Click on the notification message 5. Read up on what to do
T5	Host a group	<ol style="list-style-type: none"> 1. Setting up a group as the host 2. Tapping phone to other users 3. Confirming details of check in 	<p>You are part of a club at Unimelb and a few of the club members decide to meet at South Lawn. When you arrive, you think it is a good idea to record who attended the meeting. Please use Key-19 to set this up.</p>	<ol style="list-style-type: none"> 1. Go back to home page 2. Click "Host" button 3. Set up location to "Unimelb south lawn" and suburb to "Parkville" 4. Click "OK" until confirmation 5. Click "Confirm" if sure about details 6. Close the pop up after reading
T6	Turning on automatic check ins	<ol style="list-style-type: none"> 1. Navigation to settings page/check-in page 2. Setting it up 	<p>You have just finished shopping at Woolworths and are holding bags of groceries in each hand and are approaching the check out area. You struggle to hold all your</p>	<p>Go back to Home page</p> <p>PATH A</p> <ol style="list-style-type: none"> 1. Click "Check-In" button 2. Click "Enable" under "Automatic Check-in"

			shopping bags in one hand in order to check out . After you arrive home you decide that you want to turn on auto check out in case that happens again in the future.	PATH B 1. Click hamburger icon 2. Click “Settings” 3. Turn on automatic check-in
T7	Check in history	1. Navigation to check in history page 2. Find past check-in listed 3. Find the time of the check in location	Myer in Chadstone was just announced as the exposure site for 2:02pm on the second of March 2021. You remember that you had visited that location on that day. Although the app did not send you a notification that you were present in an exposure site, you decided to double check the time you visited the store using Key-19.	1. Go back to Home page 2. Click hamburger icon 3. Click “Check-in history” 4. Click the search icon 5. FInd the right place and check the time 6. Look at icon and see if it is an exposure site

Data collection

To evaluate the usability of Key-19, the following data will be collected in order to evaluate the 5Es: Efficient, effective, engaging, easy to learn and error- tolerant (Quesenbery, 2004).

5E's	Evaluation objective	Data to be collected
Effective	How completely and accurately did the participants of the task scenarios?	Did participants find it difficult to figure out what to do? Was any information skipped?
Efficient	How long did each task take?	Do participants feel that some navigations could be quicker
Engaging	How immersed did the user feel into the interface and how much did they enjoy using it	Do users find things difficult to read or understand? Is there any information that could be broken down or shortened?
Error Tolerant	How well did the interface prevent errors and help the user recover from errors?	How did users find recovering from said error
Easy to Learn	How well did the prototype help the user get accustomed to the app and help them develop a deeper understanding of the app?	Did people find tutorials understandable? Did they feel like the UI is easy to navigate?

OBSERVATIONAL EVALUATION TRANSCRIPTS

P1

Demographic survey

Name + Number	Mark - P1
Age range	30-35
Gender	Male
Stakeholder group	Hospitality
Occupation	Venue Manager

“ - “ For non-committal answers

Task 1

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Efficiency	Usability	Positive	Really simple - seems good to use.
Sign-up	Usefulness	Negative	Possibly add a link to either MyGov or socials to speed up the process.

1. How do you feel about this interaction?

It was really easy (Usability).

2. How do you feel about having your personal information on this app?

I don't really mind (UX) but it's useful that it tells you what it's used for.

3. How would you feel about the app (or the task) at this point?

It's nice.

Task 2

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Tap In	Usefulness	Positive	Was really excited by the idea - it would really help in a venue for sure - especially moving towards digital ids.

1. How do you feel about tapping in vs QR code vs manually signing in? Does it improve the situation living with Covid?

Tapping in seems like it would speed things up (Usefulness).

2. How do you feel about this interaction?

Good I just don't know how the infrastructure would handle it.

Task 3

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
N/A			

1. Would you use this function?

Yeah I would - it's a massive game changer speeding up the process - I like that you've broken it up into close friends and family (usability). Be great for the pub.

Task 4

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Information	Usefulness	Negative	Information or links to where to get tested ect - hyperlink the phone number Don't just tell the person what to do next, help them do it.
Languages	Usability	Negative	I'm not sure, but is there an option for different languages?

Task 5

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Edit Group	Usability	Negative	Is there a way to edit the group - like if people come later or some have to leave early - stuff like that.

1. How do you feel about this interaction?

It was a little long but that's just compared to the steps so far (UX).

Task 6 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Automatic Check in	Usefulness	Positive	Personally - it's good for me if I forget, I don't even need to remember.
Automatic Check in	Usefulness	Negative	Industry - it's hard if we have to enforce vaccination status because people would just walk in.

Task 7 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Ordering of date	Usability	Negative	The last two dates aren't in order which confused me a bit.

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.					x
2. I found the system unnecessarily complex.	x				
3. I thought the system was easy to use.					x
4. I think I would need the support of a technical person to be able to use this system.	x				
5. I found the various functions in this system were well integrated.				x	
6. I thought there was too much inconsistency in this system.	x				
7. I would imagine that most people would learn to use this system very quickly.				x	

8. I found the system very cumbersome to use.	x				
9. I felt very confident using the system.					x
10. I needed to learn a lot of things before I could get going with this system.	x				

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

- 1. Would you use Key-19 in your daily life? Is it useful? How does it impact them as a citizen/health care worker/government employee?**

Yes – Venue management – I guess – proof of vaccination – integrated – if we can see the limited amount of info – name, time vaccination status.

- 2. Which aspect of the app would you use the most and why?**

Personally the tap in or automatic check in , push notifications. Venue – tap – streamline the process – automatic can be tricky.

- 3. What did you like about the prototype? How was your experience?**

Simplicity (Usability)– Tap in especially – cause you don’t have to think (usefulness) – you don’t have to use the camera (usability) – dimly lit – and the group check in – close friends.

- 4. How did you feel about the interface? Colour? Design?**

I like the logo – simple (usability) – it's not extravagant – colour coding effective and simple (usability)

- 5. What didn’t you like about the prototype? Why? How did it make you feel?**

Dates the wrong way – can link to the vaccination certificate.

- 6. Do you know anyone (other stakeholders) that would be excited or particularly interested to use this prototype?**

Retail and hospitality – definitely hospitality – getting people through the door. Autocheckin – Construction – a lot of people would be interested (usefulness).

- 7. Any other Comments**

Download off medicare and save it there.

P2

Demographic survey

Name + Number	James - P2
Age range	30-35
Gender	Male
Stakeholder group	Travel

Task 1 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Vaccination passport	Usefulness	Positive	It's a lot more aimed at our generation – younger generation
Visuals	UX	Positive	its welcoming – I like the pictures – Inclusive
Hamburger menu	Usability	Negative	Struggled with the hamburger menu (Usability) – simple easy, barely an inconvenience
Medicare	Usefulness	Negative	I rarely have my medicare on me, Linked to my gov app – import info

Task 2 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Check-in	Usefulness	Positive	Go for the camera – what I'm used to
On-boarding	Usability	Positive	An introduction slide for it – onboarding would be awesome to do. Would depend on the infrastructure – not a lot of businesses would be set up. CG – camera can link it

Task 3 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Tap- in function	UX	Positive	Bloody fantastic mate

Task 4 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Notifications	Usefulness	Positive	Yeah super easy – that’s pretty good – tier one is an urgent thing – can't rely on the person to do it – contact tracing to follow it up, State restrictions – in advice

Task 5 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Group check-in	UX	Positive	Your phone becomes the thing people tap onto – cool
Group check-in	Usability	Negative	Little confused at first - How do you link it - QR code like a snap code or tap to add. Search your name like a social media

Task 6 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Auto check-in	Usefulness	Positive	Automatic check-in – I was thinking you could set up a regular check-in - for each place specifically.

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.				x	
2. I found the system unnecessarily complex.	x				
3. I thought the system was easy to use.					x
4. I think I would need the support of a technical person to be able to use this system.		x			
5. I found the various functions in this system were well integrated.				x	
6. I thought there was too much inconsistency in this system.		x			
7. I would imagine that most people would learn to use this system very quickly.					x
8. I found the system very cumbersome to use.	x				
9. I felt very confident using the system.				x	
10. I needed to learn a lot of things before I could get going with this system.		x			

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

1. Which aspect of the app would you use the most and why?

Especially at the automatic check in – bonus and don't need to think about it – at the hostel it would help a lot especially – Everyone that checks in – rego forms so it would make it easier – wouldn't have to worry about the check in – rego wouldn't contain covid stuff.

2. What did you like about the prototype? How was your experience?

I really like the pictures – Its really simple to use – it's a nice welcoming (UX) aesthetic and very inclusive (UX)

3. How did you feel about the interface? Colour? Design?

I like how simple it seems to use (Usability) – it was something you don't need hours to figure it out. The only thing was the automatic check in – but once I was shown it made sense (Usability).

4. Do you know anyone (other stakeholders) that would be excited or particularly interested to use this prototype?

I think massively about hospitality – retail and stuff – anything where you have to check in face to face customer service – one less thing to think about. I think it does a better job – you have the qr stuff but you've taken it to a new level – much superior product.

P3

Demographic survey

Name + Number	Rose - P1
Age range	19-24
Gender	Female
Stakeholder group	Business
Occupation	Retail worker (Hardware)

Task 1

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Visuals/Graphics	UX	Positive	"I instantly love the graphics, they are quite playful and not serious. I expected this app to be quite serious"
Personal data	Usefulness	Positive	"A lot of people are worried about what data they share, so this makes it easier to get more people on board with the app"
Visuals	Usability	Positive	"Having little icons on top of the menu names makes it easier to use"
Profile page	Useful	Positive	"Good to have everything conveniently in one place"

1. How do you feel about this interaction?

I felt like this app was very pleasant. It is quite inviting and not too serious compared to other government things to do with covid. (UX)

2. How do you feel about having your personal information on this app?

Personally I am fine with it.

3. How would you feel about the app (or the task) at this point?

I have a very good first impression of this app, mostly because of the colours and visuals. It is quite inviting and not like any Covid related app we have seen before. (UX)

Task 2

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Tap in screen	Usability	Negative	Interviewee thought the visual on this screen did not have any functionality and thought she might have to click on another button to check in. Suggested that this aspect needs to be clearer.
Tap in function	Usefulness	Positive	"Wow that is so easy", "It is gonna be a lot easier for elderly people have have trouble using the current QR code system", "working in retail I see a lot of people struggling with the QR code system", "this function would help me feel safer in my workplace because hopefully this means more people will check in"

1. Is the check in button clear enough?

Yes the button is clear because of the high contrast between the blue and the orange colour (usability).

2. How do you feel about tapping in vs QR code vs manually signing in? Does it improve the situation living with Covid?

I think tapping in is the most convenient and the easiest for people to do. QR coding is good but it could be improved. I think it would take away the 'visual aspect of Covid', as the QR codes are a visual representation of our society and its kind of negative. (usefulness)

3. How do you feel about this interaction?

Well the only thing is that with the QR codes is that it can be done directly with the camera but with this app you have to open the app and actually press a button to do it (usability). Could have future updates.

4. How would you feel about the app (or the task) at this point?

I am loving it and it is a great concept I can get behind.

Task 3 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Selecting family members	Usability	Positive	"It is convenient you can save your contacts on there", "it is handy you can categorise them into close friends or family"

1. Would you use this function?

Yes I think I would use the close friends function the most. Currently I have some of my friends' details saved on my phone so if we are out together I can put their details in too so we balloth don't have to do it.

2. Do you have any children come into your store?

Yes, kids come into our store with their parents when we are not in lockdown. But they don't have to check in, I don't think getting them to check in is necessary.. unless maybe you can't remember which kid you brought into the store with you. (usefulness)

3. How would you feel about the app (or the task) at this point?

I do like the convenience of it, that's its main selling point. (usefulness)

Task 4 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Notification message	Usability	Positive	“Good placement of the notification, it's in read so it really stands out”, “It's good that you can simply click on it to find out further details”, “The information is right there”
Notification message	UX	Positive	“The use of red gives a sense of urgency which is needed if you visit a Tier 1 site, but it's not too in your face so it doesn't make me feel overwhelmed”

1. How useful is the app so far, is it clear enough?

Yeah I think it is usable, it has good fonts, graphics, colours and shape make it aesthetically pleasing.

Task 5 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Confirmation message	Usability	Positive	“I like it tells you you have successfully checked in the group”

1. How do you feel about this aspect of our app?

I think this is very necessary and not really captured in the current QR code system. There are not really QR codes at parks or public spaces. It would make me feel more safe and secure. (usefulness)

2. Would you use this or would it be awkward to check your friends in?

I think it would work very well with acquaintances, bigger groups of people or doing a uni activity. It is a good way to keep track of that, I don't think people would be opposed to it.

Task 6 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Settings	Usability	N/A	Went to settings first, rather than the check in function.
Settings	Usability	Positive	"I like how you can switch things on an off, it gives the user a lot of freedom"
Check in page	Usability	Positive	"It's good there is an information sign next to it so if I was confused I would know what to do"

1. What do you think about having a check out as well as a check in?

Checking out may initially be forgotten because we are not currently doing it. Overtime people should get used to it. I think having the automatic check out will make it easy as people will not have to change what they are currently doing (usefulness).

2. Is this function helpful?

Yes I think so as it will tell everyone the exact time someone is in a location making contact tracing more accurate (usefulness) -- right now they just have a window. I think it would be used by our customers as they are generally carrying bulky things like timber, so having an automatic check out is helpful.

Task 7 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Search function	Usability	Positive	"This would be useful as I usually have a lot of check ins so I will be able to find the information I need quickly"
Edit function	Usability	Positive	"I think it would be a good idea, but if someone deletes a check in it could still be recorded in background but not visually show up on the screen"

1. How would you feel about the app (or the task) at this point?

I like the range of functions that this app has. I would download this app if it was real!

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.					x
2. I found the system unnecessarily complex.				x	
3. I thought the system was easy to use.					x
4. I think I would need the support of a technical person to be able to use this system.	x				
5. I found the various functions in this system were well integrated.					x
6. I thought there was too much inconsistency in this system.	x				
7. I would imagine that most people would learn to use this system very quickly.			x		
8. I found the system very cumbersome to use.	x				
9. I felt very confident using the system.					x
10. I needed to learn a lot of things before I could get going with this system.		x			

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

1. Would you use Key-19 in your daily life? Is it useful?

I would use it in my daily life because it is convenient as it takes away the struggle of the QR code (usefulness). It is kinda cool technology as well which encourages me to use it (UX). Yes it is useful as it functions that service victoria does not have, such as the history function and the hosting function (usability).

2. Do you think your customers at your store would use it?

Yeah I do think they would, I think if elerfly people were informed about it they would, the app has clear instructions. I see people take photos of QR codes thinking they have done it properly when they haven't.

3. Would you like to use QR codes forever?

No, they remind me how bad covid is and they make all the windows look ugly (usefulness).

4. Which aspect of the app would you use the most and why?

I would use the check-in tap function the most as it's convenient, ready and easy to use.

5. What did you like about the prototype? How was your experience?

My experience was very pleasant. The bright and happy style, it's not filled with too much writing and text. especially the government websites are just paragraphs of writing. It is not overwhelming. Images elicit a sense of freedom to come, like the skateboarding character. The colour tones and simple design (UX).

6. How did you feel about the interface? Colour? Design?

I like the blue, not really a fan of the yellow/orange. Not sure of the hamburger menu to open the menu. maybe needs to be closer to the menu itself. I expect the menu to side out from the left (usability).

7. What didn't you like about the prototype? Why? How did it make you feel?

I do think the check in screen is a bit confusing. The check in part should take up more space. I thought I would have to tap on something else to get to the check in part (usability).

P4

Demographic survey

Name + Number	Hannah - P4
Age range	20-25
Gender	Female
Stakeholder group	Education/Citizen
Occupation	University Student

“ - “ For non-committal answers

Task 1 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/pos itive	Comments
Tutorial	UX	Negative	“I feel like this would almost appear b4 you sign up””you would think that b4 giving your personal data... you would want to know that sort of thing”
Confusion		Negative	“Service Victoria it would be used to alert you if you were at one of the exposure sites” is this kinda the same deal?”
Vaccination passport details	Usability	Negative	“Some people might not have their own dedicated Medicare card. So they might have a specific number on the Medicare card.”

1. How do you feel about this interaction?

Was fine

2. Is that a satisfying outcome?

The outcome was satisfying

3. How do you feel about having your personal information on this app?

To be honest, the medicare part I'd be a bit wary about giving out, but if it was endorsed by the government, I wouldn't worry (usefulness)

4. How would you feel about the app (or the task) at this point?

App looked really nice, didn't have many issues (Usability)

Task 2 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Tap In	Usability	Negative	Mentions that when she sees tap in she immediately wants to tap the phone. After tapping check-in it is more clear to her.
Tap In	Usability	Neutral	I mean, I feel like it's (tap-in page) something that might just be something you learn and obviously I did in two seconds." Not a huge deal

1. Is the check in button clear enough?

Yeah

2. How do you feel about tapping in vs QR code vs manually signing in? Does it improve the situation living with Covid?

Better than manually signing in. But in terms of “comparing it to a QR code, I would need a bit more information about how the tapping in would work”. She feels that the equipment for tapping in might not be easy to apply and replicate everywhere easily. Whereas with QR codes, you can just print them out on any piece of paper and stick them on any old wall or piece of furniture or whatever. At the moment, she feels like it’s the same number of steps for tap-in and QR code.”I don’t see why one would be better than the other, except for maybe QR codes seemed a bit easier to replicate for, like, the businesses.”

3. How do you feel about this interaction?

It is fine.

Task 3 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Tap in button in multiple people check-in	UX	Negative	“I'd almost expect the tap in to be on the right rather than the left because it's like the next step, I guess”

1. Would you use this function?

I think it's especially important so if I'm with my family, my dad will often sign us in like all at once. So yeah, no, it's definitely a useful function.

Task 4 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Notification design	UX	Negative	"It does say click for details, but it's in the same text as the rest. So I'd have to sort of read through the whole thing."
Notification layout	UX	Negative	"I didn't read it closely enough to see if it was a tier one or tier two or whatever exposure site."

Task 5 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Tap in under host	Usefulness	Negative	"I don't think you can expect everyone to have it because even something like what was called COVID safe.and the government was like, everybody should get this. And yeah, not everybody did."
Confirmation for host	Usability	Negative	"So this is implying to me that if, for example, a person arrived later, would I be able to check them into the same group? Or would I have to do a whole new checking?" "Add a new person or probably go back to host and see if maybe there was like a list of events, or something"

Task 6 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Entirety of task 6	All	Positive	Found it easy to understand

Task 7 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Check in history	UX	Positive	"I was immediately drawn to the colored ones. And then yeah, and then as a second thing I checked like the Chadstone one."

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.				*	
2. I found the system unnecessarily complex.	*				
3. I thought the system was easy to use.				*	
4. I think I would need the support of a technical person to be able to use this system.	*				
5. I found the various functions in this system were well integrated.				*	
6. I thought there was too much inconsistency in this system.	*				
7. I would imagine that most people would learn to use this system very quickly.					*
8. I found the system very cumbersome to use.	*				
9. I felt very confident using the system.				*	
10. I needed to learn a lot of things before I could get going with this system.	*				

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

1. **Would you use Key-19 in your daily life? Is it useful? How does it impact them as a citizen/health care worker/government employee?**

“The main comparison I have to it is service Victoria And one of the things that bothers me abouthow they would notify me.....here to go to check. So like, you know, this app (Key-19), I kind of liked the history right there. The app in general, it just invited more exploration (UX). So yeah, it seems useful to me.”

2. **Which aspect of the app would you use the most and why?**

“I'm just used to the checkins part for most, you know, the tapping thing. So yeah, yeah, just as a practical thing”

3. **What did you like about the prototype? How was your experience?**

“It just invites exploration. I think it's also just good looking.....the colour scheme is nice and it's just simple. It just seems really easy to just learn it and figure out what everything is.” (Usability)

4. **How did you feel about the interface? Colour? Design?**

Friendly, official, family-friendly, approachable and stuff. Everything is nice and soft, the colours are nice, nothing is too blurry. (UX)

5. **What didn't you like about the prototype? Why? How did it make you feel?**

When you were adding multiple people in it didn't really give you much feedback while you're tapping in (not too bothersome, can learn round it). When you're with a group of people is it easy to sort of edit the event to add people? (she felt that she would d this frustrating) (usability)

6. **Do you know anyone (other stakeholders) that would be excited or particularly interested to use this prototype.**

“Like, the group thing is kind of interesting, but at the same time, I guess it raises the question of, if you're using like service pictorial, even though you don't necessarily sign up as a group, presumably you would all top it. I mean, on top it, like, gives the QR code. So like, I don't know if it has anything, like in terms of utility? That is super different, I guess. Yeah. Yeah. I don't know. I mean, again, I do prefer how it's just more transparent about like the site to into and such, like, it just seems like it's easier to find them. And again, explore the app. Yeah, I don't know. If anybody

P5

Demographic survey

Name + Number	John - P5
Age range	50-60
Gender	Male
Stakeholder group	Business
Occupation	CEO - Health and Wellness Company

Task 1

Aspect of task	Theme (Usability,usefulness or UX)	Negative/pos itive	Comments
Visuals/Graphics	UX	Positive	"Immediately conveys professional aspects including the theme, design and layout. I feel that many people will feel comfortable with this design. Graphics are clever. Well done."
Personal data	Usefulness	Positive	At the rate the world is advancing with data collection, it is possible to find out anything about anyone these days. This sort of information can be accessed by someone hackin g into an iPhone or simply hacking a facebook account. It's useful to have all of this information in one place.
Visuals	Usability	Positive	Graphics make it easier to understand.
Profile page	UX	Positive	Neat layout, clever arrangement and visually very pleasing. .

4. How do you feel about this interaction?

It has a completely different approach to the silly government app that was designed last year.

5. How do you feel about having your personal information on this app?

Fine.

6. How would you feel about the app (or the task) at this point?

It appears demographically pleasing, and it has a comforting nature about it. Clever design.

Task 2

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Tap in screen	Usability	Negative	"Clear to me that the tap in button had functionality however this may not be clear for all users..."
Tap in function	Usefulness	Positive	The one thing that annoys me is having to pull my phone out, especially whilst on an important phone call to check in. This feature is incredibly useful. I had never thought of this as an idea and find it very clever.

5. Is the check in button clear enough?

The circle could be larger.

6. How do you feel about tapping in vs QR code vs manually signing in? Does it improve the situation living with Covid?

It will be incredibly beneficial to busy or distracted users. I myself am guilty of forgetting to check in and this would solve a lot of people's frustrations.

7. How do you feel about this interaction?

Without the automatic check in users need to open the app... this could be solved with updates to link the camera straight to this app.

8. How would you feel about the app (or the task) at this point?

I am in full support of this app. Easy and efficient.

Task 3 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Selecting family members	UX	Negative	There are almost too many steps to getting to the family check in page. It's a clever idea, just wonder if you could put it all on the one screen to test the functionality.
Selecting family members	Usefulness	Positive	This feature is a clever concept and would save children, teenagers etc from having to check themselves in. On the current system it is a lengthier process.

4. Would you use this function?

I have a wife and 3 children under the age of 15 so this feature would save us a lot of time when doing simple things like grocery shopping.

5. Do you have any children come into your store?

Every 2nd client brings their family into the business. Hardly ever do they all check in...

6. How would you feel about the app (or the task) at this point?

It is a key feature that should have been implemented in the current system. Makes life a lot easier.

Task 4

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Notification message	Usability	Positive	“Good placement of the notification, it's in read so it really stands out”, “It's good that you can simply click on it to find out further details”, “The information is right there”
Notification message	UX	Positive	“The use of red gives a sense of urgency which is needed if you visit a Tier 1 site, but it's not too in your face so it doesn't make me feel overwhelmed”

2. How useful is the app so far, is it clear enough?

Yeah I think it is usable, it has good fonts, graphics, colours and shape make it aesthetically pleasing.

Task 5

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Confirmation message	Usability	Positive	Always nice to see that it worked.

3. How do you feel about this aspect of our app?

It is a concept that is currently not in place. It would work well for friends and family meetings at the park or even for group school excursions etc. My children could use it when meeting up with their friends.

4. Would you use this or would it be awkward to check your friends in?

It is a positive feature on the app and it enables people to be more diligent with checking in. I dont believe it would be awkward.

Task 6

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Settings	Usability	N/A	"I thought it would be located in the settings, but I see now it's on the main screen"
Settings	Usefulness	Positive	Incredibly useful for busy people.

3. What do you think about having a check out as well as a check in?

An automatic check out function would be super useful, however I don't believe it is necessary.

4. Is this function helpful?

I think it is incredibly helpful. It's more accurate and can help data collection.

Task 7 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability, usefulness or UX)	Negative/positive	Comments
Search function	Usability	Positive	This is a super important feature, I move around a lot for work and can never remember my check ins.
Edit function	Usability	Positive	This is a smart concept.

2. How would you feel about the app (or the task) at this point?

I believe this app could really take off. It's cleverly designed and focuses directly on solving covid frustration.. It is user friendly and easy to navigate.

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.					x
2. I found the system unnecessarily complex.				x	
3. I thought the system was easy to use.					x
4. I think I would need the support of a technical person to be able to use this system.	x				

5. I found the various functions in this system were well integrated.				x	
6. I thought there was too much inconsistency in this system.	x				
7. I would imagine that most people would learn to use this system very quickly.				x	
8. I found the system very cumbersome to use.	x				
9. I felt very confident using the system.				x	
10. I needed to learn a lot of things before I could get going with this system.		x			

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

8. Would you use Key-19 in your daily life? Is it useful?

For my work and home lifestyle this app would solve a lot of problems regarding checkin in. My kids are always out and about exercising with friends and this would allow myself and my wife to have peace of mind knowing they are creating group check ins. In the business we would encourage family check-ins and advertise this app in a positive way.

9. Do you think your customers at your store would use it?

Our business revolves around promoting health and wellness, so under the banner of healthy living all of our clients and customers would most certainly back this app. I can imagine them raving about it.

10. Would you like to use QR codes forever?

I hope not, they take the simple pleasures out of life such as going to a coffee shop. Being constantly tracked and traced is never a nice feeling.

11. Which aspect of the app would you use the most and why?

The automatic feature would be the most prominent aspect. It simply makes life easier.

12. What did you like about the prototype? How was your experience?

I enjoyed navigating the prototype. There were a few blocks but I assume that's because the app isn't fully functional yet. The tasks were simple enough and I believe I could confidently use the program now.

13. How did you feel about the interface? Colour? Design?

I really enjoyed the colour scheme. It feels easy and uncomplicated. I am not entirely sure about the tap in button - it could appear a little too comical. You may look at reducing some of the graphics for a more professional appearance.

14. What didn't you like about the prototype? Why? How did it make you feel?

The overall look of the app is nice and consistent. I felt in control.

P6

Demographic survey

Name + Number	P5 - Mina
Age range	20-30
Gender	Female
Stakeholder group	Student (Hesitant)
Occupation	Student

Task 1 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/pos itive	Comments
inputting personal information	Usefulness	Negative	“some may not have a medicare number, like me, so I think there should be other options to put in other personal identifier numbers like private health insurance or to have a skip option”
the hamburger menu	Usability	Positive	“it’s easy to locate the menu button, it’s universal to other application and websites that i’ve used in the past”

4. How do you feel about this interaction?

It’s quite basic, it tells you what to input so pretty easy, quite self explanatory, similar to other apps (universal), but some may not have a medicare number so have other options

5. Is that a satisfying outcome?

Pretty satisfying. There’s not many paths you can take so it's hard to get lost.

6. How do you feel about having your personal information on this app?

I’m not that phased.

Task 2 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/pos itive	Comments
Check-in button	UX	Negative	the illustration and the icon in the middle of the page seems like a button too so it’s a bit visually confusing whether or not if i should tap on the icon or the actual button

Tapping in	usefulness	positive	This feature is definitely more efficient than the current system in place. Being able to tap in like apple pay is more self explanatory and more similar to what we do on a daily basis so it'd make me check-in more
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1. Is the check in button clear enough?

Yeah but the icon on top stands out a bit more than the button at the bottom so my eyes keep going there.

2. How do you feel about tapping in vs QR code vs manually signing in? Does it improve the situation living with Covid?

It's definitely more efficient than standing in front of the QR code trying to scan or manually signing in. I tend to get too lazy to check-in everytime I enter a venue so I don't think my contact tracing would be very effective. Tapping in would definitely increase the number of people and the frequency people check-in.

3. How do you feel about this interaction?

Easy once again. Not much effort, the blue check-in button is so clear you don't need to try hard to find it.

4. How would you feel about the app (or the task) at this point?

It's a good invention. This should've been implemented instead of the QR code.

Task 3 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Family check-in	Usefulness	Positive	I think it's a good idea for more effective contact tracing and for those with family members and friends without a phone or this application
Selecting family members	Usability	Negative	It is a bit of a time consuming process. If this app is meant to make it easier and faster for people to check in, I'm not sure if this is the best way, but i think it's a good idea.

1. Would you use this function?

If I was responsible for someone else like children or family I would use it. But I wouldn't use it with people I'm close to like my friends. Just because I think it would take a longer time rather than individuals checking in themselves. But if someone doesn't have a phone then yes, I'd use it.

2. How do you feel about this interaction?

Pretty straight forward.

3. How would you feel about the app (or the task) at this point?

Something that hasn't been done before, having a group check-in is useful especially when restrictions are in place because you are only with certain people and it might make it more time and effort efficient.

Task 4 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Getting the notification	Usefulness	Positive	“it’s more convenient than accessing the government website and scrolling through all the exposure sites that don’t even relate to you at all, it’s good that you get notified”
Exposure sites	UX	Positive	“I like that they’re separated and colored into different categories so you only have to read the relevant information”

1. How do you feel about this interaction?

I think it’s good that you get the notification straight away. It’s better than going on the government website and checking the exposure sites that don’t even relate to you at all.

2. Is that a satisfying outcome?

I think it’s good that there is a separate category (e.g. tier 1 vs .tier 2) so you only have to read relevant information

3. How would you feel about the app (or the task) at this point?

So much more progressive compared to what we have now (e.g. government exposure website), so much more time efficient.

Task 5 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Hosting	Usability	Negative	“It was a bit confusing because I didn’t know if I should click on check-in then host or if I should just click on host, because even if you’re hosting, you’re trying to check-in... right?”

2. How do you feel about this interaction?

I think this was the most confusing part for me. Because I didn’t know if I should click on host the meeting or if I should click on the check-in button. But if you click on host it is pretty obvious.

3. Is that a satisfying outcome?

Yeah, but it wasn’t clear if I was hosting a group check-in or if I was hosting a meeting that enables people to check-in too.

4. How would you feel about the app (or the task) at this point?

Very modern, very progressive. I would use this more than QR code for sure. I think with the automatic check-in it makes it so much easier and makes people more inclined to be checked-in

Task 6 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Checking-out	UX	Negative	"I didn't realise it checked you out as well, and I didn't know if the app automatically checks you in and out or just in."
Turning auto-check in	Usability	Positive	"Turning on the auto-check in from setting is pretty straightforward and I like that there are different ways to get to the page"

1. How do you feel about this interaction?

I was a bit confused about this, as I didn't know what button to press if I wanted to check-out. but turning on the auto-check in from settings is pretty straight forward. But it's good because you can click check-in or settings to do it (2 possible paths)

2. Is that a satisfying outcome?

I'd guess so if it automatically checked me in and out.

Task 7 (add as many rows as you like, add quotes into comments)

Aspect of task	Theme (Usability,usefulness or UX)	Negative/positive	Comments
Visiting past check-in	Usefulness	Positive	"I think it's really useful that your past check-ins are correlated with exposure sites and it makes it so much easier to see whether you need to take precaution to isolate or not"
Looking through the history	Usability	Positive	"The color coding makes it so much easier to navigate through"

1. How do you feel about this interaction?

History (good to have 2 paths), this one is very easy to navigate, past check-ins, It's good that it is colour coded with different levels of exposure sites, easy to understand

2. How would you feel about the app (or the task) at this point?

I think the functionality of this app is really high. Easy to use, easy to navigate, not much things or designs that get in the way of completing each task. Very clear buttons with simple icons.

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.				X	
2. I found the system unnecessarily complex.	X				
3. I thought the system was easy to use.					X
4. I think I would need the support of a technical person to be able to use this system.	X				
5. I found the various functions in this system were well integrated.			X		
6. I thought there was too much inconsistency in this system.		X			
7. I would imagine that most people would learn to use this system very quickly.					X
8. I found the system very cumbersome to use.	X				
9. I felt very confident using the system.				X	
10. I needed to learn a lot of things before I could get going with this system.		X			

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

- 1. Would you use Key-19 in your daily life? Is it useful? How does it impact them as a citizen/health care worker/government employee?**

Yes it is useful, and I would use it in everyday life. Because it takes less time, even if it's only a couple of seconds to scan the QR codes that exist now, it takes away the fact that you have to find your phone, physically take it out, open the camera and wait for it to scan then click on check-in.

- 2. Which aspect of the app would you use the most and why?**

The group check-in function as it allows for people who are more lazy and hesitant to check-in with their friends, or if your phone is dead, it still allows you to check-in easily. It's also helpful if I'm hanging with my

friends or going for a walk and I can host a meeting and check-in with my friends so that if there was a transmission of COVID it would be so much easier to track.

3. What did you like about the prototype? How was your experience?

My favourite part of the app was the tier1 tier 2 exposure sites relating to my past check-ins. There is a lot of anxiety surrounding that aspect of contact tracing, and going to the official government website to find out if you have to be isolated for the next couple of weeks is daunting. But the simple and light visuals with the ease of accessing this information on the app I think is really good. My experience was pretty fluid, the app was pretty functional.

4. How did you feel about the interface? Colour? Design?

Colour and design was pretty welcoming. Pleasurable experience. It feels like social media where you can connect with your friends. It makes me want to keep my friends and family safe as well as myself, and be responsible. Pastel coloured themes reduce anxiety around this sensitive topic.

5. What didn't you like about the prototype? Why? How did it make you feel?

Sometimes it was a bit confusing. I now understand that it automatically checks you in and out but I would personally assume that there would be another button for checking out.

6. Do you know anyone (other stakeholders) that would be excited or particularly interested to use this prototype.

Young people would get around it heaps. So much easier. Business owners would appreciate it too because they can keep their customers and employees safer so much easier. So much more convenient for parents too.

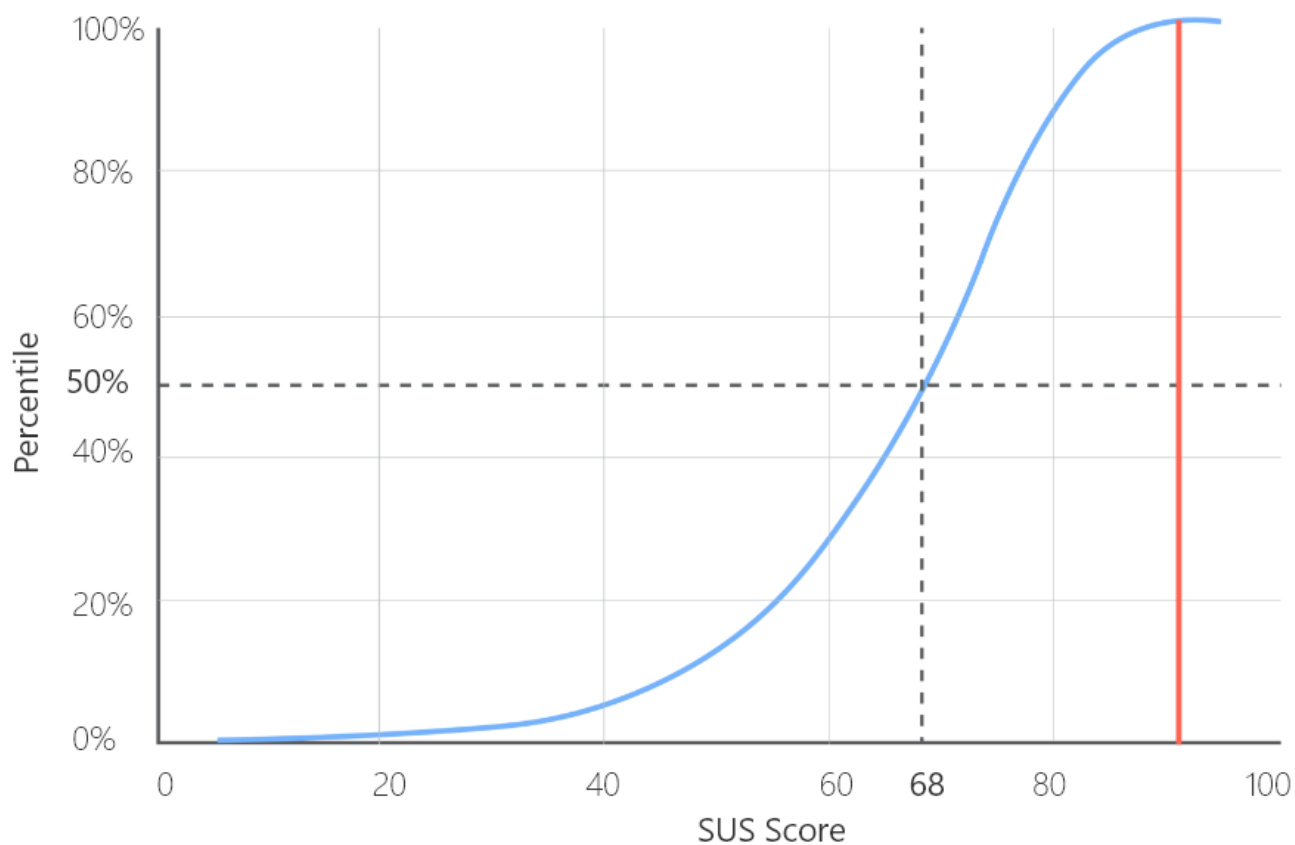
FINDINGS

System Usability Scale (SUS) Score

According to Thomas (2015), a SUS score higher than 80.3 means that “people love your site and would recommend it to friends.”

Using the method explained by Smyk (2020), the following SUS scores were calculated:

Participant	P1	P2	P3	P4	P5	P6	OVERALL
SUS score	95	85	85	90	82.5	85	90



Since the score is 90, it means that overall the interviewees have found the website good and easy to use. It is important to keep in mind that due to accessibility, many of these interviewees chosen are good friends or family of their respective interviewer. Therefore, it is possible that the interviewee’s opinion has skewed in favour of the interviewers, creating a more positive image of the application (Hossellman 2021).

USEFULNESS

Positive

Increasing accuracy of contact tracing without impacting citizens daily routine.

P3 (Rose)

- Rose believes that it will improve accuracy of contact tracing.
- Rose thinks having the automatic check out will make it easy as people will not have to change what they are currently doing. Introducing the check-out function without impacting people's routine.

P6(Mina)

- Mina believes that the multiple check-in feature would be more effective for contact tracing and help families and friends who don't have the phone or the application.

Sense of progress by removing requirements for QR codes as we move into a Covid-19 normal while staying Covid-safe.

P1 (Mark)

- Mark finds that the tap in the function gives a sense of progress while being "simple and speedy". He added, "especially as we are moving towards digital ids." It "takes QR coding to a new level."
- The auto checks out give Mark a sense of the progress of moving back to normal.

P2 (James)

- P2 - In James' opinion, the developed prototype takes the QR code to a new level and is a "much superior product".

P3 (Rose)

- Transitioning to a tap-in system reduces the number of QR codes around. Rose stated that QR codes are a demotivating visual representation of our society. The implementation of a tap in the system seems like progress.

Increased ease of tapping in over QR codes.

P3 (Rose)

- Tapping in is so convenient as it takes away the struggle of scanning a QR code.

- Rose feels tapping in is easy and feels that it will be a lot easier for elderly people who have trouble using the current QR code system. As she works in retail, she notices many struggling with the QR code system, “this function would help me feel safer in my workplace because hopefully, this means more people will check-in”.

P5 (John)

- If busy, John would find it a hassle to take his phone out to scan. So having a tap-in function felt very useful for him.

P6 (Mina)

- Mina thinks that tapping in is definitely more efficient and self-explanatory than current check-in systems.

Reduced stress as everything is in one place.

P2 (James)

- James likes the vaccination passport in an easy access application.

P3 (Rose)

- It is useful to have our personal data and vaccination status conveniently in one place.

P5 (John)

- According to John, it is useful that all his data is kept in one place.

Increased accommodation for family members and those without phones through multiple check-in.

P5 (John)

- As for the multiple check-in feature, it seemed useful for John as it would help with children or teenagers from having to check in. He feels that the process in Key-19 is quicker than the previous system.

P6 (Mina)

- Mina believes that the multiple check-in feature would be more effective for contact tracing and help families and friends who don't have the phone or the application.

The addition of hosting would help transitioning to more social situations.

P3 (Rose)

- As there are not really QR codes at parks or public spaces, Rose believes she would feel more safe and secure to check everyone in using the host function.

Other remarks

P1 (Mark)

- Mark particularly thought that the application would be useful for the hospitality or construction stakeholders.

P3 (Rose)

- More functions that service victoria does not have, such as the history function and the hosting function
- A lot of people are worried about what data they share but Rose thinks the transparency of what the data is used for “makes it easier to get more people on board with the app”
- Believes the “convenience of the app” is its main selling point.

P5 (John)

- John believes that automatic check-in would be useful for busy people.

P6 (Mina)

- Since you wouldn't have to go through all the exposure sites on the government website, Mina thinks the notification system would be very convenient. Similarly, having the past check-in correlate to exposure sites eases understanding of what actions to take next.

Negative

Not everyone would download the app which might make checking in for the host to be difficult.

P4 (Hannah)

- In reference to the host feature, Hannah says that “ you can expect everyone to have it because even something like what was called COVID safe.....and the government was like, everybody should get this. And yeah, not everybody did.”

There are no sources given to help users carry out the actions required if they have been to an exposure site.

P1 (Mark)

- Mark suggests not to “tell the person what to do next, help them do it.”

It does not accommodate those that do not have a personal Medicare card

P4 (Hannah)

- Hannah has some hesitancy around medicare details “Be a bit wary about giving out, but if it was endorsed by the government, I wouldn't worry”

P6 (Mina)

- Mina believes that vaccination profiles should accommodate people who do not have a medicare number as well.

Other Remarks:

P1 (Mark)

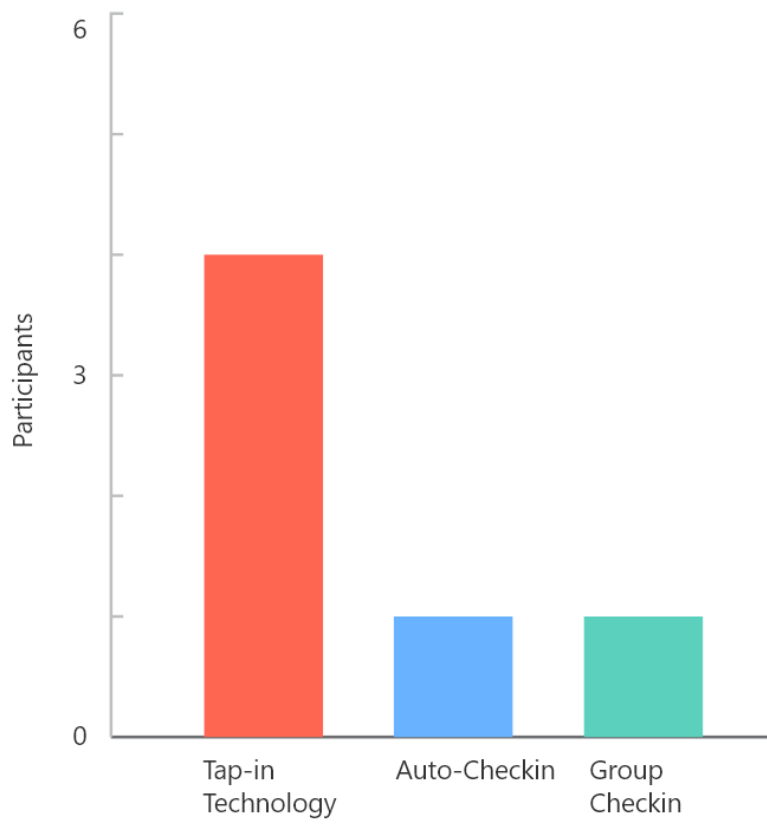
- Possibly add a link to either MyGov or socials to speed up the sign in process.
- Auto check-in is hard at venues or stores that have to enforce vaccination status because people would just walk in. But Auto check out is a good function.

P3 (Rose)

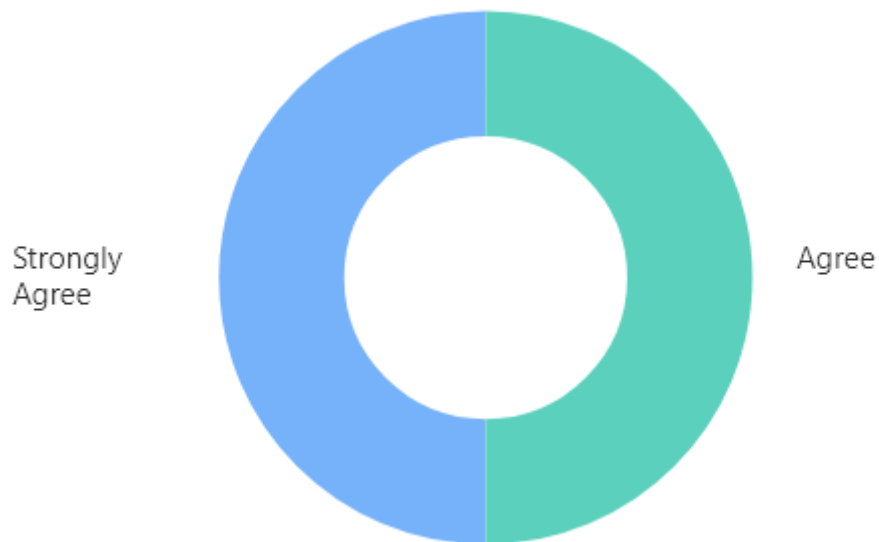
- Rose feels checking in children may be pointless.

P4 (Hannah)

- Hannah finds check in better than manually signing in. But in terms of “comparing it to a QR code, I would need a bit more information about how the tapping in would work”. She feels that the equipment for tapping in might not be easy to apply and replicate everywhere easily. Whereas with QR codes, you can just print them out on any piece of paper and stick them on any old wall or piece of furniture or whatever. At the moment, she feels like it’s the same number of steps for a tap-in and QR code.” I don’t see why one would be better than the other, except for maybe QR codes seemed a bit easier to replicate for, like, the businesses.”



Most likely used feature



“Would you like to use this system?”

USABILITY

Positive

The application is easy to learn

P1 (Mark)

- Mark found it easy to sign up.

P3 (Rose)

- I like how simple it seems to use (Usability) – it was something you don't need hours to figure out.

P4 (Hannah)

- Easy to learn

P5 (John)

- John says the graphics make it easier to understand.

P6 (Mina)

- She thinks that enabling the auto check-in option was straightforward and clear. Additionally, she likes how she has different ways of getting to the page.

There is simplicity and familiarity in the visuals.

P1 (Mark)

- Simple design makes it easy to use

P3 (Rose)

- Having little icons on top of the menu names makes it easier to use, making it more graphic.
- Good contrasting colours orange/blue which helps make things stand out easy to use.

P6 (Mina)

- Mina thinks that the location of the menu button is easy to locate and universal.

The colour coding system in the notification and check-in history helps users find what they need.

P1 (Mark)

- He felt like there was a nice use of colour coding

P4 (Hannah)

- “I was immediately drawn to the coloured ones. And then yeah, and then as a second thing I checked like the Chadstone one.”

P5 (John)

- He finds that the notification is placed well and the red colour helps it stand out. He likes how easy it is to access the details of the notifications.

P6 (Mina)

- Mina finds colour coding helpful in navigating what she needs.

Other remarks

P1 (Mark)

- Mark likes how the multiple people check-in function is broken up into close friends and family.
- He enjoys that he does not have to use the camera.

P2 (James)

- James likes how “it is convenient to have the ability to save contacts” when checking in multiple people and how they can be categorised into different categories (friends, close friends).

P3 (Rose)

- Likes the placement of the notification in the centre of the screen and the use of red to make it stand out.

P5 (John)

- John appreciates the feedback received after hosting.
- Since John moves around for work, he finds the check-in history incredibly important for him.

Negative

Some steps took longer than other tasks and were demotivating.

P1 (Mark)

- Felt like the process to host a group was a little long compared to the other functions.

P5 (John)

- Although John says that the family check-in is a good idea, he finds that there are too many steps to get to the family check in page. He suggests that there should be a trial where all the icons are on one screen.

P6 (Mina)

- Mina finds the multiple check-ins to be a time-consuming process. Although she thinks it is a good idea, it goes against making check-ins faster and easier.

No clarification of data handling before entering log in details.

P4 (Hannah)

- Hannah stated that they feel like the tutorial would appear before the log in. "You would think that before giving your personal data, you would want to know that sort of thing."

The hamburger menu is not as clear to some.

P2 (James)

- Struggled with the hamburger menu

P3 (Rose)

- Not sure of the hamburger menu to open the menu. maybe needs to be closer to the menu itself. I expect the menu to side out from the left.

Group function lacks an edit feature.

P1 (Mark)

- Group function lacks an edit button if people join the group or leave the group multiple times.

P4 (Hannah)

- Hannah is also concerned that if a person arrived to her hosted event late, it seems like she would have to make a new group to add them in instead of being able to edit the details.

Other remarks:

P1 (Mark)

- Mark thinks that maybe the app should have versions in different languages

P3 (Rose)

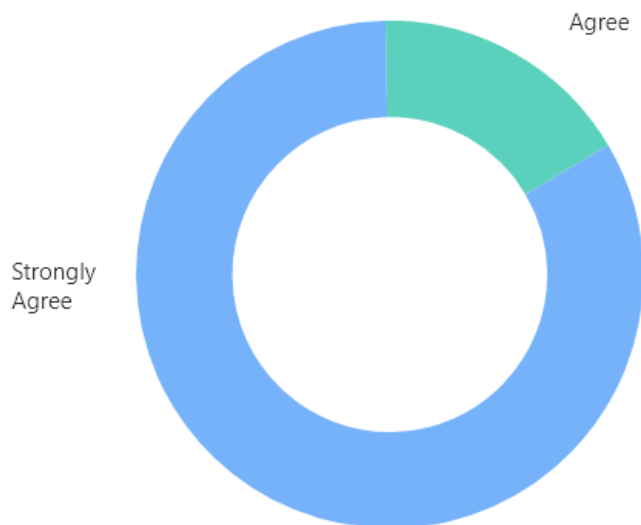
- QR code scanning is one directly with the camera but with Key-19 having to open an app may be harder. She recommends adding shortcuts to make it easier to access the tap in function.

P4 (Hannah)

- Hannah mentions that when she sees tap in she immediately wants to tap the phone. After tapping check-in it is more clear to her. "I mean, I feel like it's (tap-in page) something that might just be something you learn and obviously, I did in two seconds."

P6 (Mina)

- There is no clarification that the app checks you out as well. Mina also did not know if the app automatically checks the user in and out or just in.



Responses to "I thought the system was easy to use"

UX

Positive

The application appears welcoming, family-friendly, inviting, and not government-like.

P1 (Mark)

- Simple logo

P2 (James)

- Feels that the simple design, use of graphics and overall aesthetic makes it welcoming and feel very inclusive.

P3 (Rose)

- My experience was very pleasant. The bright and happy style, it's not filled with too much writing and text. especially the government websites are just paragraphs of writing. It is not overwhelming.
- Images elicit a sense of freedom to come, like the skateboarding character. The colour tones and simple design.
- Rose had a good first impression of this Key-19 because of the colours and visuals. For her, it is quite inviting and not like any Covid related app she has used before.

P4 (Hannah)

- Friendly, official, family-friendly, approachable and stuff. Everything is nice and soft, the colours are nice, nothing is too blurry.

The graphics and fonts made it pleasant and engaging.

P2 (John)

- James really liked the pictures used and that the app is “really simple to use”. He adds that it has a welcoming aesthetic and it seems very inclusive.

P3 (Rose)

- The use of fonts, graphics, colours and shapes make it an aesthetically pleasing and enjoyable app to use.
- “I instantly loved the graphics in Key-19, they are quite playful and pleasant. I expected this app to be quite serious” making it more motivating for Rose to use Key-19.”

P5 (John)

- John thinks that the graphics look professional and would be comfortable for many people. He also thinks that the profile page is neat and has a visually pleasing appearance.

Appropriate use of colour for notifications/exposure sites elicit a sense of urgency.

P3 (Rose)

- The use of red for the notification message gives a sense of urgency, but it's not too in your face so it doesn't make her feel overwhelmed.

P5 (John)

- John finds that the colour chosen for the Tier one exposure site is a good read to give a sense of urgency without being overwhelming.

Other Remarks:

P1 (Mark)

- Tap is easy to use in dimly lit areas.

P3 (Rose)

- Kinda cool technology as well which encourages her to use it

P4 (Hannah)

- She enjoys the added history function and finds that the app just invites more exploration
- Nice aesthetic

P6 (Mina)

- Mina enjoys that when the exposure site notification is clicked on, only the relevant information for that category is displayed while the rest is minimised.

Negative

Confusing when unable to achieve a goal.

P2 (James)

- Struggled with the hamburger menu and therefore was stuck navigating between pages with no real guidance of where to go next, required interviewer's intervention

Difference between buttons and illustrations is not always clear.

P3 (Rose)

- Rose thought the tap in page needs to be clearer to make tapping in the focus. At the moment the check-in multiple people buttons took her attention first.

P5 (John)

- John is concerned that other users may not see that the tap in button had functionality.

P6 (Mina)

- Mina can't easily tell whether the illustration or the icon is the check-in button that needs to be tapped on.

Other Remarks

P4 (Hannah)

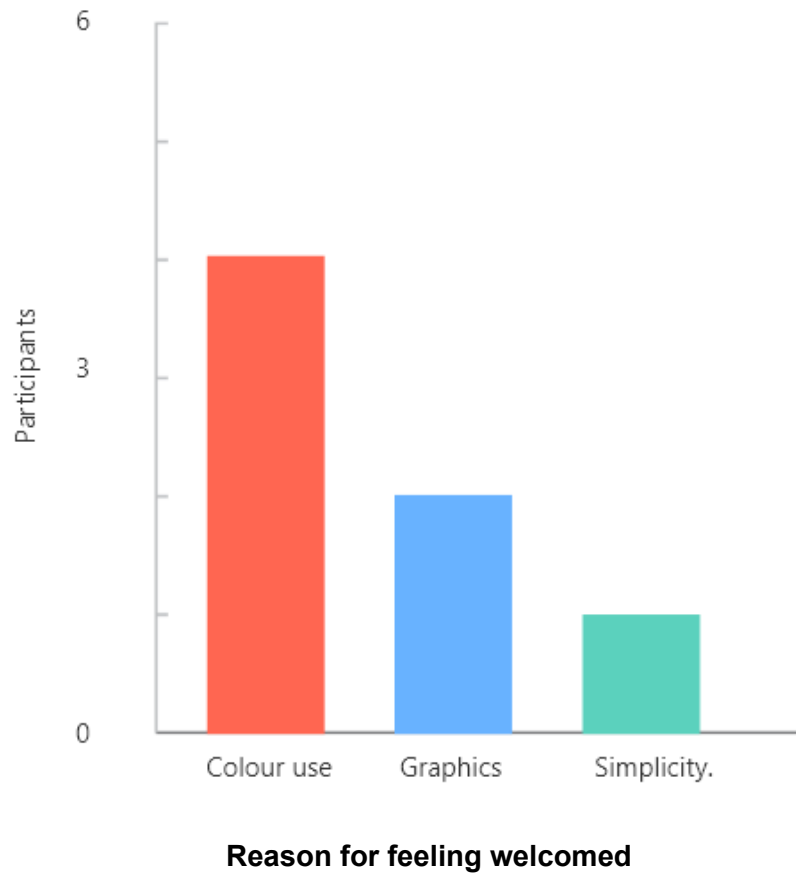
- In regards to the Tier 1 notification, Hannah points out that the "click for details" text is the same as the rest. "So, I'd have to sort of read through the whole thing."

P5 (John)

- John thinks that the tap-in button looked pretty "comical" and thinks that a more professional appearance can be achieved if the graphics were further reduced.

P6 (Mina)

- In regards to hosting, Mina found it confusing whether to click check-in and then host or if she should just click on host.



There was an additional finding during the process of presenting the prototype. There is a similar technology established in Singapore where users tap-in to check-in. After further analysis, we are considering the implementation of such an app to help assist in our understanding of the technology required and how it can be executed.

CONCLUSION

The findings of this report are concerned with the overall usefulness, usability and user experience of the application which was developed. These three qualities, while interrelated and interdependent, are useful measurements of an application's success because without all three qualities, a design is likely to fail.

Usefulness, which is defined as the application's ability to facilitate the user in achieving their purpose, was the leading criterion for this application's design. This is due to the fact that there was already an existing application that represents a significant investment by the Australian government which did not succeed. The results show that the application was useful in not only increasing the accuracy and ease of checking-in but also accommodates groups and informal social gatherings. These findings were reflected in the participant's most likely used feature which was predominantly the tap-in feature which confirms the findings of the earliest prototype interview that was conducted in the earlier report. One of the key findings which was not expected was that participants welcomed the design as an indication of progression into a Covid normal, which indicates the viability of the design. The weaknesses of its usefulness were expected with the primary concern being the uptake of the application with one participant explicitly referencing the Covid-Safe application.

Usability is the ease with which a user can complete their task. The findings highlighted that the application was easy to learn and use because of its simplicity and familiarity. This was due to an intentional design choice to employ existing mental models of social media and check-in applications. The usability of the design is its weakest quality however, with participants highlighting that they would like to see some processes streamlined while others wanted greater clarification of the process. Other issues include an unexpected interface with the hamburger menu and a lack of group editing when hosting. These issues highlight the importance of Nielsen's Heuristics (1994) and Norman's Principles (2013) in the design process and form the basis of improvement in the next iteration.

Lastly, the user experience focuses on whether the experience of using the application is desirable for its context. This was considered to be one of the design's strongest qualities with favourable comments from the participants highlighting the welcoming appearance, pleasant and engaging design, and appropriate use of colour. These design choices were concerned with changing the user's relationship with the application with the aesthetics being the basis for this. Like Dorst (2015), it was felt that Covid-Safe's failure was not due to any usability issues, but the user's relationship with it.

This area of design was interesting because of the changing landscape in which it was developed. Over the course of this project, coincidental similarities have occurred between the group's design and real-world applications such as linked vaccination status to that in Service Victoria application or aesthetic similarities to Singapore's TraceTogether. Therefore, not only does this report successfully evaluate the design's usability,

usefulness and user experience while providing a basis for future improvement, but it also represents an important artifact of learning through design.

REFERENCES

AsiaRFID, What are RFID Wristbands?, viewed 3rd September 2021, <<https://www.asiarfid.com/what-are-rfid-wristbands.html>>.

Australian Government: Department of Health 2019, Coronavirus (COVID-19) advice for people with disability, viewed 25th September 2021, <<https://www.health.gov.au/news/health-alerts/novel-coronavirus-2019-ncov-health-alert/advice-for-people-at-risk-of-coronavirus-covid-19/coronavirus-covid-19-advice-for-people-with-disability#protecting-yourself>>.

Dorst, K 2015, *Frame innovation : create new thinking by design*. The MIT Press (Design thinking, design theory), viewed 20th August 2021, <<https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=cat00006a&AN=melb.b6040525&site=eds-live&scope=site>>.

Harley, A 2018, Visibility of System Status (Usability Heuristic #1), viewed 19th October 19th 2021, <<https://www.nngroup.com/articles/visibility-system-status/>>.

Haynes, C 2021, 'Disturbing' Hallucinations Increase During Lockdown for Blind People, viewed 25th September 2021, <<https://www.bbc.com/news/disability-56056858>>.

Hossellman, E 2021, Test Planning: Should employees, Friends, & Family be your Beta Testers?, viewed 17th August 2021, <<https://www.centercode.com/blog/should-employees-friends-family-be-your-beta-testers>>.

Japan-guide.com 2021. IC Cards, viewed 21st October 2021, <https://www.japan-guide.com/e/e2359_003.html>.

Goa-RFID, Applying RFID to Fitness Centers, viewed 3rd September 2021, <<https://gaorfid.com/rfid-systems-for-fitness-centers/>>.

ID&C, How do RFID Wristbands Work?, viewed 3rd September 2021, <<https://www.idcband.com/en-us/blog-us/how-do-rfid-wristbands-work/>>.

Laubheimer, S 2020, Flexibility and Efficiency of Use: The 7th Usability Heuristic Explained, viewed 19th October 2021, <<https://www.nngroup.com/articles/flexibility-efficiency-heuristic/>>.

Loeb, S 2016, When Square was young: the early years, viewed on 25th August 2021, <<https://vator.tv/news/2016-10-26-when-square-was-young-the-early-years>>.

Macrotrends 2021, Square Revenue 2013-2021 | SQ, viewed, august 25th 2021, <<https://www.macrotrends.net/stocks/charts/SQ/square/revenue>>.

Morimoto, S 2010, A case study of the e-money application in Japanese public transportation. In 2010 International Conference on e-Business (ICE-B) (pp. 1-6). IEEE.

Nielsen, J 1994, 10 Heuristics for User Interface Design: Article by Jakob Nielsen, viewed 19th October 2021, <<https://www.nngroup.com/articles/ten-usability-heuristics/>>.

Norman, D. A. (2013). *The design of everyday things* (Revised and expanded edition.). Basic Books, a member of the Perseus Books Group.

O'Flaherty, A 2021, QR Codes should be 'More Inclusive' for People with Vision Impairment, viewed 25th September 2021,

<<https://www.abc.net.au/news/2021-08-16/calls-or-mandatory-covid-19-check-in-qr-codes-to-be-inclusive/100375590>>.

Paragon-ID, The History of Radio Frequency Identification Technology, viewed 3th September 2021, <<https://www.paragon-id.com/en/inspiration/history-radio-frequency-identification-technology>>.

Quesenbery, W 2004. *Using the 5Es to Understand Users*. Whitney Interactive Design. <<https://www.wqusability.com/articles/getting-started.html>>.

Royal National Institute of Blind People 2020, The Effect of Lockdown and Social Distancing on Blind and Partially Sighted People, viewed 25th September 2021, <<https://www.rnib.org.uk/campaigning/priority-campaigns/inclusive-journeys/effect-lockdown-and-social-distancing-blind-and-partially-sighted-people>>.

Smyk, A 2020, The System Usability Scale & How it's Used in UX, viewed 8th October 2021, <<https://xd.adobe.com/ideas/process/user-testing/sus-system-usability-scale-ux/>>.

Square 2021, COVID-19 has intensified Australia's love of contactless payments, viewed august 25th 2021, <<https://squareup.com/au/en/press/payments-and-pandemic-report-2021>>.

Thomas, N 2015, How to Use the System usability Scale (SUS) to Evaluate the Usability of Your Website, viewed 8th October 2021, <<https://usabilitygeek.com/how-to-use-the-system-usability-scale-sus-to-evaluate-the-usability-of-your-website/>>.

Uriuhara, S 2021, Automatic Fare Collection System. Introduction of the Suica Contactless IC card, viewed 21st October 2021, <<https://trid.trb.org/view/722545>>.

Wilkinson, M 2020, The Pandemic is Undermining Visually Impaired People's Independence – Here's How to Fix This, viewed 25th September 2021, <<https://theconversation.com/the-pandemic-is-undermining-visually-impaired-peoples-independence-heres-how-to-fix-this-142209>>.

Wristband, RFID Wristbands for Gym, viewed 3rd September 2021, <<https://wristbandly.com/rfid-wristbands-for-gym/>>.

Yalanska, M 2020, Usability Testing Questions: Tips & Examples, <<https://medium.com/thinking-design/usability-testing-questions-tips-examples-b63bac1643d4>>.

APPENDIX

Appendix 1: Full Test Protocol

Procedure:

Each observational evaluation will take approximately 30 minutes. Below outlines the order of the tasks that will be completed:

1. Introduction (3 minutes)
2. Informed consent form (2 minutes)
3. Task introduction (1 minute)
4. Task scenario run through + discussion + feedback (3 minutes per scenario, 7 scenarios in total)
5. Post test questionnaire (4 minutes)
6. Debrief (1 minute)

Observer note taking table:

Participant name:		Time and date of interview:	
Task	Problem	Comments	Aspect of app with issue
e.g. T1			

Pre-evaluation check-list:

- Send the interviewee the invitation to participate in the interview.
- Has the participant filled out the PLS form that was included in the invitation?
Yes / No
- Has the participant filled out the consent form that was included in the invitation?
Yes / No
- Does the participant have appropriate access to the prototype?
- If the participants have filled the required documents, proceed to schedule the interview
- Make sure audio and video recording devices are working properly
- Do you have note-taking materials in case the participant does not consent to audio recordings?

TEST SCRIPT

Introduction

Hello [Participant's name], my name is [Interviewer's Name] and I will be your interviewer for today. Thank you for taking some time out to participate in this interview.

This interview is for an assignment from the University of Melbourne for the Interactive Technology Project course. The assignment requires us to design an interactive technology and we have decided to tackle communication about Covid-19 during the pandemic. The purpose of this interview is to understand how users would interact with the current version of an application made on this topic. The prototype is meant to act as a vaccination passport and a check-in application. We will be instructing you through a series of tasks to execute and ask you to think-aloud your feelings and opinions about the prototype. This is just a preliminary prototype, so do not hesitate to give negative feedback, it would help us tremendously in refining the app later on. Please do not hesitate to ask us questions at any point if you feel confused or curious. This is NOT a test of your skills and abilities.

This interview should take around 30 minutes. I would also like to remind you that the audio and the video of this interview is being recorded as references for relevant research and analysis within this project. Your information will be kept fully confidential and will not be shared with outside of the project. If at any point you feel uncomfortable, let us know and we will wrap up appropriately.

Can you please confirm that you have read and understood the consent form and that you are comfortable with proceeding with the interview. Shall we begin?

Consent form

I will now provide you with a consent form. I can confirm that all information that you provide will be used anonymously and will not be shared with anyone beyond this project. Can you please read the form and confirm that you give permission for the audio of this interview to be recorded?

Task introduction

Now I am going to assist you to work through some tasks that we have created to evaluate. In total there are seven tasks. Firstly I will begin each task by reading the beginning of the scenario to you. Please imagine that you are the person in the scenario. Then I will instruct you through each step of our scripted sequence telling you what to press and why at each step.

Before and after each step I may ask you some questions. Feel free to give any feedback during the tasks or ask any questions that you may have.

Task 1

[<https://xd.adobe.com/view/f3054588-1f06-4fda-ba6b-8501cda66834-a656/?fullscreen&hints=off>]

You have just heard about a new app called Key-19 that helps make checking in simple and effective. You have just downloaded the app and decide to sign up for an account and check your profile page.

Task 1 walkthrough steps (should we include screenshots?)

1. Start on the login page
2. Click 'Sign Up'
3. Walkthrough the 'Onboarding'
4. Click on menu icon

5. Navigate to profile page
6. Read profile information

Task 2

[<https://xd.adobe.com/view/78f4783f-425e-499c-84f4-b1a0f638cea7-2da7/?fullscreen&hints=off>]

After successfully signing up for an account you decide to go shopping at your nearest supermarket. When you reach the front of the store you are asked to tap in with your phone to check in using the tap in function.

Task 2 walkthrough steps

1. Navigate back to home page
2. Navigate to Check-in page
3. Mimic tapping in action.

Task 3

<https://xd.adobe.com/view/78f4783f-425e-499c-84f4-b1a0f638cea7-2da7/?fullscreen&hints=off>

You have just arrived at a cafe in Melbourne with your son and daughter. They do not own a phone so you decide to check them in along with yourself.

Task 3 walkthrough steps

1. Click check in
2. Locate "Check in multiple people" button
3. Selecting "Family" button
4. Select family members (they are pre-selected)
5. Tap in
6. Mimic tapping in action.

Task 4

[<https://xd.adobe.com/view/e640c0da-2f22-4022-9625-4bec9fd5555e-b313/?fullscreen&hints=off>]

You have just received a notification on your phone that you visited a Tier 1 exposure site. Please use Key-19 to find the relevant information regarding what to do after visiting a tier 1 exposure site.

Task 4 walkthrough steps

PATH A

1. Click on home screen notification message
2. Find notification message
3. Click on the notification message
4. Read up on what to do

PATH B

1. Click hamburger icon
2. Click "Check-in history"
3. Click "Notifications"
4. Click on the notification message

5. Read up on what to do

Task 5

[<https://xd.adobe.com/view/f3054588-1f06-4fda-ba6b-8501cda66834-a656/?fullscreen&hints=off>]

You are part of a club at Unimelb and a few of the club members decide to meet at South Lawn. When you arrive, you think it is a good idea to record who attended the meeting. Please use Key-19 to set this up.

Task 5 walkthrough steps

1. Login to account
2. Go to home page
3. Click "Host" button
4. Set up location to "Unimelb south lawn" and suburb to "Parkville"
5. Click "OK"
6. Pretend to tap peoples phones (Tap anywhere on the screen)
7. Click 'OK' to confirm people who have checked in to your phone
8. "Confirm" check in details
9. Close the pop up after reading

Task 6

[Start this task at the same point the last task finished]

You have just finished shopping at Woolworths and are holding bags of groceries in each hand and are approaching the check out area. You struggle to hold all your shopping bags in one hand in order to check out . After you arrive home you decide that you want to turn on auto check out in case that happens again in the future.

Task 6 walkthrough steps

Start on home page

PATH A

1. Click "Check-In" button
2. Click "Enable" under "Automatic Check-in"

PATH B

1. Click hamburger icon
2. Click "Settings"
3. Turn on automatic check-in
4. Click 'Confirm'
5. Click 'Home'

Task 7

<https://xd.adobe.com/view/78f4783f-425e-499c-84f4-b1a0f638cea7-2da7/?fullscreen&hints=off>

Myer in Chadstone was just announced as the exposure site for 2:02pm on the second of March 2021. You remember that you had visited that location on that day. Although the app did not send you a notification that you were present in an exposure site, you decided to double check the time you visited the store using Key-19.

Task 7 walkthrough steps

1. Click hamburger icon
2. Click “Check-in history”
3. Read the past check-ins and locate **Myer Chadstone** (explain there will be a filter function but we haven't implemented this yet)
4. Look at colour and see if it is an exposure site

De-brief

Thank you for walking through all the tasks. We now would like to ask you to complete the post-evaluation questionnaire and the demographic survey. Please provide us with as much information and feedback as you would like.

Post-evaluation Questionnaire

1. Please rate Key-19 using the following scales:

	Strongly disagree	Moderately disagree	Neither disagree nor agree	Moderately agree	Strongly agree
1. I think that I would like to use this system frequently.					
2. I found the system unnecessarily complex.					
3. I thought the system was easy to use.					
4. I think I would need the support of a technical person to be able to use this system.					
5. I found the various functions in this system were well integrated.					
6. I thought there was too much inconsistency in this system.					
7. I would imagine that most people would learn to use this system very quickly.					
8. I found the system very cumbersome to use.					
9. I felt very confident using the system.					
10. I needed to learn a lot of things before I could get going with this system.					

[Adapted from SUS — System Usability Scale. Developed by John Brooke at Digital Equipment Corporation.]

[Open ended questions about usability, usefulness and UX]

Post-interview questions

1. Would you use Key-19 in your daily life? Is it useful? How does it impact them as a citizen/health care worker/government employee?
2. Which aspect of the app would you use the most and why?
3. What did you like about the prototype? How was your experience?
4. How did you feel about the interface? Colour? Design?
5. What didn't you like about the prototype? Why? How did it make you feel?
6. Do you know anyone (other stakeholders) that would be excited or particularly interested to use this prototype.
7. Do you know anyone that would be excited or particularly interested to use this prototype?

Demographic survey

Age range	
Gender	
Stakeholder group	
Occupation	

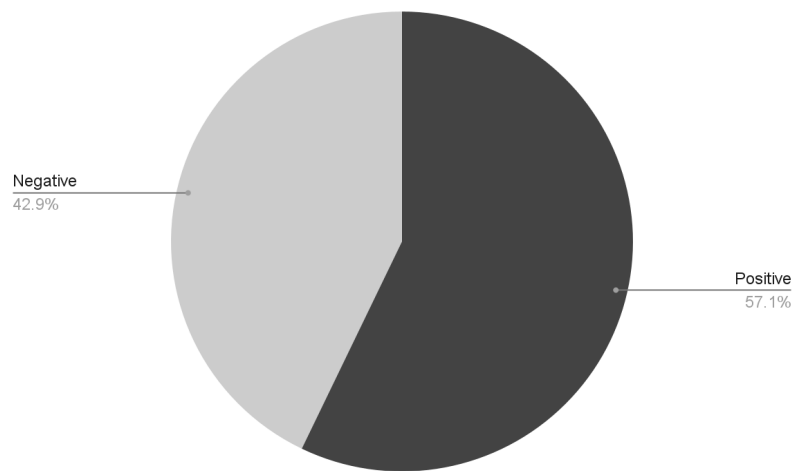
Closing

Thanks again for partaking in our interview. This will be invaluable in helping us with our research. Here is my email if you have any questions regarding this study.

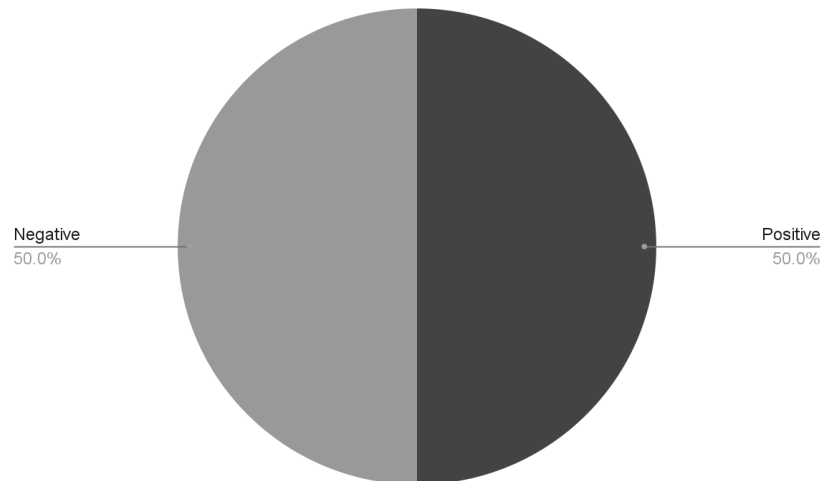
[Provide interviewee with your student email]

Appendix 2: Ratio of negative and positive themes of comments during the interviews

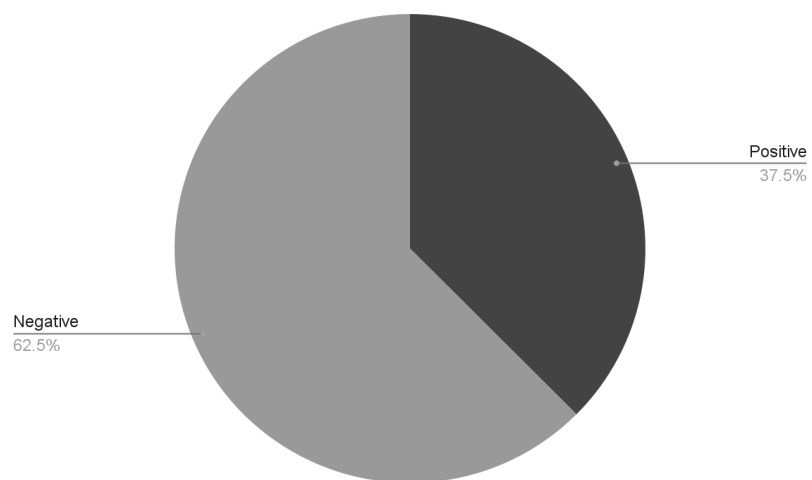
Usefulness



Usability



UX



Appendix 3: Meeting Minutes

MEETING 01

6 JULY 2021 2:00PM-3:00PM

(60 MINUTES)

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Establish means of communication
- Establish extra interview timings if needed (Monday: 11:30am, Wednesdays (as seen fit))

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	18 July 2021	Brainstorm 10 ideas
<i>NICOLA TOOMEY</i>	18 July 2021	Brainstorm 10 ideas
<i>PARIS ECKERT</i>	18 July 2021	Brainstorm 10 ideas
<i>SAM TURNER</i>	18 July 2021	Brainstorm 10 ideas
<i>VAISHALI NAIR</i>	18 July 2021	Brainstorm 10 ideas

NEXT MEETING: 28th July 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Establish means of communication
- Establish extra interview timings if needed (Monday: 11:30am, Wednesdays (as seen fit))

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	2 Aug 2021	Research COVID passport idea, situation-of-use
<i>NICOLA TOOMEY</i>		
<i>PARIS ECKERT</i>	2 Aug 2021	Research plant idea, situation-of-use
<i>SAM TURNER</i>	2 Aug 2021	Research food idea, situation-of-use
<i>VAISHALI NAIR</i>	2 Aug 2021	Research sustainability idea, situation-of-use

NEXT MEETING: ~~1st August 2021~~ 2nd August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Look a researched idea
- Pick a topic to carry out
- Assign tasks to prep for interviews and report
- Get started on documents

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	20 Aug 2021	Rich picture drawing
<i>NICOLA TOOMEY</i>	20 Aug 2021	Interview Script + questionnaire
<i>PARIS ECKERT</i>	20 Aug 2021	Situation-of-use
<i>SAM TURNER</i>	20 Aug 2021	Background research
<i>VAISHALI NAIR</i>	20 Aug 2021	Stakeholders table, assist with interview script

NEXT MEETING: 4th August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

→ Look through interview questions and clear confusions

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	11 Aug 2021	Interview and upload documents
<i>NICOLA TOOMEY</i>	11 Aug 2021	Interview and upload documents
<i>PARIS ECKERT</i>	11 Aug 2021	Interview and upload documents
<i>SAM TURNER</i>	11 Aug 2021	Interview and upload documents
<i>VAISHALI NAIR</i>	11 Aug 2021	Interview and upload documents

NEXT MEETING: 9th August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Discuss interview findings
- Point out interview themes

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	16 Aug 2021	Upload interview documents, COVID profile prototype
<i>NICOLA TOOMEY</i>	16 Aug 2021	Upload interview documents, set up report, check in prototype
<i>PARIS ECKERT</i>	16 Aug 2021	Upload interview documents, contact tracing (hotspots) prototype
<i>SAM TURNER</i>	16 Aug 2021	Upload interview documents, restrictions and news prototype
<i>VAISHALI NAIR</i>	16 Aug 2021	Upload interview documents, data and statistics prototype

NEXT MEETING: 16th August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Check in on prototypes
- Begin report
- Organise roles for presentation

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	18 Aug 2021	COVID profile prototype
<i>NICOLA TOOMEY</i>	18 Aug 2021	Check in prototype
<i>PARIS ECKERT</i>	18 Aug 2021	Contact tracing prototype
<i>SAM TURNER</i>	18 Aug 2021	Restriction and news prototype
<i>VAISHALI NAIR</i>	18 Aug 2021	Stakeholder table, data and statistics prototype

NEXT MEETING: 18th August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Confirm presentation roles
- Look through prototypes and breakdown any further requirements

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	21 Aug 2021	Refine prototypes, presentation script, voicing
<i>NICOLA TOOMEY</i>	21 Aug 2021	Refine prototypes, presentation visuals
<i>PARIS ECKERT</i>	21 Aug 2021	Refine prototypes, presentation script
<i>SAM TURNER</i>	21 Aug 2021	Refine prototypes, presentation visuals, voicing
<i>VAISHALI NAIR</i>	21 Aug 2021	Refine prototypes, presentation editing, stakeholders

NEXT MEETING: 21st August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

→ Have a think about the possible questions and directions regarding presentation

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	27 Aug 2021	Work on report
<i>NICOLA TOOMEY</i>	27 Aug 2021	Work on report
<i>PARIS ECKERT</i>	27 Aug 2021	Work on report
<i>SAM TURNER</i>	27 Aug 2021	Work on report
<i>VAISHALI NAIR</i>	27 Aug 2021	Work on report

NEXT MEETING: 30th August 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Pick a design idea
- Discuss next step for Assignment 2
- Distribute parts

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	27 Aug 2021	Japanese Myki and Apple pay, people against vaccine persona
<i>NICOLA TOOMEY</i>	27 Aug 2021	Eftpos, elderly persona
<i>PARIS ECKERT</i>	27 Aug 2021	Airdrop and bluetooth, parents persona
<i>SAM TURNER</i>	27 Aug 2021	Amazon store, young person persona
<i>VAISHALI NAIR</i>	27 Aug 2021	gym membership bracelets, accessibility persona

NEXT MEETING: 6th September 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Checked in on progress
- Established the timeline for work
- Split prototypes, personas, and scenarios

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	13 Sep 2021	People against vaccine persona, apple pay prototype
<i>NICOLA TOOMEY</i>	13 Sep 2021	Elderly persona, [alert check-in: check in history to alert functions] prototype, how to navigate through app
<i>PARIS ECKERT</i>	13 Sep 2021	Parents persona, [Group gatherings: host a group check in] prototype,
<i>SAM TURNER</i>	13 Sep 2021	Young person persona, [vaccination history: profile that links to vacation history] prototype
<i>VAISHALI NAIR</i>	13 Sep 2021	Accessibility persona, [RFID: automatic check in and confirmations] prototype

NEXT MEETING: 27th September 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Discuss designed prototype functions
- Establish visual language
- Fix a colour palette and typeface
- Split tasks

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	4 Oct 2021	Report
<i>NICOLA TOOMEY</i>	4 Oct 2021	Prototype
<i>PARIS ECKERT</i>	4 Oct 2021	Report
<i>SAM TURNER</i>	4 Oct 2021	Prototype
<i>VAISHALI NAIR</i>	4 Oct 2021	Report

NEXT MEETING: 4th October 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

- Set up for interviews
- Establish plan for presentation
- Go through interview script

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	11 Oct 2021	Interview, Photo scenario, recording, script
<i>NICOLA TOOMEY</i>	11 Oct 2021	Interview, prototype linking, script, findings
<i>PARIS ECKERT</i>	11 Oct 2021	Interview, video, script
<i>SAM TURNER</i>	11 Oct 2021	Prototype, script
<i>VAISHALI NAIR</i>	11 Oct 2021	Interview, findings

NEXT MEETING: 11th October 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

→ Run through slides

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	11 Oct 2021	
<i>NICOLA TOOMEY</i>	11 Oct 2021	Live presentation
<i>PARIS ECKERT</i>	11 Oct 2021	
<i>SAM TURNER</i>	11 Oct 2021	Live presentation
<i>VAISHALI NAIR</i>	11 Oct 2021	

NEXT MEETING: 18th October 2021

PRESENT: Manami Fujikawa, Nicola Toomey, Paris Eckert, Sam Turner, Vaishali Nair

AGENDA

→ Run through slides

ASSIGNED TASKS

Who	When	What
<i>MANAMI FUJIKAWA</i>	11 Oct 2021	Photo scenario, finish scenario
<i>NICOLA TOOMEY</i>	11 Oct 2021	Usability Rationale, finish scenario
<i>PARIS ECKERT</i>	11 Oct 2021	Editing, finish scenario
<i>SAM TURNER</i>	11 Oct 2021	Usability Rationale, skeleton for conclusion
<i>VAISHALI NAIR</i>	11 Oct 2021	Findings, executive summary skeleton

TOTAL MEETING MINUTES = 850 minutes \approx 14 hours