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Description automatically generated**

**COMP 3020 Project Milestone 0:**

**Team Contract**

Presented to: Dr. Patrick Dubois

COMP 3020 A02, Human Computer Interaction 1, Fall 2023

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1. **Interactions List**
2. **Outlook:**

I use the Outlook to send emails. The app works correctly as it's able to send the email to the desired recipient, but it sometimes fails to notify if the email has been sent or is stuck in the outbox maybe due to poor connection. The workaround for this is to make sure that there are currently no network issues before sending or just double-check the outbox before closing the app.

1. **Pizza hotline**

Pizza hotline website is bad. It looks very old. All the buttons are small with tiny fonts, and you don’t even know if a button has been pressed. It is so difficult to navigate. There is a list of customizable pizza on the home page. If you go to that link, you can start customizing a pizza, but it is not impossible to add the pizza to the cart since the page loops back to the customization section. The only get around is order their signature pizza (or not ordering at all).

1. **Staple website:**

I tried to order business card and it take me to a Canva website to design my business card (without the option to upload my design). If you want to upload your design, that option is hidden in the Canva interface. If you want to edit your order, for some reason, you must go back to the design step. There are 2 different buttons for ordering business card that takes you to the same place, one with a sale label and one without.

1. **Notepad:**

Notepad does exactly what I need it to do, taking note. Its interface is minimal and is very eyes pleasing. I can always find exactly what I need since there are not that much to navigate. Furthermore, it doesn’t format the word, so it makes the text easy to read, copy and paste. Also, notepad is super fast to open, as such you can just go for notepad when an idea pops up in your head. The only downside for notepad it is hard to find a specific word in the document. The best way to tackle this is structure your note from the get going, that way, you have an idea which section of the note contain which data.

1. **Language translation for picture with text:**

I use software to translate picture contained text in one language to text in another language. You can take a picture of a piece of text in a different language and the software will accurately give you the translation in the desired language. It is also intuitive and easy to upload picture for translation. The drawback is that if the picture is poor quality, it cannot be parsed or even if it can be uploaded, the translation quality is subpar. One workaround is to ensure your picture is of good quality before translating.

1. **Touchless Soap Dispenser:**

The dispenser detected hands seamlessly and provided the right amount of soap each time. Its touchless design ensured hygiene, especially during flu seasons, proving it to be an effective and sanitary addition to the bathroom. The only problem is that it is sensitive with surface that looks like a human skin. I once put on my note which was covered in leather on the sink and it dispensed soap on my note. I would just remember to not put anything important under the soap dispenser.

1. **Tracking service for online orders:**

I use a logistic app to track online orders from Canada post. I can receive accurate tracking information and the approximate location of my package. I could also track which warehouse or custom my package has traveled through. There is a problem with the long loading times for packages. I also sometimes get package not found error or not accurate information error. I would contact customer service if this were the case.

1. **Online Grocery Shopping:**

The online grocery platform I am using offers an intuitive and organized interface, making it easy to search for and add items to the cart. The platform also suggested recipes based on the items in the cart, adding an extra layer of convenience for meal planning. Additionally, the delivery was prompt and items arrived fresh, ensuring a satisfying shopping experience from the comfort of home.

1. **Google maps:**

I always use Google maps to provide a route to my destination. The app successfully provides an accurate route and timing required to reach the destination. The only issue is that sometimes due to poor network connection, the app stops responding and providing updates. The workaround for this issue is to have an offline map downloaded or simply load the whole route before leaving. Also, Google map is not very accurate for places that have a lot of shortcuts. For these circumstances, I would only use google map for estimating my location, not for routing.

1. **Transit App**

I use the transit app quite often to figure out my bus route to reach the university. The app works well for providing the route, time, and connecting buses but it fails in updating the user about a potential delay or if it's already delayed from the time it suggested at first. The workaround is potentially refreshing the app to get updates or just planning for a potential delay caused by the transit service.

1. **Design Principle**
2. **Responsiveness**

This principle highlights the need to give users clear, rapid feedback on their activities. It guarantees that users are aware of the status of their actions and that any problems they experience are simply understood and addressed.

In the instance of online grocery shopping, for example, the platform provides explicit feedback when things are added to the basket and proposes recipes depending on the contents of the cart. This positive interaction design assists users in making educated judgments while also improving the purchasing experience.

1. **Simplicity and Efficiency:**

This principle argues for simplifying and making interactions as efficient as possible. It involves removing unnecessary steps, lowering complexity, and allowing users to complete routine operations with ease, thus improving user satisfaction.

For example, the languages translation for picture with text is very quick to use. You just need to take a picture and upload it onto the translation app, which takes maximally 2 steps. This makes it satisfying to use and easy to work with.

1. **Error handling and Recovery**

This principle emphasizes the need of having a good interface to inform users of errors as well as assisting them in resolving them. This helps the user feel less confused and more comfortable as they are well informed if there is an error, and they receive help to fix the error. A good error handling system makes the interaction feel more streamlined.

The confused interface of pizza hotline demonstrates a lack error informing system and error handling. The website looping back for customizable pizza may have been an issue with the link in html. However, the user doesn’t receive any error message or any assistance to handle the error. This makes the interaction very frustrating and may come through as a dark pattern as the website may feel as if it forces the user to buy signature pizza.

1. **Intuitive Navigation**

An interface should be designed in a way that allows users to easily find what they're looking for without having to go through unnecessary steps or read extensive instructions. An interface should be minimal but complete in that it doesn’t contain redundant options but still has all the options the user needs in a visible place. Furthermore, an interface should work as the user thinks it would work.

A good example of this principle is Notepad. As notepad was designed with a minimal interface, it is simple to look for any option without having to go too deep into the software. Most of the editing options are also available in the right mouse click menu, which is convenient and intuitive.

1. **Functionality focus**

Designer must ensure that the interface does what it is supposed to do first instead of attempting to add too many functions. An interface with too many functions is confusing and error prone. Basically, this principle emphasizes that it is better to have an interface doing one thing very good than having it able to do many things but at a below average level.

A bad example of this is Staple business card website. They tried to implement a business card design section by adding Canva functionality. However, it is hard to use and confusing as people only expect to upload their design and check out instead of making their own while ordering on Staple. The Canva part has nothing to do with the business card ordering, but there is no option to skip which is annoying. They should have focused on making a good business card order interface instead of trying to have a design functionality.

1. **Interview**
2. **App/Website Choice**

We decided to choose UMBookStore. We decided to evaluate this because firstly, we are also going to design a form of bookstore as a replacement for UMBookStore, so getting user feedback as reference is beneficial for our project at a later stage. Secondly, the website is relevant for students, particularly those looking to purchase or rent a textbook. As such, we can easily gather a variety of users. Thirdly, we also have some thoughts on this website before the interview. It would be helpful to see if our thoughts match what the interviewees would be saying. Lastly, our team members were also familiar with how this website works so observing and understanding user interaction is easier and we can obtain more information.

1. **Task**

We asked the interviewee to complete the following task (this is not an inclusive list):

**Locating textbooks using name/author/ISBN:**

We tested their ability to find books using various search criteria, such as name, author, or ISBN. This investigation helped us assess the website's search functionality, which is crucial for users looking for specific course information.

**Locating textbooks using department/course/instructor:**

We ask the user to locate a textbook using the department/course/instructor. This task was posed since this functionality is only available on this website. As such, we want to see how efficient they find books with this method compared to the previous methods. Also, we also want to observe the learning curve for this functionality.

**Modifying query:**

We ask the interviewee to change their query for the department/course/instructor one. We know that this will result in an error since this website doesn’t allow such change. We want to see how users react to such errors and whether they can handle it with the given error message.

**Check out:**

We finally ask the interviewee to checkout. There is a large policy at the end, so we want to observe how they proceed with the policy and how they feel about it.

1. **Interview**
   1. **SpongeBob**

Spongebob identifies as a female and is 18-25 years old. She works as a support worker where she helps individuals with disabilities. Spongebob is focused and committed to being a nurse and is currently doing her prerequisites before applying to nursing school.

In evaluating the University of Manitoba bookstore website's interface, several strengths emerged. These included efficient navigation, clear search functionality, and user-friendly filters for departments and courses. Modifying preferences was easy, and search results usually delivered relevant textbooks. However, there is room for improvement in clarifying the primary search bar's functionality and enhancing the website's top section for first-time users. Addressing occasional loading speed issues and error messages would also enhance overall performance.

There were several aspects that Spongebob appreciated. These included efficient navigation, clear search functionality, user-friendly filters, easy modification of preferences, and the website's ability to consistently deliver relevant textbook search results. On the downside, there were some areas for improvement, notably the need for clearer labeling and placement of the primary search bar, as well as the potential to enhance the top section of the website for a more welcoming and intuitive user experience. occasional loading speed issues and error messages would also contribute to an overall improvement in the website's performance.

* 1. **Jerry**

Jerry is a male in his 20’s. Jerry is a third year Computer Science student at the University of Manitoba.

Jerry was able to find his textbooks by searching the name of the author, title, and ISBN. However, when Jerry was searching for the textbook through ISBN, he looked unsure if he should enter the textbook's ISBN in the same search box as he did with the title and author. It looked like he guessed, and it worked. Jerry was able to easily find all his required textbooks by using the department and course search option. He added all his courses and clicked "view materials," which gave him all the material for his courses. Jerry had no problems adding the textbooks to his cart and proceeding to check out.

After Jerry completed the tasks, we asked him what he liked about the interface. Jerry said he really liked the search option that allowed him to add all his courses at once and get all his material from all his classes. He said that was an efficient way to get all his material. He also said he liked the simplicity of the site, which allowed him to easily navigate through the website. When asked what he did not like, Jerry said he had a hard time figuring out where he should put the ISBN to search for the book, as there was no placeholder text that specified that the search box could take all the search methods (search by author, title, and ISBN). He said he just tried it, and it worked.

* 1. **Berry**

Berry is a 19-year-old first year student at UoM. Berry identifies as a male. While having experience with using other bookstore applications, this is his first interaction with UM bookstore.

In general, we feel that the user was able to navigate through the website and complete the tasks. However, since this is his first interaction, there was some struggle in locating all the label at first. Close observation reveals that there is a learning curve that lasts for 5 minutes until the user can comfortably begin the task.

We asked Berry to find a book using name/author/IBSN or using the department/course function. Berry used the wrong search bar at first. The user couldn’t find the book using name until the third time since he misspelled the book name twice. A query using author name only is proven to be inefficient as there are many authors with similar name.

We feel that the search using department/course/instructor was more intuitive as Berry got a good result on the first try. The only thing that is awkward about this interaction is that the user cannot change the department/course/instructor field but must delete a query.

The Add to cart and check out tasks took longer than we expected as Berry was confused by the option and policy for check out.

Berry enjoyed the search using department/course/instructor, telling us that it was responsive and easy to use. He also likes the fact that the website is compact and simple design. However, he doesn’t like the appearance of the interface, commenting that it is not visually attractive. He also doesn’t like the fact that there are 2 search bars, and he was confused by the functionality of them.

* 1. **Sapote**

Sapote is a 20-year-old student at UoM, studying Microbiology. He identifies as a male. Sapote has been using the website to check the price of textbooks. He has more experience than the other users.

Sapote was able to locate the correct search bar and was able to find the book using name, although it takes some time for him to look up for the book’s name. Searching using author name was not easy though since there are many authors with the same name. The search using department/course/instructor was more intuitive for him as he was able to navigate and do the query very quickly. The search for multiple books at the same time using this feature was also non-frictional.

As Sapote was more experienced, we asked him to find a pencil. Sapote spent a lot of time checking each category without finding anything. He was only able to find it after using the big search bar located at the top right corner of the screen. He could not be sure if that is really a pencil since there was no image.

Sapote likes the fact that the website was fast for searching textbooks and checking the price. He prefers using the department/course/instructor as that process was more straightforward than looking using name/author/ISBN. He doesn’t like that there were too many references material included in the result when using department/course/instructor. He also feels that the website was so cluttered, especially the labels on the left side.

* 1. **Es**

Es is a male senior-year computer science student at the University of Manitoba, roughly 23 years old.

Es had difficulty locating the search button as there were 2 places for the search buttons. Despite some initial challenges, he was able to find textbooks using search with name/author/ISBN.

Navigating through the filter for department/course/instructor was also not straightforward for him as the search button for this functionality is far from the selection options, making it hard to notice. He also found out that changing the pre-selected filters was not an option.

Eric finds that the website was easy to navigate overall, however, the experience was not particularly satisfying. He also noted that some functionality was unnecessarily complicated. He likes the idea of a dedicated search bar for books but doesn’t like how it was located. He was also frustrated by not being able to change department/course/instructor filters.

1. **What we learned from Looking and Asking**

Using Looking, we were able to evaluate the usability of the website from a user's standpoint. We were also able to pinpoint elements like the effectiveness of the search functionality, the usability of the filters, and the simplicity of changing preferences. We also notice that different users have different learning curves when it comes to navigate the website. Generally, the more experienced user had an easier time interacting with the website. An interesting thing is that experienced users were able to locate the correct search bar while that was not the case for new users. Most of the users prefer using department/course/instructor than the other search method. More experienced users would gloss through the policy when checking out while new users spent more time on that part.

We were also able to gain some insights when using ‘asking’. People generally comment that they love how simple the website is and how easy it was to use the department/course/instructor. They also confirmed that the search bar was hard to locate. These answers coincide with our observation during the ‘looking’ phase. We were also able to learn about their preferences and what changes they would want to make to this website. Some of the interviewees want the search bar to show hints while they type so that misspellings can be reduced. Some also comment that they want the website to be more visually appealing and less cluttering. Overall, ‘Asking’ provides a more personalized perspective by focusing on the user's perceptions and preferences.

Most of the time, our ‘Looking’ and ‘Asking’ yielded similar results, apart from one being more objective and the other being more personalized and preference based. There is only one instance where the user answers differently from what we see. They were mis-clicking multiple times on the left side menu but when asked if it was too cluttered, their answer was no.

1. **Summary**

Overall, we learnt that the website was simple to navigate but not visually attractive. We also noticed that some parts of the website were too cluttered and confusing. There are 2 search bars (button) so it was very difficult to choose the correct one. We also learnt that the user was annoyed when something doesn’t work as they intuitively thought, an example for this being the user must delete the filter instead of updating it, which is counter-intuitive for most users. We also realized that the lack of images is a problem when a user decides whether to buy a textbook.

UMBookStore was not as under implemented and hard to interact as we initially thought. The search using department/course/instructor was very well designed and people like using it. The website was also simple, so the learning curve was not brutal.

‘Looking’ and ‘Asking’ worked in that they provide information from different perspectives. We were able to observe and evaluate how well the user interacts with the website using ‘Looking’ and identify potential problems and pitfalls. These insights will be valuable when we start designing our own interface. Using ‘Asking’, we were also able to find out user preference and what is their personal expectation for a BookStore website. The interesting thing about ‘Asking’ was the fact that our interviewees were more than willing to suggest changes to the website and challenge the design as UMBookStore looks a little but unfinished. We will try to integrate their comments and suggestions while designing our product.

For the next time, firstly, we would like to have a broader distribution of interviewees. As our interviewees are university students, we couldn’t get insight from other groups of users, for instance, professor or simply someone not a student wanting to buy reference material. Secondly, having a dummy account prepared is going to be beneficial. As our user didn’t log in (and they also didn’t want to log in during the interaction), we could not test the check out session all the way. Thirdly, we would like to have task categorized in terms of difficulty. This is so that we can see the learning curve clearer and gain insight form it.

1. **Appendix**

**Idea List**

**1. Laptop Adapter:**

The adapter for Dell laptop adapter is large and heavy but its wire is too short. It is super difficult to use it in an office (even though that is where it is supposed to be used). If the outlet is installed below the desk, your adapter will be hanging mid-air. It is also very difficult to carry it in the bag since the adapter alone takes up too much space.

**2. Toilet Paper:**

You know the toilet paper dispenser we have in the school toilet? The paper is supposed to be use to wipe your hand when they are wet. However, if your hand is wet the paper crumbles in your hand so it is hard to take anything out. There is also a button to dispense more paper, but that button is often jammed. I had to use a hand dryer before pulling any toilet paper.

**3. Microsoft team:**

My office uses Microsoft for communication and as someone who has been using discord forever, I don’t link Team. The team is really laggy, it struggles to open on my laptop and sometime crash without any reason. Setting up Team is also annoying since sometimes it will log you out without any warning. The interface and the search function are also not very well built. It is hard to find something in the chat because the search doesn’t point you directly there but only somewhere near it. I can’t take call because Team is so slow and the other put down their phone before I can even answer.

**4. Oven timer:**

The timer in my oven has a cancel button for both the timer and the oven and a set timer off button. So, if you accidentally press on cancel while you only want to reset timer, it will reset both. The Oven needs to reheat every time when that happens, which is really time consuming.

**5. Pizza hotline**

Pizza hotline website is bad. It looks very old. All the buttons are small with tiny fonts, and you don’t even know if a button has been pressed. It is so difficult to navigate. There is a list of customizable pizza on the home page. If you go to that link, you can start customizing a pizza but can not add it to the cart since the page loops back to the customization section without adding anything. The only get around is order their signature pizza (or not ordering at all).

**6. Window 11 right click menu**

The window 10 right click used to show every option. Window 11 now require you to hit shift + F10 to show something you need. It is very unclear how to turn this option off. Although this seems to be a simplification for those who wouldn’t use Window at a higher level, there should be an option to turn this off which is easy to find. I had dig deep into the setting to change it back to the normal right click menu.

**7. Staple website:**

I tried to order business card and it take me to a canva website to design my business card (without the option to upload my design). If you want to upload your design, that option is hidden in the canva interface. If you want to edit your order, for some reason, you must go back to the design step. There are 2 different buttons for ordering business card that takes you to the same place, one with a sale label and one without.

**8. Spotify:**

I used Spotify pretty much for discovering music. It can usually find something that I might like based on what I have listened to before. The interface is easy to navigate (as it seems to be a one-page website app).

**9. Notepad:**

It does exactly what I need it to do. Taking note. Its interface is minimal (unlike word) and I can always find exactly what I need. Furthermore, it doesn’t format the word, so it makes text easy to read. Also, it is fast to open.

**10. Discord:**

I use it for chatting. It to find who you want to chat with (unlike Microsoft team). It is also easy to organize the server channel to separate conversations topic. Hopping on to a call is also easy as you don’t have to actively wait for someone to pick up but just jump into a voice chat. You can also add bot and connect to Spotify to listen to the music in voice chat.

**11. Unlocking your phone:**

If you’re using face recognition, it works most of the time under good lighting and no obstruction in the way of the camera. This can fail if the lightning quality is bad or obstruction near your face. Fingerprint can also fail if your hands are wet or dirty. Workaround is pin where you dont need to rely on receogniztion of face or fingerprint.

**12. Order DoorDash:**

Used to order food online and have it by my door step in a timely manner. Does a good job of making the interface user friendly and easy to navigate. Payment is very easy via apple pay or android pay. Poor interaction is if they got the order wrong or the item is out of stock. Workaround is trying to order from a different store/resutrant or communicating better with the driver/resturant.

**13. GPS:**

Used to get places quickly and accurately. It is successful if the map leads you the distention accrautly and in a timely manner. Poor interaction is if you arrive at incorrect location or is unaware of obstruction in the road.

**14. Strong(workout tracker)**

App that users can input workouts into. The UI is user friendly and not lots of things going on in the screen, very easy to input workouts and rests periods. Poor interaction is that it doesnt have a lot of workout listed in the app.

**15. Internet connection:**

Browsing the web or playing games requires the use of the internet. You don’t need to know the technical aspects of a router, just plug it in and do whatever you want. Poor interaction is if you disconnect from the web or speed is slow. A workaround could be switching to ethernet for better connection or switching to a new network provider.

**16. Microtransactions:**

Purchasing in game items for real world currency. It is successful if the transactions are secure and easy. Poor interaction can occur if there is error in payment, wrong charges, or if the purchased items are not found in game. Work around could be contacting customer support or charging back if using paypal or credit card.

**17. Online banking:**

Managing your online bank accounts through browser or apps on mobile. Successful interaction would be secure access to account, smooth transaction and good customer support. Poor interaction is if the website or app crashes or if the trasnactions fails. Workaroudn is customer support or using another form of payment.

**18. Food scale:**

Using a food scale to accurately track the amount of food that your are consuming. Successful interaction is getting the accurate representation of the weight of the food and making sure that it turns on. Poor interaction is if the scale is not calibrated and gives you the wrong units/weight. Workaround is to reset the scale and make sure you are using the right container to weigh food.

**19. Language translation from text:**

Using software to translate picture in one language to text in another language. Successful interaction is that it accurately gives you the translation in the desired language and easy to upload picture for translation. Poor interaction is if the picture is poor quality and cant be parsed. Workaround is use better quality picture or a better translation app.

**20. Tracking service for online orders:**

Using websites or apps to track online orders like Canada post or store. Successful interaction is receiving accurate and latest tracking information about your package and having good customer service. Poor interaction is long loading times for packages, getting package not found, not accurate information. Workaround is to use another tracking app or to contact customer service.

**bad interaction:**

**21. Interaction with Smartphone:**

While attempting to send a text message, the smartphone’s auto-correct feature continuously altered the intended words, making the process frustrating. The message was eventually sent successfully after manually correcting the errors. In future, considering turning off auto-correct during important conversations or being more attentive to the suggested changes before sending might mitigate this issue.

**22. Interaction with GPS Navigation:**

The GPS provided accurate and timely directions for most of the journey but struggled to reroute in areas with poor signal. When the signal is weak, having a backup navigation tool or a physical map could be beneficial.

**23. Using Fitness Tracker:**

The fitness tracker successfully recorded steps and heart rate but struggled to accurately track sleep patterns. Ensuring the device is worn snugly and is charged sufficiently may improve its performance.

**24. Interaction with a Smart Watch:**

While the watch accurately tracked fitness metrics, it often lost its Bluetooth connection to the paired smartphone. Notifications were inconsistent, and sometimes the watch would disconnect without warning, requiring a manual reconnection.

**25. Online Event Ticketing Platform:**

Trying to secure tickets for a popular event proved frustrating as the website kept crashing due to high traffic. Even when it worked, the seat selection tool was glitchy, and it wasn't clear if selected seats were actually available or already taken by another user. After multiple attempts, the transaction timed out, leading to lost opportunities and dissatisfaction.

**good interaction**

**26. Using a Laptop:**

The laptop worked efficiently for most tasks but had heating issues during high-performance demands. Using a cooling pad or working in a cooler environment might alleviate this problem.

**27. Interaction with an E-Reader:**

The e-reader provided a comfortable and glare-free reading experience, allowing for prolonged reading sessions without eye strain. Its ability to adjust font size and background color made the experience highly customizable, catering to individual preferences, which enhanced the overall reading enjoyment.

**28. Using a Voice Assistant Speaker(like Siri):**

The voice assistant recognized commands promptly and provided accurate responses, facilitating a hands-free experience while multitasking. The sound quality was also commendable, making it both an informative and entertaining device to have in the home.

**29. Interaction with a Touchless Soap Dispenser:**

The dispenser detected hands seamlessly and provided the right amount of soap each time. Its touchless design ensured hygiene, especially during flu seasons, proving it to be an effective and sanitary addition to the bathroom

**30. Online Grocery Shopping:**

The online grocery platform offered an intuitive and organized interface, making it easy to search for and add items to the cart. The platform also suggested recipes based on the items in the cart, adding an extra layer of convenience for meal planning. Additionally, the delivery was prompt and items arrived fresh, ensuring a satisfying shopping experience from the comfort of home.

**31. Clock (Alarm) App:**

My alarm clock goes off around 7:30 am every day and I turn it off when I wake up. The alarm clock functions as desired in most cases with exceptions being when the volume is too low, or I simply turn it off while I want to snooze it. The simplest fix was I change the way the snooze and turn it off functions worked to differentiate between the two and keep the volume of the alarm separate from my phone volume.

**32. Transit App:**

I use the transit app quite often to figure out my bus route to reach the university. The app works well for providing the route, time, and connecting buses but it fails in updating the user about a potential delay or if it's already delayed from the time, it first suggests. The workaround is potentially refreshing the app to get updates or just planning for a potential delay caused by the transit service.

**33. Toasting Bread:**

I use the toaster to toast slices of bread or bagels in the morning. The slices of bread or bagels are toasted evenly on desired settings, but the issue essentially arises when the timer and temperature are misaligned which results in some areas being under toasted or burnt. The workaround is double-checking the timer and temperature settings.

**34. TD App:**

I attempted to deposit a check using the app's check deposit feature. The app completed this task successfully, but the app did have some issues while recognizing the check and crediting the funds. To avoid the problem simplest fix, I discovered was to make sure to provide proper lighting and position the check corresponding to the instructions provided by the app.

**35. Google maps:**

Using google maps to provide a route to my destination. The app succeeds in providing an accurate route and timing required to reach the destination. The only issue that sometimes face is due to poor network connection app stops responding and providing updates. The workaround for this issue is to have an offline map downloaded or simply load the whole route before leaving.

**36. Amazon shopping:**

I purchased an item on the website. I was able to successfully search for an item and proceed to checkout. The point of failure occurs during the checkout process if the payment option misaligns with the delivery address. The fix for this is to make sure that the address provided for the payment option matches your delivery address beforehand.

**37. YouTube music:**

I use the app to stream music. The apps allow you to search and stream music, but it fails in areas with poor connection or slow network leading to buffering of songs. The workaround for this is to use the smart download which downloads some of your favourite songs beforehand.

**38. Smart Thermostat:**

I use a mobile app to adjust thermostat settings. It allows me to change the temperature simply from my room, but sometimes the commands provided don’t reach the thermostat. The workaround for this is that I manually adjust the thermostat.

**39. Outlook:**

I use the app to send emails. The app works correctly as it's able to send the email to the desired recipient, but it sometimes fails to notify if the email has been sent or is stuck in the outbox maybe due to poor connection. The workaround for this is to make sure that there are currently no network issues before sending or just double-check the outbox before closing the app.

**40. Smartwatch:**

I use this Galaxy watch along with my Samsung device. The watch allows me quick access to some phone features, but sometimes changes from my phone aren’t updated to the watch like message history. The workaround for this is that I re-sync my phone and watch after some time or just make sure to update my watch software on time.