1. **Introduction**

The Formula One app is the official media hub for everything related to Formula One, it is considered the one place for all your Formula One needs with a variety of features and is available globally. “Available in over 80 countries” (**Lynch**,2023) it provides a range of services from live telemetry data, live race timings, driver standings, and links to external services: such as the F1 Official store, F1 Fantasy game and more. This is why it is the most popular and most used app for following the sport by fans making it the most used, this is quite significant due to their live timings and real-time data. The app is not only for live race data but also provides users with the latest sports news or highlight reels for them to watch in the off-season, to keep their user traffic up during non-peak times by enhancing the user experience and understanding of the fast-paced world of Formula One.

**Ethical Considerations:** There are a few ethical issues I had to consider when conducting this test, the first thing I looked at was user privacy and what ways I could keep the participants anonymous without revealing real identities seeing as how most sports apps require a registration/log in which requires using personal details to sign up, I asked participants to use false data so that their anonymity isn’t compromised, and no data is leaked during the testing, I also had an ethical form submitted and approved for the study, being transparent was also key with participants explaining how the data will be used and in what way and understanding how different participants will have different experience with the app.

1. **Background Investigation**

**Literature Review:** I went Exploring through the current existing research on the usability of sports apps and it revealed a range of things that would contribute to the success or to the potential problems/challenges that they could face.

One of the main focus points was how user retention within these apps differentiates depending on the demographic such as their age, technological experience etc. as most researchers seem to agree is that “Fitness apps are swamping the mobile app market” (**Beldad and Hegner,** [2018](https://www.nature.com/articles/s41599-023-02011-3#ref-CR10)), “with almost one in every five users downloading this type of app on their device” (**Fox and Duggan,** [2021](https://www.nature.com/articles/s41599-023-02011-3#ref-CR31)), and how the experiences and intention of certain sports apps may differ depending on these demographics, however other demographics like educational and socioeconomic position could perhaps also influence the users desire to use the app whilst fitting in with the users lifestyle.

Another crucial aspect I found was user satisfaction with research highlighting the role of gamification, gamification can be used to enhance the user experience and involves incorporating elements like narratives or plots, “you use it to inject fun elements into applications and systems that might otherwise lack immediacy or relevance for users.” (**IxDF**. (2016, June 29**)** this technique has been shown to have positively impacted users continued intent to use the app “Prior research has indicated that applying the concept of gamification to mobile applications can contribute to enhancing UX, thereby improving users’ continual intention to use the application.” (**Ahn, H., Park, E.** 2023)

In summary the research on sports app usability shows a complex need for multiple different factors that can contribute to their success or failure, and user satisfaction can be influenced by things like gamification and ease of use, it plays vital roles but the actual impact of these apps on seems to depend on the loyalty of the users.

**Relevance to Formula One App:**

Based on the research the Formula one app with its live race timing and detailed analytics could benefit from a gamification element to further engage users. However, it could have unique blow backs as the fandom would most likely want to see the data.

Whilst the Formula One app user engagement is high during the sporting season it shows after research that the engagement lowers drastically, this is due to the fact their will be no live timings or races to follow, as Formula One have many other platforms for their news and entertainment, the app has little outside of the race season.

In summary the Formula One app could incorporate gamification elements, different demographic patterns, ways for long-term engagement. After my research I found that these elements could help create a more user friendly and effective app for users.

1. **Review of Usability Evaluation Techniques**

**Techniques Overview:**

I looked at many techniques for testing the usability of the Formula one application and the pros and cons of each method.

**Heuristic Evaluation:** is the method for identifying problems in the design within the user interface based on the 10 Usability Heuristics, you also develop a good understanding of what areas you may need to look at more by doing a Heuristic evaluation first. “Heuristic evaluations are useful for stretching a limited UX research budget, because they help you find likely issues without having to test with participants.” – (Moran, K & Gordon, K 2023)

* **PROS:** Quick & cost-effective, can be conducted by small number of evaluators and can identify major usability problems early on in the design process.
* **CONS:** Relies on the expertise of the evaluators; less experience might mean less problems are noticed; they may not identify all issues as it lacks interaction from real users, and it can be somewhat subjective due to its reliance on the evaluator’s results/judgement.

**Usability Testing:** This approach is a more hands on method where I would use real users and observe them performing specific tasks**,** this method does allow a better chance at collecting more qualitative and quantitative data about how the application performs in real time scenarios.

* **PROS:** Involves actual people, which can provide a more direct and accurate feedback, It can uncover a broader range of usability issues, and the data it provides is both qualitative and quantitative
* **CONS:** Comparing this to the Heuristic method with this one as it can be quite expensive in comparison & more time consuming, It requiresrecruiting participants which can be challenging and time consuming also, it may not be a complete representative of opinion if the group is small and not diverse enough to represent all demographics.

**SUS Scores:** SUS is a simple 10 Question questionnaire with a rating scale from 1-5 Strongly agree to Strongly Disagree, it is also considered as a “quick and dirty usability scale” that is used to evaluate a wide scope of software and UX systems and can be used for almost anything in regard to software, hardware, products, and services alike.

* **PROS:** It can provide a quick and standard usability measurement, it’s easy to conduct the questionnaire amongst a large number of people/users and can generate a total score to help measure if the app is deemed usable or if not, you have a simplified comparison to look across to find what made its score low.
* **CONS:** It will only provide A rough sense of the apps usability and cannot go into specific details on any issues, it could also be influenced by external factors as well such the participants mood or biased towards what they are testing, the score is also not absolute as it depends on interpretation and number of participants.

**Application to Formula One App:**

Based on my research I would say a moderated session of Observational Usability Testing is the best approach for this application as designers could get in time reactions and feedback about the app, it also allows them to get a better understanding of any problems within the app, their would be some drawbacks such as, recruiting participants and more time consuming, but they would receive more qualitative and quantitative data, as the Formula One app serves to a lot of people across multiple platforms, they would need the most accurate data possible.

1. **Selection of Method(s) Rationale for Method Selection:** For my testing, I chose two methods; the methods I chose was an unmoderated Observational usability testing & Remote System Usability scale with task list: in my evaluation of the formula one app I deployed the SUS scale to effectively test the usability off the app using a more diverse participant demographic, it was also less time consuming having not needed to recruit participants for in person testing, I had two of the participants from the SUS method were willing to complete theirs unmoderated and in person allowing for the observational method to be used, however as it was only two participants the data was conclusive nor qualitative. I found the SUS method to be very insightful in results finding, I believe the outcome could’ve been different if I had more to observe. In future I think I would still use SUS for its more qualitative and quantitative data capturing.

**Planning and Implementation:** My starting point was creating the ethical checklist and recruitment letter and getting approval, After asking a wide demographic of participants I selected the 10 at random making the data more authentic and unique, I scheduled a remote session with the participants explaining the task list (seen in section 5) and how they will do the sus scale questionnaire, informing them to try and answer questions without thinking too much on the outcome, once participants were briefed they were given 5 days to test the app and submit their questionnaires. All data recorded was then analysed to understanding the sus score for the app.

The Two that were willing to be observed, were both invited to a session of observational testing in which I was present but not moderating and I took videos and photos of their progress working through the same task list, they were also asked to complete sus questionnaires.

The task list worked well for the Formula One app as it allowed for a wider range of the apps features and services to be tested in a more targeted and specified way.

1. **Usability Evaluation/Test Description**

**Implementation of the SUS Questionnaire:** The sus questionnaire was adapted to the Formula One app by slightly tweaking the questions on the questionnaire to fit the context of the app and ensuring that the questions are directly related to the usability and functionality of the app.

The execution was simple and straightforward once the participants had been selected making sure there is a mix of demographics,

The adapted SUS questionnaire was then sent as a word document to the participants, on completion the participants returned their completed questionnaires.

Once the results were collected and analysed I then calculated up the participants SUS score using the SUS calculation, each participants score was then calculated to and used to create an average score which measures the apps usability and provides insights into the apps strengths and weaknesses.

Below are links to the observational tests of the users going through the task list, the users were kept out of the filming due to wanting anonymity, they were filmed going through some of the tasks, however the Beginning – End of the task list was done by one of the users through screen recording.

**Videos of Observational User Testing: Unmoderated**

Beginning of the task list - <https://youtu.be/aPB9b6TslwI>

Middle of the task list - <https://youtu.be/c5Y9yt8l8rg>

End of the task list - <https://youtu.be/oH97kdyrLvY>

Changing Account info - <https://youtube.com/shorts/Q1PpzkMKWPw?feature=share>

Driver Bio’s - <https://youtube.com/shorts/zBOvuKk1TqY?feature=share>

Three race results - <https://youtube.com/shorts/a1XRXIslOZQ?feature=share>

Three race dates - <https://youtube.com/shorts/sSt5EsckuYg?feature=share>

Below are two images of the user looking at driver’s bios and creating a account (using false information).

A hand holding a phone with text on it

Description automatically generatedA person touching a phone

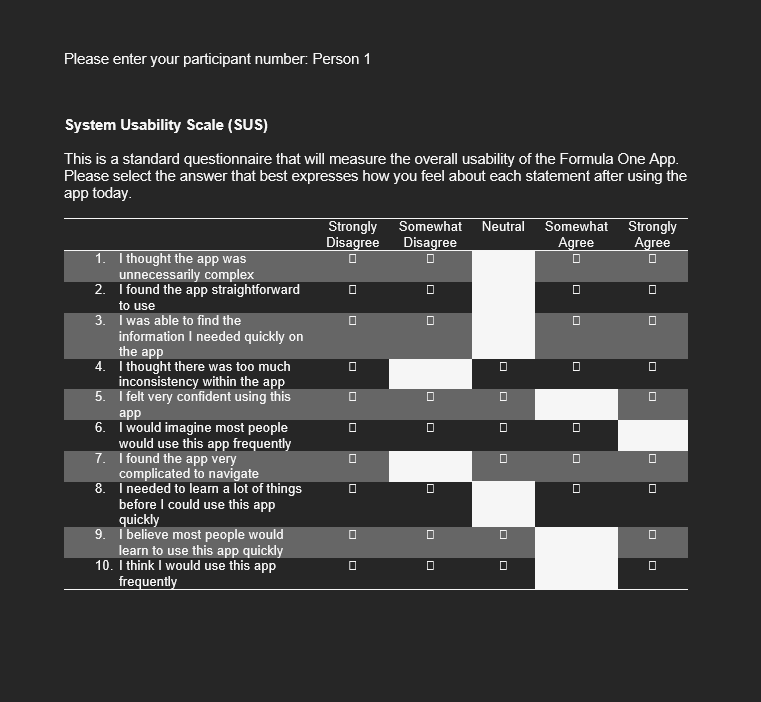
Description automatically generated

The task list was created based of the functionality of the Formula one app, and its usability, the tasks also had to match what the SUS questionnaire so that what users were doing during the test would correlate with the questionnaire, so it doesn’t confuse the participants.

A white and black checklist with black text

Description automatically generated

You will see below the filled in SUS questionnaire that participants filled in when they had completed the test, (Person 1), you will notice that this users experience was rather average having difficulty with the app, and needing to learn about the app before they could use it properly.



A screenshot of a computer

Description automatically generatedThe below image is another participants questionnaire that has already been taken from the Word questionnaire and was placed into an Excel spreadsheet that was then used to store each outcome from each of the participants’ results page.

1. **Data Analysis, Results, and Recommendations**

**Analysis of Findings:** The Summary of my findings is that the Formula one app was not user friendly, as the SUS score revealed that it falls majorly below the average of 68 my findings found that from the 10 participants the average score was 53.75 and that most users struggled with the navigation aspect of the app other anything else, the users reported during the observational test that they found the app to be rather confusing and hard to find features on the app such as; finding the F1 Store, looking for drivers biographies, etc. we also found that, out of the demographic I had picked during the recruitment process, I found that those who knew less about technology found the app easier to use due to knowledge of the sport then participants who had more technological experience but none about the sport.

Below are the results of my finding with their calculated sus score, (please note that results on display correlates to their questionnaire answer, not the final equation, that is stored on the right-hand side) this was done by using the SUS calculation with positive questions being odd numbers and negative questions being the even ones, with positive we did 0-4 and their answer being 5 - (? User answer) = (answer) and the same with negative except we would do by minus 1, once I had gathered the final scores and calculated them up, I would then dived by 10 (the number of participants) to get the total score.

A white sheet with black lines and numbers

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**Recommendations:** based on my findings from the usability test of the Formula one app where the average System Usability (SUS) score was 53.75 which is significantly lower than the average benchmark of 68 and considering the specific difficulties users faced, especially navigation here are my recommendations.

**Enhance User navigation** – Given most users found it difficult finding their way through the app I suggest they look at their app layout and make a more intuitive menu/layout that will allow users to label what it is they are looking for especially the F1 store.

**User onboarding experience –** Introduce a new onboarding system that gives new users a tutorial on how to find key features highlighting a more guided approach to exploring the app.

**User Feedback integration –** Regularly collect users feedback through the app and then adjust based off the user’s feedback, either through forums or surveys.

1. **Discussion and Reflection**

Looking back on the evaluation process for the Formula one app, there were multiple key challenges that I came across from recruiting participants ensuring that a representative sample of participants especially when testing the Formula one app, this required a selective process of users chosen at random thus getting a variety of tech and sport knowledge and a mixed demographics to get more authentic data, as users from different demographics will have unique experiences.

Using their data to the understanding of the SUS score and how I got the score of 53.75 after testing, using the calculation method and understanding the positive and negative questions scale, as it’s also about finding specific aspects of what users found difficult by using a SUS questionnaire I was able to do so, then the challenge of addressing usability issues and not just identifying usability problems but also in practical sessions that would also enhance the user experience and address more UX issues. This Project has given me a deeper understanding of the complexities that are involved in evaluating and enhancing the usability of a sports app, seeing the in-depths of what features that may not seem big, but could potentially have a big impact into the success or failure of the app.

1. **Appendices**

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A screenshot of a graph

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A screenshot of a computer screen

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1. **Reflective Account** The project began with the clear objective of finding out if the Formula one app was user friendly and what improvements could be made, it began with selecting the methods of usability a big part of the challenge was choosing a method that I believed would be most effective, I chose the System Usability Scale method I believe this is the best method to use for a sporting app s it allows for am ore dynamic range of results, the lessons that I learned here is how important defined objectives to guiding the project. Recruitment of users was crucial as the diversity of participants in testing emerged to be a key lesson in highlighting the importance for gaining qualitative and quantitative when testing. Then using that to implement the SUS questionnaire which proved very challenging doing it remotely as It posed challenges in communication and testing with getting quality data. Looking into the data I collected and interpreting the sus scores was difficult, but I had learned that it is necessary to have such an in-depth analysis so that I can understand the issues and recommendations for improvement, proposing practical and impactful app improvements based on my data was a phase in which I found it challenging to link the findings and recommendations effectively at first, but with the project underlining the importance if the data, it made the link between the two a lot easier, to ensure that recommendations were mentioned for improvement and the usability of the app.

In summary this project helped me to understand the importance of user focused design and the adaptability of usability evaluation methods, the importance of understanding the commons fails and success of an apps development.

1. **References:**

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The development of the Formula Fan app was a project aimed at creating an engaging and user-friendly mobile application for young Formula 1 enthusiasts. This project sought to fill a gap in the market by providing a dedicated app that caters specifically to children, offering easy access to driver details, track information, live driver standings and the Seasons Calendar. Through detailed planning, iterative development, and user-centric design, the project achieved significant milestones and provided valuable learning experience for me.

The Formula Fan app offers a visually appealing and simple interface, making it easy for young users to navigate and find the information they need.

The Agile methodology, with its emphasis on flexibility and iterative improvements, proved to be an effective approach for this project. Continuous testing allowed for the refinement of features needs for its target audience. Despite some challenges, such as API integration and UI design, the Agile approach enabled the me to adapt and make necessary adjustments throughout the development process.

Several challenges were encountered during the project, including integrating real-time data APIs, handling geospatial data, and ensuring the app's responsiveness across different devices. These challenges were addressed through thorough testing and the use of efficient data management techniques.

This project provided valuable lessons in project management, technical skills, and user-centric design. My key takeaways include the importance of detailed planning and initial design which I took for granted and it caught me out at times. The effective use of modern development tools, the value of continuous user feedback, and the necessity of managing data retrieval for real-time applications. These lessons will continue to help create and explore new app ideas and improvements.

In conclusion, the Formula Fan App project was a successful endeavour that provided a unique and valuable tool for young Formula 1 fans. The app met its goals of offering detailed information and interactive features in a user-friendly format. The lessons learned and the experience gained from this project will be instrumental in guiding future development efforts, ensuring continued enhancement of the app's functionality and user experience. This project not only contributed to the academic and professional growth of the development team but also provided a meaningful contribution to the Formula 1 fan community.