Project Documentation/report thingo

Marking Criteria High Distinction:
"There is no doubt about the intended goals of the project. The team technical report is exceptional, well structured, excellent use of visuals, is a pleasure to read. The team demonstrates a comprehensive and exceptional in-depth critical analysis and an ability to synthesise information from different sources to explain the tools and technologies used in development of the prototype as well as exceptional research skills in appraising the range of competing products. The team gives an exceptional account of team collaboration and processes, shows an excellent grasp of ethics, security and data privacy issues and implications in their design, conducts an exceptional evaluation of their work and shows exceptional evidence of critically evaluating the problem, their solutions and implications."

Task Description:
Your team documentation should be a written technical report. There is a strict page limit of 15 A4 pages (not including title page, table of contents and bibliography). Your technical report must be structured, readable, use a font size no smaller than 11pt Times Roman,
must be spell checked and grammar checked and must include headings, sub-headings, diagrams and graphics (with captions) to aid readability. Any submitted materials that exceed page limits will not be graded beyond the page limits specified.
Your team documentation should include

1. An introduction that explains what your product prototype is, why the product is important and innovative and what problem it solves.
2. Justification for your prototype implementation choices, what you chose to implement, what you mocked up to illustrate functionality. Why you made the decisions you made.
3. A justified explanation of the tools and technologies you used and why these were the right ones to use.
4. Position your prototype within the competitive landscape and justify your choices based in sound research.
5. Detail the team project management and collaboration processes you used and how you structured your work to achieve project goals.
6. Detail the ethics, security and data privacy considerations relevant to your team project including a matrix of your identified risks, impacts and mitigations what eventuated and a reflection on what you would do in the future to limit these risks.
7. Detail your evaluation approach and reflect on what you learned from stakeholders.
8. A conclusion that summarises the main points from the technical report with recommendations for future development of your prototype.
9. A consistently formatted bibliography of relevant reference material and attribution of all external sources used.
10. If you have used ChatGPT, Copilot or equivalent, you team document must contain an appendix that lists all your prompts in English.

Title Page

Project Documentation: Flood Help

Possible Team

Introduction

An introduction that explains what your product prototype is, why the product is important and innovative and what problem it solves.

Possible Team have developed “Flood Help” a mobile flood-monitoring application designed for usage during extreme flooding events. Flood Help uses geographical information sharing API data to create a real-time picture of potential hazards and dangers related to flood events.

As an assistive technology, Flood Help’s primary goal is to help solve current problems experienced by the user group during flooding events. During the 2022 floods in Brisbane, Australia residents struggled to obtain accurate and reliable information often turning to social media as means of doing so. Flood Help resolves this issue by providing an easy way for Brisbane residents to access reliable information regarding ongoing or possible floods. The reliability is due to the flood information coming directly from the government and more importantly, the users themselves. What makes Flood Help stand out is that it connects family members and friends to give them the option to warn each other; furthermore, users are also able to post photos of the floods which others could use to take the necessary precautions.

Prototype Implementation

Justification for your prototype implementation choices, what you chose to implement, what you mocked up to illustrate functionality. Why you made the decisions you made.

Flood Help only requires the user to share their email for the purpose of signing up. This way, we minimise the amount of personal information shared while still maintaining a level of security for the app. A password is also required so that user accounts are kept safe from any malicious actors. An option to reset your password is also available for users who forgot their password.

The application itself shows the user a map of Brisbane. They are able to add other users as friends, and these users would typically be family members Users that are connected to each other can then communicate by alerting each other of possible floods. This is an important functionality which we made sure to include because communication was a major issue during the 2022 Brisbane floods, so this is meant to resolve that. Furthermore, users can post pictures of flooded areas; these are shown to everyone else using Flood Help, regardless if they’re “friends” or not.

Users also have the option to look at flood likelihoods around Brisbane based on historical data. This application is supposed to give users all the information they can possibly have to support their decision making, otherwise they could find themselves in a dangerous situation. Therefore, we implemented the additional option of looking at historical data to further inform users before they take a possibly life threatening decision.

Official government issued flood alerts are also shown to all users. We decided to show these alerts because they are the most indicative of any real danger. In addition, by showing these alerts on Flood App, we're providing an easier way for users to access official sources of data, and this prevents them from resorting to unreliable sources on social media platforms.

Due to the abundance of rivers in Brisbane, and also based on its history, the main cause of floods in Brisbane is the overflowing of the rivers. As a result, communicating the flood status of these rivers to the users is vital. Stations around Brisbane show the stream height status of these rivers, and we have access to that data through the Brisbane City Council public datasets. Therefore, on Flood Help's map, the users can observe real-time updates on these stations to help them with their decisions.

Tools & Technology

A justified explanation of the tools and technologies you used and why these were the right ones to use.

Front End

Back End

Project Management & Collaboration Process

Detail the team project management and collaboration processes you used and how you structured your work to achieve project goals.

Ethics, Security & Data Privacy

Detail the ethics, security and data privacy considerations relevant to your team project including a matrix of your identified risks, impacts and mitigations what eventuated and a reflection on what you would do in the future to limit these risks.

Since users must initially sign up after downloading the app, then having to share personal information is unavoidable; therefore, protecting that information and making sure we only ask for what's necessary to ensure data privacy is of utmost importance to us. Highlighting the steps we took to achieve this, all user information stored is encrypted, users are only required to provide their email address, and user locations aren't stored anywhere in the database. Failure to take these steps would

lead to a breach of trust between us and the users, in addition to putting them at the risk of phishing attacks due to leaked emails or at the risk of more serious offences due to leaked location data.

One ethical risk we've been actively mitigating is the possibility of flood risks being wrong or inaccurate. For example, this could occur if the shown user reports in the app are outdated. Another example is the possibility of the alerts taken from external sources being unreliable in terms of how factual they are or how recent they are. We've solved these issues by keeping track of how long the user reports have been posted and by only extracting official flood alerts from known sources.

Another ethical risk arises from the use of data from external sources; this specifically has to do with copyright and complying with terms of service. All sources we're extracting data from require the use to be for non-commercial purposes. In addition, some sources, like the Bureau of Meteorology, require that a link to the original source be present when the data is shown in Flood Help.

The security of our application is paramount, because Flood Help could indeed be the difference between life and death for many Brisbane residents, therefore we cannot afford to have the functionality of our application be disrupted at any point in time. This could potentially happen if external actors decided to spam false user reports or make any attempt at slowing down our server. Ensuring that there is a small but significant cooldown for posting user reports helps mitigate this problem; furthermore, requiring users to provide their email addresses when signing up reduces potential attack vectors.

Evaluation

Detail your evaluation approach and reflect on what you learned from stakeholders.

Conclusion & Recommendations

A conclusion that summarises the main points from the technical report with recommendations for future development of your prototype.

Bibliography

A consistently formatted bibliography of relevant reference material and attribution of all external sources used.

Appendix

If you have used ChatGPT, Copilot or equivalent, you team document must contain an appendix that lists all your prompts in English.