



Project Introduction

This project consists of the development of a mobile based application which utilises both a local and cloud-based database system. While also consisting of a research and literature review which focuses on the investigation of various existing data collection applications, suitable technology platforms, interface design methods and legal and ethical considerations. The project has various project phases throughout the lifecycle that consist of planning, research, development, testing, evaluation and reflection.

Aims and Objectives

Investigate viability of a bespoke cloud enabled data-collection application in the field of heritage.

- Determine the client requirements and remit of the data being collected.
- Investigate the culture of practice, legal considerations and ethical concerns of data collection.
- Investigate various existing data collection applications and viable development technology platforms.
- Investigate usability heuristics which can be applied to provide a positive user experience.

Develop a bespoke cloud enabled data-collection application in the field of heritage.

- Create a system interface design for the application using suitable usability heuristics.
- Develop a mobile-based application that can store data locally and via the cloud.
- Test and evaluate the application to identify whether or not it meets the clients given requirements.

Project Findings

Investigation in existing data collection applications found that various features such as capturing user-generated video and audio was not possible. Additionally, a lack of integration with a Content Management System was also a frequent issue. Moreover, paid subscription plans restricted users from being able to use the various data-collection features. The investigation in suitable technology platforms found that Android Studio and Visual Studio Xamarin were the best options for the delivery of the mobile application. Android Studio focused solely on the development of android applications.

Where Xamarin allowed for the development of cross-platform applications. C#, Kotlin and Java, were the best options for the development of mobile application development. 48% of developers use Java, 25% use C# and 16% uses Kotlin. Jakob Nielsen and Ben Shneiderman's usability heuristics were the two that were investigated which can be used to provide a positive user experience. Jakob Nielsen has 10 usability heuristics. While, Ben Shneiderman's focuses on 8 golden rules of design.

Testing Results

- Application was able to store data to the cloud via a cloud-based database system and file storage server.
- The application is able to partially store data to a local database, user-generated fields are able to be stored, media files were unable to be stored locally.
- Application did not contain a Content Management System.
- Various usability heuristics were applied to the application, but lacked certain aspects such as; user control, error prevention, error recovery and documentation.

Methodologies

Rapid Application Development - adaptive software development-based model, focuses on prototyping and development aspect of the project. Focuses less on planning. The outcome of using this is that a project is developed quicker with minimal errors present. Attempts to reduce inherent risk.

- Phenomenology was the research method chosen for philosophy.
- Inductive Approach was used as the method for approach.
- Action Research was the chosen method for Strategy.
- Cross-Sectional method was used for Time Horizons when conducting the project.
- Data collection methods consisted of structured and unstructured interviews.
- Evaluation criteria consisted of comparing the final project with the requirements and aims/objectives.
- Unit, Usability and Acceptance were the chosen methods for testing the application.

Project Conclusion

Various different phases were completed which included; research and investigating various key topics, investigating various development and research methodologies, the designing of a mobile application, developing the final product, testing and evaluating. The application was able to fulfil most of the clients requirements which were defined. Recommendations such as inheriting more usability heuristics, storing media files in a local database and connecting the application to a content management system.

The Final Product

