Software Project Two

IS52018C/F/S

**Project Definition**

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Project Definition

Contents

[Introduction 2](#_Toc149831873)

[Aims & Objectives 2](#_Toc149831874)

[Stakeholders 3](#_Toc149831875)

[Project Management Style 3](#_Toc149831876)

[Implementing a User-Centred Design Approach 4](#_Toc149831877)

[Resource Allocation 4](#_Toc149831878)

[People 4](#_Toc149831879)

[Technology 5](#_Toc149831880)

[Requirements Gathering 5](#_Toc149831881)

[User Requirements 7](#_Toc149831882)

[Software Specification 8](#_Toc149831883)

[Project Timeline 10](#_Toc149831884)

[Milestones 11](#_Toc149831885)

# Introduction

Our team is proposing to build a web application aimed at enhancing the experience of students and visitors to Goldsmiths. Our team will deliver a user-friendly digital map of the university, which will serve as a valuable resource for students and guests alike. The map will provide clear and detailed information about the campus layout and building locations. To make this a user-friendly experience, we will implement a system of QR codes placed throughout the campus. Users can scan these QR codes to access relevant information, including classroom and lecture hall details, ensuring they can easily find their way. This project intends to expand on existing solutions, primarily the static maps found around the outside sections of the campus, and the RHB (Richard Hoggart Building) room locator found on the Goldsmiths website. This proposal document will highlight how we intend to deliver this project.

# Aims & Objectives

The main aim of our project is to provide a digital map that simplifies navigation around quite a large and spread-out campus. The user will be able to look out for QR codes dotted around the campus in useful places, such as building entrances, and select where they are trying to go. Once scanned, the app will then suggest the most efficient route for them to take. To achieve this, we have identified several measurable objectives that will collectively contribute to the successful implementation of our project. We hope these objectives create a clearly defined set of boundaries for the project and will lead to the successful delivery of the minimum viable product (MVP) that aligns with our vision.

Objective One: Efficient Campus Navigation

The web application will provide optimised routes to guide users to their destination within the college.

Objective Two: Comprehensive Building Information

We will strive to improve the campus experience by providing detailed building information, such as room locations and accessible routes.

Objective Three: User-Centred Design

The web app needs to be accessible to the Goldsmiths’ student body. With a map app, this needs to consider both the design of the app and physical wayfinding – pointing out the lifts and ramps for example. The web app will need to work well on smartphones and laptops, but due to the nature of the app, smartphone compatibility needs to take primacy as students will most likely use their phone instead of their laptops to search for their room location.

# Stakeholders

The largest stakeholders are Goldsmith students. They are the most likely to require help navigating the campus, especially when they are new students. Understanding their needs and preferences is crucial to creating a web app that will enhance their experience whilst they are studying here. Visitors will also be big users of this. We will need to bear in mind they may be visiting as a prospective student (or parent), or as a visiting lecturer, or even as an outside contractor in to do building work. Their needs may be different to each and to the students.

The other stakeholders may not necessarily use the web app; however, we will still need to be mindful of their needs and requirements. Staff members will (hopefully) be referring the app to potential users, whether they are lecturers advising students, or administrative staff doing the same for other visitors. They will need to be aware of, and know how to navigate, the app. Goldsmiths College will be a stakeholder as they have a keen interest in making sure all visitors, students, and staff members can navigate their way around campus.

In conclusion, having a good understanding and knowledge of the stakeholders and what they require from such a web app will further help us in developing a campus map website that not only meets user requirements, but enhances the overall campus experience.

# Project Management Style

We looked at three styles of project management: Agile, waterfall, and extreme programming. It was felt that the Agile methodology of project management will suit our needs the most. The cyclic nature of the method will reinforce our need to repeat developing, testing, and reviewing the code. Used appropriately, this should result in better code and a better app. However, team members will need to be mindful of the potential of ‘mission creep’ with this method, as it could potentially go on forever and we do have a firm due date.

The waterfall method may be the more obvious choice for a project like ours, given there are immovable deadlines and deliverables, however we feel the linear approach will not be beneficial. It may be too constraining if we hit road bumps and need to change our approach, it does not give us the flexibility of Agile to return to planning and research phases if we need to. Another reason we decided against this method is it doesn’t require the involvement of stakeholders once you progress pass the first stage, once you have gathered their requirements at the start it does not get revisited.

Lastly, we looked at extreme programming, a framework within the Agile methodology. We have discounted this approach as it requires a lot of resources and we have a small team.

# Implementing a User-Centred Design Approach

The prospective users will be at the core of our approach to the project. We will conduct comprehensive user research, including surveys, interviews, and usability testing. This will help us to understand their needs and preferences. We will create user personas once we understand our audience to aid our decision making and overall direction of the project. The stakeholder and user research will be constantly feed into the design process due to the iterative approach we are taking with Agile. Low and high-fidelity wireframes and mock ups will be created so the surveys and user feedback will stay relevant. Accessibility will be a core design consideration and as such relevant design standards will be researched and implement if and when it is appropriate to the project. Once the project has progressed to the coding stage, surveying can move onto usability testing.

# Resource Allocation

## People

The team has four members so each will take the lead of one of four sections: the project as a whole, lead developer, UI/UX designer, and quality assurance.

The project manager Rhiannon Kennedy will oversee the project, ensuring milestones are hit and keep track of resource allocation and planning.

The lead developer Mohammed Meheraj is responsible for the technical development of the website, including coding and feature implementation.

UI/UX leader Muhammad Sohail will focus on the usability and design of the final product.

Quality assurance lead Jumana Khanom will oversee the testing process, making sure the right testing practices are in place and results are learned from / implemented.

This doesn’t mean only one team member is solely responsible for each area, but giving everyone a remit and a focus should mean that the ball isn’t dropped in any of these areas. It is most likely all team members will work on all aspects of the project.

## Technology

We haven’t decided on many specifics for the technology aspect, however there are some resources we know we will be using throughout the project.

For the software development side, Github’s version control capabilities will be used extensively. We are building a web application so Node.JS and Express will be two levels of the stack used due to the familiarity gained by attending other modules as Goldsmith's students.

A decision will need to be made on which graphic design software will be used, GIMP being a forerunner as it is free. Research will be needed to take place to see if there are any resources specific for UI design so something visually appealing can be created.

The team will also need to investigate QA testing tools suitable for web applications. This would allow us to test the functionality and performance of what we create.

# Requirements Gathering

This section explores the methods that we might employ to capture, assess, and document the essential requirements for the application, with a critical evaluation of each approach.

1. Interviews:

* Conducting one-on-one interviews with key stakeholders, including students, faculty, and administrative staff.
* Open-ended interviews with a predefined set of questions to elicit user preferences, navigation challenges, and feature expectations.

Advantages:

* Personalized insights: Interviews allow for in-depth, personalized feedback, enabling a deeper understanding of user needs.
* Immediate clarification: The direct interaction provides the opportunity to seek clarification and probe for additional information.

Limitations:

* Resource-intensive: Interviews require considerable time and effort.
* Bias: Responses may be influenced by interviewee expectations, potentially leading to biased information.

2. Surveys:

* Distributed online surveys to the campus community members.
* Surveys included a mix of closed-ended and open-ended questions to gather quantitative and qualitative data on preferences and challenges.

Advantages:

* Scalability: Surveys can reach a larger audience and collect diverse opinions efficiently.
* Anonymity: Participants may be more honest in their responses due to the anonymity of surveys.

Limitations:

* Limited depth: Surveys may not provide as detailed insights as interviews.
* Less control: Less opportunity for immediate follow-up questions, potentially leading to less context-rich data.

3. User Testing:

* Conducted user testing sessions with a prototype of the app, observing how users interacted with the interface and gathering feedback.

Advantages:

* Actionable insights: User testing that’s provided will direct insights into the usability issues and user preferences.
* Real-world simulation: Mimicked real-world app usage, uncovering potential roadblocks.

Limitations:

* Resource-intensive: User testing requires a functional prototype and considerable time investment.
* Limited sample size: Testing involves a small subset of potential users.

4. Document Analysis:

* Analysing existing campus maps, floor plans, and other documents to extract spatial and geographical data.

Advantages:

* Access to accurate spatial data: Document analysis provides a source of reliable, pre-existing information.
* Efficiency: Reduces the need for extensive on-site data collection like mapping out the layout of each floor in each of the building.

Limitations:

* May lack user-centric insights: Document analysis primarily yields spatial information and not user-specific requirements.

# User Requirements

These user requirements encompass the essential features and functions needed to make the Campus Map Website and we will explore this further later by using a thorough process involving surveys, interviews, and focus groups with students and members of staff.

* User-Friendly Interface: The Website should have a user-friendly interface for ease of navigation. It should support touch gestures, pinch-to-zoom, and drag-to-scroll features for map exploration.
* Comprehensive Campus Maps: The Website should provide detailed maps of all campus buildings, including room locations and facility information.
* Efficient Navigation: The Website should offer optimized routes and directions to help users reach their desired destinations on campus.
* Search and Location Services: Users should be able to search for specific buildings and rooms. The Website should provide an accurate and responsive search feature.
* Accessibility and Inclusivity: The Website should be designed with accessibility in mind, ensuring it is usable by individuals with disabilities.

# Software Specification

This section contains an activity diagram, a UML diagram, and a sequence diagram.

A flowchart of a computer program

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Figure 1: Activity Diagram

A diagram of a location

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Figure 2: Class Diagram

A diagram of a program

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Figure 3: Sequence Diagram

# Project Timeline

We have mapped out how we intend to complete the entire project in very simple terms, see figure 5.

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Figure 5: Very Simplified Gantt Chart

Figure 6 goes into more detail for the first term, which covers the first two deliverables (project definition and project proposal).

A screenshot of a project

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Figure 6: Detailed Gantt Chart

## Milestones

The major milestones are the two due dates, 3rd November, and 15th December. The softer milestones are the completion of the research and prototypes stages.