Dublin City University - School of Computing

BSc in Enterprise Computing

4th year project proposal (CSC1118)

Idea Proposal

2024/2025

Student name	Student Number
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Project Title:

Queueing System For Students Awaiting A Lab Tutor

Date: 18/10/2024

Project Summary:

The lab tutor queueing system will be an online web application that will streamline interactions between students and lab tutors during lab sessions. The system will allow students to submit a query which will be assigned to a queue for a specific lab tutor, ensuring their query is made aware of. Lab tutors can access their dashboard which will include a list of requests from students.

We chose this project because there is currently no such system within the School of Computing, and we have found in our own experience that it can sometimes take a long time before a lab tutor addresses our needs. This can result in some students falling behind during lab sessions which can affect their performance in assignments and reflect negatively on the reputation of courses within the university.

This project will aim to streamline the process of students requesting assistance from lab tutors. Knowing that a lab tutor has received a request will allow students to focus on their lab tasks without the need to keep their hand raised. The system will also be scalable to allow lab tutors to be re-assigned to labs where are a lot of requests relative to other labs. This can ease the pressure on lab tutors to meet the growing demand in specific labs.

Expected Technical Delivery:

The final technical delivery of the Queueing system will consist of a fully functional web which we develop using Django. There will be two user levels, “Student” and “Tutor”, the website will allow students to request help from tutors during their lab sessions in a more efficient way, while also allowing tutors to manage and respond to the requests.

Key Components:

1. User Authentication and Authorisation

The system will implement Django’s built-in authentication to manage user registration, login, and the logout functionality. Students and Tutors will have different role-based permissions and only students will be able to request help, while only tutors will be able to receive and manage those requests.

2. Help Request system

Students will provide their name/email address and PC number as well as a description of their problem. They will then be provided with an estimated wait time based on the queue length.

3. Notifications and Updates

Tutors will be notified as soon as help is requested. The details of the student who made the request will be listed on their dashboard.

4. User Interface

The UI will be created with HTML, CSS and possibly JavaScript for added functionality.

5. Testing

The final delivery will include comprehensive unit tests to ensure everything works as expected.

Market Rationale:

The potential users of this system would be university students studying computing related courses in universities and lab tutors. We plan to provide a survey to students to understand the challenges they face when requesting help from lab tutors and what they would like implemented into our queueing system.

We then plan to host a lab session for our queueing system to allow students to test it and provide feedback through a feedback survey. We aim to measure user engagement with the system through the frequency of requests made and the average time tutors spend with each student.

Individuals within departments such as school heads and faculty managers will be among the decision makers in implementing our project idea. This is because they are responsible for tasks such as resource allocation and budget management.

We also plan to research case studies of other such systems in universities to understand the context behind their implementation and common trends among similar systems that were successful.

We will analyse competitors offering similar products on the market to identify case studies and how these products benefited their target market. We will also identify their common features and gaps where we believe our project could improve.

These approaches will help us to thoroughly validate the market for our project and ensure that it meets their needs.

Proposed Timeline:

Stage 1 – 27th September 2024

We have completed the following tasks:

- the project team has been identified and this has been recorded on the dashboard.
- the team has forked the CSC1118 repo.
- the project team has identified an advisor, and the advisor has agreed to supervise them.
- the project name should be updated on the project dashboard.

Stage 2 – 18th October 2024

- In this stage we have filled and submitted the ethics form to get the necessary ethical approval for our project from the School Ethics Committee.

Stage 3 – 18th October 2024

- By this deadline, we will submit the project idea proposal digitally to the project repo.

Stage 4 – week 7/8 (dates and schedules to be notified)

- We will be presenting the Project Proposal to the Approval Panel and receive feedback and approval on the project.

Stage 5 – 17th January 2025 (Mid-Term Delivery)

- We will need to Prepare the mid-term documentation for our project and submit it in the group repository on GitLab.

Stage 6 – 18th April 2025

- We will complete all the project deliverables, user testing, unit testing, and place them in the Gitlab repo. The source code and any other materials will also be uploaded.

Stage 7 – 5th – 16th May 2025

- During this 2-week period we will have our group interview, the Project Presentation and the Project Expo.

Workload Distribution:

Technical:

- User Authentication System - Harsh Saini
- User Levels - Harsh Saini
- Help Request Submission Page – Eoin Francis
- Average Wait Time for Students Waiting for Assistance – Eoin Francis
- Testing – Eoin Francis, Harsh Saini

Commercial:

- Market Research (Primary) - Eoin Francis, Harsh Saini
- Market Research (Secondary) - Eoin Francis
- Cost structure - Harsh Saini
- Revenue streams - Harsh Saini

Staff Consulted:

We consulted our project supervisor, John McKenna in the preparation of this document.