**COIT13230 Application Development Project**

Assessment 1: Project Proposal

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# Project Background

Central Queensland University (CQUniversity) is an Australian public university with more than 30,000 students studying online and on-campus throughout Australia (CQUniversity 2023). More than 250 education and training offerrings are delivered by CQUniversity including undergraduate, postgraduate, research, short courses, and certificates (CQUniversity 2023). Study areas include apprenticeships, trades and training, psychology, information technology and digital media, health, and several others (CQUniversity 2023).

Many CQUniversity study areas need to recruit members of the public as volunteers for their students to practice the skills they are learning on (Brown 2023). Timing for this need can be very specific, for example hairdressing students need volunteers for hair colouring on Wednesday and Thursday the following week (Brown 2023). Currently the management of these volunteers occurs on an ad hoc basis across the various CQUniversity campuses and is run separately by all areas that require volunteers (Brown 2023).

The CQUniversity Bookings application project is designed to simplify the process of finding members of the public who are prepared to assist the students and to provide storage of their personal details in a central location. Using a website, interested individuals will be able to select the location of the campus they can attend and view a menu that lists the various categories of volunteers required, selecting only those that they are prepared to assist.

# Project Objective

The primary goal of our project is to increase the efficiency of CQUniversity’s existing “ad-hoc” management style, by introducing a system that permits each party involved in the volunteering process to access relevant services and information. In doing so, more members of the public will be able to easily take advantage of the low cost services provided by CQUniversity, resulting in valuable learning opportunities for more students.

We will attain this by:

* Providing a central location to store the details of members of the public interested in free/cheap services, reducing duplication across departments and updating difficulties;
* Developing a database of services provided by CQUniversity in certain locations, accessible to the public through a website;
* Allowing the public to search the services menu by location and select those they are interested in;
* Allowing CQUniversity staff to modify available services as required; and,
* Allowing CQUniversity staff to send automated emails requesting volunteers to those who have expressed interest in a particular service, including information pertaining to available sessions and the booking confirmation process.

# High-Level User Requirements

Volunteer Functionality

* As a volunteer I want to create a login using my email address and password
* As a volunteer I want to select the campus location
* As a volunteer I want to view the menu of service options for the location selected
* As a volunteer I want to sign in to the website using my email address and password
* As a volunteer I want to select a category from the menu
* As a volunteer I want to select the services I am interested in receiving notifications for
* As a volunteer I want to change which services I am interested in receiving notifications for
* As a volunteer I want to make a booking for the service I am interested in

Staff Functionality

* As a staff member I want to sign in to the website using my CQUniversity email address and password
* As a staff member I want to update the services that require volunteers offered by my department
* As a staff member I want to send an email to all members of the public who have chosen to be approached about specific opportunities

# Hardware and Software Requirements

## Software to be Used for Development (Developer tools)

The software to be used for development is as follows:

* Apache Netbeans (IDE)
* Github (Version control)
* Microsoft Windows (Version 7 or higher, for development environment)
* Oracle VirtualBox (different Operating Systems for testing environments)
* Jira (Communication and Project Management)
* Oracle MySQL (Database management)
* GlassFish (Server application)
* Jakarta EE (Programming language platform)

## Development Environment Hardware

The hardware to be used for development is as follows:

* Laptop or desktop computer running Windows OS version 7 or higher

## Software Requirements (Server)

The server computer needs an operating system and server applications for hosting services. It needs to run Windows Server 2019 or Windows Server 2022.

## Hardware Requirements (Server)

The server-side hardware needs to be reliable for hosting services for a long time. This means that the server computer needs to have a reliable power supply and cooling system. The server hardware also needs to be capable of establishing internet connections.

The server requires a minimum of the following

- Processor: Intel Core i9

- Memory: 16 GB RAM

- Storage: 1 TB HDD

## Software Requirements (Client)

The client should have access to major web browsers (Chrome, Firefox, Safari or Edge) and be running Windows OS version 7 or higher, Mac OS X, or Ubuntu 22.04.2 or similar Linux distribution.

## Hardware Requirements (Client)

The client-side devices need to be a laptop or desktop computer that can establish an internet connection.

The client computer requires a minimum of the following

- Processor Intel core i5

- Memory: 8 GB RAM

- Storage: 500 GB SDD

# Risk Management and Quality Assurance Plans

## Risk Management Plan

|  |  |  |
| --- | --- | --- |
| Risk Item | Likelihood of occurrence  (High/medium/low) | Mitigation Strategy |
| Scope Creep | High | Scope creep will be mitigated via the use of project management tools to visualise the workload and mandatory group discussions prior to implementing any changes during the project lifespan. |
| Bug/errors in the application code | High – Development | Each component of the system will undergo thorough testing to minimise the occurrence and impact of errors. Programming will be conducted collaboratively to decrease the time loss in diagnosing and resolving issues during development. |
| Bugs/errors in development tools | Low | All development tools used during the project will be updated to their most recent stable/supported version, to decrease the likelihood of encountering errors. |
| Collaboration issues  (timetable clashes, miscommunication, unable to reach group members) | Medium | We will use a dedicated Discord server and the Jira project management tool to communicate, alongside regular weekly meetings. The course coordinator will be contacted either via email or during the weekly individual workshops to address any conflicts we are unable to resolve ourselves. |
| Unmet requirements/functionality | Low | Regular consultation will be conducted with the client to ensure that the system continues to meet requirements during development. We will also ensure that we maintain clear and detailed user stories to avoid any confusion outside of this time. |

## Quality Assurance Plan

The client expects that the CQUniversity Client Bookings system will function reliably on all major devices, regardless of operating system and screen resolution. Thus, we will employ the following strategies during development:

* Unit and integration testing to ascertain the reliability of each system component;
* Use of browser developer tools to test the UI’s responsivity across multiple devices;
* Use of virtual machines to test the system’s cross-platform support;
* Use of different browsers to test the system’s cross-browser support;
* Regular consultations with the client regarding prototype progress; and,
* User acceptance testing to formally validate the requirements met by the system.

# References

Brown, R. (2023). *Possible student Capstone Project: Client Bookings Database* [Project Idea Notes]. CQUniversity.

CQUniversity 2023, *CQUniversity*, viewed 26 July 2023, <https://www.cqu.edu.au/>