

# **Project Plan**

The goal for our project was to develop a single-page web application written in the programming language go. For our Go project we researched various technologies and looked at the advantages and disadvantages of each technology, what they had to offer and how we would be able to implement each technology into our project.

The technologies we looked at are outlined below in more detail.

## **Hypertext Markup Language**

HTML is the absolute base line of almost every website, without it you don't have a website rather a series of text documents of a directory site. It was an obvious choice as every browser supports HTML. Its is easily utilised, implemented, and allows for simple formatting of text e.g. making the content up into different structural types, like paragraphs, blocks, lists, images, tables, forms, and comments which is perfect for our website.

## **Cascading style sheets**

CSS tells the browser how each type of element should be displayed, which may vary for different media (like screen, print or handheld device). The benefits of using css are that it is easy to maintain and update, there is a much greater consistency in design with many different formatting options. The main benefit of css is that fact that you only need one css file to format many different web pages. This allows for easy maintainability of code and faster web download times.

## **JavaScript**

JavaScript is most commonly used as a client side scripting language. It works well in conjunction with HTML, allowing you to create highly responsive interfaces that improve the user experience and provide dynamic functionality. We intend to use it to extended functionality of our website by incorporating features such as image carousels or Google Maps.

## **Database**

When researching databases many came to mind. We looked at various SQL type databases because they were more applicable to our web page. The advantages of SQL databases is they are relatively easy to create and access. We researched PostgreSQL, SQLite, MySQL, MSSQL. They all had a lot of benefits and each would have been an appropriate choice to use with our project. Based on familiarity we chose MySQL.

We elected to use MySQL database because we were comfortable with it as a result of using it with previous projects. It is one of the most used database systems, compatible with virtually all operating systems, and is more or less an industry standard. MySQL provides an implementation of a SQL database very well suited for small to medium web pages, which suits our project perfectly and is one of the reasons we chose this database over others.

## **Bootstrap**

We decided to use bootstrap in our project because it is a free front-end framework for faster and easier web development. Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, models, image carousels and many other, as well as optional JavaScript plugins. This suited us perfectly for this project as we wanted a professional looking website with all the capabilities of HTML and CSS fully utilised.

## **Macaron Framework**

For our web app we decided to use the Macaron Framework because it was already designed to be used in conjunction with Go. We had also covered some areas of Macaron in class which meant we already had a basic understanding of what it does and the capabilities it has to offer. For this reason we decided to use this framework over others such as Gin and Beego. We felt we had a better starting point with Macaron over the others, seeing as we were more familiar with it.

The biggest advantage of using a software framework is that it reduces the time and energy in developing any software. Macaron seemed like an appropriate choice as it is highly productive and utilised a modular design web framework that works well with Go.

## **Go**

Go is a cutting edge emerging technology that is new to the market which is why we were experimenting with the language, it has a range of benefits.

Go compiles very quickly. It supports concurrency at the language level and functions are first class objects. Go has garbage collection, Strings and maps all built into the language. It comes up with an inbuilt web server which means you don't need Apache or any other web server to run.

Setting up and building an app in go is very easy. Golang has Go routines which have the ability to use a thread effectively. It divides the thread again into subthreads and for projects that require higher concurrency this will be the best choice.

## **jQuery**

To make our application more than just a static web page we looked at implementing jQuery to add a no page refresh aspect. This would allow us to load content on the page without having to manually refresh the page every time.

The intention was to use jQuery to navigate through each page with out it refreshing each time and in turn this would have meant the web application would change from being a static web app to a single page web app.

The main advantages with using this method would be the ease in which the user could navigate the web app as it allowed for easier navigation for users in comparison to using the traditional back and forward buttons on a browser.

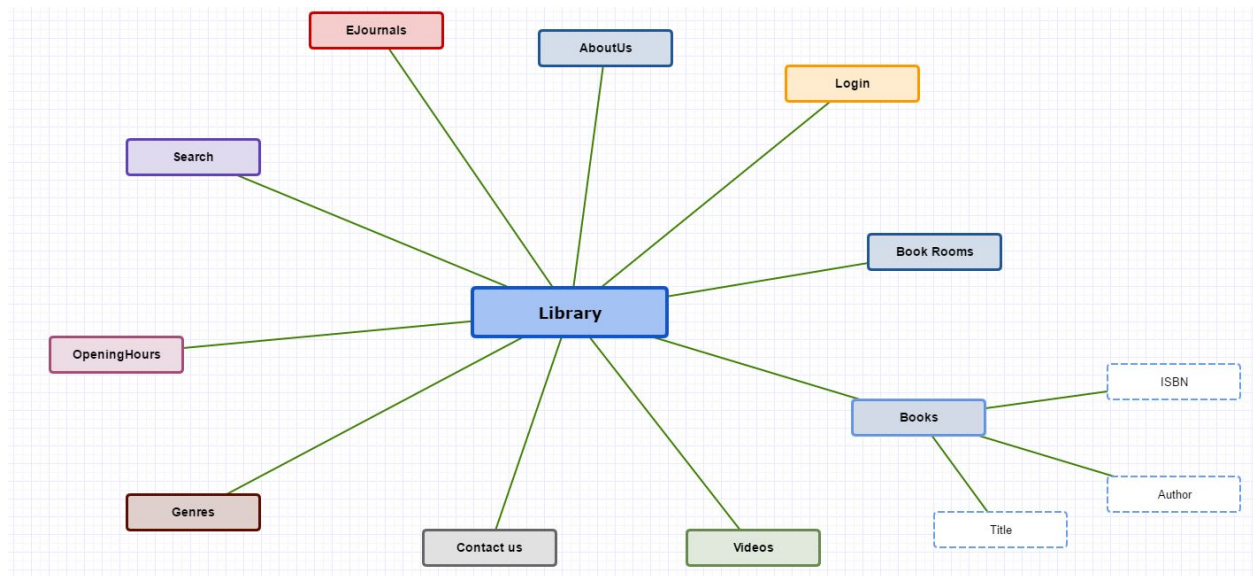
## **Brainstorming/splitting up the project**

After receiving the project brief all group members met to brainstorm some ideas of what we could develop. During the meeting we set up the github page. Each group member went away and done some extensive research on different ideas and technologies. From then on we used the GitHub Issue feature to create different issues and problems.

The first problem we had was coming up with an idea, so we used the issue feature as a discussion form to add ideas and suggestions. This way we were all able to interact with each other and decide on ideas without all being together in one place. It was also

helpful to be able to have this information on record incase we decided to change or add a feature in the future.

We then created a brainstorm for the library as this was the idea we decided on through github issues. Below is the diagram



To even out the work load we decided to assign tasks to people based their strengths. Each member of the group took a section of the website to develop and design and we would use github to track all changes to the website. Gary initially created the skeleton of the project so he handled the Go code which routed through the website and he also designed the home page. Alan designed the opening hours page, Jason designed the About us page while Darren took care of the contact us page.

We split up technology tasks based on people's individual strengths. As Gary had previously completed a full project using MySql we felt he would be the strongest member to handle the database side of the application. As there was a quite a lot to this part of the project Alan was also assigned to this section along with looking into implementing the JQuery functions. Finally we decided that Jason and Darren should concentrate on doing the documentation as they identified this as their strong point.