

Title of project

**Manu Jose**

**N00200555**

Software Project

CA 2 – Develop a PHP shopping cart website

Year 2 2021-22

DL836 BSc (Hons) in Creative Computing

Table of Contents

[1 Introduction 5](#_Toc103817620)

[2 Business Concept 6](#_Toc103817621)

[2.1 Business Idea 6](#_Toc103817622)

[2.2 Business model 6](#_Toc103817623)

[2.3 Market Research 6](#_Toc103817624)

[2.4 Marketing/Advertising 6](#_Toc103817625)

[2.5 Competitors 6](#_Toc103817626)

[2.6 Environmental Impact 7](#_Toc103817627)

[3 Requirements 8](#_Toc103817628)

[3.1 Introduction 8](#_Toc103817629)

[3.2 Requirements gathering 8](#_Toc103817630)

[3.2.1 Similar applications 8](#_Toc103817631)

[3.3 Requirements modelling 9](#_Toc103817632)

[3.3.1 Functional requirements 9](#_Toc103817633)

[3.3.2 Non-functional requirements 9](#_Toc103817634)

[3.3.3 Use Case Diagrams 9](#_Toc103817635)

[3.4 Feasibility 9](#_Toc103817636)

[4 Web application Design 9](#_Toc103817637)

[4.1 Layout 9](#_Toc103817638)

[4.2 Interaction 9](#_Toc103817639)

[4.3 Colour schemes & Font 10](#_Toc103817640)

[4.4 Wireframes 10](#_Toc103817641)

[5 Database Design 10](#_Toc103817642)

[5.1 Description 10](#_Toc103817643)

[5.2 Business Reporting Requirements 11](#_Toc103817644)

[5.3 Textual Representation of Data-Set 11](#_Toc103817645)

[5.4 Business Rules 11](#_Toc103817646)

[5.5 Entity Relationship Diagram 12](#_Toc103817647)

[5.6 Tables 12](#_Toc103817648)

[5.7 Database Dictionary 13](#_Toc103817649)

[6 System Design/ Architecture Overview 14](#_Toc103817650)

[6.1 Introduction 14](#_Toc103817651)

[6.2 Model View Controller 14](#_Toc103817652)

[The user sends a request for a webpage. This request goes to the controller, which looks at the model for the data. The model then validates the data that the user sent a request for. The controller then sends that data to the view for it to be displayed for the user. 14](#_Toc103817653)

[6.3 User Authentication 14](#_Toc103817654)

[There are two roles that a user can have in my project: user and admin. There is only one admin and anyone who registers is given the user role. Admins can view the admin homepage as well as the user homepage, but users can only view the user homepage. 14](#_Toc103817655)

[6.4 Routing 14](#_Toc103817656)

[7 Testing 14](#_Toc103817657)

[7.1 Introduction 14](#_Toc103817658)

[7.2 Functional Testing 15](#_Toc103817659)

[7.2.1 Login/Registration 15](#_Toc103817660)

[7.2.2 Navigation 17](#_Toc103817661)

[7.2.3 CRUD 17](#_Toc103817662)

[7.3 Discussion of Functional Testing Results 17](#_Toc103817663)

[7.4 Conclusion 17](#_Toc103817664)

[8 Project Management 18](#_Toc103817665)

[8.1 Introduction 18](#_Toc103817666)

[8.2 Project Phases 18](#_Toc103817667)

[8.2.1 Requirements 18](#_Toc103817668)

[8.2.2 Testing 19](#_Toc103817669)

[8.3 Project Management Tools 19](#_Toc103817670)

[8.3.1 GitHub 19](#_Toc103817671)

[9 Reflection 20](#_Toc103817672)

[9.1 Assessment of your learning. 20](#_Toc103817673)

[9.2 Completing a large software development project 20](#_Toc103817674)

[9.3 Technical skills 20](#_Toc103817675)

[9.4 Further competencies and skills 20](#_Toc103817676)

[10 References 21](#_Toc103817677)

# Introduction

The aim of my project is to create a website for a golf club that gives members of he club the ability to make bookings for playing golf and for the restaurant. The website will also contain information about the club and contact details for the club. It will also have a shop page where they can rent or buy equipment needed for golf such as golf clubs, balls, shoes and a golf buggy.

The technologies I will use for this project include PHP, HTML, CSS, Laravel, MySQL, and most likely Bootstrap but I will research other frameworks similar to Bootstrap.

The tools I will use are phpMyAdmin, XAMPP, Figma and Draw.io. I will also upload my project to GitHub with regular commits.

The concept for the business will be based off a selection of golf clubs in the greater Dublin area. It will have a clubhouse with facilities such as a bar and restaurant, changing rooms, a gym, a sauna, a shop where members can buy any equipment they need. I will need to create tables for all the members and their bookings for playing golf and reserving tables in the restaurant. I will also need to keep track of the employees working at the club.

# Business Concept

## Business Idea

A golf club with memberships and a booking service open to non-members as well. There will also be a restaurant and bar area available where people can book tables. This service will allow golfers to easily book a round of golf and it provides them with a place to eat and drink afterwards. Members will have access to changing rooms, a gym, a pool, a sauna, and games rooms with facilities such as snooker, darts and table tennis.

## Business model

The main source of income will be the club memberships. There will be different levels of membership plans to accommodate for all types of people, including full memberships, junior memberships and seasonal memberships. The restaurant and bar would also be a source of income.

## Market Research

The main demographic of customers for the golf club is mostly people who are doing well financially. They might be retired and so, they have plenty of time and money to go golfing. We’re also looking for people with families that they can bring to the restaurant.

## Marketing/Advertising

Advertising will be done mainly through social media pages for the club as well as some billboards and radio advertisements.

## Competitors

Ireland has many established golf courses and clubs with decades of heritage including, Dun Laoghaire Golf Club, The K Club, Powerscourt Golf Club and the Royal Dublin Golf Club.

## Environmental Impact

The club is very environmentally responsible. There are lakes and forests on the grounds of the club. The lakes allow the club to raise fish that can then be cooked and sold in the bar and restaurant as locally sourced produce. The grounds are also well looked after by the groundkeepers.

# Requirements

## Introduction

The main requirement of this application is to allow the club to easily take bookings from the members. Another function would be creating an online shop for the members to buy equipment from.

## Requirements gathering

I will need the basics of every website such as a homepage, about page and a contact page. These pages will include content such as information about the clubhouse, its facilities, and the various golf courses

### Similar applications

I investigated the Dun Laoghaire Golf Club website for the research for this project.

Graphical user interface, website

Description automatically generatedDun Laoghaire Golf Club is one of the best golf clubs in Leinster. They have a bar, restaurant, gym, pro-shop, and function room.

Dun Laoghaire Golf Club has many facilities and is located in a very easy to reach area close to Dublin, however, its not located in Dun Laoghaire which is confusing to a lot of potential new members

The website is quite simple, making it easy to use and navigate but also making it look quite dated.

## Requirements modelling

### Functional requirements

1. Members and admins should be able to login and view the website.
2. New users should be able to register with the golf club.
3. Users should be able to view bookings.

### Non-functional requirements

I would like to have a carousel of images on the welcome page to show users what the golf club and course look like.

### Use Case Diagrams

Chart, diagram, box and whisker chart

Description automatically generated

## Feasibility

There doesn’t seem to be any feasibility problems for this application

# Web application Design

## Layout

The layout of my web application is very basic so as not to overwhelm the users

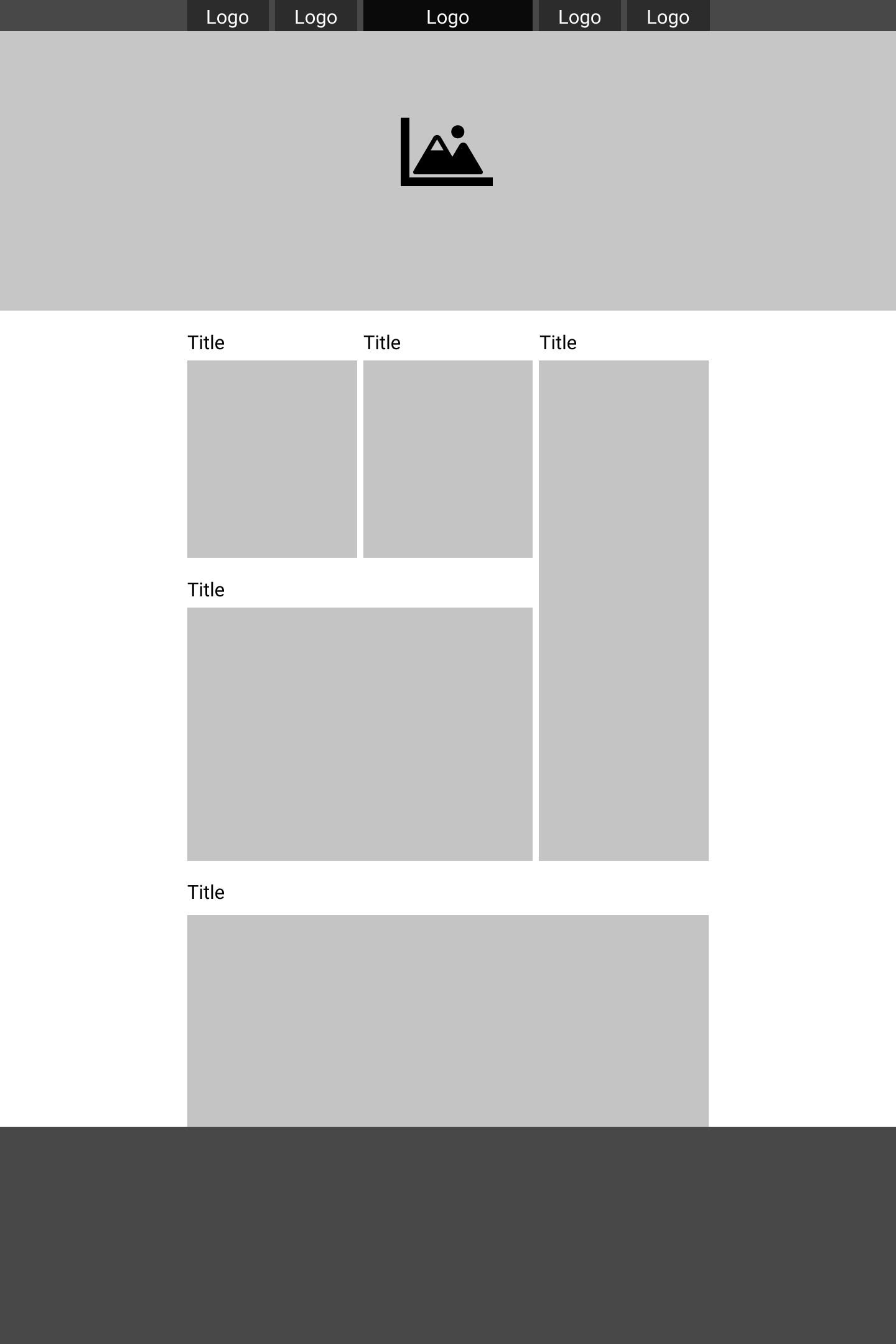
## Interaction

Users will be able to navigate between the homepage, about page and booking page. They will also be able to login and register

## Colour schemes & Font

I stayed with the default Bootstrap fonts and colours.

## Wireframes



# Database Design

## Description

The Golf Club website can be used to make bookings for golf and the restaurant. They will need a database to manage the members and the golf and restaurant bookings. The members and club manager should be able to make and delete these bookings. The bookings themselves will need a date, time, number of people, and for the golf bookings, the number of holes being played, and the course being used is also required. The members will have the members name, phone, and email addresses. Members will input this information when registering a membership.

## Business Reporting Requirements

1. The manager needs to be able to create, read, update, and delete restaurant bookings, golf bookings, member information and golf course information.
2. Members will need to be able to find and view all of their own bookings.
3. The manager needs to be able to view all bookings.
4. The manager may need to be able to view and list all the employees where they’re working and their contact details.
5. Members need to be able to delete/cancel their membership.

## Textual Representation of Data-Set

Substitute in here the tables for your database

**MEMBER** (id, fname, lname, phone, email)

**GOLF\_BOOKING** (id, date, time, course\_id, golfer\_amount)

**RESTAURANT\_BOOKING** (id, date, time, guest\_amount)

**COURSE** (id, length, difficulty)

**MEMBER\_GOLF** (id, member\_id, golf\_booking\_id)

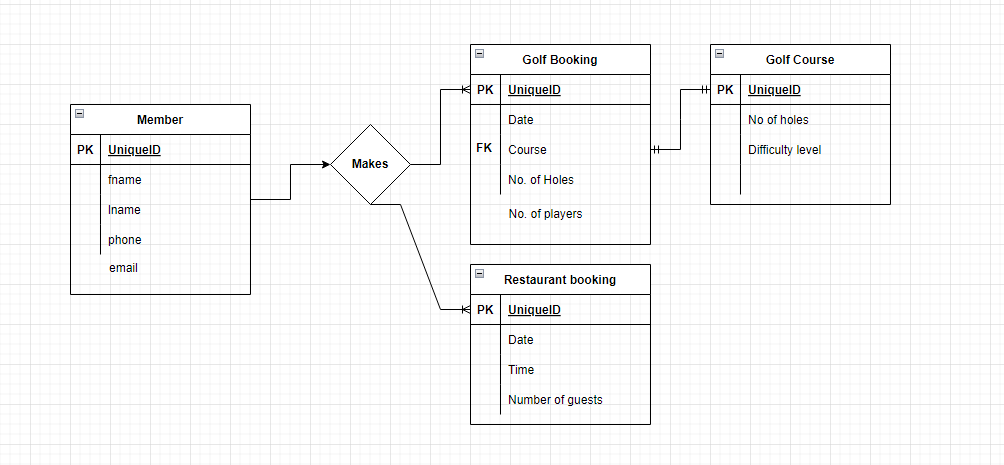
**MEMBER\_RESTAURANT** (id, member\_id, restaurant\_booking\_id)

**EMPLOYEE** (id, name, phone, email)

## Business Rules

* A Member can have many Bookings
* A booking belongs to one member
* A booking has one course
* A course can be in many bookings

## Entity Relationship Diagram



## Tables

A picture containing graphical user interface

Description automatically generated

## Database Dictionary

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **bookings** | **Attribute** | **Datatype** | **Range** | **Required** | **PK/FK** | **FK Ref Table** |
| id | unsigned | int | 100 |  | pk |  |
| date |  | date |  |  |  |  |
| num\_playes |  | Int | 100 |  |  |  |
| num\_holes |  | Int | 100 |  |  |  |
| member\_name |  | varchar | 255 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **users** | **Attribute** | **Datatype** | **Range** | **Required** | **PK/FK** | **FK Ref Table** |
| id | unsigned | int | 100 |  | pk |  |
| name |  | Varchar | 255 |  |  |  |
| email |  | Varchar | 255 |  |  |  |
| password |  | varchar | 255 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **roles** | **Attribute** | **Datatype** | **Range** | **Required** | **PK/FK** | **FK Ref Table** |
| id | unsigned | int | 100 |  | pk |  |
| name |  | Varchar | 255 |  |  |  |
| description |  | Varchar | 255 |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **user\_role** | **Attribute** | **Datatype** | **Range** | **Required** | **PK/FK** | **FK Ref Table** |
| id | unsigned | int | 100 |  | pk |  |
| user\_id | unsigned | int | 100 |  | Fk | users |
| role\_id | unsigned | int | 100 |  | fk | roles |

# System Design/ Architecture Overview

* 1. Introduction

This section will describe the internal functionality of the web framework that you have chosen for the implementation. Add further sections if required by the specification of your web application

* 1. Model View Controller

The user sends a request for a webpage. This request goes to the controller, which looks at the model for the data. The model then validates the data that the user sent a request for. The controller then sends that data to the view for it to be displayed for the user.

* 1. User Authentication

There are two roles that a user can have in my project: user and admin. There is only one admin and anyone who registers is given the user role. Admins can view the admin homepage as well as the user homepage, but users can only view the user homepage.

* 1. Routing

When a user navigates to a page, it is controlled by the routes. The user clicks the link, the route in web.php gets the right page through the controllers and returns the requested view.

# Testing

* 1. Introduction

This chapter describes the testing that has been undertaken for the application. This chapter is presented in two sections:

1. Functional Testing
2. User Testing

Functional testing is a type of software testing whereby the system is tested against the functional requirements. The app is tested by looking to see if the actual output for a given input corresponds with the expected output. The tests should be based on the requirements for the app. The results of functional testing can indicate if a piece of software is functional and working, but not if the software is easy to use.

User testing looks to see if a piece of software is easy and intuitive for the user.

* 1. Functional Testing
     1. Login/Registration

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test No | Description of test case | Input | Expected Output | Actual Output | Comment |
| 1 | Register for a new account with valid email and password | Email :[example@email.ie](mailto:example@email.ie)  Password: 123456 | Successfully registered | Successfully registered |  |
| 2 | Enter correct login details for email and password | Email: [example@email.ie](mailto:example@email.ie)  Password: 123456 | Successfully logged in | Successfully logged in |  |
| 3 | Attempt login with incorrect email | Email: [incorrect@email.com](mailto:incorrect@email.com)  Password: 123456 | These credentials do not match our records. | These credentials do not match our records. |  |
| 4 | Attempt login with incorrect password | Email: [example@email.ie](mailto:example@email.ie)  Password: 000000 | These credentials do not match our records. | These credentials do not match our records. |  |
| 5 | Attempt login with email field left empty | Email:  Password: 123456 | Please fill in this field | Please fill in this field |  |
| 6 | Attempt login with password field left empty | Email: [example@email.com](mailto:example@email.com)  Password: | Please fill in this field | Please fill in this field |  |

* + 1. Navigation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test No | Description of test case | Input | Expected Output | Actual Output | Comment |
| 1 | Navigate to bookings page | Click on the bookings button in the navbar | The bookings page is displayed | The bookings page is displayed |  |
| 2 | Navigate to about page | Click on the about button in the navbar | The about page is displayed | The about page is displayed |  |
| 3 | Navigate to login page | Click on login button in the navbar | The login page is displayed | The about page is displayed |  |
| 4 | Navigate to register page | Click on the register button in the navbar | The register page is displayed | The register page is displayed |  |
| 5 | Navigate to homepage | Click on the Golf Club home button in the navbar | The home page is displayed | The home page is displayed |  |

* + 1. CRUD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test No | Description of test case | Input | Expected Output | Actual Output | Comment |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Discussion of Functional Testing Results

I found that the email address field was not case-sensitive when logging in

* 1. Conclusion

Most of the functionality of the website passed the tests and I only found one big flaw/bug which need to be fixed

# Project Management

## Introduction

This chapter describes how the project was managed. It shows the phases of the project, going from the project idea through the requirements gathering, the specification for the project, the design, implementation and testing phases for the project. It also discusses GitHub as a tool which assist in project management.

## Project Phases

The project was split into six main phases. The first was the business concept phase. This is where we decided what our project would be based on. It included market research, competitor analysis advertising etc.

The second phase was the requirements. Here we figured out what we would need in our projects to make a functioning business.

The third section was the designing of the website. In this section we decided on colour schemes and fonts as well as creating wireframes.

Phase four was the database design. This is where we

### Requirements

For the requirements I thought about the booking process and website of the golf club I work at and tried to improve their process. The website is only used to book golf tee times so that was a must. However, having an online booking system would also be extremely useful so I considered it a requirement.

### Testing

## Project Management Tools

### GitHub

GitHub is very useful because it allows you to easily access your work from any location because it’s all in a repository. You can also create a list of tasks to do on your project in GitHub

# Reflection

## Assessment of your learning.

Both my back-end and front-end skills have greatly improved throughout the course of this project. I can now somewhat confidently use Laravel, however I recognize that there is a lot more that Laravel is capable of. I also now understand the project management and planning skills needed when working on a big project.

## Completing a large software development project

I have learned that a software project is a long process that requires plenty of planning and dedication to go smoothly. I think the plan is especially important, so you know where you are in the project and what else needs to be done by what time fi you want to meet your goals.

## Technical skills

I learned how to use the Laravel framework and also how to use GitHub better. My HTML, CSS, PHP and SQL skills have also greatly improved.

## Further competencies and skills

I think properly learning how to use SCRUM would be very useful in a work place situation

# References

Laravel Documentation:

<https://laravel.com/docs/9.x>

W3 Schools:

<https://www.w3schools.com/html/default.asp>