GradNav

Mid-Term Business and Technical Report

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Appendices

1. Introduction

1.1 Overview

The online system is a web application that guides 2nd-level students who wish to pursue careers through 3rd level education. Using user personalisation, the system puts together elements such as Senior Cycle results, skills, character traits, and individual preferences into personal user profiles.

The system will offer detailed insights into various courses and potential career avenues. The system features are designed to provide a seamless user experience. The system creates a unique digital identity for each student, incorporating salary insights, providing students with perspectives on potential earnings in different professions. The system will also contain a contact forum, fostering a direct line for user feedback and support.

1.2 Business Context

The system will have diverse revenue streams. The Freemium Model, offering a basic version supplemented by premium features. The integration of targeted advertisements within the web application will feature educational ads, generating revenue for the system. Additionally, the system will forge strategic partnerships with educational institutions, earning fees for promoting their programs.

The Premium Model will contain in-app purchases for advanced features, additional content, or ad removal.

1.3 Glossary

AWS (Amazon Web Services)
A cloud computing platform utilised by the system for hosting the web application, ensuring scalability and reliability.

CAO (Central Applications Office)
The Irish system for processing applications to undergraduate courses in Irish Higher Education Institutions.

Django
A high-level Python web framework used in the development of the system's web application for efficient and robust coding.

Figma and Canva
Design tools employed by the system for creating an engaging and user-friendly interface.

PyCharm
An Integrated Development Environment (IDE) used by the system's developers for efficient Python coding.

HTML (Hyper Text Markup Language)
A language essential for web content creation, defining structures and layouts using tags and attributes.

CSS (Cascading Style Sheets)

Utilised to describe the presentation of a document written in a markup language such as HTML, enhancing the visual aesthetics of the system's web interface.

GUI (Graphical User Interface)
A type of interface facilitating interaction with electronic devices like computers and handheld devices, ensuring user-friendly navigation within the system web application.

LLM (Large Language model)
A large language model is a sophisticated neural network architecture designed to comprehend and generate human-like text, producing content that seamlessly integrates with natural language.

MySQL
A relational database management system, MySQL utilises SQL for efficient data processing within its database. Operating as a server, the program offers multi-user access to various databases, ensuring seamless management and retrieval of data.
PHP (PHP Hypertext Processor)
PHP, stands as an open-source server-side scripting language specifically crafted for creating dynamic web pages. Leveraging its capabilities, PHP empowers the development of interactive and responsive web content through server-side processing.

2. Business Model

2.1 Business Concept

The system is an innovative web app designed to provide personalised career guidance to second-level students. By using advanced algorithms, the system tailors recommendations based on students' senior cycle subjects, skills, character traits, hobbies, preferences, and experiences. The app will also offer insights into suitable universities, courses, and job possibilities.

2.2 Value Propositions

Personalisation	Tailored career assessments and recommendations.
Efficiency	Time and cost savings by streamlining the decision-making process.
Confidence	Risk reduction through informed career choices.
Comprehensive Resources	Access to a wealth of educational materials for parents.

Clear Explanations	Understandable information for parents about career-related concepts.
Enhanced Services	Guidance counsellors benefit from a centralised platform with time-saving tools.

2.3 Target Users and Customers

1. Leaving Cert Students: Navigating career choices during a critical decision-making period.
2. Parents and Guardians: Seeking resources to support their child's education and career decisions.
3. Guidance Counsellors: Accessing a comprehensive platform aligned with students' needs and school curriculum.

2.4 Market Size

The total addressable market (TAM) includes 405,003 secondary school students, 400,000 parents/guardians, and 730 secondary schools in Ireland. The serviceable addressable market (SAM) consists of over 300,000 students and parents with the means to afford the system's services. The target market contains an estimated 60% of 400,000 students and parents surveyed, totaling around 240,000 potential users.

2.5 Proposed Revenue Streams

1. Premium Memberships: Offering enhanced features and personalised insights through a subscription model.
2. Product Sales: Selling additional products such as ReviseWise and other materials.
3. Freemium Options: Providing add-ons to remove ads, offering extra value to free users.
4. Bank Loans: Securing capital to support initial development and operational costs.
5. Government Grants: Exploring opportunities like the Enterprise Support Grant.
6. Investments: Raising funds from Ireland Investment Network, Enterprise Ireland, and friends/family.

3. General Description

3.1 Product/System Function

Below is a preliminary list of the product/system functions. The functional requirements of the system are concerned with the core functionality of the system. Only the major points have been listed here. Each system function has its own parameters which we will be discussing in more detail in part 4.

Our user functionality

Registering

The user will have to register their information to be able to use our site, password, Username and e-mail.

Login

This will allow the user their own personal login and they can view, update or create their recommended careers.

Take Quiz

The user will have to answer some questions and these will be used to create their personalised career recommendations.

Update Quiz

Here the user can change their answers selected in the quiz and generate a new career recommendation.

View Quiz Results

Users can explore detailed information about quiz results, recommended careers, including job descriptions, required qualifications, and potential career paths.

Access Career Resources

Here the user can access resources like articles, videos, and webinars about different fields of study and career advice, including tips on how to fill in CAO applications.

Our system functionality

Website design

Our goal is to create a clean easy-to-use web interface that is both visually appealing and functional for users.

Career and Course Recommendation Engine

We will implement a feature that collects user responses from a quiz to recommend suitable career paths and educational courses.

Personalised User Dashboard

Allow users to create a personal profile where they can view and update their career interests, quiz results, and explore suggested paths.

Dynamic Database Integration

We will make a robust database connection for managing and updating detailed information on careers and courses, ensuring data accuracy and relevancy.

3.2 User Characteristics and Objectives

Our app is designed for easy online access, catering primarily to Leaving Certificate students in Ireland who are planning their future education and career paths. It is also beneficial for parents who wish to support their children's choices and guidance counsellors seeking additional resources for student advice. The app is ideal for users with varying levels of internet proficiency, the app is designed to be easy to use, with a straightforward and clear interface. The objective is to enable users to explore, track, and update their career and educational preferences through interactive features like quizzes and personalised recommendations. GradNav aims to simplify the decision-making process for students, providing them with a comprehensive tool for planning their future in education and career.

3.3 Operational Scenarios

When a new user visits the GradNav website, students, parents, or guidance counsellors are greeted with a clear option to either register or log in. Registration is a simple process requiring basic information such as name, email, and password. After registration, users receive a verification email to confirm their account, enabling them to log in. The initial login directs users to an engaging quiz designed to gauge their interests and academic strengths. The answers from this quiz are used by GradNav to generate tailored career and course recommendations. Users have the option to revisit and update their quiz responses, allowing for dynamic and evolving recommendations as their interests or circumstances change. In addition to the quiz, GradNav provides an interactive dashboard where users can explore detailed information on various careers and educational courses. They can bookmark their preferences, track their exploration journey, and revisit their choices. For those requiring assistance or encountering issues, GradNav includes a comprehensive help section with FAQs and direct support options. This section aims to ensure that all user interactions, from initial registration to ongoing exploration and tracking, are smooth and intuitive, fostering a supportive environment for career and educational planning.

3.4 Constraints

Below is a list of constraints that we may take into consideration to successfully complete our project.

Time
Balancing the development timeline of GradNav with academic commitments and other projects is a primary constraint. The goal is to meet the launch deadline of 19/04/2024 while ensuring quality.

Accuracy
Ensuring the app provides up-to-date, comprehensive, and accurate information on courses and careers is a significant challenge.

Technical Expertise
The team lacks experience in advanced AI development, which could limit the sophistication of personalised recommendation algorithms

Regulatory Compliance

Keeping to data protection regulations, especially for teenagers, is crucial and may require additional resources for compliance.

Budgetary Constraints

Limited financial resources may restrict the scope of app features, marketing strategies, and ongoing maintenance.

4. Function Requirements

4.1 Registration

Description:

This is how users join the app. They click a link on the main page, which takes them to a form where they need to put in their email and create a password.

Criticality:

This part is really important because it's the first step for anyone using the app. Everything else in the app needs this to work. It's key for getting people to use the app.

Technical Issues:

The form for signing up is made with HTML, CSS, JavaScript so it fits well with how the app looks. PHP is used to handle the information users put in and save it in the MYSQL database. When someone finishes signing up, it creates their profile in the database.

Dependencies:

This part works on its own. It doesn't need any other parts of the app to work first."

4.2 Log In / User Authentication

Description:

 This part of the app helps keep it safe. Only people who have signed up can use it. They click a special link to go to a page where they enter their username and password to get into their account.

Criticality:

This login step is really important for the app. It makes sure only the right people can see their own information. If this wasn't there, the app wouldn't be as personal or safe, which would make it not as good for users.

Technical Issues:

The login page is made with HTML, CSS, JavaScript, so it looks nice and fits with the rest of the app. PHP is used to check if the username and password are correct by looking them up in the MYSQL database. This makes sure only the right people can log in.

Dependencies:
Users need to have signed up first before they can use this login feature."

4.3 Take Quiz

Description:
This part of the app lets users take a special quiz that figures out what they're good at and what they like. It's found through a specific link in the app and gives suggestions based on the user's abilities and interests.

Criticality:
This quiz is really important for the app. It helps users understand themselves better, which is key for getting the right advice about careers and education. It makes the app more valuable by giving users a personalised experience.

Technical Issues:
The quiz is made with HTML, LLM (Large Language Models), and Python, making it fit well with how the app looks and works. PHP is used to manage the answers users give and to use those answers to give them custom advice.

Dependencies:
Users need to be logged into the app to use this quiz feature.

4.4 Update Quiz

Description:
This feature lets users go back to the quiz and change their answers. It helps keep their profile and suggestions current.

Criticality:
It's important because it makes the app stay useful as users' interests change.

Technical Issues:
The feature matches the app's design and is made with HTML, CSS, JavaScript and PHP, which helps save the new answers in the app's database.

Dependencies:
Users can only use this after they have completed the quiz once.

4.5 View Quiz Results

Description:
This feature lets users see their quiz results. It shows what they're good at and suggests careers that fit those skills.

Criticality:
It's key for users to understand their strengths and get guidance on careers.

Technical Issues:
The results are displayed in a user-friendly way, using HTML for layout. PHP helps to get the results from the database.

Dependencies:
Users need to have finished the quiz to see these results."

4.6 View Recommend Career Resources

Description:
In this part of the app, users get to see career resources that fit with what they learned about themselves from the quiz. It has information on different kinds of jobs and study options. Users can also check their personal dashboard here to see all these suggestions in one place.

Criticality:
This feature is really useful because it gives users extra information to help them pick a career. It's tailored to each user, making the app more helpful for making big decisions.

Technical Issues:
To show these resources clearly, the app uses HTML, CSS, and JavaScript. PHP is used to make sure the information matches what each user needs based on their quiz results.

Dependencies:
Users can look at these career resources and their dashboard after they've finished the quiz and gotten their results."

4.7 Database

Description:
Acts as the main storage for all the app's information, like user details, quiz answers, and study materials. It's made to handle a lot of data well.

Criticality:
The database is very important for the app to work. It helps with key things like making user accounts, creating quiz results, and giving out information.

Technical Issues:
Uses MYSQL, a strong system for managing data. It has good security to keep important user information safe and works efficiently to give users a good experience.

Dependencies:
The database is a core part of the app, necessary for most of its main features."

5. System Architecture

5.1 Architectural Diagram for the System (Fig 4.1)

Our system architecture will be a typical 3 tier architecture client – server – database.
Our website will be our front end or client side. This is what the user will see and interacts with to input and retrieve information for example, to take the quiz and receive personalised career and course guidance and it will be formatted using HTML,CSS and Javascript.

Our Server will be accessed by our PHP scripts. Information will be inputted into the forms and quizzes on our website and will then be used by PHP scripts to query our database to return information to the client's side, for example the recommended career information from our database to be shown on the client side.

Our Database will store all the information about each user and when they login this is where their individual information will be drawn from, such as their personalised user dashboard.
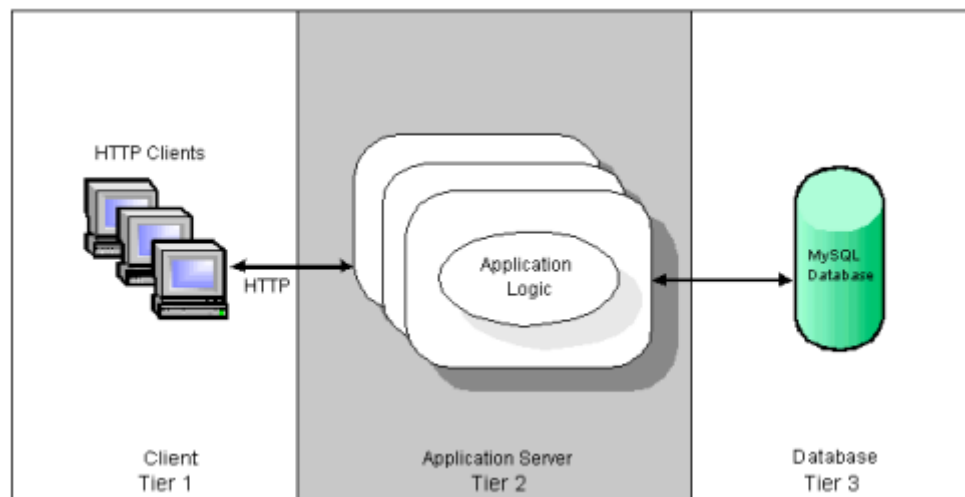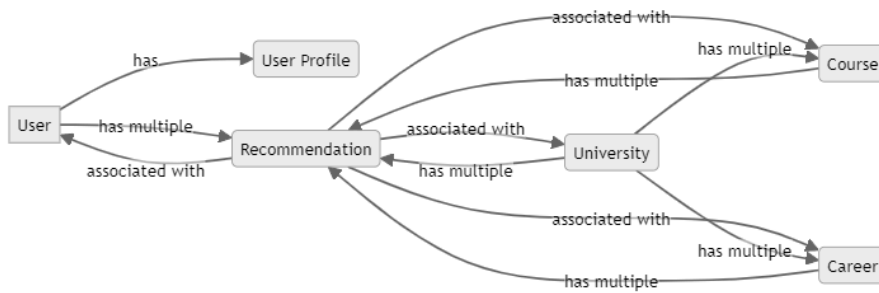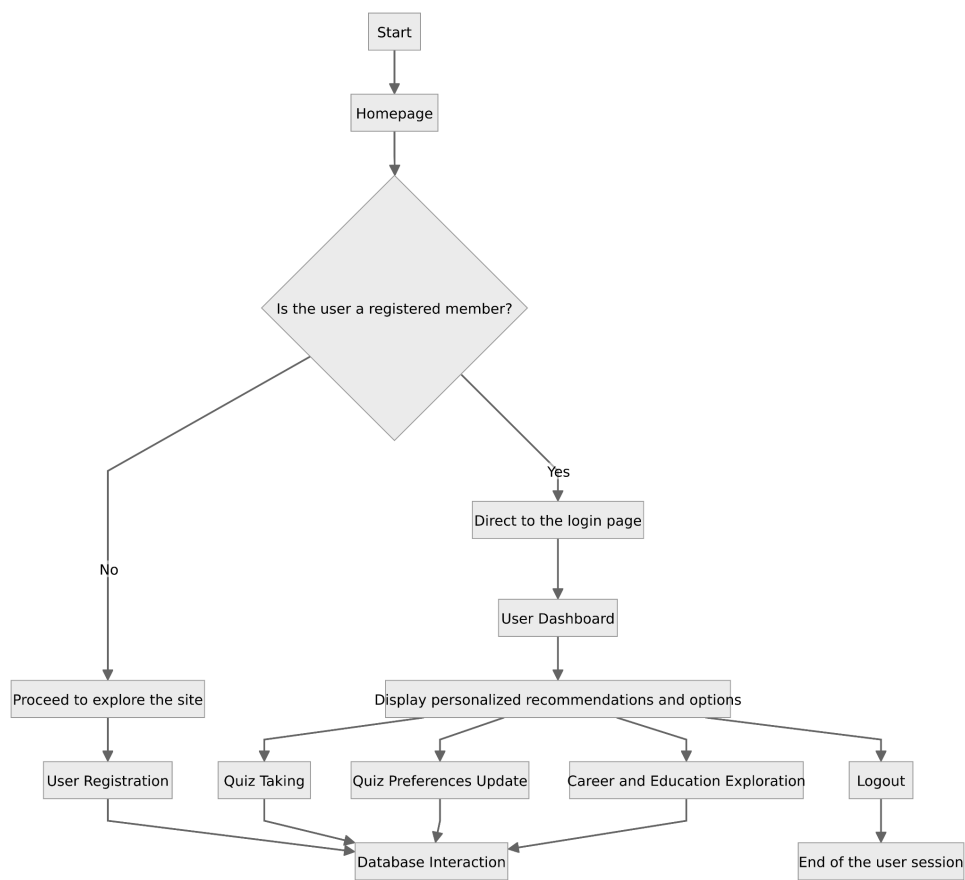
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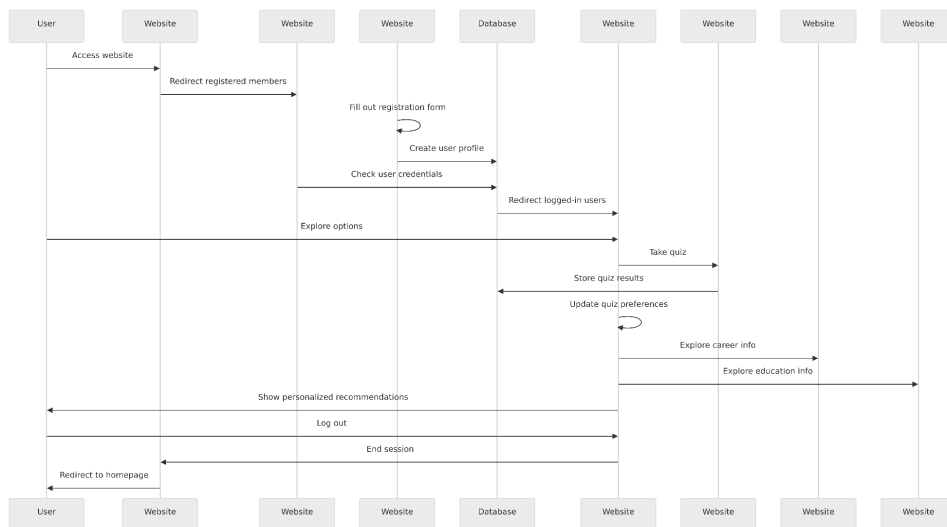
6.1 High Level Data Model Diagram
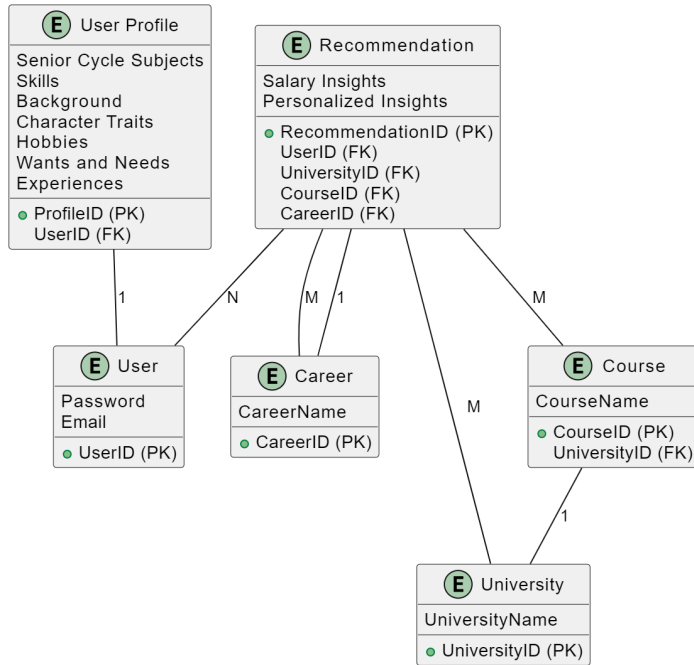
6.2 High Level Design Diagram

6.3 High-Level Flowchart Organisational Diagram
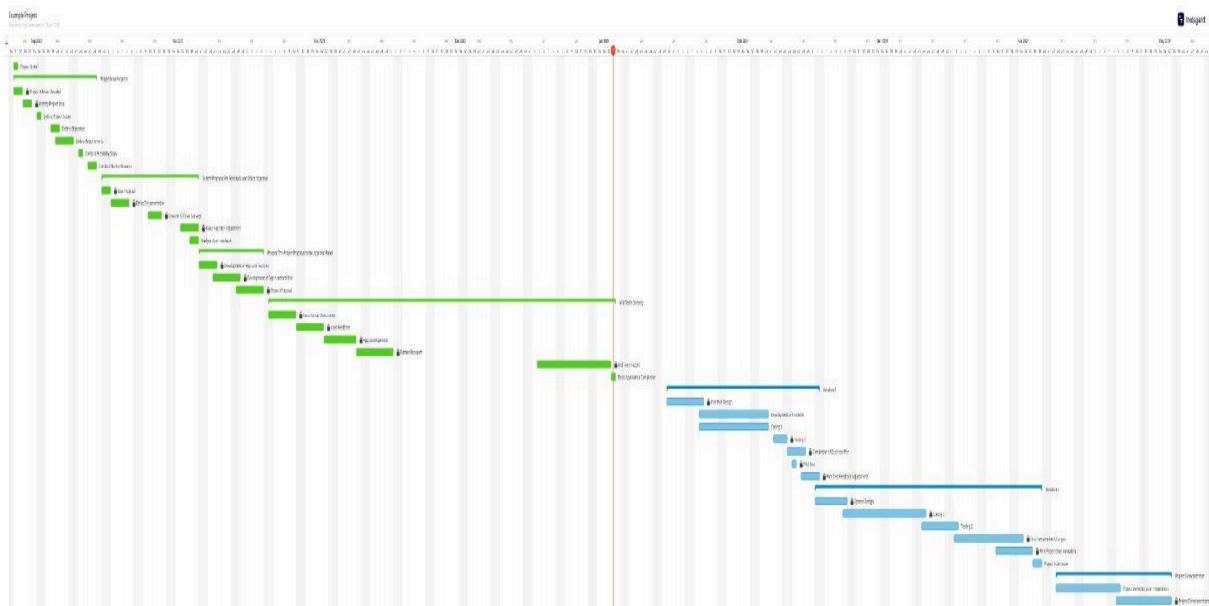
6.4 High Level Sequence Diagram

7. Preliminary Schedule

7.1 Task List

		Task	ASSIGNEE ▼	EH ▼	START ▼	DUE ▼	STATUS ▼
0	✓	Project Kickoff	St, Ma	-	11/Sep	11/Sep	Finished
☐	✓	Project Idea Proposal	Ma, St	-	11/Sep	28/Sep	Finished
2	✓	Project Advisor Decided	Ma, St	-	11/Sep	12/Sep	Finished
3	✓	Identify Project Idea	Ma, St	-	13/Sep	14/Sep	Finished
4	✓	Define Project Scope	Ma, St	-	16/Sep	16/Sep	Finished
5	✓	Define Objectives	Ma, St	-	19/Sep	20/Sep	Finished
6	✓	Define Requirements	Ma, St	-	20/Sep	23/Sep	Finished
7	✓	Conduct Feasibility Study	Ma, St	-	25/Sep	25/Sep	Finished
8	✓	Conduct Market Resear...	Ma, St	-	27/Sep	28/Sep	Finished
☐	✓	Submit Proposal For Feedb...	Ma, St	-	30/Sep	20/Oct	Finished
10	✓	Idea Proposal	Ma, St	-	30/Sep	01/Oct	Finished
11	✓	Ethics Documentation	Ma, St	-	02/Oct	05/Oct	Finished
12	✓	Creation Of User Surveys	Stephanie	-	10/Oct	12/Oct	Finished
13	✓	Make App Idea Adjustm...	Martins	-	17/Oct	20/Oct	Finished
14	✓	Analyse User Feedback	Unassigned	-	19/Oct	20/Oct	Finished
☐	✓	Present The Project Propos...	Ma, St	-	21/Oct	03/Nov	Finished
16	✓	Development of App co...	Martins	-	21/Oct	24/Oct	Finished
17	✓	Development of App fu...	Stephanie	-	24/Oct	29/Oct	Finished

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18	✓ Project Proposal	Ma, St	-	29/Oct	03/Nov	Finished
⊟	✓ Mid Term Delivery	Ma, St	-	05/Nov	18/Jan	Finished
20	✓ Focus Group Discussions	Ma, St	-	05/Nov	10/Nov	Finished
21	✓ User Feedback	Ma, St	-	11/Nov	16/Nov	Finished
22	✓ App Developement	Ma, St	-	17/Nov	23/Nov	Finished
23	✓ Further Research	Ma, St	-	24/Nov	01/Dec	Finished
24	✓ Mid Term Report	Ma, St	-	02/Jan	17/Jan	Finished
25	✓ Basic Application Comp...	Ma, St	-	18/Jan	18/Jan	Finished
⊟	✓ Iteration 1	Ma, St	-	30/Jan	02/Mar	Not started
27	✓ Interface Design	Ma, St	-	30/Jan	06/Feb	Not started
28	✓ Development of Fronte...	Ma, St	-	06/Feb	20/Feb	Not started
29	✓ Coding 1	Ma, St	-	06/Feb	20/Feb	Not started
30	✓ Testing 1	Ma, St	-	22/Feb	24/Feb	Not started
31	✓ Completion of Business...	Ma, St	-	25/Feb	28/Feb	Not started
32	✓ Pilot Test	Ma, St	-	26/Feb	26/Feb	Not started
33	✓ Pilot Test Feedback Adj...	Ma, St	-	28/Feb	02/Mar	Not started
⊟	✓ Iteration 2	Ma, St	-	02/Mar	19/Apr	Not started
35	✓ System Design	Ma, St	-	02/Mar	08/Mar	Not started
36	✓ Coding 2	Ma, St	-	08/Mar	25/Mar	Not started
37	✓ Testing 2	Ma, St	-	25/Mar	01/Apr	Not started
38	✓ Final Revision And Cha...	Ma, St	-	01/Apr	15/Apr	Not started
39	✓ Final Project Document...	Ma, St	-	10/Apr	17/Apr	Not started
40	✓ Project Submission	Ma, St	-	18/Apr	19/Apr	Not started
⊟	✓ Project Demonstration	Ma, St	-	23/Apr	17/May	Not started
42	✓ Project Demonstration ...	Ma, St	-	23/Apr	06/May	Not started
43	✓ Project Demonstrations	Ma, St	-	06/May	17/May	Not started

7.2 Gantt Chart (Fig 6.3)

8. Appendices

Link to Gantt Chart (Fig 6.3) -
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