Project Plan

Accident Analysis Software

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# Introduction

## Background

The ability to correctly analyse data becomes increasingly difficult when no software is involved, and the data belongs to a large dataset. This effects the ability to make accurate decisions and has great potential to jeopardise the functionality of a business. This project aims to rectify the problem associated with large data analysis, by developing and implementing a software that can process and visualise large amounts of data. The client for this project is the Department of Transport for Victoria, and the software in question will analyse data from road accidents. Datasets have been generated but are currently not in use due to the lack of software to process and visualise the data. The client wants to process the data and use the analysis to publish data on their website for an awareness campaign which is planned to start next year. The intended outcomes of this project involve meeting the required needs of the client and encapsulating those needs within a software that is fast, consistent, and reliable. This will be completed through intensive planning, time management, and thorough documentation. As the Department of Transport for Victoria require software for training purposes, this project plan will outline the necessary activities to fulfill this requirement and deliver the expected result to the client.

## Scope

The deliverable of this project is a data analysis software; however, it is important to consider the tasks and processes required to successfully complete the project within the required time. In the context of time management, a work breakdown structure and a Gantt chart are required. These essentially ensure the distribution of tasks, ensure that all tasks are considered, and that all tasks can be completed within the given timeframe. A system design document details the problems, vision, capabilities, requirements, and all the design components associated with the software. Python Programming files containing the code for the software must also be completed. This is an essential component of the project that dictates how the software works. It is critical to the project that this is working effectively. These files intend to implement the requirements of the client, which range from data retrieval to analysis and visualisation. In the final stages of the project, an executive summary, instruction manual/user guide, and software testing report are to be completed. The executive summary provides a review of the project, whilst the instruction manual/user guide provides instructions on the correct use of the software. The software report shall contain the results of the thorough testing that will be conducted, to ensure the software is working correctly.

## Document contents

This project planning document includes background information surrounding the project, the work breakdown structure & Gantt chart, and the activity definition & estimation. This, along with the system design, work breakdown structure, and Gantt chart, will undergo systematic reviews and updates where necessary, to provide the project with as much advantage as humanly possible.

# Work Breakdown Structure

|  |  |  |
| --- | --- | --- |
| Task ID | Task Description | Duration |
| 1. Planning | | |
| 1.1 | **Meeting with Team Members** | **2 hours** |
| 1.2 | **Understanding Project Requirements** | **1 hours** |
| 1.3 | **GitHub Repository Configuration** | **3 hours** |
| 1.4 | **Project Scheduling** | **3 hours** |
| 2. Analysis | | |
| 2.1 | **Project Background Information** | **3 hours** |
| 2.2 | **Define System Vision** | **3 hours** |
| 2.3 | **Define Activities & Estimations** | **3 hours** |
| 2.4 | **Define System Functions** | **3 hours** |
| 2.5 | **Define User & Software Requirements** | **3 hours** |
| 2.6 | **Define & Analyse Use Cases** | **3 hours** |
| 2.7 | **Gantt Chart & Work Breakdown Structure** | **3 hours** |
|  |  |  |
| 3. Design | | |
| 3.1 | **Software Design Plan** | **5 hours** |
| 3.2 | **User Interface Design Plan** | **5 hours** |
| 3.3 | **Define Data Structures** | **2 hours** |
| 3.4 | **Wireframes** | **2 hours** |
| 3.5 | **Mock-Up Design** | **3 hours** |
| 3.6 | **Graphics & Assets** | **3 hours** |
| 3.7 | **Structural Design** | **3 hours** |
| 3.8 | **System Detailed Design** | **3 hours** |
| 4. Development | | |
| 4.1 | **Required Feature 1** | **3 hours** |
| 4.2 | **Required Feature 2** | **3 hours** |
| 4.3 | **Required Feature 3** | **3 hours** |
| 4.4 | **Required Feature 4** | **5 hours** |
| 4.5 | **Required Feature 5** | **5 hours** |
| 5. Testing | | |
| 5.1 | **Unit Tests** | **5 hours** |
| 5.2 | **Coverage Report** | **2 hours** |
| 5.3 | **Requirements Acceptance Testing** | **3 hours** |
| 6. Administration | | |
| 6.1 | **Executive Summary** | **1 hour** |
| 6.2 | **Update Work Breakdown Structure & Gantt Chart** | **1 hour** |
| 6.3 | **Update Design Document** | **3 hours** |
| 6.4 | **Instruction/User Manual** | **3 hours** |

# Activity Definition & Estimation

1. **Planning**
   1. **Meeting with Team Members:**

Initial meeting to discuss project overview. Expectations and discussion of skillsets.

**Duration**: 2 Hours

* 1. **Understanding Project Requirements:**

Understanding project/client requirements, project background and client issues.

**Duration**: 2 Hours

* 1. **Github Repository Configuration:**

Clone the initial repository and ensure each team member is added.

**Duration**: 1 Hour

* 1. **Project Scheduling:**

Determine schedule for the project, set goals and outline outcomes/expectations.

**Duration**: 8 Hours

1. **Analysis**
   1. **Project Background Information:**

Provide information on the Problem, Scope, and document contents. Provide information surrounding background information and the steps necessary to achieve the desired result.

**Duration**: 3 Hours

* 1. **Define System Vision**

Provide information on the Problem, System Overview, and Benefits.

**Duration**: 3 Hours

* 1. **Define Activities & Estimations:**

Define Activities and provide an estimation on the time it will take to complete.

**Duration**: 3 Hours

* 1. **Define System Functions:**

Describe each function that will be implemented, and list details such as input parameters, side effects, and return values.

**Duration**: 3 Hours

* 1. **Define User & Software Requirements:**

Define the functionality and requirements of the software, along with what is required from the user to interact with the software.

**Duration**: 3 Hours

* 1. **Define and Analyse Use Cases:**

Define and analyse Use Cases to describe and illustrate how the software may be used. **Duration**: 3 Hours

* 1. **Gantt Chart & Work Breakdown Structure:**

Include a Gantt Chart & Work Breakdown Structure to analyse and measure activity completion time in accordance with the expected time management.

**Duration**: 3 Hours

1. **Design** 
   1. **Software Design Plan:**

Provide a diagram/flowchart that illustrates how the software will work from a system perspective.

**Duration**: 5 Hours

* 1. **UI Design Plan:**

Provide a design of how the User Interface may look like. Describe the tools used for this design stage and any key findings that informed your design.

**Duration**: 5 Hours

* 1. **Define Data Structures:**

List all data structures in the software and provide additional information.

**Duration**: 2 Hours

* 1. **Wireframes:**

Provide a Wireframe to better illustrate the proposed design of the Software.

**Duration**: 2 Hours

* 1. **Mock Up Design:**

Mock up design of the software to enhance decision making for the final software design.

**Duration**: 3 Hours

* 1. **Graphics & Assets:**

Draw & design Graphics & Assets intended to be used for the Software.

**Duration**: 3 Hours

* 1. **Structural Design:**

Produce a design detailing the navigational and information structure of the software. Describe and justify the decisions made in the context of the structural layout of the software.

**Duration**: 3 Hours

* 1. **System Detailed Design:**

Provide Pseudocode for all non-standard / non-trivial algorithms that operate on data. structures.

**Duration**: 3 Hours

1. **Development**
   1. **Required Feature 1:**

For a user-selected period, display the information of all accidents that happened in the period. Produce the results visually.

**Duration**: 3 Hours

* 1. **Required Feature 2:**

For a user-selected period, produce a chart to show the number of accidents in each hour of the day (on average). This function extends upon function 1. Produce the results visually.

**Duration**: 3 Hours

* 1. **Required Feature 3:**

For a user-selected period, retrieve all accidents caused by an accident type that contains a keyword (user entered), e.g., collision, pedestrian. This function extends upon Function 1. Produce the results visually.

**Duration**: 5 Hours

* 1. **Required Feature 4:**

Allow the user to analyse the impact of alcohol in accidents – i.e. trends over time, accident types involving alcohol, etc. Produce the results visually.

**Duration**: 5 Hours

* 1. **Required Feature 5:**

Produce a Visualisation view for the user to understand accident data relating to geographical location information. This will be categorised into Local Government Areas. Users can filter the result by LGA and/or Region and can compare data between different areas by charts. Produce the results visually.

**Duration**: 5 Hours

1. **Testing**
   1. **Unit Tests:**

Conduct Unit Tests and report results. Detail changes and produce solutions for errors that are encountered.

**Duration**: 5 Hours

* 1. **Coverage Report:**

Provide a description of the coverage of your unit tests, including how coverage was evaluated. (Function, statement, branch, condition).

**Duration**: 2 Hours

* 1. **Requirements Acceptance Testing:**

Complete Requirements Acceptance Testing and report results.

**Duration**: 3 Hours

1. **Administration**
   1. **Executive Summary:**

Provide an Executive Summary detailing a summary of the project. Detail what worked successfully and what didn’t.

**Duration**: 1 Hours

* 1. **Update WBS & Gantt Chart:**

Update Work Breakdown Structure and Gantt Chart to match adjustments made. Ensure everything within the documents are correct.

**Duration**: 1 Hours

* 1. **Update Design Document:**

Update the Design Document to match changes made. Ensure everything within the document is correct.

**Duration**: 3 Hours

* 1. **Instruction Manual/User Guide:**

Provide a User Guide/Instruction Manual to display the correct method and techniques to use the software.

**Duration**: 3 Hour

Chart

Description automatically generated

# Gantt Chart