Planning Document

Materials List Estimator

Group 4

SDEV240 Fall 2023

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# Introduction

For this project, we will be building a materials list estimator for a construction company. It will have a GUI application that estimates the cost of each material and puts it into a table to see the grand total of the house materials. The user will be able to populate item description, number of pieces, and unit price for which the application will then calculate the total cost. The user can clear the form, save to a file, and press a calculate button for the total. Our project additionally will have category subtotals and an email link to send the quote. This project will be completed using C# and developed in Visual Studio.

# Project Organization

| POSITION | NAMES | DESCRIPTION |
| --- | --- | --- |
| Organizer/ Programmer | Matteo Catalano | Ensures that the team meets the required task to complete the project and keeps all materials in check. Also develops some parts of the software. Testing. |
| Programmer | Michael Vukobratovich | Develops some parts of the software. Testing |
| Programmer | Aidan Kartchner | Develops some parts of the software. Testing. |
| Programmer | Jermaine Bently | Develops some parts of the software. Testing. |

# Hardware and Software Requirements

To complete this project, the following hardware and software requirements will be needed.

Hardware Requirement

* Windows Computer
* Monitor
* Keyboard and mouse

Software Requirement

* Operating system - Windows
* C# will be the development language that we will use for this project
* Visual Studio will be the integrated development environment
* .net libraries

# Work Breakdown

The following is the breakdown of the work needed to develop this project. We will begin with planning our software and defining the variables. Then, we’ll develop and test the estimator core functions, as well as the GUI. We’ll move on to additional functionalities that are beyond the original scope of the project. Then, we’ll finish with a large overall test.

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# Process Flow Diagrams

The following is a process flow diagram for our development cycle. We’ll begin with planning where we will hold our kick off meeting, review the materials, and start documentation. Then, we’ll define our user requirements and roles. Next, we’ll begin the design phase with our design documentation and GUI mockups. Then, we’ll build the logic and GUI as well as test it initially. We’ll then do an overall testing of the whole system. Finally, we’ll deploy by rolling out our project and offering support.





# Project Schedule

| **Project Planner** | | | |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Select a period to highlight at right. A legend describing the charting follows.* | | | | | **Period Highlight:** | 4 |  |  |  |  |  |  |  |
| **ACTIVITY** | **PLAN START** | **PLAN DURATION** | **ACTUAL START** | **ACTUAL DURATION** | **PERCENT COMPLETE** | **PERIODS** | |  |  |  |  |  |  |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** |
| **Planning** | 2 | 2 | 2 | 2 | **25%** |  |  |  |  |  |  |  |  |
| **UML diagram** | 2 | 1 | 2 | 1 | **100%** |  |  |  |  |  |  |  |  |
| **Class diagrams** | 3 | 1 | 3 | 1 | **35%** |  |  |  |  |  |  |  |  |
| **Variables** | 3 | 1 | 3 | 1 | **10%** |  |  |  |  |  |  |  |  |
| **Estimator** | 4 | 2 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Clear** | 4 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Save** | 4 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Calculate** | 5 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Testing** | 5 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Graphic Interface** | 4 | 2 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Layout** | 4 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Buttons** | 5 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Testing** | 5 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Functions** | 6 | 2 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Import CSV** | 6 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Export CSV** | 6 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Category Subtotals** | 7 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Testing** | 7 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |
| **Testing** | 8 | 1 |  |  | **0%** |  |  |  |  |  |  |  |  |

# Monitoring and Reporting Mechanisms

The following are the monitoring and reporting mechanisms that we will use for this project. These include tools for communication, collaboration, and scheduling.

Communication

* We created a Discord server
* Meetings will be held on Zoom

Collaboration

* Meetings
* Google drive folder
* Discord server
* GitHub

Scheduling

* Excel project planner in google drive
* Discord communications

# Appendix

| **Appendix** | |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| **CODE** | **ACTIVITY** | **DESCRIPTION** | **PLAN START** | **PLAN DURATION** | **DEPENDENCIES** |
|  |
|  | **Planning** |  | 2 | 2 |  |  |
| P01 | UML diagram | Develop a Unified Modeling Language (UML) diagram to visually represent the project's architecture, including the classes, their relationships, and the flow of data and control within the application. This diagram serves as a blueprint for the project's structure. | 2 | 1 |  |  |
| P02 | Class diagrams | Create detailed class diagrams that provide an overview of the classes and their attributes, methods, and associations. Class diagrams help define the structure of the application and how different components interact. | 3 | 1 |  |  |
| P03 | Variables | Identify and define the necessary variables and data structures that will be used throughout the application. This step involves specifying the data types, scope, and initial values of variables required for calculations and data storage. | 3 | 1 |  |  |
|  | **Estimator** |  | 4 | 2 |  |  |
| E01 | Clear | Implement a "Clear" function that allows the user to reset the form, clearing all input fields and calculations. This ensures a clean slate for entering new data. | 4 | 1 | P01 |  |
| E02 | Save | Develop a "Save" functionality that enables users to save the material list and its associated costs to a file, typically in a CSV (Comma-Separated Values) format. This function provides a way to store and retrieve project data. | 4 | 1 | P01 |  |
| E03 | Calculate | Create a "Calculate" function that computes the total cost of materials based on the user's input for item descriptions, quantities, and unit prices. This function updates the cost table in real-time as users make changes. | 5 | 1 | P01 |  |
| E04 | Testing | Perform rigorous testing of the Estimator functionalities to ensure accurate calculations, error handling, and a seamless user experience. This includes unit testing, integration testing, and user acceptance testing. | 5 | 1 | E01-03 |  |
|  | **Graphic Interface** |  | 4 | 2 |  |  |
| GI01 | Layout | Design the graphical user interface (GUI) layout, including the placement and organization of input fields, buttons, and tables. Ensure a user-friendly and intuitive design that enhances usability. | 4 | 1 | E01-04 |  |
| GI02 | Buttons | Create buttons for various actions like "Clear," "Save," "Calculate," and others, ensuring that they are properly labeled and functional. Buttons are a crucial part of the user interaction. | 5 | 1 | E01-04 |  |
| GI03 | Testing | Conduct extensive testing of the GUI to ensure that all elements are responsive, well-organized, and visually appealing. Test for usability and user interface (UI) consistency. | 5 | 1 | GI01-02 |  |
|  | **Functions** |  | 6 | 2 |  |  |
| F01 | Import CSV | Implement the ability to import material lists from CSV files, allowing users to load previously saved data. This function should parse the CSV data and populate the application's form accordingly. | 6 | 1 | E01-04 |  |
| F02 | Export CSV | Develop the functionality to export the current material list, including category subtotals, to a CSV file. This enables users to share or archive project estimates easily. | 6 | 1 | E01-04 |  |
| F03 | Category Subtotals | Calculate and display subtotals for different material categories, providing users with a breakdown of costs by category. This enhances cost tracking and project management. | 6 | 1 | E01-04 |  |
| F04 | Testing | Thoroughly test the Import CSV, Export CSV, and Category Subtotals functions to ensure data accuracy, proper file handling, and correct calculation of subtotals. | 7 | 1 | F01-03 |  |
|  | **Testing** |  | 8 | 1 |  |  |
| T01 | Testing | This is an overarching testing phase that encompasses testing activities across all categories. It involves verifying the functionality, accuracy, and robustness of the entire application, identifying and addressing any bugs or issues, and ensuring that the application meets the specified requirements and user expectations. | 8 | 1 | E04, GI03, F04 |  |