CSE 499 Project Plan

## Project Name: Metalsmith Helper

# Requirements:

List your project requirements with accompanying user stories. All the “core” requirements must be completed. Optional enhancements are features you would like to add if time permits. For each requirement list the user stories you will be addressing.

## Required

Use this table to document the features of your project. **You must have at least 4 requirements.** Modify the table as needed.

|  |  |  |
| --- | --- | --- |
| Requirement | \*C/E | Description |
| Metal Alloy | C | A list of metals and metal alloys (combinations of metals) \   * Each metal contains the properties (symbol, name, melting point, specific gravity, current price (updated from the internet)) * A metal alloy contains the properties (name, melting point, and a list of primary metals required to make the alloy with their percentage of composition) |
| User Stories   |  |  | | --- | --- | | Name | Description | | View Alloy | Show the Alloy information | | Find Alloy | Allow users to search for an alloy by name or metal | | Maintain | Allow user to add, edit, and delete metal or alloy information | |
| Metal Calculator | C | Tool to help calculate quantities of metals needed to create an alloy. |
| User Stories   |  |  | | --- | --- | | Name | Description | | Alloy calc. | User selects an alloy from the list of alloys in the alloy database then enters an amount needed. A list of the metals and weights needed to create the alloy is displayed | |
| Investment Calculator | C | Calculates the amount of investment needed for a mold given the diameter and height of the mold. Returns amount of investment and water needed |
| User Stories   |  |  | | --- | --- | | Name | Description | | Investment Calculator | User enters a flask size (diameter and height), displays the amount of investment and water needed to mix investment, display other information like mix time. | |
| Metal Casting Calculator | C | Calculate the amount of metal needed for a cast given a known pattern weight |
| User Stories   |  |  | | --- | --- | | Name | Description | | Calculate | User selects an alloy then enters the pattern weight and if the sprue was included in the pattern weight, displays the amount of alloy needed for casting. | |
| Cost Calculator | C | Calculate the current cost of a metal alloy |
| User Stories   |  |  | | --- | --- | | Name | Description | | Calculate | Users select an alloy then enter an quantity, the current price is displayed for that quantity. | | Update Price | Uses select a button to update current pricing for precious metals (gold, silver, and platinum) | |
| Settings | C | User needs to setup app by entering Onedrive storage information |
| User Stories   |  |  | | --- | --- | | Name | Description | | Setup | Gather required information to access OneDrive via API | | Maintain | User edits setting information | |
| Database Sync. | C | Database synchronization to OneDrive |
| User Stories   |  |  | | --- | --- | | Name | Description | | Refresh | When the app is open refresh data if online | | Update | If user makes changes locally push changes to OneDrive if online, warn user if data cannot be synced. | |
| Investment Database | E | Store investment information in database, use this database for investment calculator |
| User Stories   |  |  | | --- | --- | | Name | Description | | View | Display list of investment types | | Maintain | Allow user to add, edit and delete investment items | |
| Burnout Cycle | E | A burnout cycle is defined by a series of time and temperature settings that are programming into the burnout kiln. Each step in the cycle will contain a target temperature, ramp/hold, and time |
| User Stories   |  |  | | --- | --- | | Name | Description | | Cycle List | List of cycles with total time, excluding final hold | | View Cycle | View a specific Cyle | | Maintain | Allow user to add, edit, and delete burnout cycles | |

\*C=Core, E=Enhancement

## Project Schedule:

Create a rough project schedule broken down by sprint. For each sprint list the milestones you will meet. This is a rough guideline for future planning, you will make a more detailed plan at the first of each sprint. You will not be held accountable to this schedule as it will likely change as the class progresses.

|  |  |
| --- | --- |
| Sprint | Milestone(s) |
| 1 | Project Setup, Data storage design, OneDrive API and settings, |
| 2 | Metals/Alloys View CRUD |
| 3 | Calculators |
| 4 | Cleanup Testing |

# Project Architecture

Describe the architecture of your application (For example: web, mobile, client-server, n-tier, etc.).

This project will create a multi-platform application (mobile required, PC as an enhancement) that stores master data online, then syncs locally to device to work completely offline.

# Technology

Describe the technology you anticipate using (For example: programming languages, platforms, databases, etc.).

The program will be written in C# using the .NET MAUI framework. Data will be stored as serialized data (JSON) and synced online via OneDrive.