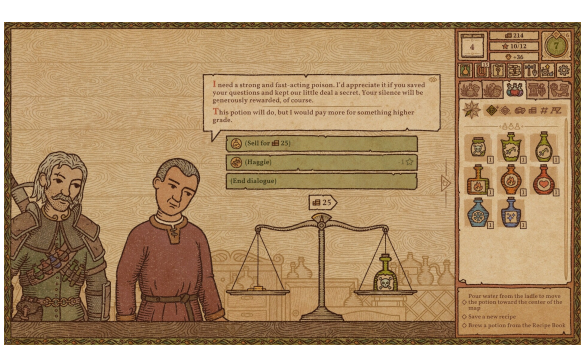
Cauldron & Coins

Potion craft + cooking game (no gardening)



1. Project Overview

Players play as the alchemist who makes the potion and sells it. Explore the world of brewing by moving the bottle around and find the perfect recipe while trying to make money to be the greatest alchemist.

The game will go by days. Each day a certain number of customers will visit your shop. The game is saved and the data is record at the end of the day

2. Project Review

Study and then present a relevant existing project, outlining the specific improvements you plan to make. Highlight the key areas where your project enhances or builds upon the original.

This project is pretty much inspired by potion craft. However, the game will not have the garden, so as long as the player has the money, they could go on their adventures in the brewing world. Also the player will not know what path the herbs will give until used. So they have to try and experiment with it themselves.

3. Programming Development

3.1 Game Concept

Describe the game in detail, including its mechanics and objectives. Highlight the key features or selling points of the game.

The game is a different kind of open world. Players move around the map by different combinations of lines created by different herbs. Given the creative way to play the game. Also with a selling system for players to find the most satisfied potion for customers.

As the herbs are put into the cauldron, the path shown. To brew a potion the player has to put the path together until reach the specific point that is the certain type of potion. Also, to make the potion more precise, there is the system to drag the position toward original point for precise position

The map can be moved around to see where the path is going. Increase the play area for players to explore.

Since there will not be the herbs garden, the herbs are ready for the player. As the player picks up the herbs, a certain amount of money is deducted.

For selling, as the customer came and gave you their request. There is a haggle option to increase your price and make more profit.

When the player done the day, they can explore the brewing bad or go to bed to save and end the day.

3.2 Object-Oriented Programming Implementation

List and describe at least five classes you will implement in your game. For each class, briefly explain its role, key attributes, and methods. You can also include a UML diagram for better understanding. (Later, this UML will be required as part of the full proposal.)

https://lucid.app/lucidchart/3c65a79d-44c3-485e-8b2e-51d24e179078/edit?viewport_loc=-1874%2C-235%2C4037%2C1978%2CHWEp-vi-RSFO&invitationId=inv_79174689-db9b-4e40-9c46-781fdb39c3d5

Class herb (sent the combination of line to class map)

- Class vertical herbs(the herbs that give vertical path (x = f(y)))
- Class Horizontal herbs(the herbs that give horizontal path (y = f(x)))

Class herbs manager (for contain and giving herbs to the map class)
Class potion (contain the information of combination)
Class Inventory(contain potion for using and money)
Class Customer (sent request and check the item is satisfied)
Class Selling (create the customer and bargaining system)
Class Drawer (draw everything)
Class Game (main class for running)

3.3 Algorithms Involved

Mention the algorithms used in the game. If your game incorporates techniques such as pathfinding, sorting, AI behavior, rule-based logic, or event-driven mechanics, describe them here.

For brewing potion:

Based on a graphing calculator, when the herb contains the mathematical equation. The line is drawn while the bottle will move along the line by adding or subtracting x until the position is satisfied. The bottle can also move back to origin by calculating the slope between the current position and the origin to make the line

The path will be contained in movement. So as the potion moves, even by the move back to the original position or continue the path. The path will be continuous.

For creating the customer:

Customer is containing the dialog. As the potion is offered, the system will check if the dialog is in the condition that this potion will be satisfied or not. Then return.

4. Statistical Data (Prop Stats)

4.1 Data Features

	Why it is good to have this data	How will you obtain 50 values of this data	Which variable and class will collect them from	How will you display this feature data
Tracking the use of each herbs	To see if the herbs is used equally of some herbs was used more	Brew the potion about 20++ times	Class Map, used_herb(List)	Histogram
Tracking the number of herbs used in each potion	Similar to the first but more specific in potion type	Brew 50 potions	Class Map, used_herb(List)	table
Tracking the distance that each player use in each potion	To see which potion is hard to make	Brew 50 potions	Class Map, distance	Heat map
Tracking the mistake the player made when try to offering potion	To see if the customer order is hard to understand	Sell 50 potions	Class Selling (failure)	Pie chart

Tracking the fail rate of haggle based on the difficulty	To see if the haggle session is too hard or not	Selling with haggle 50 times	Class Selling (success_offer)	histogram

Feature name	Graph objective	Graph type	X-axis	Y-axis
Use of each herb	To see which herb player comfortable with	histogram	Herbs	Use of herb
distance of each potion	To see which potion is hard to make	Heatmap	potion	distance
Success and fail rate of offering potion	To see if the customer order is hard to understand	Pie graph	success/ fail	times
Fail rate on each size of haggle bar	To find perfect size and make the level of haggle	histogram	Bar size	Fail count

3.2 Data Recording Method

Explain how the game will store statistical data. Will it be saved in a database, CSV file, or another format?

CSV, All the data will be recorded when the player ends the day.

4. Project Timeline

Week	Task
1 (10 March)	Proposal submission / Project initiation
2 (17 March)	Full proposal submission
3 (24 March)	Full proposal 3 + UML
4 (31 March)	Full proposal 4
5 (7 April)	
6 (14 April)	Submission week (Draft)

4.1. Weekly goal

Week	Plan
26/3 - 2/4	Path, moving system for brewing path
3/4 - 9/4	Brewing success but not create potion yet
10/4 - 16/4	(50%) brewing section + inventory
17/4 - 23/4	(75%) selling system(exclude haggle) + UI
24/4 - 11/4	(100%)(haggle and data collecting)

5. Document version

Version: *4.1*
Date: *31 March 2025*

Date	Name	Description of Revision, Feedback, Comments
14/3	Phiranath	I know that this proposal isn't finalized, but please provide as much information as you can so we can give you more feedback to improve them. Recording method as CSV is okay, but when would you record data after the game ends or after each potion is brewed. Don't forget to add the outline for the Data Analysis Report.
16/3	Rattapoom	Please also don't forget to fill the Project Timeline table.
27/3	Phiranath	Overall, the document is very detailed. I understand your overall idea. Good job👍