

Formula and Flask

Tutorial Document

Game Description

Formula and Flask is a first-person potion factory prototype where the quality of the output potions is determined through numeric ingredient combinations that are evaluated using fuzzy logic and degrees of perfectness. Each potion consists of a predetermined set of ingredients with the ideal numerical value for each generated daily, and hidden from the user. Players attempt to work out the correct combination through trial and error with feedback given in the form of the potion output scores which are based on how close the current combinations are to the correct ones. These are saved to give each potion multiple degrees of perfectness, determining how good the potion is. In the game, players can purchase and place different factory stations including the cauldron, buy points, sell points, and conveyors to set up their ideal production layout. As players level up, they unlock new potions with different combinations and much greater sell points.

Controls

WASD – Move

LMB – Pick Up Item / Build Object / Interact with UI

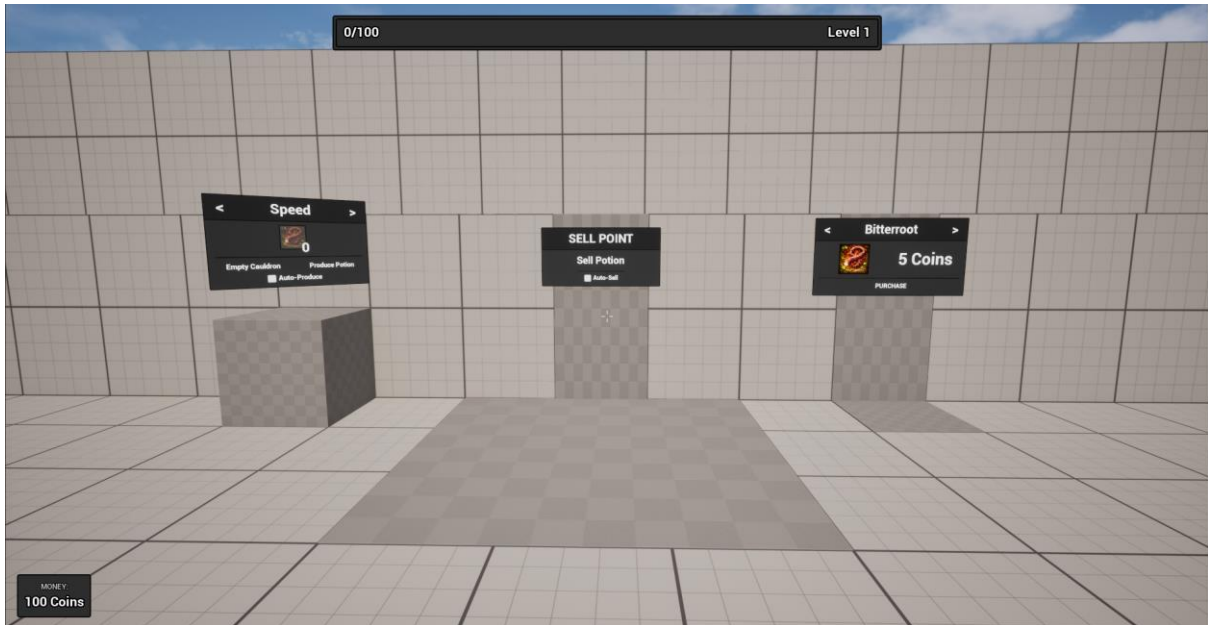
E – Consume Potion

B – Build Mode

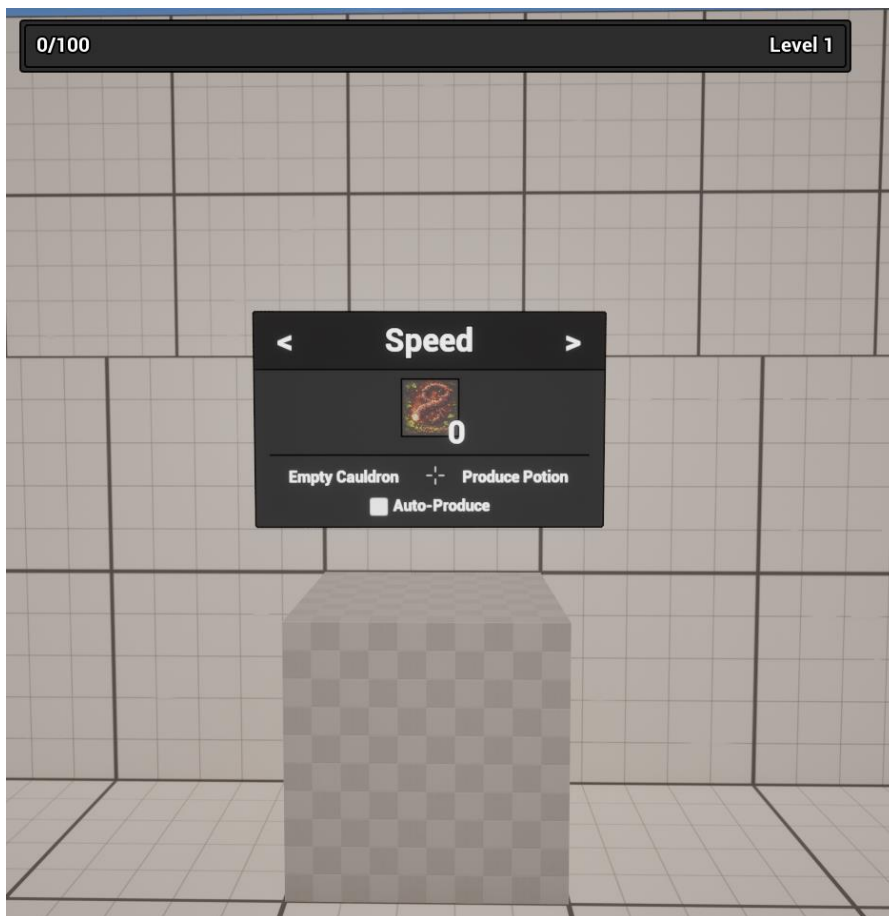
R – Rotate Object

Tutorial

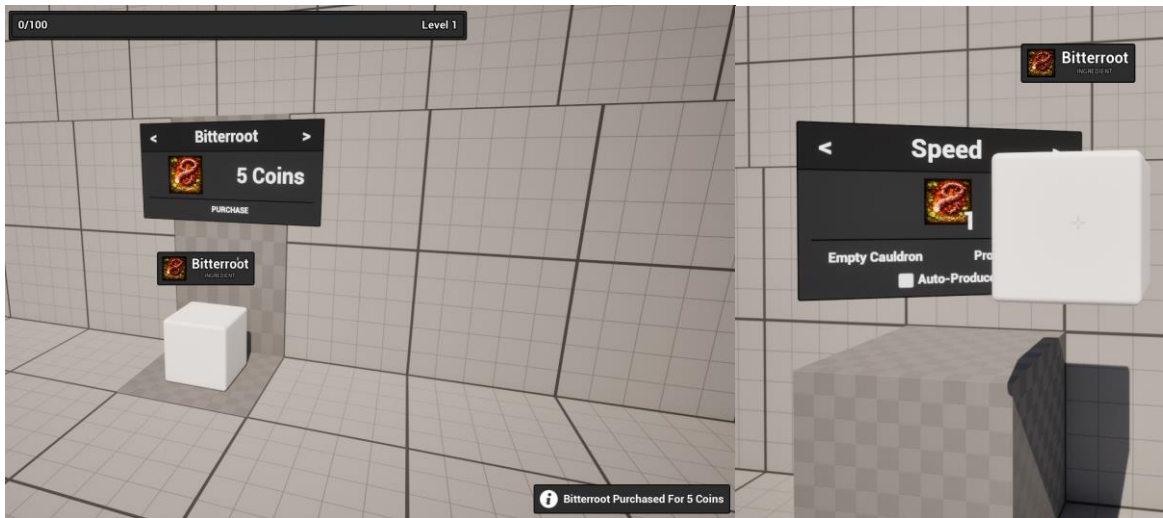
The player starts with 4 built objects. A cauldron, an ingredient shop, an appraisal point, and a sell point.



The player's goal is to try and make as much money as possible, and level up to the max level to make the best potions. To start making potions, walk up to the cauldron and see what ingredients you need for the first potion. Each potion is locked by level, the player starts on level 1 and is only able to craft a speed potion.



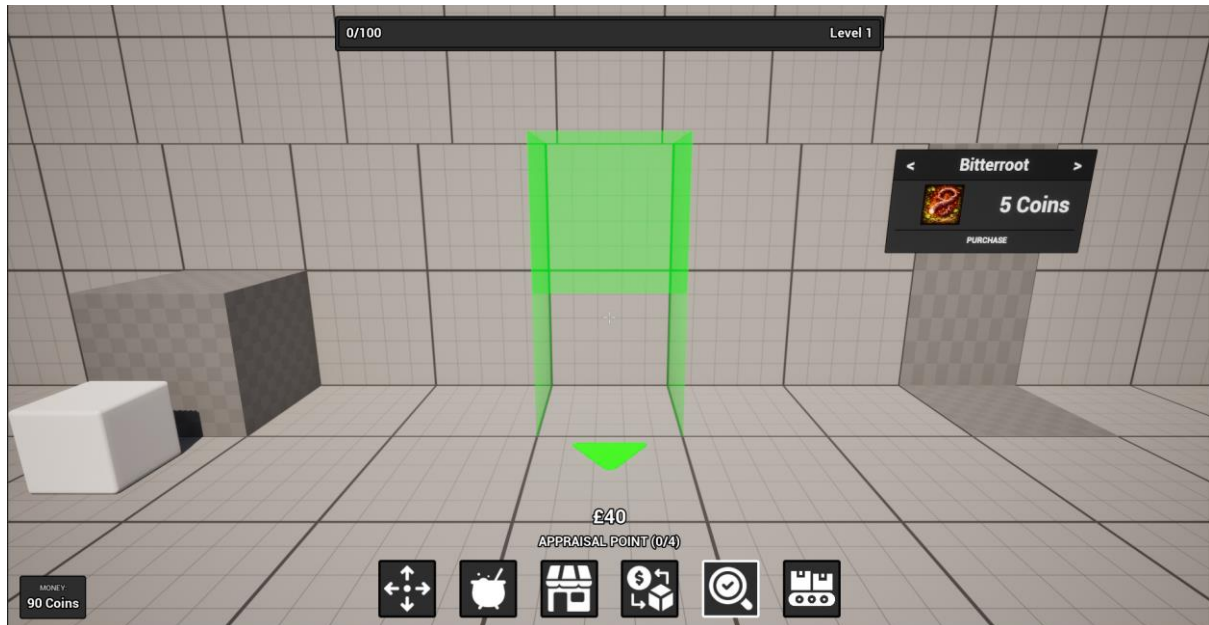
Using the “Ingredient Shop”, players can buy the relevant ingredients and pick them up and take them to the cauldron. Putting the relevant ingredient in the cauldron will add that ingredient to the cauldron, slowly stacking the tally from 1 to 10.



Once each ingredient has been placed in the cauldron at least once, the player can finally start producing. Click “Produce Potion” to start this.



Once the production has finished the player will be given a brand-new potion. But, it will display some red text disclaiming “NOT APPRAISED”. To appraise the potion place the potion in the ‘APPRAISAL POINT’ and click “Appraise Potion”. If there is no ‘APPRAISAL POINT’, then open up the build menu using ‘B’ and build one.



The player can then put the potion inside of the appraisal point and click “Appraise Potion” to find out the potions value.



Appraising the potion will tell the player how good it actually is. When the game starts, each potions ingredients is initialised with a value between 1-10, this value dictates the combination needed to create a perfect potion. The appraisal station is the only way to find this out. When appraising a potion, the player will be shown each ingredient, and its degree of perfectness. From the example above, the speed potion only has one ingredient, and that is “Bitterroot”, the “Bitterroot” for this potion is “Wrong But Not Far Off”, meaning the current combination we have of “Bitterroot” (which for this example is 2), is within 4 of the correct answer, but not within two. Using this logic we can determine that the that the correct combination for this

example must be either 5, or 6. Here is a table showing how this logic is broken down.

Ingredient Combination Score Calculation

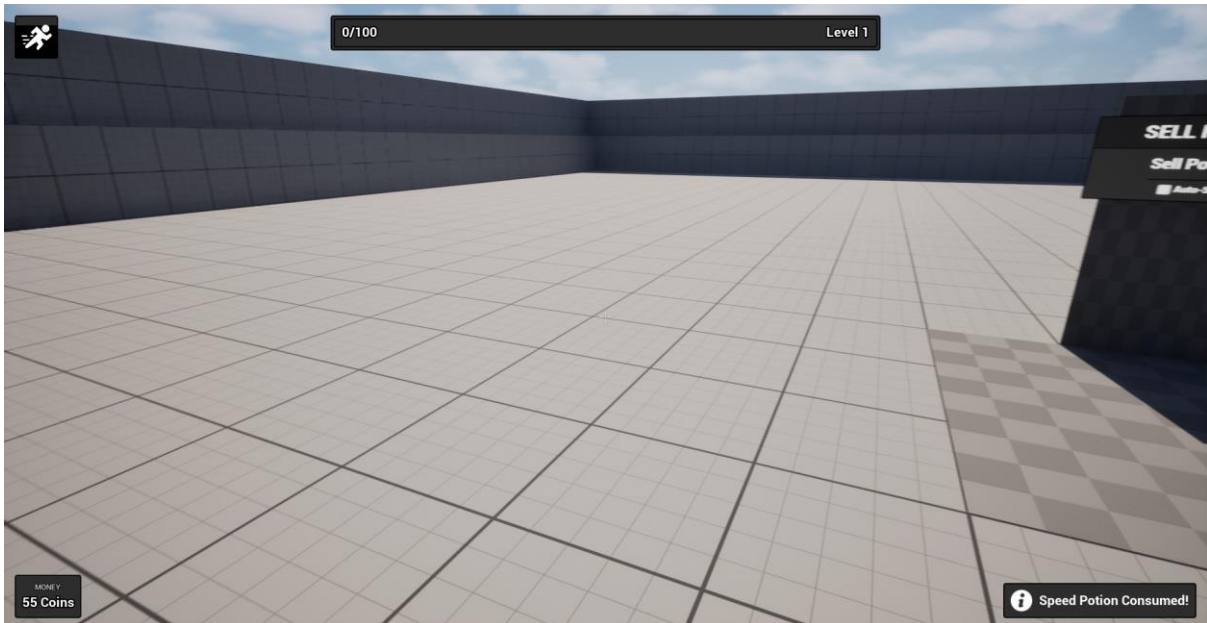
Distance From Perfect	Rating	Score
Exact Match	Perfect	3
+/- 2	Very Close	2
+/- 4	Wrong But Not Far Off	1
>/= 5	Very Wrong	0

Degree of Perfectness	Sale Multiplier	Sale Example (10 Coins & 20 XP)
Not Appraised	0.2%	2 Coins and 4 XP
0/3	0.4%	4 Coins and 8 XP
1/3	0.6%	6 Coins and 12 XP
2/3	0.8%	8 Coins and 16 XP
3/3	1.0%	10 Coins and 20 XP

After a potion is appraised, its total score based on all of its ingredients is calculated. This is shown as its “Clarity”. The clarity dictates the potions sale and use multiplier, so 60% clarity means the potion will sell for 0.6% of the full value. This can be clearly seen in the table above.



Once making a potion, it can either be sold, or consumed. By pressing ‘E’ on a potion it can be consumed to give the user its effect. Each potion has its own effect, such as speed, making the player faster. The abilities effectiveness is also determined by the potions clarity.



Potions can also be sold by the user to make money. To sell a potion, simply put it on the platform and press “Sell Potion”. Each potion type sells for a specific amount of time, and the more potions that are on the platform, the longer this sell time becomes.



Many of the machines can also be made to ‘Auto-“blank”’, this means that the machine will automatically run a certain feature on a specific timer.

Using the build menu, the player can also continue place more and different machines such as conveyor belts. These can all be used to increase the size and efficiency of the players potion.



Good luck and have fun!