## High Concept Statement:

The theme of our game is a cooking simulation that combines elements of strategy and time management, where 2 players battle out to create smoothies based on random ingredients they pick through randomised cards, the best and tastiest smoothie wins.

We bring a unique style to cooking simulations, with our mechanic to use random ingredients that are given to you with cards, and the competitive turn based multiplayer style gives a more competitive sense to our game.

## Game Rules:

### Setup Instructions

* At the beginning, players choose between characters 1&2 they want to use.
* The 1st Player to be spawned into the kitchen, which is the game environment, is completely randomised.

### Gameplay Sequence

* In order for the round to start, players must head to the counter at the centre of the game to choose their ingredients.
* Players have 15seconds to pick 5 cards representing ingredients for their smoothie.
* The cards show no information until chosen.
* Once you collect the ingredients you have to transport them to the blender
* When the 15 seconds ends and you haven’t picked 5 cards in total, random ingredients will be given to you.

### What players can do

* Players can interact with the counter containing the cards/Ingredients.
* Interact with the Blender.
* Players can walk around the kitchen to get to the areas needed.

### Victory Conditions

* In order to win one of the players has to make the best smoothie

### Interactions

* Players can interact with counters that contains either the blender or the cards/Ingredients.

# Game State function

We created a class called Game state which handles a data structure to hold information about the game state, such as player ingredients and ingredient availability.

Player Ingredients:

The game state includes two lists, player1Ingredients and player2Ingredients, to store the ingredients selected by each player, respectively. These lists are initially empty but are updated as players select ingredients during gameplay.

Ingredient Availability:

The game state also includes a dictionary named ingredientAvailability. This dictionary keeps track of the availability of each ingredient on the game board. Each ingredient name serves as a key in the dictionary, with a corresponding boolean value indicating whether the ingredient is available (true) or has been selected by a player (false).

By utilizing these data structures, the game can accurately represent and store information about the current state of gameplay. For example, after a player selects an ingredient, it is added to their respective ingredient list, and its availability is updated to reflect that it's no longer available for selection by other players. This representation allows the game to manage player actions, track ingredient availability, and ensure that the game state is updated and maintained throughout the gameplay loop.

Utility Function Equation:

The utility function to assign a numeric result based on the count of good and bad ingredients each player has selected. This approach allows us to quantify the quality of ingredients chosen by each player, making the evaluation more objective.

Utility Function:

Calculate the count of good ingredients and bad ingredients for each player.

We Assigned a numeric score based on the difference between the counts of good and bad ingredients. The player with a higher score wins and if the scores are equal it's a tie.

Evaluation:

To determine which ingredients are considered good and bad based on logic we know for that for example a banana is considered a good ingredient and Toothpaste is considered a bad ingredient. Count the number of good and bad ingredients selected by each player. We then calculate the score for each player based on the difference between the counts of good and bad ingredients. The game declares the winner or a tie based on the comparison of scores.

Example for a Tie

Player 1:

Good Ingredients: Strawberry, Mango, Blueberries

Bad Ingredients: Toothpaste, Tomato

Score:

Good Ingredients-Bad Ingredient=3−2=1

Player 2:

Good Ingredients: Spinach, Pineapple, Cheese

Bad Ingredients: Banana, Toothpaste

Score:

Good Ingredients−Bad Ingredients=3−2=1

In this example, both players have a score of 1, which means they have selected an equal number of good and bad ingredients. Therefore, the game would end in a tie.

Example for a Win

Player 1:

Good Ingredients: Strawberry, Mango, Blueberries, Pineapple

Bad Ingredients: Toothpaste, Tomato

Score:

Good Ingredients−Bad Ingredients=4−2=2

Player 2:

Good Ingredients: Spinach, Pineapple, Cheese

Bad Ingredients: Banana, Toothpaste

Score:

Good Ingredients−Bad Ingredients=3−2=1

In this scenario:

Player 1 has selected 4 good ingredients and 2 bad ingredients, resulting in a score of 2. Player 2 has selected 3 good ingredients and 2 bad ingredients, resulting in a score of 1. Which means player 1 has selected more of the good ingredients then player 2. Therefore, the game would end in a win.