1. **Take some time to think of what you want users to search for, the criterion for search, and format of output.**

Based on my Recipe mode, I’ve decided to let users search for the name of a recipe (writing only part of the name also returns any recipe that contains the text in the form), the difficulty from easy to hard, cooking time, where with the help of a UX designer I established that the best way to implement is to have different ranges (ex. 1-10 mins) instead of something like a max or min cooking time input fields, and ingredients, where I’ve let the users choose ingredients from a dropdown list of all available ingredients throughout all recipes, and once an ingredient is selected, it’s added as a “pill” to the input field with the help of a library called Select2, which makes it very intuitive to make implement multiple selections from a dropdown menu.

1. **Data Analysis**

**1. Bar Chart: Number of Recipes by Difficulty**

* **Visualization**: This chart visualizes the distribution of recipes according to their difficulty levels.
* **X-axis (Categories)**: Difficulty levels (e.g., Easy, Medium, Hard).
* **Y-axis (Quantitative Measure)**: Number of recipes within each difficulty category.
* **Labels**: The chart should have a title such as "Number of Recipes by Difficulty", labels for both axes ("Difficulty" for the x-axis and "Number of Recipes" for the y-axis), and a color legend if different difficulties are colored differently.

**2. Pie Chart: Recipe Distribution by Cooking Time Range**

* **Visualization**: This chart shows how recipes are distributed based on different cooking time ranges.
* **Slices (Categories)**: Cooking time ranges (e.g., 1-10 mins, 11-20 mins, etc.).
* **Measure**: The percentage of recipes falling into each cooking time range.
* **Labels**: Each slice should be labeled with its cooking time range and the percentage of recipes it represents. The chart should have a title, such as "Recipe Distribution by Cooking Time Range". A legend explaining the cooking time ranges might also be helpful for clarity.

**3. Line Chart: Number of Recipes per Ingredient**

* **Visualization**: This line chart plots the frequency of ingredients used across recipes.
* **X-axis (Categories)**: Ingredient names.
* **Y-axis (Quantitative Measure)**: The total number of recipes using each ingredient.
* **Labels**: The chart should include a title like "Number of Recipes per Ingredient", x-axis label ("Ingredient"), and y-axis label ("Number of Recipes"). Ingredient names should be rotated for better readability if they are many and varied.

I’ve chosen to have it so all charts are shown to the user based on the filtered search results, once the user clicks the “Data analytics” button next to the search bar, instead of having the user choose what type of chart to display from a dropdown menu, as I thought that was more intuitive and made more sense.