## **Search Criteria and Output Format**

### **Search Criteria:**

1. **Recipe Name** - Users can search recipes based on partial or full names.
2. **Ingredients** - Users can input ingredients to find recipes that include them.
3. **Difficulty Level** - Users can filter recipes by difficulty (Easy, Medium, Intermediate, Hard).
4. **Cooking Time Range** - Users can specify minimum and maximum cooking times.

### **Output Format:**

* **Search Results Table**: Displays recipe names, cooking times, and difficulty levels.
* **Clickable Links**: Recipe names link to their detailed views.
* **Charts**: Optionally show visualizations like bar, pie, or line charts to compare cooking times and categories.

## **Data Analysis**

### **Visualizations:**

1. **Bar Chart**
   * **Purpose**: Compare cooking times for recipes.
   * **X-axis**: Recipe names.
   * **Y-axis**: Cooking times in minutes.
   * **Labels**: Recipe names and their respective times.
   * **User Input**: Displayed based on search results filtered by the user.
2. **Pie Chart**
   * **Purpose**: Show distribution of recipes by difficulty levels.
   * **Segments**: Difficulty levels (Easy, Medium, Intermediate, Hard).
   * **Labels**: Difficulty categories.
   * **User Input**: Provided by default as an overview of all recipes.
3. **Line Chart**
   * **Purpose**: Track the number of recipes added over time.
   * **X-axis**: Date recipes were added.
   * **Y-axis**: Number of recipes.
   * **Labels**: Dates and counts.
   * **User Input**: Displayed at discretion to analyze trends.

## **Execution Flow**

### **User Journey Flow Chart:**

1. **Homepage** - User lands on the homepage.
2. **Login** - User logs into their account.
3. **Search Options** - User enters criteria (name, ingredients, etc.) in the search form.
4. **View Results** - Results are displayed in table format with clickable links.
5. **Visualizations** - Charts (bar, pie, or line) are shown based on filters or provided by default.
6. **Detail View** - User clicks on a recipe to view detailed information.
7. **Logout** - User logs out of the application.