Task 2.7: Implement Search for Recipes

- Users can search recipes by **title** or **ingredients**.
- Search criteria is input via a simple search box.
- Backend filters Recipe objects using Django ORM QuerySets with **icontains** for partial and case-insensitive matching.
- Convert the filtered QuerySet to a **pandas DataFrame** for flexible data manipulation or display.
- Render search results as an **HTML table**.
- Each recipe in the results is **clickable**, linking to its detailed view page.
- **Bonus:** Partial/wildcard search allows entering part of a phrase and still matching full titles or ingredients.

Chart Generation Function Explanation

I implemented a Python function called `get_chart` that dynamically generates data visualizations using **matplotlib**. This function accepts two parameters:

- **chart_type:** A string specifying which chart to generate. It supports `'bar'`, `'pie'`, and `'line'`.
- **df:** A pandas DataFrame containing recipe data, specifically the **title** and **cooking_time** columns.

Chart Types

Bar Chart

- Creates a vertical bar chart showing cooking time for each recipe.
- **X-axis:** Recipe titles (categorical)
- **Y-axis:** Cooking time in minutes (numerical)
- X-axis labels are rotated for readability.
- Shows vertical bars representing cooking time per recipe.

Pie Chart

- Displays a pie chart representing the distribution of cooking times across recipes.
- This chart has **no x-axis or y-axis**.
- Shows portions of total cooking time as slices, labeled by recipe titles.

Line Chart

- Plots cooking time trends across recipes as a connected line with markers.
- **X-axis:** Recipe titles (categorical)
- **Y-axis:** Cooking time in minutes (numerical)
- Useful for visualizing variation in cooking times across recipes.

User Flow

Homepage → (Login or Browse) → Search Recipe → View Results → Click Recipe Details → View Charts → Logout