

Task 2.7: Data Analysis and Visualization

The screenshot shows a web application interface titled "Recipes List". At the top, there are three buttons: "Home" (blue), "Search" (red), and "Logout" (black). Below the buttons is a table with three rows. The first row contains "Tea" and an image of a cup of tea. The second row contains "Coffee" and an image of coffee beans. The third row contains "Spaghetti" and an image of spaghetti. To the left of the table is a kitchen knife and a white cloth, and to the right is a wooden surface with fresh herbs like rosemary, parsley, and arugula.

Recipes Titles	Recipes Images
Tea	
Coffee	
Spaghetti	

Searching using the difficulty level was the type of search feature I used. This allows the users to search recipes by difficulty level and then a chart will show up. Using QuerySet, I was able to look up which difficulty and chart I wanted to use. The QuerySet gets converted to the pandas DataFrame, which is where it creates the chart to display. The App also uses the 'matplotlib' library which is good for creating static, animated, and interactive visualizations. It creates two functions that work with each other, the get_graph() and the get_chart(). The following images are all three easy charts compared to hard charts. The axis' are shown by recipe and time.

The screenshot shows a web application interface titled "Search Recipes". At the top, there are dropdown menus for "Recipe diff:" (set to "Easy") and "Chart type:" (set to "Pie chart"), and a "search" button. Below the search bar is a table with columns: id, name, cooking_time, ingredients, description, and pic. The table has three rows: 1. Tea (3.0 min, Tea-leaves, Water, Honey, description: Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it., pic: recipes/tea_695Y4ZM.jpeg), 2. Coffee (5.0 min, Coffee Beans, Water, description: Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete., pic: recipes/coffee_d0O57h1.jpeg), and 3. Grilled Cheese (5.0 min, Bread, Butter, Cheese, description: Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich., pic: recipes/grilledcheese_nq4v98u.jpeg). To the right of the table is a pie chart with three segments: "Tea" (blue), "Coffee" (orange), and "Grilled Cheese" (green).

id	name	cooking_time	ingredients	description	pic
0	Tea	3.0	Tea-leaves, Water, Honey	Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it.	recipes/tea_695Y4ZM.jpeg
1	Coffee	5.0	Coffee Beans, Water	Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete.	recipes/coffee_d0O57h1.jpeg
2	Grilled Cheese	5.0	Bread, Butter, Cheese	Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich.	recipes/grilledcheese_nq4v98u.jpeg

Pie Chart Data:

Category	Value
Tea	1
Coffee	1
Grilled Cheese	1

Search Recipes

Recipe diff: Easy Chart type: Bar chart search

ID	Name	Cooking Time	Ingredients	Description	pic
0	Tea	3.0	Tea-leaves, Water, Honey	Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it.	recipes/tea_695Y4ZM.jpeg
1	Coffee	5.0	Coffee Beans, Water	Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete.	recipes/coffee_1d05711.jpeg
2	Grilled Cheese	5.0	Bread, Butter, Cheese	Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich.	recipes/grilledcheese_nq4v98u.jpeg

A bar chart titled 'Search Recipes' showing the cooking time for three items. The x-axis categories are Tea, Coffee, and Grilled Cheese. The y-axis ranges from 0 to 5. The bars show cooking times of approximately 3.0 for Tea, 5.0 for Coffee, and 5.0 for Grilled Cheese.

ID	Name	Cooking Time	Ingredients	Description	pic
0	Tea	3.0	Tea-leaves, Water, Honey	Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it.	recipes/tea_695Y4ZM.jpeg
1	Coffee	5.0	Coffee Beans, Water	Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete.	recipes/coffee_1d05711.jpeg
2	Grilled Cheese	5.0	Bread, Butter, Cheese	Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich.	recipes/grilledcheese_nq4v98u.jpeg

Search Recipes

Recipe diff: Easy Chart type: Line chart search

ID	Name	Cooking Time	Ingredients	Description	pic
0	Tea	3.0	Tea-leaves, Water, Honey	Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it.	recipes/tea_695Y4ZM.jpeg
1	Coffee	5.0	Coffee Beans, Water	Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete.	recipes/coffee_1d05711.jpeg
2	Grilled Cheese	5.0	Bread, Butter, Cheese	Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich.	recipes/grilledcheese_nq4v98u.jpeg

A line chart titled 'Search Recipes' showing the cooking time for three items. The x-axis categories are Tea, Coffee, and Grilled Cheese. The y-axis ranges from 3.0 to 5.0. The line starts at 3.0 for Tea, rises to 5.0 for Coffee, and remains flat at 5.0 for Grilled Cheese.

ID	Name	Cooking Time	Ingredients	Description	pic
0	Tea	3.0	Tea-leaves, Water, Honey	Tea is a beverage made by throwing tea leaves in boiling water. Add honey to sweeten it.	recipes/tea_695Y4ZM.jpeg
1	Coffee	5.0	Coffee Beans, Water	Pour hot water over the coffee grounds, making sure to saturate them evenly. Allow them to brew for the next few minutes until complete.	recipes/coffee_1d05711.jpeg
2	Grilled Cheese	5.0	Bread, Butter, Cheese	Butter the Bread and put cheese in between, then fry yourself up a wonderful grilled cheese sandwich.	recipes/grilledcheese_nq4v98u.jpeg

(Easy, in order Pie, Bar, Line charts)

Search Recipes

Recipe diff: Hard Chart type: Bar chart search

ID	Name	Cooking Time	Ingredients	Description	pic
0	Spaghetti	20.0	Spaghetti Noodles, Parmesan Cheese, Tomato Sauce, Parsley	Cook spaghetti in a large pot by boiling noodles. When finished, mix in all other ingredients and serve.	recipes/spaghetti_3a599d1.jpeg
1	Baked Potato	15.0	Potato, Salt, Pepper, Butter, Sour Cream, Cheese	Cook potato in aluminum foil to create an extra crispy skin. After cooking, add all other ingredients.	recipes/potato_wxwXrQ1.jpeg
2	Egg Sandwich	10.0	Bread, Eggs, Cheese, Butter, Salt, Pepper	Fry Eggs to the desired style and add cheese to melt at the end. Place finished eggs on toast.	recipes/eggsandwich_hoT8gA1.jpeg
3	Cheese Burger	20.0	Ground Beef, Salt, Seasoning, Cheese, Bun, Ketchup	Season the ground beef and make it into small balls around 2" wide, then press them down on the grill. Cook to desired and serve on a bun.	recipes/cheeseburger_7jEXNh1.jpeg
4	Tacos	25.0	Corn Shell Tortilla, Ground Beef, Taco Seasoning, Onion, Cilantro, Oil, Hot Sauce	Brown the meat and add taco seasoning. While doing that start cooking the corn shells. When finished add all of the ingredients to make authentic tacos.	recipes/tacos_CwwELHh1.jpeg

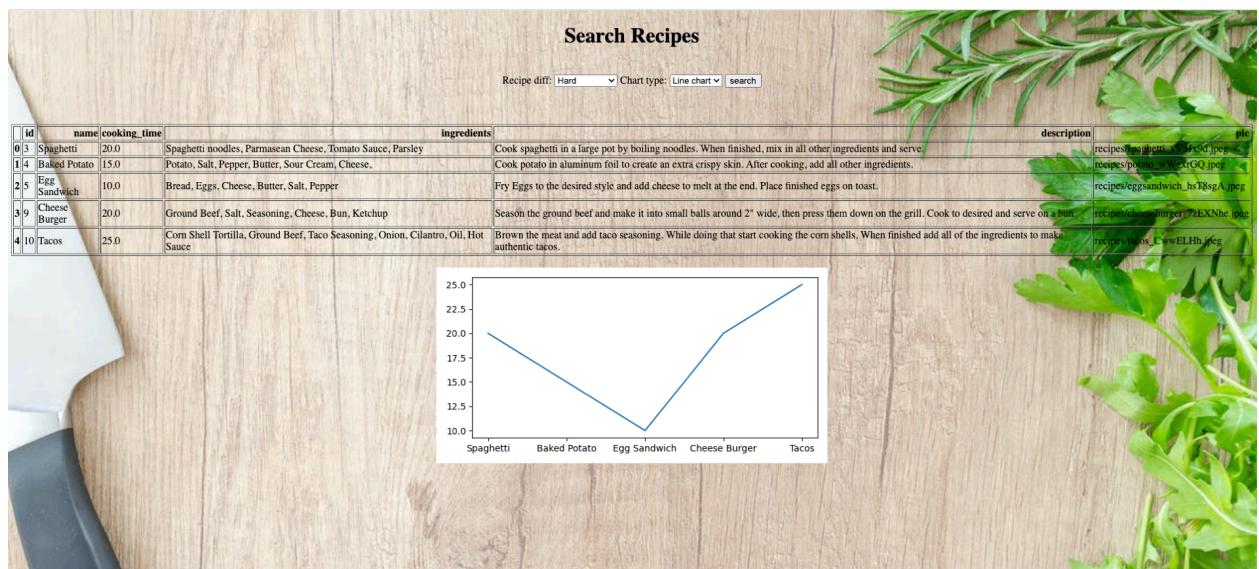
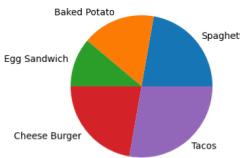
A bar chart titled 'Search Recipes' showing the cooking time for five items. The x-axis categories are Spaghetti, Baked Potato, Egg Sandwich, Cheese Burger, and Tacos. The y-axis ranges from 0 to 25. The bars show cooking times of approximately 20.0 for Spaghetti, 15.0 for Baked Potato, 10.0 for Egg Sandwich, 20.0 for Cheese Burger, and 25.0 for Tacos.

ID	Name	Cooking Time	Ingredients	Description	pic
0	Spaghetti	20.0	Spaghetti Noodles, Parmesan Cheese, Tomato Sauce, Parsley	Cook spaghetti in a large pot by boiling noodles. When finished, mix in all other ingredients and serve.	recipes/spaghetti_3a599d1.jpeg
1	Baked Potato	15.0	Potato, Salt, Pepper, Butter, Sour Cream, Cheese	Cook potato in aluminum foil to create an extra crispy skin. After cooking, add all other ingredients.	recipes/potato_wxwXrQ1.jpeg
2	Egg Sandwich	10.0	Bread, Eggs, Cheese, Butter, Salt, Pepper	Fry Eggs to the desired style and add cheese to melt at the end. Place finished eggs on toast.	recipes/eggsandwich_hoT8gA1.jpeg
3	Cheese Burger	20.0	Ground Beef, Salt, Seasoning, Cheese, Bun, Ketchup	Season the ground beef and make it into small balls around 2" wide, then press them down on the grill. Cook to desired and serve on a bun.	recipes/cheeseburger_7jEXNh1.jpeg
4	Tacos	25.0	Corn Shell Tortilla, Ground Beef, Taco Seasoning, Onion, Cilantro, Oil, Hot Sauce	Brown the meat and add taco seasoning. While doing that start cooking the corn shells. When finished add all of the ingredients to make authentic tacos.	recipes/tacos_CwwELHh1.jpeg

Search Recipes

Recipe diff: Hard ▾ Chart type: Pie chart ▾ search

	id	name	cooking_time	ingredients	description	pic
0	3	Spaghetti	20.0	Spaghetti noodles, Parmesan Cheese, Tomato Sauce, Parsley	Cook spaghetti in a large pot by boiling noodles. When finished, mix in all other ingredients and serve.	recipes/spaghetti_wxM9od.jpeg
1	4	Baked Potato	15.0	Potato, Salt, Pepper, Butter, Sour Cream, Cheese,	Cook potato in aluminum foil to create an extra crispy skin. After cooking, add all other ingredients.	recipes/potato_wxL2tGQ.jpeg
2	5	Egg Sandwich	10.0	Bread, Eggs, Cheese, Butter, Salt, Pepper	Fry Eggs to the desired style and add cheese to melt at the end. Place finished eggs on toast.	recipes/eggsandwich_hxT8sgA.jpeg
3	9	Cheese Burger	20.0	Ground Beef, Salt, Seasoning, Cheese, Bun, Ketchup	Season the ground beef and make it into small balls around 2" wide, then press them down on the grill. Cook to desired and serve on a bun.	recipes/cheesburger_j7EXNhE.jpeg
4	10	Tacos	25.0	Corn Shell Tortilla, Ground Beef, Taco Seasoning, Onion, Cilantro, Oil, Hot Sauce	Brown the meat and add taco seasoning. While doing that start cooking the corn shells. When finished add all of the ingredients to make authentic tacos.	recipes/tacos_CwwELHh.jpeg



(Hard, in order Bar, Pie, Line Charts)

