

First screenshot is adding a recipe and calculating its difficulty it then adds asks where you would like to store it and converts all recipes and ingredients list to binary and stores in the file you give it.

```
....
How many recipes are you adding?: 2
Name of the recipe: Beef and Noodles
Cook time for the recipe: 45
Ingredients in recipe separated by a comma: Beef Chuck Roast, red wine, noodles, onion, carrot, cellar
y
Beef and Noodles has been added.
Name of the recipe: Penne Mushrooms
Cook time for the recipe: 35
Ingredients in recipe separated by a comma: cream, mushrooms, parmesian, butter, chicke, penne, beef b
ase
Penne Mushrooms has been added.
Enter the file you are saving to: recipe_list.bin
File loaded.
Recipe data has been saved.
```

```
6 def calc_difficulty(b, c):
7     if b <= 10 and len(c) <= 4:
8         return 'easy'
9     elif b <= 10 and len(c) > 4:
10        return "moderate"
11    elif b > 10 and len(c) <= 4:
12        return "intermediate"
13    elif b > 10 and len(c) > 4:
14        return "hard"
15
16 def take_recipe():
17     a = input("Name of the recipe: ")
18     b = int(input("Cook time for the recipe: "))
19     c = input("Ingredients in recipe separated by a comma: ").split(", ")
20     d = calc_difficulty(b, c)
21     recipe = {'name': a, 'cooking_time': b, 'ingredients': c, 'difficulty': d}
22     return recipe
23
24 n = int(input("How many recipes are you adding?: "))
25
26 for i in range(n):
27     recipe = take_recipe()
28     for ingredient in recipe['ingredients']:
29         if ingredient not in ingredients_list:
30             ingredients_list.append(ingredient)
31     recipes_list.append(recipe)
32     print(recipe['name'] + ' has been added.')
33
34 filename = input("Enter the file you are saving to: ")
35 try:
36     with open(filename, 'rb') as file:
37         data = pickle.load(file)
38         print('File loaded.')
39         recipes_list.extend(data['recipes_list'])
40         ingredients_list.extend(data['ingredients_list'])
41 except FileNotFoundError:
42     print('We could not find that file.')
43 except Exception as e:
44     print('Something went wrong: ', e)
45
46 data = {'recipes_list': recipes_list, 'ingredients_list': ingredients_list}
47
48 with open(filename, 'wb') as my_file:
49     pickle.dump(data, my_file)
50     print('Recipe data has been saved.')
```

Second we load a given binary file and are given a list of all ingredients that would be needed for every recipe in the file. We can then sort through this list by typing in the number that corresponds with the ingredient we want to search for recipes that include it. We are then given all recipes that include that recipe in their ingredients.

```
Enter the file you are searching through: recipe_list.bin
File loaded
0 Beef Chuck Roast
1 red wine
2 noodles
3 onion
4 carrot
5 celery
6 cream
7 mushrooms
8 parmesian
9 butter
10 chicke
11 penne
12 beef base
13 cheese
14 sausage
15 canadian bacon
16 sauce
17 dough
18 sugar
19 apples
20 crust
Which ingredient would you like recipes it is used in?13
searching for recipes that use cheese
{'name': 'pizza', 'cooking_time': 10, 'ingredients': ['cheese', 'sausage', 'canadian bacon', 'sauce', 'dough'], 'difficulty': 'moderate'}
```

Continue for the code used.

```

3 def display_recipe(recipe):
4     print("Recipe: " + recipe['name'])
5     print("Cooking Time: " + str(recipe['cooking_time']) + " minutes")
6     print("Difficulty level: " + recipe['difficulty'])
7     print("Ingredients: ")
8     for position, ingredient in enumerate(recipe['ingredients']):
9         print(str(position + 1) + ", " + ingredient)
10
11 def search_ingredient(data):
12     ingredients = enumerate(data['ingredients_list'])
13     ingredients_numbered = list(ingredients)
14
15     for ingredient in ingredients_numbered:
16         print(ingredient[0], ingredient[1])
17
18     try:
19         i = int(input("Which ingredient would you like recipes it is used in?"))
20         ingredient_searched = ingredients_numbered[i][1]
21         print('searching for recipes that use ' + ingredient_searched)
22     except ValueError:
23         print("Numbers are the only allowed characters.")
24     except:
25         print("An unexpected error occurred. Please check your choice against the list and try again.")
26     else:
27         for recipe in data['recipes_list']:
28             if ingredient_searched in recipe['ingredients']:
29                 print(recipe)
30
31 filename = input("Enter the file you are searching through: ")
32
33 try:
34     file = open(filename, 'rb')
35     data = pickle.load(file)
36     print('File loaded')
37 except FileNotFoundError:
38     print('We could not find that file.')
39 except:
40     print('Something went wrong, please try again.')
41 else:
42     search_ingredient(data)
43     file.close()
44
45 file = open('recipe_list.bin', 'rb')
46 data = pickle.load(file)
47 file.close()

```