Recipe app (CLI version)

Development process
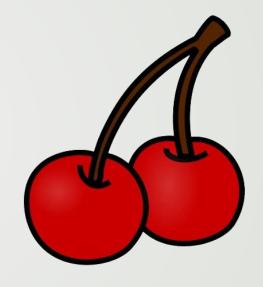
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01

Setting up the development environment

Skills used

Research

WHY WAS THIS STEP IMPORTANT

Organizing the development environment for efficient and well-oriented work from the beginning is not only necessary, but is also one of the keys to ensure smooth workflow and limit avoidable time loss due to inefficient project initialization.

WHAT WAS THE GOAL

Setting up the development environment (to ensure the project is properly initialized). More precisely, I:

- Installed Python version 3.8.7
- Created a new virtual environment for the app
- Installed the IPython shell package
- Generated a requirements file
- Created the Github repository

IP[y]:

REQUIREMENTS.TXT
FILE GENERATED

```
1   asttokens==2.4.0
2   backcall==0.2.0
3   colorama==0.4.6
4   decorator==5.1.1
5   executing==2.0.0
6   ipython==8.12.3
7   jedi==0.19.1
8   matplotlib-inline==0.1.6
9   parso==0.8.3
10  pickleshare==0.7.5
11  prompt-toolkit==3.0.39
12  pure-eval==0.2.2
13  Pygments==2.16.1
14  six==1.16.0
15  stack-data==0.6.3
16  traitlets==5.11.2
17  typing_extensions==4.8.0
18  wcwidth==0.2.8
```

{ OOP }

Applying object-oriented programming concepts

Skills used

Research
Problem solving
Code writing
Debugging

WHY WAS THIS STEP IMPORTANT

Storing recipes as objects with their own data attributes and custom methods can make scripts more efficient and concise, which represent an advantage both for the app execution and code writing.

WHAT WAS THE GOAL

Building a *Recipe* class with relevant data and procedural attributes. For example:

- An initialization method that takes the name for a recipe and initializes the other data attributes
- A method that automatically calculates recipe difficulty based on users' inputs
- A string representation that prints the entire recipe in a well formatted form

Creating recipes using class methods.

Using class methods to search for recipes according to specific ingredients.

```
(cf-python-base) C:\Users\alexa\Documents\python\recipe-app-cli>python recipe_oop.py
```

This is all your recipes, in alphabetical order:

Name of the recipe: Banana Smoothie
Cooking time (min): 5
Ingredients: ['Bananas', 'Milk', 'Peanut Butter', 'Sugar', 'Ice Cubes']
Difficulty: medium
Name of the recipe: Cake
Cooking time (min): 50
Ingredients: ['Sugar', 'Butter', 'Eggs', 'Vanilla Essence', 'Flour', 'Baking Powder', 'Milk']
Difficulty: hard
Name of the recipe: Coffe
Cooking time (min): 5
Ingredients: ['Coffee Powder', 'Sugar', 'Water']
Difficulty: easy
Name of the recipe: Tea
Cooking time (min): 5
Ingredients: ['Tea leaves', 'Sugar', 'Water', 'Salt']
Difficulty: medium

This is all your recipes containing the ingredient 'Water' :

Name of the recipe: Tea
Cooking time (min): 5
Ingredients: ['Tea leaves', 'Sugar', 'Water', 'Salt']
Difficulty: medium
Name of the recipe: Coffe
Cooking time (min): 5
Ingredients: ['Coffee Powder', 'Sugar', 'Water']
Difficulty: easy

This is all your recipes containing the ingredient 'Sugar' :

Name of the recipe: Tea

EXAMPLE OF THE SCRIPT OUPUT AT THIS STAGE

EXAMPLE OF THE SCRIPT OUPUT AT THIS STAGE

Creating the app main menu displaying all possible operations, and the function for each operation

Skills used

Research
Problem solving
Coding
Debugging

WHY WAS THIS STEP IMPORTANT

This step was important to ensure that users can easily choose the operation they wish to perform when landing on the main menu, whether it is to create, read, search, edit or delete a recipe.

WHAT WAS THE GOAL

Implement the app main menu to display to users the 5 possible options: creating a recipe, reading existing ones, searching for recipes based on ingredient(s), editing a recipe, or deleting one. More precisely, the goal was to:

- Implement the function and supporting code for each of the 5 options
- Implement a logic that launched the selected option from the main menu, and then allow users to go back to the main menu when done so they can perform other operations - A while loop has been used for this

MAIN MENU PRESENTING ALL AVAILABLE OPTIONS

CODE FOR DISPLAYING MAIN MENU OPTIONS
AND REDIRECTING ACCORDINGLY

```python
while user_choice != "quit":
    print("Main menu")
    print("-" * 25)
    print("Pick a choice")
    print("1. Create a new recipe")
    print("2. View all recipes")
    print("3. Search for a recipe by ingredients")
    print("4. Edit a recipe")
    print("5. Delete a recipe")
    print("Type 'quit' to exit")
    user_choice = input("Your choice (pick a number or type 'quit'): ")

    if user_choice == "1":
        create_recipe()
        continue
    elif user_choice == "2":
        view_all_recipes()
        continue
    elif user_choice == "3":
        search_by_ingredients()
        continue
    elif user_choice == "4":
        edit_recipe()
        continue
    elif user_choice == "5":
        delete_recipe()
        continue
    elif user_choice.lower() == "quit":
        session.close()
        engine.dispose()
        break
    else:
```

EXAMPLE - **OPTION 2 SELECTED** (VIEW ALL RECIPES)

```
-----------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 2
-----------------------------

Recipe id: 1
Name of the recipe: tea
Cooking time (min): 5
Ingredients: water, tea
Difficulty: easy
-----------------------------

-----------------------------
Recipe id: 4
Name of the recipe: pasta bolognese
Cooking time (min): 45
Ingredients: pasta, sauce, cheese, meat
Difficulty: hard
-----------------------------

-----------------------------
```

```python
def view_all_recipes():
    try:
        recipes_list = session.query(Recipe).all()
        if not recipes_list:
            print("There are no recipes in the database, you'll therefore be brought back to the main
            return
        else:
            for recipe in recipes_list:
                print(recipe)

        next_action = input("When you want to back to the main menu, simply type 'back': ").lower()
        while next_action != "back":
            next_action = input("Seems like there's a typo. Type 'back' to return to the main menu: ")

        if next_action == "back":
            return

    except:
        print("Something went wrong.")
```

04

Creating a MySQL database and **linking it** to the script with SQLAlchemy

Skills used

Research
Problem solving
Code writing
Debugging

WHY WAS THIS STEP IMPORTANT

Databases have many advantages. They keep data in a standardized format so they can be stored and accessed more easily, they can be made secure through password access, and it is possible to access them using applications other than Python. Relational Database Management Systems (RDBMS) help to manage databases, and are therefore very useful, especially when dealing with large number of data.

WHAT WAS THE GOAL

Creating a MySQL database to store data for the Recipe app, and linking it to the script with SQLAlchemy. To do so, I:

- Installed MySQL
- Set up a new user via MySQL command line client (terminal-based interface), and grant it all permissions / privileges when working on databases and their tables
- Created a database in MySQL
- Created a table for the recipes in the created database, with appropriate columns (id, name, ingredients, etc)
- Set up SQLAlchemy, importing it in the script and connected it to the database
- Created an object from the *Session* class, to be able to change the database's contents using an OOP approach rather than SQL queries

SQLA

```
Enter password: *************
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 181
Server version: 8.0.34 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> USE task_database;
Database changed
mysql> DESCRIBE Recipes;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| id           | int          | NO   | PRI | NULL    | auto_increment |
| name         | varchar(50)  | YES  |     | NULL    |                |
| ingredients  | varchar(255) | YES  |     | NULL    |                |
| cooking_time | int          | YES  |     | NULL    |                |
| difficulty   | varchar(20)  | YES  |     | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
5 rows in set (0.03 sec)

mysql>
```

MySQL DATABASE SET UP
(BEFORE CREATING ANY
RECIPES IN IT)

05

Implementing error handling logic

Skills used

Research
Problem solving
Code writing
Debugging

WHY WAS THIS STEP IMPORTANT

Some errors occurring when an app is running can prevent scripts from being executed. Even minor errors can make an entire application terminates unexpectedly, which is not ideal and can cause frustration to users. It is therefore crucial to ensure that this type of situation does not happen, by implementing the appropriate codes.

WHAT WAS THE GOAL

Implementing codes inside the script to catch any possible input errors from users, and display a simple error message explaining how to fix the problem in a clear way, while preventing the application from crashing.

Following this, the code integrity had to be checked by testing each option in the menu (create, updating, search, etc.) with both expected and unexpected values, to see how the app behaves.

For example, if the application were asking users to pick from a set of numbers, and something random was typed like "yes", it was essential to handle such a scenario to ensure the application would still run.

- To prevent any error to crash the application, *try-except* blocks have been used everywhere users can enter inputs and potentially lead to erroneous values

EXAMPLE OF AN INCORRECT INPUT AND ERROR MESSAGE

```
----------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): Create recipe
Wrong input, please pick a number or type 'quit'.
Main menu
----------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'):
```

Populating the database and **running** final tests

Skills used

Problem solving
Debugging

WHY WAS THIS STEP IMPORTANT

This step was important to simulate the final product with which users would interact, and validate that everything works as it should, particularly at the database level and SQLAlchemy.

WHAT WAS THE GOAL

- Testing all the options of the application
- Ensuring that it behaves and renders content as it should
- Ensuring that no error causes the application to crash
- Ensuring that the operations carried out in the application are reflected in the database data

```
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 1
-------------------------
Enter the name of the recipe: pizza italiana
Recipe name added successfully!
Enter the cooking time in minutes: 45
Recipe cooking time added successfully!
Enter how many ingredient(s) you would like to add to your recipe: 5
Enter the ingredient (one at a time): flour
Ingredient added to the recipe!
Enter the ingredient (one at a time): sauce
Ingredient added to the recipe!
Enter the ingredient (one at a time): cheese
Ingredient added to the recipe!
Enter the ingredient (one at a time): salami
Ingredient added to the recipe!
Enter the ingredient (one at a time): parsley
Ingredient added to the recipe!
-------------------------
Here's your newly created recipe:
Name of the recipe:  pizza italiana
Cooking time (min):  45
Ingredients:  flour, sauce, cheese, salami, parsley
Difficulty:  hard
-------------------------
Main menu
-------------------------
Pick a choice
1. Create a new recipe
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
CREATING A RECIPE

```
--------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 2
--------------------------
Recipe id: 1
Name of the recipe: tea
Cooking time (min): 5
Ingredients: water, tea
Difficulty: easy
--------------------------
--------------------------
Recipe id: 4
Name of the recipe: pasta bolognese
Cooking time (min): 45
Ingredients: pasta, sauce, cheese, meat
Difficulty: hard
--------------------------
--------------------------
Recipe id: 28
Name of the recipe: pizza italiana
Cooking time (min): 45
Ingredients: flour, sauce, cheese, salami, parsley
Difficulty: hard
--------------------------
--------------------------
Recipe id: 29
Name of the recipe: cheese cake
Cooking time (min): 60
Ingredients: flour, cheese, sugar, vanilla
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
VIEWING ALL RECIPES

```
Name of the recipe: poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese
Difficulty: intermediate
-------------------------
When you want to back to the main menu, simply type 'back': back
Main menu
-------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 3
-------------------------
Here are all available ingredients across all your recipes:
1. cheese
2. flour
3. meat
4. orange
5. parsley
6. pasta
7. potatoes
8. salami
9. sauce
10. sugar
11. tea
12. vanilla
13. water
-------------------------
 Enter the number(s) associated with the ingredient(s) you would like to search for recipes with.
 If you want to search with more than one ingredient, the numbers must be separated by a space an nothing else.
 Your number(s):
```

```
12. vanilla
13. water
-------------------------
 Enter the number(s) associated with the ingredient(s) you would like to search for recipes with.
 If you want to search with more than one ingredient, the numbers must be separated by a space an nothing else.
 Your number(s): 1
-------------------------
Here are all the recipe(s) that contain the ingredient(s) you've searched with. If you want more results, reducing the number of ingredients in your search might prov
ide more recipes.
-------------------------
-------------------------
Recipe id: 4
Name of the recipe: pasta bolognese
Cooking time (min): 45
Ingredients: pasta, sauce, cheese, meat
Difficulty: hard
-------------------------
-------------------------
Recipe id: 28
Name of the recipe: pizza italiana
Cooking time (min): 45
Ingredients: flour, sauce, cheese, salami, parsley
Difficulty: hard
-------------------------
-------------------------
Recipe id: 29
Name of the recipe: cheese cake
Cooking time (min): 60
Ingredients: flour, cheese, sugar, vanilla
Difficulty: hard
-------------------------
-------------------------
Recipe id: 31
Name of the recipe: poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese
Difficulty: intermediate
-------------------------
When you want to back to main menu, simply type 'back':
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
SEARCHING RECIPES BASED
ON INGREDIENT(S)

```
------------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 4
------------------------------
Recipe id: 1
Name of the recipe: tea
Cooking time (min): 5
Ingredients: water, tea
Difficulty: easy
------------------------------
------------------------------
Recipe id: 4
Name of the recipe: pasta bolognese
Cooking time (min): 45
Ingredients: pasta, sauce, cheese, meat
Difficulty: hard
------------------------------
------------------------------
Recipe id: 28
Name of the recipe: pizza italiana
Cooking time (min): 45
Ingredients: flour, sauce, cheese, salami, parsley
Difficulty: hard
------------------------------
------------------------------
Recipe id: 29
Name of the recipe: cheese cake
Cooking time (min): 60
Ingredients: flour, cheese, sugar, vanilla
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
UPDATING A RECIPE

```
--------------------------
--------------------------
Recipe id: 31
Name of the recipe: poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese
Difficulty: intermediate
--------------------------
--------------------------
  Enter the id number associated with the recipe you would like to update: 31
recipe_app.py:413: LegacyAPIWarning: The Query.get() method is considered legacy as of the 1.x series of SQLAlchemy and becomes a legacy construct i
n 2.0. The method is now available as Session.get() (deprecated since: 2.0) (Background on SQLAlchemy 2.0 at: https://sqlalche.me/e/b8d9)
  recipe_to_edit = session.query(Recipe).get(int(recipe_id_picked))
--------------------------
Recipe selected and fields that can be updated:
1. Name of the recipe:  poutine
2. Cooking time (min):  40
3. Ingredients:  potatoes, sauce, cheese
--------------------------
Enter the number associated with the field you would like to update: 1
Enter the new/updated name for the recipe: canadian poutine
Recipe name canadian poutine updated successfully!
--------------------------
Here's your newly updated recipe:
--------------------------
Recipe id: 31
Name of the recipe: canadian poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese
Difficulty: intermediate
--------------------------
What would you like to do next?
1. Go back to editing recipes
2. Return to the main menu
Enter the number associated with your choice:
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
UPDATING A RECIPE

```
--------------------------
Pick a choice
1. Create a new recipe
2. View all recipes
3. Search for a recipe by ingredients
4. Edit a recipe
5. Delete a recipe
Type 'quit' to exit
Your choice (pick a number or type 'quit'): 5
--------------------------
Recipe id: 1
Name of the recipe: tea
Cooking time (min): 5
Ingredients: water, tea
Difficulty: easy
--------------------------
--------------------------
Recipe id: 4
Name of the recipe: pasta bolognese
Cooking time (min): 45
Ingredients: pasta, sauce, cheese, meat
Difficulty: hard
--------------------------
--------------------------
Recipe id: 28
Name of the recipe: pizza italiana
Cooking time (min): 45
Ingredients: flour, sauce, cheese, salami, parsley
Difficulty: hard
--------------------------
--------------------------
Recipe id: 29
Name of the recipe: cheese cake
Cooking time (min): 60
Ingredients: flour, cheese, sugar, bananas, chocoloate
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
DELETING A RECIPE

```
--------------------------
--------------------------
Recipe id: 30
Name of the recipe: orange juice
Cooking time (min): 15
Ingredients: orange, water, sugar
Difficulty: intermediate
--------------------------
--------------------------
Recipe id: 31
Name of the recipe: canadian poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese, meat
Difficulty: hard
--------------------------
--------------------------
  Enter the id number associated with the recipe you would like to delete: 31
recipe_app.py:818: LegacyAPIWarning: The Query.get() method is considered legacy as of the 1.x series of SQLAlchemy and becomes a legacy construct i
n 2.0. The method is now available as Session.get() (deprecated since: 2.0) (Background on SQLAlchemy 2.0 at: https://sqlalche.me/e/b8d9)
  recipe_to_be_deleted = session.query(Recipe).get(int(recipe_id_picked))
--------------------------
Here's the recipe you are about to delete:
--------------------------
Recipe id: 31
Name of the recipe: canadian poutine
Cooking time (min): 40
Ingredients: potatoes, sauce, cheese, meat
Difficulty: hard
--------------------------
Are you sure you want to delete this recipe? Enter yes or no: yes
Your recipe has been deleted successfully!
What would you like to do next?
1. Go back to deleting recipes
2. Return to the main menu
Enter the number associated with your choice:
```

EXAMPLE OF OPERATIONS
CARRIED OUT
-
DELETING A RECIPE

```
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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> USE task_database;
Database changed
mysql> DESCRIBE final_recipes;
+--------------+--------------+------+-----+---------+----------------+
| Field        | Type         | Null | Key | Default | Extra          |
+--------------+--------------+------+-----+---------+----------------+
| id           | int          | NO   | PRI | NULL    | auto_increment |
| name         | varchar(50)  | YES  |     | NULL    |                |
| ingredients  | varchar(255) | YES  |     | NULL    |                |
| cooking_time | int          | YES  |     | NULL    |                |
| difficulty   | varchar(20)  | YES  |     | NULL    |                |
+--------------+--------------+------+-----+---------+----------------+
5 rows in set (0.04 sec)

mysql> SELECT * FROM final_recipes;
+----+-----------------+----------------------------------------+--------------+--------------+
| id | name            | ingredients                            | cooking_time | difficulty   |
+----+-----------------+----------------------------------------+--------------+--------------+
|  1 | tea             | water, tea                             |            5 | easy         |
|  4 | pasta bolognese | pasta, sauce, cheese, meat             |           45 | hard         |
| 28 | pizza italiana  | flour, sauce, cheese, salami, parsley  |           45 | hard         |
| 29 | cheese cake     | flour, cheese, sugar, vanilla          |           60 | hard         |
| 30 | orange juice    | orange, water, sugar                   |            5 | easy         |
| 31 | poutine         | potatoes, sauce, cheese                |           40 | intermediate |
+----+-----------------+----------------------------------------+--------------+--------------+
6 rows in set (0.00 sec)

mysql>
```

WHY WAS THIS STEP IMPORTANT

Ensuring that the codes are optimized to facilitate possible appropriation by other developers in the future is useful and could possibly save time. It can also facilitate any future adjustments to the codes.

WHAT WAS THE GOAL

Reviewing the file to make sure everything was optimized as much as possible in order to facilitate future modifications, additions or adjustments.

Adding comments and clarification points in the file where important for the benefit and better understanding of anyone else who may work on this project later.

Formatting the code using Python *Black* package.

CHALLENGES OR SPECIAL POINTS OF CONSIDERATION

I positioned myself from the point of view of future colleagues who could work on this project. How can I make this project and these codes as clear as possible to promote their easy appropriation? I reviewed each file to bring improvements in certain places and add comments where I thought it could be useful.

README.md

Completing the README document

Skills used

Communication
Content writing

WHY WAS THIS STEP IMPORTANT

Ensure the project is well documented and easily accessible by anyone interested.

WHAT WAS THE GOAL

Updating and completing the README file located in the Recipe app CLI Github repository. The goal was to ensure that all relevant information regarding this project is accessible under these four categories:

- Project description
- User interface
- Technical aspects
- App dependencies

CHALLENGES OR SPECIAL POINTS OF CONSIDERATION

Finding the right balance between giving the right level of information, while remaining as synthetic as possible. To help me, I made a first draft, which I then modified at times. I also drew inspiration from other READMEs I've consulted for similar projects and for which I found that the information presented was relevant.

DECISIONS MADE

I wrote the README documentation from A to Z, in terms of content, presentation and structure.

README SAMPLE - FULL VERSION ON GITHUB

📖 README   ✏️ ☰

Python recipe app (command line version)

Table of content

- [Project description](#)
- [User interface](#)
- [Technical aspects](#)
- [App dependencies](#)

Project description

This Recipe app (Command Line Interface version) was created to allow people to manage recipes. Users can create, read, modify and delete recipes, as well as search for recipes based on ingredients. For each recipe, users can add the recipe name, ingredients and cooking time, which then automatically calculate (based on the two latest elements) a difficulty level.

Users can perform those different operations from the main menu of the application.