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How to run it?

- Clone the repository from GitHub: git clone https://github.com/gianniprocida/habit_tracking_app.git

-Navigate to the habit-tracker directory: cd habit-tracking_app

-Install any dependencies required by the project:
pandas,matplotlib

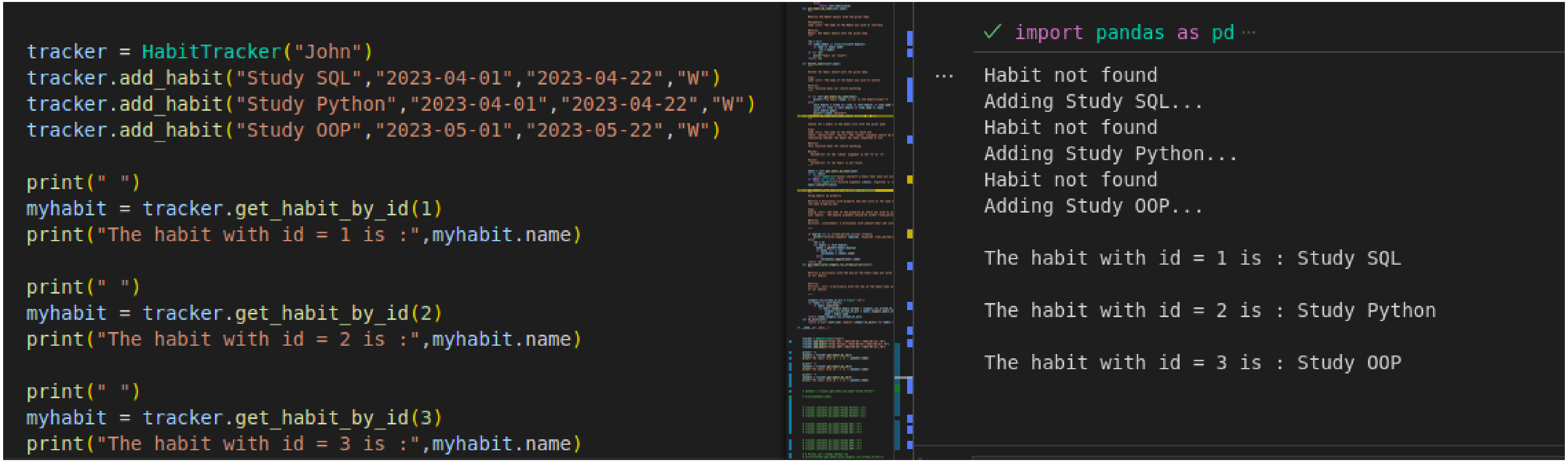
-Run the project by executing the menu Python file: python menu.py

This should start the habit tracking program and allow you to interact with it via the user interface provided by the project.

Features

Create new habits and retrieve habit by id or by name

To start tracking habits, you need to create a HabitTracker instance by providing the name of the user. Then we pass in the name of the habit,"Study SQL", the start date of the habit period,”2023-04-01”, the end date of the habit period,"2023-04-22", and the frequency,”W”. Then we can call the get_habit_by_id method on the HabitTracker class and pass in the id of the habit we want to retrieve. This will return a `Habit' instance with the specified id.

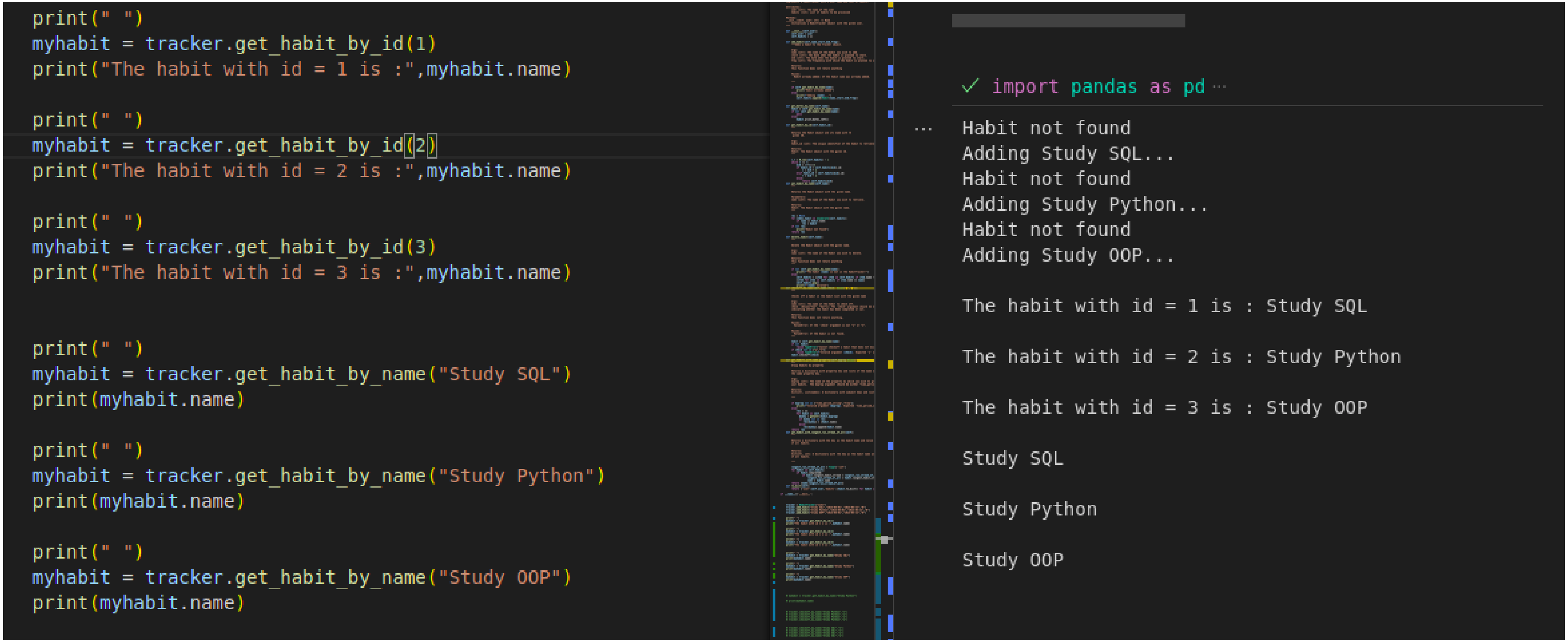


```
tracker = HabitTracker("John")
tracker.add_habit("Study SQL","2023-04-01","2023-04-22","W")
tracker.add_habit("Study Python","2023-04-01","2023-04-22","W")
tracker.add_habit("Study OOP","2023-05-01","2023-05-22","W")

print(" ")
myhabit = tracker.get_habit_by_id(1)
print("The habit with id = 1 is :",myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_id(2)
print("The habit with id = 2 is :",myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_id(3)
print("The habit with id = 3 is :",myhabit.name)
```

```
✓ import pandas as pd ···

··· Habit not found
    Adding Study SQL...
    Habit not found
    Adding Study Python...
    Habit not found
    Adding Study OOP...

    The habit with id = 1 is : Study SQL

    The habit with id = 2 is : Study Python

    The habit with id = 3 is : Study OOP
```

Retrieve habit by id or by name

Then we can call the get_habit_by_name method on the HabitTracker class and pass in the name of the habit we want to retrieve. This will return a `Habit' instance with the specified name.



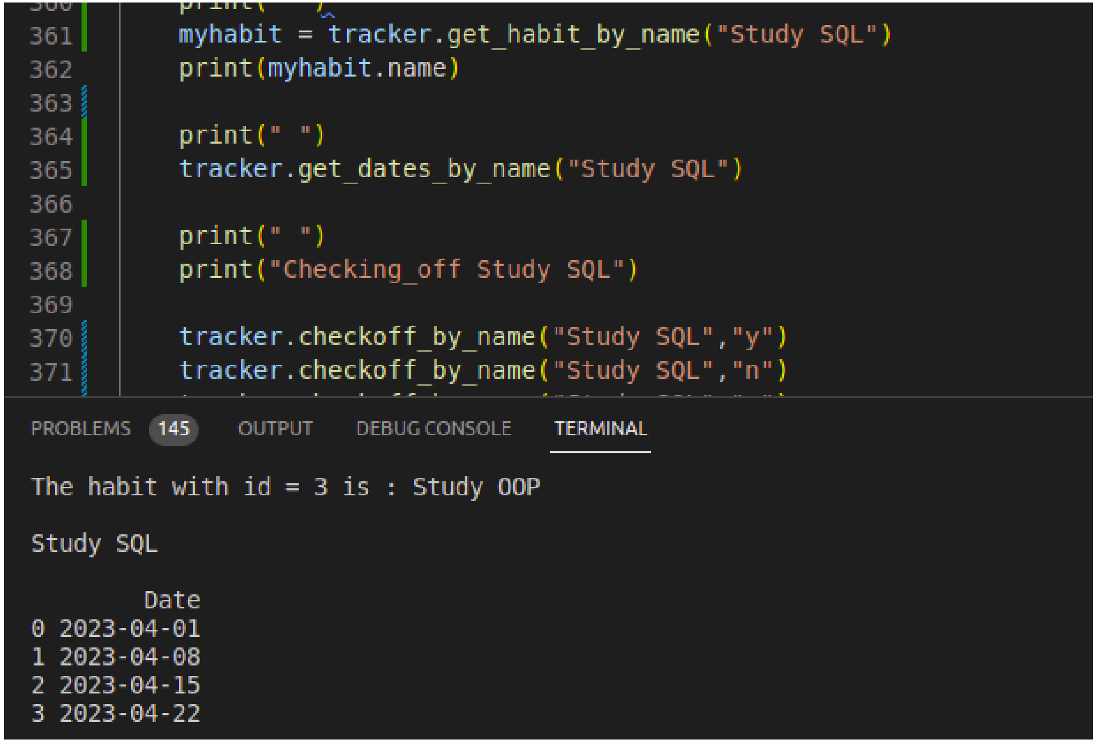
```
print(" ")
myhabit = tracker.get_habit_by_id(1)
print("The habit with id = 1 is :",myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_id(2)
print("The habit with id = 2 is :",myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_id(3)
print("The habit with id = 3 is :",myhabit.name)


print(" ")
myhabit = tracker.get_habit_by_name("Study SQL")
print(myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_name("Study Python")
print(myhabit.name)

print(" ")
myhabit = tracker.get_habit_by_name("Study OOP")
print(myhabit.name)
```

```
✓ import pandas as pd ···
```

```
Habit not found
Adding Study SQL...
Habit not found
Adding Study Python...
Habit not found
Adding Study OOP...

The habit with id = 1 is : Study SQL

The habit with id = 2 is : Study Python

The habit with id = 3 is : Study OOP

Study SQL

Study Python

Study OOP
```

Retrieve dates by name

Then we can call the get_dates_by_name method by providing the name of the habit as input on the HabitTracker to retrieve the dates on which a habit needs to be completed. This will print a dataframe that contains the dates relative to the habit.

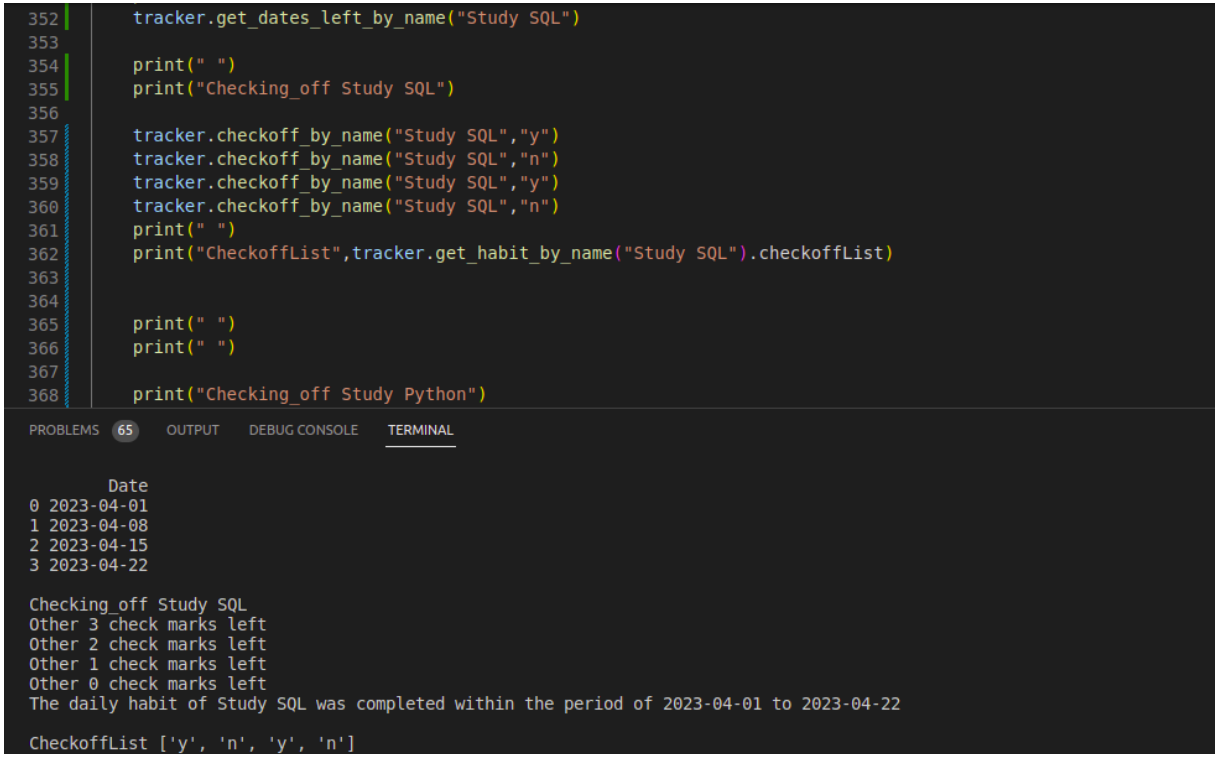


```
    myhabit = tracker.get_habit_by_name("Study SQL")
    print(myhabit.name)

    print(" ")
    tracker.get_dates_by_name("Study SQL")

    print(" ")
    print("Checking_off Study SQL")

    tracker.checkoff_by_name("Study SQL","y")
    tracker.checkoff_by_name("Study SQL","n")
```

```
The habit with id = 3 is : Study OOP

Study SQL

        Date
0 2023-04-01
1 2023-04-08
2 2023-04-15
3 2023-04-22
```

Checkoff “Study SQL” habit

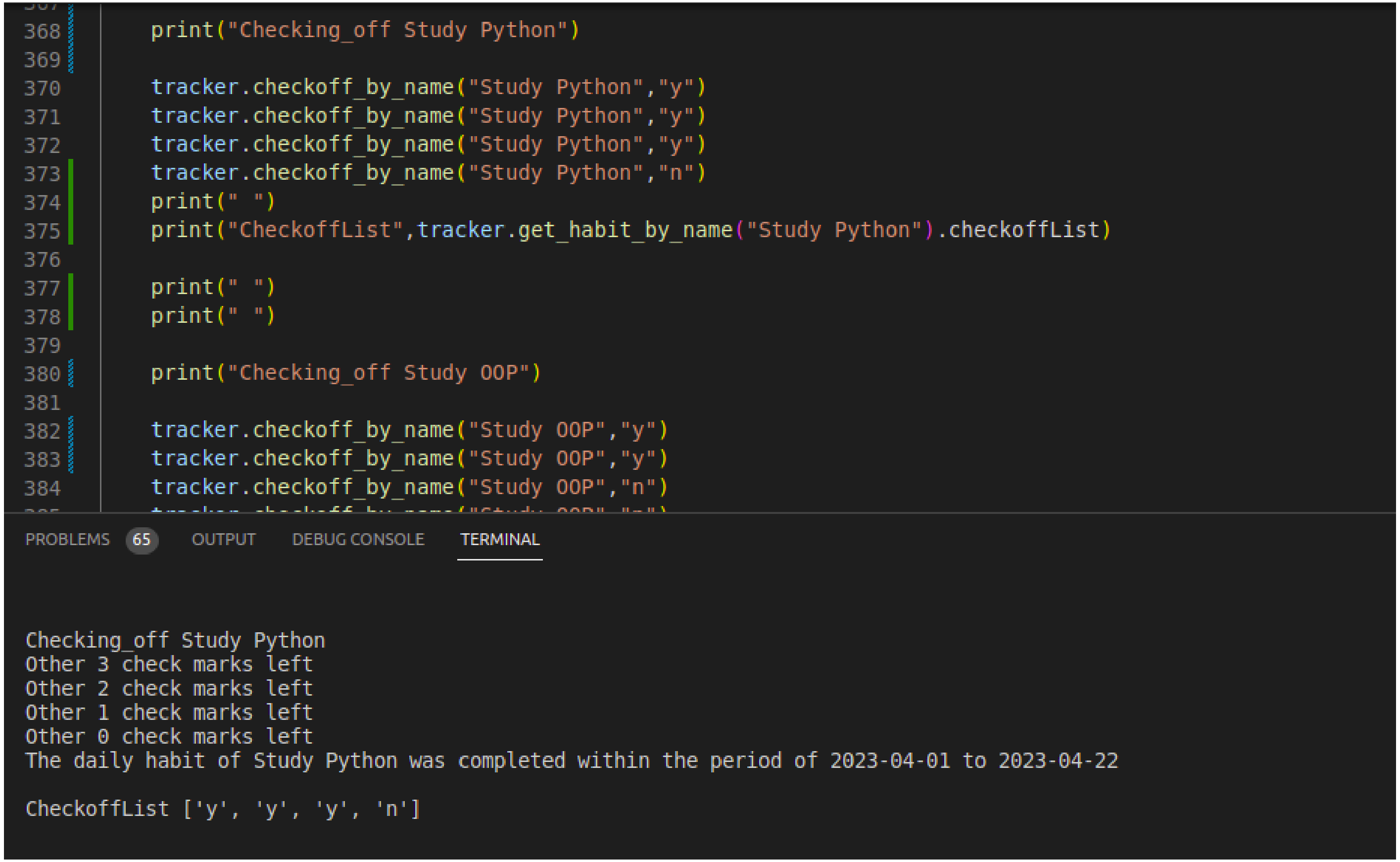
We call the checkoff_by_name method on the HabitTracker class and pass in the name of the habit we want to check off. This will add the string "y" to the checkoffList of the Habit instance with the specified name, which indicates that the habit was completed on the first day of the listed dates.We use the checking off method for the same number of times as the number of dates on which the habit needs to be completed.



```
    tracker.get_dates_left_by_name("Study SQL")

    print(" ")
    print("Checking_off Study SQL")

    tracker.checkoff_by_name("Study SQL","y")
    tracker.checkoff_by_name("Study SQL","n")
    tracker.checkoff_by_name("Study SQL","y")
    tracker.checkoff_by_name("Study SQL","n")
    print(" ")
    print("CheckoffList",tracker.get_habit_by_name("Study SQL").checkoffList)


    print(" ")
    print(" ")

    print("Checking_off Study Python")
```

```
        Date
0 2023-04-01
1 2023-04-08
2 2023-04-15
3 2023-04-22

Checking_off Study SQL
Other 3 check marks left
Other 2 check marks left
Other 1 check marks left
Other 0 check marks left
The daily habit of Study SQL was completed within the period of 2023-04-01 to 2023-04-22

CheckoffList ['y', 'n', 'y', 'n']
```

Checkoff “Study Python” habit

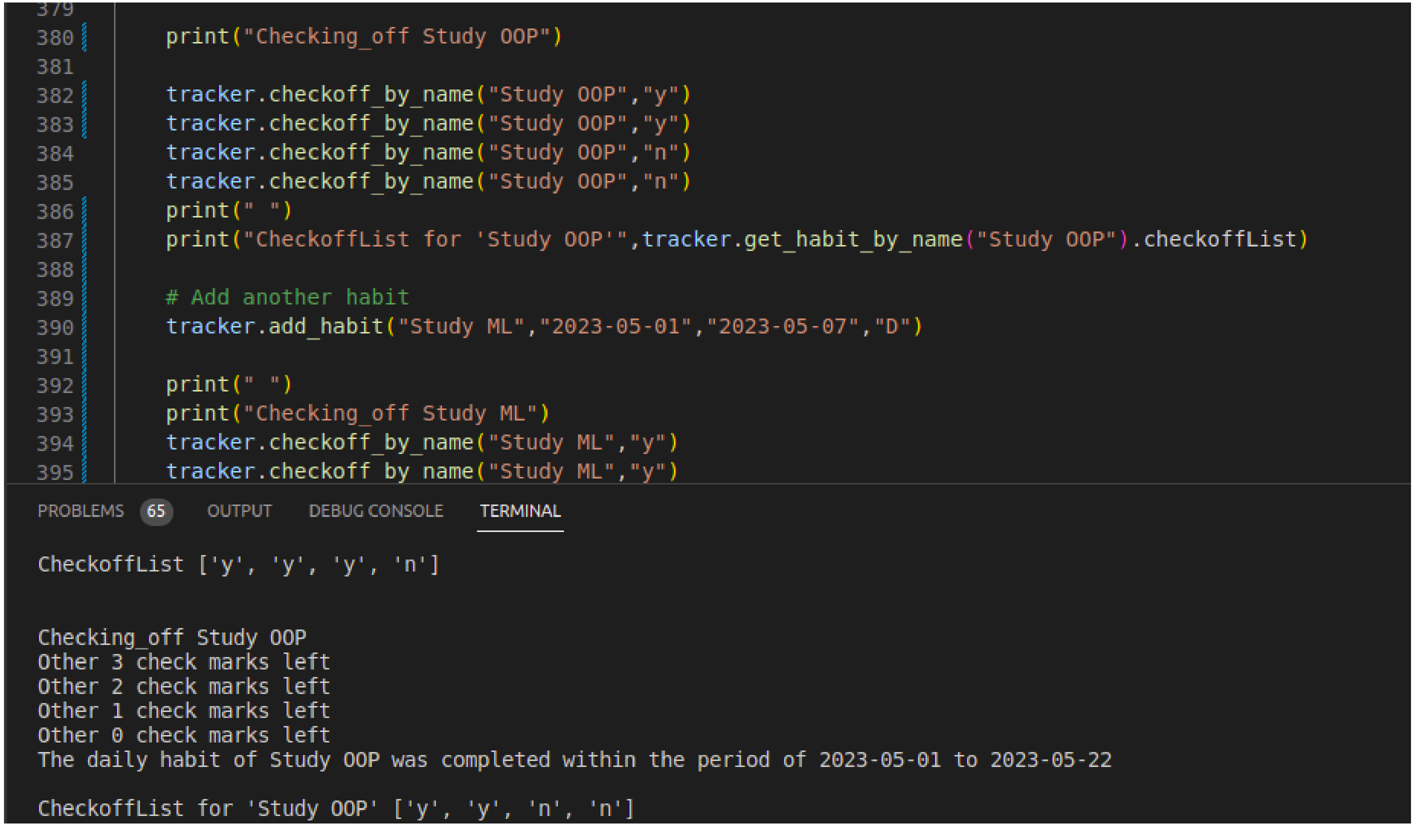


```
    print("Checking_off Study Python")

    tracker.checkoff_by_name("Study Python","y")
    tracker.checkoff_by_name("Study Python","y")
    tracker.checkoff_by_name("Study Python","y")
    tracker.checkoff_by_name("Study Python","n")
    print(" ")
    print("CheckoffList",tracker.get_habit_by_name("Study Python").checkoffList)

    print(" ")
    print(" ")

    print("Checking_off Study OOP")

    tracker.checkoff_by_name("Study OOP","y")
    tracker.checkoff_by_name("Study OOP","y")
    tracker.checkoff_by_name("Study OOP","n")
```

```
Checking_off Study Python
Other 3 check marks left
Other 2 check marks left
Other 1 check marks left
Other 0 check marks left
The daily habit of Study Python was completed within the period of 2023-04-01 to 2023-04-22

CheckoffList ['y', 'y', 'y', 'n']
```

Checkoff “Study Python” habit

We have completed the task of checking off three habits.

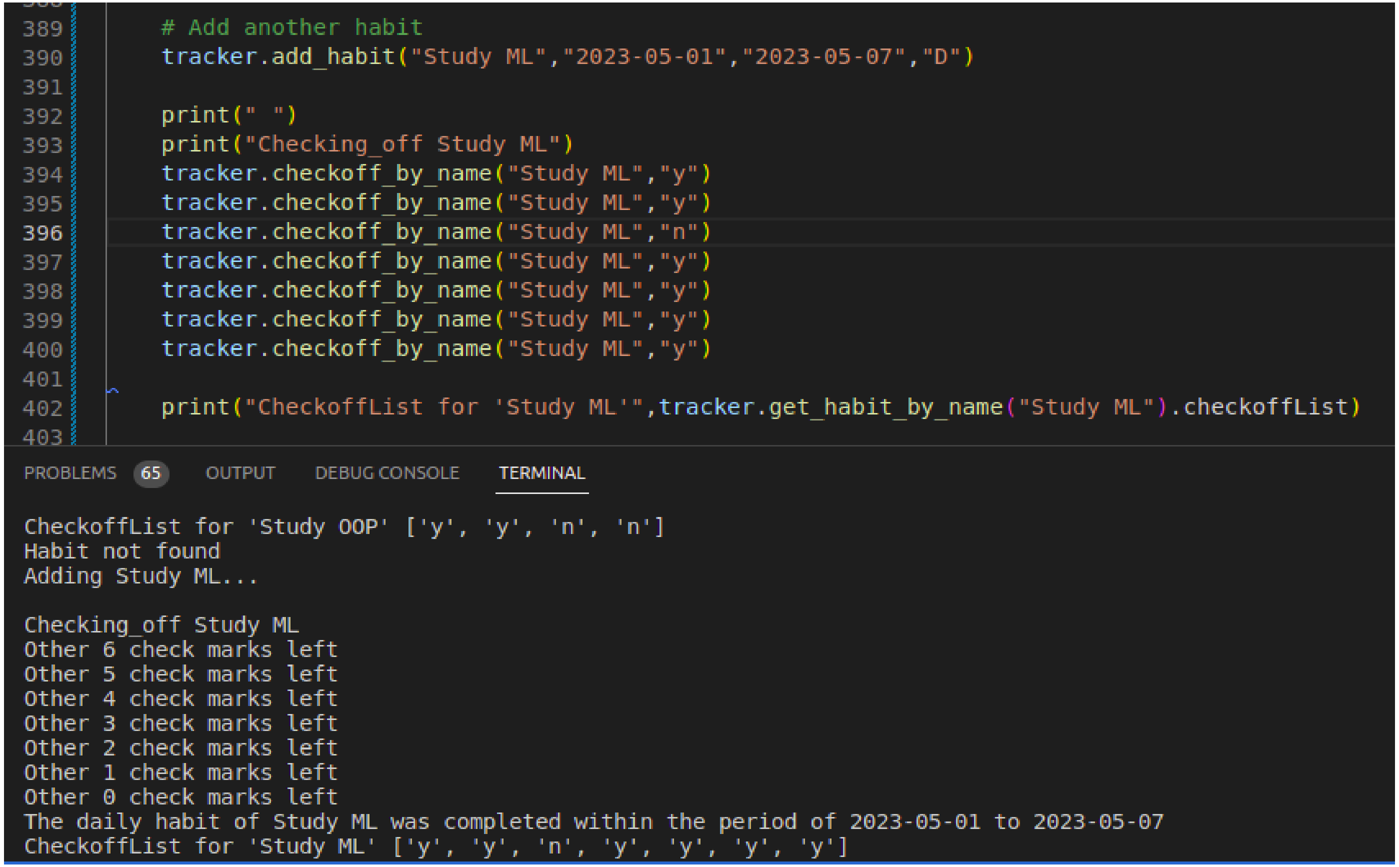


```
    print("Checking_off Study OOP")

    tracker.checkoff_by_name("Study OOP","y")
    tracker.checkoff_by_name("Study OOP","y")
    tracker.checkoff_by_name("Study OOP","n")
    tracker.checkoff_by_name("Study OOP","n")
    print(" ")
    print("CheckoffList for 'Study OOP'",tracker.get_habit_by_name("Study OOP").checkoffList)

    # Add another habit
    tracker.add_habit("Study ML","2023-05-01","2023-05-07","D")

    print(" ")
    print("Checking_off Study ML")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","y")
```

```
CheckoffList ['y', 'y', 'y', 'n']


Checking_off Study OOP
Other 3 check marks left
Other 2 check marks left
Other 1 check marks left
Other 0 check marks left
The daily habit of Study OOP was completed within the period of 2023-05-01 to 2023-05-22

CheckoffList for 'Study OOP' ['y', 'y', 'n', 'n']
```

Results

We have added a new habit titled "Study ML" and have successfully completed it.

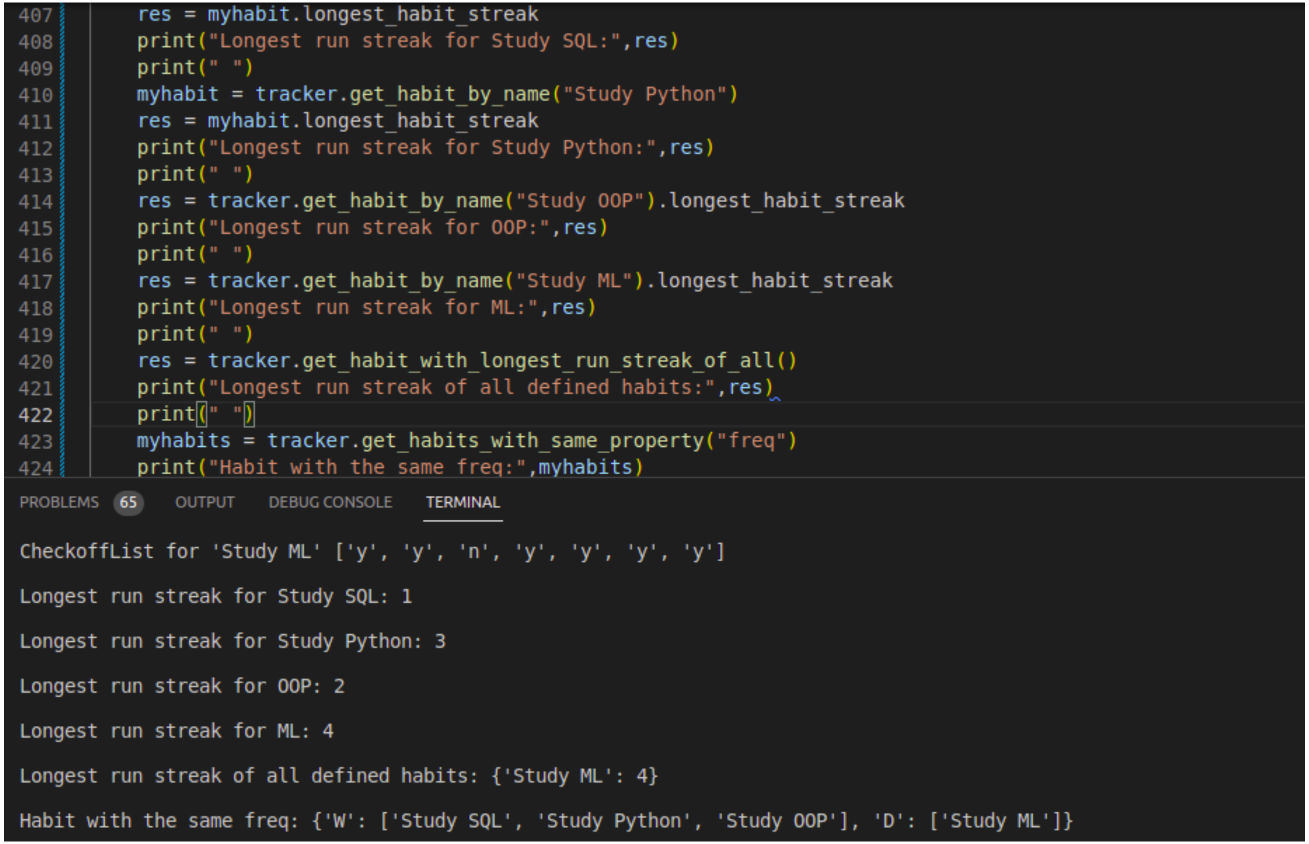


```
    # Add another habit
    tracker.add_habit("Study ML","2023-05-01","2023-05-07","D")

    print(" ")
    print("Checking_off Study ML")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","n")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","y")
    tracker.checkoff_by_name("Study ML","y")

    print("CheckoffList for 'Study ML'",tracker.get_habit_by_name("Study ML").checkoffList)
```

```
CheckoffList for 'Study OOP' ['y', 'y', 'n', 'n']
Habit not found
Adding Study ML...

Checking_off Study ML
Other 6 check marks left
Other 5 check marks left
Other 4 check marks left
Other 3 check marks left
Other 2 check marks left
Other 1 check marks left
Other 0 check marks left
The daily habit of Study ML was completed within the period of 2023-05-01 to 2023-05-07
CheckoffList for 'Study ML' ['y', 'y', 'n', 'y', 'y', 'y', 'y']
```

Results

For each habit in our tracker, we retrieve the habit with the specified name and check its longest_habit_streak attribute, which is in agreement with our expectations.



```
    res = myhabit.longest_habit_streak
    print("Longest run streak for Study SQL:",res)
    print(" ")
    myhabit = tracker.get_habit_by_name("Study Python")
    res = myhabit.longest_habit_streak
    print("Longest run streak for Study Python:",res)
    print(" ")
    res = tracker.get_habit_by_name("Study OOP").longest_habit_streak
    print("Longest run streak for OOP:",res)
    print(" ")
    res = tracker.get_habit_by_name("Study ML").longest_habit_streak
    print("Longest run streak for ML:",res)
    print(" ")
    res = tracker.get_habit_with_longest_run_streak_of_all()
    print("Longest run streak of all defined habits:",res)
    print(" ")
    myhabits = tracker.get_habits_with_same_property("freq")
    print("Habit with the same freq:",myhabits)
```

```
CheckoffList for 'Study ML' ['y', 'y', 'n', 'y', 'y', 'y', 'y']

Longest run streak for Study SQL: 1

Longest run streak for Study Python: 3

Longest run streak for OOP: 2

Longest run streak for ML: 4

Longest run streak of all defined habits: {'Study ML': 4}

Habit with the same freq: {'W': ['Study SQL', 'Study Python', 'Study OOP'], 'D': ['Study ML']}
```

-The user established a 1-day streak of studying sql

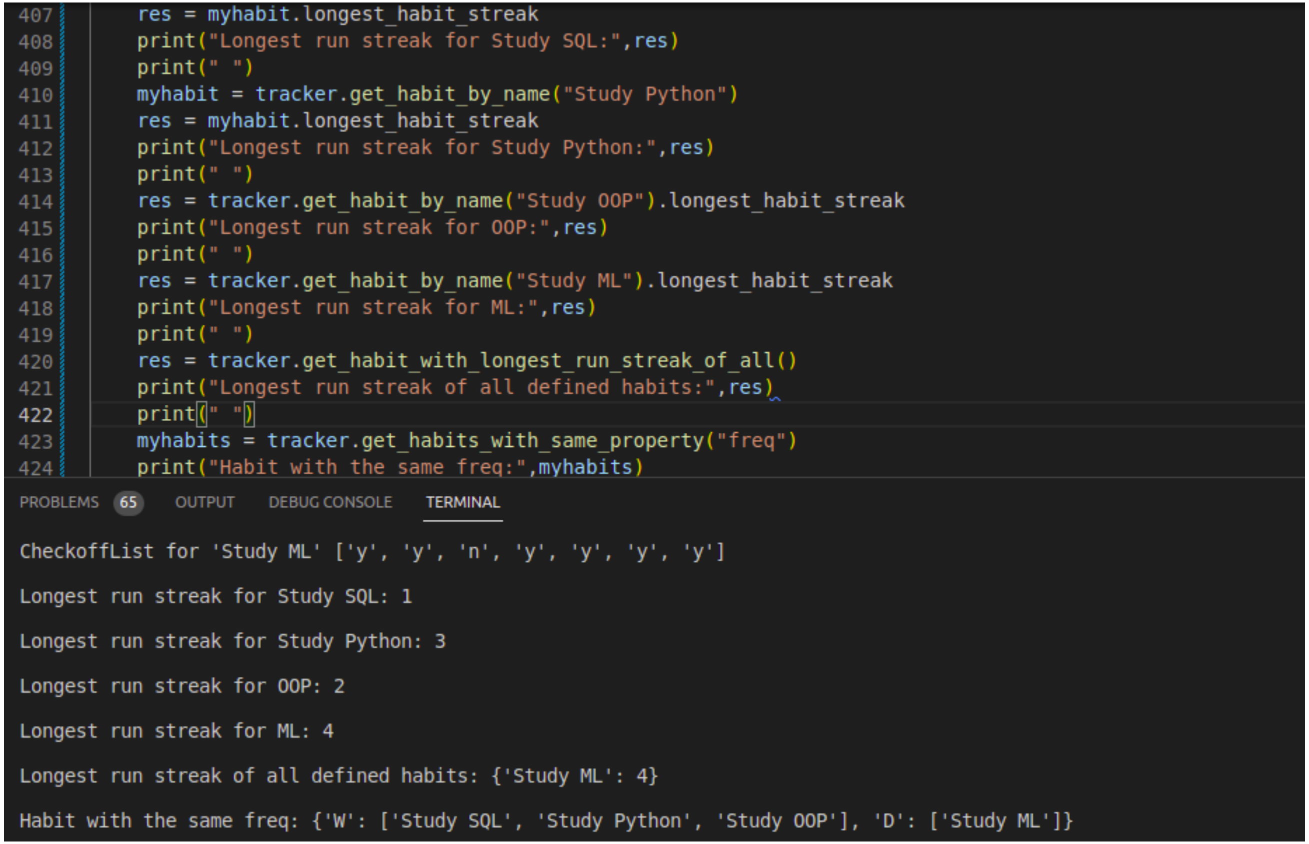
-The user established a 3-days streak of studying Python

-The user established a 2-day streak of studying OOP

-The user established a 4-day streak of studying ML

Results

By calling the get_habit_with_longest_run_streak_of_all method, we discover that the habit with the longest streak among all defined habits in our tracker is "Study ML", which has a run streak value of 4.

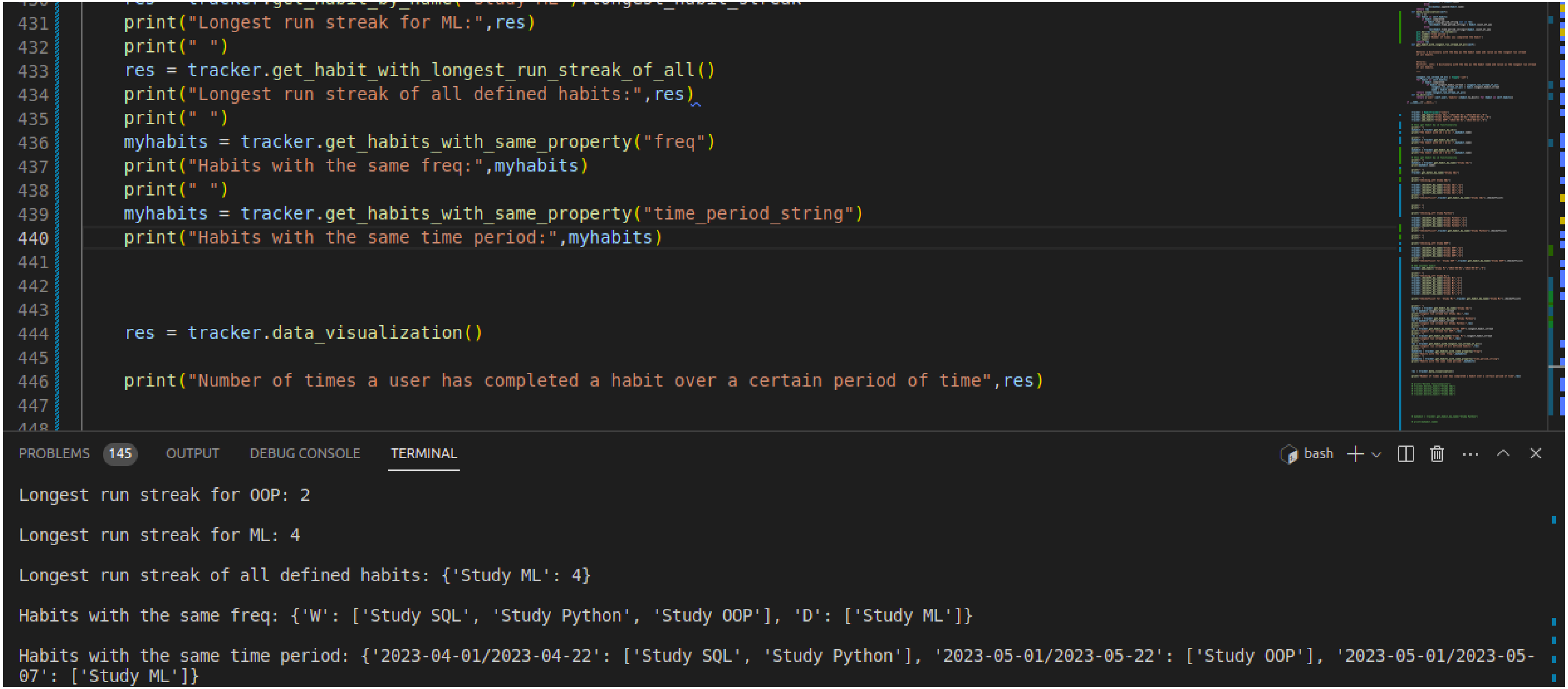


```
    res = myhabit.longest_habit_streak
    print("Longest run streak for Study SQL:",res)
    print(" ")
    myhabit = tracker.get_habit_by_name("Study Python")
    res = myhabit.longest_habit_streak
    print("Longest run streak for Study Python:",res)
    print(" ")
    res = tracker.get_habit_by_name("Study OOP").longest_habit_streak
    print("Longest run streak for OOP:",res)
    print(" ")
    res = tracker.get_habit_by_name("Study ML").longest_habit_streak
    print("Longest run streak for ML:",res)
    print(" ")
    res = tracker.get_habit_with_longest_run_streak_of_all()
    print("Longest run streak of all defined habits:",res)
    print(" ")
    myhabits = tracker.get_habits_with_same_property("freq")
    print("Habit with the same freq:",myhabits)
```

```
CheckoffList for 'Study ML' ['y', 'y', 'n', 'y', 'y', 'y', 'y']

Longest run streak for Study SQL: 1

Longest run streak for Study Python: 3

Longest run streak for OOP: 2

Longest run streak for ML: 4

Longest run streak of all defined habits: {'Study ML': 4}

Habit with the same freq: {'W': ['Study SQL', 'Study Python', 'Study OOP'], 'D': ['Study ML']}
```

Results

We invoke the get_habit_with_same_property by providing the string ‘freq’ in one case and ‘time_period_string’ in the other case to retrieve habits with same frequency and same time period, respectively.

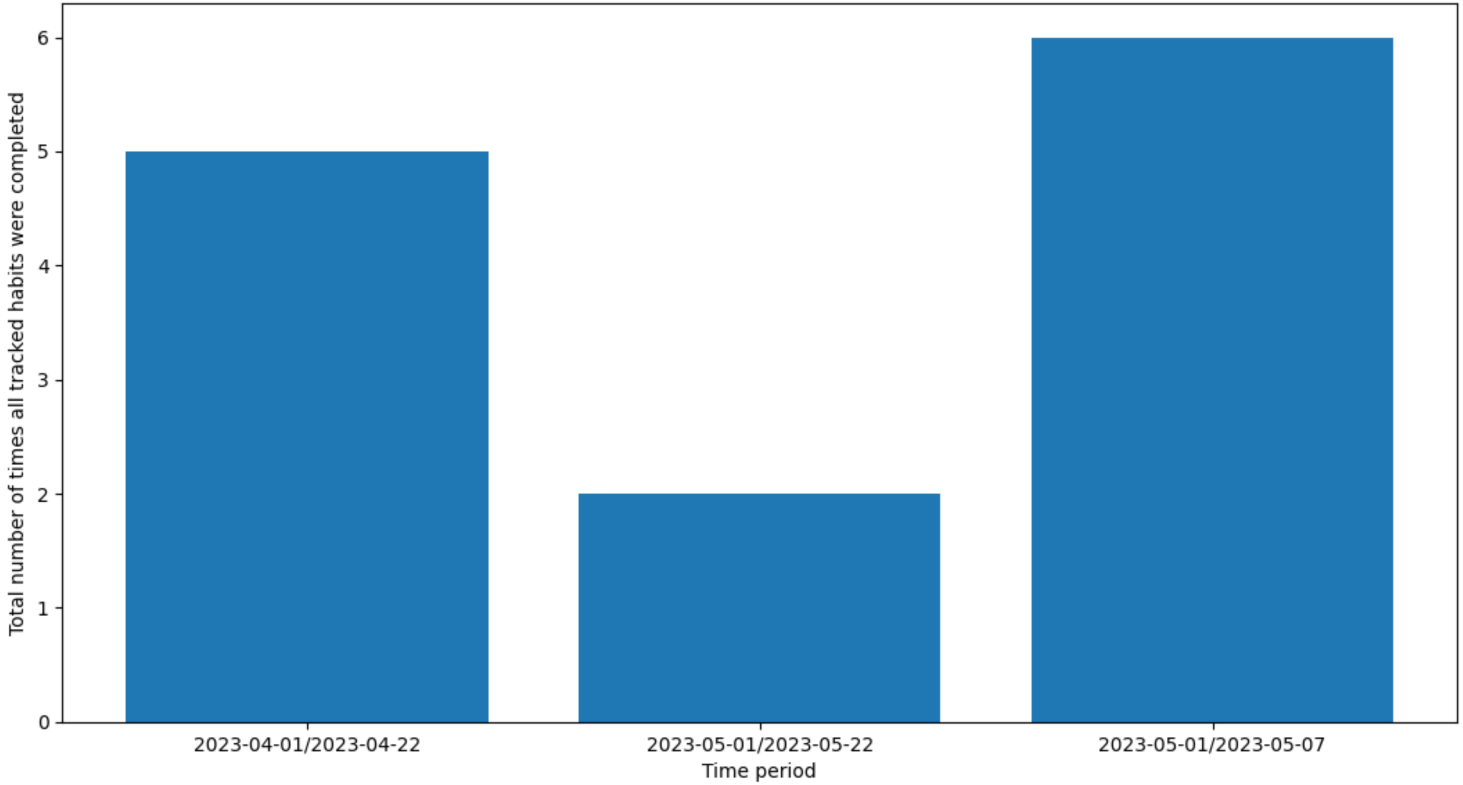


```
    res = tracker.get_habit_by_name("Study ML").longest_habit_streak
    print("Longest run streak for ML:",res)
    print(" ")
    res = tracker.get_habit_with_longest_run_streak_of_all()
    print("Longest run streak of all defined habits:",res)
    print(" ")
    myhabits = tracker.get_habits_with_same_property("freq")
    print("Habits with the same freq:",myhabits)
    print(" ")
    myhabits = tracker.get_habits_with_same_property("time_period_string")
    print("Habits with the same time period:",myhabits)



    res = tracker.data_visualization()

    print("Number of times a user has completed a habit over a certain period of time",res)

```

```
Longest run streak for OOP: 2

Longest run streak for ML: 4

Longest run streak of all defined habits: {'Study ML': 4}

Habits with the same freq: {'W': ['Study SQL', 'Study Python', 'Study OOP'], 'D': ['Study ML']}

Habits with the same time period: {'2023-04-01/2023-04-22': ['Study SQL', 'Study Python'], '2023-05-01/2023-05-22': ['Study OOP'], '2023-05-01/2023-05-
07': ['Study ML']}
```

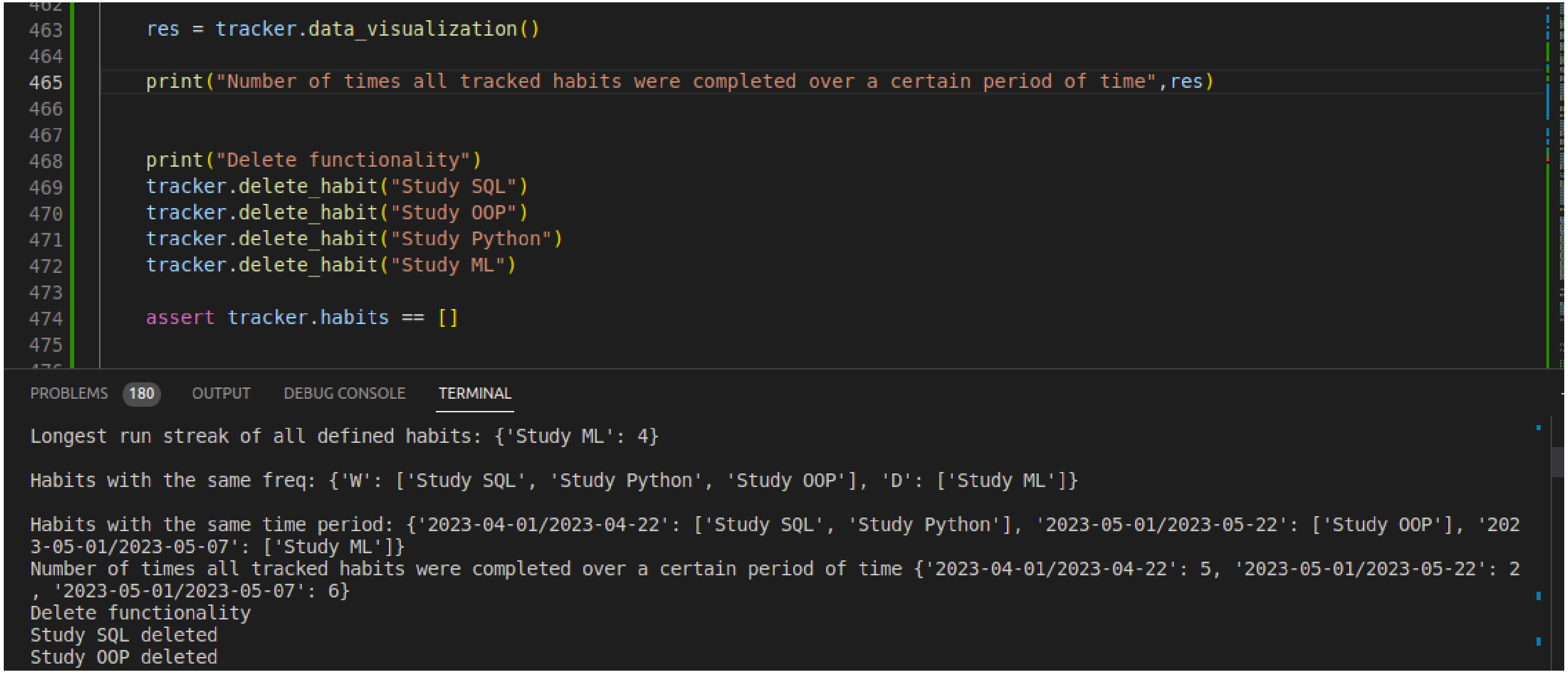
Results

We use the data_visualization method of the HabitTracking class to create a bar chart that shows the total number of times all tracked habits were completed over a certain period of time. Each bar represents a different time period, and its height corresponds to the total number of habit completions during that period, regardless of which specific habit was completed



Results

During the time period of April 1, 2023 to April 22, 2023, we completed the habit of studying SQL twice and the habit of studying Python three times so the total sum is five.
During the time period of May 1, 2023 to May 22, 2023, we completed the habit of studying OOP twice, etc.

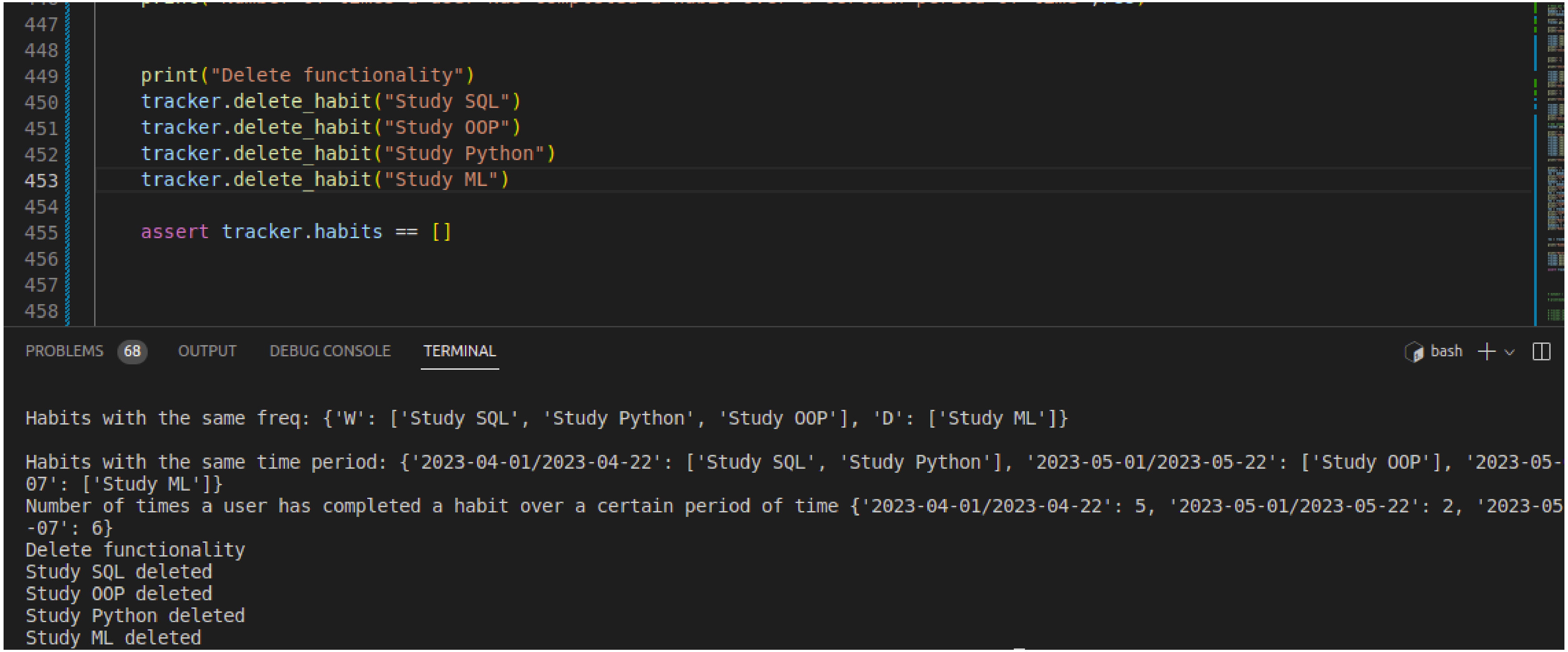


```
    res = tracker.data_visualization()

    print("Number of times all tracked habits were completed over a certain period of time",res)


    print("Delete functionality")
    tracker.delete_habit("Study SQL")
    tracker.delete_habit("Study OOP")
    tracker.delete_habit("Study Python")
    tracker.delete_habit("Study ML")

    assert tracker.habits == []

```

```
Longest run streak of all defined habits: {'Study ML': 4}

Habits with the same freq: {'W': ['Study SQL', 'Study Python', 'Study OOP'], 'D': ['Study ML']}

Habits with the same time period: {'2023-04-01/2023-04-22': ['Study SQL', 'Study Python'], '2023-05-01/2023-05-22': ['Study OOP'], '202
3-05-01/2023-05-07': ['Study ML']}
Number of times all tracked habits were completed over a certain period of time {'2023-04-01/2023-04-22': 5, '2023-05-01/2023-05-22': 2
, '2023-05-01/2023-05-07': 6}
Delete functionality
Study SQL deleted
Study OOP deleted
```

Delete habits

We call the `delete_habit` method on the HabitTracking class and pass in the name of the habit we want to delete. This will remove the habit from the tracker object.



```


    print("Delete functionality")
    tracker.delete_habit("Study SQL")
    tracker.delete_habit("Study OOP")
    tracker.delete_habit("Study Python")
    tracker.delete_habit("Study ML")

    assert tracker.habits == []



```

```
Habits with the same freq: {'W': ['Study SQL', 'Study Python', 'Study OOP'], 'D': ['Study ML']}

Habits with the same time period: {'2023-04-01/2023-04-22': ['Study SQL', 'Study Python'], '2023-05-01/2023-05-22': ['Study OOP'], '2023-05-
07': ['Study ML']}
Number of times a user has completed a habit over a certain period of time {'2023-04-01/2023-04-22': 5, '2023-05-01/2023-05-22': 2, '2023-05
-07': 6}
Delete functionality
Study SQL deleted
Study OOP deleted
Study Python deleted
Study ML deleted
```

This will remove all the habits from the tracker object.