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IT FDN 110 B

Assignment 03

Demonstrating the use of the while loop, programming menus, conditional logic, and using the PyCharm IDE

Introduction

This week is about demonstrating how to use the while loop, programming menus, conditional logic, and using the PyCharm IDE. The following information is a breakdown on how I wrote this program step-by-step.

Creating the Program

Since there are multiple ways to write a program in Python to achieve the same results, I chose to start it by providing a brief description of what the program is about as a comment in the script. After that, I described what the program does and how to use it. Since the beginning is the same as assignment 1 and 2 so I am directly jumping into the main structure of the program. The only added thing in assignment 3 is that I imported “cvs” and “sys” libraries so that I could use them in my program. This is shown in figure 1.1.

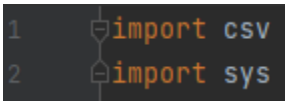

Figure 1.1: Importing libraries

I defined the menu as shown in figure 1.2, and then defined the data variables as shown in figure 1.3. I did a brief commenting in my program, as guided by Julian, so that anyone who will be updating the program in future would know what the program is doing.

```
# Define the Data
# defining data constant with datatype so that the constant value does not change throughout the program
MENU: str
MENU = """
---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------
"""
```

Figure 1.2: Defining menu

```
# Define the Data Variables
# defining data constant with datatype and setting it as empty string
student_first_name: str
student_last_name: str
csv_data: str
course_name: str
menu_choice: str

# defining data constant with datatype and setting it with the csv file name
FILE_NAME: str
FILE_NAME = "Enrollments.csv"  # assigning value to the constant

# assigning None to the constant
file_obj = None
coma = None
```

Figure 1.3: Defining data constants and variables

Presenting and processing the data

In figure 2.1, I present and process the programing through a while loop and menu choices. In choice 1, I asked the user to input the first name and last name. These names are stored in three separate variables: "*student_first_name*", "*student_last_name*" and "*course_name*". The variables capture the user's data with the input function and store them as strings. The information to be printed is first stored in a variable, "*csv_data*", and then displayed using the print command.

I created a comma separated values file (csv), "*Enrollments.csv*" and updated it with the same data which was displayed to the user. The csv file is opened and written using the open and write commands respectively. This is shown choice 3 of the menu in figure 2.1.

```
# Present and Process the data
while True:
    # Present the menu of choices
    print(MENU)
    menu_choice = input("Enter a menu option (1-4): ")

    match menu_choice:
        case "1":
            # Input user data
            student_first_name = input("Enter student's first name: ")
            student_last_name = input("Enter student's last name: ")
            course_name = input("Enter the course name: ")

        case "2":
            # Present the current data
            csv_data = f"{student_first_name},{student_last_name},{course_name}"
            print("The current data is:\n", csv_data)

        case "3":
            # Save the data to a file
            with open(FILE_NAME, "w") as file_obj:
                file_obj.write("First name,Last name,Course Name\n")
                file_obj.write(csv_data)
            with open(FILE_NAME, "r") as coma:
                targetReader = csv.reader(coma, delimiter=',')
                for row in targetReader:
                    print(row)

        case "4":
            # Stop the loop
            print("Ending Program")
            sys.exit(0)

        case _:
            print("Invalid choice")
```

Figure 2.1: While Loop with menu choices and activities

Testing the Program

Now the code for the program is ready and can be tested. First, save the script. Second, run it in the PyCharm. Follow the instructions displayed on the PyCharm to run the program completely as shown in Figure 3.1. Repeat the same on command prompt as shown in Figure 3.2. Figure 3.3 shows the registered data in a csv file.

```
     Welcome to Assignment 03: Course Registration Program!
        This program demonstrates the use of while loop,
           programming menus, conditional logic, and
                using the PyCharm IDE in Python


---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 1
Enter student's first name: Mohammad Ammar
Enter student's last name: Bharmal
Enter the course name: Python 100

---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 2
The current data is:
 Mohammad Ammar,Bharmal,Python 100
---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 3
['First name', 'Last name', 'Course Name']
['Mohammad Ammar', 'Bharmal', 'Python 100']

---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 4
Ending Program

Process finished with exit code 0
```

Figure 3.1: Testing the Program on PyCharm

```
    Welcome to Assignment 03: Course Registration Program!
       This program demonstrates the use of while loop,
          programming menus, conditional logic, and
               using the PyCharm IDE in Python


---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 1
Enter student's first name: Mohammad Ammar
Enter student's last name: Bharmal
Enter the course name: Python 100

---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 2
The current data is:
 Mohammad Ammar,Bharmal,Python 100

---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 3
['First name', 'Last name', 'Course Name']
['Mohammad Ammar', 'Bharmal', 'Python 100']

---- Course Registration Program ----
  Select from the following menu:
    1. Register a Student for a Course
    2. Show current data
    3. Save data to a file
    4. Exit the program
----------------------------------------

Enter a menu option (1-4): 4
Ending Program
```

Figure 3.2: Testing the Program on Command Prompt

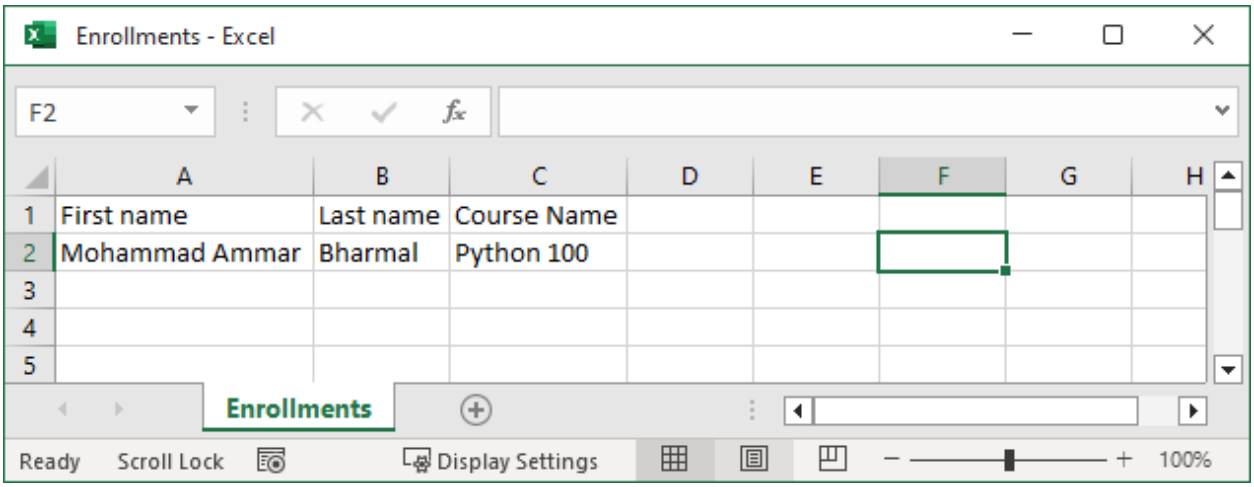

Figure 3.3: Verifying if the data is updated in the csv file

Summary

The assignment 3 demonstrates the use of use the while loop, programming menus, conditional logic, and using the PyCharm IDE. Using a menu, while loop and data input, the comma separated values file is opened and written using the open and write commands respectively. Moreover, the opening of the program and commenting to code helps improve the longevity of the program. It makes the program look more professional, well documented and easy to debug/reuse in future.