Introduction to Programing with Python

Module 03 - Programming Tools and Techniques

# Overview

In this assignment, you learn about additional programming tools and techniques. Course assignments help you learn through reading, watching demonstrations, performing programming in Python, and reflecting on what you learned through writing.

This assignment includes the following tasks:

1. Read module text.
2. Watch the module videos.
3. Create a program
4. Document your knowledge.
5. Submit your work.

**Tip:** Consider the following questions while you work through the module to help you focus:

* What is an IDE?
* What is PyCharm?
* What is Jupyter Notebooks?
* Why are professional IDEs used?
* What is pseudo-code?
* How do you control the flow of a program?
* What are "conditional" statements?
* How do you compare values?
* How do you compare references to the same location in memory?
* How do you use multiple conditional expressions?
* What is a Loop?
* How are while loops different from for loops?
* What do "break" and "continue" do?

# Task 1: Read and Watch the Module Text and Videos.

Start the assignment by reading the module's text and watching the module's demonstration video. You will find both the text and links to the videos in the Mod-03 document.

**Tip:** You do not need to watch the demonstration video's if their content was shown in the live sessions

# Task 2: Watch the assignment videos.

Please watch the following video, in addition to the videos and demonstrations you watched in the module.

* [PyCharm Tutorial | Introduction to PyCharm | Basics in 10 Minutes](https://youtu.be/HHcZbXsZtm0)  (external site)
* [Control Flow in Python - If Elif Else Statements](https://youtu.be/Zp5MuPOtsSY) (external site)
* <http://www.tutorialspoint.com/python/python_if_else.htm> (external site)
* <http://www.tutorialspoint.com/python/python_while_loop.htm> (external site)
* <https://www.applause.com/blog/functional-testing-types-examples> (external site)

# Task 3: Read about module topics

Please read the following articles, in addition to the text you read in the module.

* <https://www.tutorialspoint.com/pycharm/pycharm_quick_guide.htm> (external site)
* [Python Programming Tutorial - 20 - If Statement](https://youtu.be/II5WTVvryvk) (external site)
* [Python Programming Tutorial - 21 - else and elseif](https://youtu.be/g1maz1ynR74) (external site)
* [Python Programming Tutorial - 22 - Nesting Statements](https://youtu.be/_HJTN1JRgC8) (external site)
* [Python Programming Tutorial - 23 - Comparison Operators](https://youtu.be/E-s9sXB0XwY) (external site)

# Task 4: Create a program

Create a Python program that demonstrates using constants, variables, and print statements to display a message about a student's registration for a Python course. This program is very similar to Assignment02, but **It adds on the while loop, programming menus, conditional logic, and using the PyCharm IDE.**

**Note: Start by opening and reviewing the starter file Assignment03-Starter.py!**

## Acceptance Criteria

Your program must include the following features and code to be accepted as complete:

**File Name:**

* The file is named Assignment03.py

#### Script Header:

* The script header includes this text and has been updated with your name and the current date.

#### Constants:

* The constant **MENU: str** is set to the value:

---- 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

-----------------------------------------

* The constant **FILE\_NAME: str** is set to the value "Enrollments.csv"
* Constants values do not change throughout the program.

#### Variables:

* **student\_first\_name: str** is set to empty string.
* **student\_last\_name: str** is set to empty string.
* **course\_name: str**  is set to empty string.
* **csv\_data: str**  is set to empty string.
* **file\_obj** is set to None.
* **menu\_choice: str** is set to empty string.

#### Input / Output:

* On menu choice 1, the program prompts the user to enter the student's first name and last name, followed by the course name, using the input() function and stores the inputs in the respective variables.
* On menu choice 2, the presents a coma-separated string by formatting the collected data using the print() function.

**Processing**

* On menu choice 3, the program opens a file named "Enrollments.csv" in write mode using the open() function. It writes the content of the csv\_data variable to the file using the write() function, then file is closed using the close() method. Then displays what was stored in the file.
* On menu choice 4, the program ends.

**Test:**

* The program takes the user's input for a student's first, last name, and course name.
* The program displays the user's input for a student's first, last name, and course name.
* The program saves the user's input for a student's first, last name, and course name to a coma-separated string file. (check this in a simple text editor like notepad.)
* The program allows users to enter multiple registrations (first name, last name, course name).
* The program runs correctly in both **PyCharm** **and** from the **console** **or terminal**.

A screenshot of a computer

Description automatically generated

# Task 5: Document your knowledge

After you have created and tested your Python program, create a document **describing the steps you took in performing this assignment**.

* All resources for this assignment are found in the lectures, recommended reading, or recordings specified in the class syllabus. You do not need to locate additional resources outside of these.
* **Your document must conform to my professional document template to get full points!** Use my example template and video, in the General Files and Topics module, as a guide for what I expect a professional paper to look like. Make sure you format it like a college paper instead of a text message. Things like your name, date, class, citations, introductory and summary paragraphs are always expected! So, **not putting these in the document will cost you!**  ([See this video for help](https://youtu.be/9ojhSW9ljjo)!)
* Please save your files as a PDF file called Assignment03\_YourNameHere.pdf. Here is an example from Google Docs, but it is similar in most text editors!

Graphical user interface, text, application

Description automatically generated

**Important**: Make sure to include an introduction and summary, as well as a heading. It does not have to be perfect, but you won't get credit for it if you turn in a simple blob of text! **watch this video** to help you understand what I am looking for: [Creating Professional Documents](https://youtu.be/9ojhSW9ljjo) and **see the examples** from other students posted in the  "**General Information and Helpful Tips**" module in Canvas.

# Task 6: Submit your work

Now place your document with the Python script into a folder named A03, then compress the folder into a ".zip" file, before finally uploading the file to the class assignment page on Canvas.

A screenshot of a computer

Description automatically generated

# ****Notes:****

* Use the discussion board to request help on the assignment.
* The assignment can be completed using the lectures, assignment videos and reading, and module labs. You do not need to locate additional resources outside of the course material to complete it.
* If you are unfamiliar with Lorem Ipsum please see this link [What is Lorem Ipsum](https://en.wikipedia.org/wiki/Lorem_ipsum) (external link)
* Please read this article if you are unsure how to zip a folder [How to Make a Zip File](https://www.wikihow.com/Make-a-Zip-File) (external link)
* See the  "**General Information and Helpful Tips**" module in Canvas for more help!