

Lab 1



Description

This lab will cover a series of tasks that have been shown to you in the lecture slides. What was covered this week was how python is a high level interpreted language that can be run from the "shell" or by running the program on the command line from an integrated development environment like visual studio code.

The best of both worlds here is a program called IDLE which has both the ability to run Python in the shell and write your own python files. Primitive data types were also covered which are String, Integer, Float and Boolean. List was introduced which is similar to an array other than it can grow and shrink. Dictionary is a data type that holds a key value pair such as an item and its quantity.

Try to complete all tasks below.

Task 1

Open Visual Studio Code, at the top there is a drop down menu called Terminal click this and select new terminal. Once you have opened this screen you will see a black box that has appeared at the bottom of your screen. Inside this box which looks similar to CMD or DEV prompt from C type "python" in the box something similar to will appear:

Python 3.11.0 (main, Oct 24 2022, 18:26:48) [MSC v.1933 64 bit (AMD64)] on win32 Type "help", "copyright", "credits" or "license" for more information.

This is the python shell. Inside here you can type thing like 2+2 and it will give you the answer. Play around with this shell until you feel comfortable writing some simple Python code perhaps try the following examples:

- 250 / 6
- 50532 * 24
- 500 / 0
- 5045 + 226
- 453 - 4454

Task 2

Inside the shell you can write actual python code like print() Why don't you try and write the Hello World! program inside the shell.

Task 3

Inside Visual Studio Code on the left there is a panel that allows you to open a folder. Click this and its going to open the file explorer in windows. Here navigate to the M: drive and make a new folder called ICE-1121 then select this folder. The folder you have just created is where we will store all of the labs. Right click in the panel on the left and select new folder and call it lab1. Inside lab1 make a new file called lab1.py the .py stands for python.

In this new file you can repeat the previos two tasks quite easily but to run them to have to use a different process. First press ctrl+z and enter to exit python shell or close and open a new terminal. Secondly in the top right of the terminal window change from power shell to cmd this is just good practice. When you open the new terminal you will notice you are in roughly the right location you

may need to use `cd ..` to move back a directory or `cd lab1` to move to the correct directory. Finally run `py lab1.py` and your code will execute. **Remember to write some code at least `print("hello world")` to get some feedback**

Task 4

Create a program that takes two strings as input, then uses string concatenation to combine them into a single string and prints the result.

Task 5

Write a program that can check if the word "algorithms" exists in the sentence "The study of algorithms is a fundamental aspect of computer science.". Change the word and/or sentence to understand the code.

Task 6

Create a program that asks the user for their name and age then greets them with "Hello, [Name]! you are [age] years old".

Task 7

Take two numbers from the user and display their addition, subtraction, multiplication, and division.

Task 8 - Challenge Challenge Problem: Write a program that converts a temperature from Celsius to Fahrenheit using the formula $F = (9/5) * C + 32$ where "F" is the temperature in Fahrenheit and "C" is the temperature in Celsius.

Assessed Laboratory Work

Complete all the tasks above

Congratulations you completed your first lab

This assessment amounts to **10%** of assignment 1, marked out of 10.

Plagiarism & Unfair Practice

Plagiarised work will be given a mark of zero. Remember when you submit you agree to the standard agreement:

This piece of work is a result of my own work except where it is a group assignment for which approved collaboration has been granted. Material from the work of others (from a book, a journal or the Web) used in this assignment has been acknowledged and quotations and paraphrasing suitably indicated. I appreciate that to imply that such work is mine, could lead to a nil mark, failing the module or being excluded from the University. I also testify that no substantial part of this work has been previously submitted for assessment.

Late Submission & Extensions

Work submitted within one week of the stated deadline will be marked but the mark will be capped at 50%. A mark of 0% will be awarded for any work submitted 1 week after the deadline.

Extensions must be applied for using the Request Centre in MyBangor. They must be approved prior to the original deadline.

Acceptable reasons for submitting work late include: Serious personal illness with a doctor's certificate (a self-certified medical note should not be accepted); the death of a relative or close friend; serious family problems such as divorce, separation and eviction. Examples of unacceptable reasons for failing to submit work on time include: having exams; having other work to do; not having access to a computer; having computer related problems; being on holiday; not being able to find information about a subject.

Feedback

The formal feedback for this assessment will be available post-assessment. Each submission will be provided with comments in their document made available through Blackboard. To access this, see the comments section of your assignment submission. The assessors will attempt to return comments within 2 weeks of submission, however will keep you informed if it needs to extend to the 4 weeks allowed by the University.