# Scripts and Modules

## Exercises

### Week 5

Prior to attempting these exercises ensure you have read the lecture notes and/or viewed the video, and followed the practical. You may wish to use the Python interpreter in interactive mode to help work out the solutions to some of the questions.

Download and store this document within your own filespace, so the contents can be edited. You will be able to refer to it during the test in Week 6.

Enter your answers directly into the highlighted boxes.

For more information about the module delivery, assessment and feedback please refer to the module within the MyBeckett portal.

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When a Python program is stored within a text file (i.e. a *script*), what suffix should be used for the filename?

*Answer:*

.py

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Is it necessary to use a special Integrated Development Environment (IDE) to write Python code in text files?

*Answer:*

No it is not necessary to use a special IDE, Python code can be written in any text editor.

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When a *script* is executed from a file, are the results of evaluating expressions automatically displayed on the screen without the need of a print() function call?

*Answer:*

It would not because there is no request for it to do that, just for it to do the calculation.

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What command would need to be typed in an operating system terminal window in order to execute a Python script called PrintNames.py?

*Answer:*

python PrintNames.py

What command would need to be typed in a terminal in order to pass the values "John", "Eric", "Graham" as *command line arguments* to the PrintNames.py script?

*Answer:*

python PrintNames.py John Eric Graham

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When a Python script wishes to access *command line arguments*, what **module** needs to be imported?

*Answer:*

The sys module

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What is the data-type of the sys.argv variable?

*Answer:*

List

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What is stored within the first element of the sys.argv variable?

*Answer:*

The name of the program itself

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Use a text editor to write the *script* called PrintNames.py. This should display any *command line arguments* that were passed during execution.

Once complete, place your solution in the answer box below.

*Answer:*

A screenshot of a computer

Description automatically generated

Improve the solution so it uses an if statement to check that at least one name was passed, or otherwise print a message saying “no names provided”. Place your improved solution in the answer box below.

*Answer:*

A screenshot of a computer

Description automatically generated

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When using an import statement it is possible to provide an *alias* that can be used as an alternative name to access module content.

Write an **import** statement that imports the whole of the sys module, and renames it to my\_system.

*Answer:*

Import sys as my\_system

Write a **from..import** statement that imports only the math.floor function, and renames it to lower

*Answer:*

from math import floor as lower

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What is stored in a *symbol-table*?

*Answer:*

The symbol table stores all the important information about the modules within a program. This includes the imported modules and the modules that are imported by default.

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Why is the following type of import statement generally not recommended?

from math import \*

*Answer:*

It can cause conflicts between variable names.

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When working in *interactive-mode* what convenient function can be used to list all names defined within a module?

*Answer:*

dir

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What is the value stored within the sys.path variable used for?

*Answer:*

The sys.path is initialised when the program is started and stores directory information from where the input script was loaded or the current working directory if no script was specified. It will also include the directories specified by the PYTHONPATH environment. This is set within the Operating System when Python is first installed.

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When a program is being executed as a *script* what value is assigned to the special variable \_\_name\_\_?

*Answer:*

The current name of a program. This comes from the filename. When set to main it tells the system it is a script and not a module.

What value is assigned to the \_\_name\_\_ variable when a program has been imported as a *module*?

*Answer:*

The filename.

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Why is it useful for a program to be able to detect whether it is running as a *script*, or whether it has been imported as a *module*?

*Answer:*

It tells the program what it is going to be used for and can change the way the code is interacted with by the computer. Modules can be imported and used across multiple programs, but scripts cannot. Doing this gives a clear definition between module and script use.

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## **Exercises are complete**

Save this logbook with your answers. Then ask your tutor to check your responses to each question.