# 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:*

In Python, when you store a program within a text file, commonly known as a script, the recommended suffix for the filename is .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 Integrated Development Environment (IDE) to write Python code in text files. While an IDE can provide a feature-rich environment for coding, debugging, and project management, many developers prefer using simple text editors or code editors to write Python code.

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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:*

In Python, when a script is executed from a file, the results of evaluating expressions are not automatically displayed on the screen without the need for a print() function call. In order to see the output, you need to explicitly use the print() function to display values or results.

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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:*

To execute a Python script named PrintNames.py from the operating system terminal window, you typically use the python command followed by the name of the script.

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:*

When a Python script wishes to access command line arguments, the sys module needs to be imported. The sys module provides access to some variables used or maintained by the Python interpreter, and sys.argv is a list in Python that contains the command-line arguments passed to the script.

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

*Answer:*

The sys.argv variable is a list in Python. It is a list of strings that contains the command-line arguments passed to the script

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

*Answer:*

The first element of the sys.argv variable contains the name of the Python script being executed. It is a string representing the script's filename, including its path if the script is not in the current working directory.

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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:*

import sys

def print\_command\_line\_arguments():

script\_name = sys.argv[0]

command\_line\_arguments = sys.argv[1:]

print("Script Name:", script\_name)

print("Command Line Arguments:", command\_line\_arguments)

if \_\_name\_\_ == "\_\_main\_\_":

print\_command\_line\_arguments()

python PrintNames.py John Eric Graham

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:*

import sys

def print\_command\_line\_arguments():

script\_name = sys.argv[0]

command\_line\_arguments = sys.argv[1:]

if command\_line\_arguments:

print("Script Name:", script\_name)

print("Command Line Arguments:", command\_line\_arguments)

else:

print("No names provided.")

if \_\_name\_\_ == "\_\_main\_\_":

print\_command\_line\_arguments()

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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:*

Yes, we can use ‘as’ keyword.

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:*

Symbol-table stores information about the names used in a program, such as variables, functions, classes, and modules.

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

from math import \*

*Answer:*

The from math import \* statement is generally not recommended due to potential namespace pollution, readability issues, and the risk of unintentional name conflicts. It's better to import only the specific names needed from a module.

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

*Answer:*

In interactive mode, the dir() function can be used to list all names defined within a module.

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

*Answer:*

It is used to determine the locations where Python looks for modules when importing them.

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

*Answer:*

When a program is being executed as a script, the special variable \_\_name\_\_ is assigned the value "\_\_main\_\_".

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

*Answer:*

When a program has been imported as a module, the special variable \_\_name\_\_ is assigned the value of the module's name.

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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:*

Detecting whether a program is running as a script or has been imported as a module allows developers to control code execution, promote modularity, and facilitate code reuse in a flexible and organized manner.

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## **Exercises are complete**

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