# 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.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

## ©2021 Mark Dixon / Tony Jenkins

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

Python script filename is .py.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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 to write Python code in text files. Any text editor

can be used for writing Python code, and it can be saved with a .py extension.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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:*

[When a script is executed from a file, the results of evaluating expressions are not automatically displayed on the screen without the need of a print() function call 1](https://stackoverflow.com/questions/1514019/when-are-javascript-functions-executed" \t "https://edgeservices.bing.com/edgesvc/_blank).

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

The sys module needs to be imported to access command-line arguments in a Python script using the sys.argv list.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

The data-type of the sys.argv variable is a list of strings

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

[The first element of the sys.argv variable in Python contains the name of the script that is being executed](https://pencilprogrammer.com/python-sys-argv/" \t "https://edgeservices.bing.com/edgesvc/_blank)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

for name in sys.argv[1:]:

print(name)

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

if len(sys.argv) < 2:

print("No names provided")else:

for name in sys.argv[1:]:

print(name)

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

What is stored in a *symbol-table*?

*Answer:*

A symbol table stores information about identifiers in a programming language, including their names, data types, scopes, and memory locations.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

from math import \*

*Answer:*

The import statement from math import \* is generally not recommended because it imports all names from the math module into the current namespace which leads to several issues such as naming conflicts, and unintended variable overwrites, making the code harder to maintain and understand

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

dir() It lists all names defined within a module.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

The sys.path variable in Python is a list of strings that specifies the search path for

modules.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

*Answer:*

The value assigned to the special variable \_\_name\_\_ when a program is being executed as

a script is set to "\_\_main\_\_".

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

*Answer:*

When a program is imported as a module in Python, the value assigned to the special variable \_\_name\_\_

is set to the name of the module.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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 helps in writing reusable code by allowing different behaviors when a script is run directly

or imported as a module.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

## **Exercises are complete**

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