# 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:*

When a Python program is stored within a text file, the filename should have the suffix **‘.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 Integrated Development Environment (IDE) to write Python code in text files. A basic text editor is adequate.

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

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:*

No, 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. We need to use the print() function explicitly to display output in Python scripts.

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

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

*Answer:*

The **‘python’** command needs to be typed in an operating system terminal window to execute a Python script called PrintNames.py.

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

*Answer:*

**‘python PrintNames.py John Eric Graham’** needs to be typed in a terminal to pass the values "John", "Eric", and "Graham" as *command line arguments* to the PrintNames.py script

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

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.

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

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

*Answer:*

The sys.argv variable is a list in Python.

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

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

*Answer:*

The first element of the sys.argv variable stores the name of the Python script being executed. It is typically the script's filename.

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

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:*

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:*

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

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 program, including their names, types, memory locations, scopes, and other relevant attributes.

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

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

from math import \*

*Answer:*

The following type of import statement is generally not recommended as it can lead to namespace issues, naming conflicts, compromise code clarity, readability, and maintenance.

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

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

*Answer:*

When working in *interactive mode*, the convenient function that can be used to list all names defined within a module is **dir().**

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

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

*Answer:*

sys.path in Python stores a list of directories where the interpreter looks for modules during import operations.

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

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

*Answer:*

When a program is 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 \_\_name\_\_ variable is assigned the name of the module("main").

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

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 is 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* because it allows for code to run conditionally only when the script is executed directly, avoiding unintended execution when imported as a module.

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

## **Exercises are complete**

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