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:*

When a Python program is stored within a text file, **.py** suffix should be used for the filename.

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

*Answer:*

Yes, it is necessary to use a special Integrated Development Environment (IDE) to write Python code in text files.

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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:*

No, 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.

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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:*

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

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

*Answer:*

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

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

*Answer:*

The name of the script itself is stored within the first element of the sys.argv variable.

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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

for arg in sys.argv[1:]:

print(arg)

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) > 1:

for arg in sys.argv[1:]:

print(arg)

else:

print("No Names Provided")

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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 information stored in a symbol-table includes

1. Variable name and their references

2. Type Information

3. Namespace Information

4. class names and their references

5. Modulus names and their references

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

from math import \*

*Answer:*

The following type of import statement generally not recommended for few reasons:

1. Namespace Pollution

2. Potential Name Conflicts

3. Readibility

4. Maintainability

5. Performance Implications

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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* 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:*

The value stored within the sys.path variable looks for the module in the directories listed in sys.path.

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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* "\_ \_main\_ \_" value is assigned to the special variable \_\_name\_\_

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, the \_\_name\_\_ variable is set to the name of the module.

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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 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* due to following cases:

1. Conditional Execution

2. Modular Code Design

3. Testing

4. Debugging

5. Initialization

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**Exercises are complete**

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