# Scripts and Modules

## Exercises

### Week 5

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

*Answer:*

python newfile.py; .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:*

No, it is not necessary.

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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, the results of evaluating expressions are not automatically displayed on the screen without the print() function.

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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:*

sys module needs to be imported when a python script wishes to access command line arguments.

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

*Answer:*

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

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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 always stores the name of the script 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:*

import sys

if len(sys.argv) > 1:

print("Arguments passed:")

for i in range(1, len(sys.argv)):

print(f"Argument {i}: {sys.argv[i]}")

else:

print("No arguements passed.")

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:

print("Arguments passed:")

for i in range(1, len(sys.argv)):

print(f"Argument {i}: {sys.argv[i]}")

print("\nNames provided:")

for i in range(1, len(sys.argv)):

print(f"{i}. {sys.argv[i]}")

else:

print("No arguments passed.")

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

result = lower(3.1415)

print(result)

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What is stored in a *symbol-table*?

*Answer:*

Dictionary in Python, key-value pairs are stored.

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

from math import \*

*Answer:*

It is not recommended in order to reduce readability.

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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() function can be used to list all names when working in interactive-mode.

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

*Answer:*

The sys.path variable is a list that stores the locations where the python interpreter searches 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:*

The value assigned to the \_\_name\_\_ variable when a program has been imported as a module is the name of the script or module file without the file extension.

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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:*

This is useful since it allows a program to determine whether it is being executed as a script or imported as a module.