

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, 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.

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, a `print()` function call is required in order for the results of evaluating expressions to be seen on the screen when a script is run from a file. Python scripts require the explicit use of the `print()` function in order to display output.

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:

The `sys` module must be imported for a Python script to have access to command line arguments.

_ 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 name of the running Python script is stored in the first element of the `sys.argv` variable. Usually, it is the filename of the script.

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

# Using list slicing to exclude the script name from command line
arguments = sys.argv[1:]

# Printing each command line argument
for arg in arguments:
    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

# Using list slicing to exclude the script name from command line
arguments = sys.argv[1:]

# Checking if at least one name was provided
if arguments:
    # Printing each command line argument
    for arg in arguments:
        print(arg)
else:
    print("No names provided")
```

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 contains details about symbols in a program, such as the names of variables, data kinds, locations in memory, and scope information..
```

_ Why is the following type of import statement generally not recommended? `from math import *`

Answer:

```
from math import * is not advised since it can cause naming conflicts, namespace problems, and problems with the readability, maintainability, and clarity of the code.
```

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

Answer:

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

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

Answer:

```
The Python search path for modules is stored in the sys.path variable. The interpreter uses it to find modules when making import statements.
```

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 is imported as a module, the variable `__name__` is assigned the name of the module (not `"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's helpful to know if a program is being executed as a script or has been imported as a module in order to manage the way certain code blocks are executed.

_ Exercises are complete

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