Functions

Exercises

Week 4

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.

What must be done before a function that is not *built-in* to Python can be used in a program?

Answer:

The Function must be defined into the program.

Given the following `import` statement, how would a call to the `sin()` function be made?

```
import math
```

Answer:

The sin() function would be called as math.sin().

Given the following `import` statement, how would a call to the `sqrt()` function be made?

```
from math import sqrt
```

Answer:

The sqrt() function would be called directly as sqrt().

What is the name of the common library that is available with all Python distributions?

Answer:

The Python Standard Library.

What keyword is used in Python to define a new function?

Answer:

def

Write some Python code that defines a function called `print_header(msg)`. This should output the value provided by the '`msg`' parameter to the screen (prefixed by five asterisk '`*****`') characters.

Answer:

```
def print_header(msg):
    print("*****" + msg)
```

In the answer box below give an example of what the **docstring** may look like for the `print_header(msg)` function.

Answer:

```
def print_header(msg):
    """
    Prints the message with asterisks around it.

    msg (str): Message to display.
    """
```

Where within a function definition should a **docstring** appear?

Answer:

Directly below the function header (inside the function, as the first statement).

```
It should appear directly below the function header.
```

What statement should appear within a function's code block to cause a specific value to be passed back to the caller of the function?

Answer:

```
return
```

Write some Python code that defines a function called `find_min(a,b)` that returns the smallest of the two given parameter values.

Answer:

```
def find_min(a, b):
    return a if a < b else b
```

Given the following function definition, which of the *formal parameters* could be described as being a **default argument**?

```
def shouldContinue(prompt, answer=False):
      # function body...
```

Answer:

The default argument is answer=False.

Provide two example calls to the above function, one which provides a value for the *default argument*, and one that does not.

Answer:

shouldContinue("Do you wish to continue?")
shouldContinue("Do you wish to continue?", answer=True)

State why following function definition would **not** be allowed.

```
def do_something(prefix="Message", prompt, answer=False):
      # function body...
```

Answer:
Default arguments (prefix="Message") cannot appear before non-default arguments (prompt).

Default argument (prefic=”Message”) can’t appear before non default arguments.

What single character is placed directly before the name of a *formal parameter*, to indicate that a variable number of actual parameters can be passed when the function is called?

Answer:

Single character = *

What commonly used built-in function, which displays output on the screen, can take a **variable number** of arguments?

Answer:

Print()

Is it valid for a function's parameter name to be prefixed by two asterisk characters '**' as shown below?

```
def send_output(**details):
      # function body...
```

Answer:

Yes its valid.

If present, what does this prefix indicate?

Answer:

The ** prefix before the parameter name means that it will accept any number of keyword arguments that will be passed as a dictionary.

What is the name given to a small 'anonymous' function that must be defined using a single expression?

Answer:

It's a Lambda function.

Give an example of such a function that calculates the *cube* of a given number (i.e. the value of the number raised to the power of three) -

Answer:

Its cube = lambda x: x**3

Exercises are complete

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