# 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.

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

*Answer:*

We must import a function if it is defined in an external module using “import”. If the function is not defined we must define it using “def”.

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

import math

*Answer:*

The sin() function can be called by math.sin().

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

from math import sqrt

*Answer:*

The sqrt() is called as sqrt().

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

*Answer:*

The name of the common library that is available with all Python distributions is Python standard library.

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

*Answer:*

The keyword is used in Python to define a new function is “def”.

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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(f”\*\*\*\*\* {msg}”)

print\_header(“print me”)

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

*Answer:*

“‘function to print a message with a prefix of five asterisks”’

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

*Answer:*

A docstring appears just after defining a function.

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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:*

The statement used in such condition is “return”.

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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 mini(a,b):

if a<b:

return a

else:

return b

result=mini(10,20)

print(result)

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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:*

In the function, the parameter answer is a default argument as it has a default value.

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

*Answer:*

1. Providing a value for the default argument

shouldContinue(“Do you want to continue?”, True)

1. Not providing a value for the default argument

shouldContinue(“Do you want to continue?”)

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

def do\_something(prefix="Message", prompt, answer=False):

# function body...

*Answer:*

The above giving function definition would not be allowed because default parameters cannot be placed before other non-default parameters.

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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:*

An asterisk “\*” 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

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

*Answer:*

The commonly used built-in function which displays output on the screen and can take a variable number of arguments is print().

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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, it is valid for a function’s parameter name to be prefixed by two asterisk characters ‘\*\*’ as shown above.

If present, what does this prefix indicate?

*Answer:*

This prefix indicate variable length key word arguments / kwargs.

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

*Answer:*

The name given to a small ‘anonymous’ function that must be defined using a single expression is lambda.

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:*

print((lambda x:x \*\*3)(4))

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## **Exercises are complete**

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