# 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:*

To use a non built-in function, functions must be imported before the program runs and these functions are called modules.

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

import math

*Answer:*

To call the function: 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:*

Because the function is imported directly there is no need of the prefix.

Sqrt()

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

*Answer:*

The common library that is available is called the python standard library.

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

*Answer:*

The def keyword is used to define a new function.

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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("\*\*\*\*\*", msg)

print\_header("Welcome ")

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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:*

“““ Displays the output of the message ”””

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

*Answer:*

The docstring should appear right after the function is defined as the first line.

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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 return statement returns the value back to the caller of the function.

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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 find\_min(a,b):

"""Find the minimum of the two values"""

if (a < b):

min = a

else:

min = b

return min

print(f"the minimum value is {find\_min(6,5)}")

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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:*

The answer = False parameter is a default argument because it can be called without providing the argument.

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

*Answer:*

def shouldContinue(prompt, answer=False):

print(prompt, answer)

shouldContinue("Horror")

shouldContinue("Horror", "Star")

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

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

# function body...

*Answer:*

This function would not be allowed as default arguments are only specified to the right of the parameter that have no default.

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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:*

The \* character is placed before the formal parameter to pass variable length arguments.

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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 tuple function is used to take variable number of arguments.

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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 as it is a keyboard argument.

If present, what does this prefix indicate?

*Answer:*

The prefix indicates a variable number of arguments and any keyboard argument that is passed that is not named is received by the parameter.

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

*Answer:*

A function that has no name or is an anonymous function is called 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:*

cube = lambda x: x\*\*3

print(cube(5))

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## **Exercises are complete**

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