# 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:*

In Python, after the function is created, we can call it with the help of another function. Important: A function must be defined before the function call; otherwise, the Python interpreter gives an error.

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

import math

*Answer:*

Print(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:*

Root = sqrt()

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

*Answer:*

Python Standard Library

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

*Answer:*

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 header(msg, prefix = "\*\*\*\*\*"):

print(prefix, msg )

header(input("Enter the msg:"))

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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:*

def header(msg, prefix = "\*\*\*\*\*"):

print(prefix, msg )

header(input('''Enter the msg.:'''))

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

*Answer:*

The first line of the 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:*

Return statement

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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):

if a < b:

min = a

else:

min = b

return min

a = int(input("enter the num: "))

b = int(input("enter the num: "))

print("the minimum is",find\_min(a,b))

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def shouldContinue(prompt, answer=False):

# function body...

*Answer:*

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:*

def shouldcontinue(prompt, answer=False):

return prompt, answer

print(shouldcontinue(""))

def shouldcontinue(prompt, answer=False):

return prompt, answer

print(shouldcontinue(" save "))

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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 given function definition is not allowed in Python because parameters with default values must come after parameters without default values.

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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:*

Star parameter

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

*Answer:*

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 in Python to use “\*\*” before a parameter name in a function definition. It allows the function to accept a variable number of keyword arguments and collects them into a dictionary.

If present, what does this prefix indicate?

*Answer:*

The prefix “\*\*” in a Python function parameter indicates that the parameter is designed to collect keyword arguments and store them in a dictionary within the function.

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

*Answer:*

A short "anonymous" function that must be defined using a single expression is commonly referred to as 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

result = cube(5)

print(result

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## **Exercises are complete**

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