# 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 need to import the library which contains that function.

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

import math

*Answer:*

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:*

sqrt(144)

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

*Answer:*

The 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 print\_header(msg):

print("\*\*\*\*\*")

print(msg)

msg = input("Enter the message you want to print: ")

print\_header(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 print\_header(msg):

"""This function prints the message entered by user prefixed by five asterisk"""

print("\*\*\*\*\*")

print(msg)

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

*Answer:*

After the function declaration or header.

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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:*

A ***“return”*** statement should appear within a function’s code block to cause a specific value to be passed 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):**

**"""This function returns the smallest of the two given parameter"""**

**return (a if a < b else b)**

a = int(input("Enter the value of a(int): "))

b = int(input("Enter the value of b(int): "))

min = find\_min(a,b)

print("The smallest is ", min)

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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:*

**answer** could be described as being a default argument among the give function parameters

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

*Answer:*

**shouldContinue(3, Yes)**

**shouldContinue(3)**

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

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

# function body...

*Answer:*

Because in python the parameters without default value must come before parameters with default value.

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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:*

**\*** 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:*

That function 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.

If present, what does this prefix indicate?

*Answer:*

This prefix indicates variable length keyword arguments. The arguments are taken as dictionary with key and value.

def function(\*\*kwargs):

#body

function(football=6, baseball=8)

function(football=10, baseball=9, basketball=8)

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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 Expression’**.

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.