# I/O and File Handling

## Exercises

### Week 8

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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Which of the following represents a Python *f-string*?

1. "Hello {}, you have logged in".format(name)
2. "Hello {name}, you have logged in"
3. f"Hello {name}, you have logged in"
4. "Hello %s, you have logged in" % name

*Answer:*

C would be an F string as it os the only one which has a f at the beginning.

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Given the following definition of value, what would each of the following statements display?

value = 10.768572

print(f"Value is {value}")

*Answer:*

Value is 10.768572

print(f"Value is {value \* 10}")

*Answer:*

Value is 107.68572

print(f"Value is {value:.2f}")

*Answer:*

Value is 10.77

print(f"Value is {value:16.2f}")

*Answer:*

Value is 10.77

print(f"Value is {value:0>16.2f}")

*Answer:*

Value is 0000000000010.77

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Within an *f-string* **format specifier** what does the ‘^’ alignment character signify?

*Answer:*

Aligns the value to the centre of the available space

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Write a statement which uses the str.format() to generate the same output as the following *f-string* statement -

print(f"pi to 5 decimal places is {math.pi:.5f}")

*Answer:*

import math  
print("pi to 5 decimal places is {:.5f}".format(math.pi))

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What would the following statement display?

print("Length = {1} Width = {0}".format(10,20))

*Answer:*

Length = 20 Width = 10

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What *exactly* would the following statement display?

print("Hello".rjust(10))

*Answer:*

Hello

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On which older programming language is the *%-formatting* style loosely based?

*Answer:*

It is loosely based on the programming language C.

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Write a Python program that uses a loop and the str.rjust() method to generate the following output.

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*Hint:* The program will start as follows

for n in range(10,0,-1):

line = "#" \* n

# rest of code....

*Answer:*

for n in range(10,0,-1):  
 line = '#' \* n  
 print(line)

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What is the basic element that *all* computer files contain?

*Answer:*

All computer files contain either 0’s and 1s to make them.

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What *function* must be called before the contents of a file can be accessed?

*Answer:*

The open() function must be called before all of the contents can be accessed and modified by the program.

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What *method* must be called on a file object once processing is complete?

*Answer:*

The close() method should be used once everything is finished with the file.

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Following execution of the given statement, would the file ‘myfile.txt’ be open for *reading* or for *writing*?

f = open("myfile.txt")

*Answer:*

By default, if no mode of operation for opening it is defined, then it would be only opened for reading, such as in this case.

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Following execution of the given statement, would the file yourfile.txt be open for *reading* or for *writing*?

f2 = open("yourfile.txt", "w")

*Answer:*

The ‘w’ signifies that the file would be opened for writing.

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Following execution of the given statement, what would be the *mode of operation* applied to file gfxlib.so ?

f3 = open("gfxlib.so", "r+b")

*Answer:*

The ‘r’ stands for read mode, the + stands for both read and write, and the b means binary mode, so the file gfxlib.so would be opened for read and write in binary mode.

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What is the difference between the two following method calls?

f.readline()

f.readlines()

*Answer:*

* readline() would read an individual line from an open file
* readlines() would read all of the lines of a file into a list.

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How much of the file content would be read with the following method call?

content = f.read()

*Answer:*

The entire file content could be read through the following method call.

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If the variable ‘my\_file’ referred to a text file, what would the following code do?

for next in my\_file:

print(next)

*Answer:*

It would create a loop which would print the all of the lines in the file individually.

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What is the issue with the following code? And how could it be fixed?

f = open("details.txt", "w")

total = 100

f.write(total)

f.close()

*Answer:*

All of the information which is going to be written to a text document would need to be passed as a string, not an integer which the total is. This can be fixed by changing the following line to this, as it converts the integer to a string before it is written to the document:

f.write(str(total))

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What is the purpose of the file tell() method?

*Answer:*

The tell() method returns an integer which represents the byte offset from the beginning of a file.

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What does the following code do?

f.seek(0)

*Answer:*

The seek methoid allows a program to perform random access. This specific piece of code moves the position it is being read from to be moved to to beginning of the file, allowing content to be re-read.

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Why is file handling often done using a ‘with’ statement as shown below?

with open("data.txt") as f:

lines = f.readlines()

*Answer:*

By using a with statement, when the processing has been completed, it automatically closes the file, removing the need for the close() to be used in the program, making it more concise.

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## **Exercises are complete**

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