# 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

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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 000000000010.77

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

*Answer:*

Center alignment

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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:*

String formatting used in the C programming language

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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.rjust(10))

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

*Answer:*

data

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

*Answer:*

open()

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

*Answer:*

close()

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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:*

reading

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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:*

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:*

reading and writing in binary mode

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What is the difference between the two following method calls?

f.readline()

f.readlines()

*Answer:*

The f.readline() method reads a single line from the file and returns it as a string. On the other hand, f.readlines() reads all the lines from the file and returns them as a list of strings, where each element in the list represents a line from the file.

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

content = f.read()

*Answer:*

The `f.read()` method would read the entire content of the file and return it as a string

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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:*

The given code is attempting to iterate over the lines of the text file referred to by my\_file and print each line

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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:*

The issue with the code is that the write method is expecting a string, but the total variable is an integer. To fix this, you need to convert the integer to a string before writing it to the file

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

*Answer:*

The tell() method in Python's file handling is used to determine the current position (byte offset) of the file cursor within the file

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What does the following code do?

f.seek(0)

*Answer:*

move the file cursor to the beginning of the file

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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:*

Using the with statement in file handling is beneficial because it ensures that the file is properly closed after the suite finishes, even if an exception occurs during the execution of the code inside the with block

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## **Exercises are complete**

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