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.

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

```
a) "Hello {}, you have logged in".format(name)
b) "Hello {name}, you have logged in"
c) f"Hello {name}, you have logged in"
d) "Hello %s, you have logged in" % name
```

Answer:

c

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

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

Answer:

In an f-string format specifier, the '^' alignment character signifies center alignment.

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))

What would the following statement display?

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

Answer:

Length = 20 Width = 10

What *exactly* would the following statement display?

```
print("Hello".rjust(10))
```

Answer:

     Hello

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

Answer:

The *%-formatting* style in Python is loosely based on the C programming language.

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

```
##########
 #########
  ########
   #######
    ######
     #####
      ####
       ###
        ##
         #
```

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))
```

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

Answer:

The basic element that all computer files contain is binary data.

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

Answer:

Before the contents of a file can be accessed, the open() function must be called.

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

Answer:

Once processing is complete, the close() method must be called on a file object.

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

```
f = open("myfile.txt")
```

Answer:

The statement f = open("myfile.txt") opens the file myfile.txt in read mode by default.

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 file 'yourfile.txt' is opened for writing.

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:

Following the execution of the statement, the file gfxlib.so would be open for both reading and writing in binary mode.

What is the difference between the two following method calls?

```
f.readline()
f.readlines()
```

Answer:

f.readline() reads one line at a time.
f.readlines() reads all lines at once and returns them as a list.

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

```
content = f.read()
```

Answer:

The method content = f.read() will read the entire content of the file.

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 code would iterate over each line in the file 'my_file' and print each line.

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 f.write() method expects a string as an argument, but total is an integer.
We need to convert the integer to a string before writing it to the file. Here is the solved code,
f = open("details.txt", "w")
total = 100
f.write(str(total)) # Convert the integer to a string
f.close()

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

Answer:

The purpose of the tell() method in Python is to return the current position of the file pointer within the file.

What does the following code do?

```
f.seek(0)
```

Answer:

The code f.seek(0) sets the file pointer to the beginning of the file.

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

```
with open("data.txt") as f:
    lines = f.readlines()
```

Answer:

File handling is often done using a with statement because it ensures proper resource management,making the code more robust and less prone to errors.

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Exercises are complete

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