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*?

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 10.76

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

Answer:

Value is 10.76

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

Answer:

Value is 0000000000010.77

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

Answer:

The '^' alignment character signifies that the value should be centered.

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:

Pi to 5 decimal places is 3.14159

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:

In C programming language, the %-formatting style is loosely based.

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:

All computer files contain binaries as the basic element.

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

Answer:

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

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

Answer:

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

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

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

Answer:

The file will be open for reading.

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 would be open 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:

The given file would open in binary format.

What is the difference between the two following method calls?

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

Answer:

The first method call just reads the first line of the file as a string whereas the second method call reads all the lines of a file as a list.

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

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

Answer:

All the content of the file would be read with the given method call.

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 print the contents of the file prefixed by a newline character.

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 write method expects an argument in the string format but total here is an integer. To fix this issue, total can be converted to a string data-type and then be passed as an argument to the write method.

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

Answer:

The tell() method is used for finding out the current position of the cursor.

What does the following code do?

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

Answer:

The seek() method is used to bring the cursor back to the top as specified by the argument provided to it.

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

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

Answer:

Because the with is a context manager and it automatically closes the file.

Exercises are complete

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