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) `f"Hello {name}, you have logged in"`

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

```
value = 10.768572

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

Answer:

10.768572

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

Answer:

107.68572

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

Answer:

10.77

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

Answer:

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

Answer:

0000000000010.77

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

Answer:

It centers the value within the available space.

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))
```
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:

It is based on c language's printf-style formatting.

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 data.

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 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 '`myfile.txt`' 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 `yourfile.txt` 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:

read and write binary *mode of operation* applied to file `gfxlib.so`.

What is the difference between the two following method calls?

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

Answer:

`f.readline()method reads one line from the file and returns it as a string whereas f.readlines() method reads all the lines and returns it as a list of strings.`

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

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

Answer:

The entire contents would be read with the following 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:

Read the contents of the text file line by line 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 is write() method expects a string as its agument, but the variable total is an integer. It can be fixed by converting the integer into string using str() function.

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

Answer:

The purpose of the file `tell()` method is to get the current file position in a file stream.

What does the following code do?

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

Answer:

Sets the file position 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 to open the file and read its contents in a single block of code.

Exercises are complete

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