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:

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:

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:

10.77

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

Answer:

000000000010.77

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

Answer:

It centers the value within the specified width.

Write a statement that 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:

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:

c

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:

bytes

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

Answer:

open() function.

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

Answer:

close() method.

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

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

Answer:

For reading (default mode is 'r').

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

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:

Reding and write binary mode

What is the difference between the two following method calls?

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

Answer:

Reads one line from the file at a time.
Reads all lines from the file at once.

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

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

Answer:

Entire content from the very beginning to the end

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 will iterate through each line of the file referred to by the variable my_file and print each line one by one.

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:

write() method in Python expects a string as its argument, but the variable total is an integer.
f = open("details.txt", "w")
total = 100
f.write(str(total))
f.close()

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

Answer:

The purpose of the file tell() method is to get the current position of the file pointer (also known as the cursor) in a file.

What does the following code do?

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

Answer:

The f.seek(0) method in Python moves the file pointer (or cursor) 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 in Python because it ensures that the file is properly closed after the block of code is executed, even if an error occurs during file operations.

Exercises are complete

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