COMP2602 Computer Networks

Assignment 1 (Individual)

DUE: 24th October, 2022 by 11:59 PM

Additional Research is needed for this assignment.

Write **UDP** client server python programs to implement a networked calculator. Each arithmetic expression from the client contains **two operands and one operator** in infix format e.g. 2+4, 6*3, 9/3, 5-2. Each operand is a single digit. The operators are +, *, / and –.
There are no spaces between operands and operators.

Details
The client repeatedly reads a file one line at a time and sends valid arithmetic expressions to the server until '***' is encountered. For each expression, the server prints the infix form followed by the evaluation value.

E.g.

Infix Expr	Value
2+4	6
9/3	3

The value of the expression is also sent back to the client and printed at the client as well.

Notes
No data validation are necessary. Assume all expressions are valid.

Name the client **CalcClient.py** and the server program **CalcServer.py**

File names
input.txt – input file (read from this file)
output.txt – output file (send output to this file **AND the screen**)

Supplementary Code (You may find the following code useful)
Code

```
str  = '123A'
for letter in str:
  print(letter,'$')
```

Output

```
1 $
2 $
3 $
A $
```

Code

```
str = '3+2'
for j in range(0, len(str)):
    print(str[j], '^')
```

Output

```
3 ^
+ ^
2 ^
```

Reading and writing files example

```
file1 = open("input.txt", "r")
file2 = open("output.txt", "w")
for x in file1:
  print(x)
file2.write(x)
file1.close()
file2.close()
```

'''

input.txt

```
Jim5
Donald6
Andy8
Singh7
```

output.txt

```
Jim5
Donald6
Andy8
Singh7
```

'''

'''

Submission:

Zip your files **CalcClient.py, CalcServer.py, input.txt, output.txt** and submit via My Elearning. Name the file “Firstname Initial + Lastname_ID.zip”, e.g. “JDoe_01609982.zip”. Only 1 submission is allowed, so be careful that your file submitted is the final version.

Testing of your programs

You can run all programs on a single computer.

Normal Marking Scheme (Program must have most parts working correctly)

Client works seamlessly	8
Server works seamlessly	12
Overall Quality	5
TOTAL	**25 marks**

NB

If syntax errors, major logic errors, execution errors, maximum mark awarded is 8. (students may get less than 8 depending on the problem)