Data Communication and Computer Networks

LAB CAT 1

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Ques ->

WRITE A SOCKET PROGRAMING FOR SUM OF FACTORIAL OF an alternative values in MATRIX using TCP (2,4,6,8,9)

1 3 4

5 6 7

8 9 4

1 5 8

3 6 9

4 7 4

Output: 1! +8!+6! +4!+4! = 1+40,320+720+24+24 =41089

Code ->

server_cat1.py :

```python
import socket
s = socket.socket()
print('Socket Created')

host = 'localhost'
port = 12345
s.bind((host,port))
s.listen(5)
print('Waiting for connection')

def factorial(n):
    if n==1:
```

```python
        return 1
    return n * factorial(n-1)

transposedMatrix = [[0, 0, 0], [0, 0, 0], [0, 0, 0]]

res = 0
while True:
    c,addr = s.accept()
    print('Got connection from ', addr)
    data = c.recv(4096).decode()
    data = eval(data)

    for i in range(3):
        for j in range(3):
            if(i%2==0):
                if(j%2==0):
                    res=res+factorial(data[i][j])
            else:
                if(j%2!=0):
                    res=res+factorial(data[i][j])

    for i in range(len(data)):
        for j in range(len(data[0])):
            transposedMatrix[j][i] = data[i][j]

    c.sendall(str(res).encode())

    op = ""
    for i in transposedMatrix :
        for j in i:
            op = op + " " + str(j)
        op += "\n"

    c.sendall(op.encode())
    c.close()
```

client_cat1.py :

```python
import socket
s = socket.socket()

host = 'localhost'
port = 12345

s.connect((host, port))
print("Connected to the server")

def matInput():
    mat = [list(map(int,input().split())) for row in range(3)]
    return mat

print("Enter matrix: ")
```

```
mat = matInput()

s.sendall(str(mat).encode())
print("Sum of factorial of alternative values are",s.recv(4096).decode())
print("Transposed Matrix is: ")
print(s.recv(4096).decode())
```

Output ->

server_cat1.py:

```
        c.close()
IndentationError: unexpected indent
PS E:\SEM 4\DCCN\Lab> python -u "e:\SEM 4\DCCN\Lab\DA\server_cat1.py"
Socket Created
Waiting for connection
Got connection from  ('127.0.0.1', 53028)
```

client_cat1.py:

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

E:\SEM 4\DCCN\Lab\DA>python client_cat1.py
Connected to the server
Enter matrix:
1 3 4
5 6 7
8 9 4
```

```
PROBLEMS   OUTPUT   DEBUG CONSOLE   TERMINAL

E:\SEM 4\DCCN\Lab\DA>python client_cat1.py
Connected to the server
Enter matrix:
1 3 4
5 6 7
8 9 4
Sum of factorial of alternative values are 41089
Transposed Matrix is:
1 5 8
3 6 9
4 7 4


E:\SEM 4\DCCN\Lab\DA>
```