School of Information Technology and Engineering

ITE3001- Data Communication and Computer Networks Lab

Assessment – II

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1. Write a TCP/IP based client-server program to display the age of the student from the DOB using TCP client and server.

Server

```
import socket
import datetime
s = socket.socket()
host = socket.gethostname()
port = 12345
s.bind((host,port))
s.listen(5)
while True:
    c,addr = s.accept()
    print ('Got connection from',addr)
    x = input('Enter date in format yyyy-mm-dd :')
    c.send(x.encode())
    c.close()
```

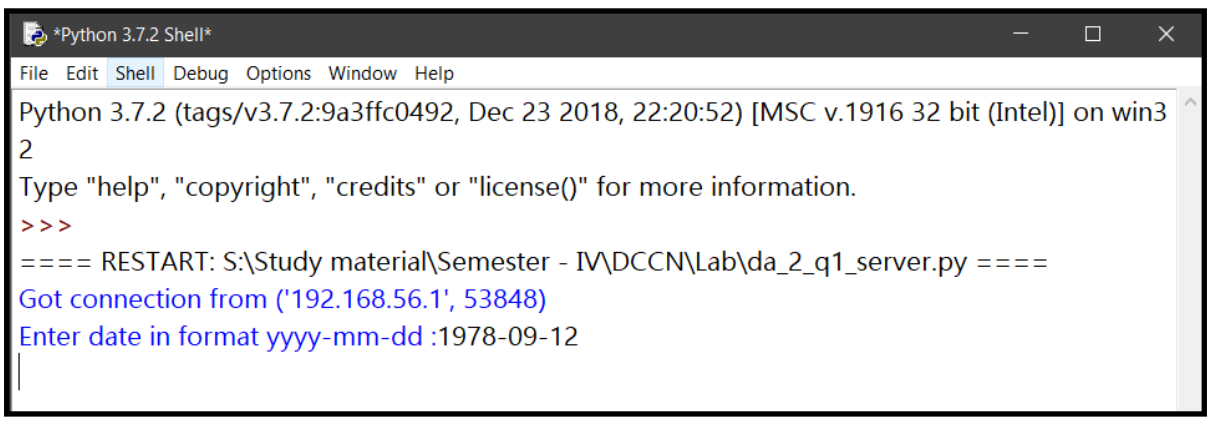
Client

```
import socket
import datetime
s=socket.socket()
host=socket.gethostname()
```

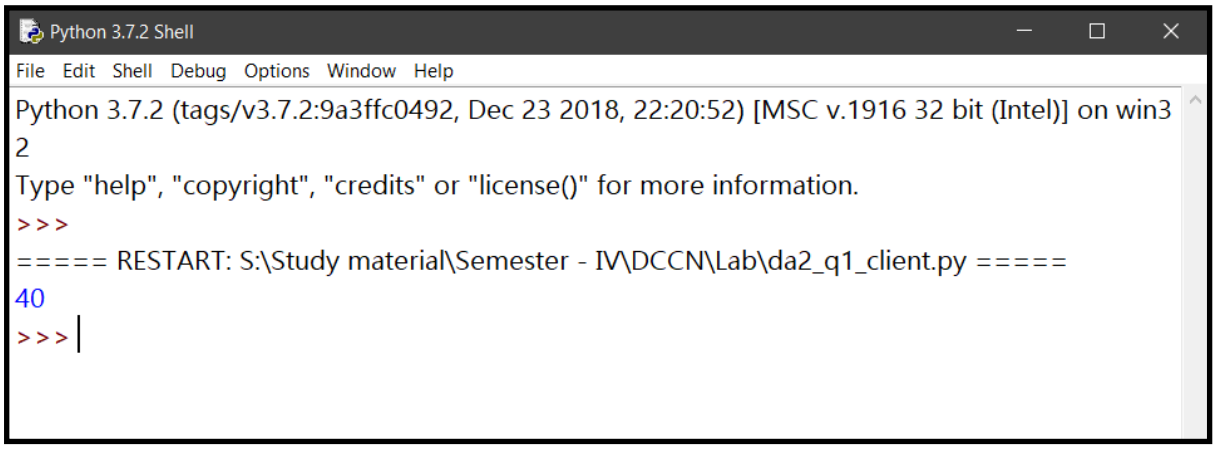
```
port=12345
s.connect((host,port))
d = ((s.recv(1024)).decode())
t = str(datetime.datetime.now())
t = t[:10]
y1 = int(d[:4])
y2 = int(t[:4])
m1 = int(d[5:7])
m2 = int(t[5:7])
d1 = int(d[8:])
d2 = int(t[8:])
age = y2-y1
if m2<m1:
    age -=1
elif m1==m2:
    if d2<d1:
        age-=1
print(age)
s.close
```

OUTPUT QUESTION 1

Server Output



Client Output



2. Write an online dictionary application by using TCP client-sever program. User will search the dictionary (available at server) and get the meaning of the words.

Server

```
import socket

import datetime

s = socket.socket()

host = socket.gethostname()

port = 12345

s.bind((host,port))

s.listen(5)

words = {

      'account' :'an arrangement with a bank to keep your money there and allow you to take it out when you need to.',

      'air':'the mixture of gases that surrounds the Earth and that we breathe.',

}

while True:
```

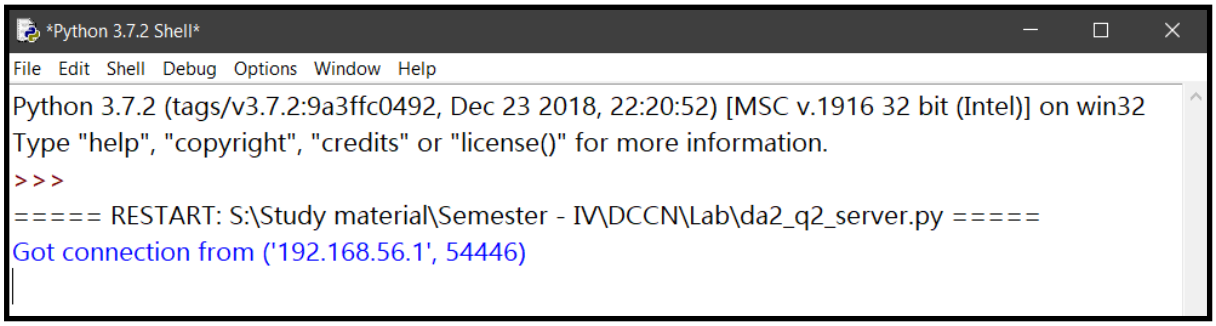
```
    c,addr = s.accept()
    print ('Got connection from',addr)
    y = (c.recv(1024).decode())
    if y in words:
        c.send((words[y]).encode())
    else:
                    c.send(('Word does not exists in
dictionary').encode())
    c.close()
```

Client

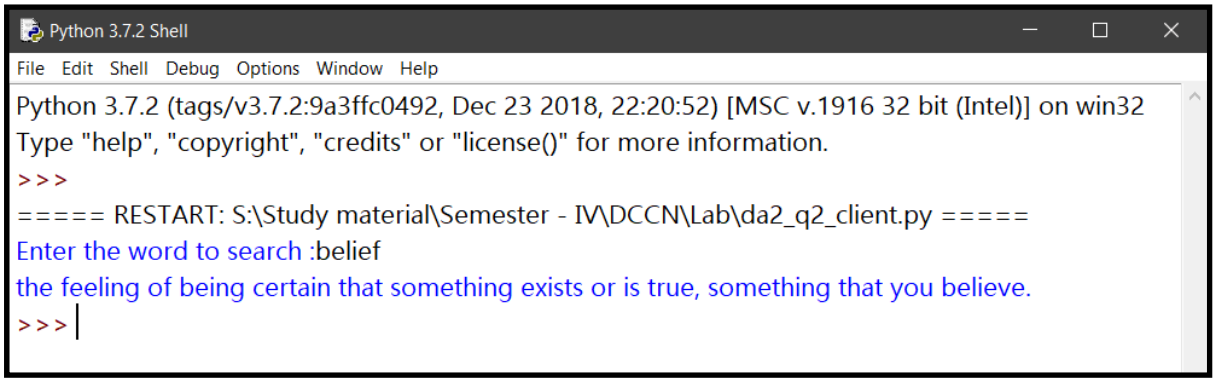
```
import socket
import datetime
s=socket.socket()
host=socket.gethostname()
port=12345
s.connect((host,port))
x = input('Enter the word to search :')
s.send(x.encode())
d = ((s.recv(1024)).decode())
print(d)
s.close
```

OUTPUT QUESTION 2

Server Output



Client Output



3. Implement a TCP/IP based Server program to compute the factorial of a number (can contain arbitrary number of digits). Write a client program to test the working of the same.

Server

```
import socket
import datetime
s = socket.socket()
host = socket.gethostname()
port = 12345
s.bind((host,port))
s.listen(5)
def fact(n):
    p=1
    while n!=1:
        p = p*n
        n=n-1
    return p
while True:
    c,addr = s.accept()
```

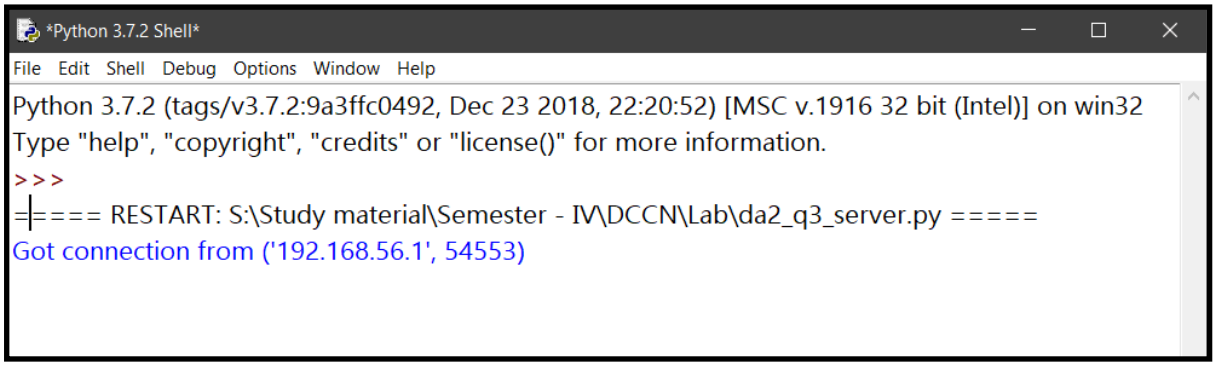
```
    print ('Got connection from',addr)
    y = (c.recv(1024).decode())
    y = str(fact(int(y)))
    c.send(y.encode())
    c.close()
```

Client

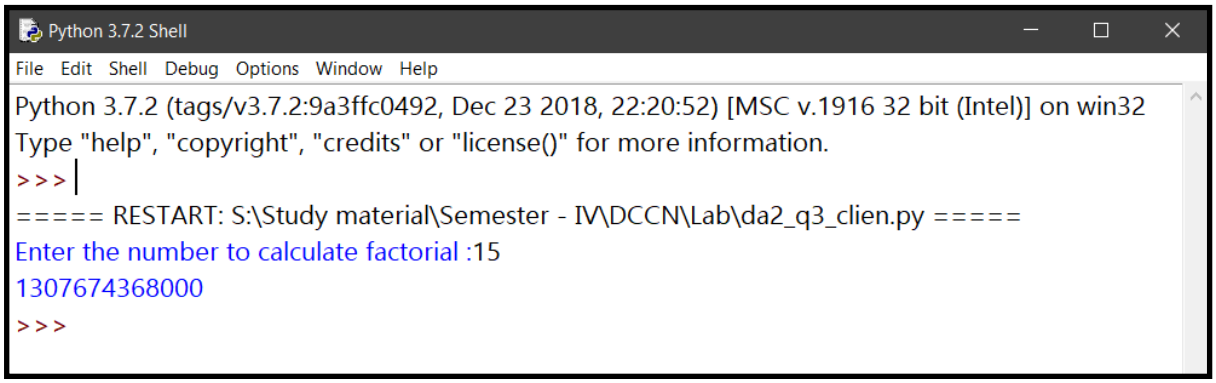
```
import socket
import datetime
s=socket.socket()
host=socket.gethostname()
port=12345
s.connect((host,port))
x = input('Enter the number to calculate factorial :')
s.send(x.encode())
d = ((s.recv(1024)).decode())
print(d)
s.close
```

OUTPUT QUESTION 3

Server Output



Client Output



4. Implement a TCP/IP based client-server program for checking the message sent by the sender is erroneous or not through CRC mechanism. Only prepare the codeword at the client program from the dataword and send it to the server

Server

```
import socket
s=socket.socket()
host=socket.gethostname()
port = 12345
s.bind((host,port))
s.listen(5)
c,addr = s.accept()
l=list(c.recv(1024).decode())
b=list(c.recv(1024).decode())
print("the codeword is",l)
a=0
count=0
e=len(l)-(len(b)-1)
print("starting checking")
```

```
for i in range(0,e):
    if l[a]=="1":
        for j in range(0,len(b)):
            if b[j]==l[j]:
                l[j]="0"
            else:
                l[j]="1"
    else:
        for q in range(0,len(b)):
            if l[q]=="1":
                l[q]="1"
            else:
                l[q]="0"
    del l[0]
    print(l)
if l.count("0")==len(l):
    print("the codeword is correct")
else:
      print("as remainder doesn't have all 0's,codeword wrong")
c.close
```

Client

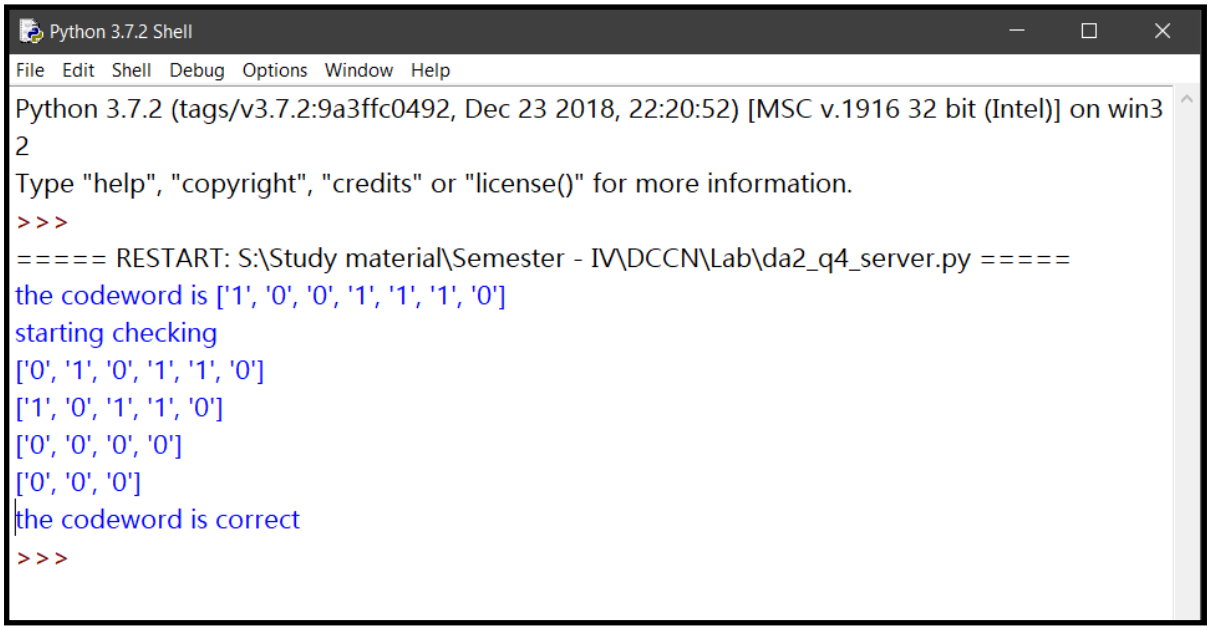
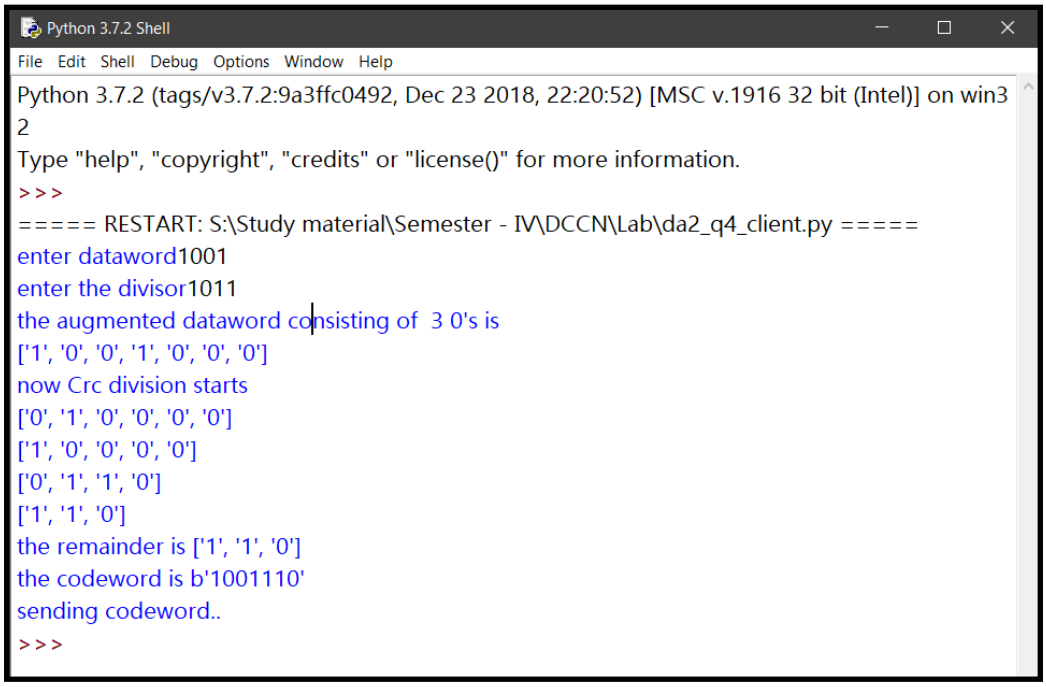
```
import socket
s=socket.socket()
host=socket.gethostname()
port=12345
s.connect((host,port))
l=list(input("enter dataword"))
b=list(input("enter the divisor"))
```

```
c=l.copy()
print("the augmented dataword consisting of ",len(b)-1,"0's is")
for i in range(len(b)-1):
 l.append("0")
print(l)
a=0
print("now Crc division starts")
for i in range(0,len(c)):
    if l[a]=="1":
        for j in range(0,len(b)):
            if b[j]==l[j]:
                l[j]="0"
            else:
                l[j]="1"
    else:
        for q in range(0,len(b)):
            if l[q]=="1":
                l[q]="1"
            else:
                l[q]="0"
    del l[0]
    print(l)
a=c+l
print("the remainder is",l)
str=''.join(a).encode()
str2=''.join(b).encode()
print("the codeword is",str)
print("sending codeword..")
```

```
s.send(str)
s.send(str2)
s.close
```

OUTPUT QUESTION 4

Server



Client