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Registration Number: 19BCE2119

Course: CSE 1004 Network and Communication

Digital Assignment 2

TOPIC: Code Snippet for Unicast

CODE

```
import os
import datetime
import shutil
import csv
import pandas as pd
from pandas.core.frame import DataFrame
#x=datetime.datetime.now()
path=os.getcwd()
path=path+'\Chats'
username=''
password=''
admin_username='Gaurav'
admin_password='19BCE2119'

def display_chats(path_user_logs, To_user, From_user):
    data=pd.read_csv(path_user_logs)
    data['Time']= pd.to_datetime(data['Time'], infer_datetime_format=True)
    data.sort_values(by = 'Time', ascending = True, inplace = True)
    data_user= data.loc[data['From']==From_user]
    print(data_user)

def unique(list1):
    unique_list = []
    for x in list1:
        if x not in unique_list:
            unique_list.append(x)
    return unique_list

def display_log(path_user_logs,username):
    data=pd.read_csv(path_user_logs)
    data['Time']= pd.to_datetime(data['Time'], infer_datetime_format=True)
    data.sort_values(by = 'Time', ascending = False, inplace = True)
    data= data.loc[data['From']!=username]
    print(unique(data['From']))

def create_log(path):
    with open(path+"\\'+log.csv', 'w', newline='') as file:
        writer = csv.writer(file)
        writer.writerow(["Time", "From", "Message"])
        file.close()
```

```

def add_log(to_user, from_user, message):
    path_log=path+"\\ "+to_user.split(' ')[0]+"\\ "+to_user.split(' ')[1]+"\\ "+'
log.csv'
    with open(path_log, 'a', newline='') as file:
        writer = csv.writer(file)
        x=datetime.datetime.now()
        writer.writerow([x, from_user, message])
        file.close()

def session_init():
    print("\nSession Initialization.....\n")
    subnets = int(input("Enter number of subnets: "))
    for i in range(subnets):
        path_subnet=path+"\\ "+chr(65+i)
        os.mkdir(path_subnet)
        users=int(input("Enter number of users in subnet "+chr(65+i)+":"))
        for j in range(users):
            path_user=path_subnet+"\\ "+str(j+1)
            os.mkdir(path_user)
            create_log(path_user)

def add_or_delete_user(delU,choice):
    flag=int(1)
    choice=int(choice)
    while(flag==1):
        if (choice==1):
            flag=0
            loc=input("Enter the subnet in which u want to add the user: ")
            if(os.path.exists(path+"\\ "+loc)):
                dirlist=os.listdir(path+"\\ "+loc)
                for i in range(len(dirlist)):
                    dirlist[i]=int(dirlist[i])
                username = max(dirlist)+1
                os.mkdir(path+"\\ "+loc+"\\ "+str(username))
                print("User Added... The username for the user is: "+loc+" "+s
tr(username))
            else:
                print("Subnet not found")
        elif(choice==0):
            flag=0
            delU=delU.split(' ')
            shutil.rmtree(path+"\\ "+str(delU[0])+"\\ "+str(delU[1]), ignore_err
ors=True)
            print("User removed")
        else:
            print("Enter valid option")
            flag=1

```

```

def add_subnet(admin_user, admin_pass):
    if(admin_user==admin_username and admin_pass==admin_password):
        dirlist=os.listdir(path)
        for i in range(len(dirlist)):
            dirlist[i]=int(ord(dirlist[i]))
        subnet_ascii=max(dirlist)+1
        os.mkdir(path+"\\ "+str(chr(subnet_ascii)))
        nusers=int(input("Enter number of users in the subnet: "))
        for j in range(nusers):
            path_user=path+"\\ "+str(chr(subnet_ascii))+"\\ "+str(j+1)
            os.mkdir(path_user)
    else:
        print("Unauthorized user")

def del_subnet(admin_user, admin_pass):
    if(admin_user==admin_username and admin_pass==admin_password):
        sub_del=input("Enter the subnet to be deleted: ")
        dirlist=os.listdir(path)
        if (sub_del in dirlist):
            shutil.rmtree(path+"\\ "+str(sub_del), ignore_errors=True)
            print("Subnet removed")
        else:
            print("Subnet not found")
    else:
        print("Unauthorized user")

if (os.path.exists(path)):
    flag=1
    choice=input("Do you want to continue from last session? (y/n): ")
    if (choice=='y'):
        while(flag==1):
            option=input("Do you want to make any changes in the structure of
the network? (y/n): ")
            if (option=='y'):
                choice=int(input("Enter 0 to delete a user\nEnter 1 to add a u
ser\nEnter 2 to add a subnet with admin privileges\nEnter 3 to delete a subnet
with admin privileges\nEnter 4 to exit:"))
                if (choice==1):
                    add_or_delete_user('none', 1)
                elif (choice==0):
                    print("Login to account to delete.")
                    username=input("Username: ")
                    password=input("Password: ")
                    if (os.path.exists(path+"\\ "+username.split(' ')[0]+"\\ "+u
sername.split(' ')[1]) and username==password):
                        add_or_delete_user(username,0)
                    else:
                        print("User not found")

```

```

        elif (choice==2):
            admin_u=input("Enter username: ")
            admin_p=input("Enter password: ")
            add_subnet(admin_u, admin_p)
        elif(choice==3):
            admin_u=input("Enter username: ")
            admin_p=input("Enter password: ")
            del_subnet(admin_u, admin_p)
        else:
            pass
        loop=input("Do you want to make more changes? (y/n) ")
        if(loop=='y'):
            flag=1
        else:
            flag=0
    elif(option=='n'):
        flag=0
        pass
    else:
        print("Enter valid option.")
        flag=1
    pass
elif (choice=='n'):
    shutil.rmtree(path, ignore_errors=True)
    print("Previous session deleted...")
    os.mkdir(path)
    print("New session created...")
    session_init()
else:
    os.mkdir(path)
    print("No previous session found... New session created")
    session_init()

print("\n\n\n\n\n\n-----LOGIN-----")
username='X1'
password='X2'
login='y'
flag='y'
while(login=='y'):
    flag='y'
    while(username!=password):
        username=input("Enter Username: ")
        password=input("Enter Password: ")
        if(username!=password):
            print("Incorrect username or password")
        else:
            print("Logged in to user "+ username)

```

```

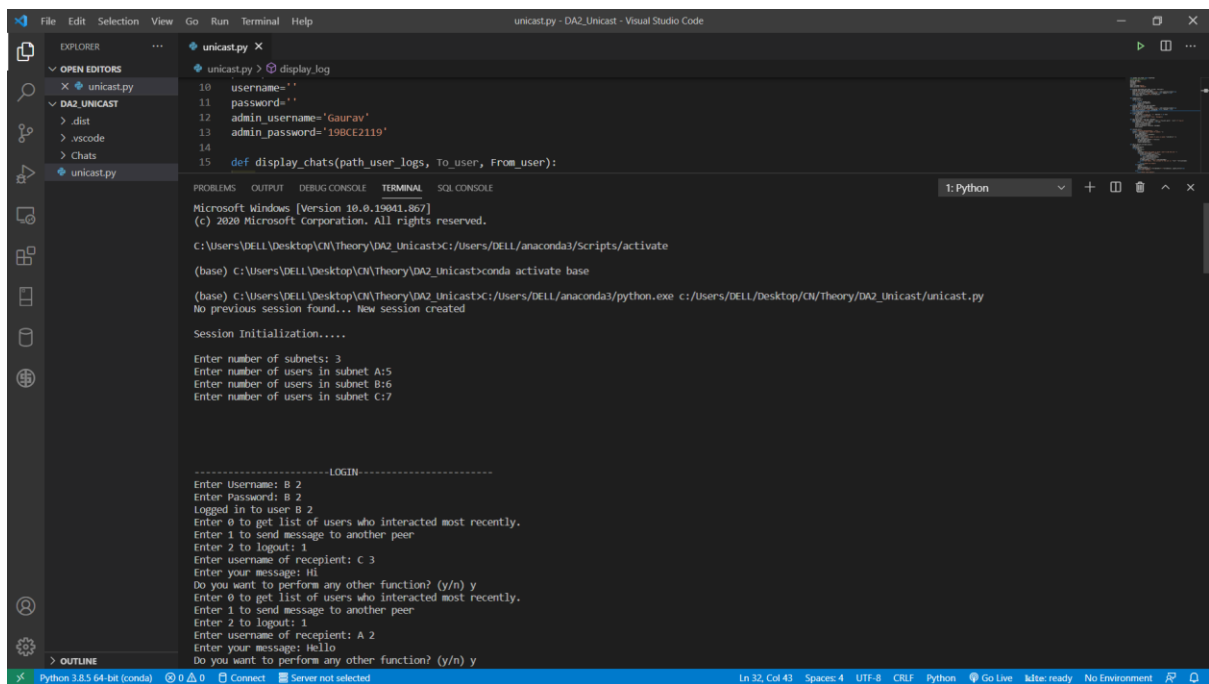
flag_log='y'
path_user=path+"\\ "+username.split(' ')[0]+"\\ "+username.split(' ')[1]
path_user_log=path_user+"\\ "+'log.csv'

while(flag=='y'):
    choice=int(input("Enter 0 to get list of users who interacted most recently.\nEnter 1 to send message to another peer\nEnter 2 to logout: "))
    if (choice==0):
        display_log(path_user_log, username)
        read_chat='y'
        while(read_chat=='y'):
            read_chat=input("Do you want to read a chat from any user? (y/n):")
            if(read_chat=='y'):
                unicasted_chat=input("Enter username of the person whose messages you want to see: ")
                display_chats(path_user_log, username, unicasted_chat)
            else:
                read_chat='n'
        elif(choice==1):
            to_user=input("Enter username of receipient: ")
            message=input("Enter your message: ")
            add_log(to_user,username,message)
            add_log(username, username,message)
        elif(choice==2):
            print("Logged out")
            flag_log='n'
            flag='n'
            username='X1'
            password='X2'
        else:
            print("Enter valid option")

    if (flag_log=='y'):
        flag=input("Do you want to perform any other function? (y/n) ")
        if (flag=='n'):
            login='n'
        else:
            another_login=input("Do you want to end session (login in again if you want to continue)? (y/n)")
            if(another_login=='y'):
                login='n'

```

OUTPUT



```
File Edit Selection View Go Run Terminal Help
unicast.py - DA2_UNICAST - Visual Studio Code

EXPLORER
  OPEN EDITORS
    unicast.py
  DA2_UNICAST
    .dist
    .vscode
    Chats
    unicast.py

TERMINAL
  1: Python
  Microsoft Windows [Version 10.0.19041.867]
  (c) 2020 Microsoft Corporation. All rights reserved.

  C:\Users\DELL\Desktop\CH\Theory\DA2_UNICAST>C:\Users\DELL\anaconda3\Scripts\activate

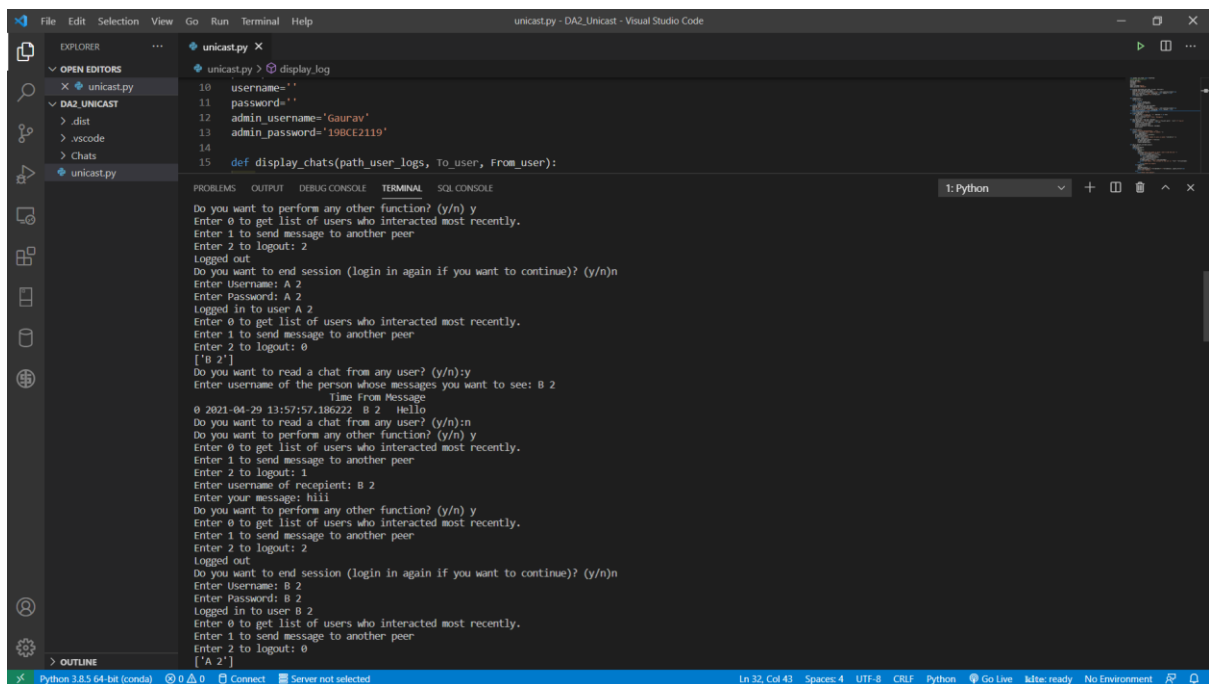
  (base) C:\Users\DELL\Desktop\CH\Theory\DA2_UNICAST>conda activate base

  (base) C:\Users\DELL\Desktop\CH\Theory\DA2_UNICAST>python.exe c:/Users/DELL/Desktop/CH/Theory/DA2_UNICAST/unicast.py
  No previous session found.... New session created

  Session Initialization.....

  Enter number of subnets: 3
  Enter number of users in subnet A:5
  Enter number of users in subnet B:6
  Enter number of users in subnet C:7

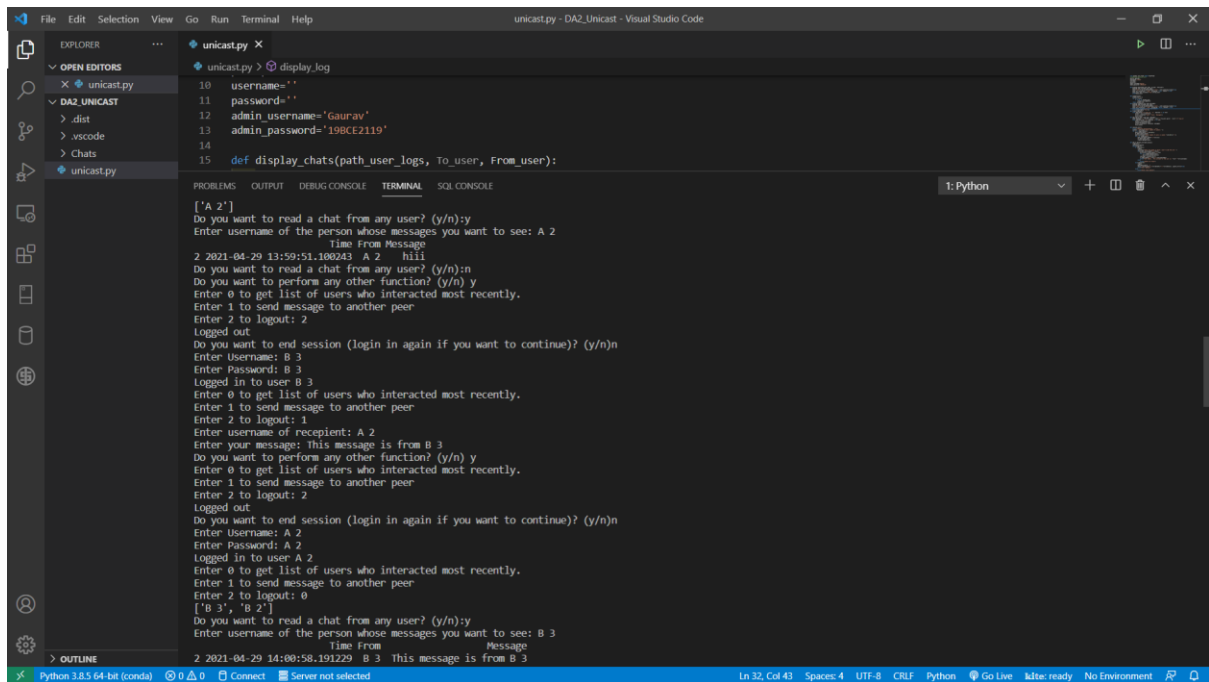
  -----LOGIN-----
  Enter Username: B 2
  Enter Password: B 2
  Logged in to user B 2
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 1
  Enter username of receipt: C 3
  Enter your message: Hi
  Do you want to perform any other function? (y/n) y
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 1
  Enter username of receipt: A 2
  Enter your message: Hello
  Do you want to perform any other function? (y/n) y
```



```
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  OPEN EDITORS
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    .dist
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    Chats
    unicast.py

TERMINAL
  1: Python
  Do you want to perform any other function? (y/n) y
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 2
  Logged out
  Do you want to end session (login in again if you want to continue)? (y/n)n
  Enter Username: A 2
  Enter Password: A 2
  Logged in to user A 2
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 0
  ["B 2"]
  Do you want to read a chat from any user? (y/n):y
  Enter username of the person whose messages you want to see: B 2
  Time From Message:
  0 2021-04-29 13:57:57.186222 B 2 Hello
  Do you want to read a chat from any user? (y/n):n
  Do you want to perform any other function? (y/n) y
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 1
  Enter username of receipt: B 2
  Enter your message: hiii
  Do you want to perform any other function? (y/n) y
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 2
  Logged out
  Do you want to end session (login in again if you want to continue)? (y/n)n
  Enter Username: B 2
  Enter Password: B 2
  Logged in to user B 2
  Enter 0 to get list of users who interacted most recently.
  Enter 1 to send message to another peer
  Enter 2 to logout: 0
  ["A 2"]
```



```
File Edit Selection View Go Run Terminal Help
unicast.py - DA2_unicast - Visual Studio Code

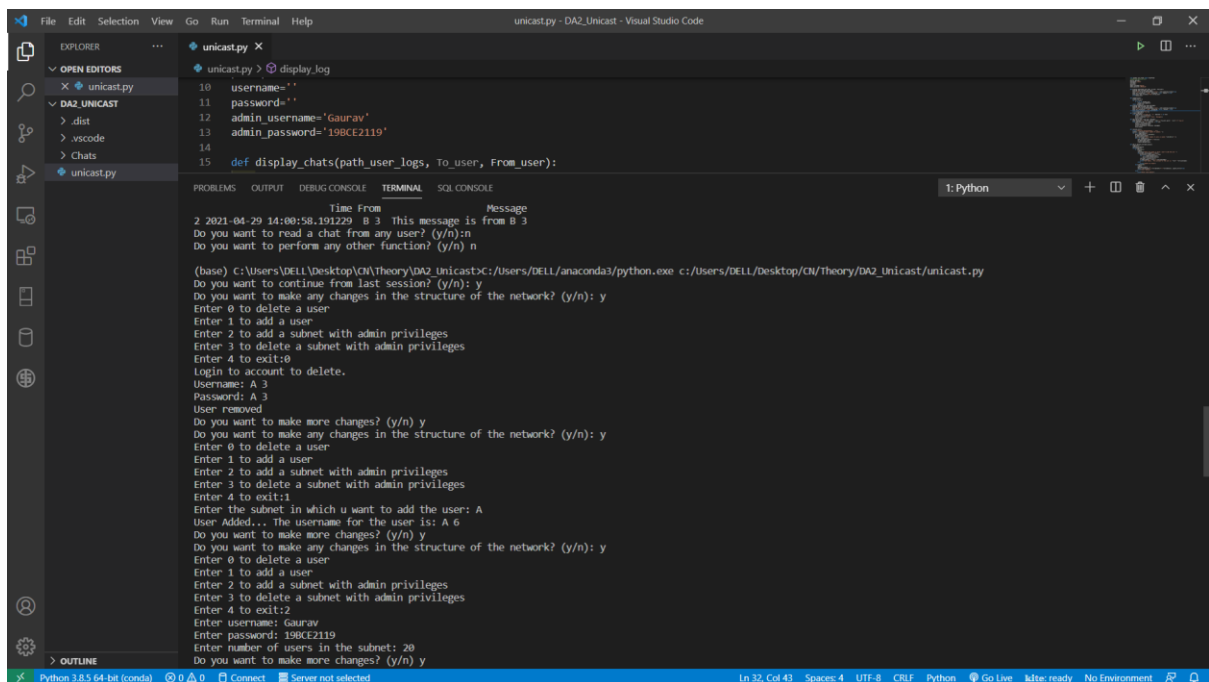
EXPLORER
  unicast.py X
  OPEN EDITORS
  unicast.py X
  DA2_unicast
    .dist
    .vscode
    Chats
  unicast.py

10 username=""
11 password=""
12 admin_username='Gaurav'
13 admin_password='198CE2119'
14
15 def display_chats(path_user_logs, To_user, From_user):

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE
1: Python

["A 2"]
Do you want to read a chat from any user? (y/n):y
Enter username of the person whose messages you want to see: A 2
Time From Message
2 2021-04-29 13:59:51.180243 A 2 hiii
Do you want to read a chat from any user? (y/n):n
Do you want to perform any other function? (y/n) y
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 2
Logged out
Do you want to end session (login in again if you want to continue)? (y/n)n
Enter Username: B 3
Enter Password: B 3
Logged in to user B 3
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 1
Enter username of receipt: A 2
Enter your message: This message is from B 3
Do you want to perform any other function? (y/n) y
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 2
Logged out
Do you want to end session (login in again if you want to continue)? (y/n)n
Enter Username: A 2
Enter Password: A 2
Logged in to user A 2
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 0
["B 3", "B 2"]
Do you want to read a chat from any user? (y/n):y
Enter username of the person whose messages you want to see: B 3
Time From Message
2 2021-04-29 14:00:58.191229 B 3 This message is from B 3

Python 3.8.5 64-bit (conda) 0 0 Connect Server not selected Ln 32, Col 43 Spaces: 4 UTF-8 CRLF Python Go Live kites: ready No Environment
```



```
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11 password=""
12 admin_username='Gaurav'
13 admin_password='198CE2119'
14
15 def display_chats(path_user_logs, To_user, From_user):

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE
1: Python

Time From Message
2 2021-04-29 14:00:58.191229 B 3 This message is from B 3
Do you want to read a chat from any user? (y/n):n
Do you want to perform any other function? (y/n) n
(base) C:\Users\DELL\Desktop\CN\Theory\DA2_unicast> python.exe c:/Users/DELL/Desktop/CN/theory/DA2_unicast/unicast.py
Do you want to continue from last session? (y/n): y
Do you want to make any changes in the structure of the network? (y/n): y
Enter 0 to delete a user
Enter 1 to add a user
Enter 2 to add a subnet with admin privileges
Enter 3 to delete a subnet with admin privileges
Enter 4 to exit:0
login to account to delete.
Usernames: A 3
Password: A 3
User removed
Do you want to make more changes? (y/n) y
Do you want to make any changes in the structure of the network? (y/n): y
Enter 0 to delete a user
Enter 1 to add a user
Enter 2 to add a subnet with admin privileges
Enter 3 to delete a subnet with admin privileges
Enter 4 to exit:1
Enter the subnet in which u want to add the user: A
User Added... The username for the user is: A 6
Do you want to make more changes? (y/n) y
Do you want to make any changes in the structure of the network? (y/n): y
Enter 0 to delete a user
Enter 1 to add a user
Enter 2 to add a subnet with admin privileges
Enter 3 to delete a subnet with admin privileges
Enter 4 to exit:2
Enter username: Gaurav
Enter password: 198CE2119
Enter number of users in the subnet: 20
Do you want to make more changes? (y/n) y

Python 3.8.5 64-bit (conda) 0 0 Connect Server not selected Ln 32, Col 43 Spaces: 4 UTF-8 CRLF Python Go Live kites: ready No Environment
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DA2_UNICAST
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10 username=""
11 password=""
12 admin_username='Gaurav'
13 admin_password='198CE2119'
14
15 def display_chats(path_user_logs, To_user, From_user):

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE
1: Python

Enter number of users in the subnet: 20
Do you want to make more changes? (y/n) y
Do you want to make any changes in the structure of the network? (y/n): y
Enter 0 to delete a user
Enter 1 to add a user
Enter 2 to add a subnet with admin privileges
Enter 3 to delete a subnet with admin privileges
Enter 4 to exit:3
Enter username: Gaurav
Enter password: 198CE2119
Unauthorized user
Do you want to make more changes? (y/n) y
Do you want to make any changes in the structure of the network? (y/n): y
Enter 0 to delete a user
Enter 1 to add a user
Enter 2 to add a subnet with admin privileges
Enter 3 to delete a subnet with admin privileges
Enter 4 to exit:3
Enter username: Gaurav
Enter password: 198CE2119
Enter the subnet to be deleted: 0
Subnet removed
Do you want to make more changes? (y/n) n

-----LOGIN-----
Enter Username: A 2
Enter Password: A 2
Logged in to user A 2
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 0
['B 3', 'B 2']
Do you want to read a chat from any user? (y/n):y
```

```
File Edit Selection View Go Run Terminal Help
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PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE
1: Python

['B 3', 'B 2']
Do you want to read a chat from any user? (y/n):y
Enter username of the person whose messages you want to see: B 3
Time From Message
2 2021-04-29 14:00:58.191229 B 3 This message is from B 3
Do you want to read a chat from any user? (y/n):n
Do you want to perform any other function? (y/n) y
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 2
logged out
Do you want to end session (login in again if you want to continue)? (y/n)n
Enter Username: A 6
Enter Password: A 6
Logged in to user A 6
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 1
Enter username of recipient: A 2
Enter your message: HiHi
Do you want to perform any other function? (y/n) y
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 2
logged out
Do you want to end session (login in again if you want to continue)? (y/n)n
Enter Username: A 2
Enter Password: A 2
Logged in to user A 2
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
Enter 2 to logout: 1
Enter username of recipient: A 6
Enter your message: Hi!!!!!!
Do you want to perform any other function? (y/n) y
Enter 0 to get list of users who interacted most recently.
Enter 1 to send message to another peer
```

VIDEO LINK

<https://drive.google.com/file/d/1q1sZaBnCwxrFm-6zNN4UQCvxlyGcbO1s/view?usp=sharing>

Alternative link

<https://youtu.be/iucCC1VXlJY>