CENTRAL UNIVERSITY OF HARYANA

Department of Computer Science & Engineering under SOET

COMPUTER NETWORKS LAB

PRACTICAL FILE

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Practical-1 : Write a client-server program which displays the server machine's date and time on the client machine.

CODE-:

Server Side-:

```
import socket;
import time;
s=socket.socket();                #By default IPV4 and TCP connection
s.bind(('192.168.0.103',9999));  #Binding to local pc
s.listen(2);#Asking For Connections
print("Waiting For Connections");

while True :
    c1 , addr=s.accept()          #Accepting The Connections
    print("Connected With ",addr);
    current_Time = time.ctime(time.time()) + "\r\n"
    name=c1.recv(1024).decode()
    print("You are connected to person",name)
    c1.send(bytes(current_Time,'utf-8'))           #Sending The Time
    c1.close()
```

Client Side-:

```
import socket;
c=socket.socket();
c.connect(('192.168.0.103',9999))   #Connection To Server
name=input("Enter Your Name")
c.send(bytes(name,'utf-8'))
print("The time recieved From the server "+c.getsockname()[0]+" is :",end=" ")
print(c.recv(1024).decode())        #Recieving The Time And Printing
c.close();
```

OUTPUT-:

Server Output-:

```
PS C:\Users\lap\Desktop\College Complete\Server And CLient> python .\rashr_server.py
Waiting For Connections
Connected With  ('192.168.0.103', 59751)
You are connected to person Rachit Sharma
Connected With  ('192.168.0.103', 59879)
You are connected to person rachit
Connected With  ('192.168.0.103', 52944)
You are connected to person Rachit Sharma
```

Client Output-:

```
PS C:\Users\lap\Desktop\College Complete\Server And CLient> python rashr_client.py
Enter Your Name Rachit Sharma
The time recieved From the server 192.168.0.103 is : Sat Oct  2 14:26:07 2021
```

Practical-2: Write a client-server program to create an application for chat using TCP.

CODE

Server Code-:

```
import socket;
import threading;

clients=[]
names=[]

server=socket.socket();
server.bind(('localhost',55445));
server.listen()

def broadcast(message):                    #Sending Message To All Clients
    for client in clients:
        client.send(message)


def message_recieve(client):               #Recieving Message From Each Client
    while True:
        try:
            message=client.recv(1024)
            broadcast(message)
        except:
            index=clients.index(client)
            clients.remove(client)
            client.close()
            Name=names[index]
            broadcast('{} left the chat'.format(Name).encode('ascii'))
            names.remove(Name)
            break


def newClient():   #Recieving New CLients
    while True:
        client,addr=server.accept()
        print("Connected with ",addr)

        client.send("Name".encode('ascii'))
        name=client.recv(2024).decode('ascii')
        names.append(name)
        clients.append(client)
        print("The Name of Client is ",name)
        broadcast('{} joined the chat'.format(name).encode('ascii'))
        client.send("Connected to server".encode('ascii'))

        thread=threading.Thread(target=message_recieve,args=(client,)) #BY Threading Recie
        thread.start()
```

```
print("Generated the server")
newClient()
```

Client Code-:

```
import socket;
import threading

name=input("Enter Your Name for the Chat ")


client=socket.socket()
client.connect(('localhost',55445))

def receiveMessage():  #Recieving Message From Server
    while True:
        try:
            message= client.recv(1024).decode('ascii')
            if message=="Name" :
                client.send(name.encode('ascii'))
            else :
                print(message)

        except:
            print("Error Encountered")
            client.close()
            return;
            break;

def write():
    while True:
        message = '{} : {}'.format(name,input(''))
        client.send(message.encode('ascii'))

#Recieving And Sending Message Simaltaneously Using Threading

message_recieve=threading.Thread(target=receiveMessage)
message_recieve.start()

message_send=threading.Thread(target=write)
message_send.start()
```

OUTPUT-:

Server Output-:

```
PS C:\Users\lap\Desktop\College Complete\Server And CLient> python .\rashr_chat_server.py
Generated the server
Connected with  ('127.0.0.1', 63307)
The Name of Client is  Rachit Sharma
Connected with  ('127.0.0.1', 62147)
The Name of Client is  Rakesh
```

Client 1-:

```
PS C:\Users\lap\Desktop\College Complete\Server And CLient> python .\rashr_chat_client.py
Enter Your Name for the Chat Rachit Sharma
Rachit Sharma joined the chat
Connected to server
Rakesh joined the chat
Rakesh : HI
hello Rakesh
Rachit Sharma : hello Rakesh
```

Client 2-:

```
PS C:\Users\lap\Desktop\College Complete\Server And CLient> python .\rashr_chat_client.py
Enter Your Name for the Chat Rakesh
Rakesh joined the chat
Connected to server
HI
Rakesh : HI
Rachit Sharma : hello Rakesh
Welcome to chat app Rakesh
Rakesh : Welcome to chat app Rakesh
```