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## Distributed Chat Messenger

### Group B-9

#### Group Members

Name	Student Id
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Dev Darji	202001189
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## Output Screenshots

Starting server 9999

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server9999.py
Server is online
Server started on localhost:9999
|
```

Starting server 12345

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server12345.py
Server is online
Server started on localhost:12345
```

Run client. It will ask us to register as a new user by entering a username and password.

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: smit
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
```

We can see that new user smit is running on server9999.

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server9999.py
Server is online
Server started on localhost:9999
[2023-05-14 18:13:05] smit connected from ('127.0.0.1', 55634)
```

Now, if we type all, it will show all registered users for the system.

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: smit
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
A new client me has joined the chat
all
['dev', 'me', 'smit ', 'yash']
```

Now if we want to disconnect, it shows a message on the server side that you are disconnected.

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server9999.py
Server is online
Server started on localhost:9999
[2023-05-14 18:13:05] smit connected from ('127.0.0.1', 55634)
[2023-05-14 18:15:56] me connected from ('127.0.0.1', 55646)
smit Disconnected from server.
me Disconnected from server.
[2023-05-14 18:23:45] me connected from ('127.0.0.1', 55779)
```

Now if we rerun the client code, then user smit is now running on server12345

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server12345.py
Server is online
Server started on localhost:12345
[2023-05-14 18:23:35] smit connected from ('127.0.0.1', 55778)
```

Now client me and smit are running on a different server, and we pass messages from user smit to user me.

User: smit send message

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: smit
Are you a new user? (Y/N)
n
Enter your password:
1234
me:Helloo
|
```

User: me receive a message

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: me
Are you a new user? (Y/N)
n
Enter your password:
1234
smit: Helloo
|
```

To see the online user

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: me
Are you a new user? (Y/N)
n
Enter your password:
1234
smit: Helloo
online
['dev', 'smit', 'smit ']
```

To get help

```
Windows PowerShell
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: me
Are you a new user? (Y/N)
n
Enter your password:
1234
smit: Helloo
online
['dev', 'smit', 'smit ']
help
|-----|
| Codewords and their functionalities: |
| online => Displays the usernames of all online clients. |
| all    => Displays the username of all the clients. |
| help   => to see codewords and their functionalities. |
|-----|
```

To disconnect

User: my side

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: me
Are you a new user? (Y/N)
n
Enter your password:
1234
smit: Helloo
online
['dev', 'smit', 'smit ']
help
|-----|
| Codewords and their functionalities: |
| online => Displays the usernames of all online clients. |
| all    => Displays the username of all the clients. |
| help   => to see codewords and their functionalities. |
|-----|
disconnect
```

## Server-side

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server9999.py
Server is online
Server started on localhost:9999
[2023-05-14 18:13:05] smit connected from ('127.0.0.1', 55634)
[2023-05-14 18:15:56] me connected from ('127.0.0.1', 55646)
smit Disconnected from server.
me Disconnected from server.
[2023-05-14 18:23:45] me connected from ('127.0.0.1', 55779)
me Disconnected from server.
```

Now user me is offline, and user smit sends message to user me

User smit sends message to offline user me

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: smit
Are you a new user? (Y/N)
n
Enter your password:
1234
me:Helloo
me:How are you?
me:When will you come back?
```

User me able to see offline messages when he will come back online

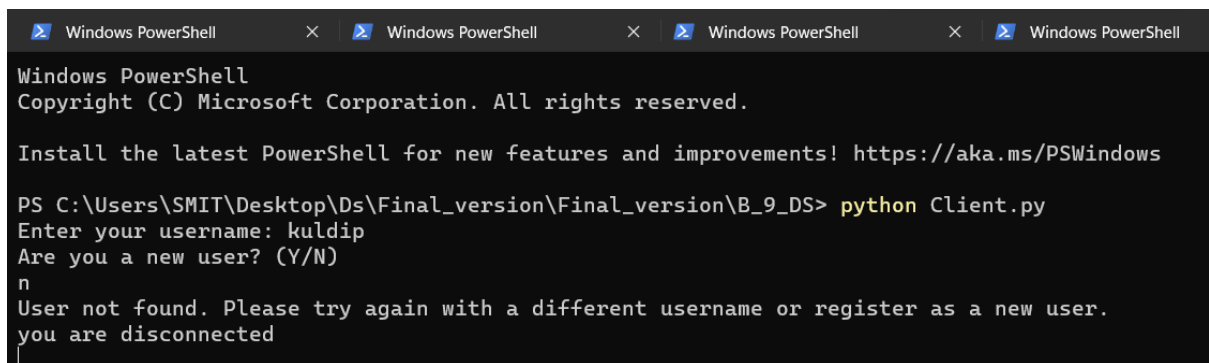
```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: me
Are you a new user? (Y/N)
n
Enter your password:
1234
[2023-05-14 18:28:20] smit: Helloo

[2023-05-14 18:34:46] smit: How are you?
[2023-05-14 18:35:12] smit: When will you come back?
```

If user is not registered

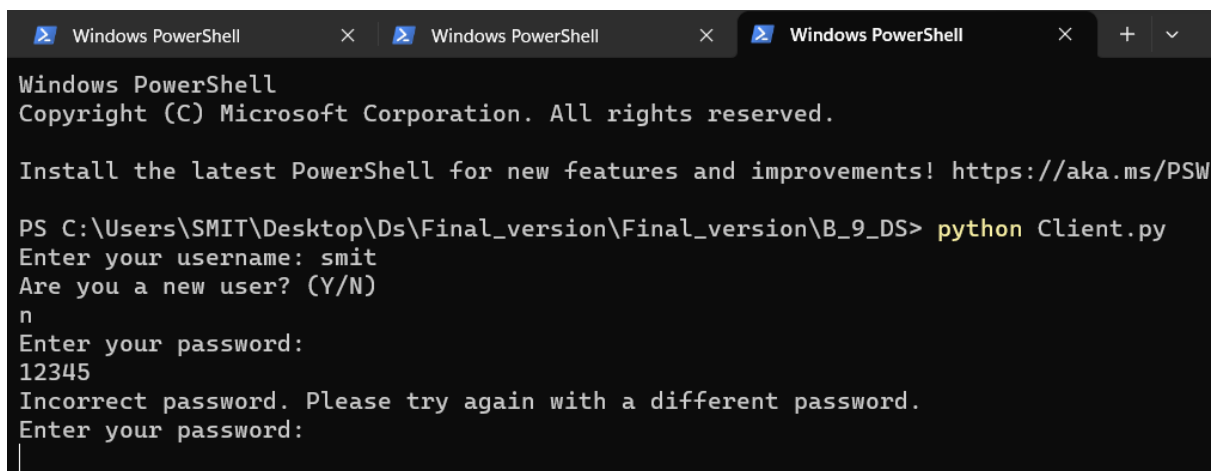


```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: kuldip
Are you a new user? (Y/N)
n
User not found. Please try again with a different username or register as a new user.
you are disconnected
```

If the Password is wrong

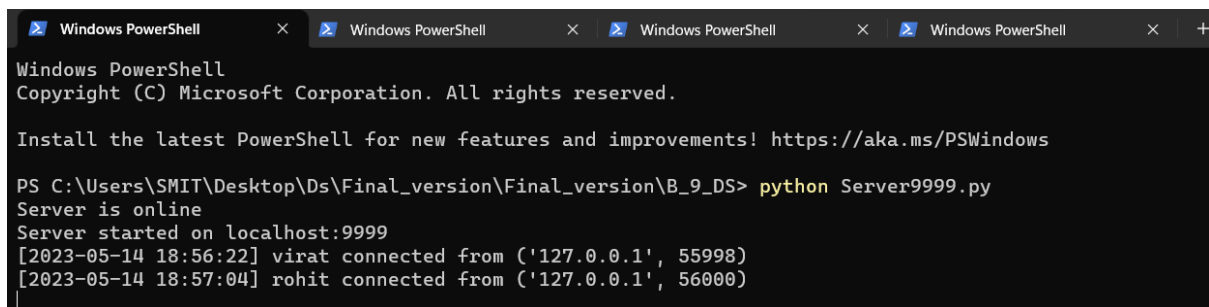


```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSW

PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: smit
Are you a new user? (Y/N)
n
Enter your password:
12345
Incorrect password. Please try again with a different password.
Enter your password:
```

If Both user run on same server



```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Server9999.py
Server is online
Server started on localhost:9999
[2023-05-14 18:56:22] virat connected from ('127.0.0.1', 55998)
[2023-05-14 18:57:04] rohit connected from ('127.0.0.1', 56000)
```

Users virat and rohit chat with each other

User: virat side

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: virat
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
A new client rohit has joined the chat
rohit:bhai batting acchi karle
rohit: ha bhai tu aaj kal form me chal raha hai
```

User: rohit side

```
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PS C:\Users\SMIT\Desktop\Ds\Final_version\Final_version\B_9_DS> python Client.py
Enter your username: rohit
Are you a new user? (Y/N)
n
Enter your password:
1234
virat: bhai batting acchi karle
virat:ha bhai tu aaj kal form me chal raha hai
```

## Concept of Fault-Tolerance using secondary server

First, both server are started

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Server9999.py
Server is online
Server started on localhost:9999
```

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Server12345.py
Server is online
Server started on localhost:12345
```



After starting client kuldip he is connected to the server12345

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Client.py
Enter your username: kuldip
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
```

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Server12345.py
Server is online
Server started on localhost:12345
[2023-05-14 22:36:51] kuldip connected from ('127.0.0.1', 50453)
```

Now if I close server12345, then the client will try to connect to a backup server which is server 9999.

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Client.py
Enter your username: kuldip
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
Disconnected from server.
Enter to reconnect again
```

After enter

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Client.py
Enter your username: kuldip
Are you a new user? (Y/N)
y
Enter a password:
1234
You have been registered successfully!
You can now log in with your new credentials.
Disconnected from server.
Enter to reconnect again

Server is down. Connecting to backup server...
Enter your username: |
```

Now after providing a username and password client kuldip will be connected to the backup server which is server999

```
E:\SEM 6\IE559 DS\Project\Final_version (2)\Final_version\B_9_DS>python Server9999.py
Server is online
Server started on localhost:9999
[2023-05-14 22:44:36] kuldip connected from ('127.0.0.1', 50489)
```