

CENG 421
NETWORK PROGRAMMING
ANNOUNCEMENT SYSTEM
PROJECT REPORT

In this project, I have implemented an announcement system. There is one server that hosts the system and multiple clients that connect to this server and publish announcements to all clients.

For this application, I have used the two-tier (client-server) architecture. This means there are multiple clients (the users) and one central server that hosts everything and provides the data for these clients.

I have implemented this project in python and I've imported two libraries, which are *socket* and *threading*. These libraries includes fundamental functions such as creating server, binding host to the indicated port (socket) and performing various tasks at the same time (threading) etc.

Detailed information about these libraries can be found here:

<https://docs.python.org/3/library/socket.html>

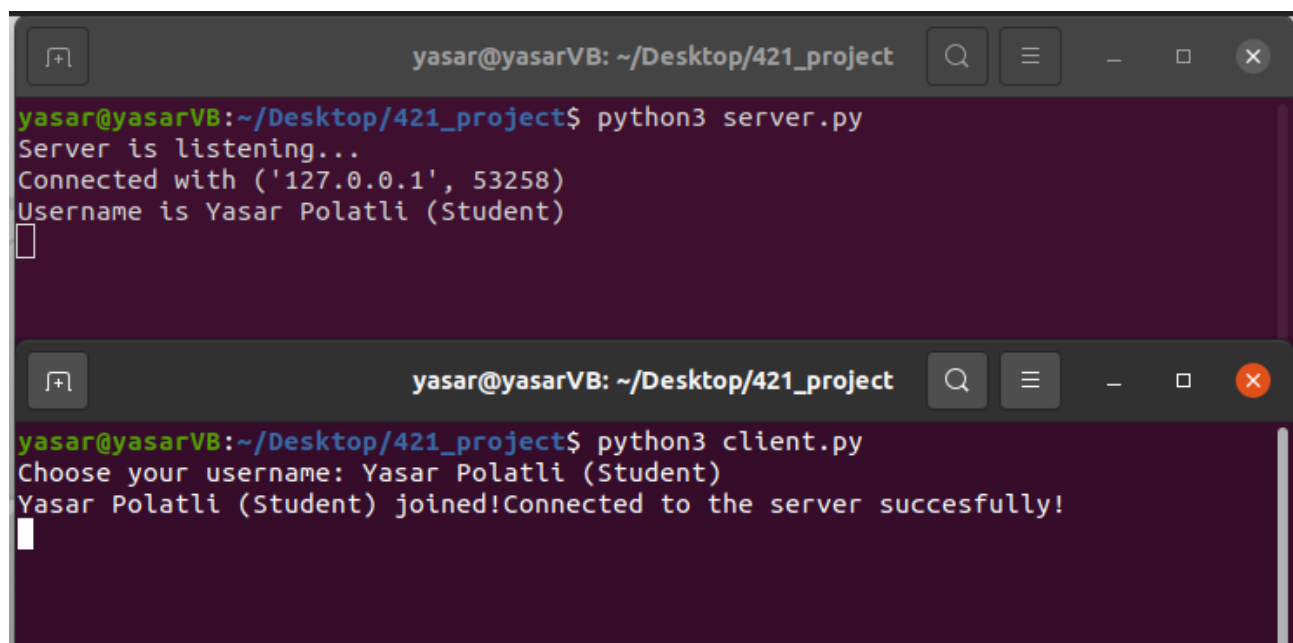
<https://docs.python.org/3/library/threading.html>

Actually python is not the best option for multi-threading (it only jumps between threads and virtualizes the multi-threading concept), but I have done my project with python since it is for educational purposes and there won't be large number of clients exist.

You can find commented source code in the folder as well.

Here is the small demonstration of the program:

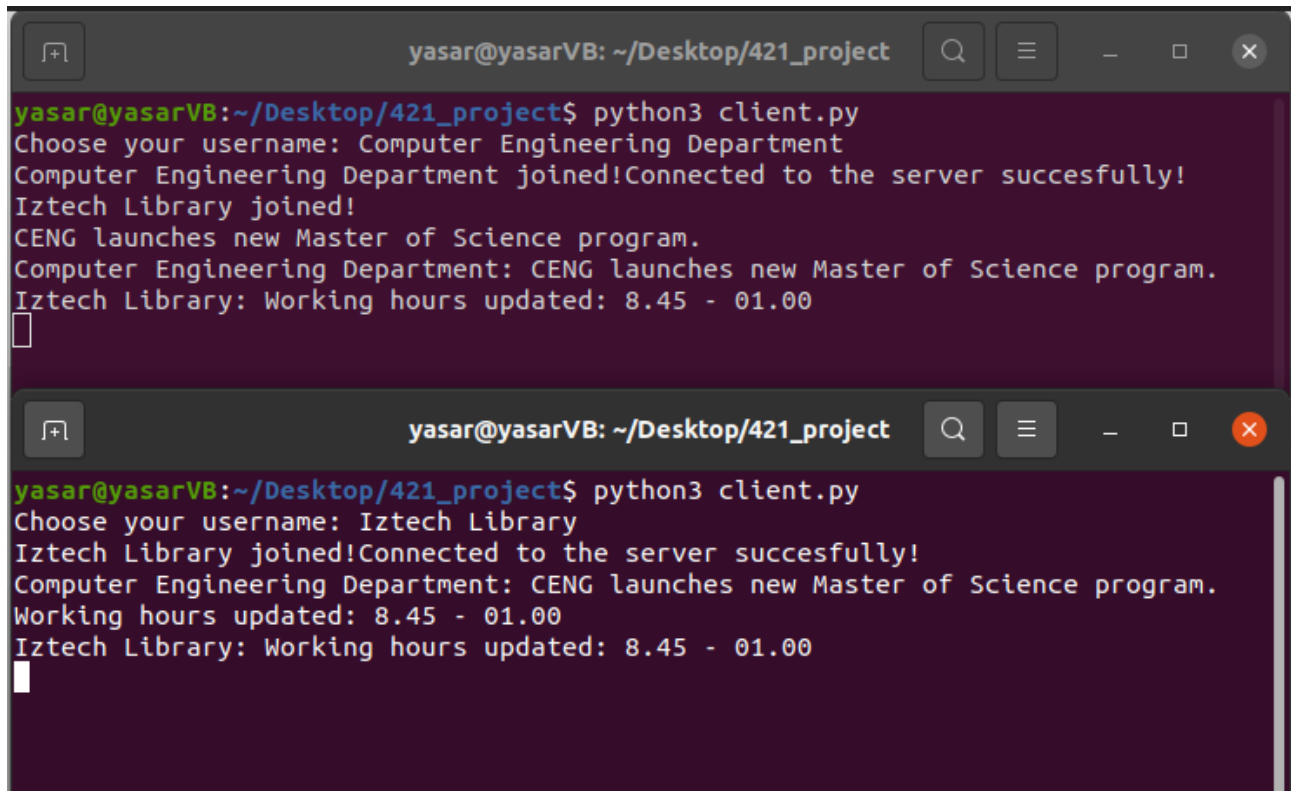
Server code executed and one student (client) connected to the server:



```
yasar@yasarVB: ~/Desktop/421_project
yasar@yasarVB:~/Desktop/421_project$ python3 server.py
Server is listening...
Connected with ('127.0.0.1', 53258)
Username is Yasar Polatli (Student)
█

yasar@yasarVB: ~/Desktop/421_project
yasar@yasarVB:~/Desktop/421_project$ python3 client.py
Choose your username: Yasar Polatli (Student)
Yasar Polatli (Student) joined!Connected to the server succesfully!
█
```

Two more clients connected to the server and publish their announcements:

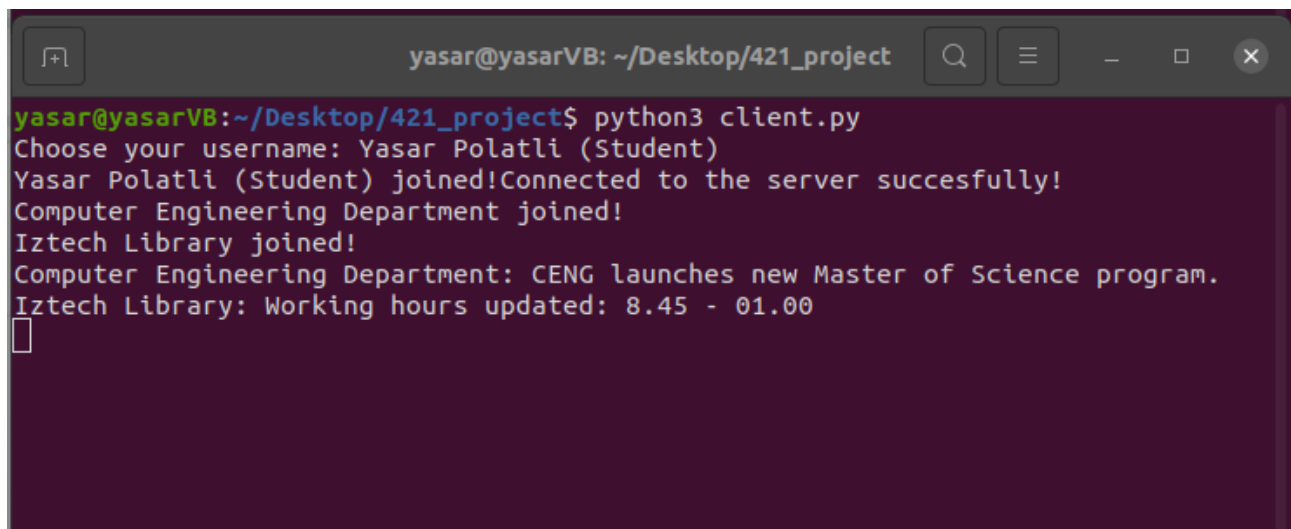


The image shows two terminal windows stacked vertically. Both windows have a title bar that reads 'yasar@yasarVB: ~/Desktop/421_project'. The top window shows the output of running 'python3 client.py' with the username 'Computer Engineering Department'. The output includes: 'Choose your username: Computer Engineering Department', 'Computer Engineering Department joined!Connected to the server succesfully!', 'Iztech Library joined!', 'CENG launches new Master of Science program.', 'Computer Engineering Department: CENG launches new Master of Science program.', and 'Iztech Library: Working hours updated: 8.45 - 01.00'. The bottom window shows the same script run with the username 'Iztech Library'. The output includes: 'Choose your username: Iztech Library', 'Iztech Library joined!Connected to the server succesfully!', 'Computer Engineering Department: CENG launches new Master of Science program.', 'Working hours updated: 8.45 - 01.00', and 'Iztech Library: Working hours updated: 8.45 - 01.00'.

```
yasar@yasarVB: ~/Desktop/421_project$ python3 client.py
Choose your username: Computer Engineering Department
Computer Engineering Department joined!Connected to the server succesfully!
Iztech Library joined!
CENG launches new Master of Science program.
Computer Engineering Department: CENG launches new Master of Science program.
Iztech Library: Working hours updated: 8.45 - 01.00
█

yasar@yasarVB: ~/Desktop/421_project$ python3 client.py
Choose your username: Iztech Library
Iztech Library joined!Connected to the server succesfully!
Computer Engineering Department: CENG launches new Master of Science program.
Working hours updated: 8.45 - 01.00
Iztech Library: Working hours updated: 8.45 - 01.00
█
```

Final state of the student terminal:



The image shows a single terminal window with a title bar that reads 'yasar@yasarVB: ~/Desktop/421_project'. It shows the output of running 'python3 client.py' with the username 'Yasar Polatli (Student)'. The output includes: 'Choose your username: Yasar Polatli (Student)', 'Yasar Polatli (Student) joined!Connected to the server succesfully!', 'Computer Engineering Department joined!', 'Iztech Library joined!', 'Computer Engineering Department: CENG launches new Master of Science program.', and 'Iztech Library: Working hours updated: 8.45 - 01.00'.

```
yasar@yasarVB: ~/Desktop/421_project$ python3 client.py
Choose your username: Yasar Polatli (Student)
Yasar Polatli (Student) joined!Connected to the server succesfully!
Computer Engineering Department joined!
Iztech Library joined!
Computer Engineering Department: CENG launches new Master of Science program.
Iztech Library: Working hours updated: 8.45 - 01.00
█
```

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