

# Computer Networks (UE20CS253)

## Assignment

### **TITLE: ONLINE SYSTEM FOR SCHEDULING MEDICAL APPOINTMENTS**

Output screen shots:

**Server:**

healthcenterserver  
running in VM2

**Client:**

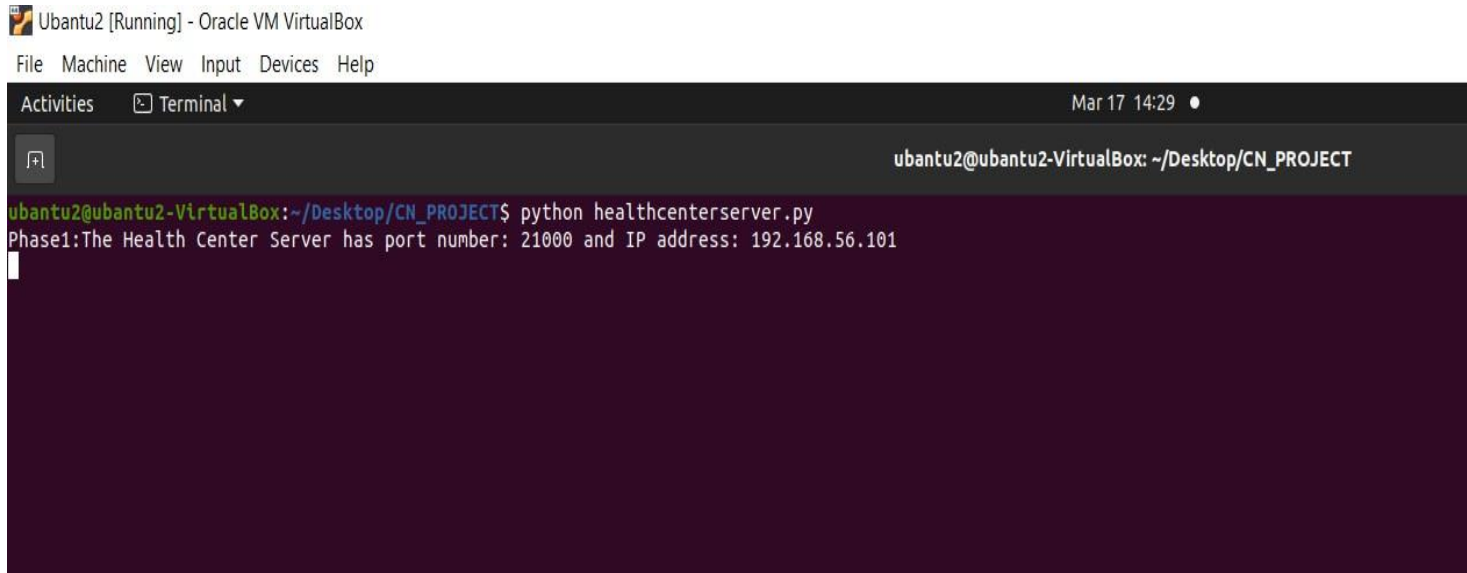
Patient1

Patient2

Running in VM1

# Case1:

## healthcenterserver running



Ubuntu2 [Running] - Oracle VM VirtualBox

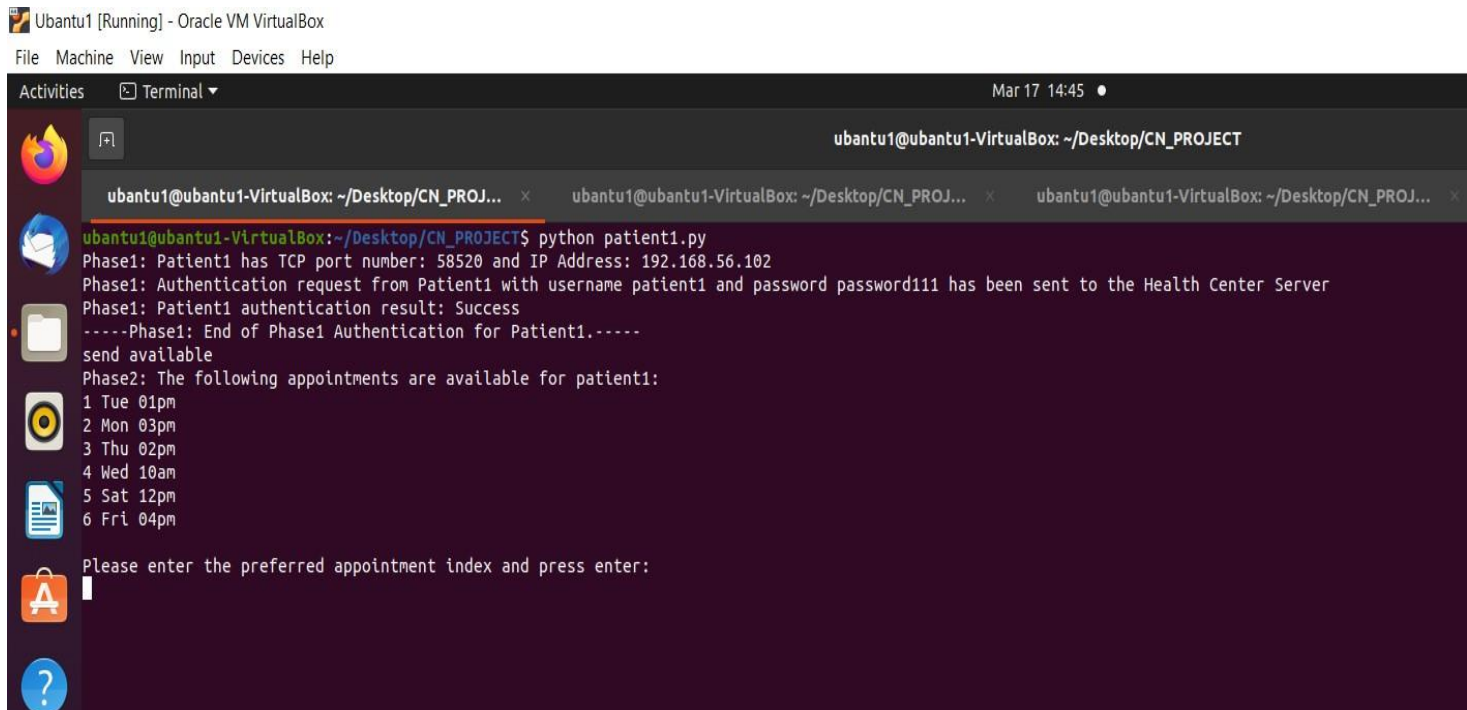
File Machine View Input Devices Help

Activities Terminal ▾ Mar 17 14:29 ●

ubuntu2@ubuntu2-VirtualBox: ~/Desktop/CN\_PROJECT

```
ubuntu2@ubuntu2-VirtualBox:~/Desktop/CN_PROJECT$ python healthcenterserver.py
Phase1:The Health Center Server has port number: 21000 and IP address: 192.168.56.101
```

## patient1 running



Ubuntu1 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

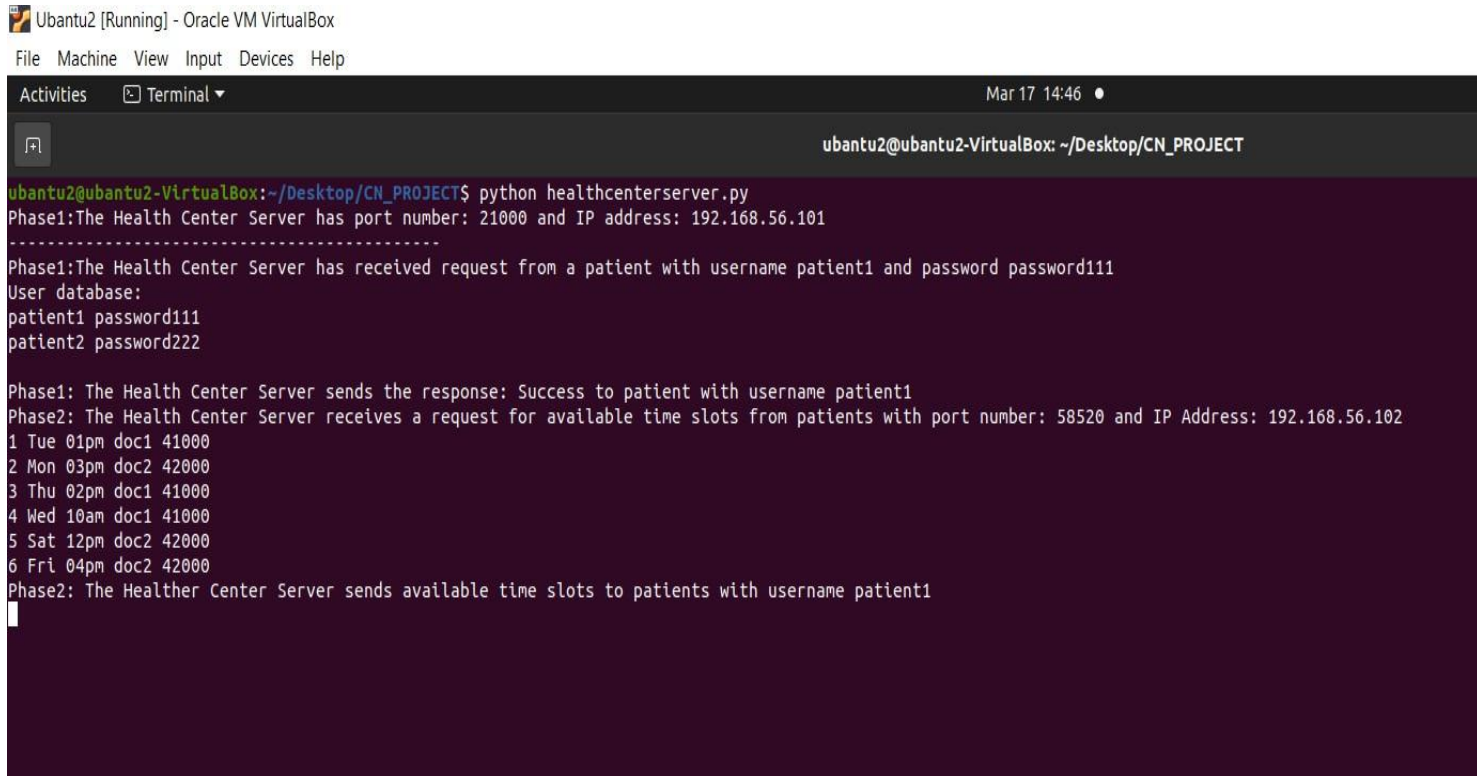
Activities Terminal ▾ Mar 17 14:45 ●

ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN\_PROJECT

```
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$ python patient1.py
Phase1: Patient1 has TCP port number: 58520 and IP Address: 192.168.56.102
Phase1: Authentication request from Patient1 with username patient1 and password password111 has been sent to the Health Center Server
Phase1: Patient1 authentication result: Success
-----Phase1: End of Phase1 Authentication for Patient1-----
send available
Phase2: The following appointments are available for patient1:
1 Tue 01pm
2 Mon 03pm
3 Thu 02pm
4 Wed 10am
5 Sat 12pm
6 Fri 04pm

Please enter the preferred appointment index and press enter:
```

## Server authenticating patient1's request.



Ubuntu2 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

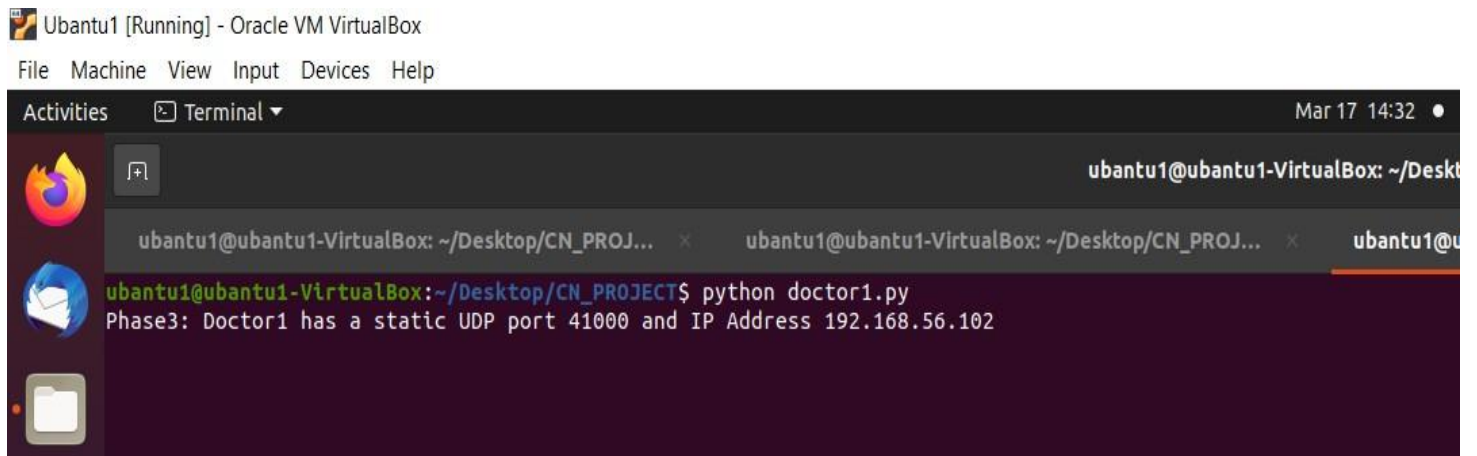
Activities Terminal Mar 17 14:46

ubuntu2@ubuntu2-VirtualBox: ~/Desktop/CN\_PROJECT

```
ubuntu2@ubuntu2-VirtualBox:~/Desktop/CN_PROJECT$ python healthcenterserver.py
Phase1:The Health Center Server has port number: 21000 and IP address: 192.168.56.101
-----
Phase1:The Health Center Server has received request from a patient with username patient1 and password password111
User database:
patient1 password111
patient2 password222

Phase1: The Health Center Server sends the response: Success to patient with username patient1
Phase2: The Health Center Server receives a request for available time slots from patients with port number: 58520 and IP Address: 192.168.56.102
1 Tue 01pm doc1 41000
2 Mon 03pm doc2 42000
3 Thu 02pm doc1 41000
4 Wed 10am doc1 41000
5 Sat 12pm doc2 42000
6 Fri 04pm doc2 42000
Phase2: The Health Center Server sends available time slots to patients with username patient1
```

## doctor1 running initially



Ubuntu1 [Running] - Oracle VM VirtualBox

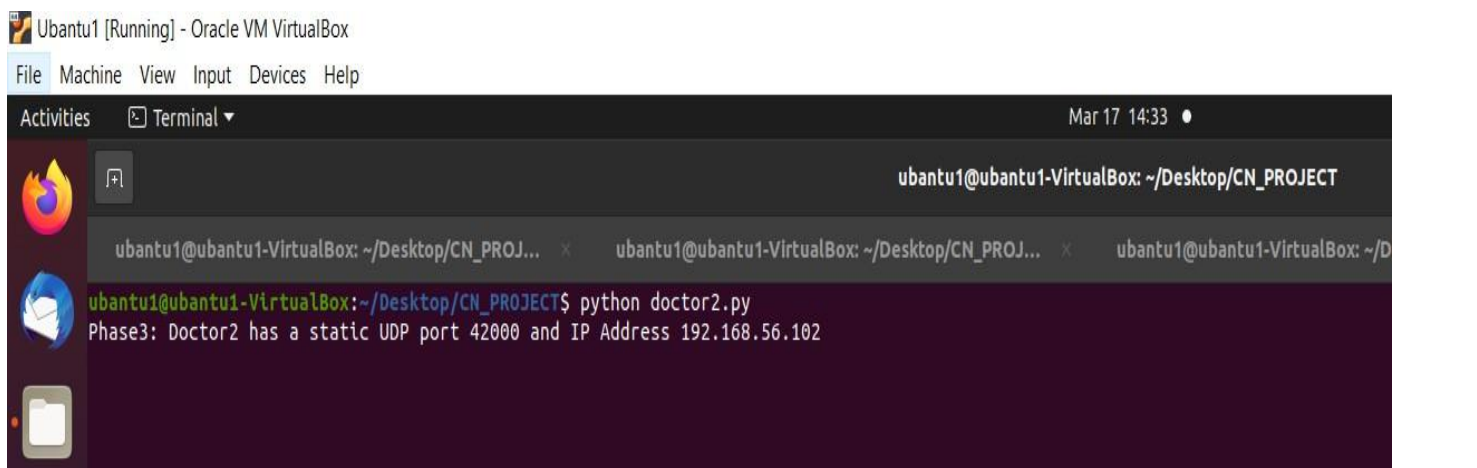
File Machine View Input Devices Help

Activities Terminal Mar 17 14:32

ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN\_PROJECT

```
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$ python doctor1.py
Phase3: Doctor1 has a static UDP port 41000 and IP Address 192.168.56.102
```

## doctor2 is running initially



Ubuntu1 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Mar 17 14:33

ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN\_PROJECT

```
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$ python doctor2.py
Phase3: Doctor2 has a static UDP port 42000 and IP Address 192.168.56.102
```

## Patient1 entering the time slot index and receiving response.

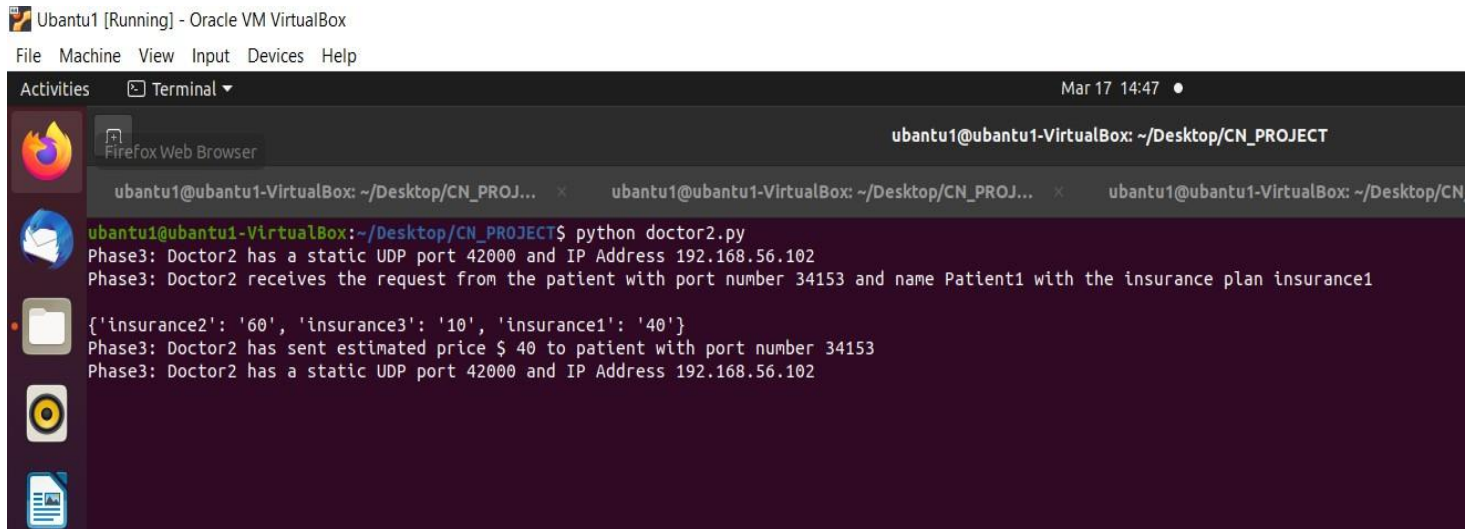
```
Ubuntu1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 17 14:46
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT$ python patient1.py
Phase1: Patient1 has TCP port number: 58520 and IP Address: 192.168.56.102
Phase1: Authentication request from Patient1 with username patient1 and password password111 has been sent to the Health Center Server
Phase1: Patient1 authentication result: Success
-----Phase1: End of Phase1 Authentication for Patient1.-----
send available
Phase2: The following appointments are available for patient1:
1 Tue 01pm
2 Mon 03pm
3 Thu 02pm
4 Wed 10am
5 Sat 12pm
6 Fri 04pm
Please enter the preferred appointment index and press enter:
2
Phase2: The requested appointment is available and reserved to Patient1. The assigned doctor port number is 42000
Phase3: Patient1 has a dynamic UDP port number: 34153 and IP Address: 192.168.56.102
My insurance: insurance1
Phase3: The cost estimation request from Patient1 with insurance plan insurance1
has been sent to the doctor with port number 42000 and IP address 192.168.56.102
Phase3: Patient1 receive $ 40 estimation cost from doctor with port number 42000
Doctors port number      42000
Patient                  patient1
Insurance                 insurance1
Cost                     40
Phase3: End of Phase3 for Patient1
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT$
```

## Healthcenterserver reflection after patient1's successful appointment

```
Ubuntu2 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 17 14:47
ubuntu2@ubuntu2-VirtualBox: ~/Desktop/CN_PROJECT
ubuntu2@ubuntu2-VirtualBox: ~/Desktop/CN_PROJECT$ python healthcenterserver.py
Phase1: The Health Center Server has port number: 21000 and IP address: 192.168.56.101
-----
Phase1: The Health Center Server has received request from a patient with username patient1 and password password111
User database:
patient1 password111
patient2 password222
Phase1: The Health Center Server sends the response: Success to patient with username patient1
Phase2: The Health Center Server receives a request for available time slots from patients with port number: 58520 and IP Address: 192.168.56.102
1 Tue 01pm doc1 41000
2 Mon 03pm doc2 42000
3 Thu 02pm doc1 41000
4 Wed 10am doc1 41000
5 Sat 12pm doc2 42000
6 Fri 04pm doc2 42000
Phase2: The Health Center Server sends available time slots to patients with username patient1
Phase2: The Health Center Server receives a request for appointment 2 from patient with port number: 58520 and username patient1
Phase2: The Health Center Server confirms the following appointment 2 to patient with username patient1
```



# doctor2's reflection after patient1's appointment



```
Ubuntu1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 17 14:47
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT$ python doctor2.py
Phase3: Doctor2 has a static UDP port 42000 and IP Address 192.168.56.102
Phase3: Doctor2 receives the request from the patient with port number 34153 and name Patient1 with the insurance plan insurance1
{'insurance2': '60', 'insurance3': '10', 'insurance1': '40'}
Phase3: Doctor2 has sent estimated price $ 40 to patient with port number 34153
Phase3: Doctor2 has a static UDP port 42000 and IP Address 192.168.56.102
```

## Case 2:

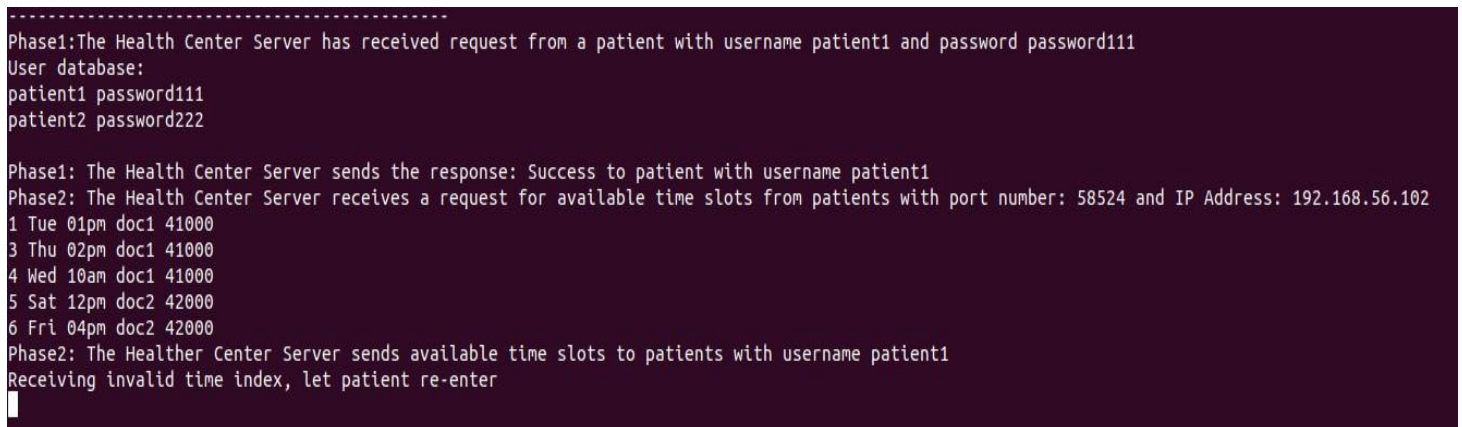
### Patient1 giving Invalid index



```
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$ python patient1.py
Phase1: Patient1 has TCP port number: 58524 and IP Address: 192.168.56.102
Phase1: Authentication request from Patient1 with username patient1 and password password111 has been sent to the Health Center Server
Phase1: Patient1 authentication result: Success
-----Phase1: End of Phase1 Authentication for Patient1-----
send available
Phase2: The following appointments are available for patient1:
1 Tue 01pm
3 Thu 02pm
4 Wed 10am
5 Sat 12pm
6 Fri 04pm

Please enter the preferred appointment index and press enter:
8
Please enter the preferred appointment index and press enter:
```

### Healthcenterserver rejecting the request



```
-----
Phase1:The Health Center Server has received request from a patient with username patient1 and password password111
User database:
patient1 password111
patient2 password222

Phase1: The Health Center Server sends the response: Success to patient with username patient1
Phase2: The Health Center Server receives a request for available time slots from patients with port number: 58524 and IP Address: 192.168.56.102
1 Tue 01pm doc1 41000
3 Thu 02pm doc1 41000
4 Wed 10am doc1 41000
5 Sat 12pm doc2 42000
6 Fri 04pm doc2 42000
Phase2: The Health Center Server sends available time slots to patients with username patient1
Receiving invalid time index, let patient re-enter
```

## Case 3:

### Patient2's request: Appointment Successful

```
Ubuntu1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 17 14:53
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT$ python patient2.py
Phase1: Patient2 has TCP port number: 58528 and IP Address: 192.168.56.102
Phase1: Authentication request from Patient2 with username patient2 and password password222 has been sent to the Health Center Server
Phase1: Patient2 authentication result: Success
-----Phase1: End of Phase1 Authentication for Patient2.-----
send available
Phase2: The following appointments are available for patient2:
1 Tue 01pm
3 Thu 02pm
4 Wed 10am
5 Sat 12pm
6 Fri 04pm

Please enter the preferred appointment index and press enter:
3
Phase2: The requested appointment is available and reserved to Patient2. The assigned doctor name & port number is 41000
Phase3: Patient2 has a dynamic UDP port number: 53710 and IP Address: 192.168.56.102
My insurance: insurance2

Phase3: The cost estimation request from Patient2 with insurance plan insurance2
has been sent to the doctor with port number 41000 and IP address 192.168.56.102
Phase3: Patient2 receive $ 20 estimation cost from doctor with port number 41000

Doctors port number      41000
Patient                  patient2
Insurance                 insurance2
Cost                     20

Phase3: End of Phase3 for Patient2
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$
```

### Doctor1's reflection for Patient2's appointment

```
Ubuntu1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Activities Terminal Mar 17 14:53
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT
ubuntu1@ubuntu1-VirtualBox: ~/Desktop/CN_PROJECT$ python doctor1.py
Phase3: Doctor1 has a static UDP port 41000 and IP Address 192.168.56.102
Phase3: Doctor1 receives the request from the patient with port number 53710 and name Patient2 with the insurance plan insurance2

{'insurance2': '20', 'insurance3': '50', 'insurance1': '30'}
Phase3: Doctor1 has sent estimated price $ 20 to patient with port number 53710
Phase3: Doctor1 has a static UDP port 41000 and IP Address 192.168.56.102
```

## healthcenterserver's reflection for patient2's appointment

```
Phase1:The Health Center Server has received request from a patient with username patient2 and password password222
User database:
patient1 password111
patient2 password222

Phase1: The Health Center Server sends the response: Success to patient with username patient2
Phase2: The Health Center Server receives a request for available time slots from patients with port number: 58528 and IP Address: 192.168.56.102
1 Tue 01pm doc1 41000
3 Thu 02pm doc1 41000
4 Wed 10am doc1 41000
5 Sat 12pm doc2 42000
6 Fri 04pm doc2 42000
Phase2: The Health Center Server sends available time slots to patients with username patient2
Phase2: The Health Center Server receives a request for appointment 3 from patient with port number: 58528 and username patient2
Phase2: The Health Center Server confirms the following appointment 3 to patient with username patient2
```

## Case 4:

### Patient2 asking for already booked appointment

```
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$ python patient2.py
Phase1: Patient2 has TCP port number: 58530 and IP Address: 192.168.56.102
Phase1: Authentication request from Patient2 with username patient2 and password password222 has been sent to the Health Center Server
Phase1: Patient2 authentication result: Success
-----Phase1: End of Phase1 Authentication for Patient2.-----
send available
Phase2: The following appointments are available for patient2:
1 Tue 01pm
4 Wed 10am
5 Sat 12pm
6 Fri 04pm

Please enter the preferred appointment index and press enter:
3
Phase2: The requested appointment from Patient2 is not available.----->Exiting
ubuntu1@ubuntu1-VirtualBox:~/Desktop/CN_PROJECT$
```

## Healthcenterserver rejects the appointment

```
Phase1:The Health Center Server has received request from a patient with username patient2 and password password222
User database:
patient1 password111
patient2 password222

Phase1: The Health Center Server sends the response: Success to patient with username patient2
Phase2: The Health Center Server receives a request for available time slots from patients with port number: 58530 and IP Address: 192.168.56.102
1 Tue 01pm doc1 41000
4 Wed 10am doc1 41000
5 Sat 12pm doc2 42000
6 Fri 04pm doc2 42000
Phase2: The Health Center Server sends available time slots to patients with username patient2
Phase2: The Health Center Server receives a request for appointment 3 from patient with port number: 58530 and username patient2
Phase2: The Health Center Server rejects the following appointment 3 to patient with username patient2
```