

4 – Concurrent Time Server using UDP (fully automated)

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48 S6 CSE

The program shows a multi client – server time server using UDP.

Compiling

Compile the two files, Client.java and Server.java using javac command.

```
$ javac Client.java  
$ javac Server.java
```

Executing

Use four terminals, three for the clients and the other for the Server.

```
$ java Server
```

Then run the client file in the other terminals, the client requires 3 positional arguments, server socket, client socket and 3 character time zone code.

The server sockets available are 5000, 5001 and 5002.
The client sockets available are 8080, 8081 and 8082.
Time zone code includes GMT, IST, PST etc.

```
$ java Client 5000 8080 IST
```

```
$ java Client 5001 8081 GMT
```

```
$ java Client 5002 8082 PST
```

Now it is possible to communicate between each client and server. The server automatically replies to select messages from the client. The supported messages are:

1. "date"
2. "time"
3. "Exit"

To exit, the client should send "Exit". Once all clients have exited, the server also exits.

Output:

Server:

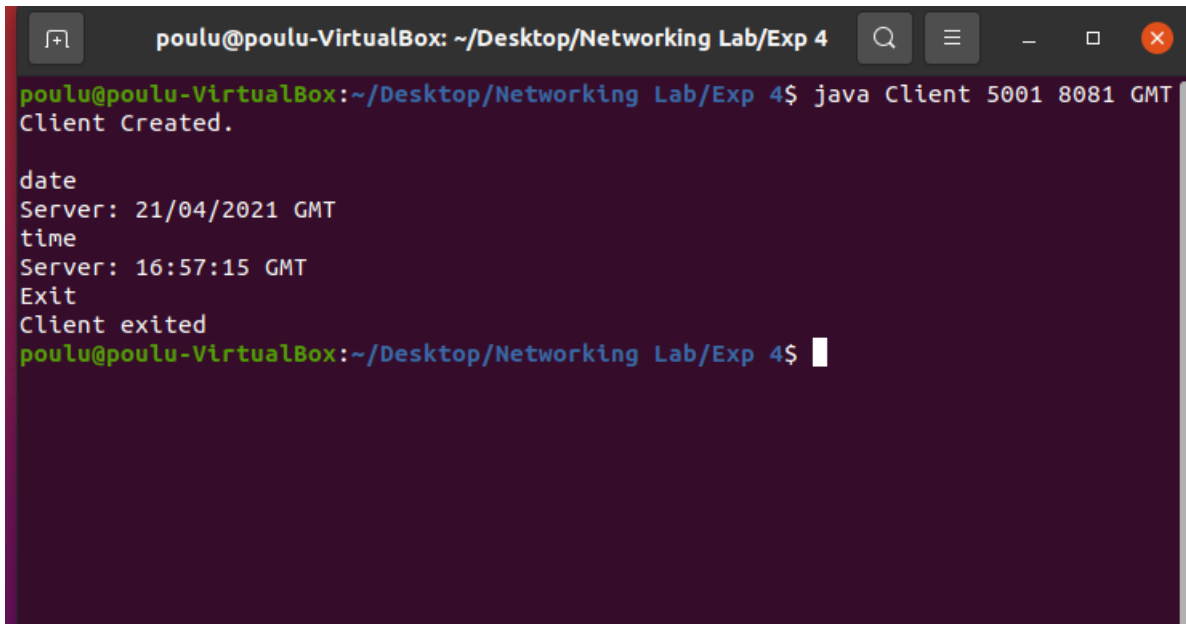
```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$ java Server
Server socket opened for socket: 5001
Server socket opened for socket: 5000
Server socket opened for socket: 5002
Client 8080: dateIST
Client 8080: timeIST
Client 8081: dateGMT
Client 8081: timeGMT
Client 8082: datePST
Client 8082: timePST
Client 8080: Exit
Socket 5000 closed.
Client 8081: Exit
Socket 5001 closed.
Client 8082: Exit
Socket 5002 closed.
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$
```

Client 1:

```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$ java Client 5000 8080 IST
Client Created.

date
Server: 21/04/2021 IST
time
Server: 22:27:02 IST
Exit
Client exited
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$
```

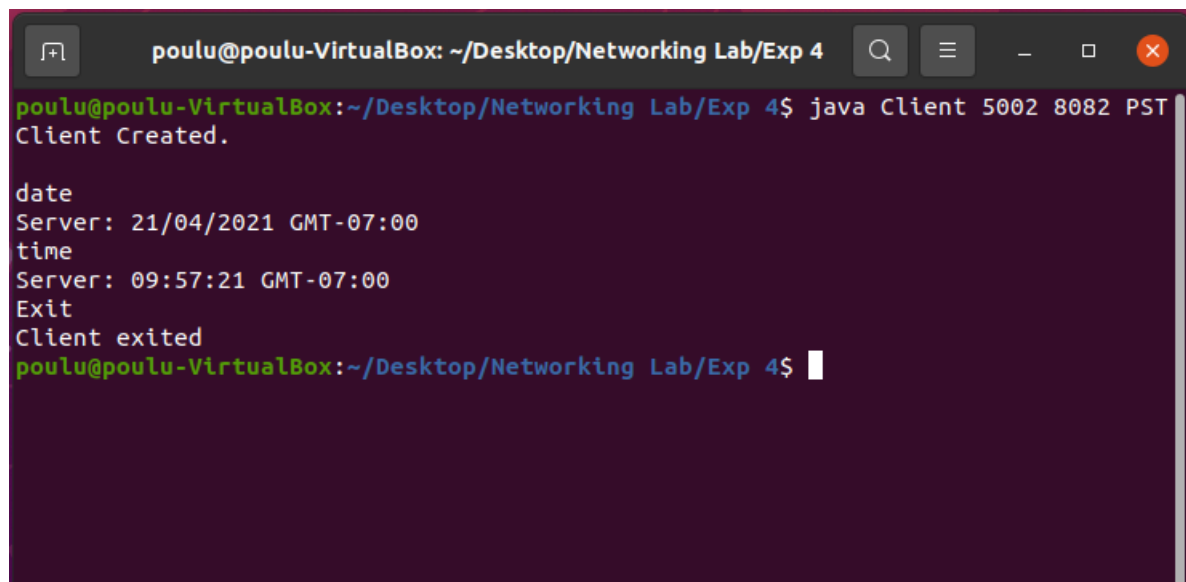
Client 2:

A terminal window titled 'poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4'. The prompt is 'poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4\$'. The command 'java Client 5001 8081 GMT' has been executed. The output is: 'Client Created.', 'date', 'Server: 21/04/2021 GMT', 'time', 'Server: 16:57:15 GMT', 'Exit', 'Client exited'. The prompt is now 'poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4\$' with a cursor.

```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$ java Client 5001 8081 GMT
Client Created.

date
Server: 21/04/2021 GMT
time
Server: 16:57:15 GMT
Exit
Client exited
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$
```

Client 3:

A terminal window titled 'poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4'. The prompt is 'poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4\$'. The command 'java Client 5002 8082 PST' has been executed. The output is: 'Client Created.', 'date', 'Server: 21/04/2021 GMT-07:00', 'time', 'Server: 09:57:21 GMT-07:00', 'Exit', 'Client exited'. The prompt is now 'poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4\$' with a cursor.

```
poulu@poulu-VirtualBox: ~/Desktop/Networking Lab/Exp 4
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$ java Client 5002 8082 PST
Client Created.

date
Server: 21/04/2021 GMT-07:00
time
Server: 09:57:21 GMT-07:00
Exit
Client exited
poulu@poulu-VirtualBox:~/Desktop/Networking Lab/Exp 4$
```