# Computer Networks Lab 7

TCP Server accepting multiple clients

Arun Ganti 2019A7PS0021G NOTE: While testing the code, if after running the server once, and you get "Cannot bind -1" error while running again, then wait for some time.

If you run netstat --tcp --numeric | grep 4444 you will see that the socket on the port 4444 is in TIME\_WAIT state. Meaning that connection is closed, so it will be terminated in the timeout specified by the OS. After the timeout expires, the program executes without the error.

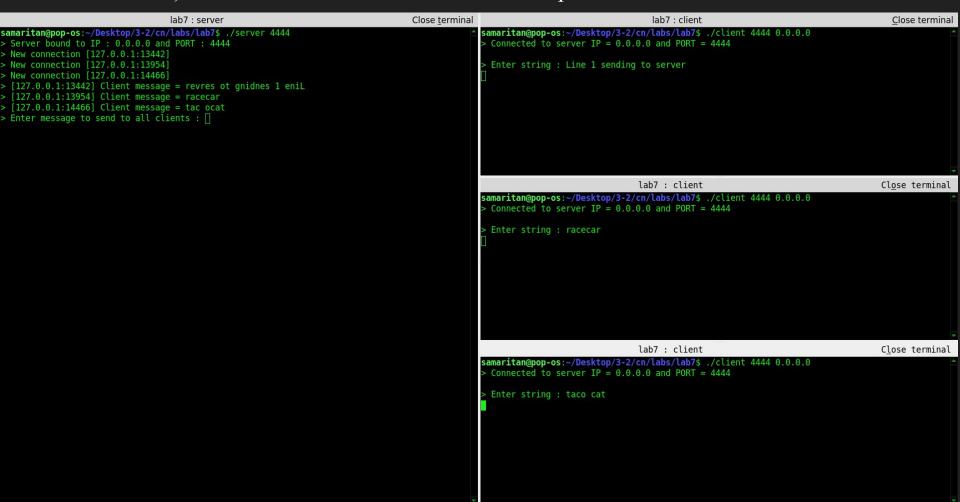
## ) Server accepts port number and binds to it



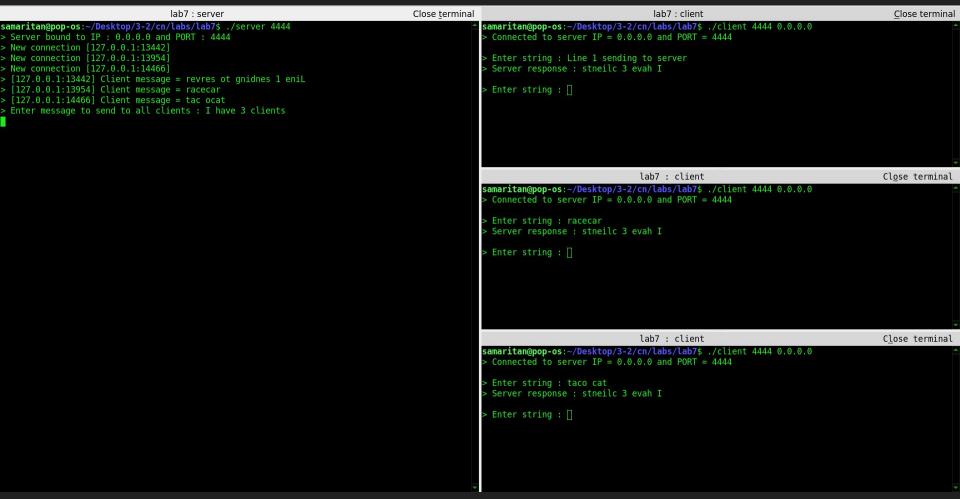
#### The clients accept port and address and there are 3 instances

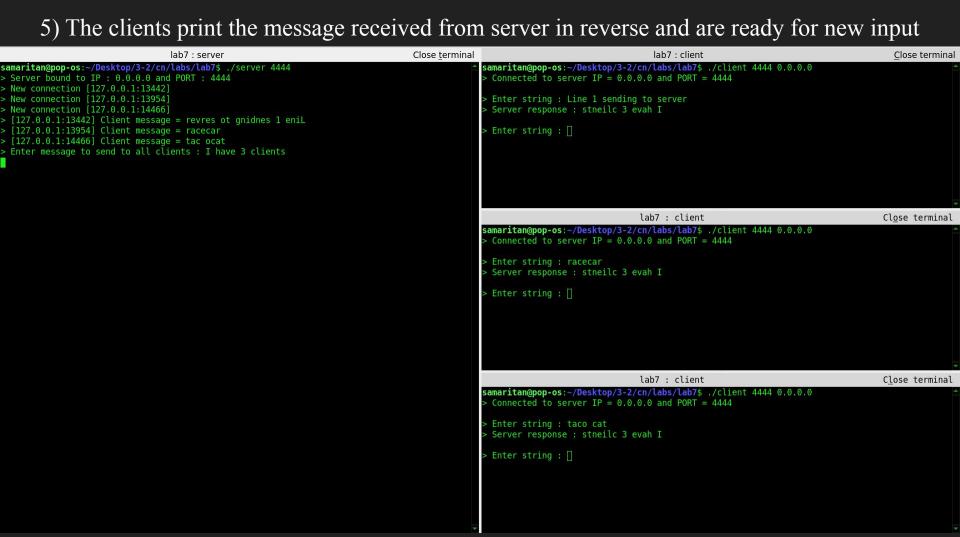


#### 3) Each client reads line from standard input and sends it to server

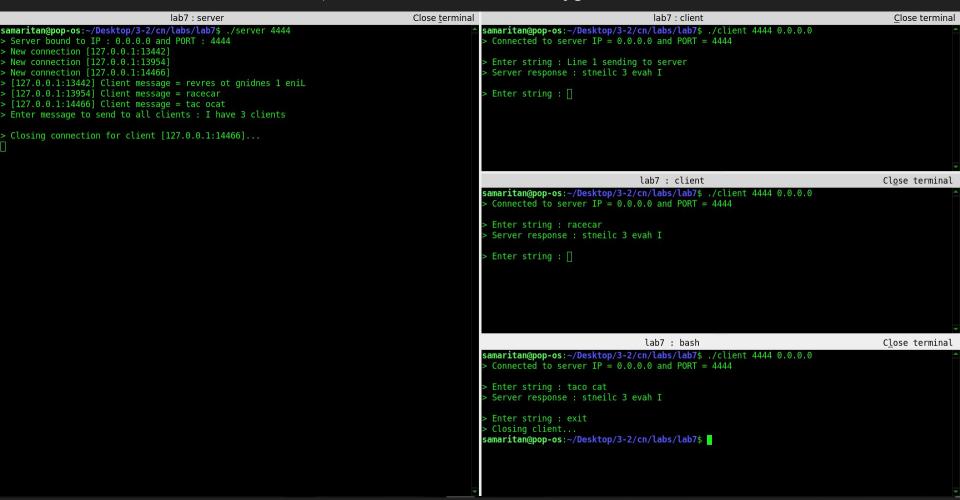


### 4) Server receives the lines and sends one line from standard input to all clients

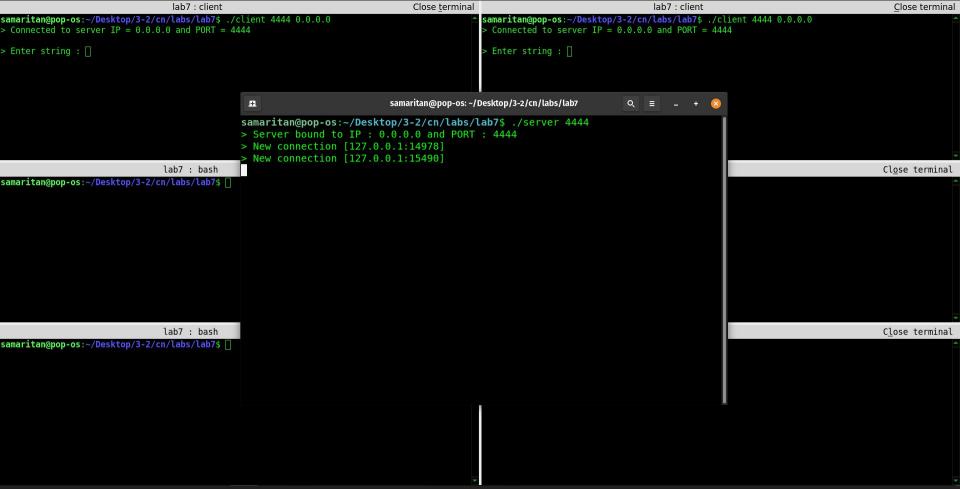




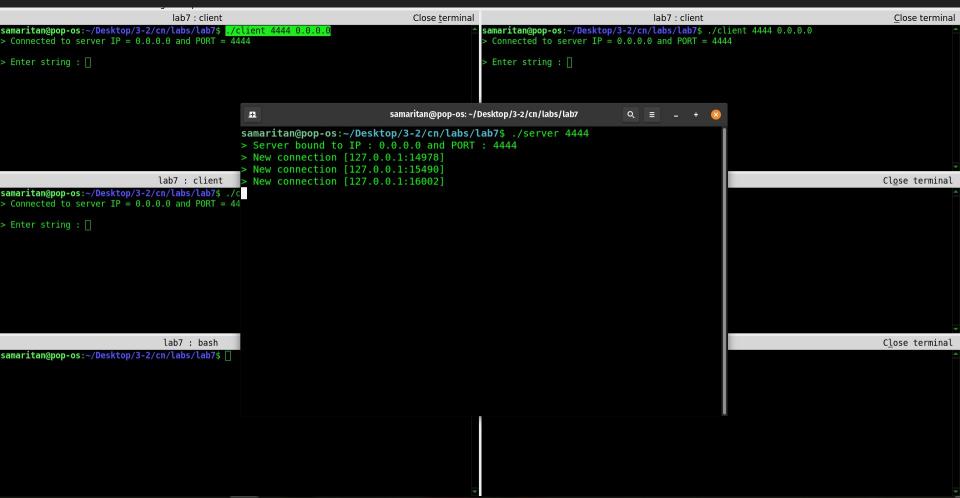
#### 6) The client exits if user types exit



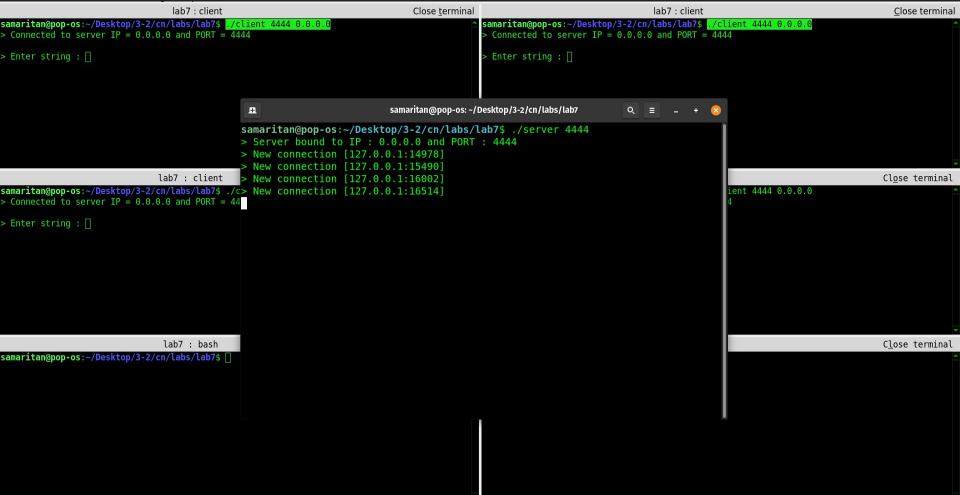
#### 7) 2 connections live



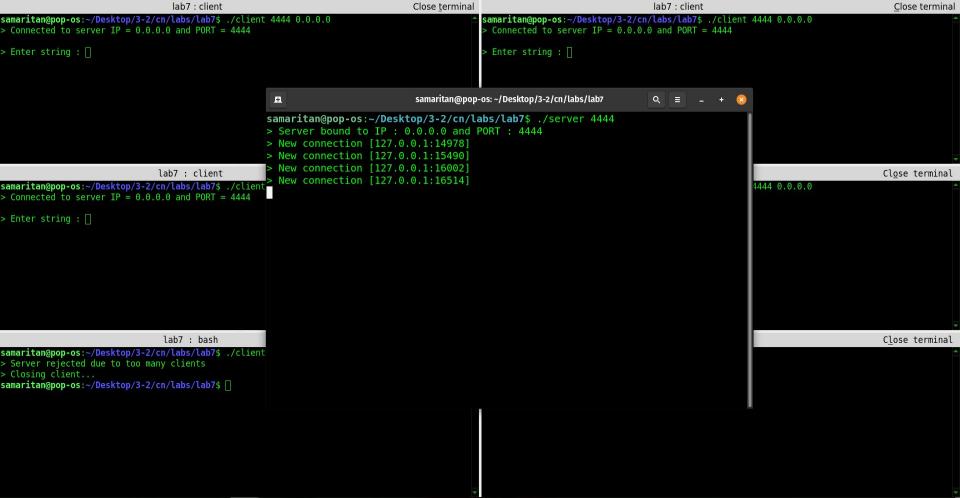
#### 7) 3 connections live (accepted one more)



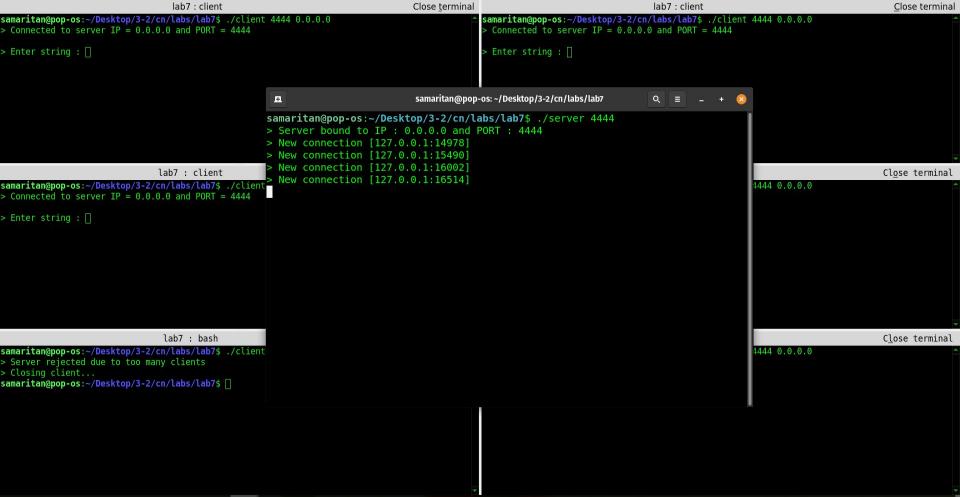
#### 7) 4 connections live (accepted one more)



# 7) 4 connections live (rejected one)



# 7) 4 connections live (rejected one)



# 7) All client terminals

lab7 : client	Close <u>t</u> erminal	lab7 : client	<u>C</u> lose terminal
<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Connected to server IP = 0.0.0.0 and PORT = 4444</pre>	<u> </u>	<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Connected to server IP = 0.0.0.0 and PORT = 4444</pre>	*
> Enter string : [		> Enter string : □	
lab7 : client	Close terminal	lab7 : client	Close terminal
<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Connected to server IP = 0.0.0.0 and PORT = 4444</pre>	_	<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Connected to server IP = 0.0.0.0 and PORT = 4444</pre>	_
> Enter string : [		> Enter string : [	
lab7 : bash	Clo <u>s</u> e terminal	lab7 : bash	C <u>l</u> ose terminal
<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Server rejected due to too many clients &gt; Closing client</pre>		<pre>samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$ ./client 4444 0.0.0.0 &gt; Server rejected due to too many clients &gt; Closing client</pre>	
samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$		samaritan@pop-os:~/Desktop/3-2/cn/labs/lab7\$	