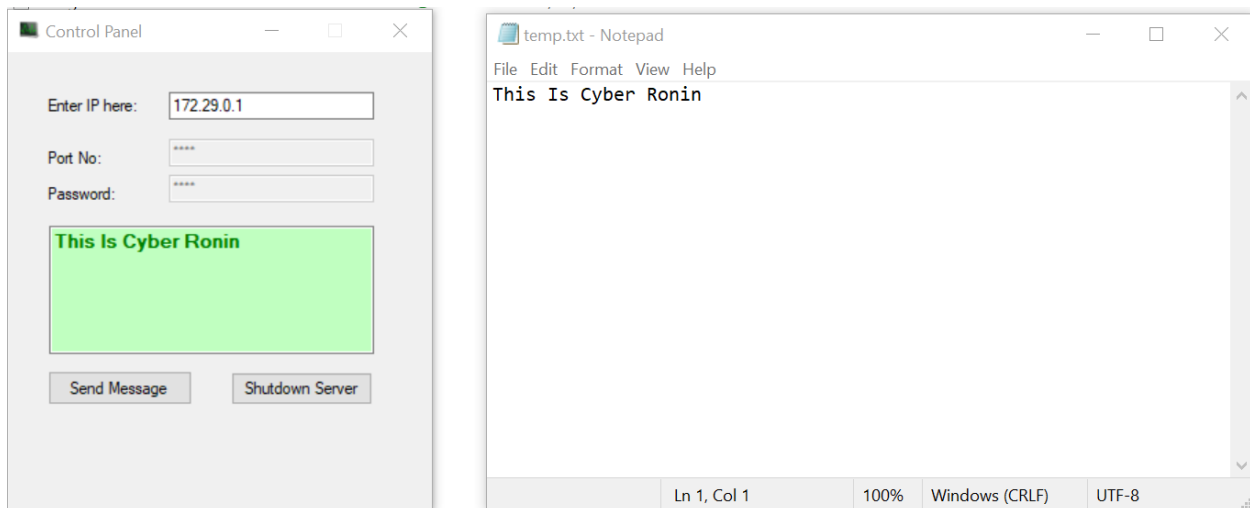
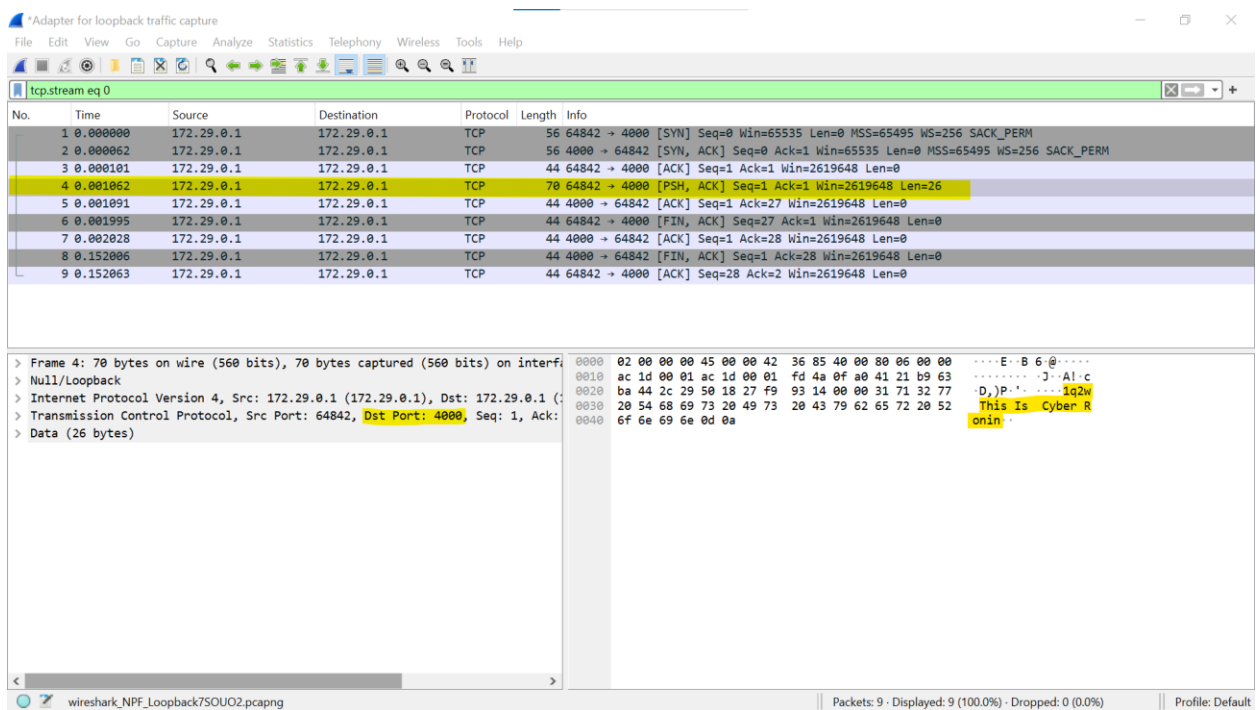
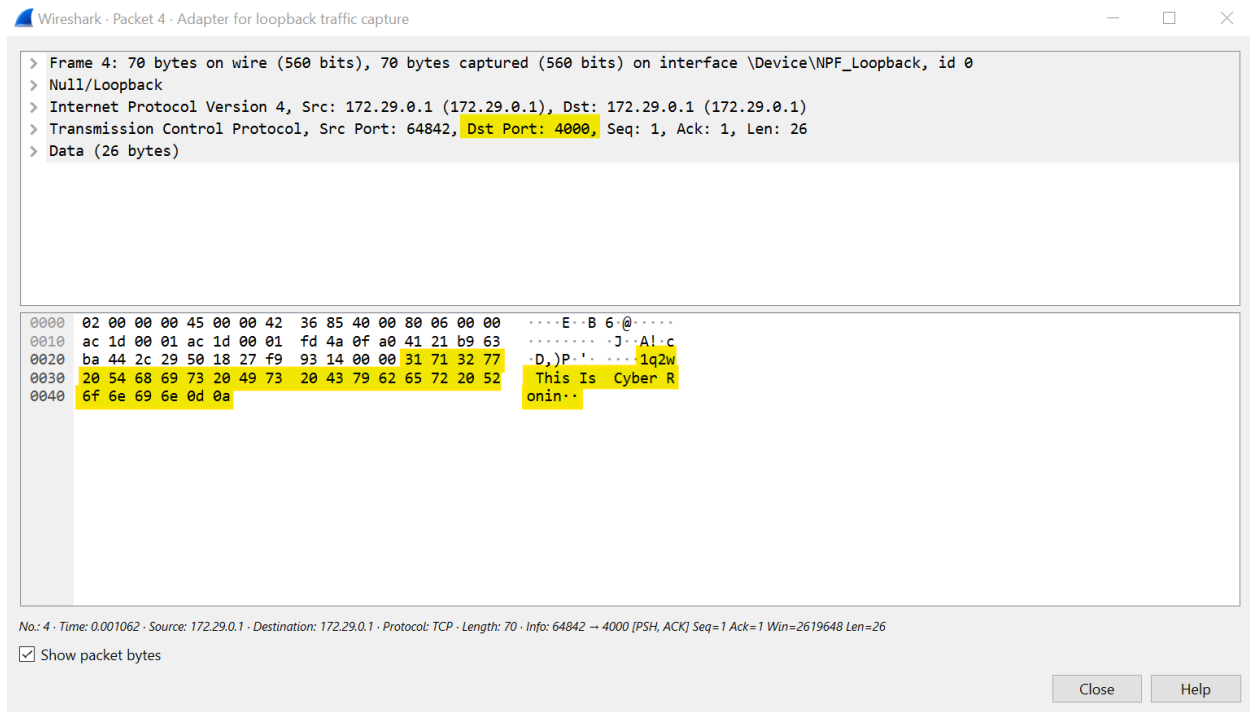


The **ClientAssignII.exe** and **ServerAssignII.exe**, both are running on **localhost**.



Below is the screen shot of the packet send form the **ClientAssignII.exe** to **ServerAssignII.exe** in **Wireshark**:





From the picture we can see:

Task 1:

That password is : 1q2w

Task 2:

And Destination port is : 4000

Task 3:

- i. the message packet size is 26 bytes

client sends message.pcapng

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-F>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	172.29.0.1	172.29.0.1	TCP	56	64842 → 4000 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM
2	0.000062	172.29.0.1	172.29.0.1	TCP	56	4000 → 64842 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM
3	0.000101	172.29.0.1	172.29.0.1	TCP	44	64842 → 4000 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
4	0.001062	172.29.0.1	172.29.0.1	TCP	70	64842 → 4000 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=26
5	0.001091	172.29.0.1	172.29.0.1	TCP	44	4000 → 64842 [ACK] Seq=1 Ack=27 Win=2619648 Len=0
6	0.001995	172.29.0.1	172.29.0.1	TCP	44	64842 → 4000 [FIN, ACK] Seq=27 Ack=1 Win=2619648 Len=0
7	0.002028	172.29.0.1	172.29.0.1	TCP	44	4000 → 64842 [ACK] Seq=1 Ack=28 Win=2619648 Len=0
8	0.152006	172.29.0.1	172.29.0.1	TCP	44	4000 → 64842 [FIN, ACK] Seq=1 Ack=28 Win=2619648 Len=0
9	0.152063	172.29.0.1	172.29.0.1	TCP	44	64842 → 4000 [ACK] Seq=28 Ack=2 Win=2619648 Len=0

> Frame 4: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface
> Null/Loopback
> Internet Protocol Version 4, Src: 172.29.0.1 (172.29.0.1), Dst: 172.29.0.1 (172.29.0.1)
> Transmission Control Protocol, Src Port: 64842, Dst Port: 4000, Seq: 1, Ack: 1, Win: 0, Len: 26
Data: 31713277205468697320497320437962657220526f6e696e0d0a
[Length: 26]

0000 02 00 00 00 45 00 00 42 35 85 40 00 80 06 00 00E..B 6@....
0010 ac 1d 00 01 ac 1d 00 01 fd 4a 0f a0 41 21 b9 63J..AL.c
0020 ba 44 2c 29 50 18 27 f9 93 14 00 00 31 71 32 77 ..D.)P.....iq2w
0030 20 54 68 69 73 20 49 73 20 43 79 62 65 72 20 52 .. This Is Cyber R
0040 6f 6e 69 6e 0d 0aonin

client sends message.pcapng

Packets: 9 - Displayed: 9 (100.0%) Profile: Default

- ii. for shutdown packet size is 6 bytes

*Adapter for loopback traffic capture

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

tcp.stream eq 0

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	172.29.0.1	172.29.0.1	TCP	56	63359 → 4000 [SYN] Seq=0 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM
2	0.000058	172.29.0.1	172.29.0.1	TCP	56	4000 → 63359 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=65495 WS=256 SACK_PERM
3	0.000096	172.29.0.1	172.29.0.1	TCP	44	63359 → 4000 [ACK] Seq=1 Ack=1 Win=2619648 Len=0
4	0.000144	172.29.0.1	172.29.0.1	TCP	50	63359 → 4000 [PSH, ACK] Seq=1 Ack=1 Win=2619648 Len=6
5	0.000158	172.29.0.1	172.29.0.1	TCP	44	4000 → 63359 [ACK] Seq=1 Ack=7 Win=2619648 Len=0
6	0.000184	172.29.0.1	172.29.0.1	TCP	44	63359 → 4000 [FIN, ACK] Seq=7 Ack=1 Win=2619648 Len=0
7	0.000195	172.29.0.1	172.29.0.1	TCP	44	4000 → 63359 [ACK] Seq=1 Ack=8 Win=2619648 Len=0
8	0.000897	172.29.0.1	172.29.0.1	TCP	44	4000 → 63359 [RST, ACK] Seq=1 Ack=8 Win=0 Len=0

> Frame 4: 50 bytes on wire (400 bits), 50 bytes captured (400 bits) on interface
> Null/Loopback
> Internet Protocol Version 4, Src: 172.29.0.1 (172.29.0.1), Dst: 172.29.0.1 (172.29.0.1)
> Transmission Control Protocol, Src Port: 63359, Dst Port: 4000, Seq: 1, Ack: 1, Win: 0, Len: 6
Data: 717569740d0a
[Length: 6]

0000 02 00 00 00 45 00 00 2e b3 eb 40 00 80 06 00 00E...@....
0010 ac 1d 00 01 ac 1d 00 01 f7 7f 0f a0 ad 4d e9 0bM..
0020 ee 5c 2a 3a 50 18 27 f9 91 92 00 00 71 75 69 74 ..*4P.....quit
0030 0d 0a

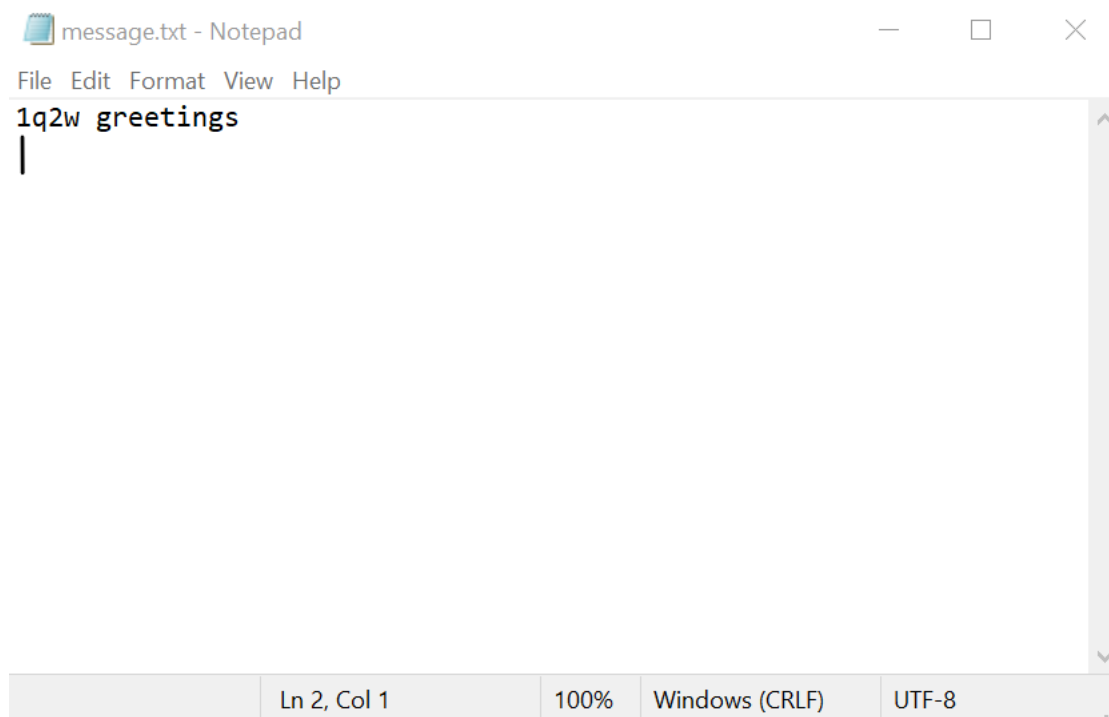
wireshark_NPF_Loopback33PGO2.pcapng

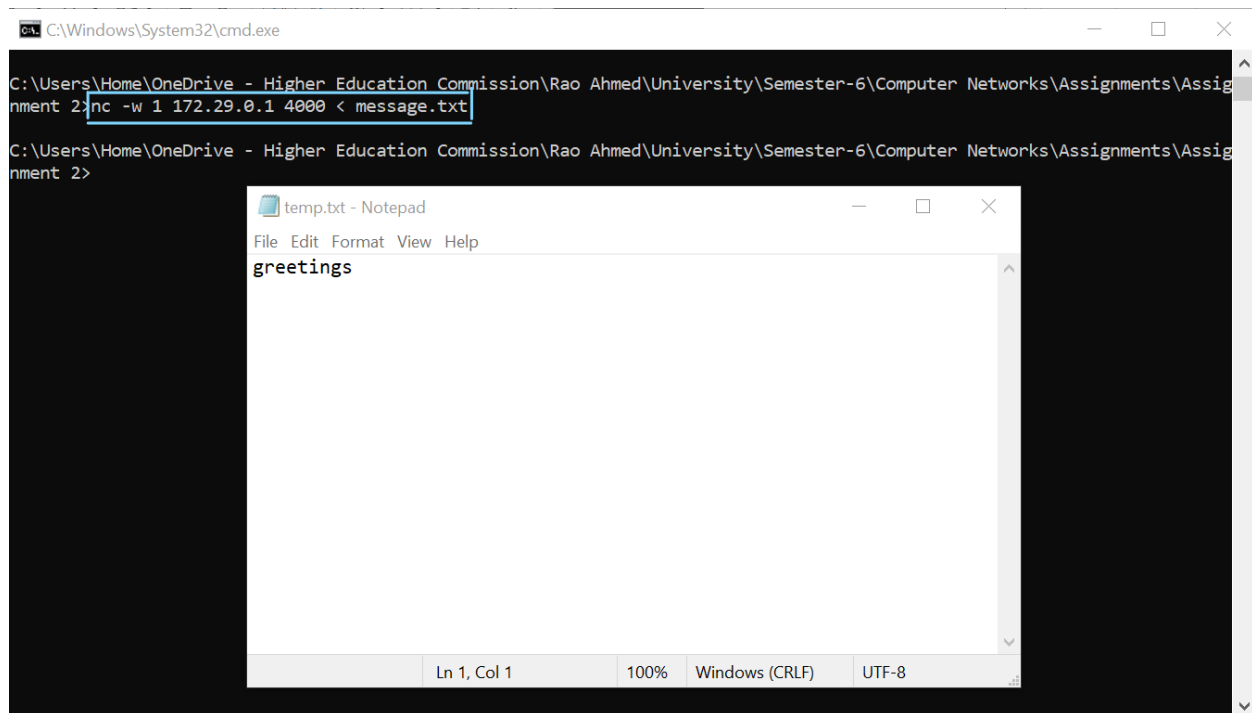
Packets: 8 - Displayed: 8 (100.0%) - Dropped: 0 (0.0%) Profile: Default

Task 4:

Now using **NetCat**, I will send the message instead of using the **ClientAssignII.exe** program. There are multiple ways to do so;

Method 1: Enter the new line in the **message.txt** (the file which contains message to be send). In this case you do not need to mention the **-c flag**.





```
C:\Windows\System32\cmd.exe
C:\Users\Home\OneDrive - Higher Education Commission\Rao Ahmed\University\Semester-6\Computer Networks\Assignments\Assignment 2>nc -w 1 172.29.0.1 4000 < message.txt
C:\Users\Home\OneDrive - Higher Education Commission\Rao Ahmed\University\Semester-6\Computer Networks\Assignments\Assignment 2>
```

temp.txt - Notepad

File Edit Format View Help

greetings

Ln 1, Col 1 100% Windows (CRLF) UTF-8

Command: the command in this case is

nc -w 1 172.29.0.1 4000 < message.txt

Command break down:

nc: it is the netcat tool

-w 1: this flag set a 1 second timeout for the connection.

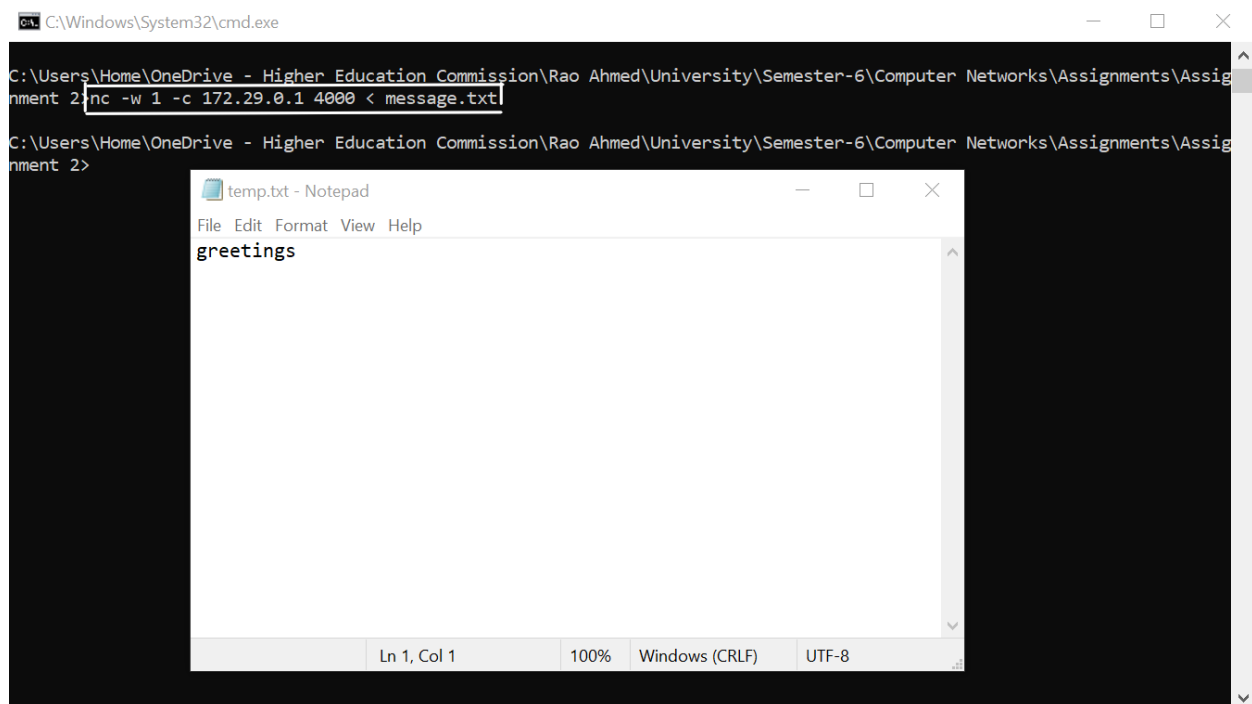
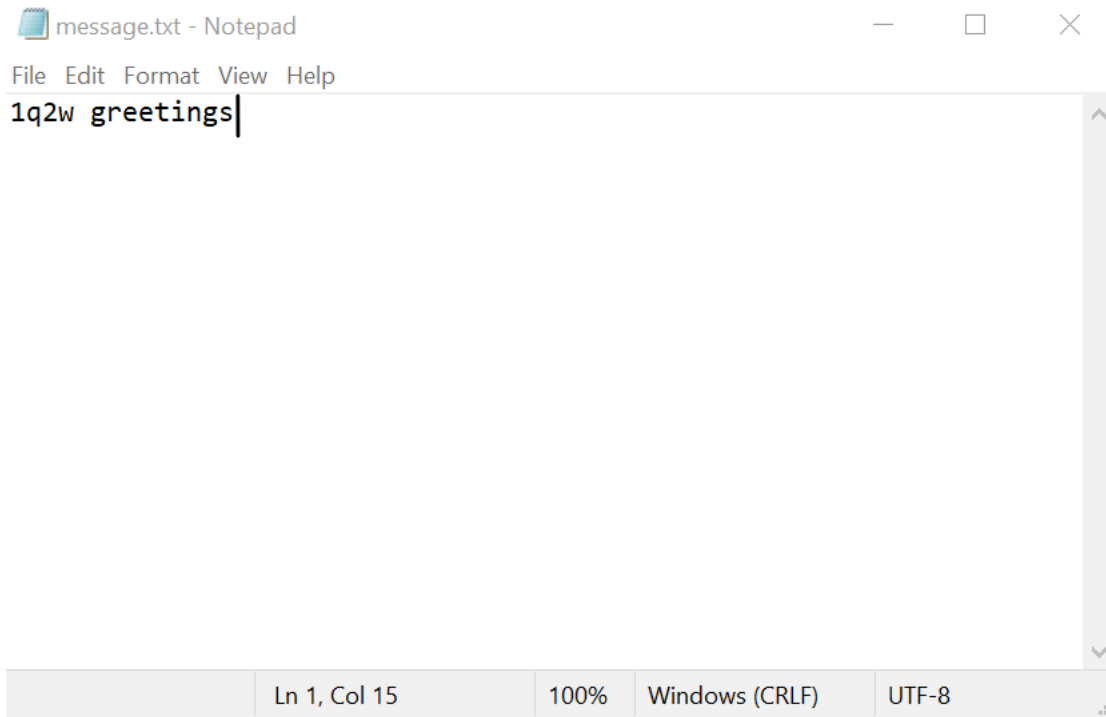
172.29.0.1: The IP address to connect to

4000: The port number to connect to

< : redirects the content of the file

message.txt: The contents of the file to be sent over the connection.

Method 2: Mention the **-c flag** to send the **carriage return** and **line feed** instead of **line feed** only. In this case you do not need to enter a new line in the **message.txt** file.



Command: `nc -w 1 -c 172.29.0.1 4000 < message.txt`

Command break down:

nc: it is the netcat tool

-w 1: this flag set a 1 second timeout for the connection.

-c : this flag send CRLF (carriage return + line feed) instead of just LF (line feed)

172.29.0.1: The IP address to connect to

4000: The port number to connect to

< : redirects the content of the file

message.txt: The contents of the file to be sent over the connection.