

# NETWORKS LAB ASSIGNMENT – 1

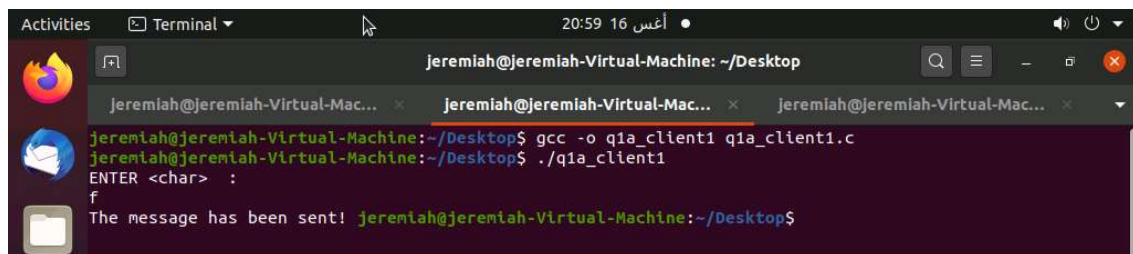
JEREMIAH THOMAS

## LAB RESULTS – SOCKET PROGRAMMING I

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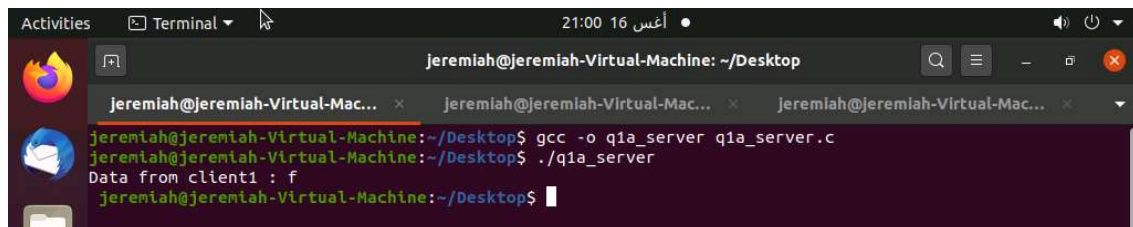
### Q1 (A):-

#### CLIENT I :-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1a\_client1.c' using 'gcc -o q1a\_client1 q1a\_client1.c'. The program is then executed with './q1a\_client1'. The user enters 'f' when prompted 'ENTER <char> :'. The output is 'The message has been sent!'.

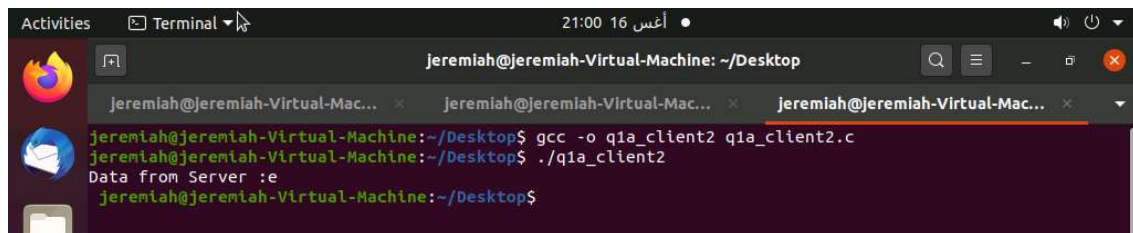
```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1a_client1 q1a_client1.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1a_client1
ENTER <char> : f
The message has been sent! jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

#### SERVER:-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1a\_server.c' using 'gcc -o q1a\_server q1a\_server.c'. The program is then executed with './q1a\_server'. It receives 'f' from client1 and prints 'Data from client1 : f'.

```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1a_server q1a_server.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1a_server
Data from client1 : f
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

#### CLIENT II :-

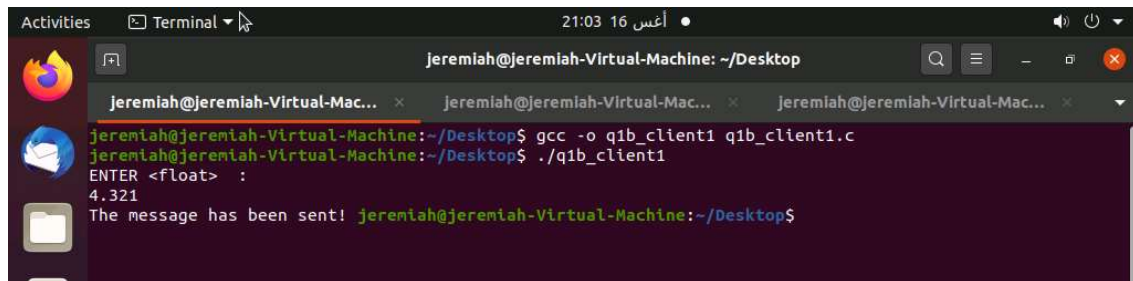
A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1a\_client2.c' using 'gcc -o q1a\_client2 q1a\_client2.c'. The program is then executed with './q1a\_client2'. It receives 'e' from the server and prints 'Data from Server : e'.

```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1a_client2 q1a_client2.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1a_client2
Data from Server : e
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

(DO SCROLL DOWN)

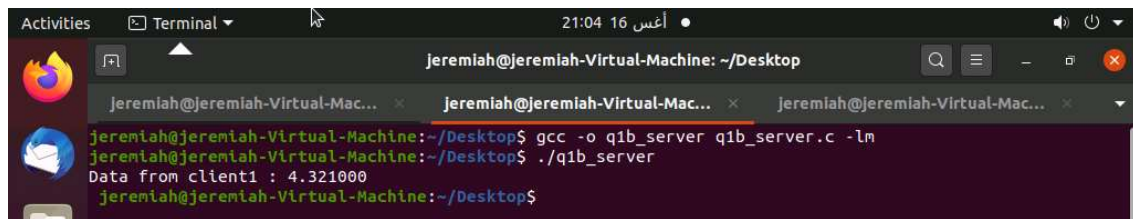
## Q1 (B)

### CLIENT I :-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1b\_client1.c' using 'gcc -o q1b\_client1 q1b\_client1.c'. The user then runs './q1b\_client1', which prompts for 'ENTER <float> :'. The user enters '4.321', and the program outputs 'The message has been sent!'.

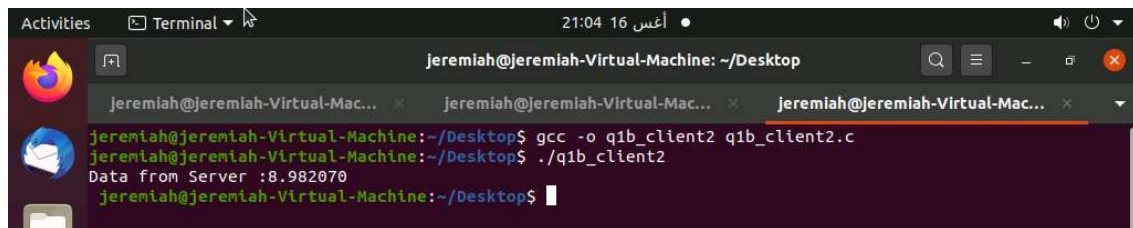
```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1b_client1 q1b_client1.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1b_client1
ENTER <float> :
4.321
The message has been sent! jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

### SERVER:-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1b\_server.c' using 'gcc -o q1b\_server q1b\_server.c -lm'. The user then runs './q1b\_server', which outputs 'Data from client1 : 4.321000'.

```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1b_server q1b_server.c -lm
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1b_server
Data from client1 : 4.321000
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

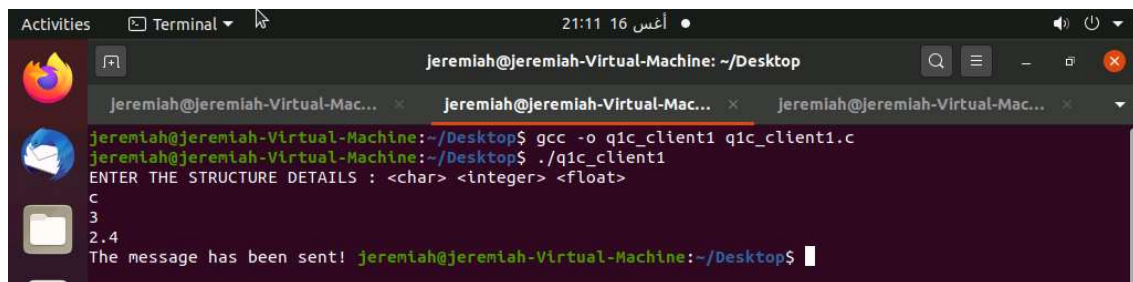
### CLIENT II :-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1b\_client2.c' using 'gcc -o q1b\_client2 q1b\_client2.c'. The user then runs './q1b\_client2', which outputs 'Data from Server :8.982070'.

```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1b_client2 q1b_client2.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1b_client2
Data from Server :8.982070
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

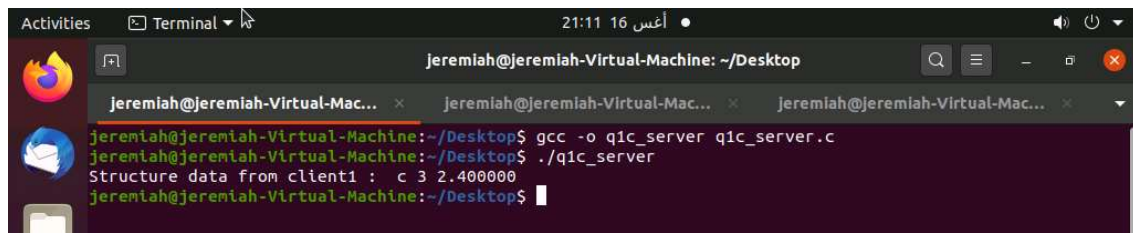
## Q1 (C)

### CLIENT I :-

A terminal window titled 'jeremiah@jeremiah-Virtual-Machine: ~/Desktop'. It shows the compilation of 'q1c\_client1.c' using 'gcc -o q1c\_client1 q1c\_client1.c'. The user then runs './q1c\_client1', which prompts for 'ENTER THE STRUCTURE DETAILS : <char> <integer> <float>'. The user enters 'c', '3', and '2.4'. The program then outputs 'The message has been sent!'.

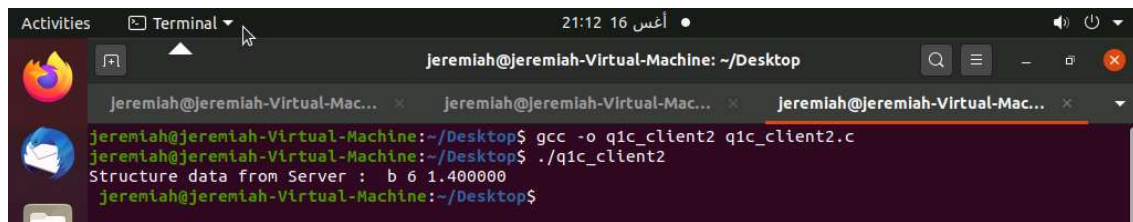
```
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1c_client1 q1c_client1.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1c_client1
ENTER THE STRUCTURE DETAILS : <char> <integer> <float>
c
3
2.4
The message has been sent! jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

## SERVER:-



```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1c_server q1c_server.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1c_server
Structure data from client1 : c 3 2.400000
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

## CLIENT II :-

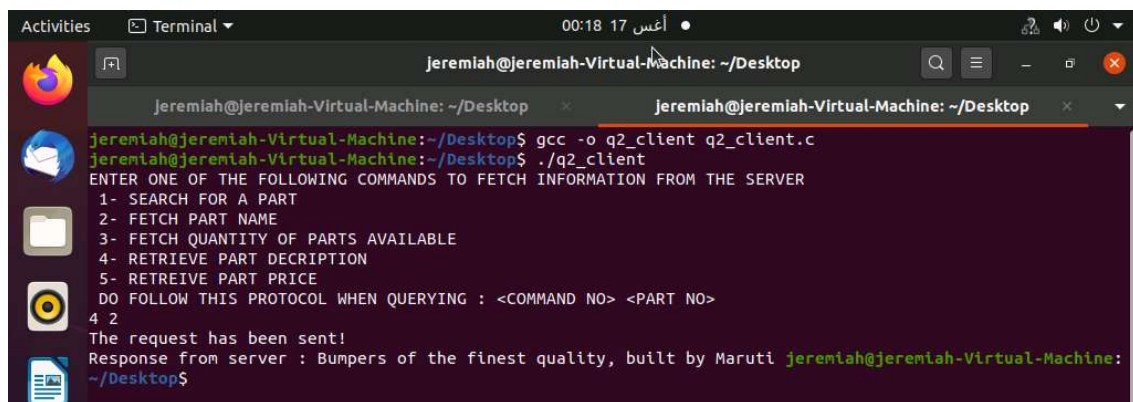


```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q1c_client2 q1c_client2.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q1c_client2
Structure data from Server : b 6 1.400000
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

## Q2)

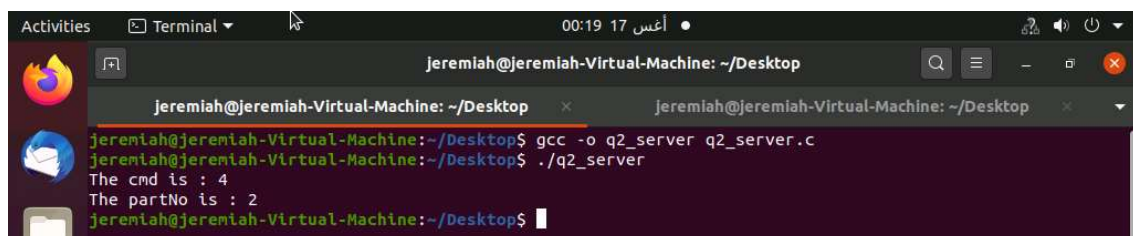
### CLIENT:-

Here, below, is an example where the Client makes a specific request for the part descp. (CMD 4) for Part No: 2.



```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q2_client q2_client.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q2_client
ENTER ONE OF THE FOLLOWING COMMANDS TO FETCH INFORMATION FROM THE SERVER
1- SEARCH FOR A PART
2- FETCH PART NAME
3- FETCH QUANTITY OF PARTS AVAILABLE
4- RETRIEVE PART DESCRIPTION
5- RETREIVE PART PRICE
DO FOLLOW THIS PROTOCOL WHEN QUERYING : <COMMAND NO> <PART NO>
4 2
The request has been sent!
Response from server : Bumpers of the finest quality, built by Maruti
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

## SERVER:-

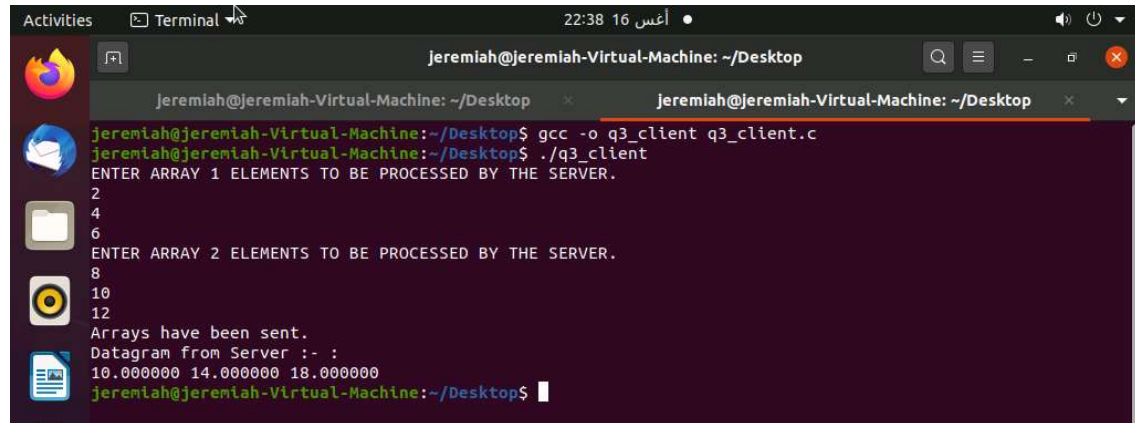


```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q2_server q2_server.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q2_server
The cmd is : 4
The partNo is : 2
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

### Q3)

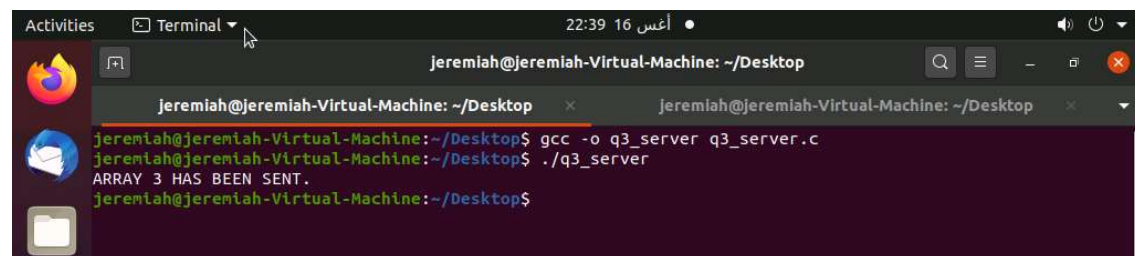
CASE 1: The event when correct data is sent by the client: -

CLIENT: -



```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q3_client q3_client.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q3_client
ENTER ARRAY 1 ELEMENTS TO BE PROCESSED BY THE SERVER.
2
4
6
ENTER ARRAY 2 ELEMENTS TO BE PROCESSED BY THE SERVER.
8
10
12
Arrays have been sent.
Datagram from Server :- :
10.000000 14.000000 18.000000
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

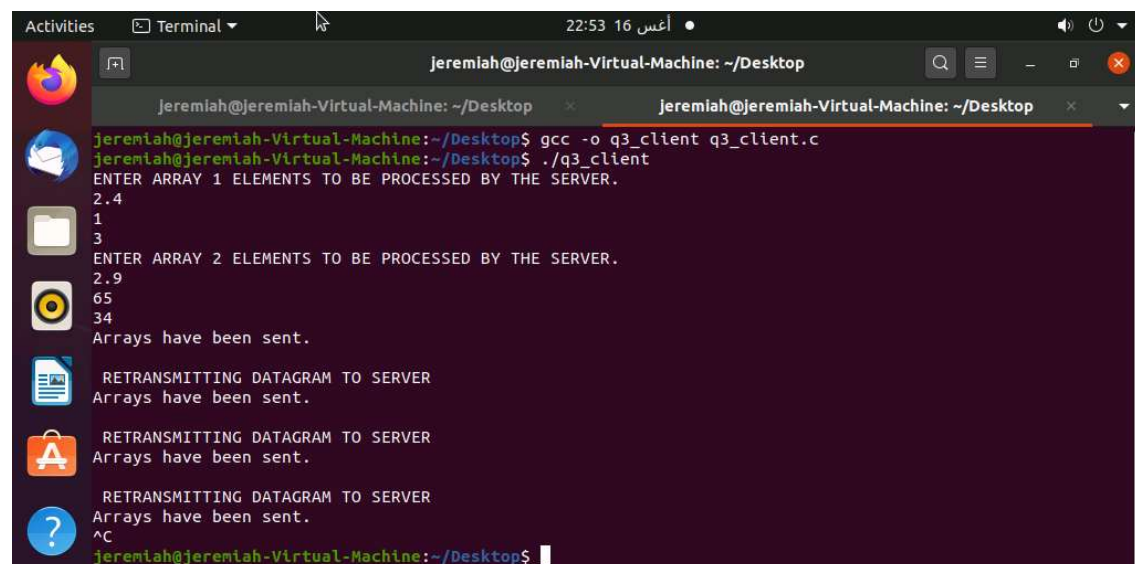
SERVER:-



```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q3_server q3_server.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q3_server
ARRAY 3 HAS BEEN SENT.
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

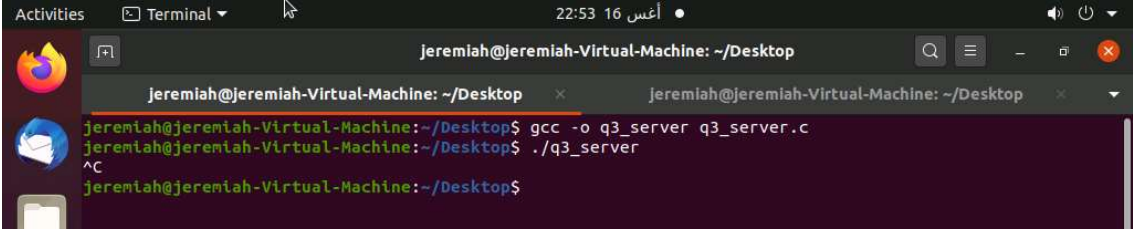
CASE 2 : Event where erroneous data is sent by the client:-

CLIENT:-



```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ gcc -o q3_client q3_client.c
jeremiah@jeremiah-Virtual-Machine:~/Desktop$ ./q3_client
ENTER ARRAY 1 ELEMENTS TO BE PROCESSED BY THE SERVER.
2.4
1
3
ENTER ARRAY 2 ELEMENTS TO BE PROCESSED BY THE SERVER.
2.9
65
34
Arrays have been sent.
RETRANSMITTING DATAGRAM TO SERVER
Arrays have been sent.
RETRANSMITTING DATAGRAM TO SERVER
Arrays have been sent.
RETRANSMITTING DATAGRAM TO SERVER
Arrays have been sent.
^C
jeremiah@jeremiah-Virtual-Machine:~/Desktop$
```

## SERVER:-



The screenshot shows a terminal window titled "jeremiah@jeremiah-Virtual-Machine: ~/Desktop". The terminal displays the following commands and output:

```
jeremiah@jeremiah-Virtual-Machine: ~/Desktop$ gcc -o q3_server q3_server.c
jeremiah@jeremiah-Virtual-Machine: ~/Desktop$ ./q3_server
^C
jeremiah@jeremiah-Virtual-Machine: ~/Desktop$
```

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THANK YOU

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