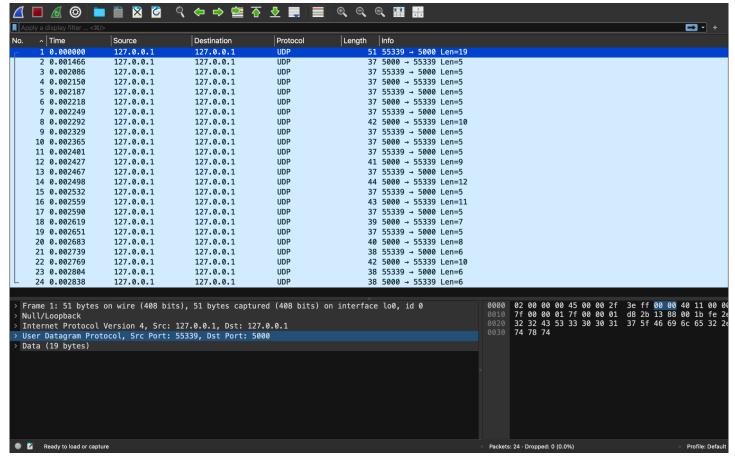
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## **Assignment 2: UDP Sockets** Submission:

Name: Chandransh Singh Roll number: 22CS30017

Link of the pcap file: UDP packets

1) Capture all packets exchanged between the client and server during execution. Show the screenshots.



- 2) What protocol is used for communication?
  - UDP (User Datagram Protocol)
- 3) What are the source and destination IP addresses and ports?
  - Source (client):

o Address: 127.0.0.1

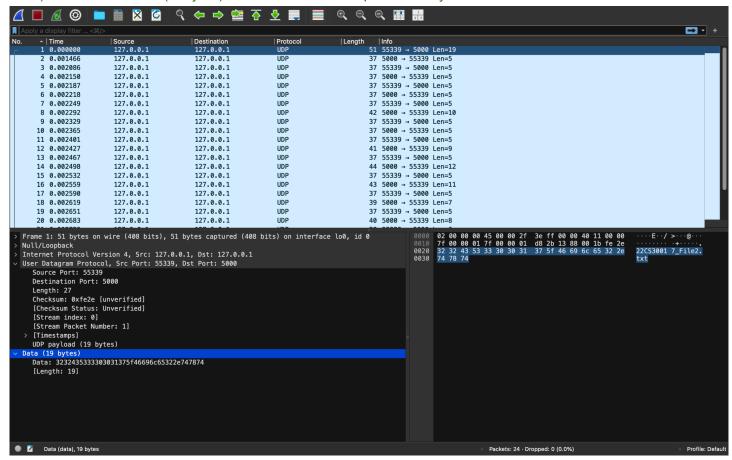
o Port: 55339

Destination (server):

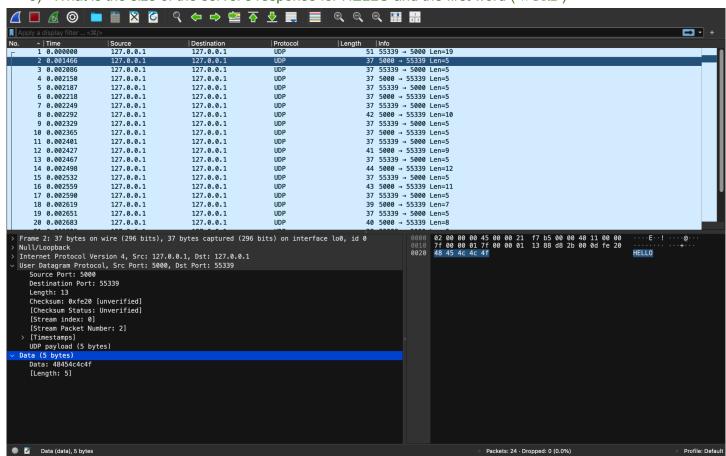
Address: 127.0.0.1

o Port: 5000

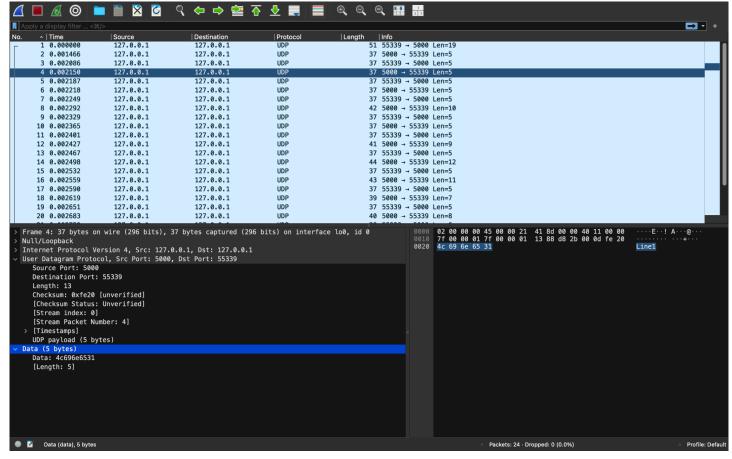
4) What is the size (in bytes) of the FILENAME request sent by the client?



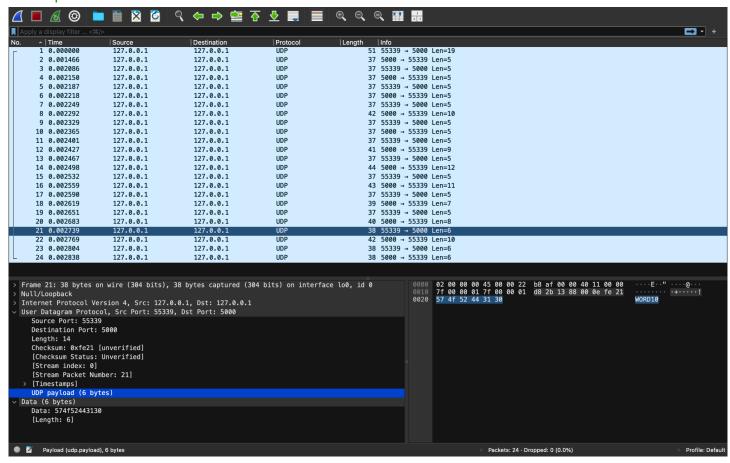
- The filename requested by client was '22CS30017\_File2.txt' => Size = 19 bytes
- 5) What is the size of the server's response for HELLO and the first word ( WORD)



• size of the server's response for HELLO: 5 bytes



- size of the server's response for first word : 5 bytes [the word was: Line1]
- 6) Inspect the payload of packets where the words are transmitted. Show the UDP payloads of those packets.



We can see the payload of the packet when 'Word10' was transmitted to the server.

7) Measure the total time taken for the file transfer from start to finish.

```
Total Time = Timestamp of Last Packet-Timestamp of First Packet
```

=> total time for the file transfer = timestamp of the last word(FINISH) - timestamp of first word(HELLO)

- = 0.002838 0.001466 (s)
- = 0.001372 seconds = 1.372 ms
- Note: we may also consider the start time as the timestamp of the FILENAME packet.
   As the may call it the start of file transfer in that case,
   Total time for file transfer is 0.002838 seconds = 2.838 ms
- 8) What is the average size of each packet during the communication?
- Compute the average size:
  - Average Packet Size = Total Size of Packets /Number of Packets

Total size of packets = (sum of all the values in the length column)

Number of packets = 24

=> Average packet size = 937/24 bytes = 39.04 ~ **39 bytes** 

## Terminal 🧖

```
gcc -Wall -o wordserver wordserver.c
                                                                          gcc -Wall -o wordclient wordclient.c
gcc -Wall -o wordclient wordclient.c
                                                                          ./wordclient
                                                                          Enter the filename to request: 22CS30017_File2.txt
gcc -Wall -o wordserver wordserver.c
                                                                          +++ Receiving file from server...
                                                                          +++ Received word 0: HELLO
Server is running on port 5000 ...
                                                                          +++ Received word 1: Line1
Received filename: 22CS30017_File2.txt
                                                                          +++ Received word 2: LiNe2
==> File transfer complete.
                                                                          +++ Received word 3: Chandransh
\sim/Doc/6/CN/LAB/LA2 main ?4 > \square
                                                                          +++ Received word 4: Singh
                                                                          +++ Received word 5: 22CS30017
                                                                          +++ Received word 6: Assignment_2
                                                                          +++ Received word 7: UDP_sockets
                                                                          +++ Received word 8: CS39006
                                                                          +++ Received word 9: Networks
                                                                          +++ Received word 10: Laboratory
                                                                          ==> File transfer complete.
                                                                          ==> File saved as received_22CS30017_File2.txt
                                                                         \sim/Doc/6/CN/LAB/LA2 main ?4 >
```