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**Assignment 2: UDP Sockets** Submission:

Name: Chandransh Singh

Roll number: 22CS30017

Link of the pcap file: UDP_packets

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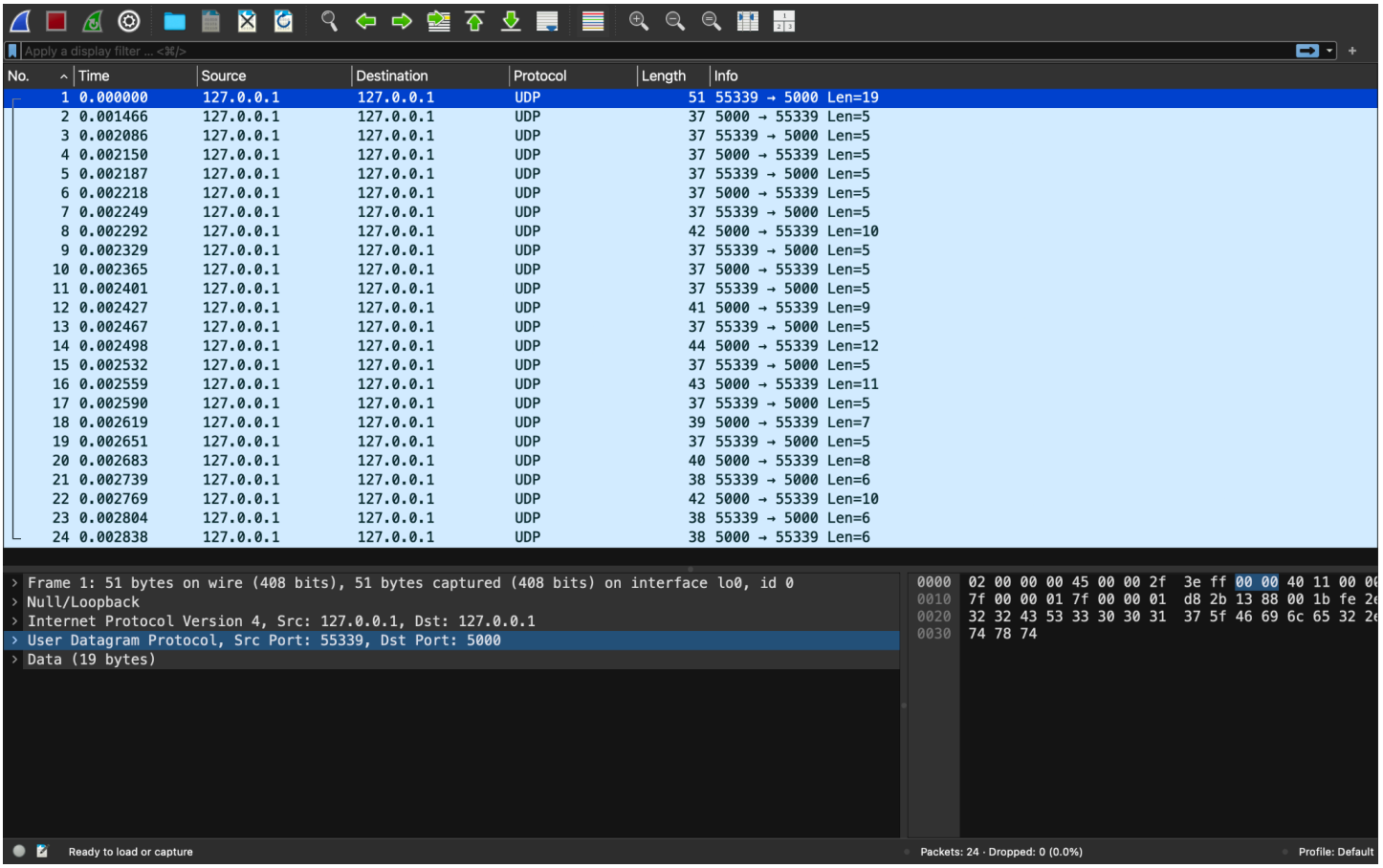
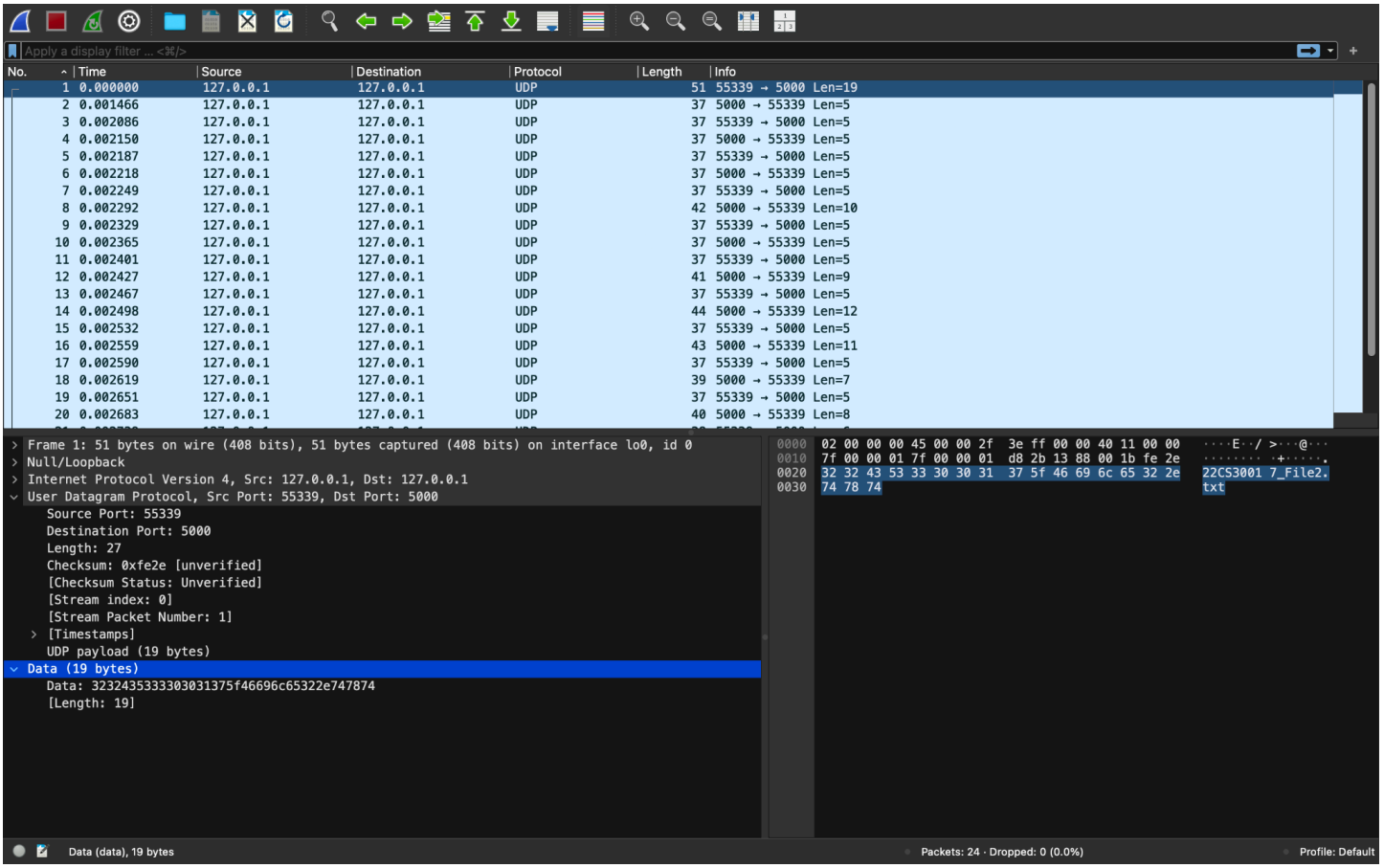
1) Capture all packets exchanged between the client and server during execution. Show the screenshots.




2) What protocol is used for communication?
   - UDP (User Datagram Protocol)

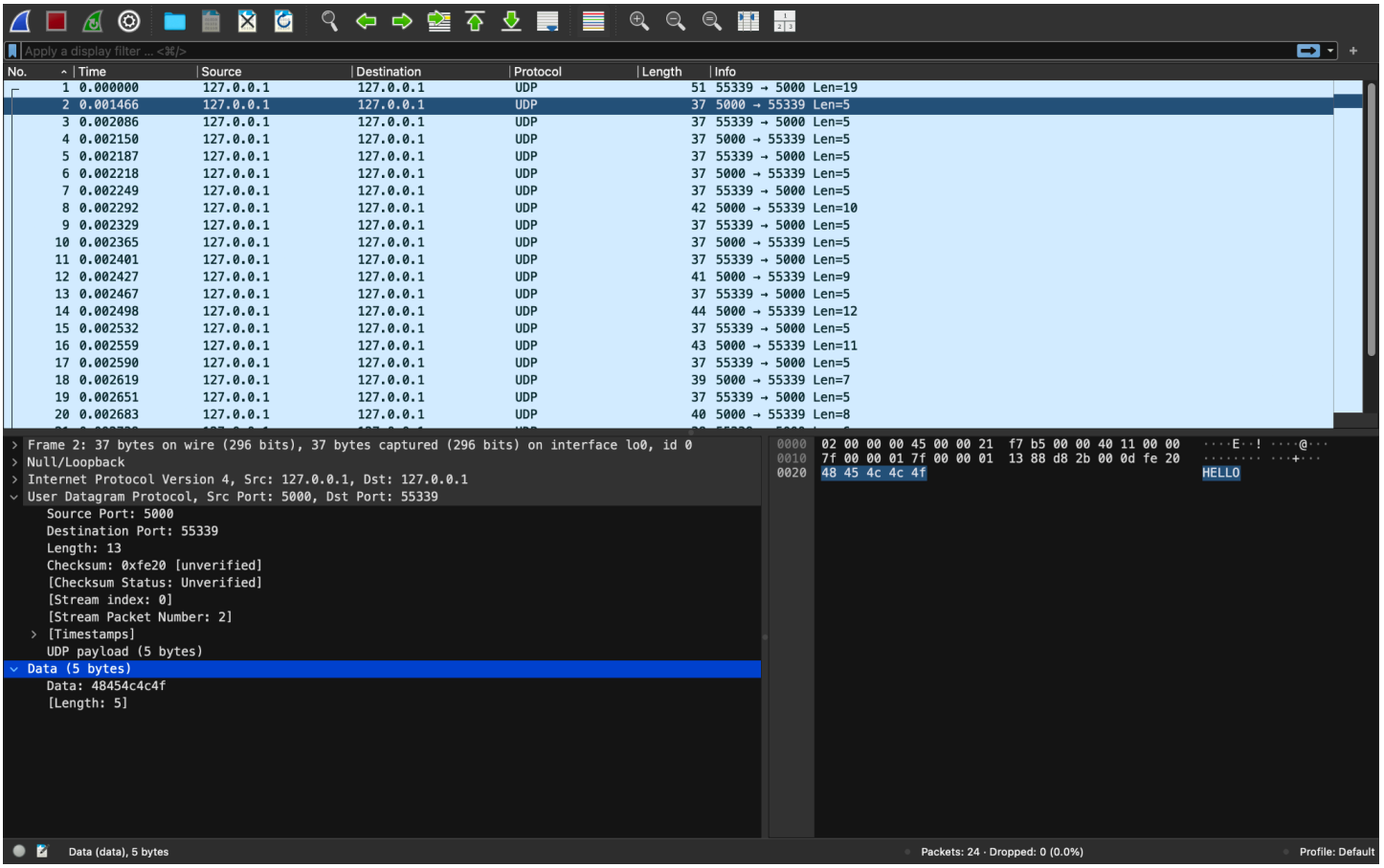
3) What are the source and destination IP addresses and ports?
   - Source (client):
     - Address: `127.0.0.1`
     - Port: `55339`
   - Destination (server):
     - Address: `127.0.0.1`
     - Port: `5000`

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

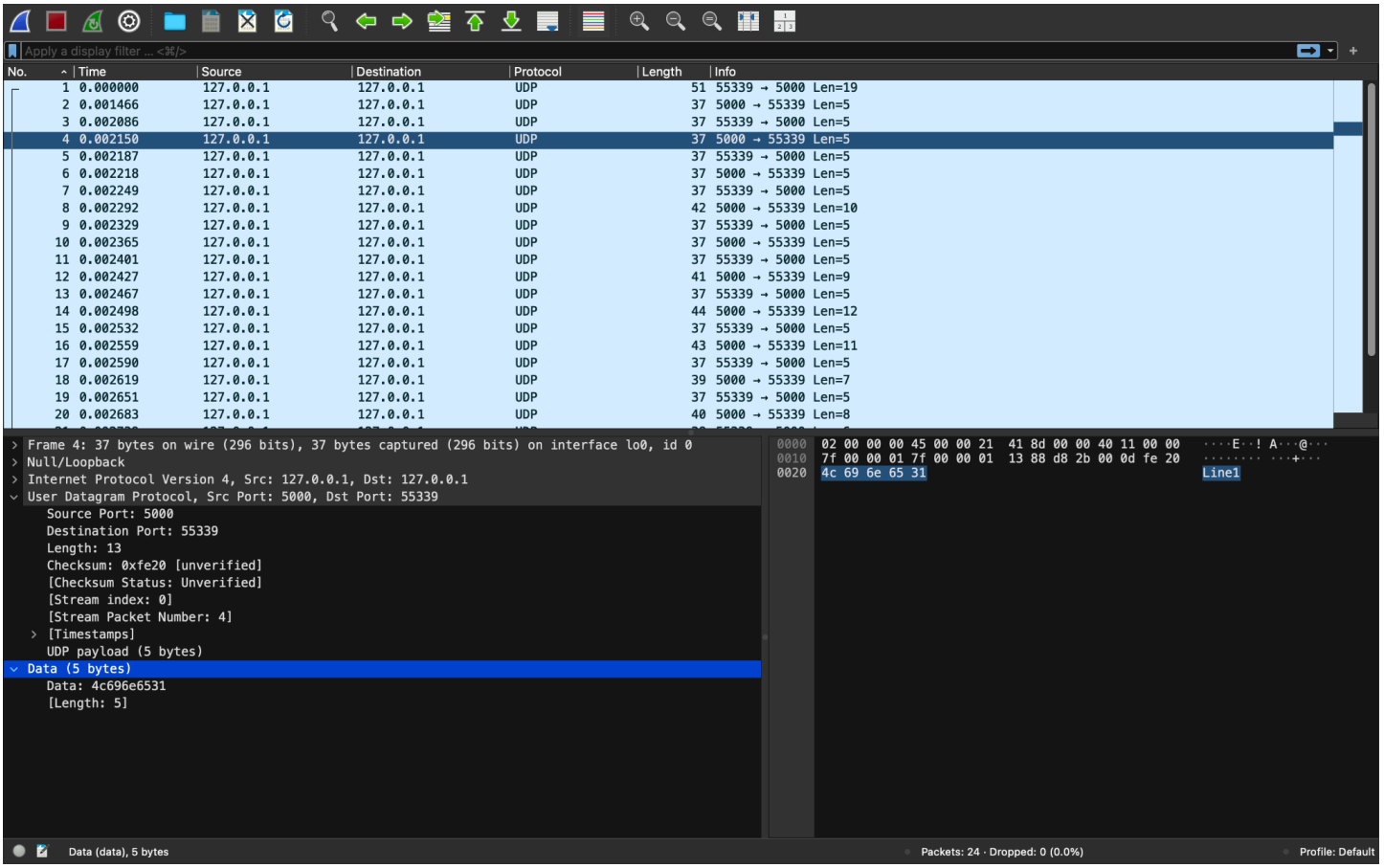



- The filename requested by client was ‘22CS30017_File2.txt’ => Size = **19 bytes**

5) What is the size of the server's response for HELLO and the first word ( *WORD*)

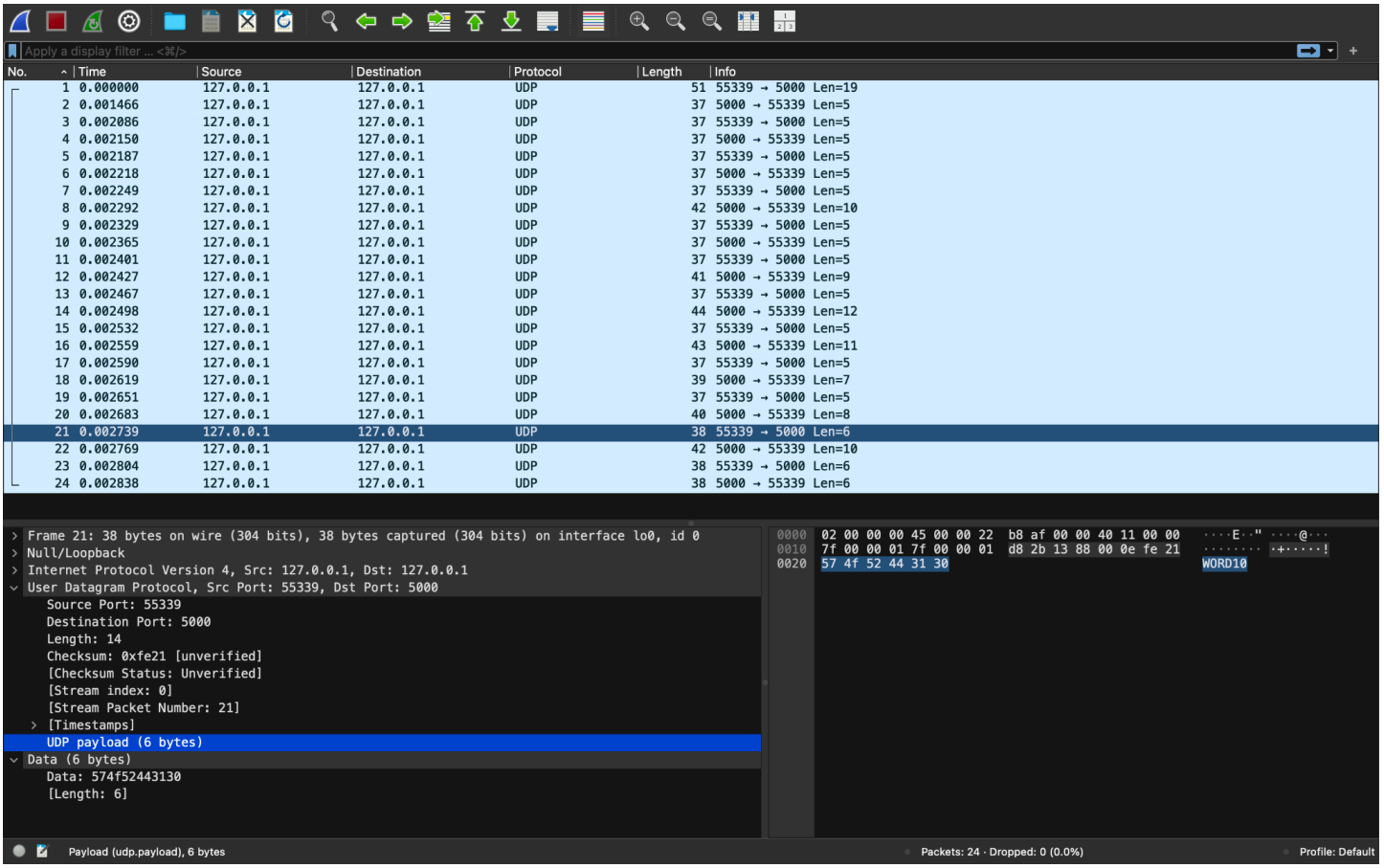



- size of the server's response for HELLO : **5 bytes**




- 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.

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Total Time = Timestamp of Last Packet−Timestamp of First Packet
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=> 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)

= 51 + 37 + 37 + 37 + 37 + 37 + 37 + 42 + 37 + 37 + 37 + 41 + 37 + 44 + 37 + 43 + 37 + 39 + 37 + 40

+ 38 + 42 + 38 + 38
= 937 bytes

Number of packets = 24

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

## Terminal 🧑‍💻