CAP Task 2: Psychomotor Page 56

```
// Members:
// Dimaandal, Glenn Roy
// Laylo, John Vincent
// Perce, John Adrian
```

A. How UDP Clients and UDP Servers Communicate over Sockets

B. How TCP Clients and TCP Servers Communicate over Sockets

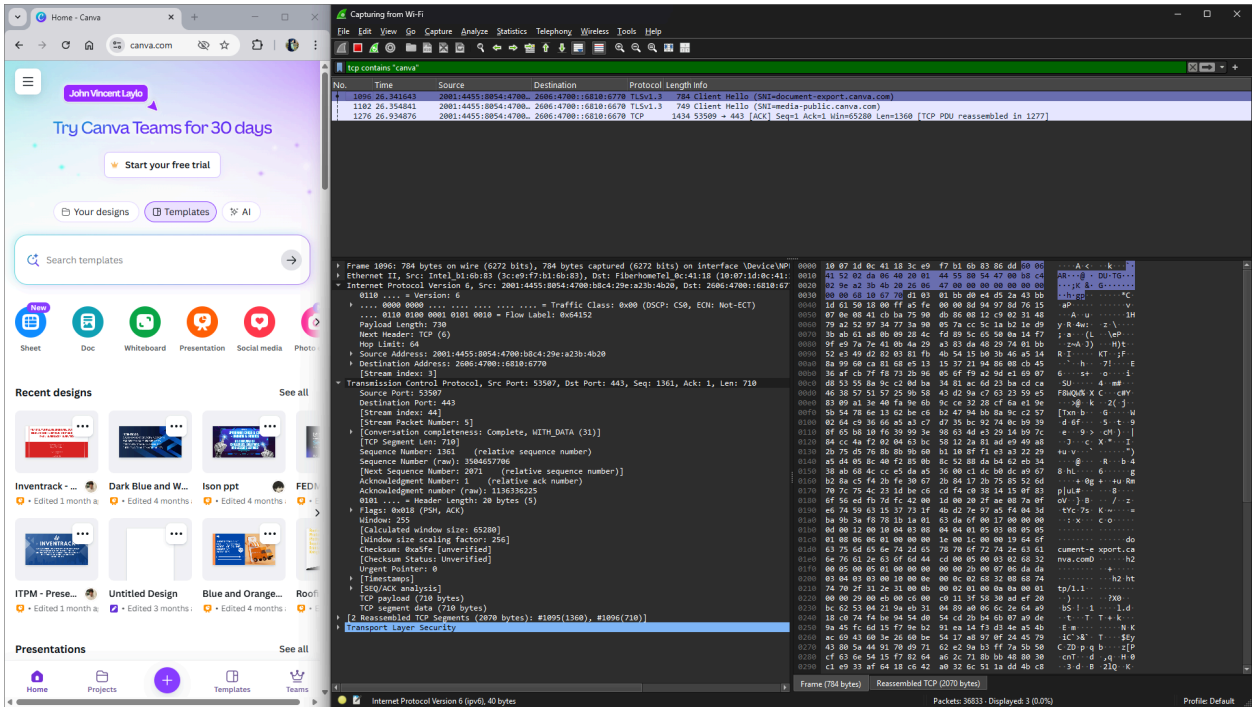
```
Server started. Waiting for clients...
Client connected
Client says: Hi there! Thanks for connecting!
Server says: Hello! Nice to hear from you!

Process finished with exit code 0
```

C. Remote Method Invocation (RMI)

```
Server is ready
Hello from RMI Server!
Message received: Hello from client!
```

D. IP and TCP Packet Structure



8. Identify the following on the packet bytes that you just copied by encircling and labeling them:

Internet Protocol:

- Version
- IHL
- Type of service
- Total length
- Identification
- Flags
- Fragment offset
- Time-to-live
- Protocol
- Header Checksum
- Source Address
- Destination Address.

Transmission Control Protocol:

- Source port
- Destination port
- Sequence number
- Acknowledgement number
- Reserved
- Flags
- Window
- Checksum
- Urgent pointer

OUTPUT:

Internet Protocol header (IPv6)

Field	Offset (bytes)	Size	Value / Notes
Version	0 (bits 0–3)	4 bits	6
IHL	—	—	N/A (fixed 40 B header in IPv6)
Type of Service (TOS)	0 (bits 4–11)	8 bits	0x00 (Traffic Class = 0, DSCP CS0, ECN Not-ECT)
Total Length	4–5	16 bits	730 B (IPv6 “Payload Length”; actual packet = 730 B + 40 B header = 770 B)
Identification	—	—	N/A (no ID in base IPv6 header)
Flags	—	—	N/A
Fragment Offset	—	—	N/A
Time-to-Live	7	8 bits	64 (Hop Limit)
Protocol	6	8 bits	6 (Next Header = TCP)
Header Checksum	—	—	N/A
Source Address	8–23	128 bits	2001:4455:8054:4700:b8c4:29e:a23b:4b20
Destination Address	24–39	128 bits	2606:4700::6810:6770

Transmission Control Protocol header

Field	Offset (bytes)	Size	Value / Notes
Source port	40–41	16 bits	53507
Destination port	42–43	16 bits	443
Sequence number	44–47	32 bits	raw 3504657706 (rel 1361)
Acknowledgement number	48–51	32 bits	raw 1136336225 (rel 1)
Reserved	52 (bits 4–6)	3 bits	0
Flags	52 (bits 7–15)	9 bits	0x018 → PSH + ACK
Window	54–55	16 bits	255 (scaled by 256 → 65280)
Checksum	56–57	16 bits	0xa5fe
Urgent pointer	58–59	16 bits	0