# **CS471 FIRST LAB**

## **Fahad Alsunedi**

## **421108106**

**Part 1:**

Comparing UDP Headers to TCP headers is quite simple, UDP is known and structured around being simple and straightforward with not too many steps like TCP, we can see the differences between them in the following screenshots. Here is the TCP packet header:

A black and blue screen with text

Description automatically generated

And here is the UDP packet header:

A black screen with white text

Description automatically generated

And this difference between the two protocols are built upon the basics of the two protocols, UDP just keeps sending packets without waiting for acknowledgment nor SYN, but on the other hand, TCP requires a handshake and then a sequence number for each packer and acknowledgment for each received packet and so on.

**Part 2:**

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|  | TCP or UDP | Reasons |
| Reliability and Connection Establishment | **TCP** | All though TCP my be redundant sometimes, but in my opinion it is more reliable , where UDP doesn’t even care for the connection establishment phase. |
| Data Integrity and Ordering | **TCP** | TCP requires an acknowledgement for each sequence sent with each packet, so it can make sure everything has been sent in order and nothing is missing. |

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|  | TCP | UDP |
| Use cases | TCP is used where data integrity is of most importance, so in files exchange and massages. | UDP is used in sending audio files or streaming videos, where some data loss can be tolareted. |
| Performance | TCP requires more resources and time, because of its nature we discussed earlier. | UDP is faster and needs less resources since it has less steps and just keeps flooding the data. |