

# Computer Networks

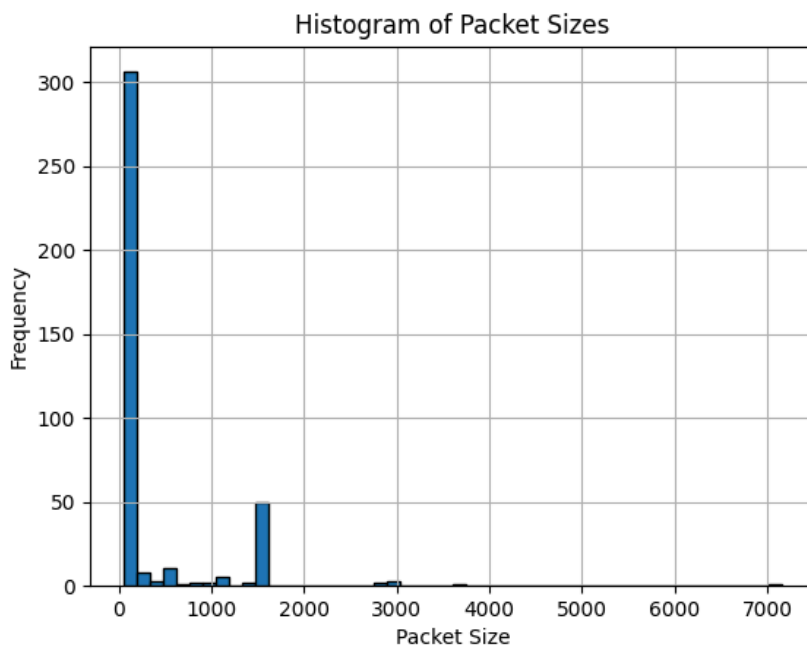
## Part 1:

### Data and Packet Metrics

- **Total Data Transferred:** 144,520 bytes
- **Total Packets Transferred:** 397
- **Minimum Packet Size:** 42 bytes
- **Maximum Packet Size:** 7,165 bytes
- **Average Packet Size:** 364.03 bytes

### Maximum Packet Details

- **Packet Size:** 7,165 bytes
- **Source IP:** 10.0.2.15
- **Destination IP:** 52.168.117.175
- **Source Port:** 53,030
- **Destination Port:** 443
- **Packet Raw Data:** Ether / IP / TCP 10.0.2.15:53030 > 52.168.117.175:https PA / Raw



## Part 2:

### Q1: Extracting the IP Address from a TCP Packet

The IP address found in the TCP packet containing the message "< my ip address = >" is:  
**10.1.2.200**

### Q2: Counting Packets with the Identified IP Address

The total number of packets that contain the IP address **10.1.2.200** is:  
**80 packets**

### Q3: Extracting Laptop Name and TCP Checksum

(a) **Laptop Name Found in a TCP Packet:**  
**lenovo**

(b) **TCP Checksum of the Packet Containing the Laptop Name:**  
**0x0a61**

### Q4: Counting Packets Containing "Order successful"

The total number of packets that contain the message "**Order successful**" is:  
**40 packets**

## Part 3: Capture the packets

1)

### Syslog Protocol

- **Operation:** Syslog is used for message logging, allowing devices such as routers, switches, and servers to send log messages to a central server for monitoring and debugging.
- **Layer:** Application Layer
- **RFC:** RFC 5424

### LDAP (Lightweight Directory Access Protocol)

- **Operation:** LDAP is used for querying and modifying directory services, commonly used for authentication and centralized user management in enterprise networks.
- **Layer:** Application Layer

- **RFC:** RFC 4519

### **NNTP (Network News Transfer Protocol)**

- **Operation:** NNTP is used to distribute, retrieve, and post news articles (Usenet newsgroups) over the Internet. It is mainly used for online discussion forums.
- **Layer:** Application Layer
- **RFC:** RFC 3977

### **BGP (Border Gateway Protocol)**

- **Operation:** BGP is used for exchanging routing information between autonomous systems (AS) on the Internet. It is essential for global Internet routing.
- **Layer:** Application Layer
- **RFC:** RFC 4271

### **SMTP (Simple Mail Transfer Protocol)**

- **Operation:** SMTP is used for sending and forwarding email messages between mail servers. It operates on a push model, meaning emails are sent from a client to a mail server and then relayed to the recipient's server. SMTP works alongside protocols like IMAP and POP3 for email retrieval.
- **Layer:** Application Layer
- **RFC:** RFC 5321

2)

## **Analysis of Request Line, Protocol Version, and Persistent Connection**

By visiting the websites **Netflix**, **GitHub**, and **Canara Bank**, we have analyzed the request-response details, including the IP addresses, request line, and persistent connections.

### **Netflix**

- **IP Address:** 54.74.73.31:443
- **Request Line:** GET / HTTP/2
- **Response Headers:**
  - accept-ch: Sec-CH-UA-Platform-Version,Sec-CH-UA-Model
  - cache-control: no-cache, no-store
  - content-security-policy-report-only: Specifies security policies for content sources.
- **Request Headers:**
  - accept: Various MIME types accepted, including HTML, images, and application data.
  - accept-encoding: Supports compression formats like gzip, deflate, and br.
  - accept-language: en-US,en;q=0.9

