

# Computer Networks

Link : [https://github.com/vatsalrajrathod/CN\\_Assignment1](https://github.com/vatsalrajrathod/CN_Assignment1)

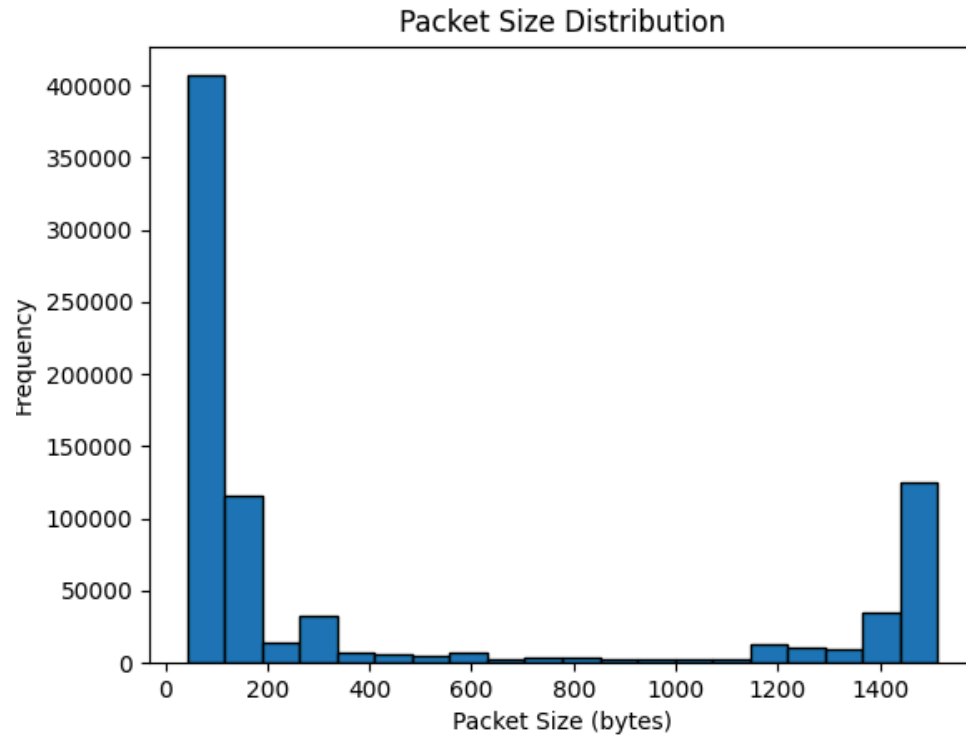
## Part 1:

### Data and Packet Metrics

- **Total Data Transferred: 34194641 bytes**
- **Total Packets Transferred: 120713**
- **Min Packet Size: 42, Max Packet Size: 7354, Avg Packet Size: 283.27**

### Maximum Packet Details

- **Largest Data Transfer:**
- **Source: 174.129.24.9, Destination: 172.16.133.39, Bytes Transferred: 2000498**



## 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)**

### **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
- **Connection: Not Persistent**

### **GitHub**

- **IP Address:** 20.207.73.82:443

- **Request Line:** GET / HTTP/2
- **Response Headers:**
  - content-type: text/html; charset=utf-8
  - date: Sat, 01 Feb 2025 15:51:54 GMT
  - etag: W/"59eb3c5ca3c41c4bf99e43c360a81bef"
- **Request Headers:**
  - accept: Similar to Netflix, allowing multiple MIME types.
  - accept-encoding: Supports gzip, deflate, br, and zstd.
  - accept-language: en-US,en;q=0.9
- **Connection: Not Persistent**

### Canara Bank

- **IP Address:** 107.162.160.8:443
- **Request Line:** GET / HTTP/1.1
- **Response Headers:**
  - connection: close
  - content-security-policy: Defines security rules for scripts, styles, and images.
  - content-type: text/html; charset=utf-8
- **Request Headers:**
  - accept: Accepts various content types, similar to Netflix and GitHub.
  - accept-encoding: Supports gzip, deflate, br, and zstd.
  - accept-language: en-US,en;q=0.9
- **Connection: Not Persistent**

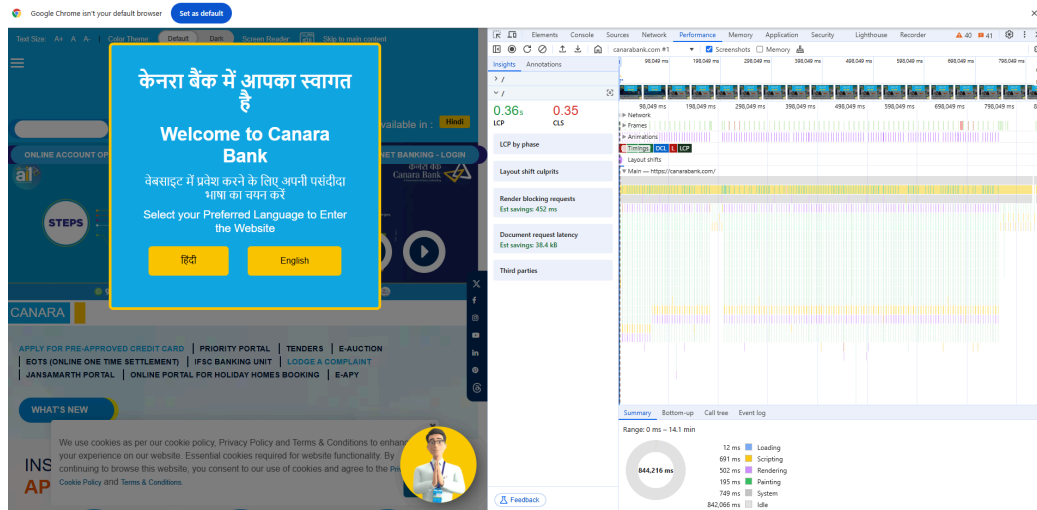
We are not encountering any HTTP error codes, but this could potentially be the error.

1. 404 Not Found:
  - The server cannot find the requested page. This error occurs when the URL does not point to a valid resource on the server.
2. 500 Internal Server Error:
  - The server encountered an unexpected condition that prevented it from fulfilling the request. This error is often due to issues within the server's code or configuration.
3. 403 Forbidden:
  - The server understands the request but refuses to authorize it. This can happen if the user doesn't have permission to access the requested resource.

3)

Browser : Chrome

screenshot of the performance metrics for canara bank



For Netflix:

Set-Cookie:

```
flwssn=ce5e6d19-c9f1-43fd-a0dd-29fb6c37c776; Max-Age=10800; Domain=.netflix.com; Path=/
```

Cookie:

```
flwssn=ce5e6d19-c9f1-43fd-a0dd-29fb6c37c776;
nfvdid=BQFmAEEBENI07JO1qbZJ3wUA6B6vaspAHjxbUvKS-
bhq8ORU5rfw88xTCdSQtZnf8_tXqMHBvOV05ciKw4TJiAydPu0loKZ2WW9FmTNd7EcJ3gzQgDYggQ%
3D%3D;
SecureNetflixId=v%3D3%26mac%3DAQEAEQABABQRm8EygEP10mRaieNRAGRbCFnBwHYd5-
o.%26dt%3D1738424463633;
NetflixId=v%3D3%26ct%3DBgjHIOvcAxAUUtVvryaBJL4ujTaGnqmu8WVBWJOfHliZPV0FDJb23VHN
-XyXd2MsNFDgEsigjH8XOJNV9N-xUzkiWSn45e7_RwfpYY77DALjykwYF7XgNmZsaL2IXU-
5eUq3W8GYiNPUgDjk7K5ks_tOSpJ7lw6A4Xh8IKkG1OeSQMp_y4RaRS9gdbX93zzm34ev0nULDhQ5c
mcGjQ3mJ_p8ybhR-
DpNeLqRRWhhQ8eeMvd8TEZG8dn0q288alr0n8BUA6ck65ExgGlg4KDHCSqNooit5cbmonZg.;
OptanonConsent=isGpcEnabled=0&datestamp=Sat+Feb+01+2025+21%3A19%3A47+GMT%2B053
0+
(India+Standard+Time)&version=202411.1.0&browserGpcFlag=0&isABGlobal=false&hosts=&cons
entId=47f66887-3c40-4d3d-b423-
4b88edcda0c3&interactionCount=1&isAnonUser=1&landingPath=https%3A%2F%2Fwww.netflix.co
m%2Ffin%2F&groups=C0001%3A1%2CC0002%3A1%2CC0003%3A1%2CC0004%3A1
```

The associated flags for the given cookie are:

1. **Max-Age=10800**: This indicates that the cookie will expire after 10,800 seconds (or 3 hours).
2. **Domain=.netflix.com**: The cookie is valid for any subdomain of netflix.com.

3. **Path=**/: The cookie is valid for the entire domain (i.e., all paths within the domain)