Application 4: Multi-stage DNS Resolving System using Client-Server socket programming
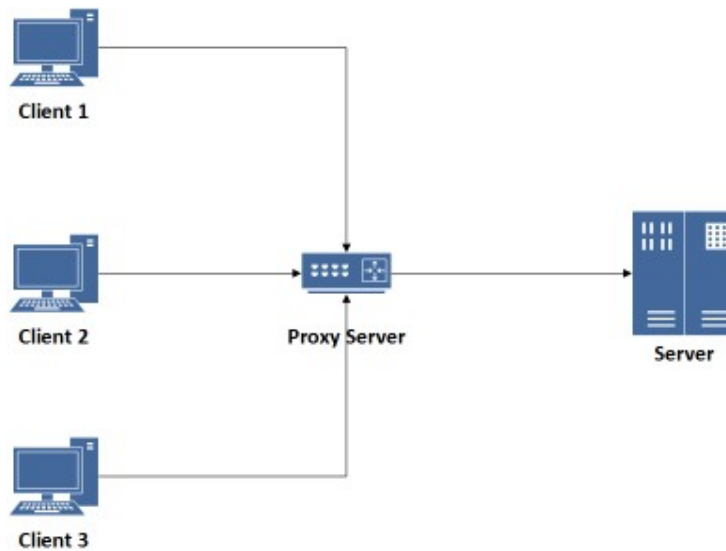
Group no. 4

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Two stage DNS Resolver System.

Proxy port no : 4201   **Server port no : 4000**

Case 1: When the request made by the client is successfully served by the proxy server .

Client

```
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./client 127.0.0.1 4201
Socket is created succesfully
Connected!
<REQUEST TYPE>
google.com 1
13B are transmitted successfully!
The requested address: 8.8.8.8
```

Proxy Server


```
aosenba@aosenba-Aspire-E5-575G: ~/Desktop/DNS-Resolving-System
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ g++ proxy_server.cpp -o proxy_server
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./proxy_server 4201
Socket created successfully.
Socket binded to the localhost and port 4201 successfully.
Proxy server is in LISTEN state.
Connection 1 accepted from the client.
Length: 11
Type of the request: 1
Request: google.com
Connection 1 accepted from the client.
Length: 8
Type of the request: 2
Request: 8.8.8.8
Connection 1 accepted from the client.
Length: 13
Type of the request: 1
Request: gssksksk.com
Miss in proxy cache.
Socket to connet to DNS created.
<DNS_PORT>
4000
Connection with DNS is established.
```

Case 2: When the client's request is forwarded to the main DNS server by the proxy server and the server successfully responds with an IP.

Client

```
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./client 127.0.0.1 4201
Socket is created succesfully
Connected!
<REQUEST TYPE>
facebook.com 1
15B are transmitted successfully!
The requested address: 102.2.3.4
```

Proxy Server

```
aosenba@aosenba-Aspire-E5-575G: ~/Desktop/DNS-Resolving-System

aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ g++ proxy_server.cpp -o proxy_server
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./proxy_server 4201
Socket created succesfully.
Socket binded to the localhost and port 4201 successfully.
Proxy server is in LISTEN state.
Connection 1 accepted from the client.
Length: 11
Type of the request: 1
Request: google.com
Connection 1 accepted from the client.
Length: 8
Type of the request: 2
Request: 8.8.8.8
Connection 1 accepted from the client.
Length: 13
Type of the request: 1
Request: gssksksk.com
Miss in proxy cache.
Socket to connet to DNS created.
<DNS_PORT>
4000
Connection with DNS is established.
```

DNS Server

```
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./dns_server 4000
Socket created succesfully.
Socket binded to the localhost and port 4000 successfully.
DNS is in LISTEN state.
Connetion 1 accepted from the client.
Length: 13
Type of the request: 1
Request: gssksksk.com
DNS resolution failed.
Connetion 1 accepted from the client.
Length: 17
Type of the request: 3
Request: ambientPixel.com
DNS resolution failed.
Connetion 1 accepted from the client.
Length: 13
Type of the request: 1
Request: facebook.com
```

Case 3: Whent the request made by the client is not availabe in the server's database, the DNS server responds with a error message.

Client

```
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./client 127.0.0.1 4201
Socket is created succesfully
Connected!
<REQUEST TYPE>
gssksksk.com 1
15B are transmitted successfully!
The requested address: entry not found in database
```

DNS Server

```
aosenba@aosenba-Aspire-E5-575G:~/Desktop/DNS-Resolving-System$ ./dns_server 4000
Socket created succesfully.
Socket binded to the localhost and port 4000 successfully.
DNS is in LISTEN state.
Connetion 1 accepted from the client.
Length: 13
Type of the request: 1
Request: gssksksk.com
DNS resolution failed.
Connetion 1 accepted from the client.
Length: 17
Type of the request: 3
Request: ambientPixel.com
DNS resolution failed.
Connetion 1 accepted from the client.
Length: 13
Type of the request: 1
Request: facebook.com
```