CS-558 ASSIGNMENT-2

Application #4: Multi-stage DNS Resolving System using Client-Server socket programming

Report submitted by:

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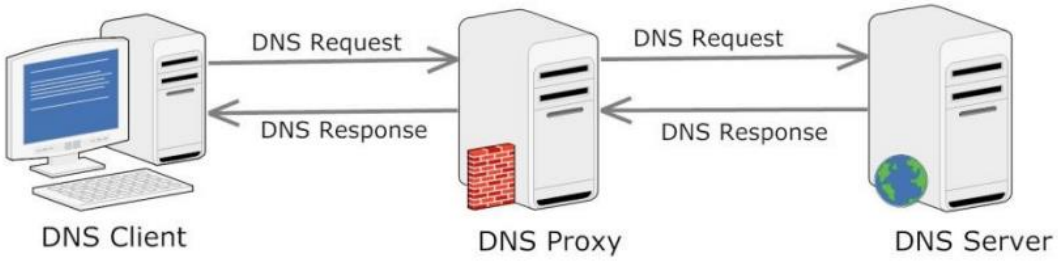
Problem Statement:

In this application, you require implementing three C++ programs, namely Client, Proxy Server (which will act both as client and server) and DNS Server, and they communicate with each other based on TCP sockets. The aim is to implement a simple 2 stage DNS Resolver System.



Message formats:

Request Message format:

Request Type	Message

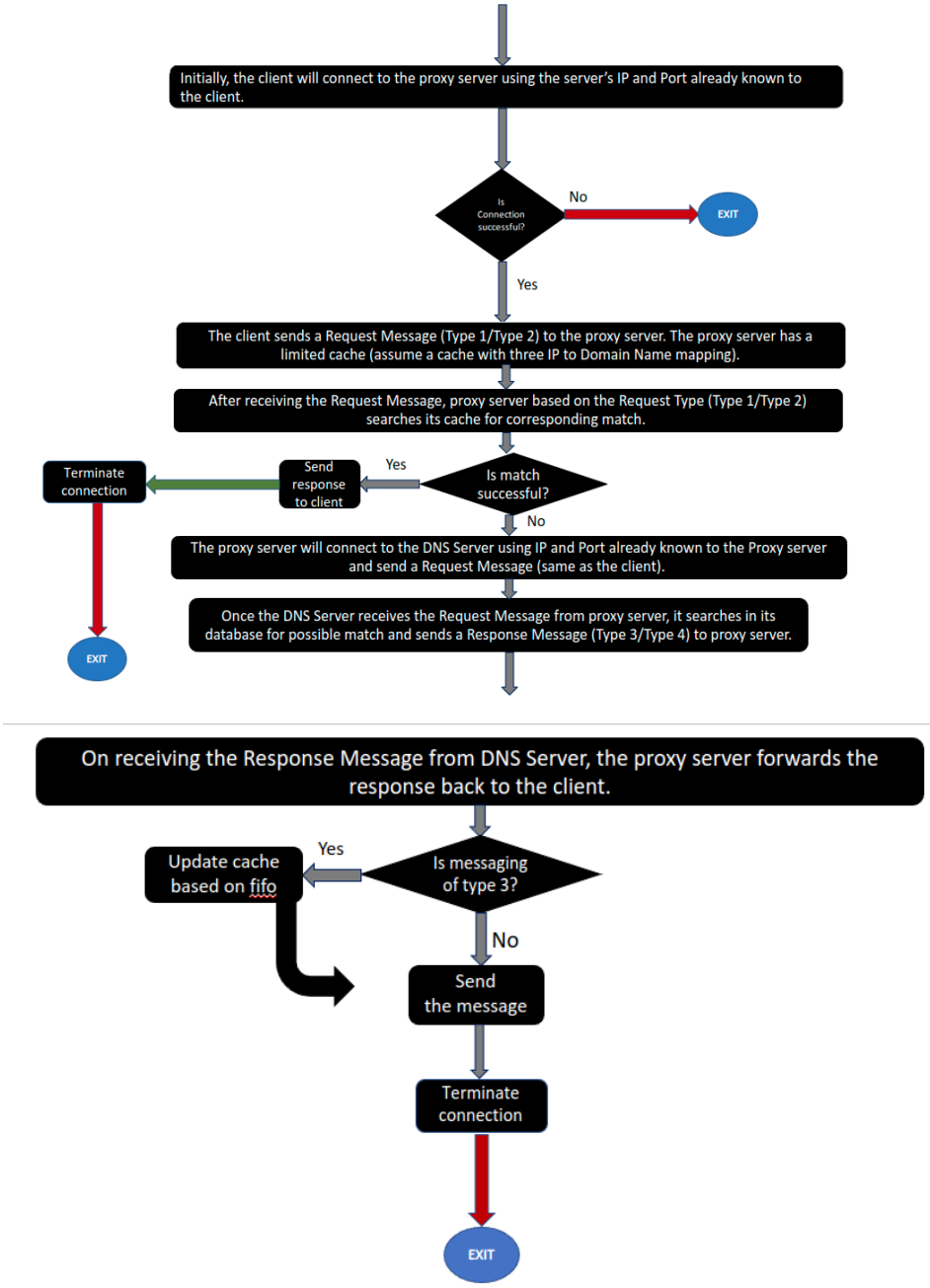
- Type 1: Message field contains Domain Name and requests for corresponding IP address.
- Type 2: Message field contains IP address and request for the corresponding Domain Name.

Response Message Format:

Response Type	Message

- Type 3: Message field contains Domain Name/IP address.
- Type 4: Message field contains error message “entry not found in the database”.

Flow of the program:



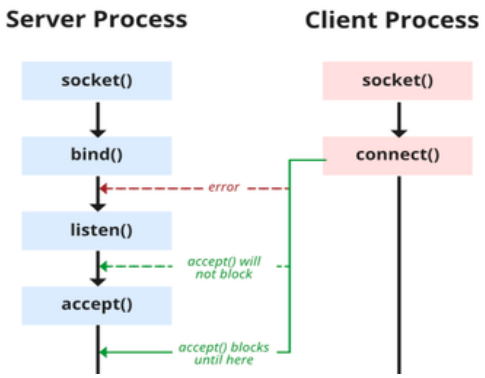
List of files submitted:

- dnsCllient.cpp : contains client executable code
- dnsServer.cpp : contains server executable code
- proxyServer.cpp : contains proxy server executable code
- Report.docx : report of submission
- allheaders.h : contains header files used
- proxy_cache.txt : contains proxy cache
- database_mappings.txt : contains dns mappings

To Run:

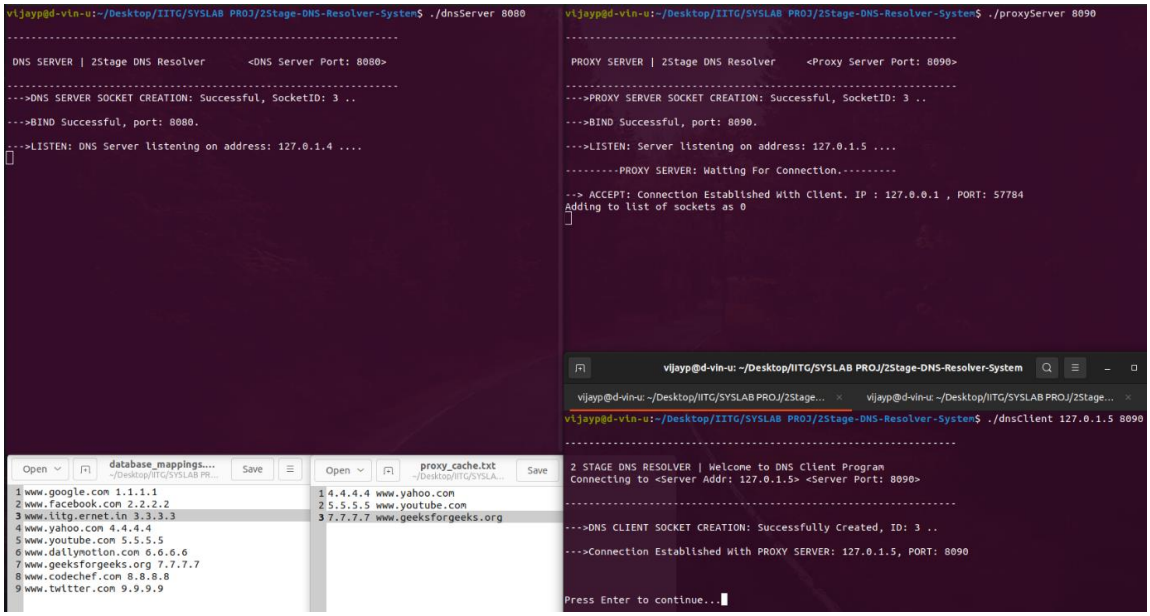
1. **Run DNS Server File providing the port in command line.**
2. **Run Proxy Server with port in command line**
3. **Run Client with IP and Port of Proxy Server.**
4. **Use interactive menu of client to make a request of different type.**
5. **To change IP of Server used, use "allHeaders.h" file and make necessary changes.**

Steps for connection:

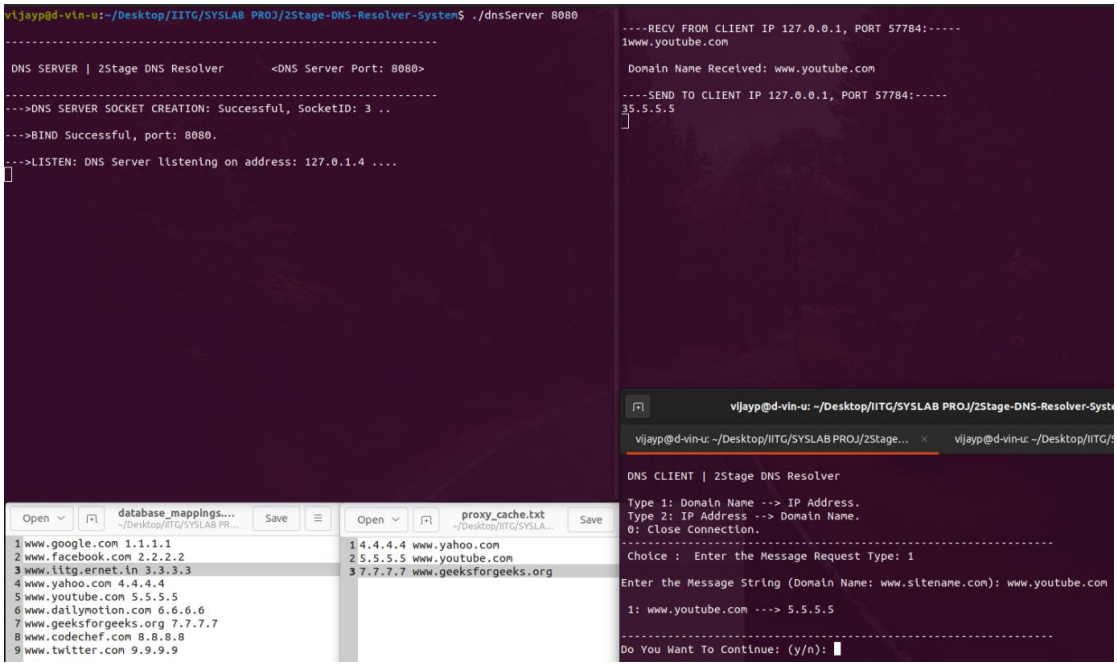


Some of the screenshots of program are added below:

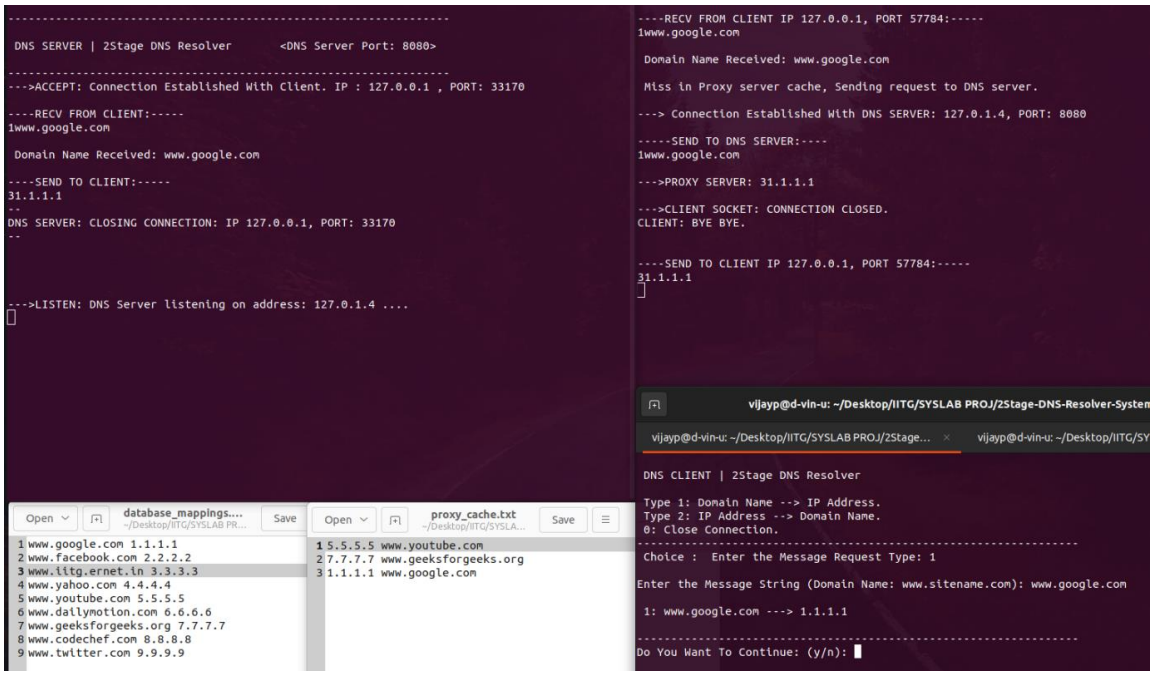
1. **After INITIALIZING all three programs:**



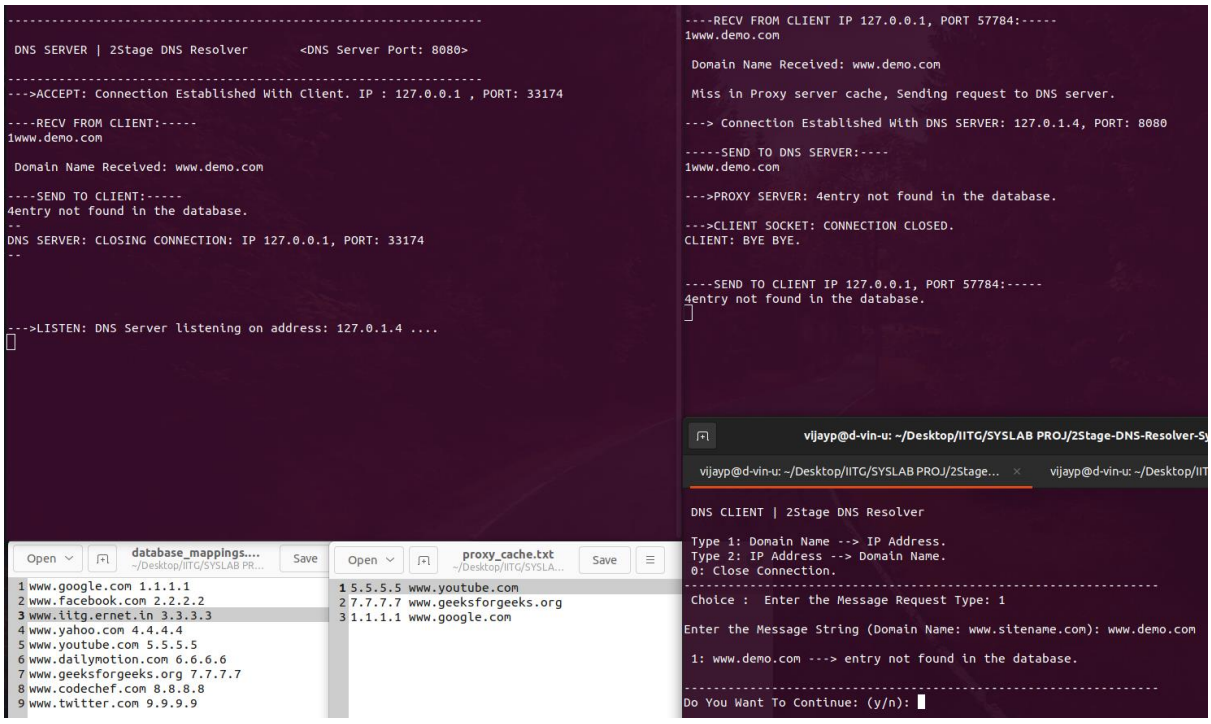
2. **Client REQUEST of type 1 to proxy server:**



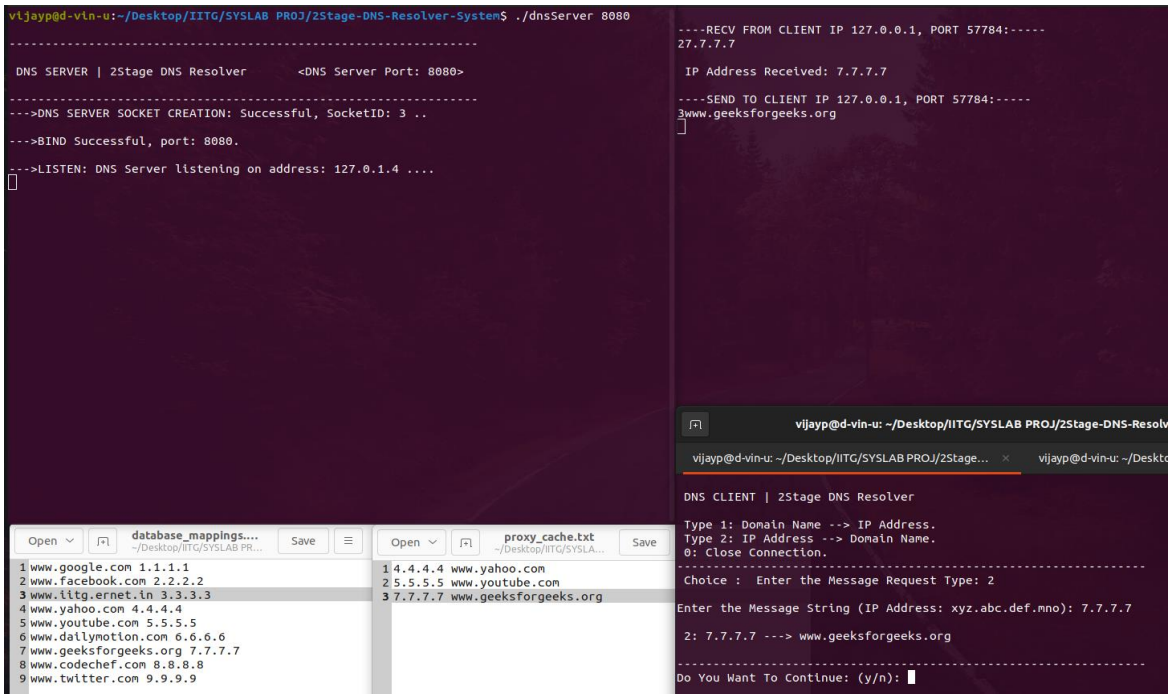
3.RESPONSE from DNS server of type 3 probed by Client of type 1:



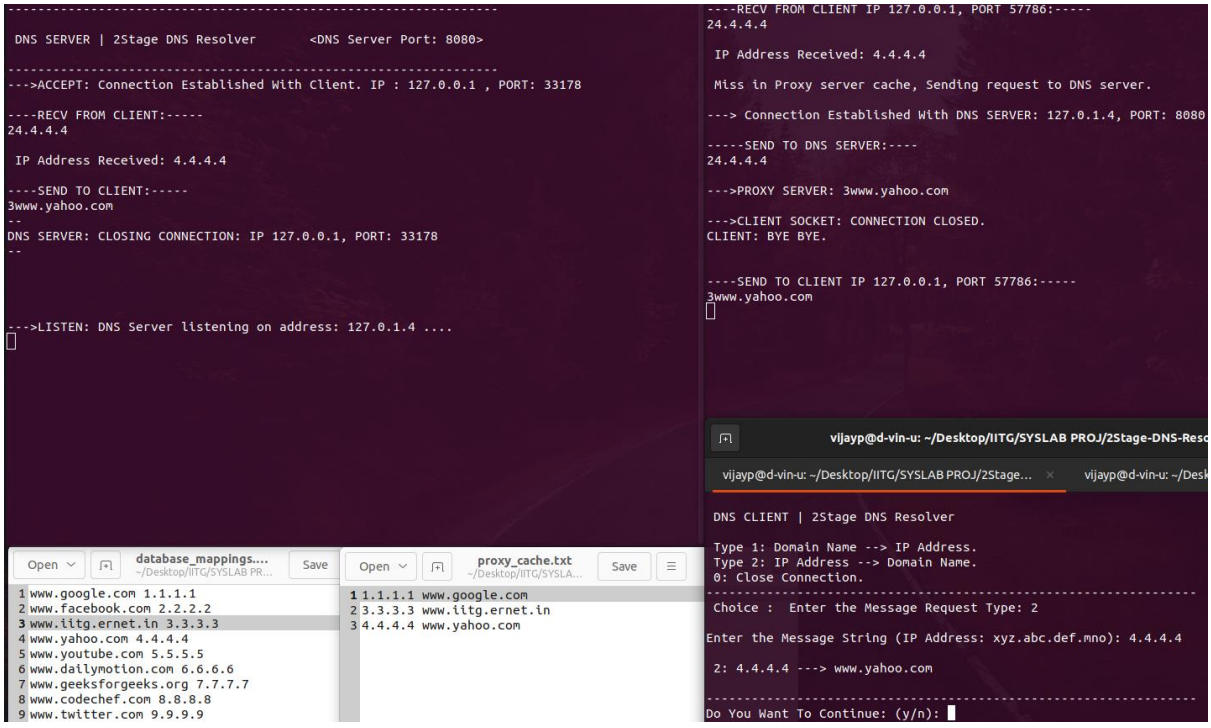
4.RESPONSE from DNS server of type 4 probed by Client of type 1:



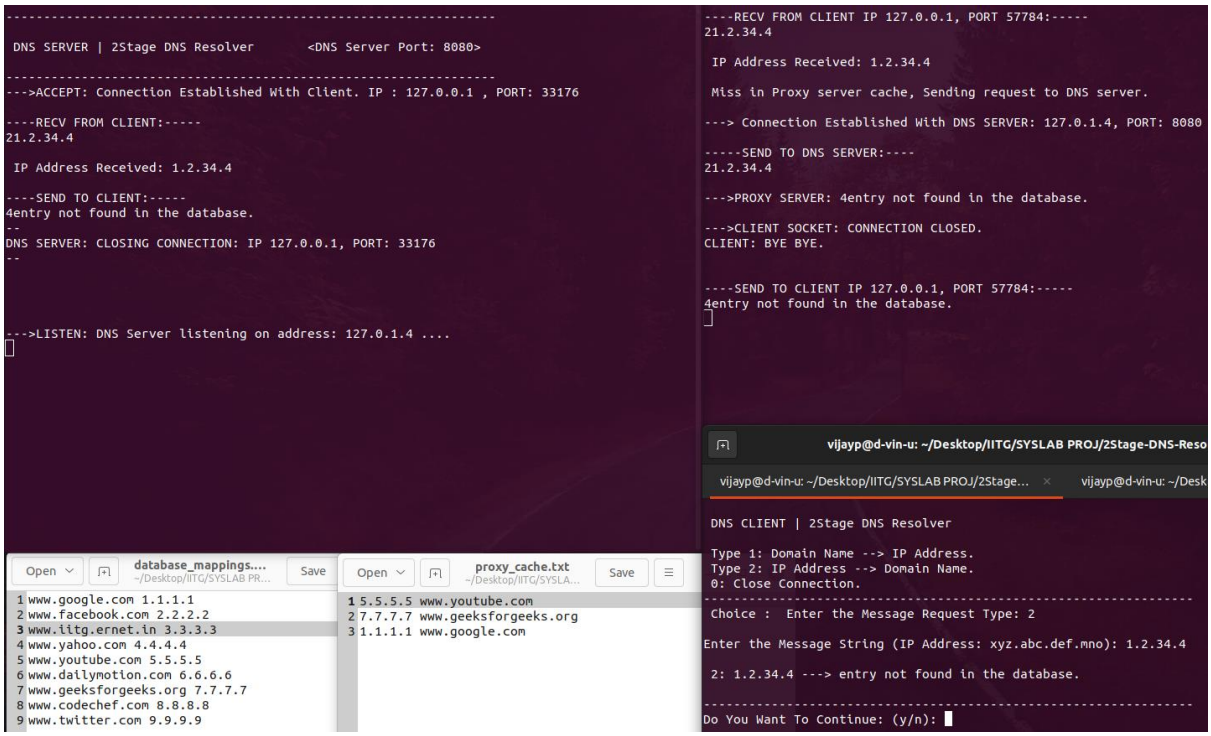
5.Client REQUEST of type 2 to proxy server:



6.RESPONSE from DNS server of type 3 probed by client of type 2:



7. RESPONSE from DNS server of type 4 probed by client of type 2:



8.client closing connection: