

Assignment - 8

Title - Write a program for DNS lookup. Given an IP address input, it should return URL and vice versa.

Objective -

- To understand concept of DNS
- To implement program to display IP address of particular host name & vice versa.

S/W and H/W Requirements

Windows 10, 8GB RAM, Keyboard, Mouse, IntelliJ.

Theory

DNS -

DNS stands for Domain Name System, it is phone-book of Internet. Humans access information online through domain names, like google.com, web browsers interact through Internet Protocol (IP) addresses. DNS translates domain names to IP address so browsers can load Internet resource.

The process of DNS resolution involves converting a hostname into computer friendly IP address.

Types of DNS service -

1. Authoritative DNS : It provides an update mechanism.

that developers use to manage their public DNS names. It then answers DNS queries, translating domain names into IP address so computers can communicate with each other.

- 2) Recursive DNS - Clients typically do not make queries directly to authoritative DNS services. Instead, they generally connect to another type of DNS service known as a resolver, or a recursive DNS.

DNS lookups in JAVA

import java.net -

It is where most of network related classes are available in the JDK. and when it comes to handling low-level communication ~~like~~ machines, it boils down to these two classes - InetAddress and Socket.

InetAddress() - is used to represent IP address, be it IPv4 or IPv6. Socket defines an endpoint using an IP address and port number for communication ~~like~~ between 2 machines.

Hostname resolution

```
InetAddress address = InetAddress.getByName("www.google.com");  
Socket s = new Socket(address, 80);
```

getByName() - Determines IP addresses of a host from given hostname. If hostname is null, then InetAddress representing an address of loopback interface is returned.

getHostAddress() - method of InetAddress class returns the IP address string in its actual presentation.

getHostName() - returns the host name of a corresponding IP addresses. If this InetAddress was created with a host name, this host name will be remembered and returned else a reverse name lookup will be performed and the result will be returned based on the system configured name lookup service.

Conclusion -

Thus, we implemented DNS lookup program in Java to display host name by inputting IP address and vice versa.