Assignment - VIII

Title:- DNS lookup

Problem statement :-

Write a program for DNS lookup. Given an IP address input, it should return URL & viceversa.

Objective :-

- To learn the concept of DNS lookup.
- To study the inet address for getting respective ip address or URL.

Outcome :-

Implement DNS lookup for an IP address & return & respective URL & viceversa

S/W & H/W :-

64 bit OS, JDK 1.8 / Python 3.8

Theory :-

DNS (Domain Name Service)

The domain name service resolve the names & internet sites with thier underlying IP addressing adding efficiency & even security in the process.

- DNS is a hierarchical & decentralized naming system for computers, services or other resources connected to the internet or a private network.
- It associates various information within domain names assigned to each of the participating entities.
- The domain name system delegates the responsibility of assigning domain names.
- DNS message format :-

The DNS protocol uses two types of DNS messages queires both have the same format. Each message consist of a header & four sections.

1. question
2. answer
3. authority
4. an additional space

Domain name :-

Domain name an identification string that define a real of administrative autonomy, authority or control within the internet.

Domain names are formed by the rules & procedures of domain name system (DNS)

Domains such as com, info, net, edu, org, mil, etc.
ex. www.example.com.

Inet Address :-
· Inet address class represents an IP address. An IP address: An IP address is represented by 32 bit or 128 bit unsigned number. An instance of Inet Addresses represents the IP address with its corresponding host name.

Method :-
1] public static InetAddress getByName (String host)
It returns hostName.

2] public String getHostAddress()
It returns the IP address in string format.

3] public String getHostName()
It returns the host name of IP address.

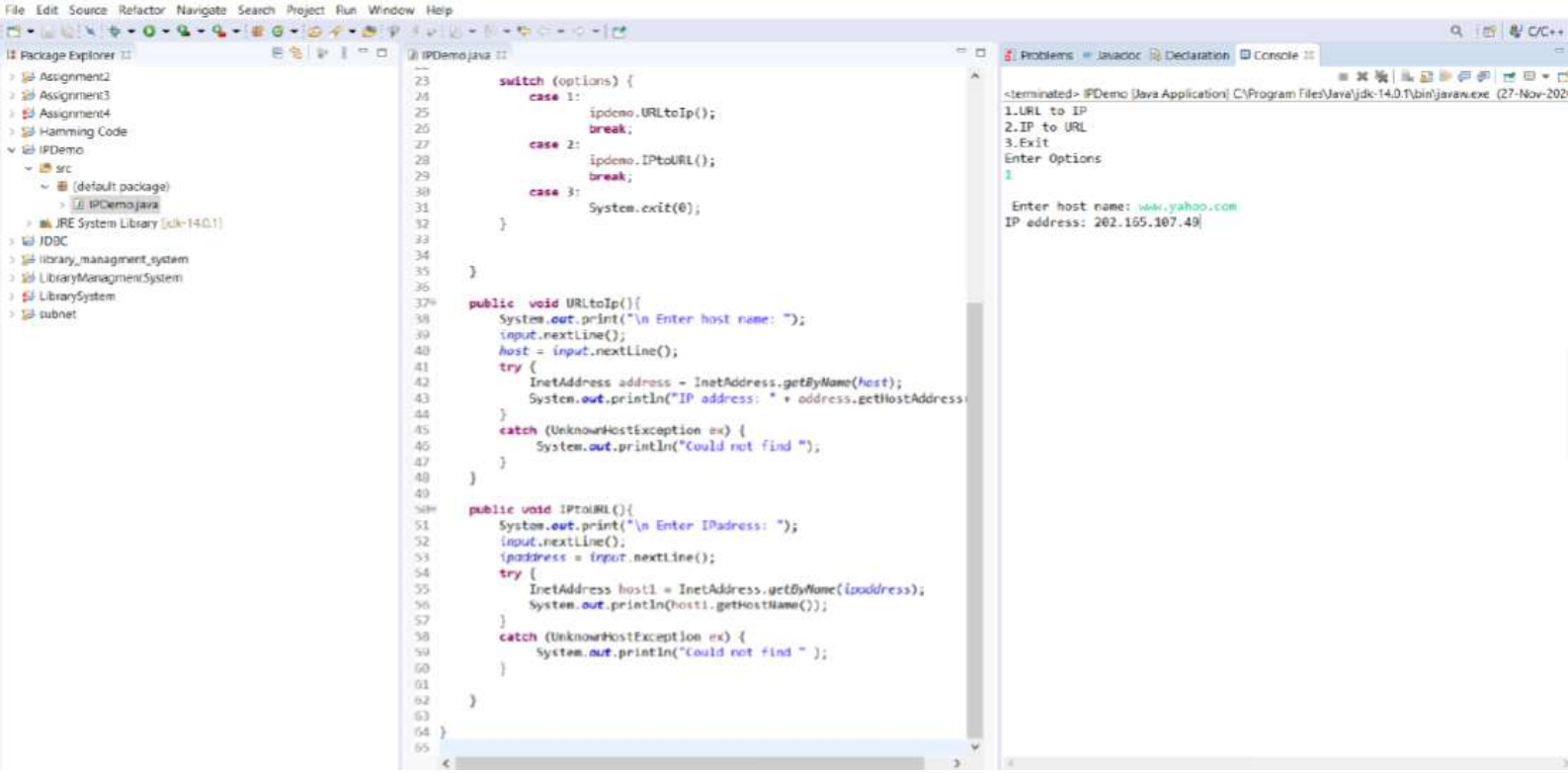
DNS lookup

A DNS lookup is the process of sending a query for specific domain or IP & getting the record that corresponds to it.

Conclusion :-

We have successfully implemented the DNS lookup & also learnt the concept of domain name system.

```
import java.net.*;
import java.util.*;

public class IPDemo
{
	public static String host,ipaddress;
	public static Scanner input;
	public IPDemo(){
		host = new String();
		ipaddress = new String();
	}

	public static void main(String[] args){
		IPDemo ipdemo = new IPDemo();
		input = new Scanner(System.in);
		int options;
		System.out.println("1.URL to IP");
		System.out.println("2.IP to URL");
		System.out.println("3.Exit");
		System.out.println("Enter Options");
		options = input.nextInt();

		switch (options) {
			case 1:
					ipdemo.URLtoIp();
					break;
			case 2:
					ipdemo.IPtoURL();
					break;
			case 3:
					System.exit(0);
		}


	}

	public  void URLtoIp(){
		System.out.print("\n Enter host name: ");
		input.nextLine();
		host = input.nextLine();
		try {
			InetAddress address = InetAddress.getByName(host);
			System.out.println("IP address: " + address.getHostAddress());
		}
		catch (UnknownHostException ex) {
		     System.out.println("Could not find ");
		}
	}

	public void IPtoURL(){
		System.out.print("\n Enter IPadress: ");
		input.nextLine();
		ipaddress = input.nextLine();
		try {
			InetAddress host1 = InetAddress.getByName(ipaddress);
			System.out.println(host1.getHostName());
		}

		catch (UnknownHostException ex) {
		     System.out.println("Could not find " );
		}

	}

}
```


File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Assignment2
Assignment3
Assignment4
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(default package)
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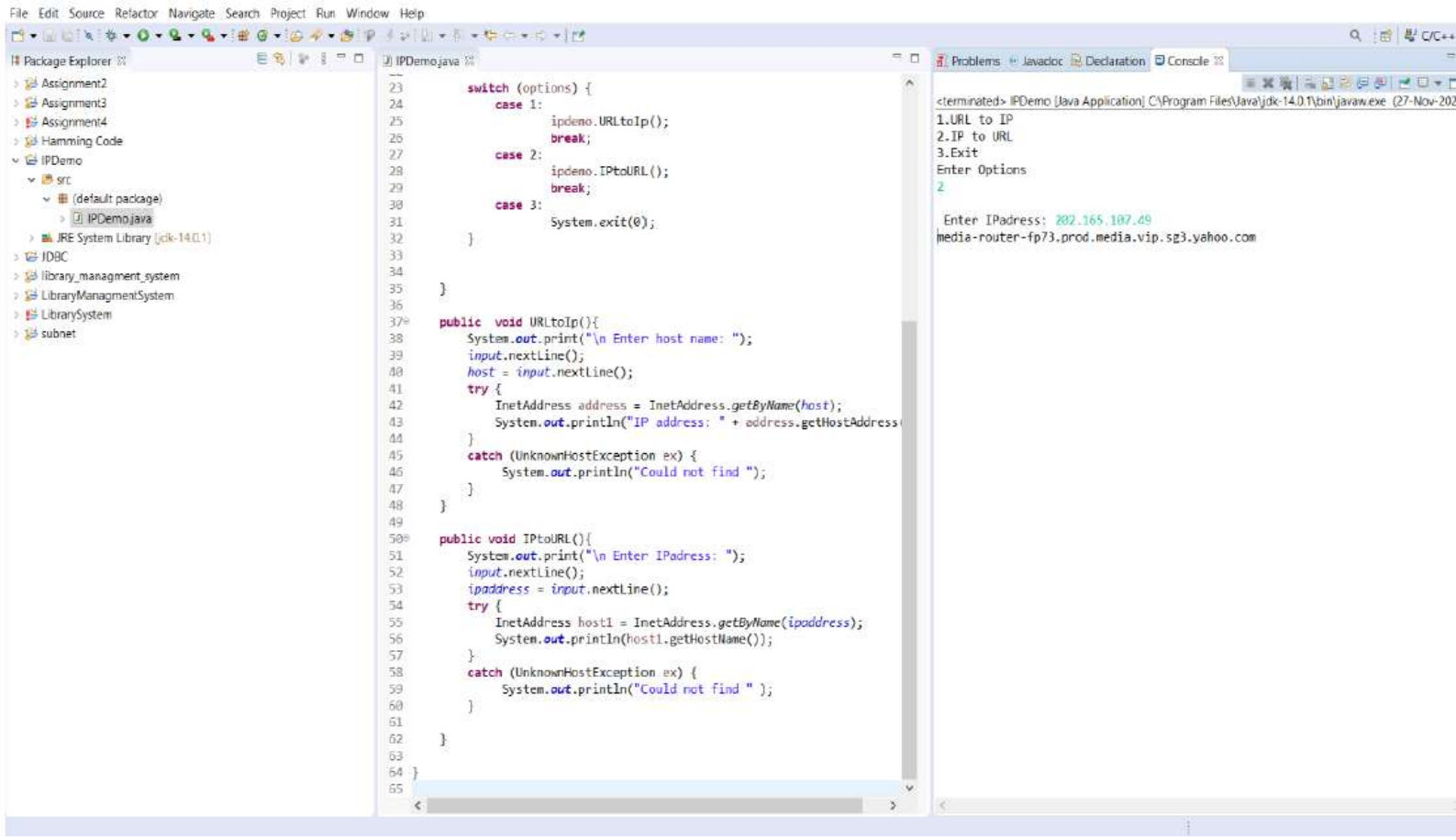
Problems Javadoc Declaration Console
<terminated> IPDemo [Java Application] C:\Program Files\Java\jdk-14.0.1\bin\javaw.exe (27-Nov-202
1.URL to IP
2.IP to URL
3.Exit
Enter Options
1
Enter host name: www.yahoo.com
IP address: 202.165.107.49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media-router-fp73.prod.media.vip.sg3.yahoo.com