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**EXPERIMENT: 22**

**AIM:** To implement a DNS server and client in java using UDP socketS

**ALGORITHM:**

**Server**

1. Create an array of hosts and its ip address in another array

2. Create a datagram socket and bind it to a port

3. Create a datagram packet to receive client request

4. Read the domain name from client to be resolved

5. Lookup the host array for the domain name

6. If found then retrieve corresponding address

7. Create a datagram packet and send ip address to client

8. Repeat steps 3-7 to resolve further requests from clients

9. Close the server socket

10. Stop

**Client**

1. Create a datagram socket

2. Get domain name from user

3. Create a datagram packet and send domain name to the server

4. Create a datagram packet to receive server message

5. Read server's response

6. If ip address then display it else display "Domain does not exist"

7. Close the client socket

**PROGRAM**

**// UDP DNS Server -- udpdnsserver.java**

import java.io.\*;

import java.net.\*;

public class udpdnsserver

{ private static int indexOf(String[] array, String str)

{ str = str.trim(); for (int i=0; i < array.length; i++)

{ if (array[i].equals(str)) return i;

}

return -1;

}

public static void main(String arg[])throws IOException

{ String[] hosts = {"yahoo.com", "gmail.com","cricinfo.com", "facebook.com"};

String[] ip = {"68.180.206.184", "209.85.148.19","80.168.92.140", "69.63.189.16"};

System.out.println("Press Ctrl + C to Quit");

while (true)

{ DatagramSocket serversocket=new DatagramSocket(1362);

byte[] senddata = new byte[1021];

byte[] receivedata = new byte[1021];

DatagramPacket recvpack = new DatagramPacket(receivedata, receivedata.length);

serversocket.receive(recvpack); String sen = new String(recvpack.getData());

InetAddress ipaddress = recvpack.getAddress();

int port = recvpack.getPort();

String capsent; System.out.println("Request for host " + sen);

if(indexOf (hosts, sen) != -1)

capsent = ip[indexOf (hosts, sen)];

else capsent = "Host Not Found";

senddata = capsent.getBytes();

DatagramPacket pack = new DatagramPacket(senddata, senddata.length,ipaddress,port);

serversocket.send(pack);

serversocket.close(); } } }

**//UDP DNS Client -- udpdnsclient.java**

import java.io.\*;

import java.net.\*;

public class udpdnsclient { public static void main(String args[])throws IOException

{ BufferedReader br = new BufferedReader(new InputStreamReader(System.in));

DatagramSocket clientsocket = new DatagramSocket(); InetAddress ipaddress;

if (args.length == 0)

ipaddress = InetAddress.getLocalHost();

else ipaddress = InetAddress.getByName(args[0]);

byte[] senddata = new byte[1024]; byte[] receivedata = new byte[1024];

int portaddr = 1362; System.out.print("Enter the hostname : ");

String sentence = br.readLine(); Senddata = sentence.getBytes(); DatagramPacket pack = new DatagramPacket(senddata,senddata.length, ipaddress,portaddr);

clientsocket.send(pack);

DatagramPacket recvpack =new DatagramPacket(receivedata,receivedata.length); clientsocket.receive(recvpack); String modified = new String(recvpack.getData());

System.out.println("IP Address: " + modified);

clientsocket.close(); }}

**OUTPUT:**

**Server**

$ javac udpdnsserver.java

$ java udpdnsserver Press Ctrl + C to Quit

Request for host yahoo.com

Request for host cricinfo.com

Request for host youtube.com

**Client**

$ javac udpdnsclient.java

$ java udpdnsclient

Enter the hostname : yahoo.com

IP Address: 68.180.206.184

$ java udpdnsclient

Enter the hostname : cricinfo.com

IP Address: 80.168.92.140

$ java udpdnsclient

Enter the hostname : youtube.com

IP Address: Host Not Found