

**DNSServer.java**

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

public class DNSServer {

    public static void main(String[] args) {

        int port = 9876;

        HashMap<String, String> dnsTable = new HashMap<>();
        dnsTable.put("www.google.com", "142.250.190.68");
        dnsTable.put("www.yahoo.com", "98.137.11.163");
        dnsTable.put("www.example.com", "93.184.216.34");

        try (DatagramSocket serverSocket = new DatagramSocket(port)) {

            System.out.println("DNS Server started on port " + port);

            byte[] receiveBuffer = new byte[1024];
            byte[] sendBuffer;

            while (true) {

                DatagramPacket receivePacket = new DatagramPacket(receiveBuffer,
                    receiveBuffer.length);

                serverSocket.receive(receivePacket);

                String domainName = new String(receivePacket.getData(), 0,
                    receivePacket.getLength());

                System.out.println("Received query for domain: " + domainName);

                String ipAddress = dnsTable.getOrDefault(domainName.trim(), "Domain not
                    found");

                sendBuffer = ipAddress.getBytes();

                InetAddress clientAddress = receivePacket.getAddress();

                int clientPort = receivePacket.getPort();

                DatagramPacket sendPacket = new DatagramPacket(sendBuffer,
                    sendBuffer.length, clientAddress, clientPort);
```

```
serverSocket.send(sendPacket);

    System.out.println("Sent response: " + ipAddress);
}
} catch (Exception e) {
    e.printStackTrace();
}
}
}
```

### **DNSClient.java**

```
import java.net.*;
import java.io.*;

public class DNSClient {

    public static void main(String[] args) {

        String serverAddress = "localhost";

        int port = 9876;

        try (DatagramSocket clientSocket = new DatagramSocket();

            BufferedReader console = new BufferedReader(new
InputStreamReader(System.in))) {

            System.out.print("Enter domain name to query: ");

            String domainName = console.readLine();

            byte[] sendBuffer = domainName.getBytes();

            InetAddress serverIP = InetAddress.getByName(serverAddress);

            DatagramPacket sendPacket = new DatagramPacket(sendBuffer,
sendBuffer.length, serverIP, port);

            clientSocket.send(sendPacket);

            byte[] receiveBuffer = new byte[1024];
```

```
DatagramPacket receivePacket = new DatagramPacket(receiveBuffer,
receiveBuffer.length);

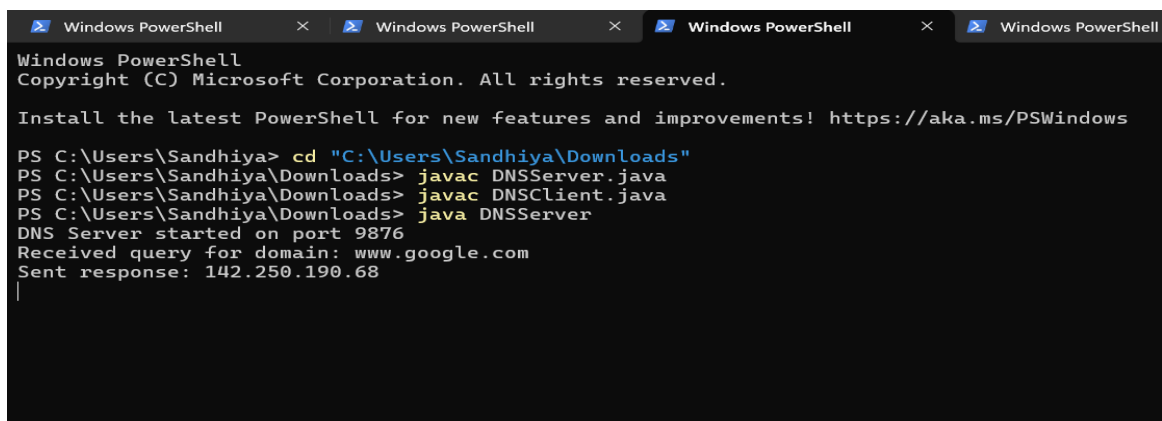
clientSocket.receive(receivePacket);

String response = new String(receivePacket.getData(), 0,
receivePacket.getLength());

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

} catch (Exception e) {
    e.printStackTrace();
}
}
```

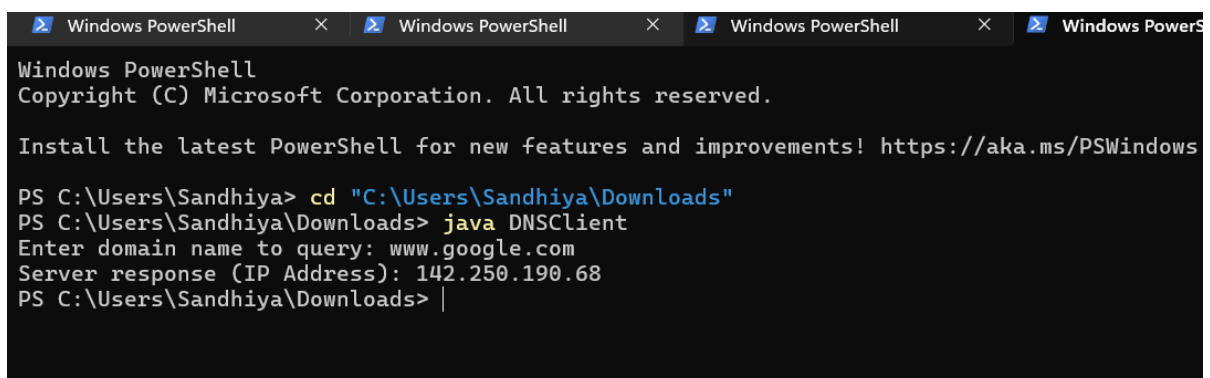
### Output:



```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Sandhiya> cd "C:\Users\Sandhiya\Downloads"
PS C:\Users\Sandhiya\Downloads> javac DNSServer.java
PS C:\Users\Sandhiya\Downloads> javac DNSClient.java
PS C:\Users\Sandhiya\Downloads> java DNSServer
DNS Server started on port 9876
Received query for domain: www.google.com
Sent response: 142.250.190.68
|
```



```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\Sandhiya> cd "C:\Users\Sandhiya\Downloads"
PS C:\Users\Sandhiya\Downloads> java DNSClient
Enter domain name to query: www.google.com
Server response (IP Address): 142.250.190.68
PS C:\Users\Sandhiya\Downloads> |
```