

EX.NO: 05	Write a code simulating PING and TRACEROUTE commands
DATE:	

Aim

To implement the simulation of PING and TRACEROUTE commands using java

(a)PING

ALGORITHM

Step 1: start the program.

Step 2: Include necessary package in java.

Step 3: To create a process object p to implement the ping command.

Step 4: declare one BufferedReader stream class object.

Step 5: Get the details of the server

5.1: length of the IP address.

5.2: time required to get the details.

5.3: send packets, receive packets and lost packets.

5.4: minimum ,maximum and average times.

Step 6: print the results.

Step 7: Stop the program

PROGRAM

Client:

```
import java.io.*;
import java.net.*;
import java.util.Calendar;
class pingclient
{
public static void main(String args[])throws Exception
{
String str;
int c=0;
long t1,t2;
Socket s=new Socket("127.0.0.1",5555);
DataInputStream dis=new DataInputStream(s.getInputStream());
```

```

PrintStream out=new PrintStream(s.getOutputStream());
while(c<4)
{ t1=System.currentTimeMillis();
str="Welcome to network programming world";
out.println(str);
System.out.println(dis.readLine());
t2=System.currentTimeMillis();
System.out.println("TTL="+t2-t1+"ms");
c++;
} s.close(); }
}

```

Server:

```

import java.io.*;
import java.net.*;
import java.util.*;
import java.text.*;
class pingserver
{
public static void main(String args[])throws Exception
{
ServerSocket ss=new ServerSocket(5555);
Socket s=ss.accept();
int c=0;
while(c<4)
{
DataInputStream dis=new DataInputStream(s.getInputStream());
PrintStream out=new PrintStream(s.getOutputStream());
String str=dis.readLine();
out.println("Reply from"+InetAddress.getLocalHost()+"Length"+str.length());
c++;
} s.close();
}}

```

OUTPUT

Enter the IP address to the ping:192.168.0.1

Pinging 192.168.0.1: with bytes of data =32

Reply from 192.168.0.11:bytes=32 time<1ms TTL =128

Reply from 192.168.0.11:bytes=32 time<1ms TTL =128

Reply from 192.168.0.11:bytes=32 time<1ms TTL =128

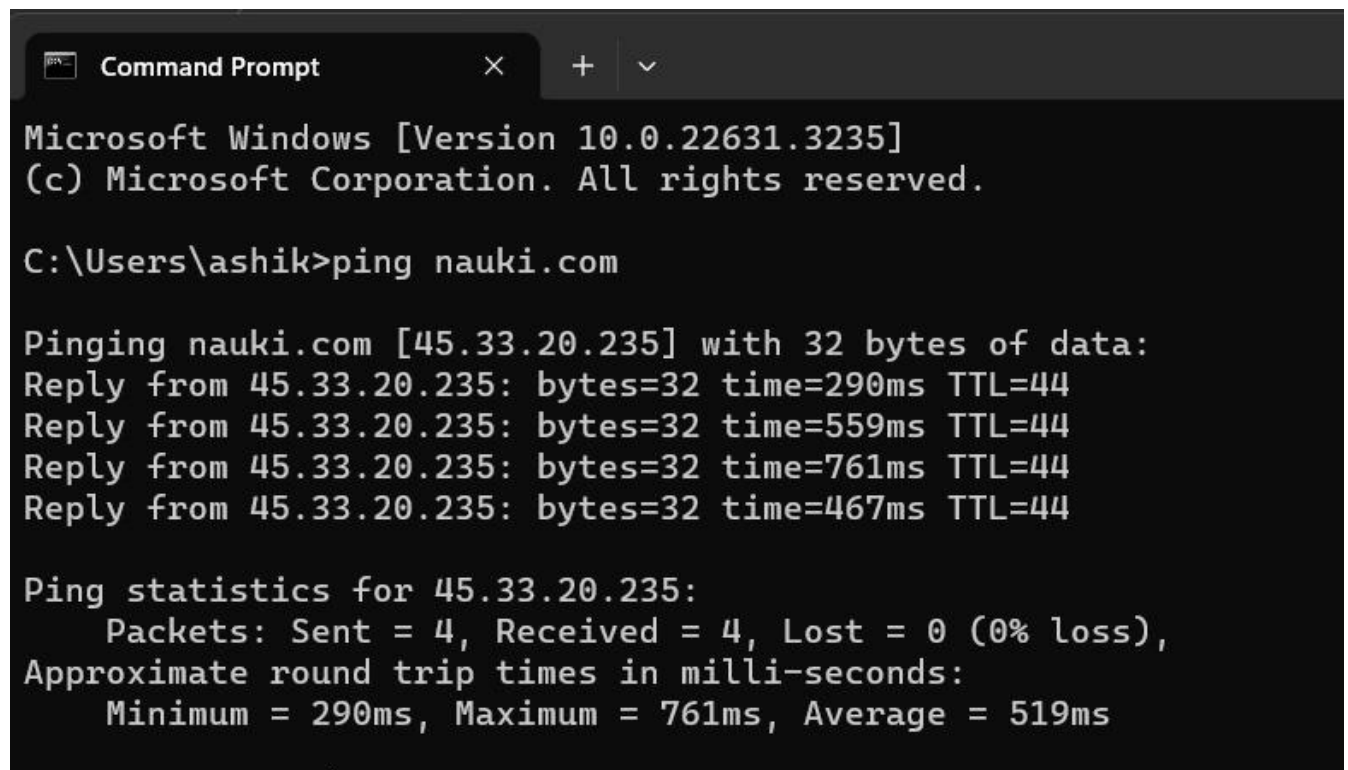
Reply from 192.168.0.11:bytes=32 time<1ms TTL =128

Ping statistics for 192.168.0.1

Packets: sent=4,received=4,lost=0(0% loss),approximate round trip time in milli seconds:

Minimum=1

ms,maximum=4ms,average=2ms



```
Microsoft Windows [Version 10.0.22631.3235]
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C:\Users\ashik>ping nauki.com

Pinging nauki.com [45.33.20.235] with 32 bytes of data:
Reply from 45.33.20.235: bytes=32 time=290ms TTL=44
Reply from 45.33.20.235: bytes=32 time=559ms TTL=44
Reply from 45.33.20.235: bytes=32 time=761ms TTL=44
Reply from 45.33.20.235: bytes=32 time=467ms TTL=44

Ping statistics for 45.33.20.235:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 290ms, Maximum = 761ms, Average = 519ms
```

(b) TRACEROUTE

ALGORITHM

Step 1: Start the program.

Step 2: Include necessary package in java

Step 3: Make the traces on certain addresses

Step 4: Uses Runtime class and its associated functions

Step 5: Stop

PROGRAM

```
import java.io.*;
import java.net.*;
class TraceServer
{
    public static void main(String args[])
    { try
    {
        String str;
        System.out.print(" Enter the IP Address to be Traced : ");
        BufferedReader buf1=new BufferedReader(new InputStreamReader(System.in));
        String ip=buf1.readLine();
        Runtime H=Runtime.getRuntime();
        Process p=H.exec("tracert " + ip);
        InputStream in=p.getInputStream();
        BufferedReader buf2=new BufferedReader(new
        InputStreamReader(in));
        while((str=buf2.readLine())!=null)
        {
            System.out.println(" " + str);
        } catch(Exception e)
        {
            System.out.println(e.getMessage());
        }
    }
}
```

OUTPUT

```
D:\networks>javac TraceServer.java
```

```
D:\networks>java TraceServer
```

```
Enter the IP Address to be Traced : 172.20.1.20
```

```
Tracing route to hcet [172.20.1.20]
```

```
over a maximum of 30 hops:
```

```
1 1 ms <1 ms <1 ms hcet [172.20.1.20]
```

```
Trace complete.
```

```
Microsoft Windows [Version 10.0.22631.3235]  
(c) Microsoft Corporation. All rights reserved.
```

```
C:\Users\ashik>tracert 8.8.8.8
```

```
Tracing route to dns.google [8.8.8.8]
```

```
over a maximum of 30 hops:
```

1	11 ms	2 ms	2 ms	192.168.190.139
2	113 ms	611 ms	1364 ms	192.168.29.10
3	67 ms	167 ms	202 ms	192.168.28.109
4	280 ms	160 ms	244 ms	192.168.31.8
5	*	*	*	Request timed out.
6	*	*	*	Request timed out.
7	329 ms	250 ms	175 ms	nsg-corporate-169.101.187.122.airtel.in [122.187.101.169]
8	256 ms	219 ms	68 ms	182.79.198.26
9	109 ms	54 ms	194 ms	142.250.169.206
10	59 ms	77 ms	236 ms	142.250.208.105
11	228 ms	201 ms	203 ms	216.239.56.65
12	90 ms	62 ms	242 ms	dns.google [8.8.8.8]

```
Trace complete.
```

Conclusion

Thus the implementation for PING and TRACEROUTE has been done and verified successfully.