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EXERCISE 4

DEVELOP A CUSTOMIZED PING COMMAND TO TEST THE SERVER CONNECTIVITY

AIM:

To develop a customized ping command using Python sockets that checks the connectivity of a server, measures the Round Trip Time(RTT) for multiple connection attempts, and computes the min, max, and average RTT values.

ALGORITHM:

1. Set host, port, and number of pings.
2. Create an empty list for RTT values.
3. For each ping attempt:
 - Start timer, connect to host, stop timer.
 - Calculate RTT and store it, else print timeout.
4. After all attempts, display min, max, and avg RTT.

CODE:

DEVELOP A CUSTOMIZED PING COMMAND TO TEST THE SERVER

```
import socket

import time

host = "google.com" # you can change this

port = 80          # HTTP port

count = 4          # number of pings

for i in range(count):

    try:

        s = socket.socket()

        start = time.time()

        s.connect((host, port))

        end = time.time()

        s.close()

        print(f"Reply from {host}: time={((end-start)*1000:.2f} ms")

    except Exception:
```

```
print("Request timed out")
```

CUSTOMIZED PING PROGRAM TO MEASURE MIN, MAX, AND AVERAGE RTT

```
import socket, time
```

```
host = "google.com"
```

```
port = 80
```

```
count = 4
```

```
times = []
```

```
for i in range(count):
```

```
    try:
```

```
        s = socket.socket()
```

```
        start = time.time()
```

```
        s.connect((host, port))
```

```
        end = time.time()
```

```
        s.close()
```

```
        rtt = (end - start) * 1000
```

```
        times.append(rtt)
```

```
        print(f"Reply from {host}: time={rtt:.2f} ms")
```

```
    except:
```

```
        print("Request timed out")
```

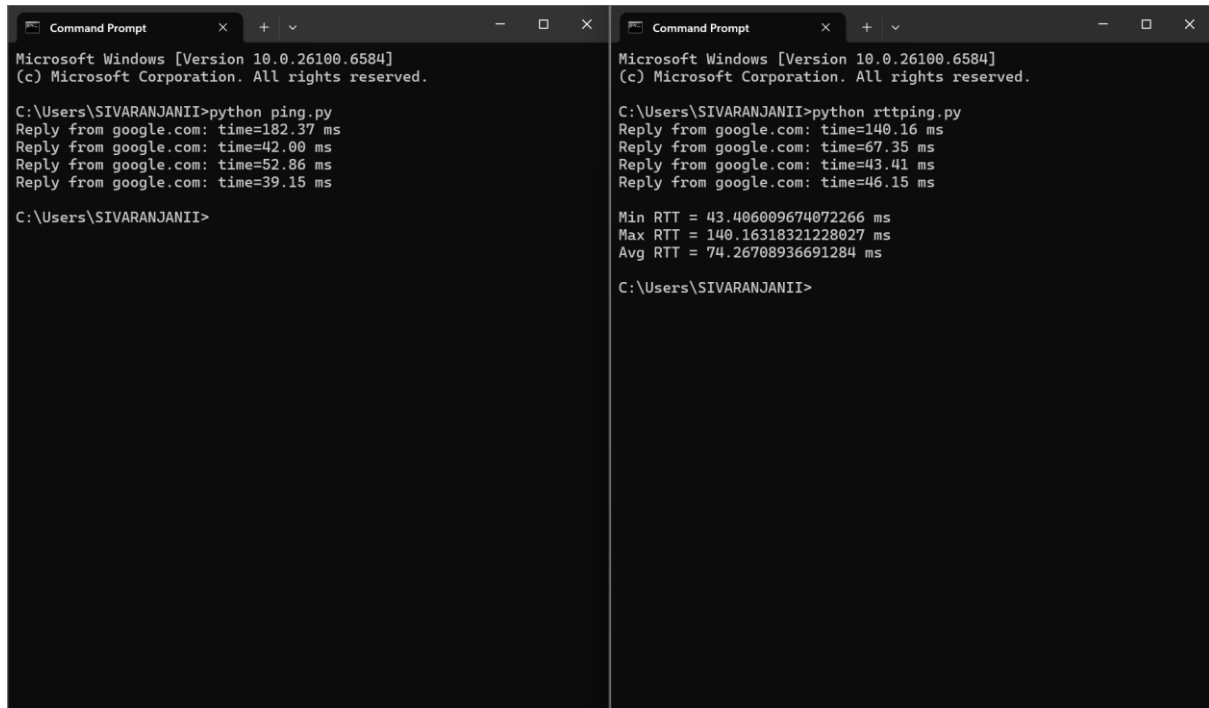
```
if times:
```

```
    print("\nMin RTT =", min(times), "ms")
```

```
    print("Max RTT =", max(times), "ms")
```

```
    print("Avg RTT =", sum(times)/len(times), "ms")
```

OUTPUT:



The image displays two side-by-side Windows Command Prompt windows. The left window shows the output of a Python script named 'ping.py', which performs four ping tests to google.com, displaying the time taken for each reply. The right window shows the output of a Python script named 'rtt.py', which performs four rtt tests to google.com, displaying the time taken for each reply, and then calculates and displays the minimum, maximum, and average RTT values.

```
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SIVARANJANII>python ping.py
Reply from google.com: time=182.37 ms
Reply from google.com: time=42.00 ms
Reply from google.com: time=52.86 ms
Reply from google.com: time=39.15 ms

C:\Users\SIVARANJANII>
```

```
Microsoft Windows [Version 10.0.26100.6584]
(c) Microsoft Corporation. All rights reserved.

C:\Users\SIVARANJANII>python rtt.py
Reply from google.com: time=140.16 ms
Reply from google.com: time=67.35 ms
Reply from google.com: time=43.41 ms
Reply from google.com: time=46.15 ms

Min RTT = 43.406009674072266 ms
Max RTT = 140.16318321228027 ms
Avg RTT = 74.26708936691284 ms

C:\Users\SIVARANJANII>
```

RESULT:

The program successfully checks server connectivity and displays min, max, and avg RTT values.