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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")

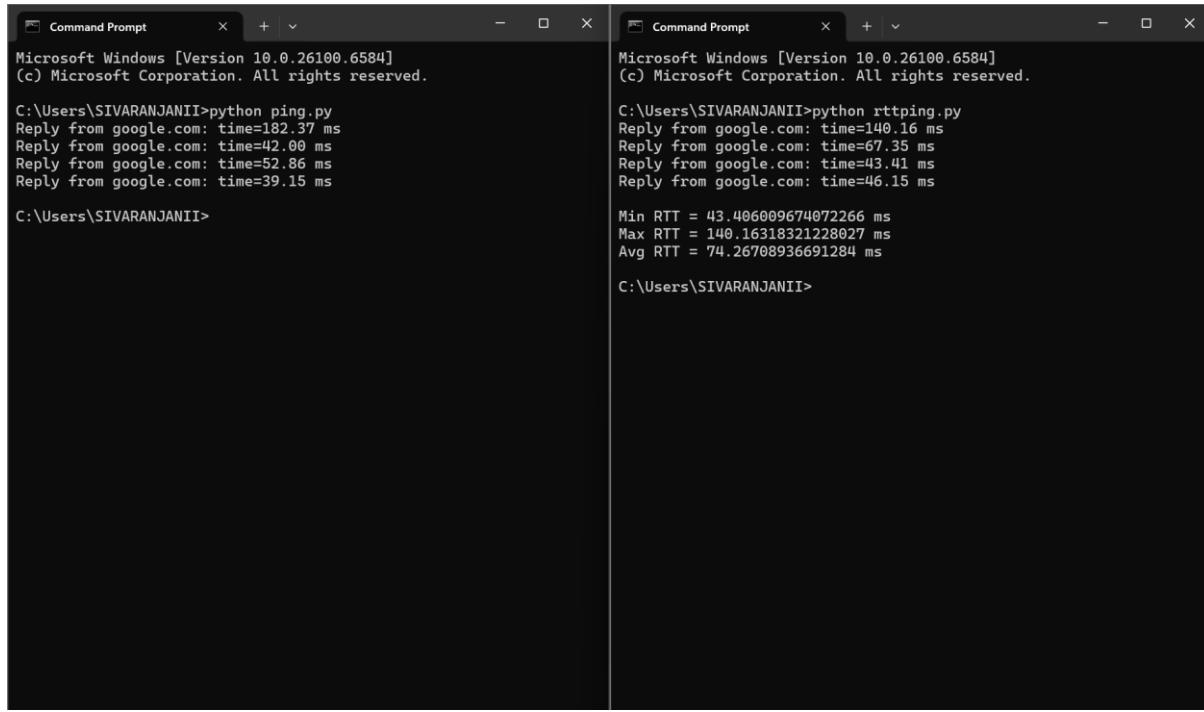
if times:

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

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

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

OUTPUT:



The image shows two separate Command Prompt windows side-by-side. Both windows are titled "Command Prompt" and are running on Microsoft Windows 10. The left window displays the output of the "ping.py" script, which pings the website "google.com". The right window displays the output of the "rtping.py" script, which also pings "google.com" and provides additional network performance metrics.

Left Window (ping.py output):

```
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>
```

Right Window (rtping.py output):

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

C:\Users\SIVARANJANII>python rtping.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.