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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 have a title bar labeled "Command Prompt".

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.