EXPT: 4 DEVELOP A CUSTOMIZED PING COMMAND TO TEST THE SERVER CONNECTIVITY

 Aim :

Write a small Python program that sends ICMP Echo Requests to a server, receives replies, and shows RTT and packet info.

 Algorithm :

1. Build an ICMP Echo Request packet (type 8, code 0) with a checksum.

2. Send the packet to the target via a raw socket.

3. Wait for an ICMP Echo Reply (type 0).

4. Measure time between send and receive and print result.

5. Repeat N times or until interrupted.

 Code :

```
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)
```
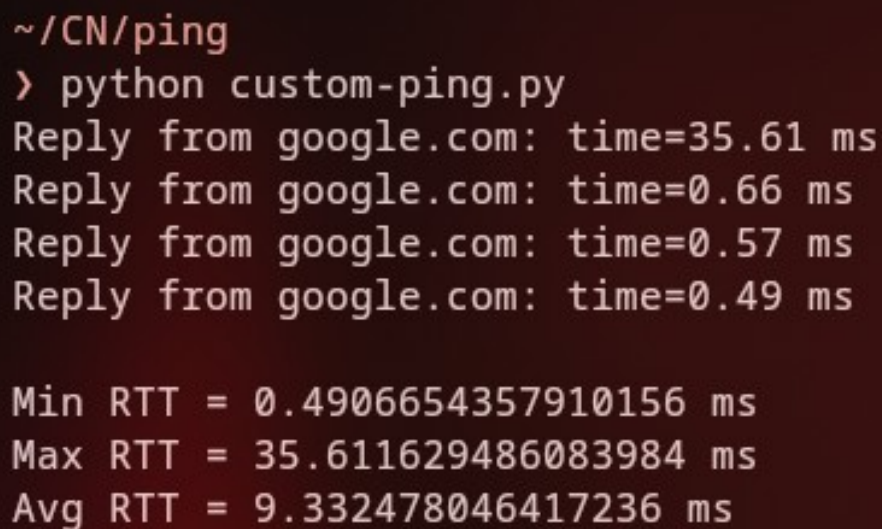
```
        print(f"Reply from {host}: time={rtt:.2f} ms")
    except:
        print("Request timed out")
if times:
    print("\nMin RTT =", min(times), "ms")
    print("Max RTT =", max(times), "ms")
    print("Avg RTT =", sum(times)/len(times), "ms")
```

 Output :

```
~/CN/ping
> python custom-ping.py
Reply from google.com: time=35.61 ms
Reply from google.com: time=0.66 ms
Reply from google.com: time=0.57 ms
Reply from google.com: time=0.49 ms

Min RTT = 0.4906654357910156 ms
Max RTT = 35.611629486083984 ms
Avg RTT = 9.332478046417236 ms
```

 Result :

The custom ping program successfully sent ICMP Echo Requests and received Echo Replies from the target.