

## PING PROGRAM

AIM:

Implement your own ping program

CODE:

```
import socket  
import os  
import time  
import struct  
import select
```

```
def checksum(data):
```

```
    if len(data) % 2 != 0  
        data += b'\00'
```

```
    total = 0
```

```
    for i in range(0, len(data), 2):
```

```
        word = data[i] + data[i+1] << 8
```

```
        total += word
```

```
    total = (total >> 16) + (total & 0xFFFF)
```

```
    total += total >> 16
```

```
    return ~total & 0xFFFF
```

```
def ping(host):
```

```
    icmp = socket.getprotobyname('icmp')
```

```
    s = socket.socket(socket.AF_INET, socket.  
                      SOCK_RAW, icmp)
```

s.settimeout(1)

packet\_id = os.getpid() & 0xFFFF

header = struct.pack('bbHHh', 8, 0, 0, checksum\_value,  
 packet\_id, 1)

start\_time = time.time()

s.sendto(header, (host, 1))

try:

```
    reply, _ = s.recvfrom(1024)
```

```
    end_time = time.time()
```

```
    rtt = (end_time - start_time) * 1000
```

```
    print(f" Ping to {host} took {rtt:.2f} ms")
```

except socket.timeout:

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

```
s.close()
```

```
if __name__ == "__main__":
```

```
    ping("8.8.8.8")
```

INPUT:

```
ping("8.8.8.8")
```

OUTPUT:

ping to 8.8.8.8 took 13.25 ms

RESULT:

Ping program implemented successfully

141+ 6/3