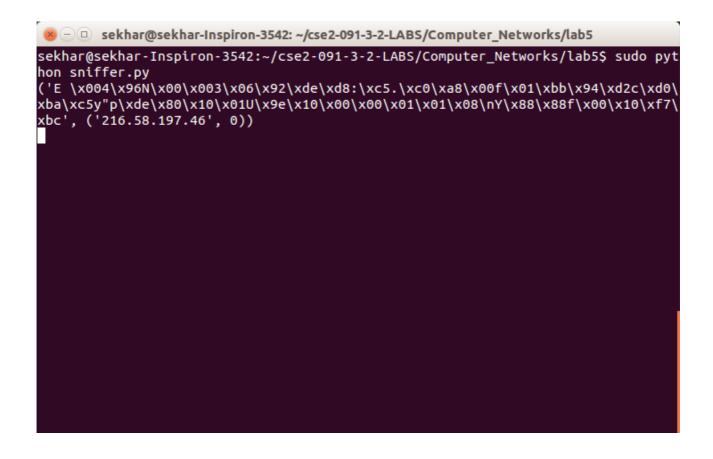
PROGRAM:-

OUTPUT:-



PROGRAM:-

```
#Packet sniffer in python for Linux
#Sniffs only incoming TCP packet
import socket, sys
from struct import *
#create an INET, STREAMing socket
try:
      s = socket.socket(socket.AF_INET, socket.SOCK_RAW,
socket.IPPROTO_TCP)
except socket.error, msg:
      print 'Socket could not be created. Error Code: ' + str(msg[0]) + ' Message '
+msg[1]
      sys.exit()
# receive a packet
while True:
      packet = s.recvfrom(65565)
#packet string from tuple
      print "hi"
#
      packet = packet[0]
#take first 20 characters for the ip header
      ip_header = packet[0:20]
#now unpack them:)
      iph = unpack('!BBHHHBBH4s4s', ip_header)
      version_ihl = iph[0]
      version = version ihl >> 4
      ihl = version ihl & 0xF
      iph_length = ihl * 4
      ttl = iph[5]
      protocol = iph[6]
      s_addr = socket.inet_ntoa(iph[8]);
      d addr = socket.inet ntoa(iph[9]);
      print 'Version : ' + str(version) + ' IP Header Length : ' + str(ihl) + ' TTL : '
+str(ttl) + 'Protocol : ' + str(protocol) + 'Source Address : ' + str(s_addr) +
'Destination Address: ' + str(d addr)
      tcp_header = packet[iph_length:iph_length+20]
#now unpack them :)
      tcph = unpack('!HHLLBBHHH', tcp_header)
      source_port = tcph[0]
      dest_port = tcph[1]
      sequence = tcph[2]
      acknowledgement = tcph[3]
```

```
doff_reserved = tcph[4]
    tcph_length = doff_reserved >> 4
    print 'Source Port : ' + str(source_port) + ' Dest Port : ' + str(dest_port) +
'Sequence Number : ' + str(sequence) + ' Acknowledgement : ' +
str(acknowledgement) + 'TCP header length : ' + str(tcph_length)
    h_size = iph_length + tcph_length * 4
    data_size = len(packet) - h_size
#get data from the packet
    data = packet[h_size:]
    print 'Data : ' + data
```

OUTPUT:-

```
- D root@sekhar-Inspiron-3542: /home/sekhar/cse2-091-3-2-LABS/Computer Netw
                                                                         sekhar@sekhar-Inspiron-3542: ~
root@sekhar-Inspiron-3542:/home/sekhar/cse2-091-3-2-LABS/Computer Networ sekhar@sekhar-Inspiron-3542:~$ ping google.com
ks/lab5# python packet_filter.py
                                                                        PING google.com (216.58.197.46) 56(84) bytes of data.
Version: 4 IP Header Length: 5 TTL: 44 Protocol: 6 Source Address: 64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp seq=1 ttl=
74.125.200.94Destination Address : 192.168.0.102
                                                                        51 time=71.5 ms
Source Port : 443 Dest Port : 33582Sequence Number : 1767814533 Acknowle 64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp seq=2 ttl=
dgement : 182208837TCP header length : 8
                                                                        51 time=71.4 ms
Data : 閉期間聗++z++e+閉+閉形z++lc,xB+5A"++閉5Q++閉F陽M+eGS+
                                                                        64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp_seq=3 ttl=
Version : 4 IP Header Length : 5 TTL : 44 Protocol : 6 Source Address : 51 time=71.4 ms
74.125.200.94Destination Address : 192.168.0.102
                                                                        64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp_seq=4 ttl=
Source Port: 443 Dest Port: 33582Sequence Number: 1767814596 Acknowle 51 time=71.3 ms
dgement: 182208837TCP header length: 8
'Data :
                                                                        --- google.com ping statistics ---
Version : 4 IP Header Length : 5 TTL : 44 Protocol : 6 Source Address : 4 packets transmitted, 4 received, 0% packet loss, time 3004ms
74.125.200.94Destination Address : 192.168.0.102
                                                                        rtt min/avg/max/mdev = 71.372/71.463/71.568/0.276 ms
Source Port: 443 Dest Port: 33582Sequence Number: 1767814597 Acknowle sekhar@sekhar-Inspiron-3542:~$
dgement : 182208838TCP header length : 8
Data:
```