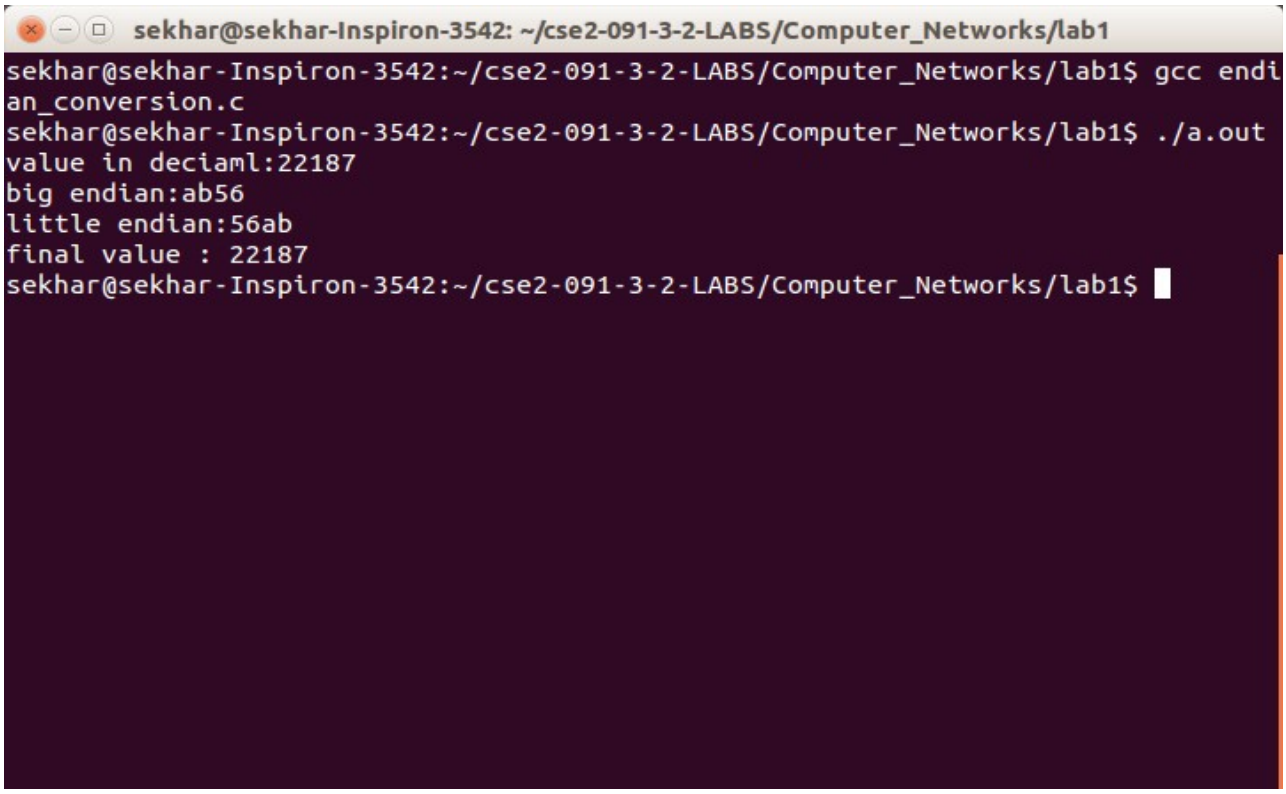
PROGRAM:-

```
#include<stdio.h>
#include <netinet/in.h>
int main()
{
        short s=0x56AB;
        printf("value in deciaml:%d\n",s);
        printf("big endian:%x\n",htons(s));
        printf("little endian:%x\n",ntohs(htons(s)));
        printf("final value : %d\n",ntohs(htons(s)));
}
```

OUTPUT:-



PROGRAM:-

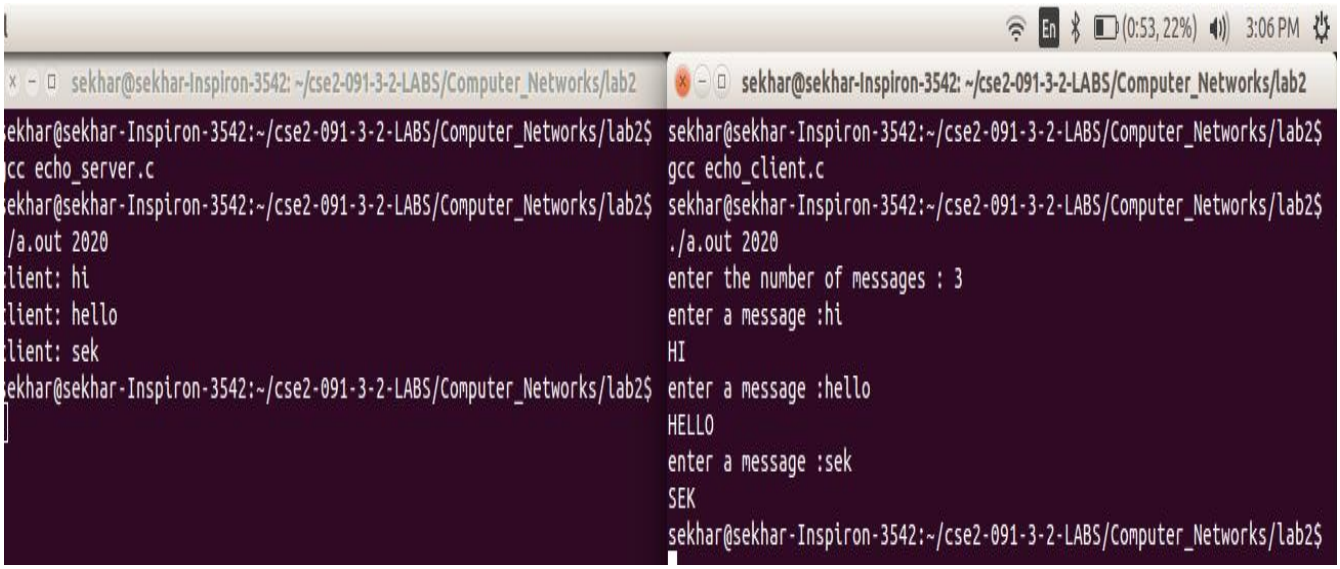
SERVER:-

```
#include<stdio.h>
#include<netinet/in.h>
#include<sys/types.h>
#include<sys/socket.h>
void main(int argc,char *argv[])
{
char buf[100];
int s,len,n;
int sfd=socket(AF_INET,SOCK_STREAM,0);
struct sockaddr_in servaddr,client;
servaddr.sin_family=AF_INET;
servaddr.sin_port=htons(atoi(argv[1]));
servaddr.sin_addr.s_addr=inet_addr("192.168.0.104");
bind(sfd,(struct sockaddr*)&servaddr,sizeof(servaddr));
listen(sfd,5);
s=accept(sfd,(struct sockaddr*)&client,&len);
while(1)
{
n=recv(s,&buf,100,0);
buf[n]='\0';
if(n==0)
break;
printf("client: %s\n",buf);
int i;
for(i=0;buf[i]!='\0';i++)
        buf[i]=toupper(buf[i]);
send(s,&buf,n,0);
}
close(sfd);
close(s);
}
```

CLIENT:-

```
#include<stdio.h>
#include<string.h>
#include<netinet/in.h>
#include<sys/types.h>
#include<sys/socket.h>
void main(int argc,char *argv[])
{
int sfd,s,len,n;char buf[100];
struct sockaddr_in servaddr,server;
sfd=socket(AF_INET,SOCK_STREAM,0);
servaddr.sin_family=AF_INET;
servaddr.sin_port=htons(atoi(argv[1]));
servaddr.sin_addr.s_addr=inet_addr("192.168.0.104");
connect(sfd,(struct sockaddr*)&servaddr,sizeof(servaddr));
int n1;
printf("enter the number of messages : ");
scanf("%d",&n1);int i;
for(i=0;i<n1;i++)
{
printf("enter a message :");
scanf("%s",buf);
n=strlen(buf);
send(sfd,&buf,n,0);
n=recv(sfd,&buf,100,0);
buf[n]='\0';
printf("%s\n",buf);
}
}
```

OUTPUT:-



PROGRAM:-

SERVER:-

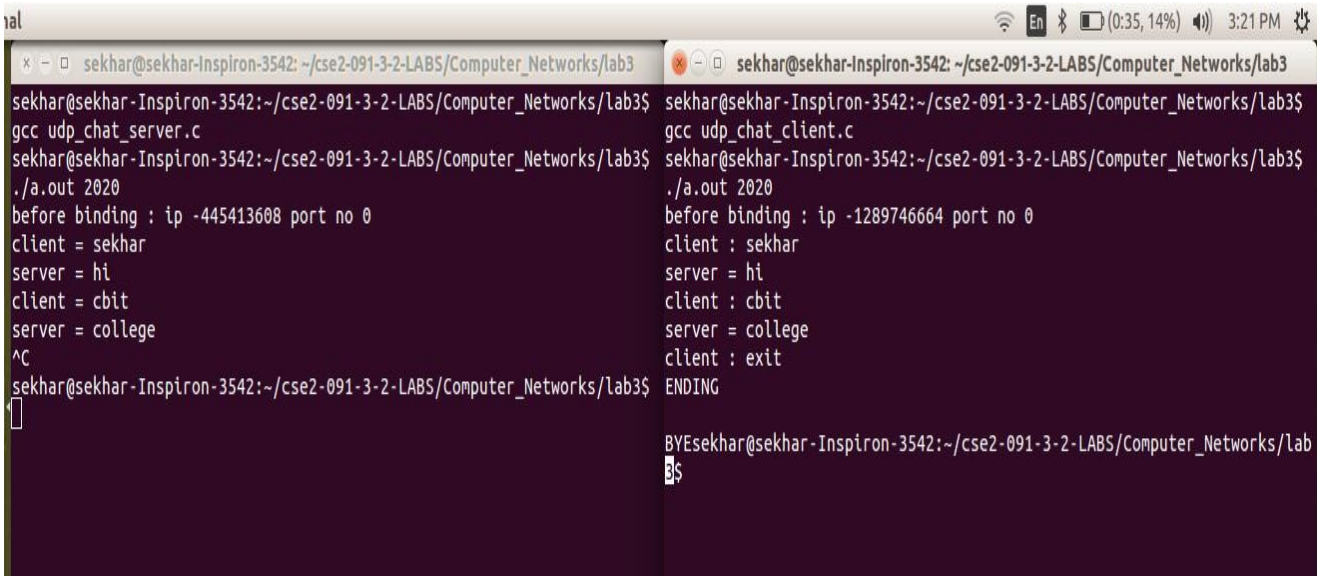
```
#include<stdlib.h>
#include<string.h>
#include<netinet/in.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<stdio.h>
int main(int argc,char *argv[])
{
int sfd=socket(AF_INET,SOCK_DGRAM,0);
struct sockaddr_in s,server,client;int len,n,i,news,s1;
char buf[1000];
printf("before binding : ip %ld port no %d\n",
(long)inet_ntoa(s.sin_addr),ntohs(s.sin_port));
s.sin_family=AF_INET;
s.sin_port=htons(atoi(argv[1]));
s.sin_addr.s_addr=inet_addr("192.168.0.104");
s1=bind(sfd,(struct sockaddr*)&s,sizeof(s));
while(1)
{
        int temp=sizeof(client);
        len=recvfrom(sfd,&buf,1000,0,(struct sockaddr *)&client,&temp);
        printf("client = ");
        printf("%s\n",buf);
        printf("server = ");
        scanf("%s",buf);
        if(!strcmp(buf,"exit"))
        {
        printf("ENDING\n\nBYE");
        exit(-1);
        }
        sendto(sfd,&buf,1000,0,(struct sockaddr *)&client,temp);
}
return 1;
}
```

CLIENT:-

```
#include<stdlib.h>
#include<string.h>
#include<netinet/in.h>
#include<sys/types.h>
#include<sys/socket.h>
#include<stdio.h>
int main(int argc,char *argv[])
{
int sfd=socket(AF_INET,SOCK_DGRAM,0);
struct sockaddr_in s,server,client;int len,n,i,news,s1;
char buf[1000];
//strcpy(buf,argv[2]);
//itoa(inet_ntoa(s.sin_addr),buf);
printf("before binding : ip %ld port no %d\n",
(long)inet_ntoa(s.sin_addr),ntohs(s.sin_port));
s.sin_family=AF_INET;
s.sin_port=htons(atoi(argv[1]));
//s.sin_addr.s_addr=htonl(INADDR_ANY);
s.sin_addr.s_addr=inet_addr("192.168.0.104");
//printf("after inet : ip %ld port no %d\n",
(long)inet_ntoa(s.sin_addr),ntohs(s.sin_port));
s1=bind(sfd,(struct sockaddr*)&s,sizeof(s));
client.sin_family=AF_INET;
client.sin_port=0;
client.sin_addr.s_addr=htonl(INADDR_ANY);
memset(client.sin_zero,'\0',sizeof(client.sin_zero));
bind(sfd,(struct sockaddr *)&client,sizeof(client));
int temp=sizeof(s);
while(1)
{
        printf("client : ");
        scanf("%s",buf);
        if(!strcmp(buf,"exit"))
        {
        printf("ENDING \n\nBYE");
        exit(-1);
        }
        //int temp=sizeof(client);
        //len=recvfrom(sfd,&buf,1000,0,(struct sockaddr *)&client,&temp);
        sendto(sfd,&buf,1000,0,(struct sockaddr *)&s,temp);
        len=recvfrom(sfd,&buf,1000,0,(struct sockaddr  *)&s,&temp);
        buf[len]='\0';
```

```
        printf("server = %s\n",buf);
        //scanf("%s",buf);
}
return 1;
}
```

OUTPUT:-

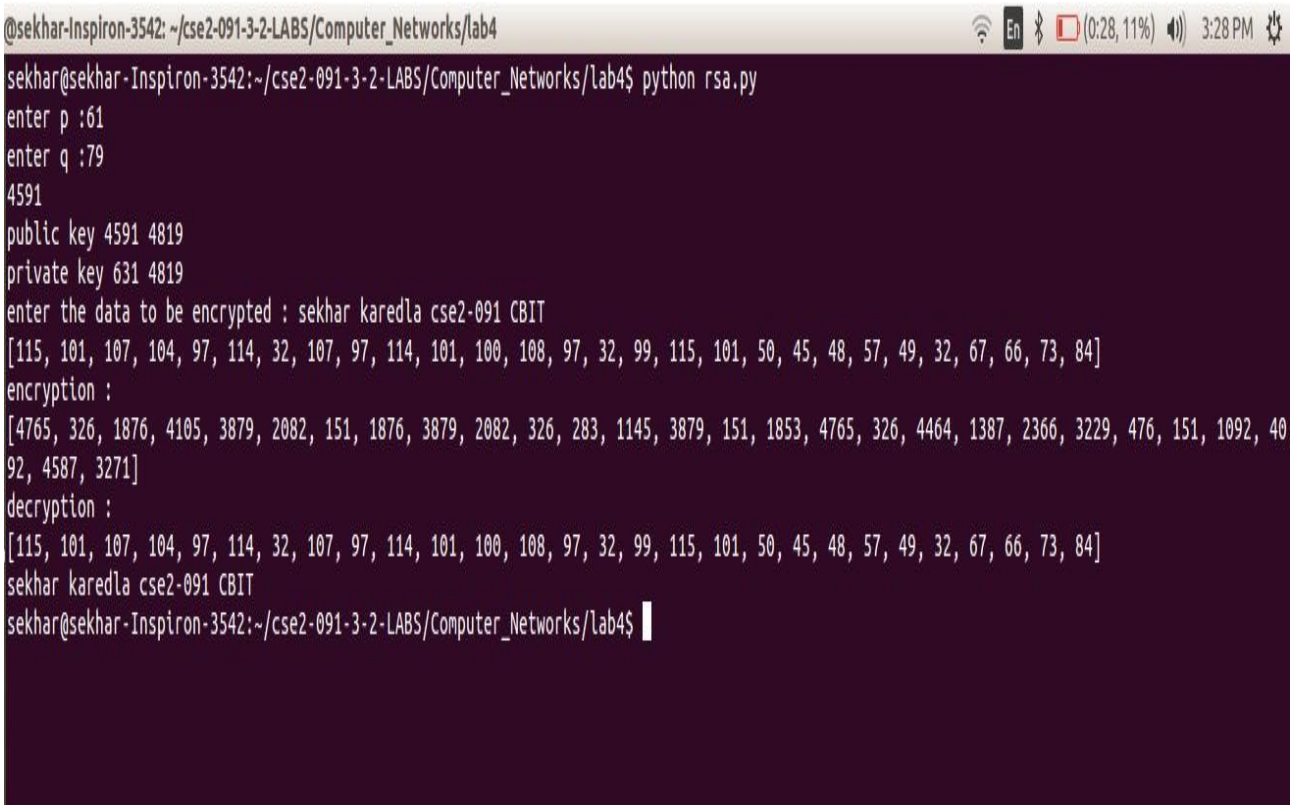


PROGRAM:-

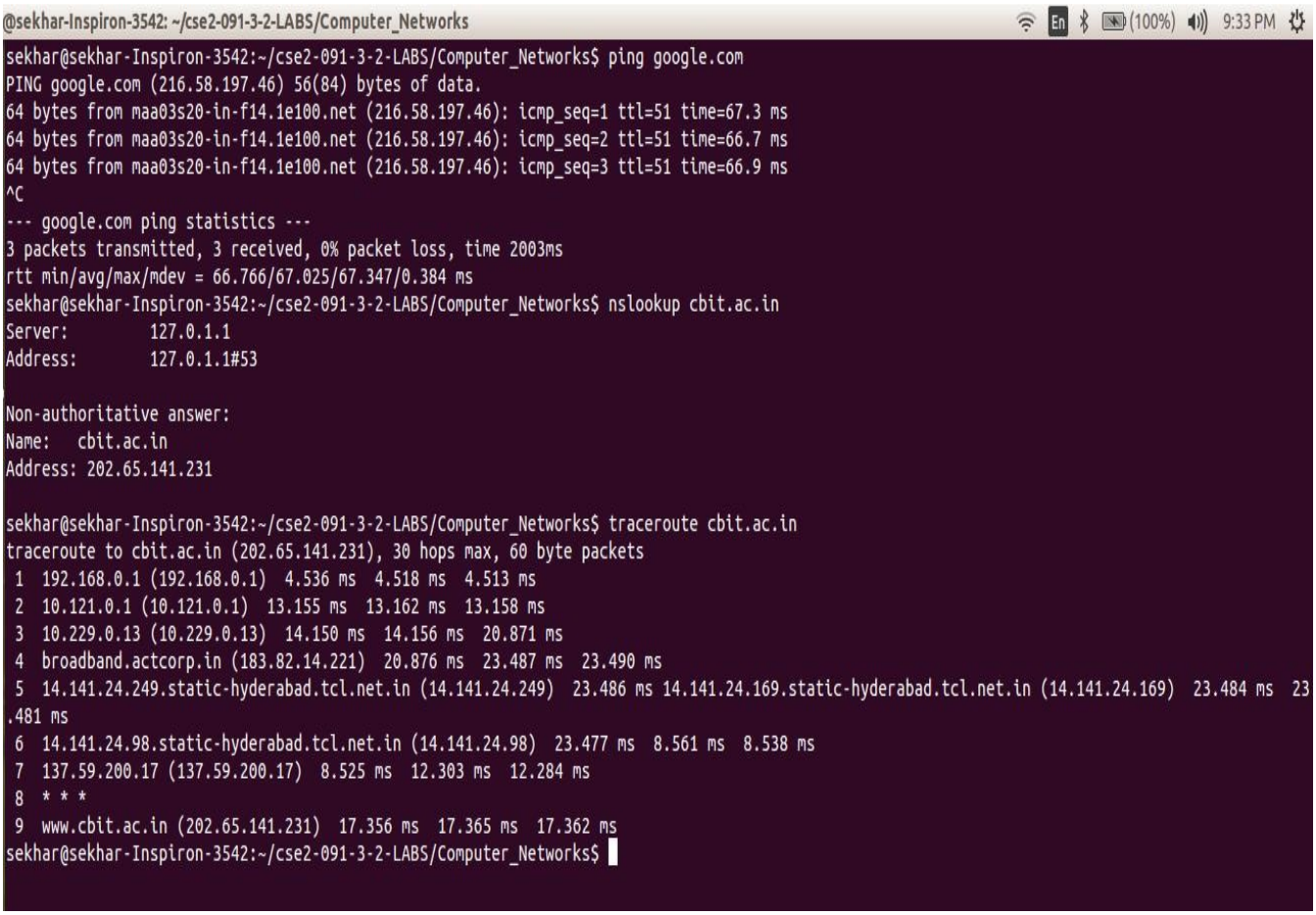
```
from fractions import gcd
from random import randint
es=[]
def selecterandom(p,q):
        phi=(p-1)*(q-1)
        for i in range(3,phi):
                if(gcd(i,phi)==1):
                        es.append(i)
        print es
        i=randint(0,len(es)-1)
        print es[i]
        return es[i]



p=input("enter p :")
q=input("enter q :")
n=p*q
phi=(p-1)*(q-1)
e=selecterandom(p,q)
#e=input("enter e :")
d=1
s=0
while(s!=1):
        s=(d*e)%phi
        d+=1;
d-=1
print("public key "+str(e)+" "+str(n))
print("private key "+str(d)+" "+str(n))

data=raw_input("enter the data to be encrypted : ")
list=[]
for k in data:
        list.append(ord(k))
print list

print("encryption : ")
enc=[]
for k in list:
```

```
        c=1
        for m in range(0,e):
                c=c*k
                c=c%n
        c=c%n
        enc.append(c)
print enc
#output="
#for k in enc:
 #       if output!='':
  #              output+=chr(k)
   #     else:
    #            output=chr(k)
#print output
print("decryption : ")
dec=[]
for k in enc:
        c=1
        for m in range(0,d):
                c=c*k
                c=c%n
        c=c%n
        dec.append(c)
print dec

output="
for k in dec:
        if output!='':
                output+=chr(k)
        else:
                output=chr(k)
print output
```

OUTPUT:-


@sekhar-Inspiron-3542: ~/cse2-091-3-2-LABS/Computer_Networks/lab4
(0:28, 11%)
3:28 PM
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks/lab4$ python rsa.py
enter p :61
enter q :79
4591
public key 4591 4819
private key 631 4819
enter the data to be encrypted : sekhar karedla cse2-091 CBIT
[115, 101, 107, 104, 97, 114, 32, 107, 97, 114, 101, 100, 108, 97, 32, 99, 115, 101, 50, 45, 48, 57, 49, 32, 67, 66, 73, 84]
encryption :
[4765, 326, 1876, 4105, 3879, 2082, 151, 1876, 3879, 2082, 326, 283, 1145, 3879, 151, 1853, 4765, 326, 4464, 1387, 2366, 3229, 476, 151, 1092, 40
92, 4587, 3271]
decryption :
[115, 101, 107, 104, 97, 114, 32, 107, 97, 114, 101, 100, 108, 97, 32, 99, 115, 101, 50, 45, 48, 57, 49, 32, 67, 66, 73, 84]
sekhar karedla cse2-091 CBIT
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks/lab4$

OUTPUT:-


@sekhar-Inspiron-3542: ~/cse2-091-3-2-LABS/Computer_Networks
(100%) 9:33 PM
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks$ ping google.com
PING google.com (216.58.197.46) 56(84) bytes of data.
64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp_seq=1 ttl=51 time=67.3 ms
64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp_seq=2 ttl=51 time=66.7 ms
64 bytes from maa03s20-in-f14.1e100.net (216.58.197.46): icmp_seq=3 ttl=51 time=66.9 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 66.766/67.025/67.347/0.384 ms
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks$ nslookup cbit.ac.in
Server: 127.0.1.1
Address: 127.0.1.1#53
Non-authoritative answer:
Name: cbit.ac.in
Address: 202.65.141.231
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks$ traceroute cbit.ac.in
traceroute to cbit.ac.in (202.65.141.231), 30 hops max, 60 byte packets
1 192.168.0.1 (192.168.0.1) 4.536 ms 4.518 ms 4.513 ms
2 10.121.0.1 (10.121.0.1) 13.155 ms 13.162 ms 13.158 ms
3 10.229.0.13 (10.229.0.13) 14.150 ms 14.156 ms 20.871 ms
4 broadband.actcorp.in (183.82.14.221) 20.876 ms 23.487 ms 23.490 ms
5 14.141.24.249.static-hyderabad.tcl.net.in (14.141.24.249) 23.486 ms 14.141.24.169.static-hyderabad.tcl.net.in (14.141.24.169) 23.484 ms 23
.481 ms
6 14.141.24.98.static-hyderabad.tcl.net.in (14.141.24.98) 23.477 ms 8.561 ms 8.538 ms
7 137.59.200.17 (137.59.200.17) 8.525 ms 12.303 ms 12.284 ms
8 * * *
9 www.cbit.ac.in (202.65.141.231) 17.356 ms 17.365 ms 17.362 ms
sekhar@sekhar-Inspiron-3542:~/cse2-091-3-2-LABS/Computer_Networks$