

Program7

```
import java.util.*;
public class Crc
{
    void div(int a[],int k)
    {
        int gp[]={1,0,0,0,1,0,0,0,0,0,0,1,0,0,0,0,1};
        int count=0;
        for(int i=0;i<k;i++)
        {
            if(a[i]==gp[0])
            {
                for(int j=i;j<17+i;j++)
                {
                    a[j]=a[j]^gp[count++];
                }
                count=0;
            }
        }
    }

    public static void main(String args[])
    {
        int a[]=new int[100];
        int b[]=new int[100];
        int len,k;
        Crc ob=new Crc();
        System.out.println("Enter the length of Data Frame:");
        Scanner sc=new Scanner(System.in);
        len=sc.nextInt();
        int flag=0;
        System.out.println("Enter the Message:");
        for(int i=0;i<len;i++)
        {
            a[i]=sc.nextInt();
        }
        for(int i=0;i<16;i++)
        {
            a[len++]=0;
        }
        k=len-16;
        for(int i=0;i<len;i++)
        {
            b[i]=a[i];
        }
    }
}
```

```
ob.div(a,k);
for(int i=0;i<len;i++)
a[i]=a[i]^b[i];
System.out.println("Data to be transmitted: ");
for(int i=0;i<len;i++)
{
System.out.print(a[i]+" ");
}
System.out.println();
System.out.println("Enter the Reveived Data: ");
for(int i=0;i<len;i++)
{
a[i]=sc.nextInt();
}
ob.div(a, k);
for(int i=0;i<len;i++)
{
if(a[i]!=0)
{
flag=1; break;
}
}
if(flag==1)
System.out.println("error in data");
else
System.out.println("no error");
}}
```

The screenshot shows a Windows desktop with a taskbar at the bottom. A command prompt window is open, displaying the execution of a Java program. The program prompts the user to enter the length of the data frame (5) and the message (1 1 10 0). It then displays the data to be transmitted and the received data, both as binary strings. The output is summarized in a table below the command prompt.

		OUTPUT
		0111011000101101011
		0111011000101101011
		0111011000101101011
		0111000000101101011
		10101000010100101
		0111011000101101011
4.	Enter the length of Data Frame : 5 Enter the Message: 1 1 10 0	Error in data Data to be Transmitted: 1 1 1 0 0 1 1 0 1 0 0 1 1 1 0 1 1 1 0 1 Enter the Received data: 1 1 1 0 0 1 1 0 1 0 0 1 1 1 0 1 1 1 0 1 No Error data

Program8

```
import java.util.*;
public class Belmanford
{
    private int D[];
    private int n;
    public static final int max_value=999;
    public Belmanford(int n)
    {
        this.n=n;
        D=new int[n+1];
    }
    public void shortest(int s,int a[][])
    {
        for(int i=1;i<=n;i++)
        {
            D[i]=max_value;
        }
        D[s]=0;
        for(int k=1;k<=n-1;k++)
        {
            for(int i=1;i<=n;i++)
            {
                for(int j=1;j<=n;j++)
                {
                    if(a[i][j]!=max_value)
```

```

{
if(D[j]>D[i]+a[i][j])
D[j]=D[i]+a[i][j];
}
}
}
}
for (int i=1;i<=n;i++)
{
for (int j=1;j<=n;j++)
{
if(a[i][j]!=max_value)
{
if(D[j]>D[i]+a[i][j])
{
System.out.println("the graph contains -ve edge cycle");
return;
}
}
}
}
for (int i=1;i<=n;i++)
{System.out.println("distance of source"+s+"to"+i+"is"+D[i]);
}
}
public static void main(String[] args)
{
int n=0,s;
Scanner sc=new Scanner(System.in);
System.out.println("enter the no.of values");
n=sc.nextInt();
int a[][]=new int [n+1][n+1];
System.out.println("enter the weighted matrix:");
for (int i=1;i<=n;i++)
{
for (int j=1;j<=n;j++)
{
a[i][j]=sc.nextInt();
if(i==j) {a[i][j]=0;
continue;
}
if(a[i][j]==0) a[i][j]=max_value;
}
}
}

```

```

System.out.println("enter the source vertex:");
s=sc.nextInt();
Belmanford b=new Belmanford(n);
b.shortest(s,a);
sc.close();
}
}

```

```

C:\Windows\system32\cmd.exe
C:\Users\Umme Kulsum\Documents>javac Belmanford.java
C:\Users\Umme Kulsum\Documents>java Belmanford
enter the no. of values
4
enter the weighted matrix:
0 5 0 0
5 0 3 4
0 3 0 2
0 4 2 0
enter the source vertex:
2
distance of source2to1is5
distance of source2to2is0
distance of source2to3is3
distance of source2to4is4
C:\Users\Umme Kulsum\Documents>

```

Program9

```

import java.net.*;
import java.io.*;
public class TCPServer
{
    public static void main(String args[])throws Exception
    {
        ServerSocket sersock=new ServerSocket(4000);
        System.out.println("Server ready for connection");
        Socket sock=sersock.accept();
        System.out.println("Connection is successful and waiting for chatting");
        InputStream istream=sock.getInputStream();
        BufferedReader fileRead=new BufferedReader(new InputStreamReader(istream));
        String fname=fileRead.readLine();
        BufferedReader contentRead=new BufferedReader(new FileReader(fname));
        OutputStream ostream=sock.getOutputStream();
        PrintWriter pwrite=new PrintWriter(ostream,true);
        String str;
        while((str=contentRead.readLine())!=null)

```

```

{
pwrite.println(str);
}
sock.close();
sersock.close();
pwrite.close();
fileRead.close();
contentRead.close();
}
}

```

```

import java.net.*;
import java.io.*;
public class TCPClient
{
public static void main(String args[])throws Exception
{
Socket sock=new Socket("127.0.0.1",4000);
System.out.println("Enter the filename");
BufferedReader keyRead=new BufferedReader(new InputStreamReader(System.in));
String fname=keyRead.readLine();
OutputStream ostream=sock.getOutputStream();
PrintWriter pwrite=new PrintWriter(ostream,true);
pwrite.println(fname);
InputStream istream=sock.getInputStream();
BufferedReader socketRead=new BufferedReader(new InputStreamReader(istream));
String str;
while((str=socketRead.readLine())!=null)
{
System.out.println(str);
}
pwrite.close();
socketRead.close();
keyRead.close();
}
}

```

Program10

```

import java.io.*;
import java.net.*;
public class UDPServer
{
public static void main(String[] args)
{
DatagramSocket skt=null;

```

```

try
{
    System.out.println("server is started");
    skt=new DatagramSocket(6788);
    byte[] buffer = new byte[1000];
    while(true)
    {
        DatagramPacket request = new DatagramPacket(buffer,buffer.length);
        skt.receive(request);
        String[] message = (new String(request.getData())).split(" ");
        byte[] sendMsg= (message[1].toUpperCase()+ " from server to client").getBytes();
        DatagramPacket reply = new
        DatagramPacket(sendMsg,sendMsg.length,request.getAddress(),request.getPort());
        skt.send(reply);
    }
}
catch(Exception ex)
{
    System.out.println(ex.getMessage());
}
}
}

```

```

import java.io.*;
import java.net.*;
public class UDPCClient
{
    public static void main(String[] args)
    {
        DatagramSocket skt;
        try
        {
            skt=new DatagramSocket();
            String msg= "atme college ";
            byte[] b = msg.getBytes();
            InetAddress host=InetAddress.getByName("127.0.0.1");
            int serverSocket=6788
            DatagramPacket request =new DatagramPacket (b,b.length,host,serverSocket);
            skt.send(request);
            byte[] buffer =new byte[1000];
            DatagramPacket reply= new DatagramPacket(buffer,buffer.length);
            skt.receive(reply);
            System.out.println("client received:" +new String(reply.getData()));
            skt.close();
        }
    }
}

```

```

}
catch(Exception ex)
{
System.out.println(ex.getMessage());
}
}
}

```

Program11

```

import java.util.*;
import java.io.*;
public class rsa
{
static int gcd(int m,int n)
{
while(n!=0)
{
int r=m%n;
m=n;
n=r;
}
return m;
}
public static void main(String args[])
{
int p=0,q=0,n=0,e=0,d=0,phi=0;
int nummes[]=new int[100];
int encrypted[]=new int[100];
int decrypted[]=new int[100];
int i=0,j=0,nofelem=0;
Scanner sc=new Scanner(System.in);
String message ;
System.out.println("Enter the Message to be encrypted:");
message= sc.nextLine();
System.out.println("Enter value of p and q\n");
p=sc.nextInt();
q=sc.nextInt();
n=p*q;
phi=(p-1)*(q-1);
for(i=2;i<phi;i++)
if(gcd(i,phi)==1)
break;
e=i;

```



```

for(i=2;i<phi;i++)
if((e*i-1)%phi==0)
break;
d=i;
for(i=0;i<message.length();i++)
{
char c = message.charAt(i);
int a =(int)c;
nummes[i]=c-96;
}
nofelem=message.length();
for(i=0;i<nofelem;i++)
{
encrypted[i]=1;
for(j=0;j<e;j++)
encrypted[i] =(encrypted[i]*nummes[j])%n;
}
System.out.println("\n Encrypted message\n");
for(i=0;i<nofelem;i++)
{
System.out.print(encrypted[i]);
System.out.print((char)(encrypted[i]+96));
}
for(i=0;i<nofelem;i++)
{
decrypted[i]=1; for(j=0;j<d;j++)
decrypted[i]=(decrypted[i]*encrypted[j])%n;
}
System.out.println("\n Decrypted message\n ");
for(i=0;i<nofelem;i++)
System.out.print((char)(decrypted[i]+96)); return;
}
}

```

Program 12

```

import java.util.Scanner;
import java.lang.*;
public class lab7 {
public static void main(String[] args)
{
int i;
int a[]=new int[20];
int buck_rem=0,buck_cap=4,rate=3,sent,recv;
Scanner in = new Scanner(System.in);

```

```

System.out.println("Enter the number of packets");
int n = in.nextInt();
System.out.println("Enter the packets");
for(i=1;i<=n;i++)
a[i]= in.nextInt();
System.out.println("Clock \t packet size \t accept \t sent \t remaining");
for(i=1;i<=n;i++)
{
if(a[i]!=0)
{
if(buck_rem+a[i]>buck_cap)
recv=-1;
else
{
recv=a[i];
buck_rem+=a[i];
}
}
else
recv=0;

if(buck_rem!=0)
{
if(buck_rem<rate)
{sent=buck_rem;
buck_rem=0;
}
else
{
sent=rate;
buck_rem=buck_rem-rate;
}
}
else
sent=0;
if(recv==-1)
System.out.println(+i+ "\t\t" +a[i]+ "\t dropped \t" + sent +"\t" +buck_rem);
else
System.out.println(+i+ "\t\t" +a[i]+ "\t\t" +recv +"\t" +sent + "\t" +buck_rem);
}
}
}

```

