```java
/* Write a program for simple RSA algorithm to encrypt and decrypt the
data. */

import java.math.BigInteger;
import java.util.*;
class RSA
{
      public static void main(String args[])
      {
            Scanner ip=new Scanner(System.in);
            int p,q,n,e=1,j;
            int d=1,i1;
            int t1,t2;
            int pt[]= new int[10];
            int ct[]= new int[10];
            int rt[]= new int[10];
            int temp[]= new int[10];
            String i=new String();

            System.out.println("Enter the two prime numbers:");
            p=ip.nextInt();
            q=ip.nextInt();
            System.out.println("Enter the message to be sent");
            i=ip.next();
            i1=i.length();
            n=p*q;
            t1=p-1;
            t2=q-1;
            System.out.println("\n---------------------");
            System.out.println("Sender Side:");

            while((t1*t2)%e==0)
            {
                  e++;
            }
            System.out.println("Public Key(e)= "+e);
            System.out.println("---------------------");

            for(j=0;j<i1;j++)
            {
                  pt[j]=(i.charAt(j))-96;
                  System.out.println("Plain Text= "+pt[j]);
                  ct[j]=((int)Math.pow(pt[j],e))%n;
                  System.out.println("Cipher Text= "+ct[j]);
            }
            System.out.println("\nTransmitted Message:");
            for(j=0;j<i1;j++)
            {
                  temp[j]=ct[j]+96;
                  System.out.print((char)temp[j]);
            }

            System.out.println("\n\n---------------------");
            System.out.println("Receiver Side:");
            while((d*e)%(t1*t2)!=1)
            {
                  d++;
            }
            System.out.println("Private Key(d)= "+d);
            System.out.println("---------------------");
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                for(j=0;j<i1;j++)
                {
                        System.out.println("cipher Text= "+ct[j]);
                        BigInteger very_big_no = BigInteger.valueOf(ct[j]);
                        very_big_no = very_big_no.pow(d);
                        very_big_no = very_big_no.mod(BigInteger.valueOf(n));
                        rt[j] = very_big_no.intValue();
                        System.out.println("Plain Text= "+rt[j]);
                }
                System.out.println("\n---------------------");
                System.out.println("Decrypted Message:");
                for(j=0;j<i1;j++)
                {
                        rt[j]=rt[j]+96;
                        System.out.print((char)rt[j]);
                }
                System.out.println("\n---------------------");
                ip.close();

        }//end of main method

}//end of RSA class
```