* **Program Code:**

import java.io.\*;

import java.math.\*;

class rsa

{

public static void main(String args[])throws IOException

{

int q,p,n,pn,publickey=0,d=0,msg;

double cipher,ptext;

int check,check1;

BufferedReader in=new BufferedReader(new InputStreamReader(System.in));

System.out.println("ENTER NO");

p=Integer.parseInt(in.readLine());

q=Integer.parseInt(in.readLine());

check=prime(p);

check1=prime(q);

if(check!=1||check1!=1)

{

System.exit(0);

}

n=p\*q;

pn=(p-1)\*(q-1);

for(int e=2;e<pn;e++)

{

if(gcd(e,pn)==1)

{

publickey=e;

System.out.println("PUBLIC KEY :"+e);

break;

}

}

for(int i=0;i<pn;i++)

{

d=i;

if(((d\*publickey)%pn)==1) break;

}

System.out.println("PRIVATE KEY :"+d);

System.out.println("ENTER MESSAGE ");

msg=Integer.parseInt(in.readLine());

cipher=Math.pow(msg,publickey);

cipher=cipher%n;

System.out.println("ENCRYPTED :"+cipher);

ptext=Math.pow(cipher,d);

ptext=ptext%n;

System.out.println("DECRYPTED :"+ptext);

}

static int prime(int a)

{

int flag=0;

for(int i=2;i<a;i++)

{

if(a%i==0)

{

System.out.println(a+" is not a Prime Number");

flag = 1;

return 0;

}

}

if(flag==0)

return 1;

return 1;

}

static int gcd(int number1, int number2)

{

if(number2 == 0)

{

return number1;

}

return gcd(number2, number1%number2);

}

}

* **Output:**

