```
import java.util.*;
import java.math.*;
public class RSA
{    static BigInteger p,q,e,d,n,phi;
static int bitLength=256;
static Scanner S=new Scanner(System.in);
static Random R=new Random();
public static void main (String args[])
{ p=BigInteger.probablePrime(bitLength,R);
q=BigInteger.probablePrime(bitLength,R);
n=p.multiply(q);
e=BigInteger.probablePrime(bitLength/2,R);
phi=p.subtract(BigInteger.ONE).multiply(q.subtract(BigInt
eger.ONE));
while(phi.gcd(e).compareTo(BigInteger.ONE)!=0 &&
e.compareTo(phi)<0)
e.add(BigInteger.ONE);
d=e.modInverse(phi);
String msg="";
System.out.print("Enter The Msg : ");
msg=S.nextLine();
byte msg_arr[]=msg.getBytes();
System.out.println("Msg Byte Array : "+display(msg_arr));
byte en[]=encrypt(msg_arr);
System.out.println("Encrypted Byte Array : "+display(en));
byte de[]=decrypt(en);
System.out.println("Decrypted Byte Array : "+display(de));
System.out.println("Received Msg : "+ new String(de));   }
static byte[] encrypt(byte a[])
{ return (new BigInteger(a).modPow(e,n)).toByteArray(); }
static byte[] decrypt(byte a[])
{ return (new BigInteger(a).modPow(d,n)).toByteArray(); }
static String display(byte a[])
{String s="";
for(int i=0;i<a.length;i++)
s+=Byte.toString(a[i]);
return s;  }   }
```

Output : Enter The Msg : This is a sample
Msg Byte Array:84104105115321051153297321159710911210810 1
Encrypted Byte Array:7-38-64-487597-725231-45-87-6981-29-17-73-34127-101108-1289-126-769143-126-56-22- 21-27-7819120852868-91-81-47-105-7937-75-48-10681-6651-43-74-126-28-10468-853610941-38-58-127-126- 10910936-63347-69127
Decrypted Byte Array:84104105115321051153297321159710911210810 1
Received Msg: This is a sample