Error detecting code using CRC-CCITT (16-bits)

```java
import java.io.*;
class Crc
{
  public static void main(String args[]) throws IOException
  {

    BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
    int[ ] data;
    int[ ]div;
    int[ ]divisor;
    int[ ]rem;
    int[ ]crc;
    int data_bits, divisor_bits, tot_length;

    System.out.println("Enter number of data bits : ");
    data_bits=Integer.parseInt(br.readLine());
    data=new int[data_bits];

    System.out.println("Enter data bits : ");
    for(int i=0; i<data_bits; i++)
    data[i]=Integer.parseInt(br.readLine());

    System.out.println("Enter number of bits in divisor : ");
    divisor_bits=Integer.parseInt(br.readLine());
    divisor=new int[divisor_bits];

    System.out.println("Enter Divisor bits : ");
    for(int i=0; i<divisor_bits; i++)
    divisor[i]=Integer.parseInt(br.readLine());
```

```
tot_length=data_bits+divisor_bits-1;

div=new int[tot_length];

rem=new int[tot_length];

crc=new int[tot_length];


for(int i=0;i<data.length;i++)

div[i]=data[i];


System.out.print("Dividend (after appending 0's) are : ");

for(int i=0; i<div.length; i++)

System.out.print(div[i]);

System.out.println();

for(int j=0; j<div.length; j++)

{

        rem[j] = div[j];

}


rem=divide(div, divisor, rem);

for(int i=0;i<div.length;i++)

{

        crc[i]=(div[i]^rem[i]);

}

System.out.println();

System.out.println("CRC code : ");

for(int i=0;i<crc.length;i++)

System.out.print(crc[i]);

System.out.println();


System.out.println("Enter CRC code of "+tot_length+" bits : ");

for(int i=0; i<crc.length; i++)

crc[i]=Integer.parseInt(br.readLine());
```

```java
    for(int j=0; j<crc.length; j++)
    {
        rem[j] = crc[j];
    }
    rem=divide(crc, divisor, rem);
    for(int i=0; i<rem.length; i++)
    {
        if(rem[i]!=0)
        {
            System.out.println("Error");
            break;
        }
        if(i==rem.length-1)
        System.out.println("No Error");
    }
}

static int[] divide(int div[],int divisor[], int rem[])
{
    int cur=0;
    while(true)
    {
        for(int i=0;i<divisor.length;i++)
        rem[cur+i]=(rem[cur+i]^divisor[i]);
        while(rem[cur]==0 && cur!=rem.length-1)
        cur++;

        if((rem.length-cur)<divisor.length)
        break;
    }
    return rem;
}   }
```

Output:

```
krishna@ubuntu:~$ javac Crc.java
krishna@ubuntu:~$ java Crc
Enter number of data bits :
7
Enter data bits :
1
0
1
1
0
0
1
Enter number of bits in divisor :
3
Enter Divisor bits :
1
0
1
Dividend (after appending 0's) are : 101100100

CRC code :
101100111
Enter CRC code of 9 bits :
1
0
1
1
0
0
1
1
1
No Error
```