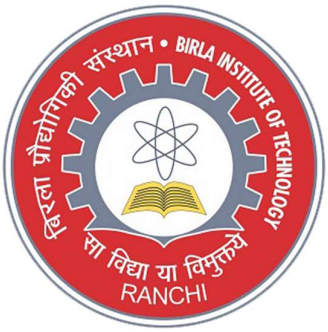
Birla Institute of Technology,Mesra,
Patna Campus



DCCN-LAB

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Sec-CSE 6th

#Assignment-5

Problem: error detection program based on CRC

Code:-

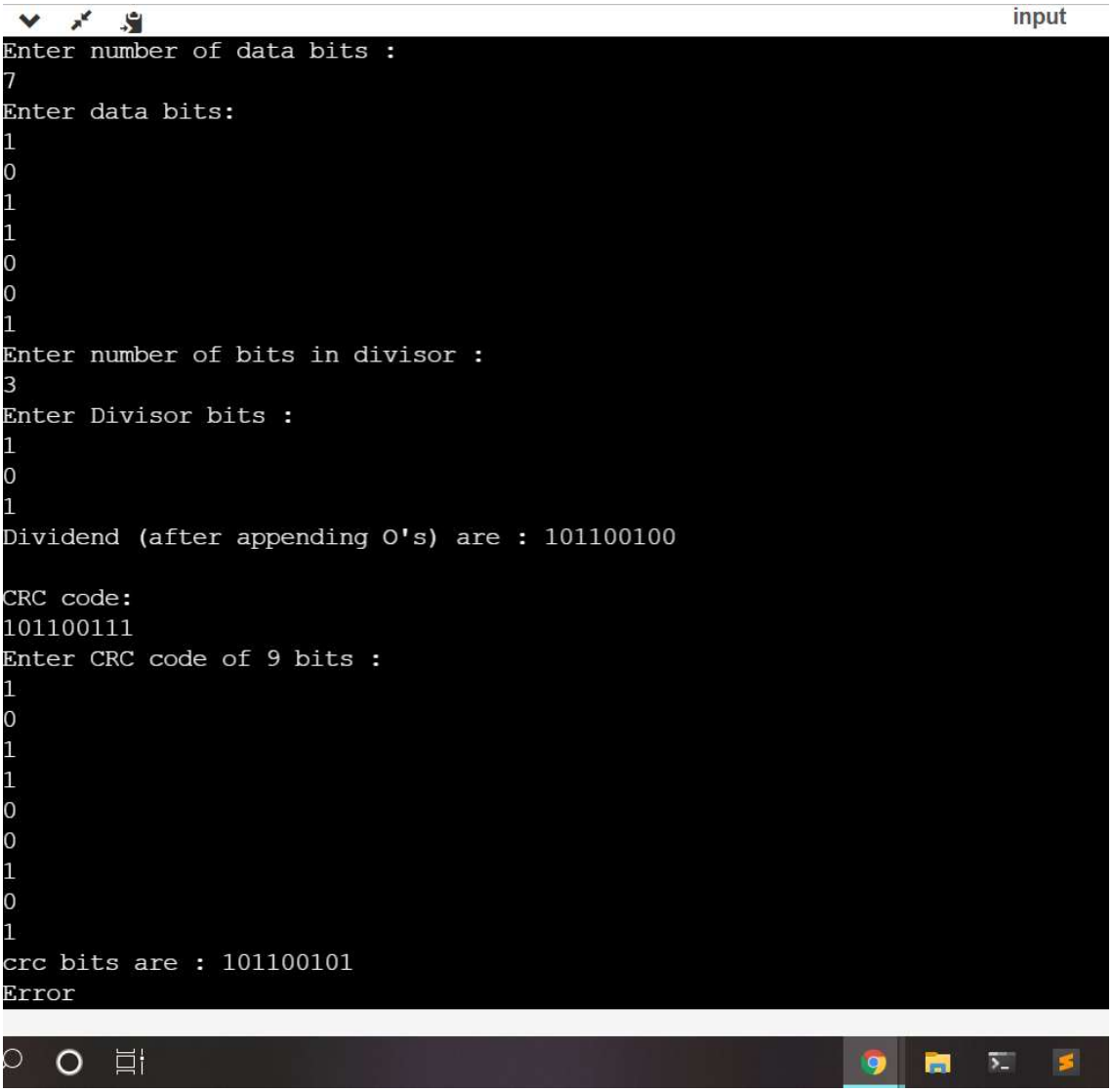
```
import java.io.*;

class Main

{

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 O'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++) //append dividend and remainder
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]);



//ERROR DETECTION
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());

System.out.print("crc bits are : ");
for(int i=0; i< crc.length; i++)
System.out.print(crc[i]);
System.out.println();

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");
System.out.println("Thank You");
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:-


input
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
0
1
crc bits are : 101100101
Error