Name: Subhashree Mitra, Dept: IT(3rd Year), Roll No: 32, Date: 15/03/22

**1. Write a CRC generator program to create a CRC based on modulo-2 division technique, using the divisor polynomial & the data stream to be transmitted, and after generating the CRC, attach it with the data stream & transmit it to the other end.**

**2. Write a CRC checker program to receive the data stream coming from the other end, dividing it with the same divisor polynomial using modulo-2 division to check that if the data stream is non erroneous then no remainder should be coming or else if there is any remainder then the received stream is erroneous.**

```
import java.io.*;

public class Main

{

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

 {

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

  System.out.println("Enter Generator:");

  String gen = br.readLine();

  System.out.println("Enter Data:");

  String data = br.readLine();

  String code = data;

  while(code.length() < (data.length() + gen.length() - 1))

   code = code + "0";

  code = data + div(code,gen);

  System.out.println("The transmitted Code Word is: " + code);

  System.out.println("Please enter the received Code Word: ");

  String rec = br.readLine();

  if(Integer.parseInt(div(rec,gen)) == 0)

   System.out.println("The received code word contains no errors.");

  else
```

```
  System.out.println("The received code word contains errors.");
}

static String div(String num1,String num2)
{
 int pointer = num2.length();
 String result = num1.substring(0, pointer);
 String remainder = "";
 for(int i = 0; i < num2.length(); i++)
 {
  if(result.charAt(i) == num2.charAt(i))
   remainder += "0";
  else
   remainder += "1";
 }
 while(pointer < num1.length())
 {
  if(remainder.charAt(0) == '0')
  {
   remainder = remainder.substring(1, remainder.length());
   remainder = remainder + String.valueOf(num1.charAt(pointer));
   pointer++;
  }
  result = remainder;
  remainder = "";
  for(int i = 0; i < num2.length(); i++)
  {
```

```
  if(result.charAt(i) == num2.charAt(i))
   remainder += "0";
  else
   remainder += "1";
 }
}
 return remainder.substring(1,remainder.length());
}
}
```

Run | Debug | Stop | Share | Save | { } Beautify

Main.java

```
36    while(pointer < num1.length())
37    {
38     if(remainder.charAt(0) == '0')
39     {
40      remainder = remainder.substring(1, remainder.length());
41      remainder = remainder + String.valueOf(num1.charAt(pointer));
42      pointer++;
43     }
44     result = remainder;
45     remainder = "";
46     for(int i = 0; i < num2.length(); i++)
47     {
48      if(result.charAt(i) == num2.charAt(i))
49       remainder += "0";
50      else
51       remainder += "1";
52     }
```

input

```
Enter Generator:
1101
Enter Data:
100100
The transmitted Code Word is: 100100001
Please enter the received Code Word:
101100
The received code word contains errors.


...Program finished with exit code 0
Press ENTER to exit console.
```