

PROG 4

```
import java.util.Scanner;  
import java.io.*;  
  
public class CRC1 {  
  
    public static void main(String args[]) {  
  
        Scanner sc = new Scanner(System.in);  
  
        System.out.print("Enter message bits: ");  
  
        String message = sc.nextLine();  
  
        System.out.print("Enter generator: ");  
  
        String generator = sc.nextLine();  
  
        int data[] = new int[message.length() + generator.length() - 1];  
  
        int divisor[] = new int[generator.length()];  
  
        for (int i = 0; i < message.length(); i++)  
  
            data[i] = Integer.parseInt(message.charAt(i) + "");  
  
        for (int i = 0; i < generator.length(); i++)  
  
            divisor[i] = Integer.parseInt(generator.charAt(i) + "");  
  
        for (int i = 0; i < message.length(); i++) {  
  
            if (data[i] == 1) {  
  
                for (int j = 0; j < divisor.length; j++)  
  
                    data[i + j] ^= divisor[j];  
  
            }  
  
            System.out.print("The checksum code is: ");  
  
            for (int i = 0; i < message.length(); i++)  
  
                data[i] = Integer.parseInt(message.charAt(i) + "");  
  
            for (int i = 0; i < data.length; i++)  
  
                System.out.print(data[i]);  
  
            System.out.println();  
  
            System.out.print("Enter checksum code: ");
```

```
message = sc.nextLine();

System.out.print("Enter generator: ");

generator = sc.nextLine();

data = new int[message.length() + generator.length() - 1];

divisor = new int[generator.length()];

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

data[i] = Integer.parseInt(message.charAt(i) + "");

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

divisor[i] = Integer.parseInt(generator.charAt(i) + "");

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

if (data[i] == 1) {

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

data[i + j] ^= divisor[j];

}

boolean valid = true;

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

if (data[i] == 1) {

valid = false;

break;

}

if (valid == true)

System.out.println("Data stream is valid");

else

System.out.println("Data stream is invalid. CRC error occurred.");

}}
```