

## 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.");

}}

```