**Shaikh Zaid Muddaris Husain 23DCO06 Batch-3**

**Experiment No 05**

**Aim:write a program for CRC.**

**Code:**

import java.io.\*;

class CRC {

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 code, String gen) {

int pointer = gen.length();

String result = code.substring(0, pointer);

String rem = "";

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

if (result.charAt(i) == gen.charAt(i)) {

rem += "0";

} else {

rem += "1";

}

}

while (pointer < code.length()) {

if (rem.charAt(0) == '0') {

rem = rem.substring(1, rem.length());

rem = rem + String.valueOf(code.charAt(pointer));

pointer++;

}

result = rem;

rem = "";

if (result.charAt(0) == '0') {

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

if (result.charAt(i) == '1') {

rem += 1;

} else {

rem += 0;

}

}

} else {

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

if (result.charAt(i) == gen.charAt(i)) {

rem += "0";

} else {

rem += "1";

}

}

}

}

return rem.substring(1, rem.length());

}

}

**Output:**

aiktc@CO-LAB1-10:~/Desktop/cn$ java CRC

Enter Generator:

11001

Enter Data:

1010101010

The transmitted Code Word is: 10101010100010

Please enter the received Code Word:

10101010100010

The received code word contains no errors.

aiktc@CO-LAB1-10:~/Desktop/cn$ java CRC

Enter Generator:

11001

Enter Data:

1010101010

The transmitted Code Word is: 10101010100010

Please enter the received Code Word:

10101010100011

The received code word contains errors.

aiktc@CO-LAB1-10:~/Desktop/cn$