# Computer Network Laboratory 18CSL57

**Part- B**

**7** .**Write a program for error detecting code using CRC-CCITT (16- bits).**

import java.util.Scanner;

**public class Main**

**{**

public static int t[]= new int[128], cs[]=new int[128], a, e, c, g[]={1,0,1,1};

static final int n=g.length;

static void xor()

{

for(c=1;c<n; c++)

cs[c]=((cs[c]==g[c])?0:1);

}

static void crc()

{

for( e=0;e<n;e++)

cs[e]=t[e];

do

{

if(cs[0]==1)

xor();

for(c=0;c<n-1;c++)

cs[c]=cs[c+1];

cs[c]=t[e++];

}while(e<=a+n-1);

}

**public static void main(String[] args) {**

**//System.out.println("Hello World");**

{

Scanner in=new Scanner(System.in);

System.out.println("Enter size of dataword: ");

a=in.nextInt();

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

for(int i=0;i<a;i++)

t[i]=in.nextInt();

for(e=a;e<a+n-1;e++)

t[e]=0;

System.out.print("Modified dataword: ");

for(int i=0;i<a+n-1;i++)

System.out.print(t[i]);

System.out.println();

crc();

System.out.print("Checksum: ");

for(int i=0;i<n-1;i++)

System.out.print(cs[i]);

System.out.println();

for(e=a;e<a+n-1;e++)

t[e]=cs[e-a];

System.out.print("Final codeword: ");

for(int i=0;i<a+n-1;i++)

System.out.print(t[i]);

System.out.println();

System.out.println("Test error detection? 0(yes) 1(no)");

e=in.nextInt();

if(e==0)

{

System.out.format("Enter position between %d and %d where error is to be introduced ",0,a-1);

e=in.nextInt();

t[e]=(t[e]==0)?1:0;

System.out.print("Dataword after error: ");

for(int i=0;i<a;i++)

System.out.print(t[i]);

System.out.println();

}

crc();

for(e=0;(e<n-1)&&(cs[e]!=1);e++);

if(e<n-1)

System.out.println("Error detected");

else

System.out.println("No error detected");

}

**}**

**}**