Experiment 1

Write a program for error detection using CRC-CCITT (16 bits) using C

Program:

#include<stdio.h>

#include<string.h>

#include<conio.h>

#define N strlen(g)

char t[128],cs[128],g[]="10110";

int a,e,c;

void xor(){

for(c=1;c<N;c++)cs[c]=((cs[c]==g[c])?'0':'1');

}

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);

}

void main(){

printf("\nEnterpoly :");scanf("%s",t);

printf("\nGenerating polynomial is :%s",g);

a=strlen(t);

for(e=a;e<a+N-1;e++) t[e]='0';

printf("\nModified t[u] is : %s",t);

crc();

printf("\nChecksum is:%s",cs);

for(e=a;e<a+N-1;e++) t[e]=cs[e-a];

printf("\nFinal codeword is : %s",t);

int check,gg;

printf("\nTest error detection 0(yes) 1(no)?");

scanf("%d",&check);

if(check==0){

printf("\nEnter position where you want to insert error:");

scanf("%d",&gg);

t[gg]=(t[gg]=='1'?'0':'1');

printf("\nErroneous data : %s",t);

printf("\nError detected");

}

else{

printf("\nno error detected");

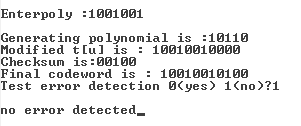
}

getch();

}

Output:

(Without error)



(With error)

