# PROGRAM 3

3.Write program for error detecting code using CRC-CCITT(16-bits).

```
#include<stdio.h>
int rem(int,int);
void main()
{
  int i,j,k,d,dl;
  int data[10],div[5],newdata[15],crc[5],datacrc[15],revdata[15],remd[5];
  printf("\n Enter the data length= ");
  scanf("%d",&d);
  printf("\n Enter the divisor  length= ");
  scanf("%d",&dl);
  printf("\n Enter the data : ");
  for(i=0;i<d;i++)
   scanf("%d",&data[i]);
  printf("\n Enter the divisor : ");
  for(i=0;i<dl;i++)
   scanf("%d",&div[i]);
  printf("\n The new data is : ");
  for(i=0;i<(d+dl-1);i++)
  {
    if(i<d)
     newdata[i]=data[i];
    else
     newdata[i]=0;
    printf("%d",newdata[i]);
  }
 for(j=0;j<=d;j++)
 {
          for(i=0;i<dl;i++)
          {
           crc[i]=newdata[i+j];
           if(crc[0]==1)
            newdata[i+j]=rem(newdata[i+j],div[i]);
           else
            newdata[i+j]=rem(newdata[i+j],0);
          }
 printf("\n The Crc is : ");
 for(i=0;i<dl-1;i++)
  printf("%d",crc[i]);
 }

 printf("\n The data to be send is : ");
 for(i=0;i<(d+dl-1);i++)
 {
  if(i<d)
```

```
  datacrc[i]=data[i];
 else
  datacrc[i]=crc[i-d];
 printf("%d",datacrc[i]);
}
 printf("\n Enter the receiver side data : ");
 for(i=0;i<(d+dl-1);i++)
  scanf("%d",&revdata[i]);
  for(j=0;j<=d;j++)
 {
          for(i=0;i<dl;i++)
          {
           remd[i]=revdata[i+j];
           if(remd[0]==1)
            revdata[i+j]=rem(revdata[i+j],div[i]);
           else
            revdata[i+j]=rem(revdata[i+j],0);
          }
 printf("\n The reminder is : ");
 k=0;
 for(i=0;i<dl-1;i++)
  {
  printf("%d",remd[i]);
   if(remd[i]==0)
    k++;
  }
 }
 if(k==dl-1)
 printf("\n There is no error found.");
 else
 printf("\n There is error found.");
}

int rem(int x, int y)
{
 if(x==y)
  return 0;
 else
  return 1;
}
```

## OUTPUT

```
secabiet@secabiet-Vostro-3470:~/Desktop/rafia37$ gcc p3.c
secabiet@secabiet-Vostro-3470:~/Desktop/rafia37$ ./a.out
```

Enter the data length=4

Enter the divisor length=2

Enter the data : 1 0 1 1

Enter the divisor : 1 1

The new data is : 10110
The crc is : 1
The crc is : 1
The crc is : 0
The crc is : 1
The crc is : 1
The data to be send is : 10111

Enter the receiver side data : 1 0 1 1 0

The reminder is : 1
The reminder is : 1
The reminder is : 0
The reminder is : 1
The reminder is : 1
There is error found.