12-8-23

Write a program for error detecting code using CRC-ITT

```
#include <stdio.h>
#include <string.h>
#define N strlen(division)
char data[30];
char rem[30];
char division[10];
int dlength, i, j;
void xor()
    {
        for(j=1; j<N; j++)
            rem[j] = (rem[j] == division[j])?
                    '0':'1';
    }
void crc()
    {
        for(i=0; i<N; i++)
            rem[i] = data[j];
        do{
            if(rem[0] == '1')
                xor();
            for(j=0; j<N-1; j++)
                rem[j] = data[i++];
        }
        while(i<= dlength+N-1);

void receiver()
    { printf("Enter the data having
                received:");
```

```
scanf("%s", data);
printf("data received : %s", data);
CRC();
for(i=0; (i<N-1)&&(rem[j]!='1'); i++);
if(i<N-1)
    printf("\n Error detected in the data");
else
    printf("\n no error detected in data \n");
}

int main()
{
    printf("\n Enter the data to be transmitted ");
    scanf("%s", data);
    printf("\n Enter the division");
    scanf("%s", division);
    dlength = strlen(data);
    for(i=dlength; i<dlength+N-1; i++)
        data[i] = '0';
    printf("Data padded with n-1 zeros %s", data);
    CRC();
    printf("\n The remainder on CRC is %s", rem);
    for(i=dlength; i<dlength+N-1; i++)
        data[i] = rem[i-dlength];
    printf("\n Field data being sent %s", data);
```

Output:

1) Enter data to be transmitted : 1001101
Enter the divisior : 1011
Data padded with n-1 zeros : 1001101000000
0000000
The remainder or CRC is :101
Find data being sent : 10011011010000000000000111
Enter the data being received : 10011011010000000000111
Data received : 10011011010000000000000111
No error detected in data. CRC