

COMPUTER NETWORKS
LAB ASSIGNMENT

CRC ERROR DETECTION :

```
#include<stdio.h>
#include<string.h>

#define N strlen(gen_poly)

char data[28];

char check_value[28];

char gen_poly[10];

int data_length,i,j;

void XOR(){

    for(j = 1;j < N; j++)
        check_value[j] = (( check_value[j] == gen_poly[j])?'0':'1');

}

void receiver(){

    printf("Enter the value of received data:");
    scanf("%s", data);
    printf("\n");
    printf("The Data received is: %s", data);

    crc();

    for(i=0;(i<N-1) && (check_value[i]!='1');i++);
        if(i<N-1)
            printf("\nAn Error has been detected\n\n");
        else
            printf("\nNo error detected\n\n");
}
```

```

void crc(){

    for(i=0;i<N;i++)
        check_value[i]=data[i];
    do{

        if(check_value[0]=='1')
            XOR();

        for(j=0;j<N-1;j++)
            check_value[j]=check_value[j+1];

        check_value[j]=data[i++];
    }while(i<=data_length+N-1);

}

int main()
{

    printf("\nEnter the value of transmitted data :");
    scanf("%s",data);
    printf("\n Enter the divisor: ");

    scanf("%s",gen_poly);

    data_length=strlen(data);

    for(i=data_length;i<data_length+N-1;i++)
        data[i]='0';
    printf("\n");

    printf("\n Data appended with n-1 zeros : %s",data);
    printf("\n");

    crc();

    printf("\nCRC is : %s",check_value);

    for(i=data_length;i<data_length+N-1;i++)
        data[i]=check_value[i-data_length];

```

```
printf("\n");

printf("\nFinal data : %s",data);
printf("\n");

receiver();
return 0;
}
```

OUTPUT:

1. With error :

```
Enter the value of transmitted data :10110
Enter the divisor: 101
Data appended with n-1 zeros : 1011000

CRC is : 10

Final data : 1011010
Enter the value of received data:1011001
The Data received is: 1011001
An Error has been detected
```

2. Without error:

```
Enter the value of transmitted data :100110
Enter the divisor: 011
Data appended with n-1 zeros : 10011000

CRC is : 01

Final data : 10011001
Enter the value of received data:10011001
The Data received is: 10011001
No error detected
```