Ahmed A4
IBM18CS135
**papergrid**

## LAB-6

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

**CODE:**

```c
#include <stdio.h>
#include <string.h>
#define N strlen(gen)
char modif[28], checksum[28], gen[28];
int a, e, c, b;
void xor()
{
    for(c=1; c<N; c++)
    checksum[c] = ((checksum[c] == gen[n]) ? '0' : '1');
}
void crc()
{
    for(e=0; e<N; e++)
    checksum[e] = modif[e];
    do
    {
        if(checksum[0] == '1')
        xor();
        checksum
```

```
for (c=0; c<N-1; c++)
checksum [c]= checksum [c+1];
checksum[c] = modif[e+r];
}
while (e <= a+N-1);
}


int main()
{
    int flag = 6;
    strcpy (gen, "10001 0000000100001");
    printf ("\n enter data");
    scanf ("%s", modif);
    printf ("\n generating polynomial: %s", gen);
    a = strlen (modif);
    for (e=a; e<a+N-1; e++)
    modif [e] = '0';
    printf ("\n------\n");
    printf ("modified data is: %s", modif);
    printf ("\n------ \n");
    crc();
    printf ("checksum is: %s", checksum);
    for (e=a; e<a+N-1; e++)
```

```c
modif[e] = checksum (e-a);
printf("\n - - - - - \n");
printf("\n final codeword is: %s", modif);
printf("\n - - - - \n");
printf("\n Test error detection 0(yes) 1(no)?:");
scanf("%d", &e);
if (e == 0)
{
    do
    { printf("enter position where error
      is to inserted :");
    scanf("%d", &e);
    }
    while (e == 0 || e > a+N-1);
    modif[e-1] = (modif[e-1] == '0')?'1':'0';
    printf("\n : - - - \n");
    printf("\n errornous data: %s\n", modif);
}
crc();
for (e=0; (e<N-1) && (checksum[e] != '1'); e++);
if (e<N-1)
    printf("error detected ");
else
    printf("no error detected");
}
while (flg != 1);
}
```