CRC:  
#include<stdio.h>

#include<stdlib.h>  
#include<unistd.h>  
#include<string.h>  
#define N strlen(g)  
char t[120],cs[120],g[]="100000111";  
int a,c,e;  
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("enter the polynomial\n");  
scanf("%s",t);  
printf("generating polynomial is %s\n",g);  
a=strlen(t);  
for(e=a;e<a+N-1;e++)  
t[e]='0';  
printf("modified t[u] is %s\n",t);  
crc();  
printf("checksum is :%s\n",cs);  
for(e=a;e<a+N-1;e++)  
t[e]=cs[e-a];  
printf("final codeword is :%s\n",t);  
printf("test error detection 0(yes)1(no)?:\n");  
scanf("%d",&e);  
if(e==0)  
 {  
 do  
  {  
   printf("enter position where error has to be inserted\n");  
   scanf("%d",&e);  
  }  
while(e==0 || e>a+N-1);  
 t[e-1]=(t[e-1]=='0')?'1':'0';    
 printf("errorneous data %s\n",t);  
}  
  
crc();  
  
for(e=0;(e<N-1)&&(cs[e]!='1');e++);  
 if(e<N-1)  
  printf("error detected\n");  
 else  
  printf("error is not detected\n");  
}

OUTPUT:

