```c
1.
2.    #include<stdio.h>
3.
4.    void main() {
5.       int data[10];
6.       int dataatrec[10],c,c1,c2,c3,i;
7.
8.       printf("Enter 4 bits of data one by one\n");
9.       scanf("%d",&data[0]);
10.      scanf("%d",&data[1]);
11.      scanf("%d",&data[2]);
12.      scanf("%d",&data[4]);
13.
14.      //Calculation of even parity
15.      data[6]=data[0]^data[2]^data[4];
16.   data[5]=data[0]^data[1]^data[4];
17.   data[3]=data[0]^data[1]^data[2];
18.
19.   printf("\nEncoded data is\n");
20.   for(i=0;i<7;i++)
21.       printf("%d",data[i]);
22.
23.      printf("\n\nEnter received data bits one by one\n");
24.      for(i=0;i<7;i++)
25.        scanf("%d",&dataatrec[i]);
26.
27.      c1=dataatrec[6]^dataatrec[4]^dataatrec[2]^dataatrec[0];
28.   c2=dataatrec[5]^dataatrec[4]^dataatrec[1]^dataatrec[0];
29.   c3=dataatrec[3]^dataatrec[2]^dataatrec[1]^dataatrec[0];
30.   c=c3*4+c2*2+c1 ;
31.
32.      if(c==0) {
33.   printf("\nNo error while transmission of data\n");
34.      }
35.   else {
36.   printf("\nError on position %d",c);
37.
38.   printf("\nData sent : ");
39.       for(i=0;i<7;i++)
40.         printf("%d",data[i]);
41.
42.   printf("\nData received : ");
43.       for(i=0;i<7;i++)
44.         printf("%d",dataatrec[i]);
45.   printf("\nCorrect message is\n");
46.
47.   //if errorneous bit is 0 we complement it else vice versa
48.   if(dataatrec[7-c]==0)
49.   dataatrec[7-c]=1;
50.       else
51.   dataatrec[7-c]=0;
52.   for (i=0;i<7;i++) {
53.   printf("%d",dataatrec[i]);
54.   }
55.   }
56.   }
```

Output:

Please enter the length of the Data Word: 8
Please enter the Data Word:
1
1
0
1
0
0
1
1

The calculated Code Word is: 011110100011
Please enter the received Code Word:
0
1
1
1
1
1
1
0
0
0
1
1
Error at bit position: 6