

```
/*hamming code*/
```

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

```
int main() {
```

```
    int data[10];
```

```
    int dataatrec[10],c,c1,c2,c3,i;
```

```
    printf("Enter 4 bits of data one by one\n");
```

```
    scanf("%d",&data[0]);
```

```
    scanf("%d",&data[1]);
```

```
    scanf("%d",&data[2]);
```

```
    scanf("%d",&data[4]);
```

```
    //Calculation of even parity
```

```
    data[6]=data[0]^data[2]^data[4];
```

```
    data[5]=data[0]^data[1]^data[4];
```

```
    data[3]=data[0]^data[1]^data[2];
```

```
    printf("\nEncoded data is\n");
```

```
    for(i=0;i<7;i++)
```

```
        printf("%d",data[i]);
```

```
    printf("\n\nEnter received data bits one by one\n");
```

```
    for(i=0;i<7;i++)
```

```
        scanf("%d",&dataatrec[i]);
```

```
    c1=dataatrec[6]^dataatrec[4]^dataatrec[2]^dataatrec[0];
```

```
    c2=dataatrec[5]^dataatrec[4]^dataatrec[1]^dataatrec[0];
```

```
    c3=dataatrec[3]^dataatrec[2]^dataatrec[1]^dataatrec[0];
```

```
    c=c3*4+c2*2+c1 ;
```

```

        if(c==0) {
printf("\nNo error while transmission of data\n");
        }
else {
printf("\nError on position %d",c);

printf("\nData sent : ");
        for(i=0;i<7;i++)
            printf("%d",data[i]);

printf("\nData received : ");
        for(i=0;i<7;i++)
            printf("%d",dataatrec[i]);
printf("\nCorrect message is\n");

//if errorneous bit is 0 we complement it else vice versa
if(dataatrec[7-c]==0)
dataatrec[7-c]=1;
        else
dataatrec[7-c]=0;
for (i=0;i<7;i++) {
printf("%d",dataatrec[i]);
}
}
}

```

Enter 4 bits of data one by one

1
0
1
0

Encoded data is

1010010

Enter received data bits one by one

1
0
1
1
0
1
0

Error on position 4

Data sent : 1010010

Data received : 1011010

Correct message is

1010010

Process exited after 23.36 seconds with return value 0

Press any key to continue . . . |