```
clc;
clear all;
m=[1 0 0 1];
p=[1 1 1;0 1 1;1 0 1;1 1 0];
k=length(m);
I=eye(k,k);
disp(I);
G=[p I];
disp("generation matrix is:")
disp(G);
C=modulo(m*G,2);
n=length(C);
disp("code word is:")
disp(C);
//e=[0 0 0 0 0 0 1];
r=[1 0 1 1 0 0 1];
I=eye(n-k,n-k);
H=[p' I];
disp(H);
s=modulo(r*H',2);
disp(s);
HT=H';
if(s==0)
disp('correct');
else
disp('recieved code vector with error');
for i=1:n;
if(s==HT(i,:))
e=[zeros(1,i-1) 1 zeros(1,n-i)];
end
end
end
disp('correct code word is');
CC=modulo(r + e,2);
disp(CC);
```

1. 0. 0. 0.

0. 1. 0. 0.

0. 0. 1. 0.

0. 0. 0. 1.

"generation matrix is:"

1. 1. 1. 1. 0. 0. 0.

0. 1. 1. 0. 1. 0. 0.

1. 0. 1. 0. 0. 1. 0.

1. 1. 0. 0. 0. 0. 1.

"code word is:"

0. 0. 1. 1. 0. 0. 1.

1. 0. 1. 1. 1. 0. 0.

1. 1. 0. 1. 0. 1. 0.

1. 1. 1. 0. 0. 0. 1.

0. 1. 1.

"recieved code vector with error"

"correct code word is"

0. 0. 1. 1. 0. 0. 1.