```
G=[ ]; % Generator matrix
P=[1 1 0; 0 1 1;1 1 1; 1 0 1]; % P is parity check matrix
G=[P eye(4)];
x=[1 0 1 0];
V1=G(1,:);
V2=G(2,:);
V3=G(3,:);
V4=G(4,:);
var1=x(1) & V1 ;
var2=x(2) & V2 ;
var3=x(3) & V3 ;
var4=x(4) & V4 ;
y1=bitxor(var1,var2);
y2=bitxor(y1,var3);
y=bitxor(y2,var4);
```

```
>> linear_block_code
>> P

P =

     1     1     0
     0     1     1
     1     1     1
     1     0     1

>> y

y =

  1×7 logical array

   0   0   1   1   0   1   0
```

```
H=[ ];

x=[0 0 1 1 1 1 0];
P=[1 1 0; 0 1 1;1 1 1; 1 0 1]; % P is parity check matrix
H=[eye(3) P'];
Ht=H';

S=zeros(1,3); %syndrome
for i=1:3
    S(i)=x(1) & Ht(1,i);

    for j=2:7

        S(i)=bitxor(S(i), (x(j) & Ht(j,i)));
    end
end
```

```
>> linear_block_code
>> x

x =

     0     0     1     1     1     1     0

>> s

s =

     0     1     1
```

```
>> linear_block_code
>> x

x =

     0     0     0     1     1     1     0

>> s

s =

     0     1     0
```

```
>> linear_block_code
>> x

x =

     1     1     1     0

>> y

y =

  1×7 logical array

   0   1   0   1   1   1   0
```