```
clc
clear all
close all
%Convert Binary to Gray Code
%2017KUCP1017
%Tanuj Mehta
% File Name: tanuj_bi2gray.m

a=round(rand(1,4))
ones=sum(a);
if rem(ones,2)==0
display('Number has even parity');
else
display('Number has odd parity');
end
gray(1)=a(1);
for i=2:1:length(a)
aa=xor(a(i),a(i-1));
gray(i)=aa;
end
display('Gray code equivalent is');
gray
ham=zeros(1,7);
ham(1,5)=a(1,4);
ham(1,3)=a(1,3);
ham(1,2)=a(1,2);
ham(1,1)=a(1,1);
if rem(sum(ham([1,3,5,7])),2)==0
    ham(1,7)=0;
else
    ham(1,7)=1;
end
if rem(sum(ham([1,2,5,6])),2)==0
    ham(1,6)=0;
else
    ham(1,6)=1;
end
if rem(sum(ham([1,2,3,4])),2)==0
    ham(1,4)=0;
else
    ham(1,4)=1;
end
display('Hamming Code Equivalent is:');
ham
dd=[1,2,3,5];
r=randi(4,1);
place=dd(1,r);
xa=ham(1,place);
if xa==1
    ham(1,place)=0;
else
 ham(1,place)=1;
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end
display('Hamming code with the error is:');
ham
p7=xor(xor(ham(7),ham(5)),xor(ham(3),ham(1)));
p6=xor(xor(ham(6),ham(5)),xor(ham(2),ham(1)));
p4=xor(xor(ham(4),ham(3)),xor(ham(2),ham(1)));
s=p4.*4+p6.*2+p7.*1;
pl=8-s;
display('Counting from left Error is on the place=');
pl
%OUTPUT---------------------------------------
```

```
a =

     1     0     0     1

Number has even parity
Gray code equivalent is

gray =

     1     1     0     1

Hamming Code Equivalent is:

ham =

     1     0     0     1     1     0     0

Hamming code with the error is:

ham =

     1     1     0     1     1     0     0

Counting from left Error is on the place=

pl =

     2
```

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