
```

% exp 6
% arjun rajesh kulkarni
% 2020ucoil505
H = [1 1 0 0 1 0 1;
      0 1 1 1 1 0 0;
      1 1 1 0 0 1 1]
k = 3;
n = 7;
fprintf("The Code Rate is %d", k/n );
G = mod(rref(H'),2)
no = 2 ^ k
for i = 1 : 2^k
    for j = k : -1 : 1
        if rem(i - 1, 2 ^ (-j + k + 1)) >= 2 ^ (-j + k)
            u(i, j) = 1;
        else
            u(i, j) = 0;
        end
    end
    echo off;
end
end
echo on;
u
r = [0 0 0 1 0 0 0];
r
ht = transpose(H)
s = rem(r * ht, 2)
for i = 1 : 1 : size(ht)
    if(ht(i,1:3)==s)
        r(i) = 1-r(i);
        break;
    end
end
disp('The Error is in bit:')
disp(i)
disp('The Corrected Codeword is :')
disp(r)

```

$H =$

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

The Code Rate is 4.285714e-01

$G =$

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

```

0      0      0
0      0      0
0      0      0

no =

      8

u

u =

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

r = [0 0 0 1 0 0 0];
r

r =

0      0      0      1      0      0      0

ht = transpose(H)

ht =

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

s = rem(r * ht, 2)

s =

0      1      0

for i = 1 : 1 : size(ht)
if(ht(i,1:3)==s)
end
end
if(ht(i,1:3)==s)
end
end
end

```

```
if(ht(i,1:3)==s)
end
end
if(ht(i,1:3)==s)
    r(i) = 1-r(i);
    break;
disp('The Error is in bit:')
The Error is in bit:
disp(i)
    4

disp('The Corrected Codeword is :')
The Corrected Codeword is :
disp(r)
    0    0    0    0    0    0    0
```

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