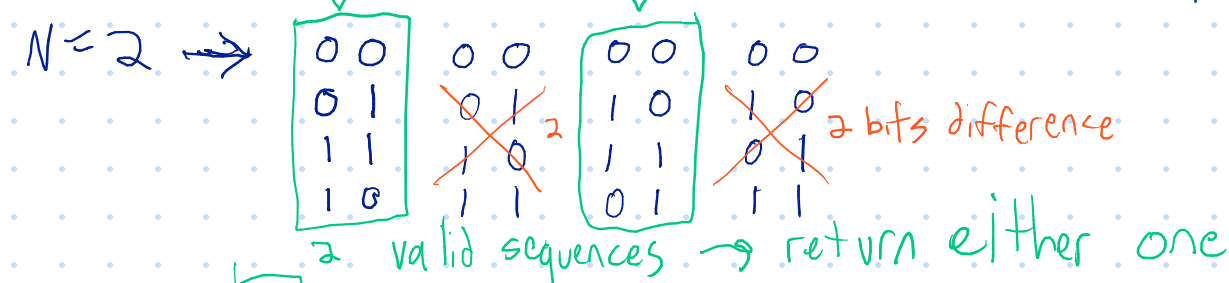


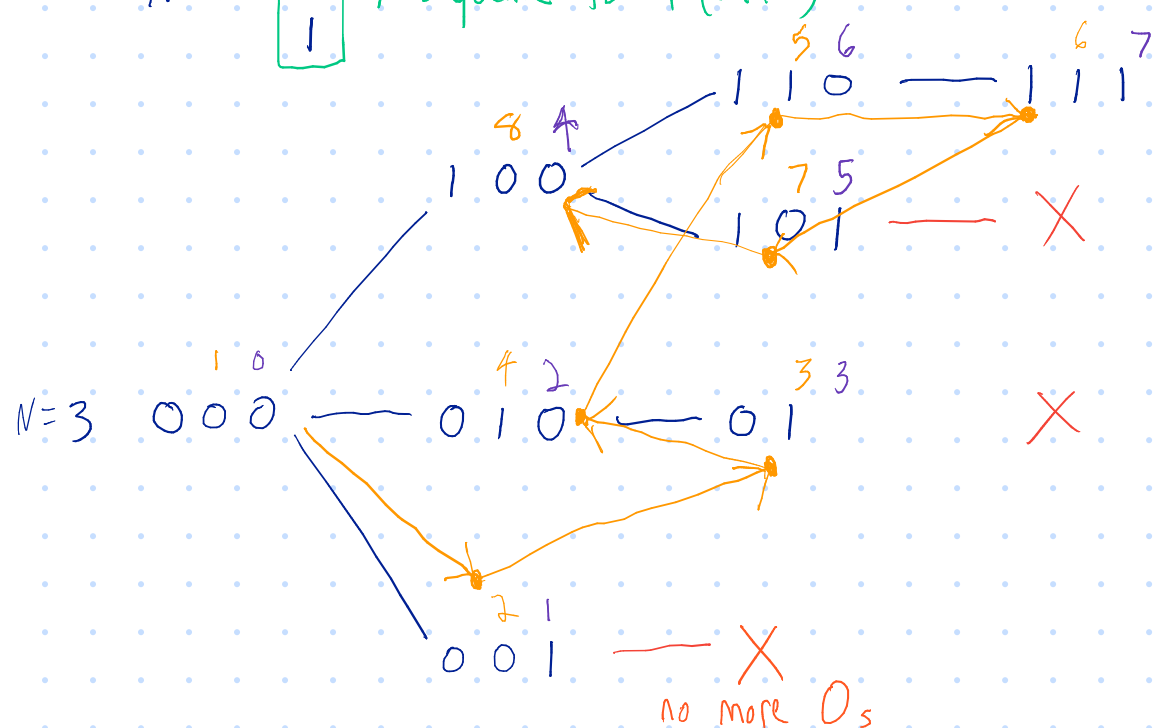
LEET CODE #89: Gray Code

- Gray Code: binary nums where 2 successive values differ by only 1 bit
- Input: N: total number of bits $\rightarrow N \geq 0$
- Output: sequence of gray code
 - must start with 0 (00, 000, ...)
 - there may be more than one valid sequence.

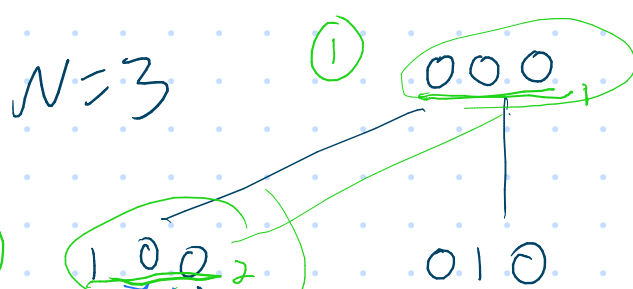


$N=0$ [0]

$N=1$ [0
1] 1 sequence total (valid)



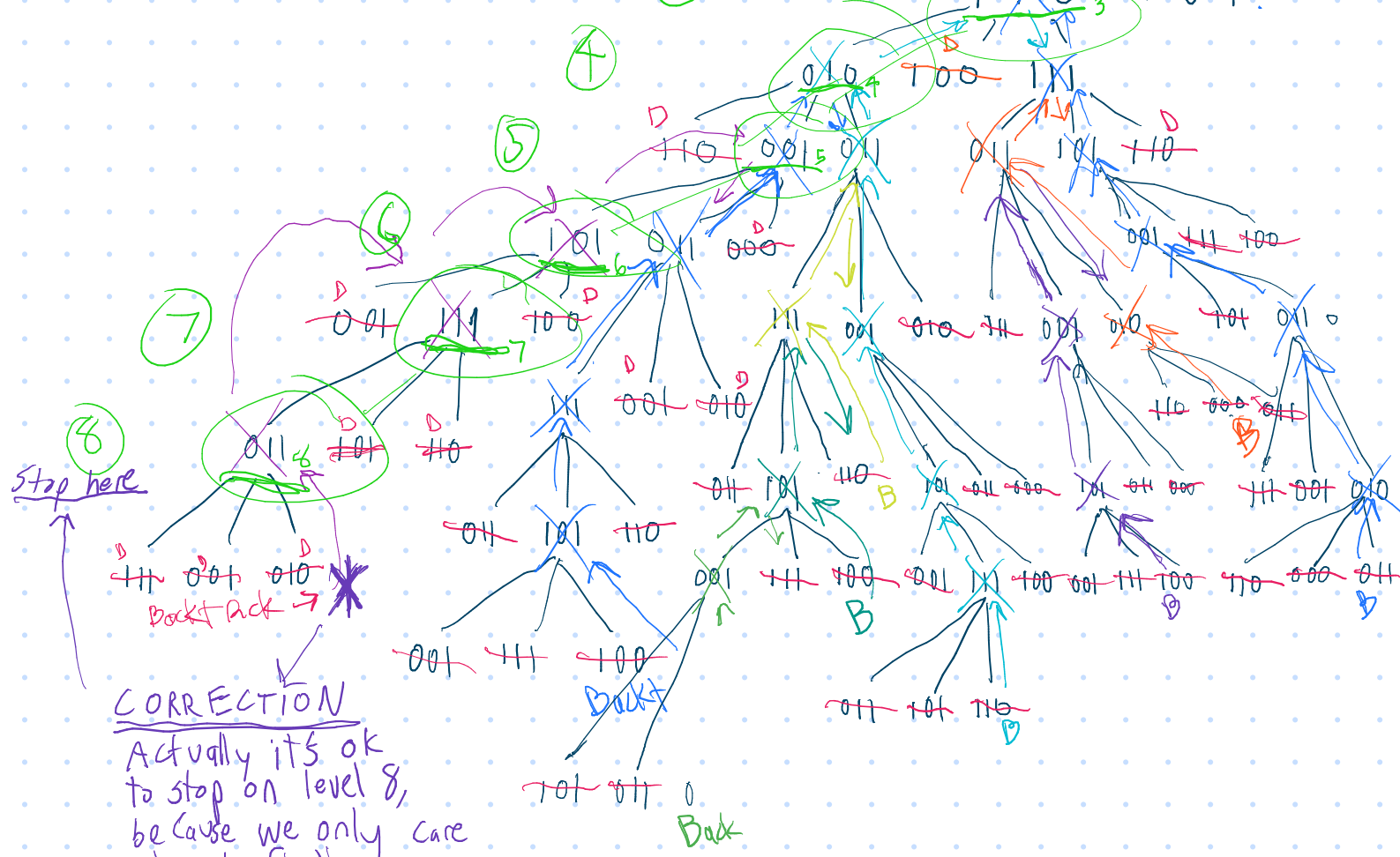
- change 1 bit every time
- keep track of ancestors (seen)
- stop when result length = 2^N



1	000
2	100
3	110
4	010
5	001
6	101
7	111
8	011

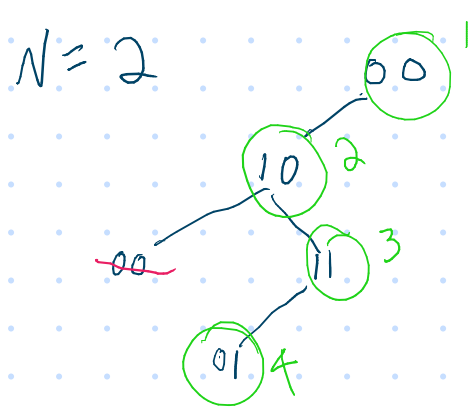
$N^3 = 3^3 = 27$

Levels



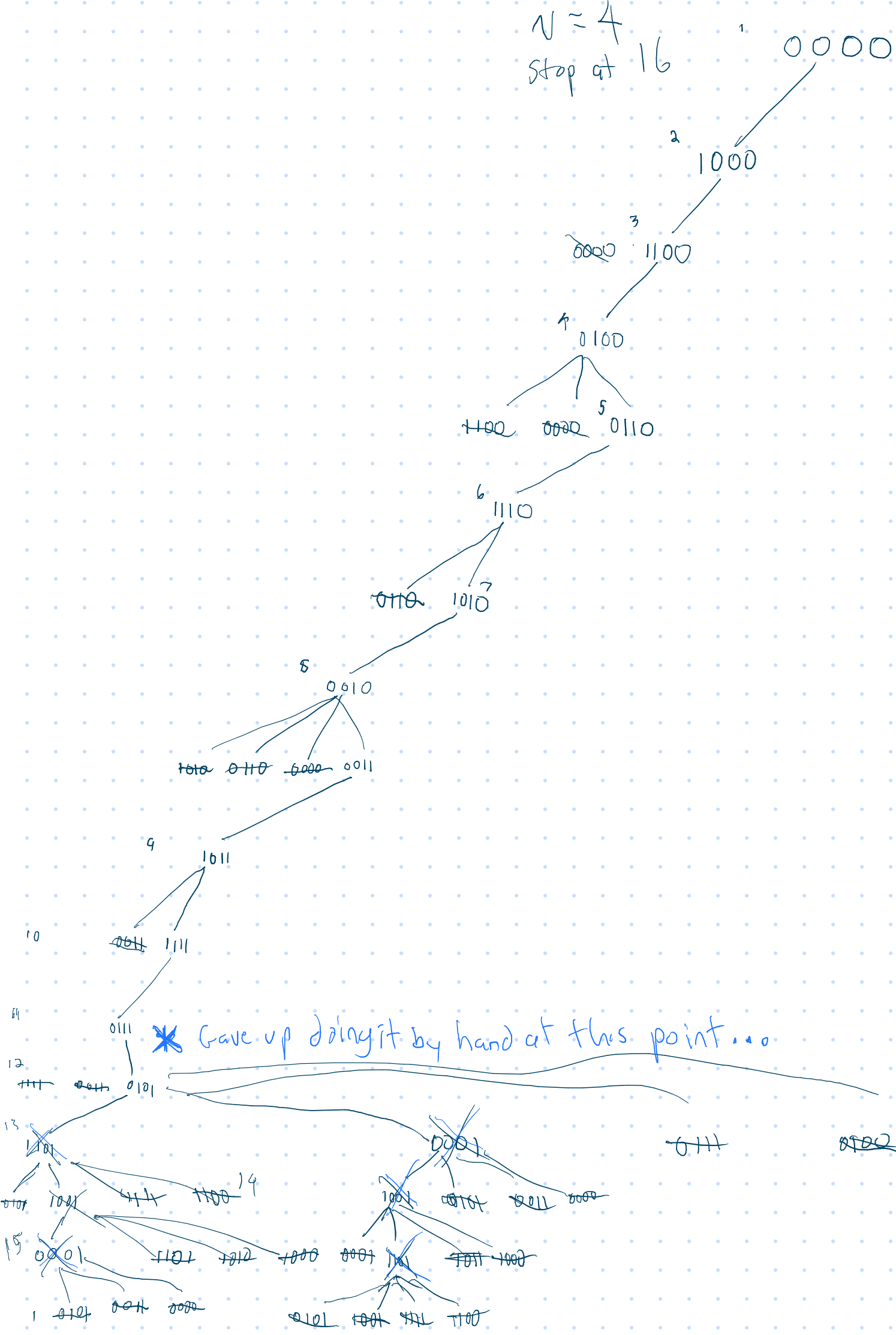
CORRECTION
Actually it's ok to stop on level 8, because we only care about finding one valid sequence.

$$N^2 = 2^2 = 4$$



00
10
11
01

$N=4$
stop at 16



X's are from backtracking (no valid children)