Coin Toss

n=2 → 2^2

HH
HT
TH
TT

n=3 → 2^3

HHH
HHT
HTH
HTT
THH
THT
TTH
TTT

n=4 → 16 → 2^4

n=5 → 32 → 2^5

```
for (i=0 ; i<2; i++)
   for(j=0 ; j<2; j++
```

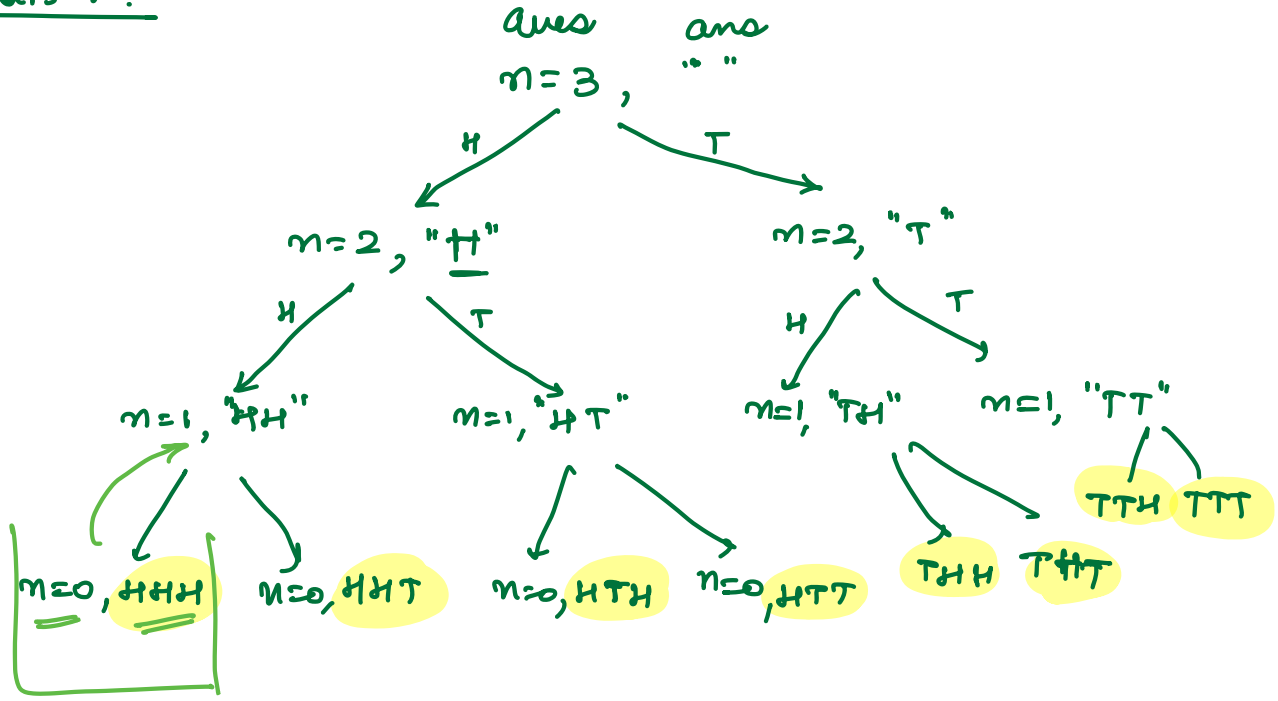
i=0 → H	i=1 T
j=0 → H	j=1 T

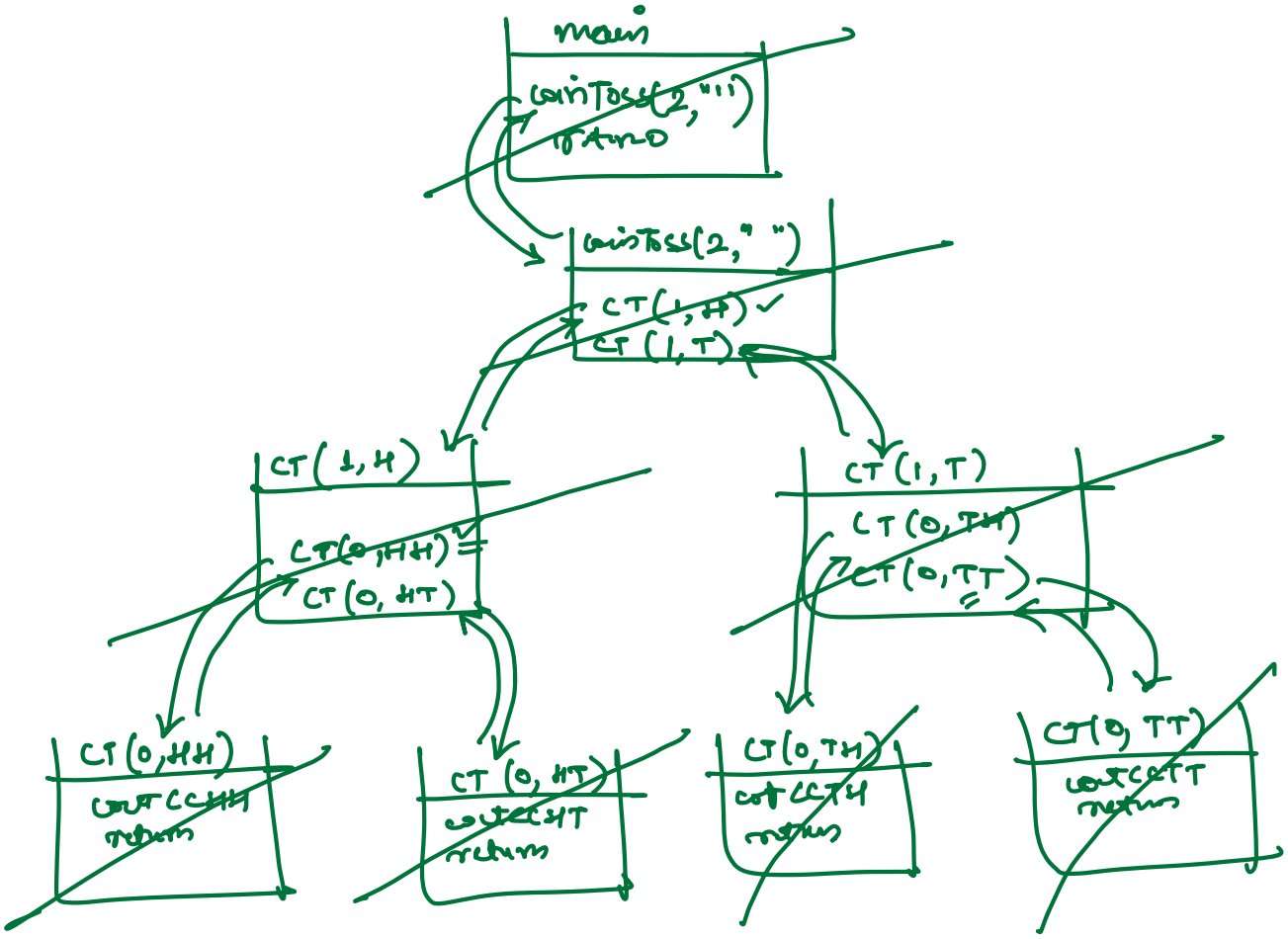
Iteratively:

n=3 $2^2 = 8$

0	0 → 000	→ HHH
	1 → 001	→ HHT
	2 → 010	→ HTH
	3 → 011	→ HTT
	4 → 100	→ THH
	5 → 101	→ THT
	6 → 110	→ TTH
2^n-1	7 → 111	→ TTT

Recursion:





HH
HT
TH
TT

Valid Parentheses

n = 2

2 open bracket
2 close bracket

( ) ( )
(( ))

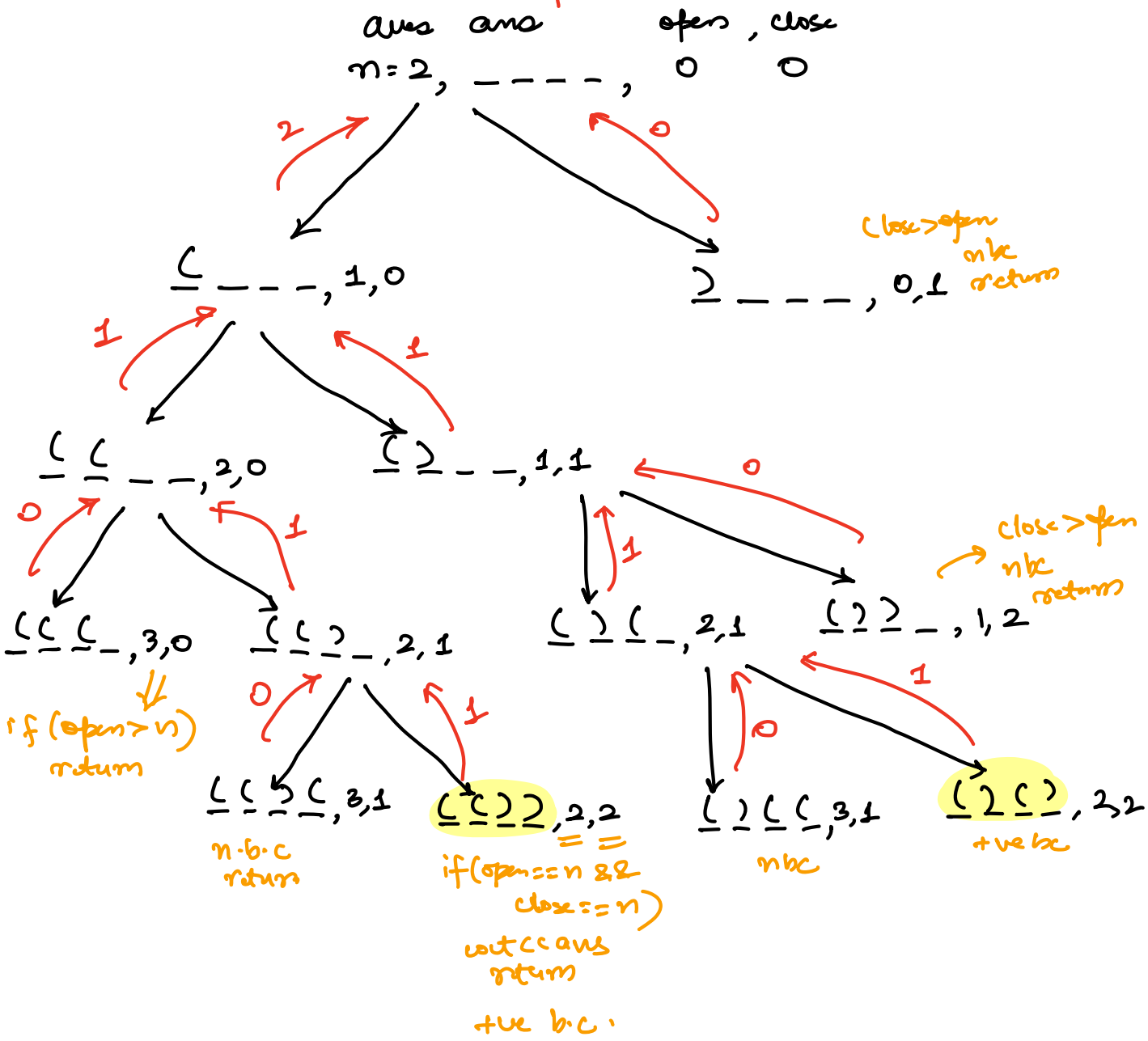
)) ((→ valid ✗

Bracket: ( )

n = 3

((( )))
(( )) ( )
( ) (( ))
( ) ( ) ( )
(( ) ( ))

2


ans
n=2, ____,
open , close
0 0
2
0
(___, 1,0
) ___, 0,1
close>open
nbc
return
1
1
((__, 2,0
() __, 1,1
0
1
0
1
close>open
nbc
return
(((_, 3,0
(() _, 2,1
()(_, 2,1
()) _, 1,2
if (open>n)
return
0
1
0
1
1
0
(()(, 3,1
(()) , 2,2
()((, 3,1
()() , 3,2
n.b.c
return
if(open==n &&
close==n)
add ans
return
+ve b.c.
nbc
+ve bc