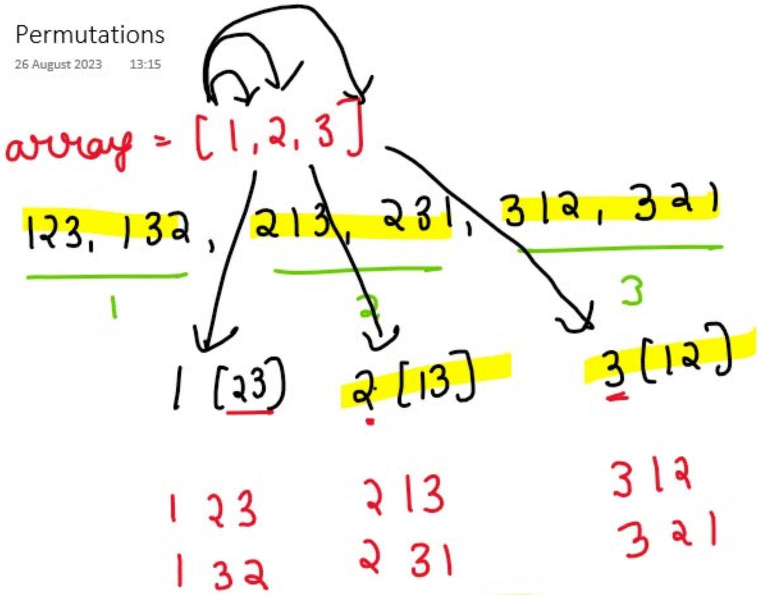
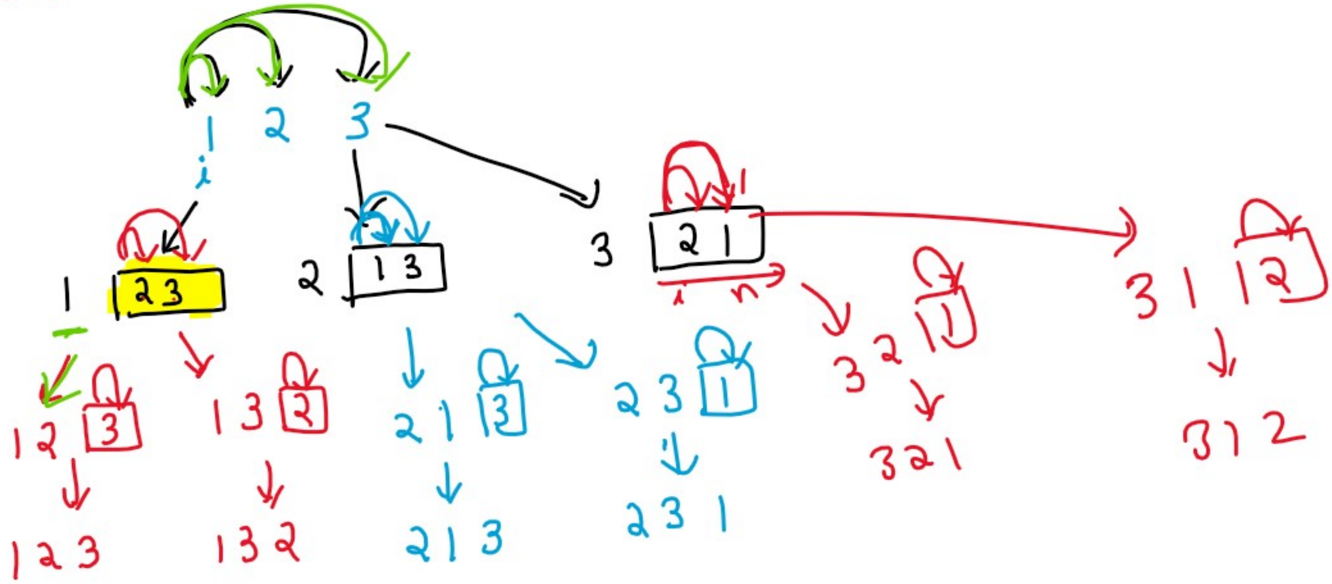
Permutations

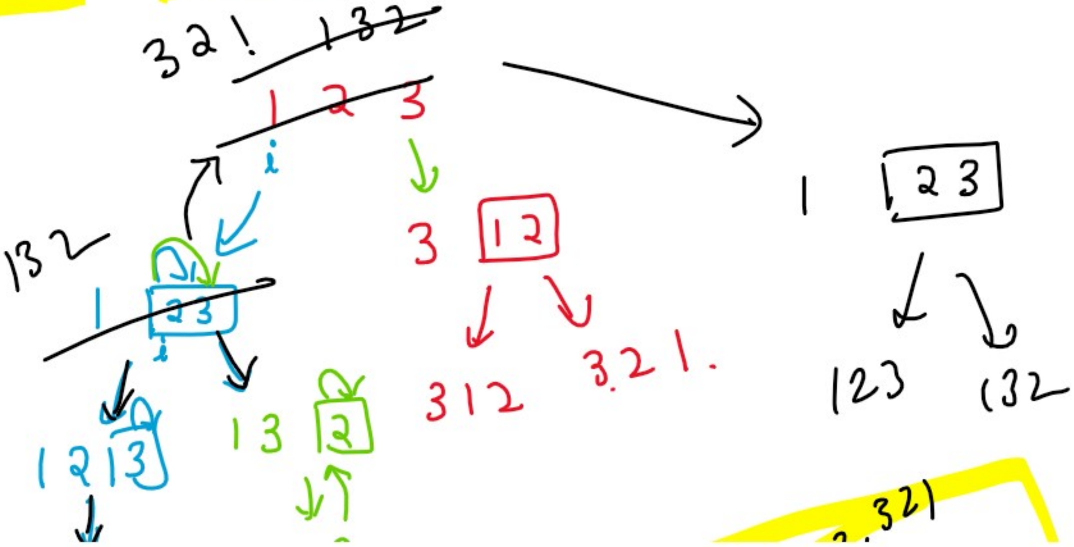
26 August 2023 13:15

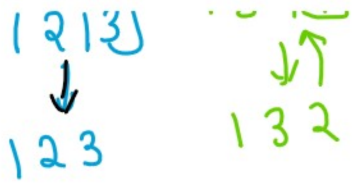


n! = 3! = 6



123, 132, 213, 231, 321, 312

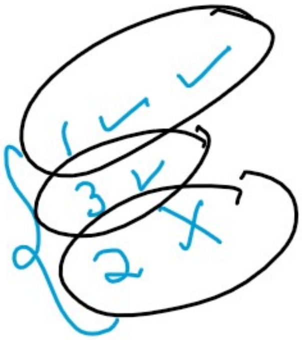




123, 132

123, 132, 312, 321

123, 132



Generate parenthesis

26 August 2023 13:43

① n = 1

✓ ( )   ) (X

② n = 2

(( )), ( )( )   ((( ) ×

③ n = 3

((( ))), ( )( )( ), (( ))( ), ( )(( )),

(( )( ))

✓ $\boxed{\text{open} < n}$ }

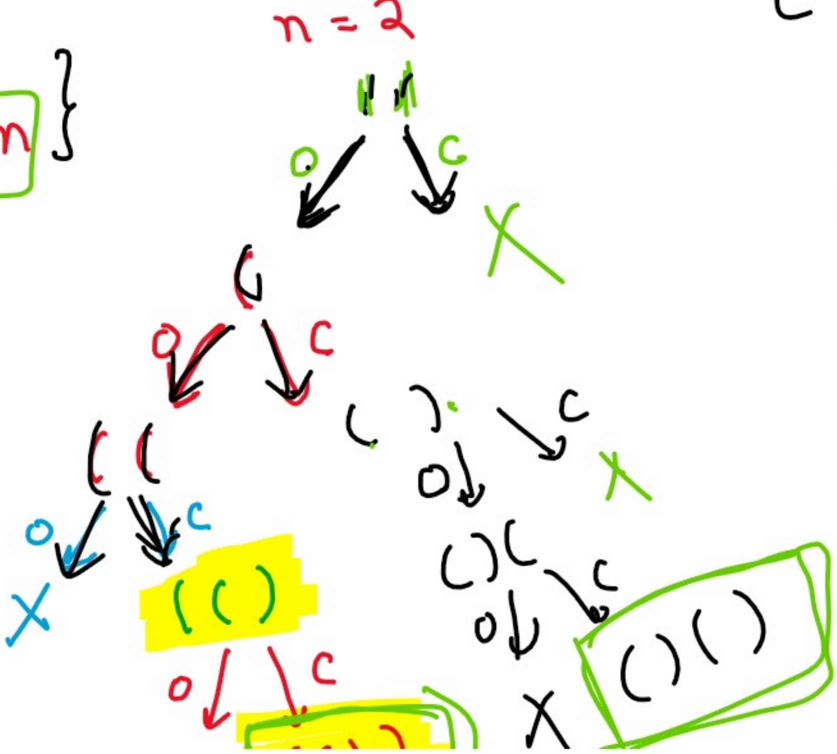
open = 1
close = 1

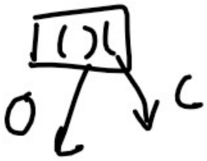
base case:

size == n X 2

close == n

✓ $\boxed{\text{close} < \text{open}}$ }

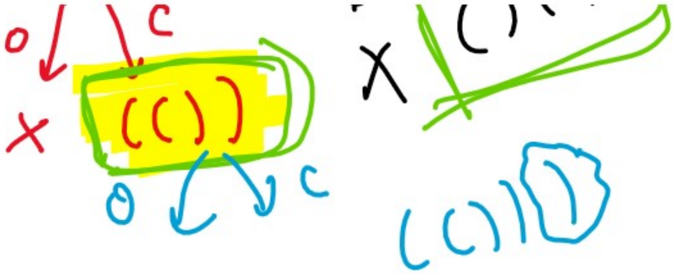




open = 2
close = ~~1~~ 2

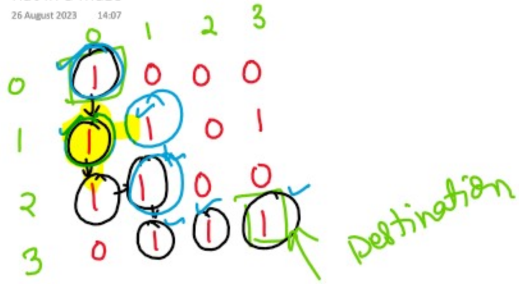
gnl

(())   ()()

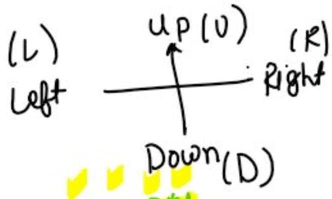


Rat in a maze

26 August 2023 14:07



	0	1	2	3
0	1	0	0	0
1	1	1	0	1
2	1	1	0	0
3	0	1	1	1



DLRU

NXN

Dictionary

~~O(N*N)~~

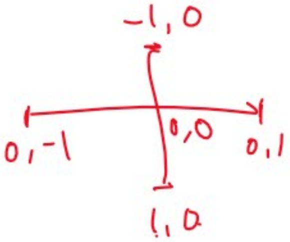
O(1)

DDRDRR

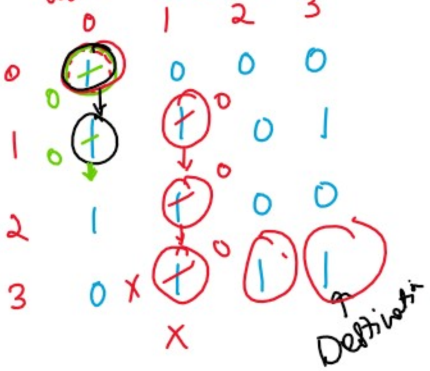
DRDDRR

Base case (i==N-1 && j==N-1)

row = {1,0,0,-1}
col = {0,-1,1,0} → constant



dir = 'DLRU'



	0	1	2	3
0	1	0	0	0
1	1	1	0	1
2	1	1	0	0
3	0	1	1	1

DLRU

DLRU f('',0,0)

DLRU f('D',1,0) → f("DR",1,1) → f("DRD",2,1) → f(DRDD,3,1) → ~~DRDDR~~ DRDDRR (3,3) ← Base case

DLRU f('DD',2,0)

DLRU f('DDR',2,1) → f('DDRU',1,1)

DLRU f('DDRD',3,1)

DLRU f(DDRDR,3,2)

DLRU f(DDRDRR,3,3)

ans →

DDRDRR,

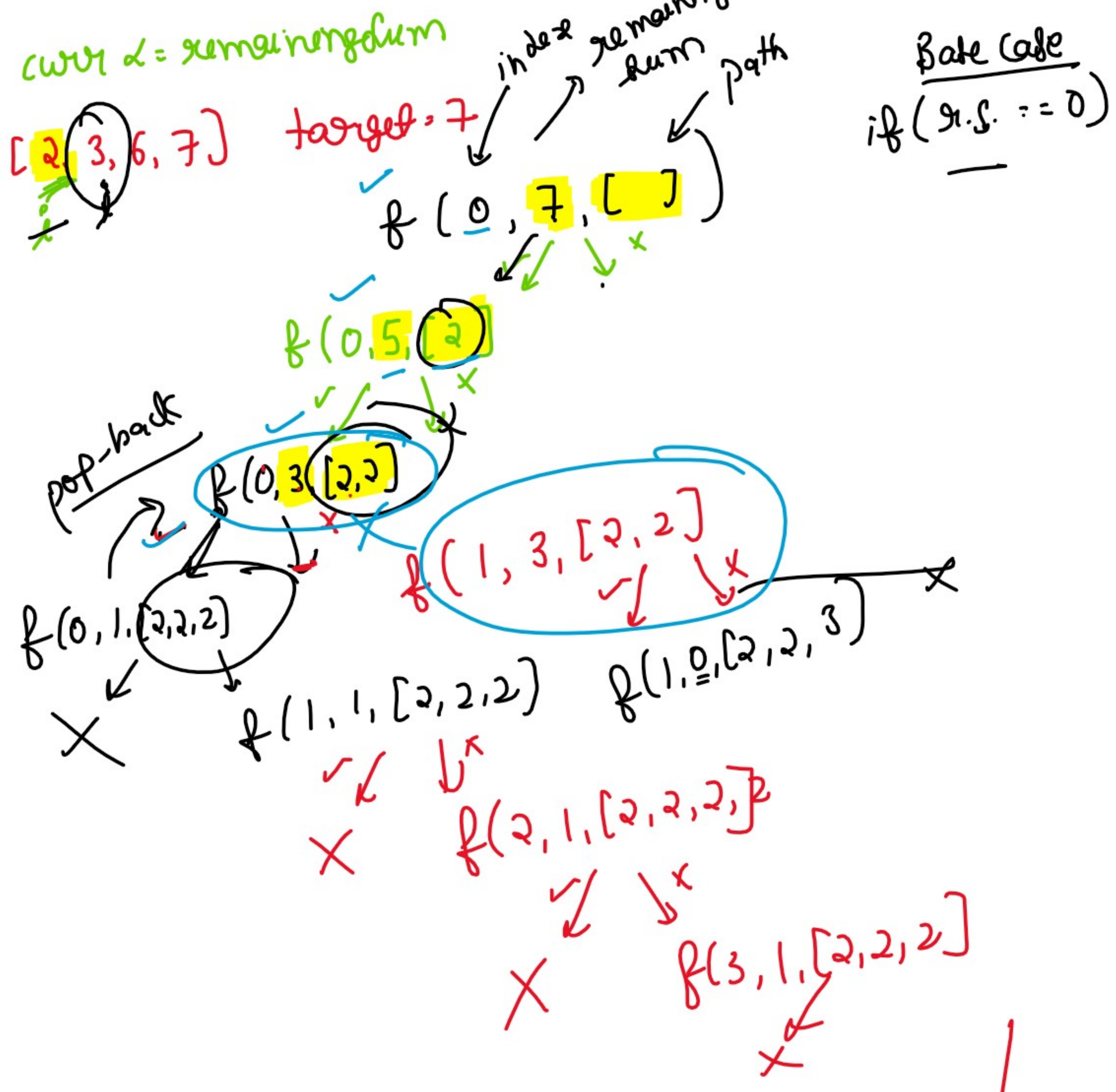
DRDDRR,

Combinational sum

26 August 2023 15:05

nums[ ] = { 2, 3, 5 }   target = 10

[2, 2, 2, 2, 2], [2, 3, 2, 3], [2, 3, 5], [5, 5] - ...



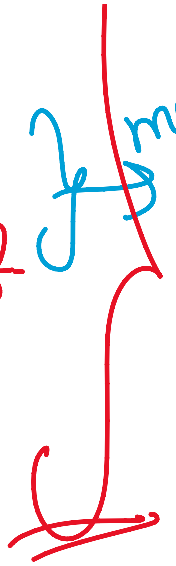
- Palindrome partitioning

of a Phone number

- Palindrome partitioning
- Letter combinations of a phone number.
- Inversion count
- Count of smaller numbers after self

} merge sort

- Integer to English word.



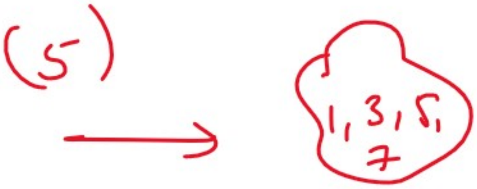
Set

26 August 2023 15:22

Unique values.

stl	collections.
C++	Java

→ HashSet O(1)



unordered set → O(1)

set → O(log N)

set - search - O(1)

list - search - O(N)

Subarray with sum 0

26 August 2023 15:29

0

nums[] = { 5, -2, 8, -3, 1, -6, 10 }

true

nums[] : { 5, 3, -7, 1, -2 } ⇒ 0

true 5 8 1 2 0

nums[] = { 4, 2, -5 }

false

→ Approch-1 (Generate all possible subarrays)

$O(N^2)$

→ Time - $O(N)$
Space - $O(N)$

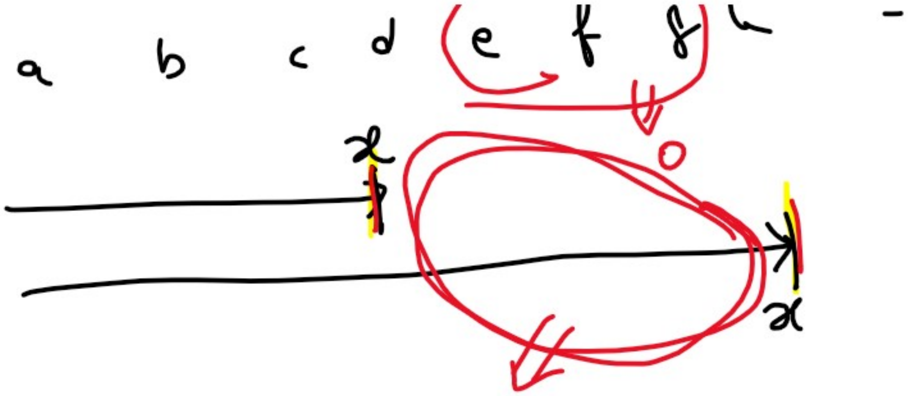
[5, 3, -1, 6, 2, -7, 10, 3]

Prefix Sum - 5, 8, 7, 13, 15, 8, 18, 21

i i i i i i

set
5, 8, 7
13, 15

a b c d e f g h _ :

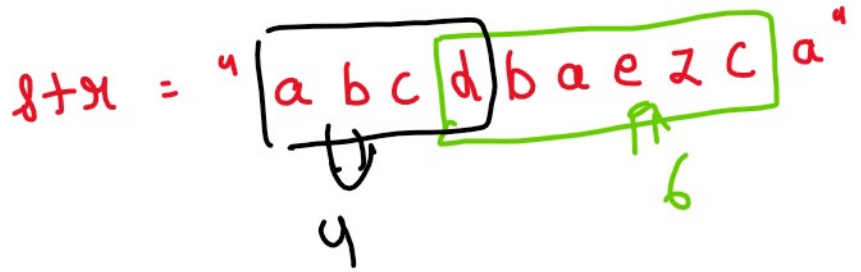


13, 15

true

Longest substring without repeating chars

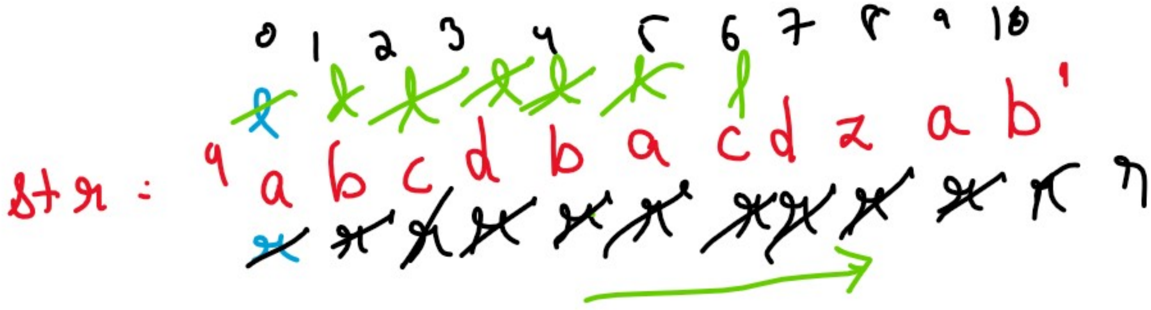
26 August 2023 15:49



~~subarray~~

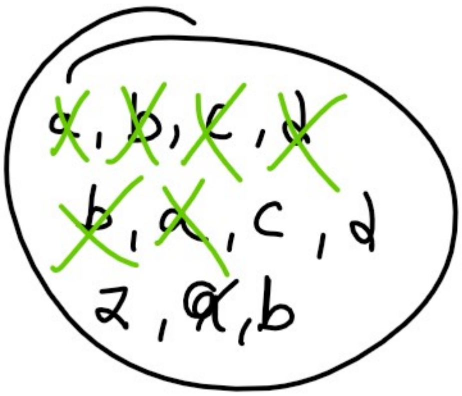
Substring = Continuous part of a string (bae, ca)

subsequence = need not to be continuous. But ordering should be same. (za, za)



maxLen = $\cancel{1}$ $\cancel{3}$ $\cancel{4}$ 5

currLen = r - l + 1 = $\cancel{3}$ $\cancel{4}$ 5


a, b, c, d
b, a, c, d
z, a, b