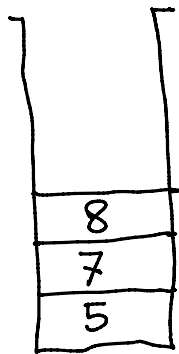


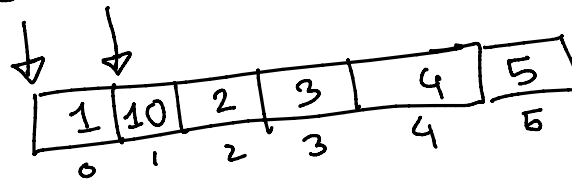
- 1) Linked List
- 2) Binary Tree
- 3) Heap
- 4) Dynamic Array
- 5) Stack / Queue

Stack

op1. push(5)
push(7)
push(1)
push(8)



empty stack



- push(x) $O(1)$
- pop() ✓✓
- top() ✓✓
- size() ✓✓

$O(n)$

$n = |\text{array}|$

$$f(x) = x^2 \\ = x \cdot x$$

10

$$-10^9 \leq x \leq 10^9$$

$O(1)$

Balanced Parentheses

1. (()) () (())

YES

2. (()

NO

$$N = 10^5 \sim (10^5)^2 \\ 10^{10} = 10^2$$

2. (()

3.)) ((

NO

NO

$$N = 10 \sim (10^{\frac{10}{8}})^2$$

$$O(N \times N)$$

$$((\cancel{(\cancel{)}})) \rightarrow ((\quad)) \rightarrow (\cancel{(\cancel{)}}) \quad O(N^2)$$

$$\begin{matrix} 1 \rightarrow N \\ N \rightarrow N^2 \end{matrix}$$

$$\emptyset \leftarrow \cancel{(\cancel{)}} \quad \downarrow$$

— 0 —

$$\text{cnt} = 0$$

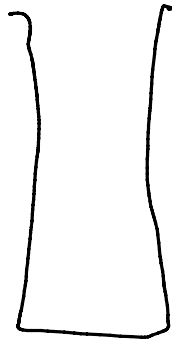
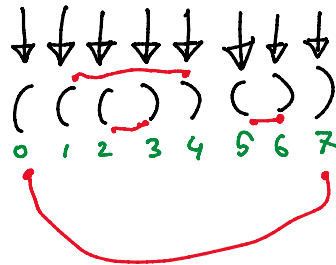
$$\text{cnt}++$$

$$\text{cnt}--$$



$$\begin{matrix})) ((\\ -1 -2 -1 0 \end{matrix}$$

— 0 —



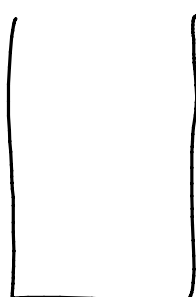
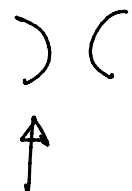
$$\binom{2}{3}$$

$$|s| = N$$

$$\frac{N}{2} + \frac{N}{2} = N$$

$$O(N^2)$$

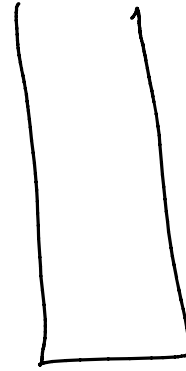
$$O(N)$$



((((

$\downarrow \downarrow$
 $(\{() \} \{()([[]])\})$

$)) (($



$$\phi(N) = N \cdot \frac{p_1 - 1}{p_1} \cdot \frac{p_2 - 1}{p_2} \cdots \frac{p_k - 1}{p_k}$$

$$\phi = N \cdot \left[\text{---} \cdot \text{---} \cdot \text{---} \right]$$

$$\phi(x) = 3$$

~~*~~