Let's begin at 9:02 PM.

L43
Queue & Deque : Intuition & Implementation

Join Discord - https://bit.ly/ly-discord

RECAP

Ever stood in a queue?

Remember Demonetization?

Queue is basically the thing that starts wherever I stand 😎

Queue at McD for Burger.

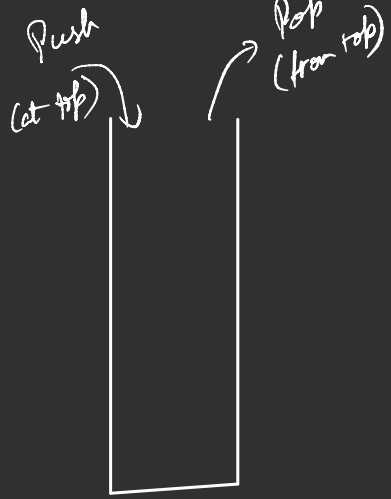
Works on a principle called FIFO

FIRST IN FIRST OUT

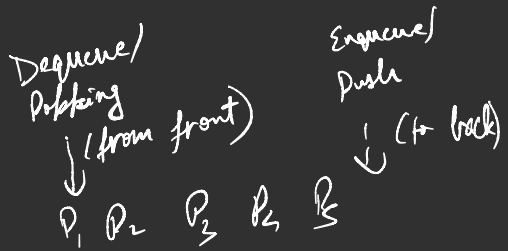
Some Real Life Examples?

1. Flash Sales

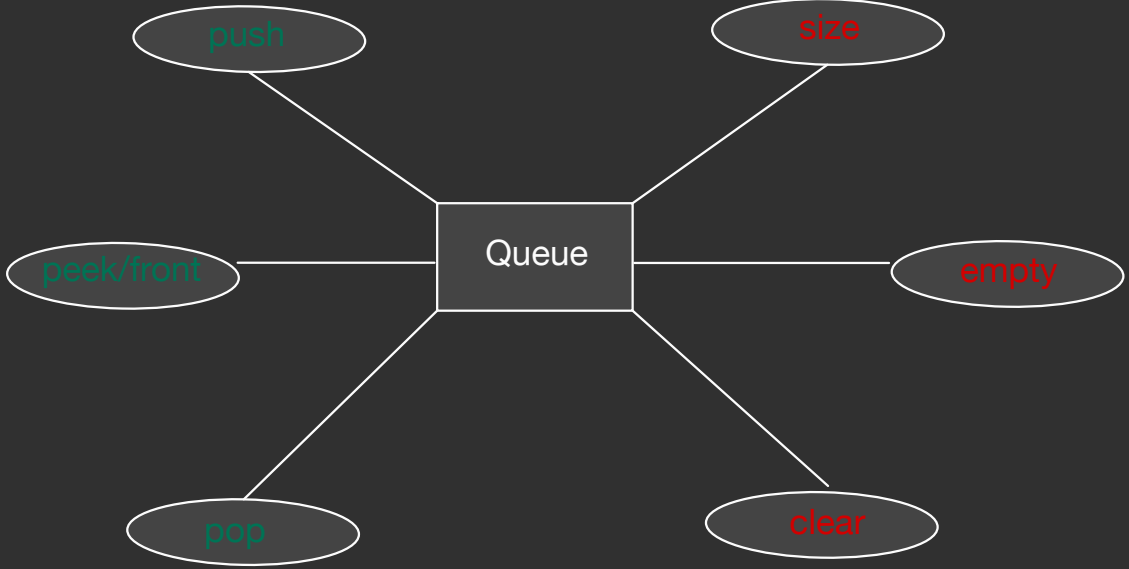
2. Task Scheduling



Stack



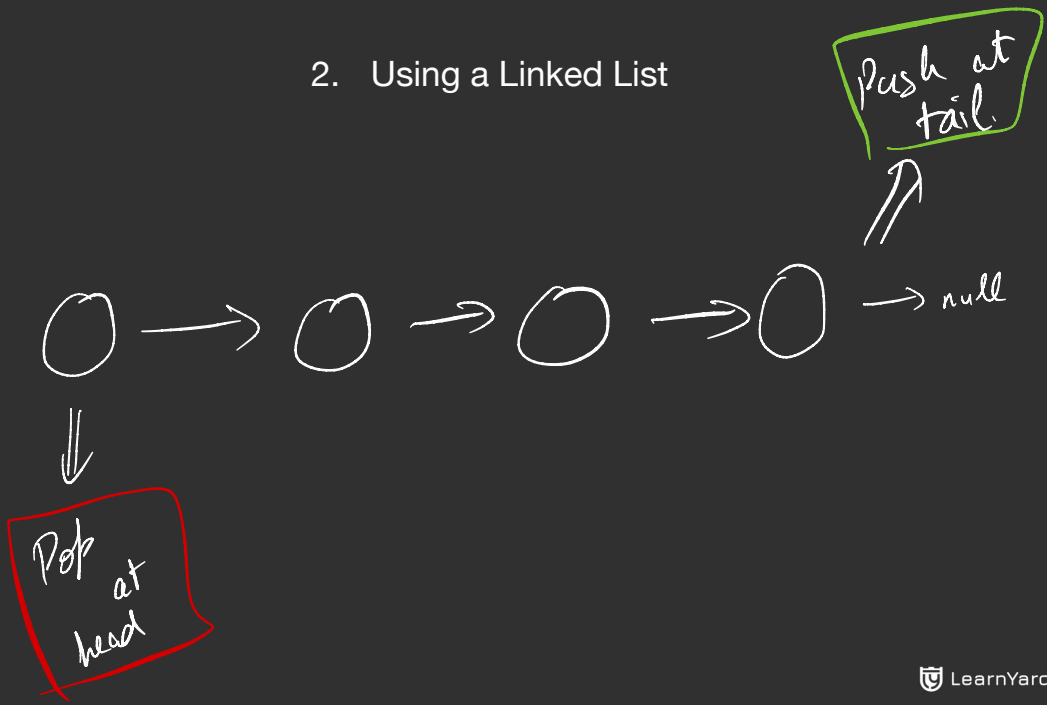
Queue



How to implement?

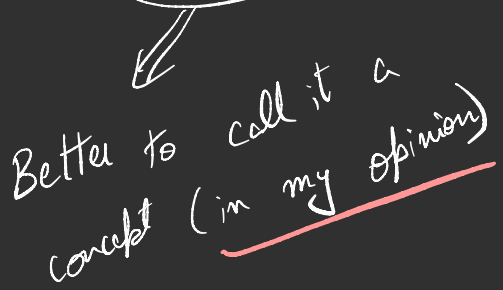
1. Using a Dynamic Array

2. Using a Linked List



Time Complexity Analysis of different functions

What exactly is it?
A data structure?
A concept?

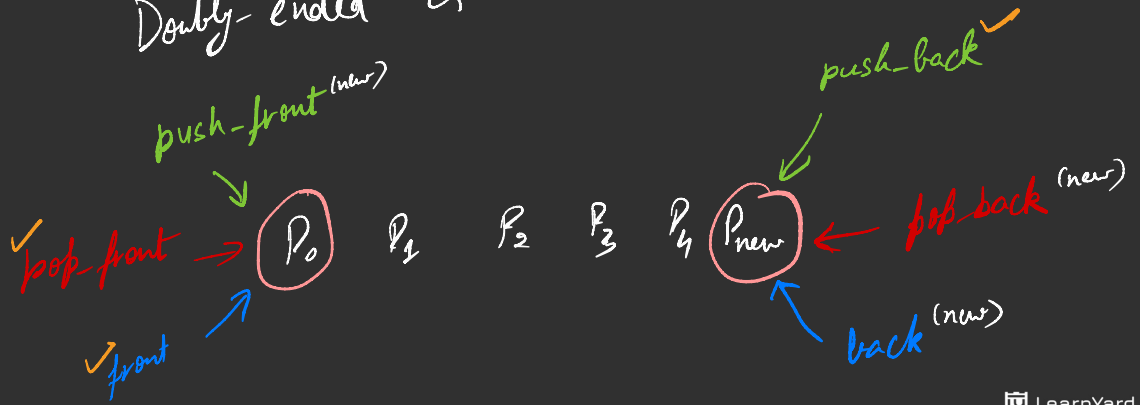


There is queue in-built also.
Both in C++ & Java

What is deque?

(pronounced 'deck', acc. to C++ documentation)

Doubly-ended Queue.



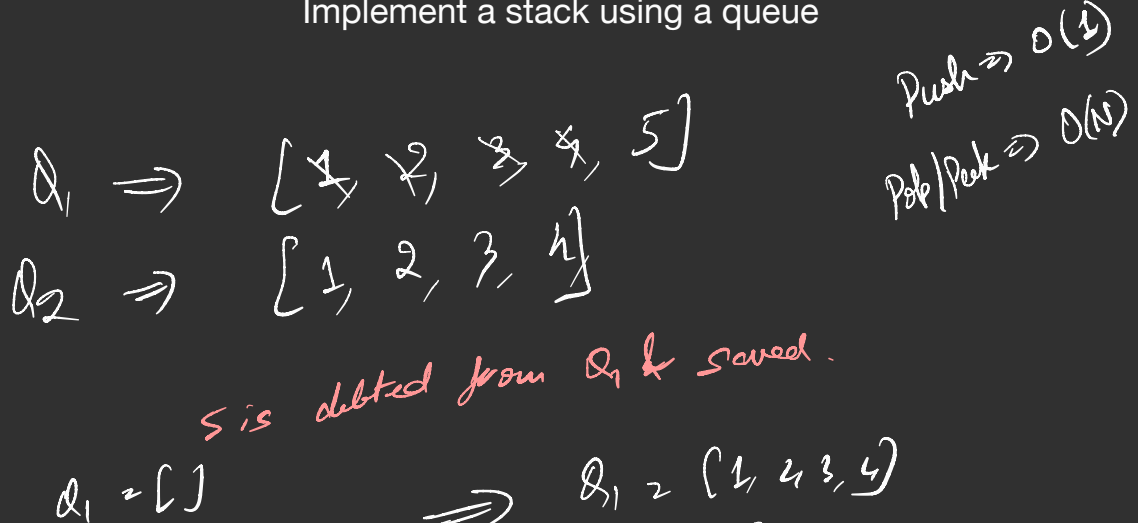
It’s a doubly ended queue.

Intuition to implement using Array

Using Linked List?

Let’s do some practice

Implement a stack using a queue



Can we do using 1 queue only?

q = 1, 2, 3, 4

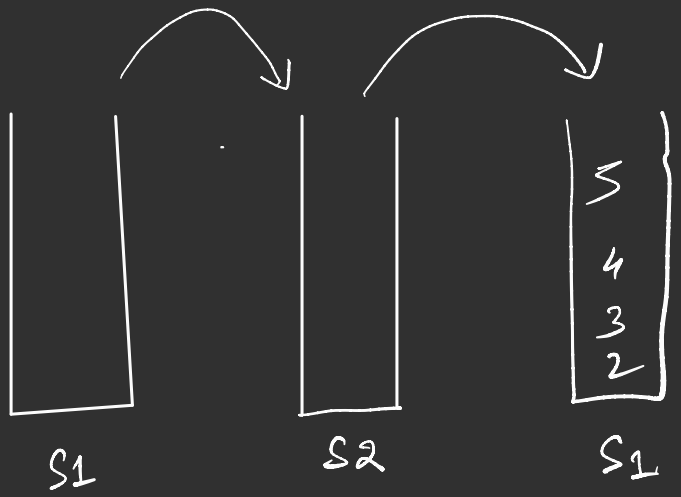
size = 5

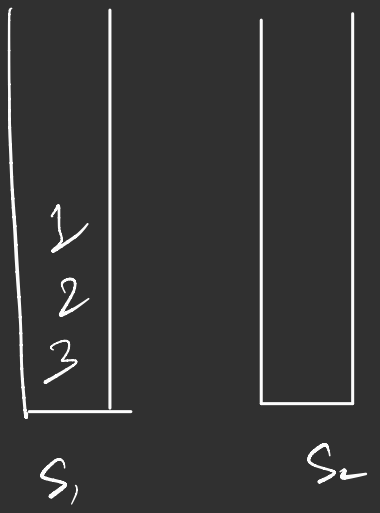
Implement a queue using stack(s)

(1, 2, 3, 4, 5)

Push
O(1)

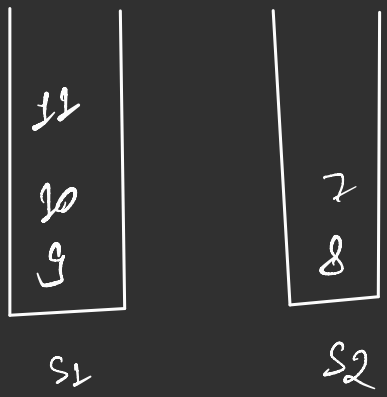
Pop
O(N)

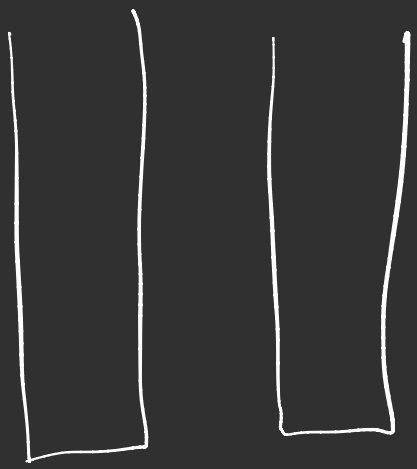




Push
↓
$O(N)$

Pop
↓
$O(1)$





1 ⇒ 5 operations

2 ⇒ O(1)

3 ⇒ O(1)

4 ⇒ O(1)

5 ⇒ O(1)

6 ⇒ 5 op

7 ⇒ O(1)

8 ⇒ O(1)

9 ⇒ O(1)

10 ⇒ O(1)

Push | Pop | Push | Pop | Push | Pop — — - —

Time Complexity

Thank You!

Reminder: Going to the gym & observing the trainer work out can help you know the right technique, but you'll muscle up only if you lift some weights yourself.

So, PRACTICE, PRACTICE, PRACTICE!