

# Programación Competitiva

Alex Josué Flórez Farfán

Magister en Ciencias de la Computación

Ciencia de la Computación - UNSA  
Segundo semestre 2021

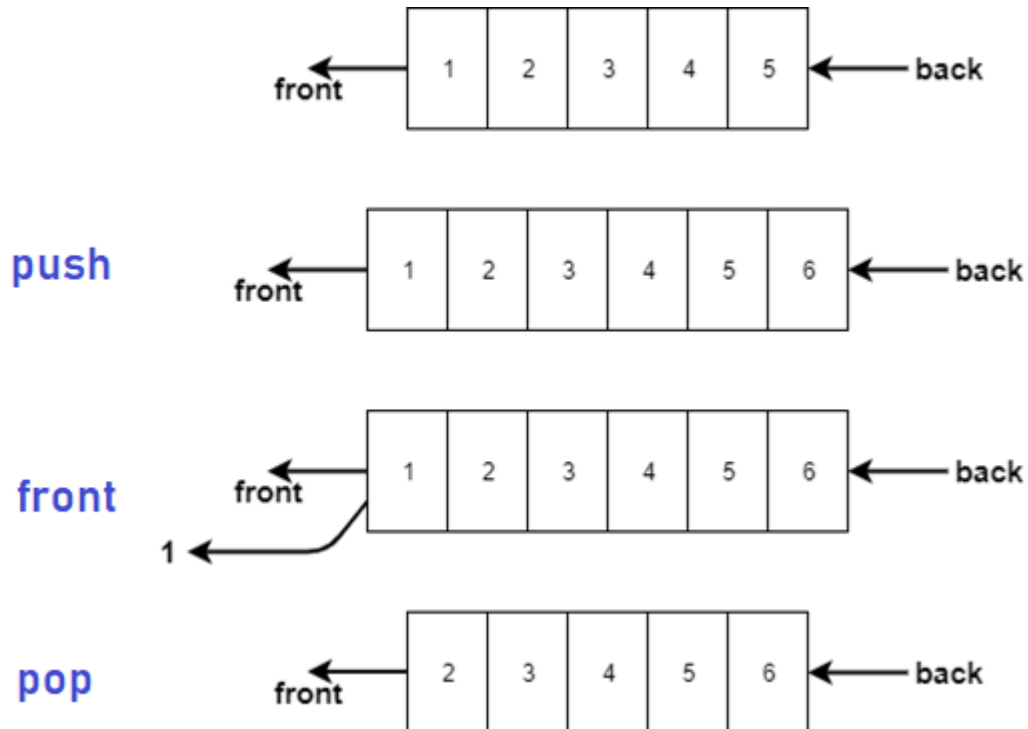
Queue

# Queues

<https://en.cppreference.com/w/cpp/container/queue>

header `<queue>`

The `std::queue` class is a container adapter that gives the programmer the functionality of a queue - specifically, a FIFO (first-in, first-out) data structure.



# Caps Lock

You are sending a message to a friend with a special keyboard. The keyboard only accepts lowercase letters, and stores them in a buffer.

When the @ key is pressed, it toggles the CapsLock key: all letters in the buffer have their case flipped, as well as all subsequent keypresses.

When the \$ key is pressed, the entire buffer is flushed.

Given some keypresses: output the resulting message.

**Input:**    `abc$d@ef$@g$`

**Output:** `abcDEFg`

Deque

# Deque: double-ended queue

<https://en.cppreference.com/w/cpp/container/deque>

header `<deque>`

`std::deque` double-ended queue (pronounced as deck) is an indexed sequence container that allows fast insertion and deletion at both its beginning and its end.

# Backspace

You are sending a message to a friend with a special keyboard.

The keyboard only accepts lowercase letters.

When the # button is pressed, the last letter is deleted from the message.

Given some keypresses: output the resulting message.

**Input:**    `abc#de##f#ghi#jklmn#op#`

**Output:** `abghjklmo`

# Interview Wait

You are sitting on a row of chairs, waiting for an interview.

When choosing the next interviewee, the interviewer will always choose from either the very left side or the very right side of the row of chairs.

Furthemore, the interviewer knows exactly how much time each interview will take, and being lazy, will always choose the side with the lower interview time. (You can assume that all times are distinct.)

You are denoted with a -1 interview time, which means that the interviewer will always pick you over the person on the opposite side. How much time will it take before the interviewer gets to you?

**Input:** [4, -1, 5, 2, 3]

**Output:** 9



# Priority Queue

# Priority Queue

[https://en.cppreference.com/w/cpp/container/priority\\_queue](https://en.cppreference.com/w/cpp/container/priority_queue)

header `<queue>`

A priority queue is a container adaptor that provides constant time lookup of the largest (by default) element, at the expense of logarithmic insertion and extraction.

# Merge k Sorted Lists

You are given an array of k linked-lists lists, each linked-list is sorted in ascending order.

Merge all the linked-lists into one sorted linked-list and return it.

Input: lists = [[1,4,5],[1,3,4],[2,6]]

Output: [1,1,2,3,4,4,5,6]

# Merge k Sorted Lists

- ▶ <https://leetcode.com/problems/merge-k-sorted-lists/>