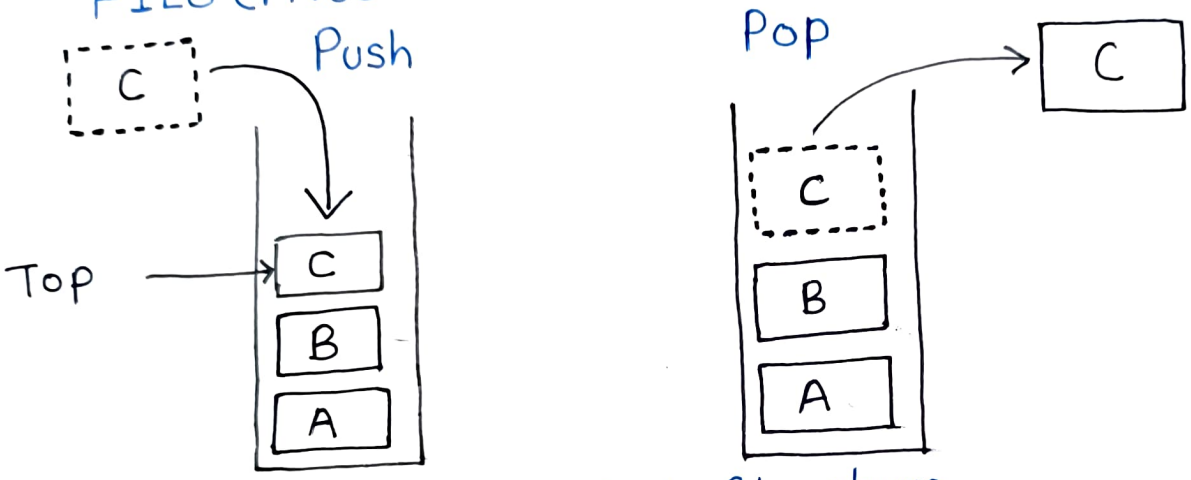
Stack and Queue

Stack:

Stack is a linear data structure that follows a particular order in which the operations are performed.

The order may be LIFO (Last In First Out) or FILO (First In Last Out).



Stack Data Structure

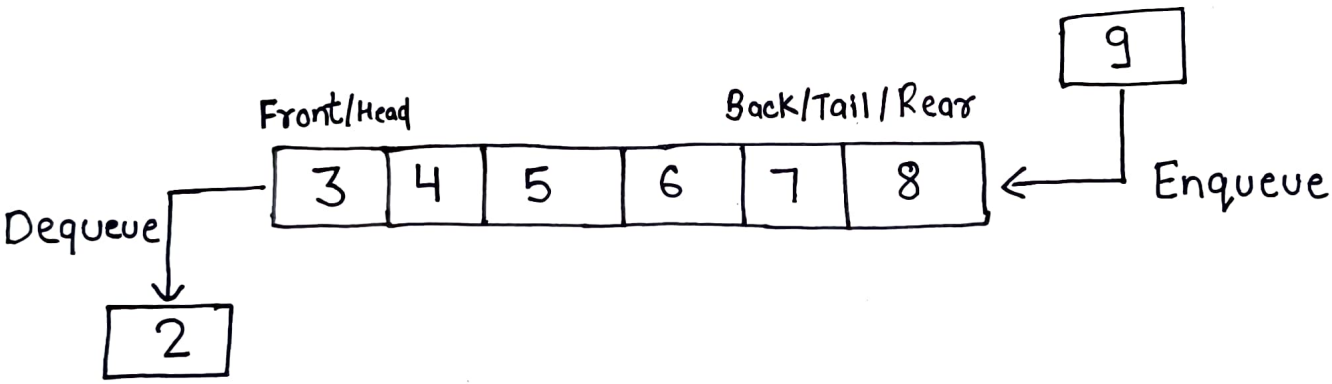
There are many real-life examples of a stack. Consider an example of plates stacked over one another in the canteen. The plate which is at the top is the first one to be removed, i.e. the plate which has been placed at the bottom-most position remains in the stack for the longest period of time. So, it can be simply seen to follow LIFO (Last In First Out)/ FILO (First In Last Out) order.

Shubham Upadhyay (LinkedIn)

Queue:

A Queue is defined as a linear data structure that is open at both ends and the operations are performed in First In First Out (FIFO) order.

We define a queue to be a list in which all additions to the list are made at one end, and all deletions from the list are made at the other end. The element which is first pushed into the order, the operation is first performed on that.



Queue Data Structure

Characteristics of Queue:

- Queue can handle multiple data.
- We can access both ends.
- They are fast and flexible.

Shubham Upadhyay (LinkedIn)

Queue Representation:

Like stacks, Queues can also be represented in an array: In this representation, the Queue is implemented using the array. Variables used in this case are

- Queue: the name of the array storing queue elements.
- Front: the index where the First element is stored in the array representing the queue.
- Rear: the index where the last element is stored in an array representing the queue.

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