





Difference between Stack and Queue

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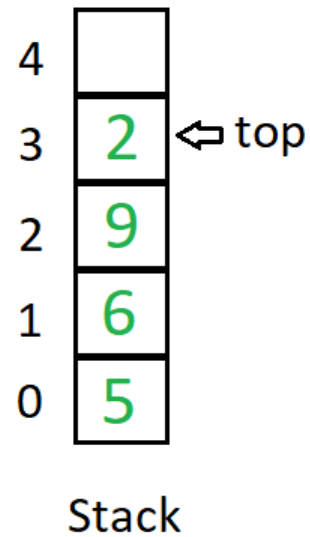
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Stack A stack is a linear data structure in which elements can be inserted and deleted only from one side of the list, called the **top**. A stack follows the **LIFO** (Last In First Out) principle, i.e., the element inserted at the last is the first element to come out. The insertion of an element into stack is called **push** operation, and deletion of an element from the stack is called **pop** operation. In stack we always keep track of the last element present in the list with a pointer called **top**.

The diagrammatic representation of stack is given below:

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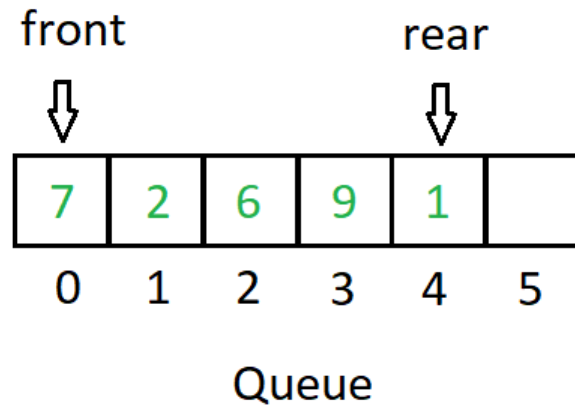


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Queue: A queue is a linear data structure in which elements can be inserted only from one side of the list called **rear**, and the elements can be deleted only from the other side called the **front**. The queue data structure follows the **FIFO** (First In First Out) principle, i.e. the element inserted at first in the list, is the first element to be removed from the list. The insertion of an element in a queue is called an **enqueue** operation and the deletion of an element is called a **dequeue** operation. In queue we always maintain two pointers, one pointing to the element which was inserted at the first and still present in the list with the **front** pointer and the second pointer pointing to the element inserted at the last with the **rear** pointer.

The diagrammatic representation of queue is given below:



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Difference between Stack and Queue Data Structures

Stacks

Stacks are based on the LIFO principle, i.e., the element inserted at the last, is the first element to come out of the list.

Insertion and deletion in stacks takes place only from one end of the list called the top.

Queues

Queues are based on the FIFO principle, i.e., the element inserted at the first, is the first element to come out of the list.

Insertion and deletion in queues takes place from the opposite ends of the list. The insertion takes place at the rear of the list and the deletion takes place from the front of the list.

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Stacks

Delete operation is called pop operation.

In stacks we maintain only one pointer to access the list, called the top, which always points to the last element present in the list.

Stack is used in solving problems works on recursion.

Queues

Delete operation is called

In queues we maintain a pointer always points to the first element still present, and the rear element.

Queue is used in solving problems having sequential processing.



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