

1. Stack – Data Structure

♦ Definition:

A **Stack** is a linear data structure that follows the **LIFO (Last In First Out)** principle.

The last element inserted is the first one to be removed.

♦ Main Operations:

- **Push:** Add an element on top
 - **Pop:** Remove the top element
 - **Peek/Top:** View the top element without removing
 - **isEmpty:** Check if the stack is empty
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♦ Time Complexity:

- All operations: **$O(1)$**
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♦ Use Cases:

- Undo operations
- Expression evaluation (infix to postfix)

- Recursion (function call stack)