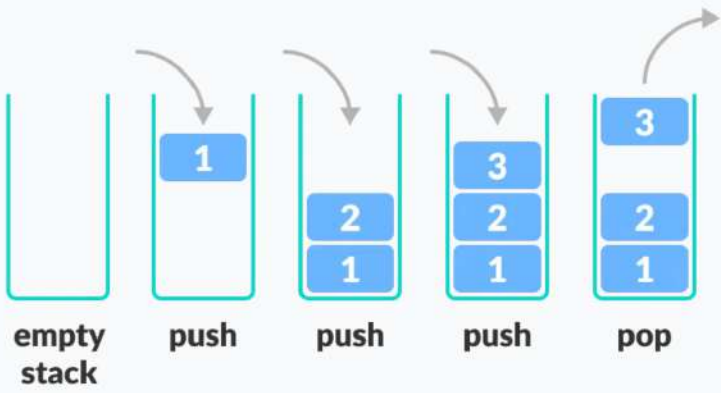
Stack Data Structure



A stack is a linear data structure that follows the Last In, First Out (LIFO) principle.
This means the last element added is the first one to be removed.

Key Operations

- Push(element) – Adds an element to the top of the stack.
- Pop() – Removes and returns the top element.
- Peek() / Top() – Returns the top element without removing it.
- isEmpty() – Checks if the stack has no elements.
- getSize() – Returns the number of elements in the stack.

Characteristics

- Follows LIFO order.
- Can be implemented using arrays or linked lists.
- Used in function call management, expression evaluation, undo mechanisms, and syntax parsing.

Stack used in real life

How it works in Undo:

- Every user action (typing, drawing, deleting) **gets pushed onto the stack.**
- Click **Undo** → the **top action pops off** and is reversed.

Why it's cool:

- Tracks your moves like a **magical time machine** ⏳.
- Simple, fast, and reliable – all thanks to the **stack's LIFO magic**!