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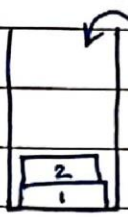
Introduction to Stack Data Structure

Stack is a linear data structure. Operations on Stack are performed in LIFO (Last in first out) order.



⇒ Item 1 which entered the basket last will be the first one to come out

LIFO (Last in first out)

Applications of Stack

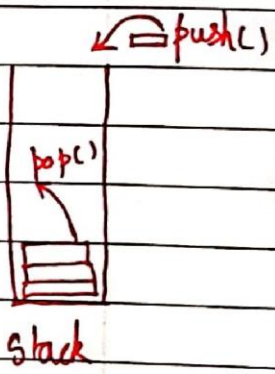
1. Used in function calls
2. Infix to postfix conversion (and other similar conversions)
3. Parenthesis matching & more...

Stack ADT (Abstract Data Type)

In order to create a stack we need a pointer to the topmost element along with other elements which are stored inside the stack.

Some of the operations of Stack ADT are:

1. push() → push an element into the stack
2. pop() → remove the topmost element from the stack
3. peek(index) → Value at a given position is returned
4. isEmpty()/isFull() → Determine whether the stack is empty or full (overflow)



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Implementation

A stack is a collection of elements with certain operations following LIFO (Last in First out) dicipline.
A Stack can be implemented using an array or a linked list