

## Stack and Queue

★ What is a stack?

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

★ It means that the element that is inserted last will be the first one to be removed and the element that is inserted first will be removed at last.

→ Implementing a stack:

★ In C, we can implement a stack using an array or a linked list.

★ In this video, we will use the array data structure to store the stack elements and use a pointer to keep track of the topmost element of the stack.

★ The stack will offer basic operations like push, pop, peek, is Empty and is Full to the user.

→ Representation of stack in C:

★ The stack can be represented as a structure that contains fixed-size array in C which stores data of the stack and an index pointer which is used to track the top element of the stack.

q struct stack {

type arr [MAX\_SIZE];

int top;

→ Algorithm:

★ Declare a stack S

★ Now traverse the expression using stack

① If the current character is a starting bracket then push it to stack

② If (closing bracket) or } or ] then pop from stack and if popped character is matching