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Nov 08, 2020

Part 2- Write a prefix stack and show how it works (in main).

In my program, first I added libraries and then I defined the default capacity of the stack. The next i create a class for stack in which i add int variables and also declare a public method where I add constructor and push, pop, peek, sixe, isEmpty and isFull.

push:- inserts new elements at the top of the stack, above its current top element.

pop:- removes the top elements on the stack.

peek:- returns the top element present in the stack without modifying the stack.

size:- returns the count of elements present in the stack.

isEmpty:- returns true if stack is empty i.e. its size is 0 else it returns false.

isFull:- returns true if stack is full i.e. its size has reached maximum allocated capacity else it returns false.

After that I add a constructor to initialize the stack in which i declared variable int size. Then I added a utility function to add an element x in the stack using the push method. In this there is an if statement to check for stack overflow. If not overflow then it returns stack is full and a print statement which inserts the given value for this.

Then I added a utility function to pop top elements from the stack using pop() method. Same as above method also used if statement to check for stack underflow. Then I added another utility function to return the top element in the stack using peek() method and utility function to return the size of the stack using size() method. Utility function isEmpty() to check if the stack is empty or not and there is a return statement inside this. Another utility function isFull() to check if the stack is full or not and there is a return statement inside this.

Now in the driver main function I called all the functions with values and ran it. Here is the output of the program.

Inserting: 3
Inserting: 1
Removing: 1
Removing: 3
Inserting: 2

Top element is: 2
Stack size is: 1
Removing: 2
Stack Is Empty