

Aux graphics

Sunday, February 11, 2018 1:30 PM



From <<https://www.bing.com/images/...>

shirtwoot!



Error: stack overflow

Midterm 1 Feb 23 (next Fri)
evening (5 pm?)

$O(1)$ or $O(n)$ - delete
node from SLL

This week

- stacks and queues

Today

- stacks

↳ SLL implementation

→ array implementation

Stack Last in First Out LIFO

Data struct that allows a specific order in which operations on its data can be performed.

Typical analogy: stack of plates

- can only add to the top (push)

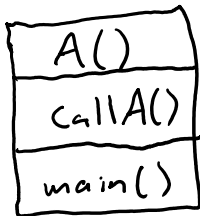
- can only remove from top (pop)
 - ↳ (unless no elements left in stack)

- can have limit on max number of elements

Usage of Stacks:

e.g. call stack during program execution

- currently active subroutines



- stack overflow will occur if too many functions on call stack
 - ↳ can result in seg fault

Stack Abstract Data Type

e.g.

private:

```
top    // keeps track of "top" element
maxSize // > depends on implementation
count  //
```

public:

```
initialize() (constructor)
```

isFull()
isEmpty()
push()
pop()
disp()

Singly LL Stack Implementation

- a special case of SLL
- don't have to set max size (but can)
- "top" is a pointer to Node type
- stack is empty if "top" is NULL
- "Push" adds new nodes to LL
- "Pop" removes node from top and returns the node
(could be defined differently)