



2017 Winter

UClass CSC148

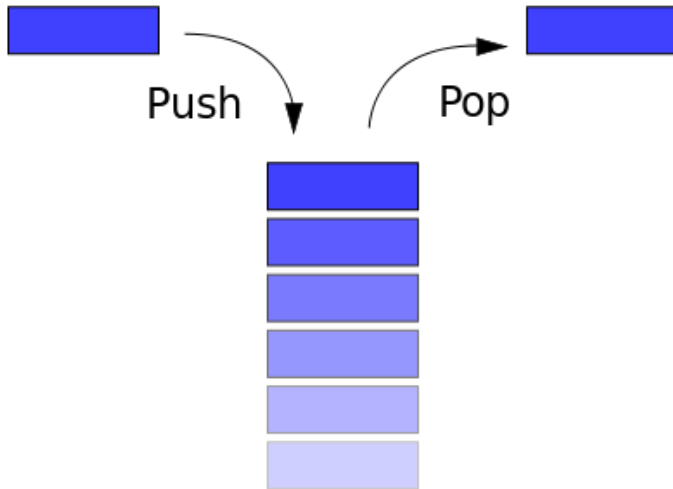
Class 2



UCLASSKF

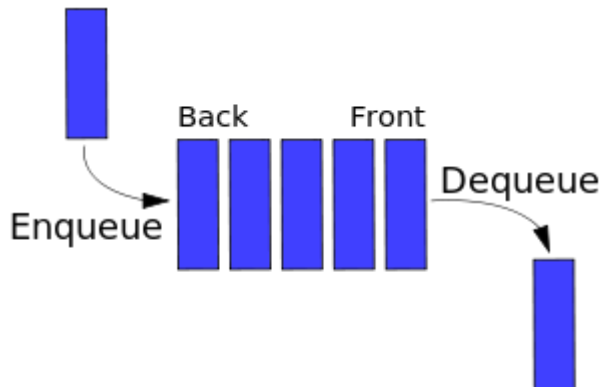
Abstract Data Types:

Stack:



- Last in, first out(LIFO), 最后放入的最先出来
- Operations :
 - Push(x), 将 x 加入 stack 的底层
 - Pop(), 将顶层项返回并删除
 - Is_empty(),检查这个 stack 是否是空的
 - Peek(), 返回顶层项, 但是不删除
 - Size(),返回项的数量

Queue:



- First in, first out(FIFO), 最先放入的最先出来
- Operations :
 - Enqueue(x), 将 x 加入 queue
 - dequeue(), 将末尾项返回并删除
 - Is_empty(),检查这个 queue 是否是空的
 - front(), 返回首项, 但是不删除
 - Size(),返回项的数量

特殊 queue, priority queue :

- Operations :
 - insert(x), 将 x 加入 priority queue
 - extractMin(), 将最小项返回并删除
 - Is_empty(),检查这个 queue 是否是空的
 - min(), 返回最小项, 但是不删除
 - Size(),返回项的数量

Example:

ADT puzzle:

You're given a list of integers; your goal is to transform the list into a new list according to the following rule: Find the leftmost pair of consecutive numbers in the list whose values are x and $x + 1$, replace them by the single element whose value is $2x + 1$ and repeat the process using this new list. If no pair of integers satisfies this property, the process is complete

$[1, 2, 3, 4] \rightarrow [3, 3, 4] \rightarrow [3, 7]$

Solve question using stack:

Given a string containing just the characters '(', ')', '{', '}', '[', and ']', determine if the input string is valid.

The brackets must close in the correct order, "()" and "()[]{}" are all valid but "]" and "[)]" are not.



课件及 py 文件

<https://github.com/tangkaiq/uclass/tree/master/w2>

报名地址

UClass.ca