

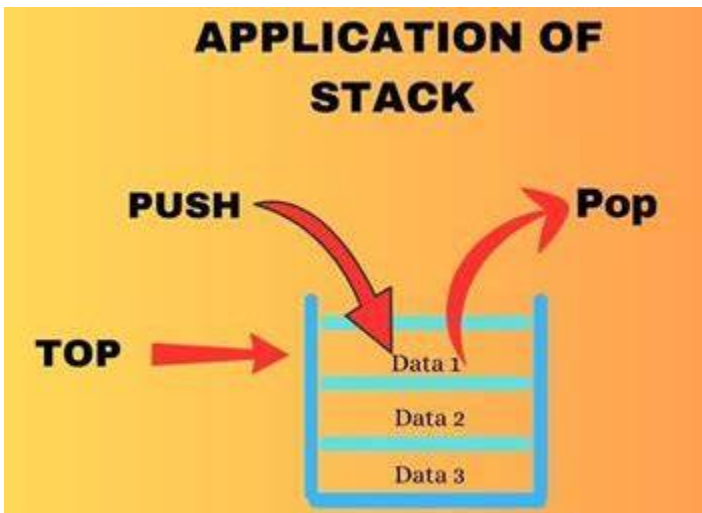
Lab 4: Stacks/Queues

UWYO COSC 2030

Introduction:

Now that you've had some introduction to the concept of a data structure, it's time to learn how to implement them. I'll go over a more in-depth explanation of both of these in class, but if you're looking at this document after the fact, here are some resources for [stacks](#) and [queues](#). The simplest way I can think of to explain them conceptually is by using visual representations:

Stack:



Queue:



Reminder about the README.md

What I ask is that for this, as well as all the upcoming labs, you edit the README.md document to show:

Your name

Help given/received

So for me, this would look like:

Michael Stoll

Help given/received: I had help from Professor Ward

This might seem obnoxious, but for the sake of avoiding plagiarism allegations, please humor me.

Lab 4:

As usual, you'll need to accept the assignment at this link: <https://classroom.github.com/a/2FEpiQNY>

In this repo, you'll see a .cpp file and the usual README.md. Ignore the .py file for now. Open that .cpp file and take a look at the functions, they should be fairly self-explanatory but I'll summarize them here for posterity:

stringReverse: Here you'll build a stack that iteratively takes in a string, and then iteratively pops it back out. When you're done, "hello world" should become "dlrow olleh".

parenCheck: Here you'll use a queue to check if the parenthesis are nested properly. The idea is that you'll push a '(' onto the queue, then pop it off when you find a corresponding ')'. "((()((())))" -> "", but "()(())" -> "(" and "()(())" -> ?

Work on those functions, and when you get them done, take a look at the .py file. You'll be implementing the same functions here, just in Python. To run this file, you'll need to use python3 on the command line, i.e. "python3 Lab4.py". But other than that everything should be the same.

Before you submit, remember to update your Readme and push it all to Github.

Submission:

For this week, you'll need to update your README.md and submit your completed Lab4.cpp file. Don't bother including your executables that you've used for testing, unless for some reason you want them in your repo for your sake. This lab will be due this Sunday, Feb 23rd, at 11:59pm.