2019-09-03 Algorithm Analysis

Tuesday, September 3, 2019 8:58 AM

First checkin on Thursday

- Credit is assigned based on progress
- You'll be showing me your progress on your project
    - Helpful if you had your code on your machine, but I can get the code on my laptop
- While we're not meeting, consider working on your project
- Office hours are
    - by appointment Monday after 3
    - Open walk in 10:30-12:00; 2:30-4:30 Tuesdays and Thursdays
    - By appointment Friday after 2 (already booked this coming Friday)

The purpose of Algorithm Analysis is to perform "synthetic" benchmarks.

- This isn't 100% true, but it's a good mental model for what we'll be doing
- The type of analysis that we'll talk about is called Asymptotic Analysis using "Big O" notation.
    - E.g. Big O notation -> O(N); O(LogN); O(N^2)
    - Big O asymptotic analysis focuses on the worst case runtime
- Our approach:
    - We'll be giving points to algorithms based on # of commands
    - Graph said "points" and guess a line of best fit

After work on whiteboard…

- In general, single loops are O(N)
- In general, double **nested** loops O(N^2)
- In general, triple **nested** loops are O(N^3)
- Caution with this rule: Pay attention to the loop increment
- In general, if your input size doubles and your execution time goes up by 1, you are dealing with some sort of logarithmic function