

Recitation 11

The topics this week are efficiency analysis and linear search. The remaining time will be used to go over the project.

Exercise 1:

Create a program that randomly fills an array with numbers, and then allows the user to search for a number using linear search. If the number is found, print the index it was found at.

Analyze the Big-O efficiency for your program. What are you counting? What is the worst case, and what is the best case? What are some ways you would optimize it, and how would that affect the runtime?

Exercise 2:

Write a program that stores students' grades in a 2D array. Each column of the array represents a different assignment, and each row represents a different student. There are 5 students and 6 assignments. The average of the grades is the students' final grade, but their professor has very kindly agreed to drop their lowest grade. Your program should print out all the students with a passing grade (70 and above).

- What is the Big-O for your program? What is the worst case, and what is the best case?
- Write a method that calculates the averages for a student. What is the best and worst case? What is the Big O?
- Write a method that calculates the averages for an assignment. What is the best and worse case? What is the Big O?
- What if you dropped the lowest grade from for the above two averages? How would that affect the best and worst case? What is the Big O now?