# Assignment 04

Alex Clemmer
Student number: u0458675

# Hypothesis

The assignments give us that adding elements into a static array is $O(k)$. This "suggests" that the runtime for appending to a dynamic array would be "the cost of doing 3k store operations" on some static array. We want to create and experiment to analyze this claim.

# Procedure

### Foreward

One of the main weaknesses of my last assignment is that I did not have a systematic approach for creating the timing suite. This time, I did.

I started by just timing how long it took to allocate things to the array. Then I added code that spun the method for a few seconds before. Then I added code to time the loop itself, and subtract it from the total running time. At each point, I stopped and ran the program. If my code brought me closer to what I expected, I continued. If not, I fixed it.

The big insight here is that in my last assignment, I really just threw code onto the canvas. By incrementally developing the timing patterns, I was able to see in real time what did and did not work. This made my timing development both smoother and (probably) more correct.

### How it works