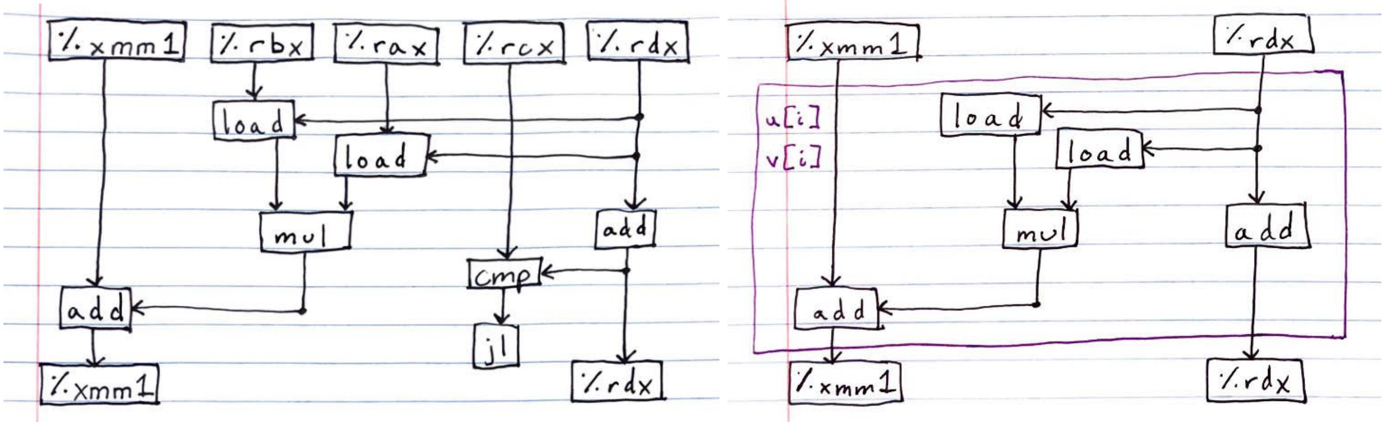
Lily Jim
Assignment 6

2.a.



(a)

(b)

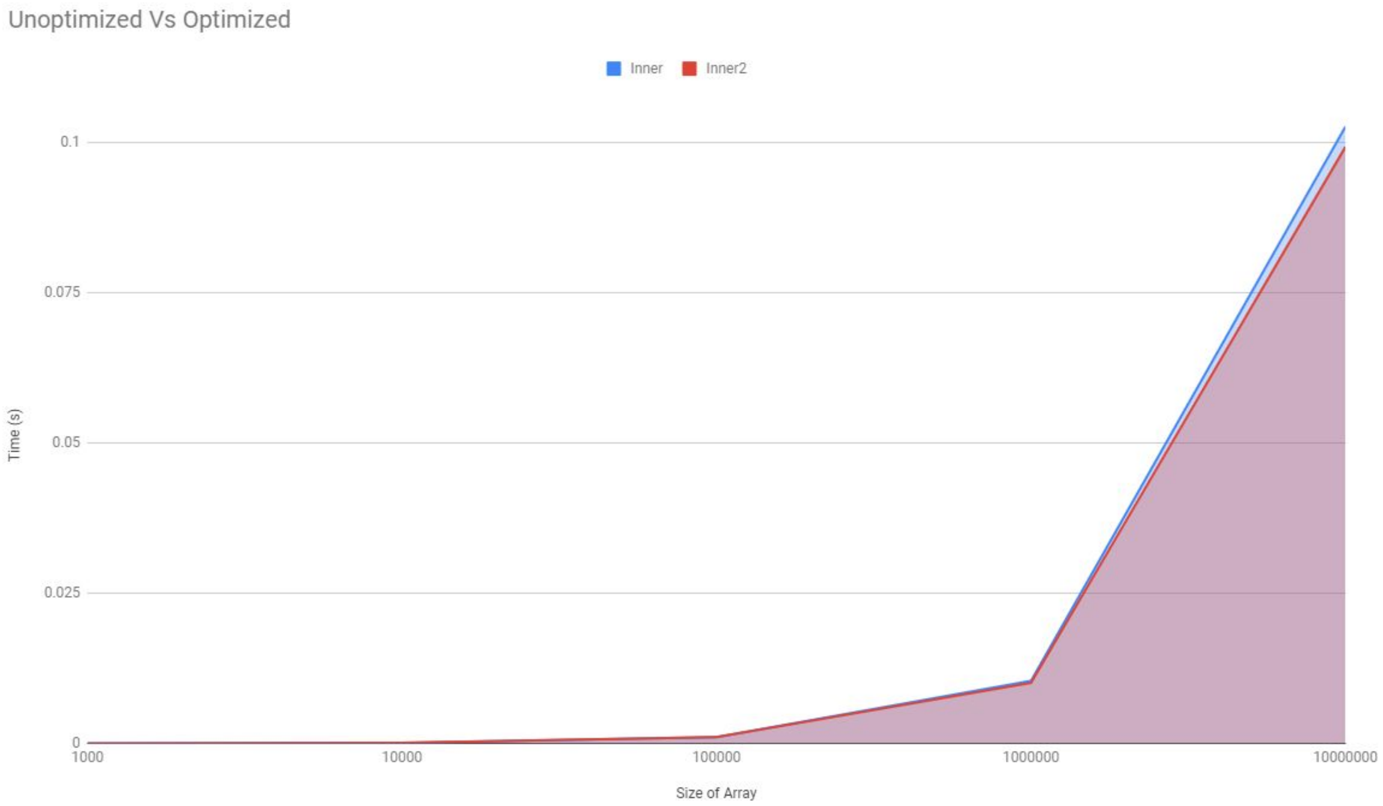
2.b.

The addition to increment i can be pipelined. Since i is the only changing value (with latency 1) that the multiply relies on, multiply can also be pipelined. Since the add for sum relies on having the value from multiply (latency 5), the addition for sum (latency 3) cannot be pipelined. This means that the lower latency bound is 3.

2.c. solution is in 6-2.c

2.d. on next page

2.d.



I tested the time inner and inner2 takes with arrays of size 1000, 10000, 100000, 1000000, and 10000000. Inner2 is more efficient, especially with larger array sizes. As can be seen in the graph, as the array sizes get larger, the time it takes for inner and inner2 to complete deviates more. As can be seen for an array of 10 million floats, the inner loop definitely takes longer than inner2. For the smaller array sizes there is minimal differences, but upon a close look, inner does take slightly longer. Thus, inner2 is more efficient than inner.