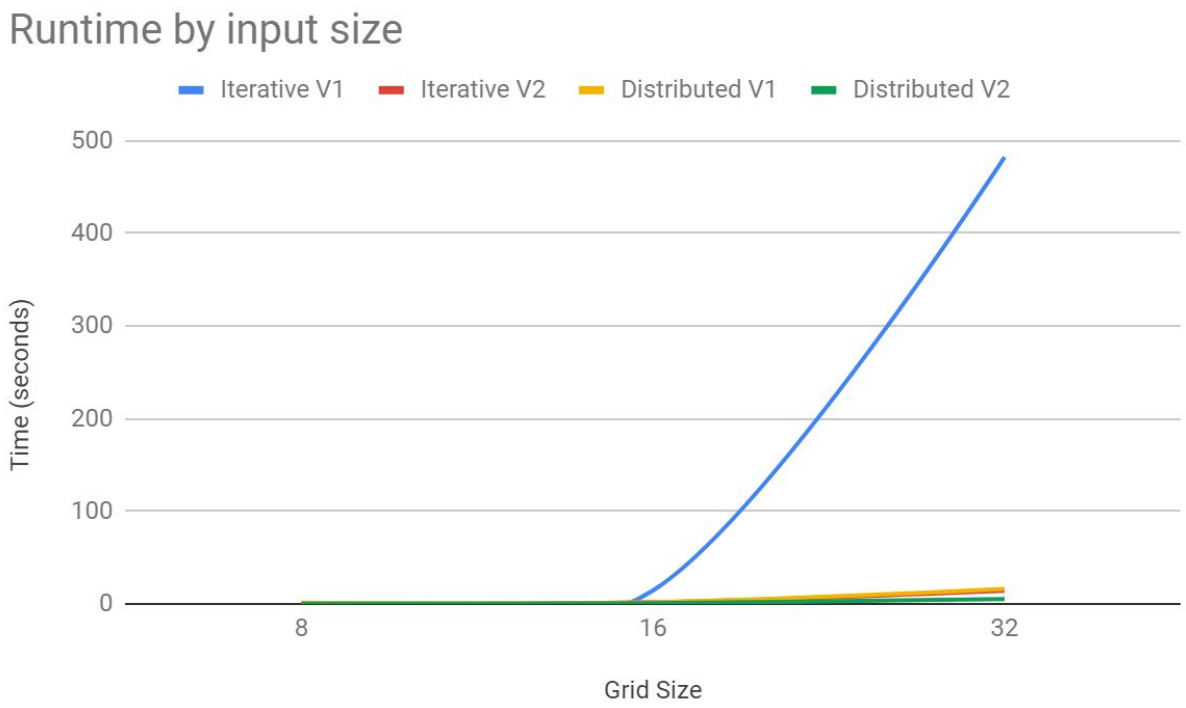
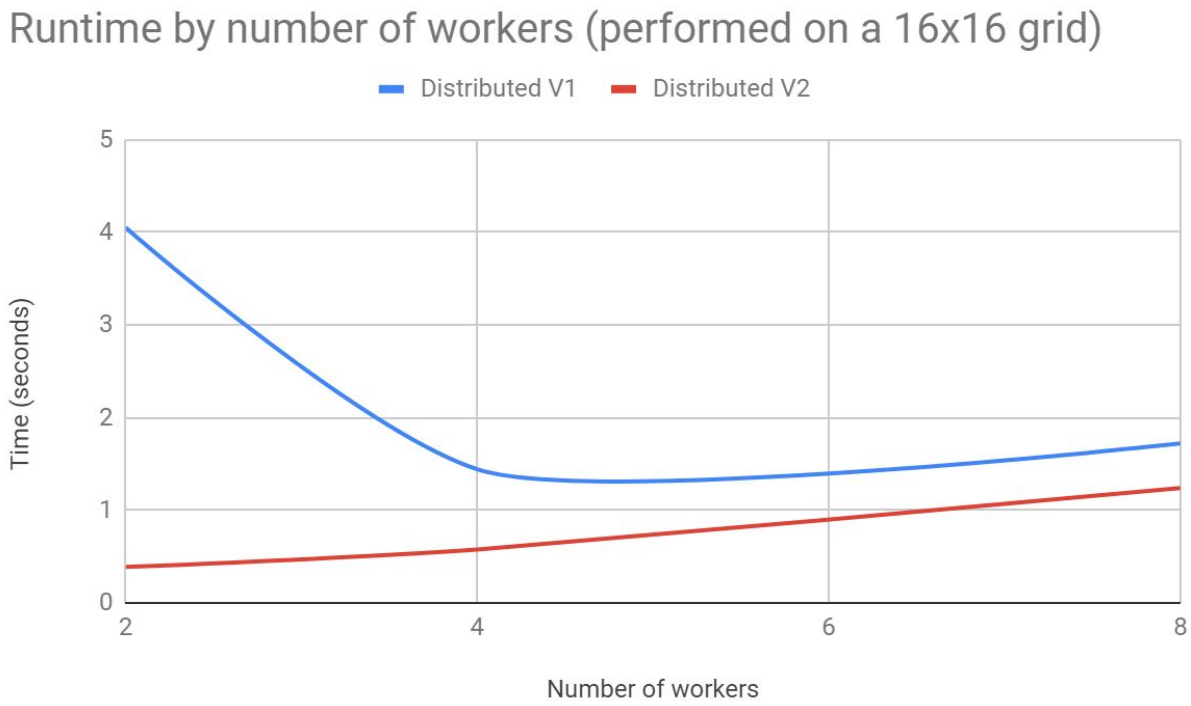
Assignment 2
Richard Cunard
Braxton Cuneo





When performing distributed or parallel programming, readying a new worker or thread requires a relatively significant amount of resources to prepare. For large datasets, this is generally overshadowed by the gains from parallelization, however, for a small enough input size, this resource investment can increase the runtime, meaning that in some cases, fewer workers will generate faster runtimes, as was the case for both distributed implementations. Given that a value iteration is a relatively small input, devoting a worker to a single VI meant that the V1 distributed method lost a significant amount of time.

In general, the V2 distributed method outpaced the V2 iterative method when properly optimized, however, as the number of workers was increased beyond the point of gaining efficiency, the iterative method became faster. Presumably, given a small enough grid, the V2 iterative method may become the most efficient option. However, for large datasets (which are more likely to appear in a real life analysis) the a properly optimized distributed method would easily outpace an iterative implementation.