

# CSE471 Homework Assignment #3: Cache Coherence

Due Thursday, June 4th, before lecture

## Milestone 3: Evaluating the 4-State Protocol

In the second milestone, you implemented your 4-state protocol in the MultiCacheSim simulator and analyzed its performance and scalability relative to the 3-state protocol. In this final milestone, you'll finish that analysis and write a report summarizing your work and the conclusions you drew from your quantitative analysis.

### The Report

The report should summarize the work you've done, and the conclusions you are able to draw from your results. It should include the following:

- A brief introduction and problem statement
- A description of your 4-state protocol design, and the shortcomings of the 3-state design that it addresses. This section can be kept brief, as your milestone 1 report should have elaborated on your design decisions in detail.
- A description of your evaluation. You should describe what you intended to show with your experiments, what experiments you performed and your experimental methodology.
- A discussion of your results. This should be a write-up of your quantitative analysis and is the meat of your report. Include at least one plot, showing at least one simulator output that varies between protocols with two, four, and eight threads, and discuss the implications of the 4-state protocol on the performance and scalability of a multiprocessor that implements it. You should also use this section to describe any other interesting properties of your data, such as surprising differences between the protocols, benchmark-specific characterizations, etc.

The report is a large fraction of your grade for this homework. It's important that you communicate clearly – converting your analysis from raw data to English prose should be a top-level concern when you are budgeting your time, not just an afterthought.

If you divided the work between you – as opposed to everyone working on everything – say who did what.