The final project is intended to allow exploration of an area of interest within Computer Architecture. Projects should consist of a simulation, experiments, and a writeup comparing two or more architectures or optimizations (not including previous programming projects).

Some project ideas:

- Caching: Implement two of the optimizations from the list of ten advanced cache optimizations and compare performance when using none, either, or both optimizations. This project should be relatively easy, depending on the optimizations.
- SIMD architectures: Implement a parallelizable algorithm in both a traditional multithreaded programming language and a GPGPU language and compare performance of the two implementations. This project should be moderately difficult.
- Dynamic scheduling: Implement Tomasulo’s algorithm and evaluate performance with and without speculation. You’ll need to find a suitable set of trace instructions to use as input to your simulation. This project should be relatively difficult.

Create a document which describes your project including:

- Implementation details
- Input details (i.e., how the input data will be obtained)
- Experiment details and expected outcomes

This proposal will be worth 25% of your final project score. The remaining 75% will be based on the overall completion and quality of your project.

It is expected that your final implementation and experiments closely match the descriptions in your proposal document, which is why the proposal is due two weeks into a four-week project. If you’d like to discuss project ideas prior to submitting this proposal, please contact me after class, during office hours, or by email.

Upload your proposal (PDF or TXT) to Blackboard.