

# Advanced Programming Homework Assignment 11

Due Wednesday, April 16, at 3PM

## Software Transactional Memory

1. Read the paper *Composable Memory Transactions* (Harris et al.) that was handed out in class (and available from the class web site).
2. Make a copy of your files for last week's homework assignment.
3. In the file `TestHarness.hs`, delete the last two lines (the calls to `test8` and `test9` in the definition of `main`. As discussed in class, these tests are quite difficult to satisfy in the STM world.
4. Rewrite your implementation of the `FiniteChan` abstraction using STM primitives (`TVars`, `atomic`, etc.) instead of `MVars`. You will probably need to rethink the structure of your solution; simply replacing `MVars` with `TVars` is unlikely to work.
5. Add your name(s) at the top of your `FiniteChan.hs` file.
6. Email just the file `FiniteChan.hs` to both `jschorr@seas.upenn.edu` and `bcpierce@cis.upenn.edu`. Make sure your file is named (exactly) `FiniteChan.hs`.

## Final Project, Phase I

- Choose a partner.
- Choose a topic.
- Write a 2-3 page document including...
  - A one-paragraph description of the overall goal of your project.
  - A typical “use case” — i.e., an example showing how your program will behave under some typical usage scenario. (Include two or three different use cases if this makes sense.)
  - A sketch of how you plan to break the problem down into loosely coupled modular components.
  - An “effort budget” breaking down the work involved in completing the project into 5-10 steps and giving a time estimate for each one. Aim for about 25-30 hours total. Remember to include time for polishing, beautifying, and documenting.
- Email this document to both `jschorr@seas.upenn.edu` and `bcpierce@cis.upenn.edu`.