CprE 381 Homework 9

[Note: This homework is meant to help you form insights regarding the principles behind caches.]

1. Principle of Locality
    a. Write a valid MIPS assembly program that executes at least 20 instructions and demonstrates spatial locality in instruction fetching, but not data accesses. Explain this locality in the assembly comments.
    b. Write a valid MIPS assembly program that executes at least 20 instructions and demonstrates temporal locality in data accesses, but not instruction fetching. Explain this locality in the assembly comments.
    c. Spend some time looking at open-source programs on Github.com. Find a piece of a C or C++ program on github that appears to display a significant amount of data locality. Provide the html browsable file URL and line numbers of the example. Justify why these lines demonstrate data locality. *[Note that since this is real code, you may need to reference multiple files to demonstrate locality even in a single example.]*

2. Cache Configuration and Simulation
    a. P&H (Textbook) 5.2.1, 5.2.2, 5.2.3, 5.2.6