IC210 Intro to Computer Science HW30 Name: _____

Re-write the Little Man Computer (LMC) Simulator program as follows:

1. Review the LMC Summary on the Class 08 web page, then go through the LMC Simulator program code found on the Class 13 web page to refresh your understanding. You are to use this code as a starting point.

2. The code currently uses global variables. Instead, you must declare these variables *locally* in **main()**, and pass them to other functions as the appropriate kind of parameter: call-by-value or call-by-reference (be careful with the **mem[ ]** array).

3. Our simulated LMC currently doesn't really "load" a program into its RAM. At present we just use the function **load_program()** to "hard-code" a LMC machine instruction application program into the **mem[ ]** array. Change the LMC Simulator program code so that **load_program()** loads an LMC program into its RAM (the **mem[ ]** array) by reading it from a ***file*** named **lmcprog.txt**. You can find **lmcprog.txt** on the Class 30 web page; before running your C++ LMC Simulator, you will have to download **lmcprog.txt** and place it in the appropriate Visual C++ project folder, as was done for hw28.

4. Run your LMC Simulator program (written in C++). The simulated LMC hardware will boot, it will load an LMC application software program (**lmcprog.txt**, written in LMC machine instructions), and then begin the fetch-decode-execute cycle to run this LMC application program, which will produce some output.

5. Write a complete *C++ program* that does the same thing as the LMC machine instruction program **lmcprog.txt**.

Submit, stapled together:
(a) This sheet with your name on it.
(b) Hardcopy printout of lmc.h and lmc.cpp
(c) A screen snapshot of your LMC running.
(d) A separate sheet of paper with your answer to #5 above.

6. Due: NLT beginning of class Tuesday 14 Oct 2008.