

CS 2422: Assembly Language and System Programming

Fall 2008

Assignment 5

Release on: December 25, 2008

DUE: 23:59 January 7, 2008

Goal:

- Design a one-pass SIC assembler.

Requirement:

- The input format of an SIC assembly program is defined as follows:
 - Columns 1 to 8 are the label field.
 - Columns 11 to 18 are the opcode field.
 - Columns 21 to 36 are the operand field.
- Besides handling normal SIC instructions, handling “**literals**” (ex. LDA =C'EOF' , LTORG) is also required in this assignment.
- To help the TA test your program during the grading, your program should always read the input SIC program from the **test.sic file**. Please DO NOT prompt the users for a different filename.
- The output of your SIC assembler is the machine code of the instructions and the memory contents of the variables. Store the output as “**memory.txt**” to help the grading.
- Utility programs (optab.cpp, symtab.cpp) for processing the opcode table and symbol table have been provided to you. Important data structures and a template of the main program are also provided in the sicasm.cpp file. You're free to modify the program in sicasm.cpp and symtab.cpp. However, you must build your program around the important data structures (OPTAB[], SYMTAB[], LABEL, OPCODE, OPERAND) that are already defined for you.

Grading:

- (60%) A completely working program is finished.
The code should be complete or almost done (meaning the basic structure of the code is correct but the code may still have bugs), and can be assembled correctly.
- (30%) The program produces correct results.
- (5%) Read me file.
- (5%) Readability (including comments in your program).
- Late Penalty: All assignments are due at midnight (i.e., 23:59) on the due date. The late penalty is 20% for each day (or fraction) past due.
- Early Bonus: For programming assignments, there is an early bonus of 2% per day for up to 4% total.

Submit your assignment:

- Use ftp to enter <ftp://cs2422:cs2422@140.114.79.26:2527/> under “hw5”
- Create a directory and name it with your student ID (e.g., 9600000).

The directory should contain the **all the files you create for your project:**

1. The source code file. (Please add comment to it.)
2. The “Read me” file should include: (1) the program’s flow path, and (2) how to execute the program. Please name this .txt file as “student ID_hw5.txt” (e.g., 9600000_hw4.txt).

If your programming environment is not VC6, please note your edition in this file.

- If you have found some error in your submitted version(eg.v1) and would like to modify it, please modify the _v1 part to _v2, and upload again. Score will be determined on the last submitted version. (eg. version4 submission: 9660000_hw5_v4.zip)
- Deadline: 1/7 23:59

Honor Code:

Any cheating will be handled seriously in compliance with the university rules. Discussion of assignments is encouraged, but copying is prohibited and considered as cheating.