

CSCI/CMPE 3334 Program Assignment
SIC Computer Simulation - Phase 3
due April 13, 2018

The third phase of your semester project is to write pass two of a two-pass assembler for the SIC assembler language program. This pass should be called by the assembler immediately after pass one has terminated.

Pass two will combine the information in the intermediate file produced by pass one together with the symbol table (and perhaps the opcode table) to produce two files -- an object file and a listing file. The object file should contain the object code ready to be loaded by the load procedure in the simulator, and so, should conform to those specifications. The listing file should include:

- source line (including comments)
- generated object code
- load address of the statement
- error messages (immediately following the line where found or detected)
- a listing of the symbol table (at the end of the listing)

The specific format of the listing file will be left to the student. (Note: Since the printer connected to the Linux systems uses 8½ by 11 paper, you should try to fit the listing into 80 columns.)

Note that the object file should not be generated if an error is found.

As usual, the program must run properly on the Linux machines in the CS lab.

Hand in:

1. A documented listing of the source code for the assembler.
2. Two listings of assembler language source files (one with no errors, one with errors).
3. A copy of both listing files, and the object file for the one with no errors.
4. Make sure a copy is in your Linux directory in 3334/phase3

Some sample error messages -- you may combine them as appropriate

- Duplicate label definition
- Duplicate or misplaced START statement
- Illegal format in operation field
- Illegal format in label field
- Illegal operand in START statement
- Illegal operand in BYTE statement
- Illegal operand field
- Illegal operand in END statement
- Illegal operand in WORD statement
- Illegal operand in RESW statement
- Illegal operand in RESB statement
- Missing or misplaced operand in RESB statement
- Missing or misplaced operand in START statement
- Missing or misplaced operand in instruction
- Missing operation code
- Missing or misplaced START statement
- Missing or misplaced operand in RESW statement
- Missing or misplaced operand in WORD statement
- Missing or misplaced operand in END statement
- Missing or misplaced operand in BYTE statement
- Odd length hex string in BYTE statement
- Program too long
- Too many symbols in source program
- Undefined symbol in operand
- Unrecognized operation code