

COSC 480 – Compilers

Milestone 2

Phases Covered: Semantic Analysis, Intermediate Code Generation

In this milestone you will take the representations created by the lexer/parser duo and transform it into a new intermediate form. We will look at a variety of formats for this intermediate form, including quadruples, and you will choose which you believe to be best for your ANTLR grammar.

You will be required to deal with all the semantic stuff as well. This milestone closes the book on our analysis phase and moves us directly into the synthesis phase with the intermediate representation generated by your code. There are three semantic functions that you will be required to handle:

- * Symbol table operations
- * Semantic stack manipulation (may not be necessary)
- * intermediate code construction

There are several semantic errors that need to be handled in this milestone including:

- * Doubly declared variables
- * Non-Boolean expressions where there should be Boolean expressions
- * Variables used badly
- * Subscript errors

Code and output must be printed out to be turned in and each source file must contain a header with names, email addresses, date and time. In addition, all source files must be turned in via Digital Dropbox by the deadline noted below. Physical copies must be highlighted or otherwise flagged to show where your error conditions required are met. There will be no late milestones accepted. Physical copies are due at the start of the class following the deadline. If the physical copies and the Digital Dropbox copies differ in any way, it will result in a 0 for the milestone. Not following the proper format of the turnin will result in a 0 for the milestone.

All code must be well documented.

The highlighting and flagging of your physical turn in is very important in this milestone and in the final milestone. You must be able to show me, without being here, all that your code can do. Note that this is what I think is important (see below) versus what you think is important.

Evaluation of this Milestone:

Intermediate Code

Symbol table creation (possibly taken care of by ANTLR)
Procedure symbol table

Semantic Errors:

- Doubly declared variable
- Non-Boolean expression
- Variable used differently than declared
- Subscript not an integer expression
- Variable used but not declared
- Constant not called by value

DUE: April 8th, at 11:59pm in the Digital Dropbox. Physical copies due in class April 9th.

This and all the other milestone documents, grammars and other project information are adapted from course material by Dr. Harold Grossman, School of Computing, Clemson University.