# ICSI 311 Assignment 6 – Almost Finish the Parser

**If you have bugs or missing features in this, you will need to fix them before you can continue on to new assignments. This is very typical in software development outside of school.**

**You must submit .java files. Any other file type will be ignored. Especially “.class” files.**

**You must not zip or otherwise compress your assignment. Blackboard will allow you to submit multiple files.**

***You must submit buildable .java files for credit.***

You will submit your existing files (Parser.java, Node.java, IntegerNode.java, FloatNode.java, MathOpNode.java, Basic.java, Token.java, Lexer.java, VariableNode.java, PrintNode.java, AssignmentNode.java, StatementNode.java, StatementsNode.java, StringNode.java, DataNode.java, ReadNode.java, InputNode.java) and your new files: LabeledStatementNode.java, GosubNode.java, ReturnNode.java, ForNode.java, NextNode.java

There are a few things left to do before the parser is complete. A statement could start with a label. The lexer already accepts labels. Modify the statement() method in the parser to look for a label before calling any of the specific statement methods. Create a “LabeledStatementNode” (with all of the usual rules, derived from StatementNode) that includes a member (Java string) of the label and a reference to StatementNode (which will hold the single statement that is labeled).

Add statements for GOSUB and RETURN. GOSUB requires a single IDENTIFIER, RETURN is alone on a line.

Add statements for FOR and NEXT. Note that the STEP and increment on FOR is optional. Without a step, the increment should be set to 1.

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| Rubric | Poor | OK | Good | Great |
| Comments | None/Excessive (0) | “What” not “Why”, few (5) | Some “what” comments or missing some (7) | Anything not obvious has reasoning (10) |
| Variable/Function naming | Single letters everywhere (0) | Lots of abbreviations (5) | Full words most of the time (8) | Full words, descriptive (10) |
| Create the AST classes | None (0) | Classes missing (5) | All classes present, some methods missing (10) | All classes and methods (20) |
| Handle Labels | None (0) |  |  | Correct (20) |
| Handle For/Next | None (0) |  | Significantly Attempted (10) | Correct (20) |
| Handle Gosub | None (0) |  | Significantly Attempted (10) | Correct (20) |