CS1319: PLDI - Assignment 3

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Explanation of Parser

We have written the bison specifications closely following the grammar, as the given grammar has precedences & associativity resolved, and is mostly unambiguous (besides the dangling else, which is handled by bison by always shifting by default on any S/R conflicts). The only real 'change' (more of an expansion) to the grammar is for the handling of optional symbols, we have manually enumerated all possible cases for the presence/absence of optionals, and added them separately as productions for the rule in question.

This only changes with the production for the `iteration_statement` non-terminal, where 3 optional terms are used, which would lead to a (mini) combinatorial explosion had we just manually enumerated the cases ($2^3 = 8$ productions instead of just one). For this purpose, we have used an auxiliary non-terminal `opt_expression`, which just produces ϵ or the non-terminal `expression`.