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Project 2 write-up

1. Symbol table/scope test: this tests scope when declaring variables and how they are displayed in the symbol table. First, int a is declared in scope 0. The symbol table is checked to see if a is already declared in current scope. It has not already been declared so it is added to the symbol table. Then this test attempts to initialize a. Before it is initialized it must first check if a has been declared in current scope or parent scope. If declared in current scope the value is added to that id in the symbol table. If it hasn’t been declared in the current scope but has been declared in the parent scope then the value is added to the id in the symbol table in the parent scope. Else…a has not been declared and throws an error. Then this test opens a new scope and attempts to declared and initialize another id a in this scope. Since it is in a new scope id a and its value are added to the symbol table. This scope is closed and string b is declared and initialized. The final symbol table looks as follows:
a: value- 1, type- int, scope- 0, line- 2
b: value- "alan", type- string, scope- 0, line- 8
a: value- 2, type- int, scope- 1, line- 5

2. Type mismatch: this test shows a type mismatch when comparing string a with an integer value. In addition, string a is declared outside of the scope that it is being compared in. The current and parent scopes are checked for the id a in order to do the comparison.

3. Semantics Test: This tests scope and types in while, if , print and assignment statements.

4. Declaration Error: Attempts to assign undeclared a == b to variable d of type Boolean.

5. Nested If: This tests scope and type in nested if statements.