

Guide to the Compiler

BY AMEER QAQISH

April 27, 2022

1 Scope of the Project

The project successfully implements all features of PA1 through PA4. It does not implement any optional parts.

2 Summary of Changes to AST Classes

2.1 For Type Checking and Identification

1. Added NullLiteral AST class and corresponding method "public ResultType visitNullLiteral(NullLiteral nullLiteral, ArgType arg);" to the Visitor interface.

2. Added "Declaration decl;" field in the Identifier class and Reference class. This field holds the Declaration that the object refers to.

3. Modified the AST Displayer to implement the newly added method in the Visitor interface.

4. Added "Typedenoter type;" field to the AST class

5. Added implementations of toString method in the implementations of TypeDenoter.

6. Added implementation of "equals" method for the TypeDenoter class.

7. Added "MethodDecl methodDecl;" field to ReturnStmt class. This field stores the method in which the return statement was called.

2.2 For Code Generation

8. Added "RuntimeDescription runtimeDescription;" field to Declaration class. RuntimeDescription is a class in the CodeGenerator package. Instances of RuntimeDescription are attached to declarations and keep track of the variable's size and location in memory.

9. Added "MethodDecl mainDecl;" field to Package class. This field holds the declaration of the main method of the program.