San José State University
Department of Computer Science

CS 153
Concepts of Compiler Design
Section 1
Fall 2020
Instructor: Ron Mak

Assignment #5

Assigned: Thursday, October 8
Due: Monday, October 19 at 11:59 PM
Team assignment, 120 points max

Pascal to Java Converter
The purpose of this assignment is to give you more practice with ANTLR by writing a Pascal to Java converter.

Unzip file Asgn05Java.zip which contains a Pascal interpreter (visit methods in class `backend.interpreter.Executor`) and an <u>incomplete</u> Pascal to Java converter (visit methods in class `backend.converter.Converter`).

Invoke the interpreter with the `-execute` command-line option. Invoke the converter with the `-convert` command-line option. The converter should convert a Pascal program named `Foo.pas` to an equivalent Java program named `Foo.java`.

Complete the converter
The incomplete converter can convert Pascal assignment statements, `REPEAT` statements and expressions. Complete it by adding visit methods to convert

- `WHILE` statements
- `FOR` statements
- `IF` statements
- `CASE` statements
- procedure calls
- function calls

Test Pascal programs

Test your converter on the following test Pascal programs to generate the equivalent Java programs:

- **TestWhile.pas**
- **TestFor.pas**
- **TestIf.pas**
- **TestCase.pas**
- **TestProcedure.pas**
- **Newton3.pas**

You should get the same runtime output when you run the Pascal program with the interpreter as when you run the generated equivalent Java programs.

What to submit to Canvas

A zip file that contains:

- All of your Java <u>source files</u> and your grammar file.

- For each of the test Pascal programs, the <u>runtime output</u> from running the program under the <u>interpreter</u> and the runtime output from running the generated equivalent <u>Java program</u>.

Submit to **Assignment #5: Pascal to Java Converter**

Rubric

Your submission will be graded according to these criteria:

Criteria	Max points

`TestWhile.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10

`TestFOR.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10

`TestIF.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10

`TestCASE.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10

`TestProcedure.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10

`Newton3.pas:`
   • Generated Java program.
   • Runtime output from the Java program.
	20
	   • 10
	   • 10