San José State University
Department of Computer Engineering

CMPE 152
Compiler Design
Section 1
Spring 2021
Instructor: Ron Mak

Assignment #5

Assigned: Friday, March 19
Due: Friday, April 9 at 11:59 PM
Team assignment, 120 points max

Pascal to C++ Converter
The purpose of this assignment is to give you more practice with ANTLR and a start with code generation by writing a Pascal to C++ converter.

Unzip file Asgn05Cpp.zip which contains a Pascal interpreter (visit functions in class `backend::interpreter::Executor`) , a Pascal interactive symbolic debugger (visit functions in class `backend::interpreter::Commander` and class `backend::interpreter::Debugger`), and an <u>incomplete</u> Pascal to C++ converter (visit functions in class `backend::converter::Converter`).

Invoke the interpreter with the `-execute` command-line option and the debugger with the `-debug` option. Invoke the converter with the `-convert` option. The converter should convert a Pascal program named `Foo.pas`, for example, to an equivalent C++ program named `Foo.cpp`.

Complete the converter
The incomplete converter should be able to convert a Pascal program with variable declarations, compound statements, assignment statements and expressions, `write` and `writeln` statements, and `REPEAT` statements. Complete it by adding visit functions 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 C++ 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 compile and run the generated equivalent C++ programs.

What to submit to Canvas

A zip file that contains:

- All of your C++ source files and your grammar file.

- For each of the test Pascal programs, the runtime output from running the program under the interpreter and the runtime output from running the generated equivalent C++ program.

Submit to **Assignment #5: Pascal to C++ Converter**

Rubric

Your submission will be graded according to these criteria:

Criteria	Max points
TestWhile.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10
TestFOR.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10
TestIF.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10
TestCASE.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10
TestProcedure.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10
Newton3.pas: • Generated C++ program. • Runtime output from the C++ program.	**20** • 10 • 10