

San José State University
Department of Computer Engineering

CMPE 152 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 C++ Converter

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

Unzip file [Asgn05Cpp.zip](#) which contains a Pascal interpreter (visit methods in class `backend::interpreter::Executor`) and an incomplete Pascal to C++ 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 C++ program named `Foo.cpp`.

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 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 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: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10
TestFOR.pas: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10
TestIF.pas: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10
TestCASE.pas: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10
TestProcedure.pas: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10
Newton3.pas: <ul style="list-style-type: none">• Generated C++ program.• Runtime output from the C++ program.	20 <ul style="list-style-type: none">• 10• 10