

San José State University  
Department of Computer Science

# CS 153

## Concepts of Compiler Design

Fall 2017

Instructor: Ron Mak

### Assignment #6

**Assigned:** Thursday, November 9  
**Due:** Monday, November 27 at 11:59 pm  
Team assignment, 100 points max

#### Code generation

Begin code generation in your compiler for your team's chosen source language.

Generate Jasmin assembly object code for a simple source program written in your language that contains declarations (at least two data types), assignment statements, control statements (at least an if statement and a looping statement), and expressions. You should be able to assemble and run your generated code. Produce runtime printed output, including the elapsed run time at the end.

Follow the Pcl1 and Pcl2 examples of how to use Antlr 4. Use the example Jasmin code given in class for printing runtime output using Java's `System.out.println()` and `String.format()`. Even simpler: Generate Jasmin code for `System.out.printf()`, which does not require calling `String.format()` but uses the same formatting string (similar to C's `printf()` function).

*This assignment is the continuation of your team compiler project. Your compiler projects are due **Friday, December 15** (extended date).*

#### What to turn in

A zip file containing:

- The latest version of your `.g4` grammar file.
- The Java file containing the main.
- The Java file(s) containing your overrides of the default visit methods.
- A simple sample program written in your source language that you can successfully compile. For this assignment, your compiler does not have to do error handling (the input can be error-free).
- A text file containing the generated Jasmin object code for your sample program.
- A text file containing output from running the compiled sample program.

Name the zip file after your team; for example: `SuperCoders.zip`

## Rubric

Your program will be graded according to these criteria:

| Criteria  | Max points |
|---|------------|
| • Latest version of your <code>.g4</code> grammar file.   | • 15       |
| • Java file containing the main.  | • 10       |
| • Java file(s) containing overrides of the default visit methods.   | • 25       |
| • Text file containing the generated Jasmin object code for declarations (at least two data types), assignment statements, control statements (at least an if statement and a looping statement), and expressions | • 25       |
| • Text file containing output from running the compiled sample program.   | • 25       |