

CS4121 SomeLife Compiler Project 3: Function and Function Call

Due Date: Wednesday, April 10 @ 5pm

Purpose

The purpose of this project is to gain experience in giving meaning to a programming language by generating Mips assembly for a subset of SomeLife. Specifically, you will be generating assembly for functions and function calls.

Project Summary

In this project, you will add to the compiler developed in the previous project. Specifically, you will need to

1. Differentiate between global and local variables for multiple functions through symbol tables
2. Handle local variables
3. Generate code for multiple functions without parameters
4. Generate code for function calls without parameters, including saving/restoring registers and handling return values of functions.

Requirements

Write all of your code in C or C++ . It will be tested on the Rekhi CS lab machines and MUST work there. You will receive no special consideration for programs which “work” elsewhere.

Input. I have provided my solution in the file `SomeLifeProject3-Makefile.tgz`. Sample input is provided in the directory `SomeLifeProject3/input`. I will go over my code for those who wish to use it.

To run your compiler, use the command

```
slc <file>.sl
```

which will output to `<file>.s`.

To run the assembly, you can download the Mars simulator from <http://courses.missouristate.edu/KenVollmar/MARS/>.

Submission. Your code should be well-documented. You will submit all of your files, by tarring up the working directory using the command

```
tar -czf SomeLifeProject3.tgz SomeLifeProject3
```

Submit the file `SomeLifeProject3.tgz` via Canvas. Make sure you do 'make clean' of your working directory before executing the tar command. This will remove all of the '.o' files and make your tar file much smaller.