CSC 526, Spring 2020, Assignment 3

Purpose: Variables

Due: 11:59pm, Wednesday, February 19, 2020

Get the assignment code

These instructions assume that your course git repository is set up. Change into your course repository directory and enter the following commands.

```
git fetch assignments
git checkout assignments/master -- assignment3
git add assignment3
git commit -a
```

This will copy the `assignment3` directory into your working directory, start tracking the files in the `assignment3` directory, and commit those files to your local git repository.

Assignment Description

The purpose of this assignment is to implement the framework.

Syntax

```
<program> :=
    | (<expr>)

<expr> :=
    | <integer>
    | <identifier>
    | (let (<bindings>) <expr>)
    | (add1 <expr>)
    | (sub1 <expr>)
    | (+ <expr> <expr>)
    | (- <expr> <expr>)
    | (* <expr> <expr>)

<bindings> :=
    | (<identifier> <expr>)
    | (<identifier> <expr>) <bindings>
```

Semantics

Let bindings should evaluate all the binding expressions to values one by one, and after each, store a mapping from the given name to the corresponding value in both (1) the rest of the bindings, and (2) the body of the let expression. Identifiers evaluate to whatever their current stored value is.

The compiler should report an error if:

- There is a binding list containing two or more bindings with the same name. The error message should be "Duplicate binding".

- An identifier is unbound (there is no surrounding let binding for it). The error message should be "Unbound variable identifier X" where X is the name of the unbound variable.

Turning in the Assignment

To turn in the assignment execute the following git commands from within your repository:

```
git add <file>
git commit -a
git push origin master
```

where a `git add <file>` command is needed for every file that is required for building the assignment executable. Failure to add any required files will result in a failing grade for the