Lab 2

EECS4312

September 7, 2015

Table of contents

1 Preparation

2 To Submit

Preparation before the Lab 1

Readings

Make sure you are up to date with readings from WIFT-95. This tutorial contains all the information you need.

Retrieve Lab2

˜sel/retrieve/4312/lab2
Rename the folder "Lab2" in your directory to *4312-lab2*.
In this folder you will see *.pvs files including *top.pvs*.

Preparation before the Lab 2

Topics

You will learn about specifying functions that are checked for completeness and disjointness via type correctness conditions (TCCs) and also specifying recursive functions and validating them with induction. This will be important in our study of the use of function tables for writing precise requirements.

Functional Programming Languages

As a byproduct, you will be also be introduced to the fundamental principles behind functional programming languages such as Haskell, Ocaml and F#. Even OO programming languages such as Eiffel, Java and C# have embraced functional notations and lambda expressions.

PVS files provided with top.pvs

```
% Exercises for Lab2
% proveit --importchain --clean top.pvs
top : THEORY
BEGIN
   IMPORTING alarm  %predicate logic again
   IMPORTING signum % TCC for COND, induction
   IMPORTING stamps % recursion and induction
END top
```

PVS files

Work through the PVS files, following the instructions in each.

Submit your work 1

- Rename the directory with your PVS files to 4312-lab2, and then run the following command in the directory:

- `proveit --importchain --clean top.pvs`

Proveit Output

....

Grand Totals: 18 proofs, 18 attempted, ?? succeeded

Not all proofs in the *alarm* theory will succeed, but proofs in theories *signum* and *stamps* must all succeed.

Submit your work 2

- Now submit your `4312-lab2` directory:
  > submit 4312 lab2 4312-lab2
- You will get confirmation of your submission.
- To obtain a grade on your quiz, you must complete and submit this Lab.