

FP Lab 1

1 Getting set up

After login, change to your CS3510 directory and then make a new directory **Lab1** for this lab. Set your current working directory to **Lab1** (in the future labs, say in the *ith* lab, set up *Labi*).

```
$ cd CS3510
$ mkdir Lab1
$ cd Lab1
```

You should usually keep two windows open, one running an editor and the other running GHCi (to start using the `ghci` command).

2 Exercises

1. Try out slides III(2-8) and III(12-15) using GHCi.
2. Fix the syntax errors in the program below, and test your solution using GHCi.

```
N = a 'div' length xs
  where
    a = 10
    xs = [1,2,3,4,5]
```

3. Consider the following function `qsort`:

```
qsort [] = []
qsort (x:xs) =
  qsort smaller ++ [x] ++ qsort larger
  where
    smaller = [a | a <- xs, a <= x]
    larger = [b | b <- xs, b > x]
```

- (a) What would be the effect of replacing `<=` by `<` in the above definition?
- (b) How should `qsort` be modified so that it produces a reverse sorted version of a list?

Use GHCi to verify your answers.

4. Show how the library function `last` that selects the last element of a list can be defined using some of the functions among `head`, `tail`, `!!`, `length` and `reverse`. Use GHCi to verify your answer.