



COMPUTER SCIENCE 312 (Winter Term 2021)  
**Programming Language Design**  
Prof. Levy

## Problem Set 3

Due on github 11:59pm Friday 5 March

### 1 Reading Assignment: *Essentials of Programming Languages*, Chapter 2

### 2 Programming Assignment

**Exercise 2.5**, page 47. *Hint*: Copy the `bin-tree` and `leaf-sum` code from the book. <sup>1</sup> Then write a function that uses `cases` to build a list containing each interior node's key followed by its leaf sum. Finally, write a function to return the key corresponding to the largest number in this list.

**Exercise 2.18**, page 60. *Hint*: Copy the code for defining environments from pages 59-60. Then write a function that uses `cases` to build a list, based on which kind of environment you're looking at... should require about 6-8 lines of code). Your output can be a single line, instead of the nicely formatted output shown in the example:

```
> (environment-to-list dxy-env)
(extended-env-record (d x) (6 7) (extended-env-record (y) (8) (empty-env-record)))
```

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<sup>1</sup>Better yet, get the code from the Web: <http://www.cs.indiana.edu/eopl/code/interps>