Introduction

CS 350

Prof. Joseph Eremondi

May 6, 2024

Course Overview

Course Objectives

To learn:

- Functional programming

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  - Recursion

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  - Parsing/Abstract Syntax

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- To change how you *think* about programming

Textbook

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  - Similar content but very different approach

Structure

- Grading scheme

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  - 30% assignments

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Midterm date

Assignments

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Motivation: Functional Programming

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- Plait is
  - a programming language
  - a library for the Racket programming language
- We’ll learn more why this distinction is fuzzy

What is Racket

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  - functions are values just like anything else
- Functional: once a variable has a value, it never changes
  - Racket does let you mutate variables, but those parts of the language are **forbidden** in this class

Will I Ever Use Racket in Industry?

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No

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No

(probably)

Future Proofing

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  - Racket is effective for learning how languages work

Language Trends

Objective C vs Swift

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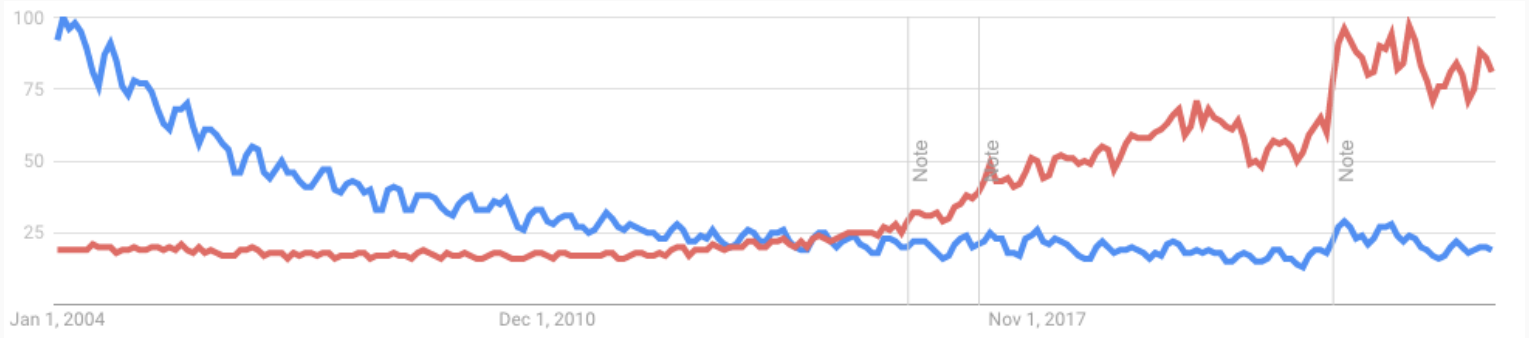
C++ vs Python



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```lisp
(define (pow x y)
  (if
    (<= y 0)
    0
    (* x (pow x (- y 1)))))
```

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- Learning these featuers in Racket will help when they show up in other languages in the future

Functional Programming in Practice

Motivation: Interpreters

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- It’s just a bunch of tree traversals