Intro

CSCI 334
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What is a Programming Language?

The medium through which humans describe computations.

What is a Programming Language?

A programming language provides a model for
- discussing concepts
- formulating algorithms
- and reasoning about problem solutions.

Which Programming Language Was Used?

- Unix, Linux C
- PowerPoint and Firefox .... C++
- OSX, iPhone, iPad .... Objective-C, Swift
- Gmail Client .... JavaScript
- PeopleSoft .... JavaScript+Java+SQL+...
- Adobe Photoshop/Lightroom .... Lua (+C)
- Facebook .... mostly PHP (Hack) + SQL
- Google PageRank Indexer .... Sawzall
- Twitter Message Queue .... Scala
- Telephone switches .... Erlang
- Facebook Chat .... Erlang

Why Are There So Many Languages?

Why Study Programming Languages?

"Popular Languages"

- http://www.tiobe.com/index.php/content/pape rinfo/tpci/index.html

Course Organization

- Programming in the Small
  - foundations
  - basic concepts
  - functional, imperative
  - new ways of thinking

- Lisp, ML, scripting languages, ...

- Programming in the Large
  - modularity
  - OOP
  - concurrency
  - security

- Smalltalk, Java, C++, Scala, ...