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
- PowerPoint and Firefox
- OSX, iPhone, iPad
- Gmail Client
- PeopleSoft
- Adobe Photoshop/Lightroom
- Facebook
- Google PageRank Indexer
- Twitter Message Queue
- Telephone switches
- Facebook Chat

C
C++
Objective-C, Swift
JavaScript
JavaScript+Java+SQL+
Lua (+C)
mostly PHP (Hack) + SQL
Sawzall
Scala
Erlang
Erlang
Why Are There So Many Languages?

Why Study Programming Languages?

"Popular Languages"


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, ...