Lecture 12
Review

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Before we begin

**HW4**  Due Aug 6, 11am
**PP**   Presentations, Aug 1
Outline

- Parlez Vous MATLAB?
- Programming Languages
- CS Courses
Plethora of Languages

ATS  Haskell  Scheme  Ruby  OCaml
Scala  Python  Smalltalk  Lisp  Assembly  Perl
Fortran  PHP  Java  Lua  Clojure

Pascal  C/C++  Ada
Generations

1GL  Machine Code
2GL  Assembly
3GL  Fortran, C, C++, Java
4GL  MATLAB, AMPL, SQL, R, Tex
5GL  Video Killed the Radio Star?
What should we learn?

- Mother Language: English =? C++
- Second Language: Java? Python?
- Third Language? Ruby? Lua?
- Multilingual?
- Spanish, Russian, Chinese?
- For Loop? Familiar?
Toolboxes, Libraries

- Collections of functions
- Open Source
- `#include, import, require ...`
Scripting

- Interpreter
- MATLAB, Python, Ruby, Lua
Compiling, Linking

- Compiler, Linker
- C/C++, Java, Fortran
Virtual Machine

- Machine Dependency eliminated
- Java runs on JVM
Productivity

- Write less, get done more
- Power Scripting
- Python, Ruby
Write smart and compile!

Fortran, C/C++, ATS
Web and Mobile

- HTML5, CSS3, JavaScript
- PHP, Perl
- Python, Ruby
- Android: Java
- iPhone: Objective-C