Introduction to Scala

4-19-2010
Opening Discussion

- Your presentations!
  - Pick a topics
  - Pick a day
Language Basics

- Scala is a purely object-oriented, functional language
  - All values are objects
  - Functions are first-class values
- Main implementation compiles to the JVM and allows seamless calls to Java libraries. Also have .NET implementation.
- Compiler puts in primitives when possible for efficiency.
REPL Stuff

- If we run scala without arguments it drops us into the REPL.
- In this mode we can interact much the same way we did with Matlab.
- Let's play with this just a bit.
  - val, var, def
Syntactic Sugar

- Semicolon inference
- Local type inference
- Methods as operators
  - Optional dot
  - Optional parentheses
Scripting

- Run scala on a .scala file and it is run as a script.
- You can even put in the #! at the top.
Classes and Objects

- You can also code Scala the way you would Java writing classes in files.
- There are no static elements in Scala.
- However, you can declare Objects that serve that purpose and more.
Functional Aspects

- The recommended style in Scala is functional.
  - `val`
  - Function literals
  - Pattern matching
- Collections have normal functional methods on them.
  - Map, Filter, Reduce, Fold
- Control structures all expressions except while.
Regular Expressions

- Strings have a method called \texttt{r} that produces a regular expression.
- Triple quote strings make backslashes nicer.
So Much More

- Scala stands for scalable language.
  - Traits
  - Implicit conversions
  - Actor parallelism
  - Parsers
  - Partial functions
  - Pass-by-name
  - Lazy evaluation
Closing Remarks

- Next time we will hear from one of you.