Clojure

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Clojure History

First stable release in October 2007

Author: Rich Hickey

- Independent software developer
- Developed dotLisp before Clojure
- Attended Berklee College of Music before going to school for computer science at NY Empire State College

Worked on Clojure for about 2.5 years before first release

Created with no outside funding

About Clojure

Functional language
  A dialect of Lisp

Clojure runs on the Java Virtual Machine (JVM)
  Java code can be called from Clojure (and Clojure called from Java)

Primary Clojure platform is the JVM, but could also use other target implementations. A few examples:
  clojure-py (Clojure in pure Python)
  rouge (Clojure in YARV in Ruby)
  CljPerl (Clojure in Perl)

Uses primarily static scoping
  Can “force” dynamic scoping using the binding macro, but has limitations

Why Clojure?

Hickey's vision:

- Functional programming with robust, mature platform
- The future is Virtual Machines (VMs), not Operating Systems (OSs)

Clojure's functional capabilities with JVM features has made it popular among the data science community

Clojure employs a REPL to allow fast development

- REPL concept is consistent with Lisp dialects
- REPL: Read-Eval-Print Loop
- Allows for real-time coding and feedback
- Encourages experimentation and fast iterations

Why Clojure?

PROS

- Clojure's JVM host offers vast amount of features "out of the box"
- Immutability offers protection
- Dynamic
- Comes with its own set of immutable data structures
- Community-driven development
- Strongly typed

Why Clojure?

CONS

- Clojure is functional (and free of side-effects), but the JVM platform is not, so it is limited by those libraries
- Dependence on the JVM can cause slow startup
  - Major performance issues if done repeated in a process
- Can be difficult to debug
  - Error message lacking description
  - Runtime errors often cryptic
- Functional programming languages can be difficult to read

Business Intelligence Website

http://localhost:3000/

Questions?