

# Clojure

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# Background

- Created by Rich Hickey
  - Began development in 2005
  - Released in 2007
- Goals
  - Functional
  - Modern Lisp programming language
  - Safe concurrency
  - Utilize Java (JVM) platform
    - Act as a language replacement
    - Interoperability with host platform/libraries
- Rich had experimented with creating other Lisp languages prior to Clojure
  - Lisplets for Java Servlets
  - dotLisp for .NET
    - Clojure CLR for .NET

# Concurrency

## Promises

```
user=> (def x(promise))
#'user/x
user=> (deliver x 100)
#object[clojure.core$promise$reify__8591 0x13a84e1f {:status :ready, :val 100}]
user=> @x
100
```

## Futures

```
user=> (def f(future 100))
#'user/f
user=> @f
100
```

## Thread-safe operations

- Immutable/Persistent data structures
- Atoms
- Agents

# Code demo

