Clojure Functional Lisp on the JVM

CONCEPTS

Code is data: everything is (function arg ...). Collections are immutable, so assoc and conj return new values.

COMMAND LINE

`clj`
Start a REPL with line editing (rlwrap)

`clojure`
Run without rlwrap, for scripts and pipes

`clojure -M -m <ns>`
Run the -main function of a namespace

`clojure -M <file.clj>`
Run a script file

`clojure -M:<alias>`
Run with a deps.edn alias

REPL

`(doc <name>)`
Show docs for a name

`(require '[<ns> :as <a>] :reload)`
Load a namespace, re-reading its file

BASICS

`(def x 1)`
Define a var in the namespace

`(defn f "doc" [a & more] ...)`
Function with docstring and rest args

`(fn [x] ...) / #(* % 2)`
Anonymous function, short form

`(let [a 1 b (+ a 1)] ...)`
Local bindings, sequential

`(if <t> <a> <b>) / (when <t> ...)`
Conditional / one-armed with body

COLLECTIONS

`[1 2 3] / '(1 2 3)`
Vector / list literal

`{:a 1 :b 2}`
Map literal

COLLECTIONS (cont.)

`(conj coll x)`
Add: end of vector, front of list

`(assoc m :k v)`
Add or replace a key (or vector index)

`(get m :k <default>) / (:k m)`
Look up a key

`(update m :k inc)`
Apply a function to a value

SEQUENCES

`(map f xs)`
Apply f to each item, lazily

`(filter pred xs) / (remove pred xs)`
Keep / drop matching items

`(reduce f init xs)`
Fold into one value

FUNCTIONS & MACROS

`(→ x (f a) (g b))`
Thread x as first argument

`(↠ xs (map f) (filter p))`
Thread as last argument

`(fn [{:keys [a b]}] ...)`
Destructure a map argument

`(let [[a b & r] xs] ...)`
Destructure a sequence

STATE & CONCURRENCY

`(swap! a f args)`
Atomically update with f

NAMESPACES & JAVA

`(ns <name> (:require [<lib> :as <a>]))`
Declare a namespace and its deps

`(require '[clojure.string :as str])`
Load a library with an alias