

# Clojure programming language & it's ecosystem

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The logo for the Developers Conference 2024 is rendered in a pixelated, retro style. The text "DEVELOPERS" and "CONFERENCE" are stacked on two lines, with "2024" centered below them. The letters are primarily yellow and orange with a red outline, and the entire logo has a blue drop shadow.

**DEVELOPERS  
CONFERENCE  
2024**

# What is Clojure?

- LISP



Figure 1: Lisp Cycles, <https://xkcd.com/297/>

- Rich Hickey



Figure 2: Rich Hickey at the first Clojure Conj in 2010, <https://creativecommons.org/licenses/by-sa/2.0/>

# What is LISP?

**Y** defun  $\mathcal{Y}$  (f) (( $\lambda$  (g) (funcall g g)) ( $\lambda$  (x) (funcall f  
( $\lambda$  (rest a) (apply (funcall x x) a))))))

**F** defun fib (n) (funcall ( $\mathcal{Y}$  ( $\lambda$ (f) ( $\lambda$  (n a b) (if (< n 1)  
a (funcall f (1- n) b (+ a b)))))) n 0 1)

**F** defun fac (n) (funcall ( $\mathcal{Y}$  ( $\lambda$  (f) ( $\lambda$  (n) (if (zerop n) 1  
( $\times$  n (funcall f (1- n))))))) n)

$\hat{=}$  (mapcar #'fib '(i ij iij iv v vi vij viij iε))  
(i i ij iij v viij  $\epsilon$ ij  $\epsilon\epsilon$ i  $\epsilon\epsilon\epsilon$ iv)

$\hat{=}$  (mapcar #'fac '(i ij iij iv v vi vij viij iε))  
(i ij vi  $\epsilon\epsilon$ iv  $\epsilon\epsilon\epsilon$   $\overline{0\epsilon\epsilon\epsilon}$   $\overline{v\epsilon}$   $\overline{\epsilon 0\epsilon\epsilon\epsilon\epsilon}$   $\overline{\epsilon\epsilon\epsilon viii m d c c c l \epsilon\epsilon\epsilon}$ )

Figure 3: Y Combinator Codex by emacsomancer.

# What is LISP?

- LISP Processing language
- 2nd oldest High-Level Language after FORTRAN
- 1958 - John McCarthy

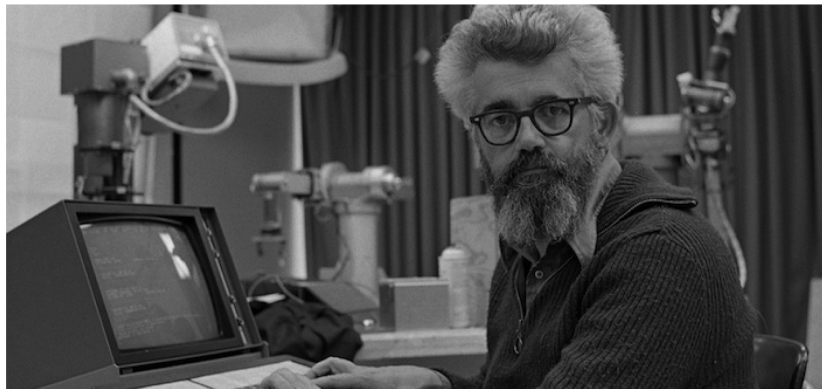


Figure 4: John McCarthy at work in his artificial intelligence laboratory at Stanford

# Why Clojure?

- Designed with simplicity
- Functional Programming
- Data Oriented



Figure 5: Code? Data? Code? Data?

# Why Clojure?

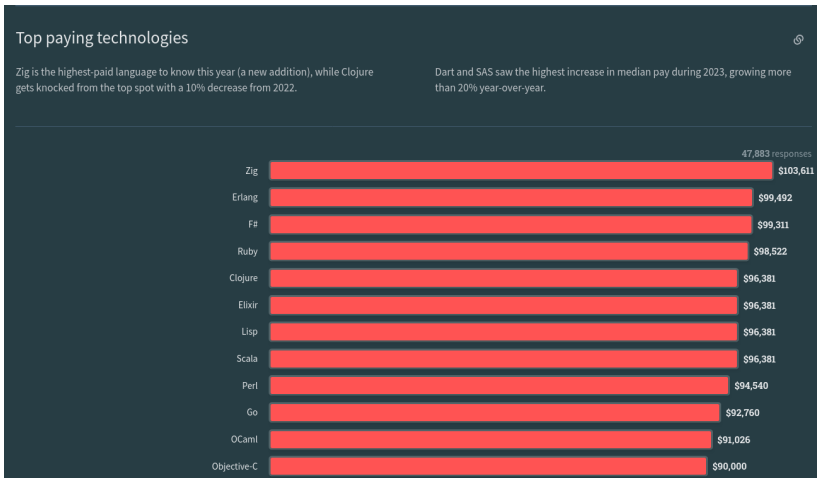


Figure 6: 2023 Developer Survey, Top paying technologies

**Source:** <https://survey.stackoverflow.co/2023/#section-top>

# Why Clojure?

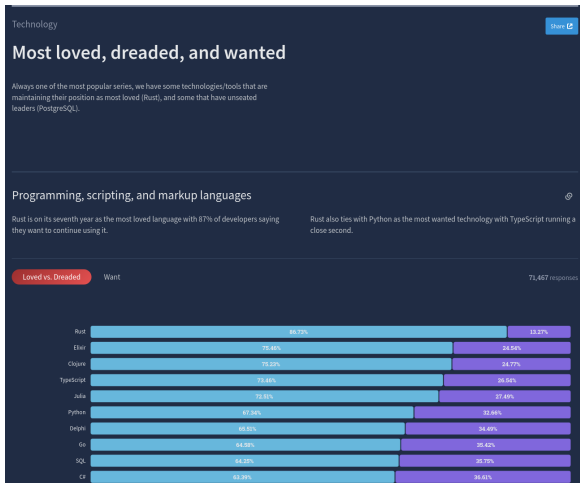


Figure 7: Stack Overflow Developer Survey 2022, Most loved, dreaded, and wanted

# Functional Programming

- Immutability
- Referential transparency
- Easy to think about systems
- Parallel and concurrent programming