

Clojure programming language & it's ecosystem

Marius Rabenarivo

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?

Defun \mathcal{Y} (f) ((λ (g) (funcall g g)) (λ (x) (funcall f
(λ (rest a) (apply (funcall x x) a))))))

Defun fib (n) (funcall (\mathcal{Y} (λ (f) (λ (n a b) (if (< n I)
a (funcall f (I- n) b (+ a b)))))) n o I)

Defun fac (n) (funcall (\mathcal{Y} (λ (f) (λ (n) (if (zerop n) I
(\times n (funcall f (I- n))))))) n)

\sharp (mapcar #'fib '(i ij iij iv v vi vij viij ix))
(i i ij iij v viij xij xxi xxxiv)

\sharp (mapcar #'fac '(i ij iij iv v vi vij viij ix))
(i ij vi xxiiv cxx dccccxvxl xccccxx xxxviiiiidccccxx)

Figure 3: Y Combinator Codex by emacsomancer.



What is LISP?

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

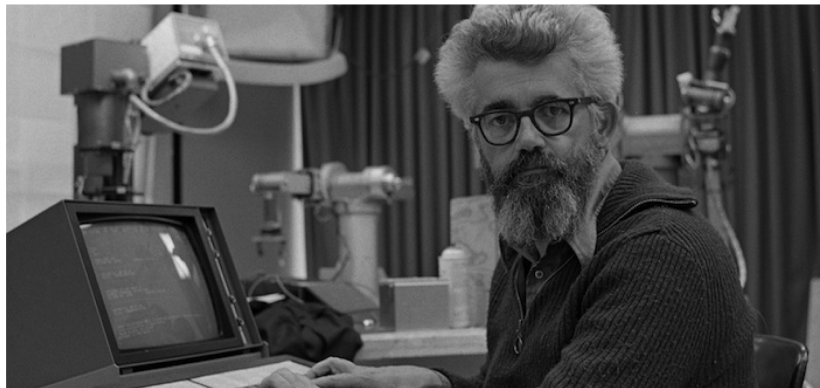


Figure 4: John McCarthy at work in his artificial intelligence laboratory at Stanford



Why Clojure?

- Designed with simplicity
- Functional Programming
- Data Oriented



Figure 5: Code? Data? Code? Data?



Why Clojure?

Top paying technologies

Zig is the highest-paid language to know this year (a new addition), while Clojure gets knocked from the top spot with a 10% decrease from 2022.

Dart and SAS saw the highest increase in median pay during 2023, growing more than 20% year-over-year.



Figure 6: 2023 Developer Survey, Top paying technologies

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



Why Clojure?

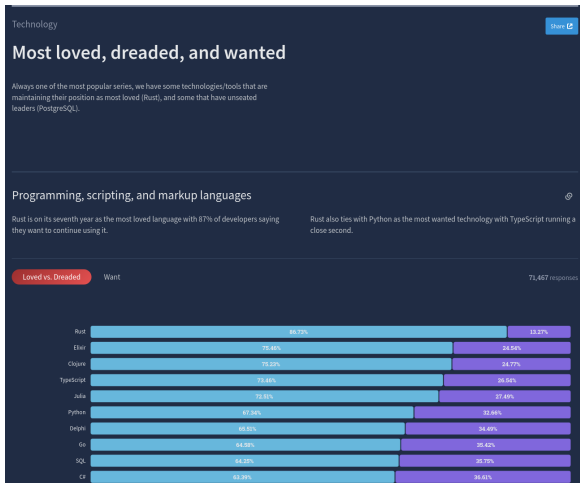


Figure 7: Stack Overflow Developer Survey 2022, Most loved, dreaded, and wanted



Functional Programming

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



Where to go from here?



Figure 8: Clojure for the Brave and True, Daniel Higginbotham





Figure 9: Functional Programmers Community Discord server

