



COMPLEMENTOS SOBRE LINGUAGENS DE PROGRAMAÇÃO

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WHY DID I CHOOSE RUST?

- Has been growing in popularity
- Stack Overflow's most loved language for 5 years in a row, since it's 1.0 official release

2020 Top 10 Most Loved Programming Languages



HISTORY OF RUST

- Started independent development in 2006
- Mozilla later created a team to continue development
- Compiler rustc first written in OCaml, later migrated to Rust
- Open Source

WHERE IS RUST USED?

Rust can be used to develop:

- Network services
- Command-line apps
- WebAssembly
- Embedded devices



Rust was used to develop:

- Firefox
- Dropbox
- Servo (Rendering Engine)
- Discord (Recently began migration from Go to Rust)



WHY USE RUST?

- Targeted at “frustrated C++ developers”
- No garbage collector so it performs better at runtime (con?)
- Memory safety at compile time
- Compiles to native code, so it’s a very fast language, like C and C++
- Has a compiler with a built-in package builder and manager, test system and documentation generator
- Concurrency without data races

WHY NOT TO USE RUST?

- Strict compiler regarding memory addresses (pro?)
- Relatively new so doesn't have many available libraries
- Not an OOP language
- Comparatively difficult to learn (subjective)

INSTALLATION AND CODE EXECUTION

- Install Rustup

1. `curl --proto '=https' --tlsv1.2 https://sh.rustup.rs -sSf | sh`
2. `source $HOME/.cargo/env`
3. Rustup update

- Compile a program

1. `rustc <file_path>`

SYNTAX DEMO

- Variable declarations
- Structures
- Loops
- Functions
- Macros
- Ownership
- Borrowing
- Traits

RUST MODULES

- Crates (= libraries?)
- Modules
- Cargo
 1. `cargo new hello_world`
 2. `cd hello_world`
 3. `cargo build`
 4. `cargo run`

REFERENCES

- <https://research.mozilla.org/rust/>
- <https://evrone.com/rust-vs-c>
- <https://stackoverflow.blog/2020/01/20/what-is-rust-and-why-is-it-so-popular/>
- <https://www.infoq.com/news/2012/08/Interview-Rust/>
- <https://www.rust-lang.org/>
- https://www.tutorialspoint.com/rust/rust_introduction.htm
- <https://insights.stackoverflow.com/survey/2020#technology-most-loved-dreaded-and-wanted-languages-loved>