LESSON 1

main.rs

```rust
fn main() {
  println!("Salaam!");
}
```

Rust

Welcome to Rust

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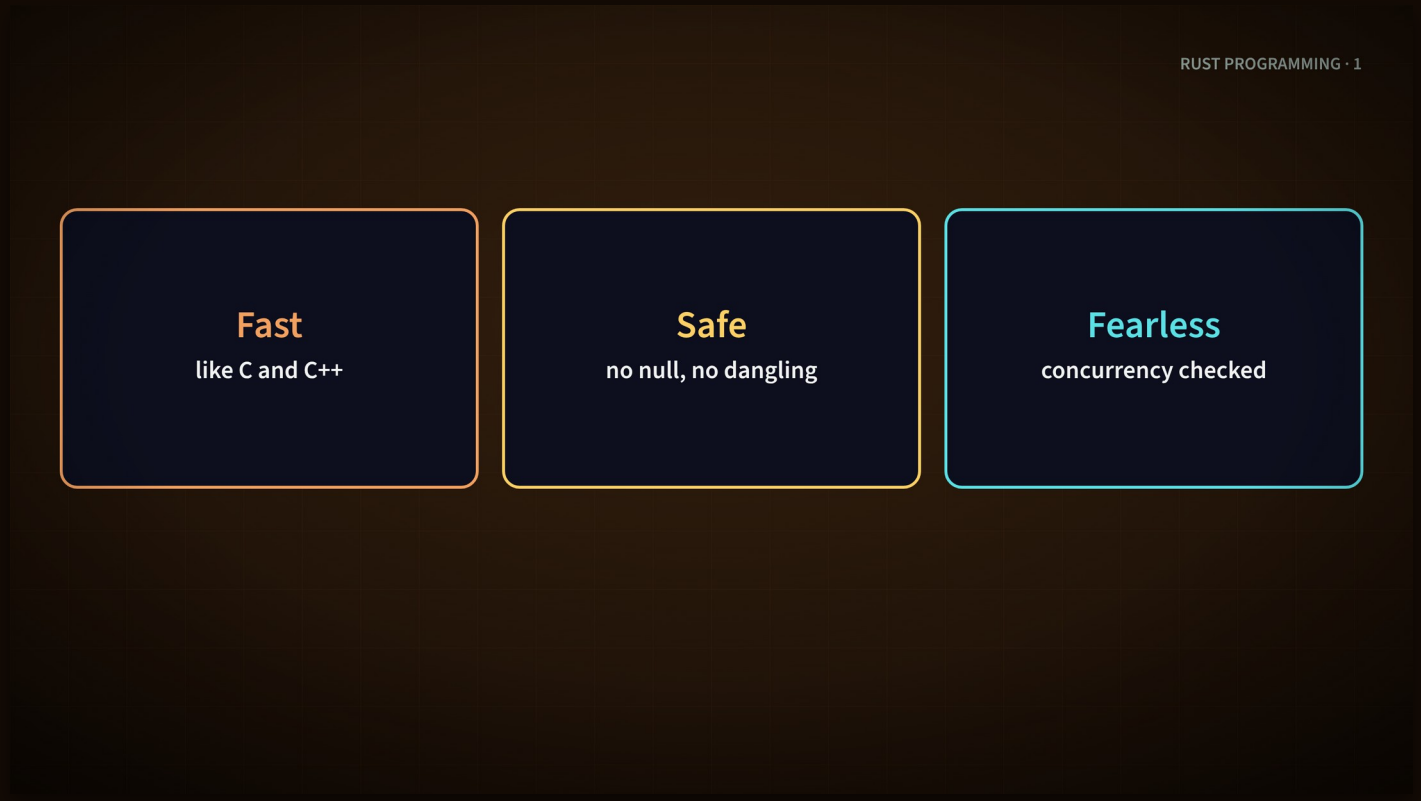
RUST PROGRAMMING

LESSON 1

Welcome to Rust

Why Rust, rustup, Cargo, your first program and the compiler as a teacher

Why Rust?



- Fast — like C and C++
- Safe — no null, no dangling
- Fearless — concurrency checked

01

rustup and Cargo

terminal

```
$ curl --proto '=https' -sSf https://sh.rustup.rs | sh
$ rustc --version
rustc 1.82.0 (f6e511eec 2024-10-15)
$ cargo --version
cargo 1.82.0
```

- Install Rust with rustup from rustup dot rs. It installs rustc, the compiler, and Cargo, ...
- rustup update keeps everything current. A new stable version comes out every six weeks.

02

Hello, World with Cargo

src/main.rs

```rust
fn main() {
    println!("Salaam, World!");
    let city = "Kabul";
    println!("Hello from {city}");
}

// $ cargo new hello && cd hello
// $ cargo run
```

- cargo new creates a project with a Cargo dot toml file and src slash main dot rs. cargo run …
- fn main is the entry point. println with an exclamation mark is a macro, which is why it …

03

The Compiler Is Your Teacher

terminal

```
error[E0384]: cannot assign twice to immutable variable `x`
 --> src/main.rs:3:5
2 |     let x = 5;
  |         - help: consider making this binding mutable: `mut x`
3 |     x = 6;
  |     ^^^^^ cannot assign twice to immutable variable
```

- Rust's compiler is strict, but its error messages are famous for being helpful. They point …
- Read them carefully. Most beginners fight the compiler at first, then realize it is …

04

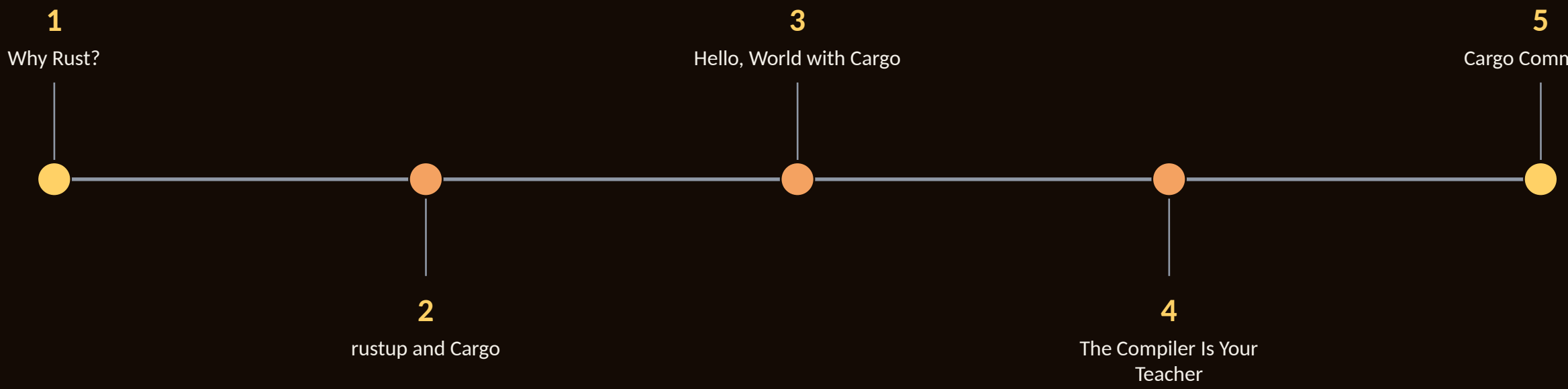
Cargo Commands

Command	Does
`cargo run`	build and run
`cargo check`	fast error check
`cargo build --release`	optimized binary
`cargo test`	run tests
`cargo clippy`	lint advice

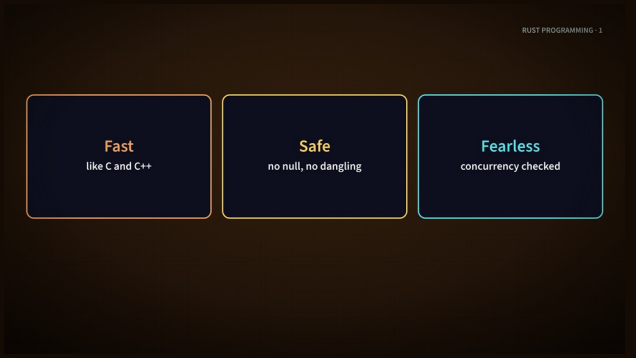
- cargo check finds errors quickly without building. cargo build dash dash release makes an …
- Install rust-analyzer in VS Code for inline types and errors as you type.

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Lesson Map


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Why Rust?
2
rustup and Cargo
3
Hello, World with Cargo
4
The Compiler Is Your Teacher
5
Cargo Commands

Sources and Further Reading





Thank you for watching

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