### **Lab 1:** **Structure in Rust**

**Exercise: Book Information**

In this exercise, we will create a Rust program to store and display information about books. Each book will have a title, author, and publication year.

1. Create a new Rust project using cargo:

Open your terminal/command prompt and run the following command:

cargo new book\_information

cd book\_information

1. Open the **main.rs** file in the src directory of your project. You can use any code editor for this.
2. Define a struct to represent a book and implement a function to display book information:

// Define the Book struct

struct Book {

title: String,

author: String,

publication\_year: u32,

}

// Implement a function to display book information

fn display\_book\_info(book: &Book) {

println!("Title: {}", book.title);

println!("Author: {}", book.author);

println!("Publication Year: {}", book.publication\_year);

}

In the main function, create instances of the Book struct, populate them with information, and display the book information:

fn main() {

// Create instances of the Book struct

let book1 = Book {

title: "The Rust Programming Language".to\_string(),

author: "Steve Klabnik and Carol Nichols".to\_string(),

publication\_year: 2018,

};

let book2 = Book {

title: "Programming Rust".to\_string(),

author: "Jim Blandy and Jason Orendorff".to\_string(),

publication\_year: 2018,

};

// Display book information

println!("Book 1 Information:");

display\_book\_info(&book1);

println!("\nBook 2 Information:");

display\_book\_info(&book2);

}

1. Save the file and return to your terminal/command prompt.
2. Build and run your program using cargo run:

cargo run

The program will display the information of the two books you created.

Example Output:

Book 1 Information:

Title: The Rust Programming Language

Author: Steve Klabnik and Carol Nichols

Publication Year: 2018

Book 2 Information:

Title: Programming Rust

Author: Jim Blandy and Jason Orendorff

Publication Year: 2018

We have now successfully completed the lab exercise on structures in Rust, creating a program to store and display book information!

**Happy coding!**