### **Lab 3:** **Functional Programming**

# **Introduction**

This exercise will cover writing simple functions, passing parameters, and returning values. The program should take two numbers and an operator as input from the user and perform the corresponding operation (addition, subtraction, multiplication, or division) on the two numbers.

**Aim: Create a new Rust project using cargo:**

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

cargo new simple\_calculator

cd simple\_calculator

1. Open the main.rs file in the src directory of your project. You can use any code editor for this.
2. Write the following code in main.rs:

use std::io;

fn add(a: f64, b: f64) -> f64 {

a + b

}

fn subtract(a: f64, b: f64) -> f64 {

a - b

}

fn multiply(a: f64, b: f64) -> f64 {

a \* b

}

fn divide(a: f64, b: f64) -> f64 {

a / b

}

fn main() {

println!("Simple Calculator");

// Read input from the user

let mut input = String::new();

println!("Enter the first number:");

io::stdin().read\_line(&mut input).expect("Failed to read input");

let num1: f64 = input.trim().parse().expect("Invalid input");

input.clear();

println!("Enter the second number:");

io::stdin().read\_line(&mut input).expect("Failed to read input");

let num2: f64 = input.trim().parse().expect("Invalid input");

input.clear();

println!("Enter the operator (+, -, \*, /):");

io::stdin().read\_line(&mut input).expect("Failed to read input");

let operator = input.trim();

// Perform the calculation based on the operator

let result = match operator {

"+" => add(num1, num2),

"-" => subtract(num1, num2),

"\*" => multiply(num1, num2),

"/" => divide(num1, num2),

\_ => {

println!("Invalid operator");

return;

}

};

// Print the result

println!("Result: {}", result);

}

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 prompt you to enter the first number, second number, and the operator (+, -, \*, /). After you input the values, it will perform the corresponding operation and display the result.

Example Usage:

Simple Calculator

Enter the first number:

10

Enter the second number:

5

Enter the operator (+, -, \*, /):

\*

Result: 50

We have now successfully completed the lab exercise on functions in Rust, creating a simple calculator program!

**Happy coding!**