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Rust
Selected Topic in Computer Engineering
LV 7281
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Lab #01

1 Installing Rust

Windows

- Download the Rust installer for Windows from the official website: `https://forge.rust-lang.org/infra/other-installation-methods.html`.[1]
- Run the downloaded installer and follow the installation instructions provided. Add Rust to your system PATH environment variable.

Linux and macOS

- Install Rust using rustup. Rustup is a toolchain installer for Rust. Run the following command in the terminal:

```
$ curl --proto '=https' --tlsv1.2 -sSf https://sh.rustup.rs |
   sh
```

- Follow the instructions in the terminal. It will prompt you to add Rust to your system PATH environment variable.

Once installed, open a new command prompt window and verify the installation by typing the following command:

```
$ rustc --version
```

[1] Or take a look here `https://learn.microsoft.com/en-us/windows/dev-environment/rust/setup`

2 rustlings

- Install **rustlings** from the repository on Github:
  `https://github.com/rust-lang/rustlings/`
- Solve the exercises from the following directories within **rustlings**:

  `00_intro, 01_variables, 02_functions, 03_if, 04_primitive_types`

Hint: Our Lab PCs only have an older version of rust installed; to run `rustlings` here, please use version 5.6.1 using `git checkout 5.6.1` after cloning the repository.

3 Prime Factorization

Write a program to find all prime factors of a number using the following function signature. Use Rust's build system and package manager called **Cargo**[2] for this task.

```rust
fn prime_factors(mut n: u64) -> Vec<u64> {
    // put your code here
}
```

[2] `https://doc.rust-lang.org/book/ch01-03-hello-cargo.html`