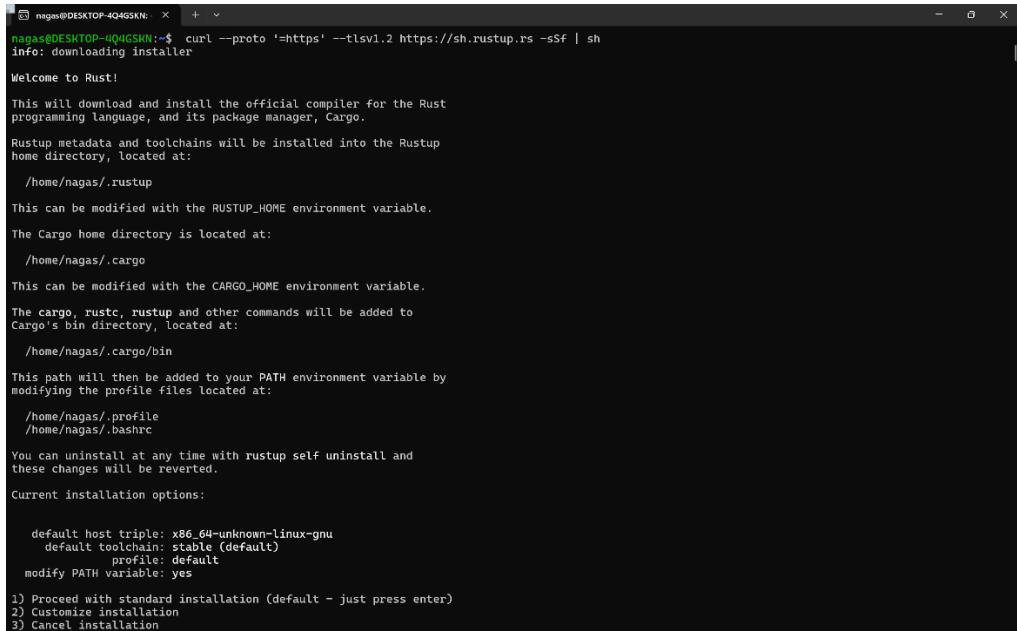


# Project - 2

In this project, LL Parser is build using the “RUST” which helps in generating the parse tree.

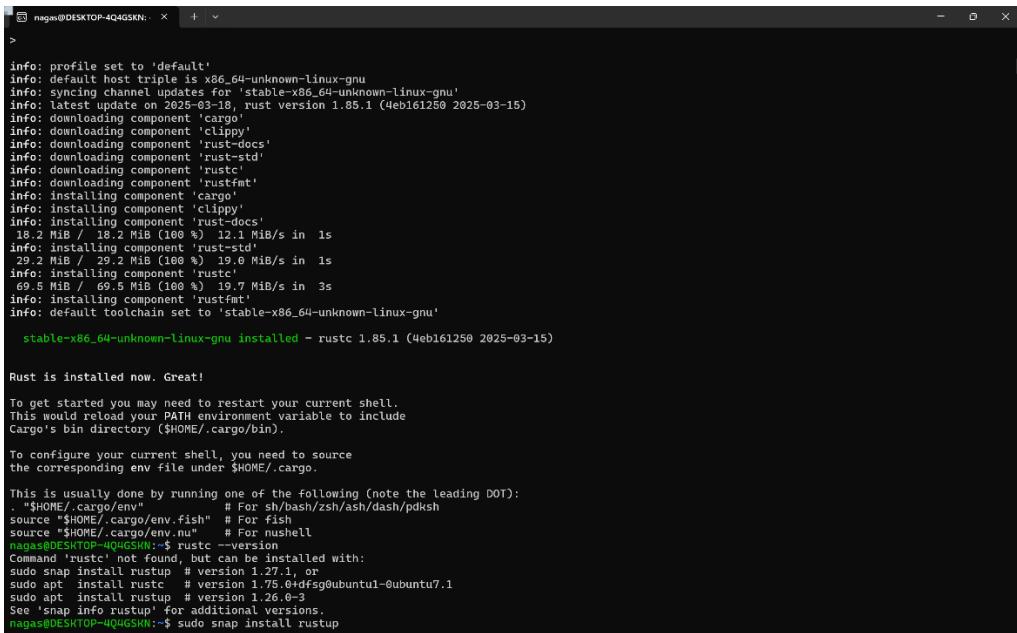
Firstly the “Rust” platform is downloaded in “Ubuntu” and the “VS Code”.



```
nagas@DESKTOP-4Q4GSRN: ~ + ~
nagas@DESKTOP-4Q4GSRN:~$ curl --proto '=https' --tlsv1.2 https://sh.rustup.rs -sSf | sh
info: downloading installer
Welcome to Rust!
This will download and install the official compiler for the Rust
programming language, and its package manager, Cargo.
Rustup metadata and toolchains will be installed into the Rustup
home directory, located at:
/home/nagas/.rustup
This can be modified with the RUSTUP_HOME environment variable.
The Cargo home directory is located at:
/home/nagas/.cargo
This can be modified with the CARGO_HOME environment variable.
The cargo, rustc, rustup and other commands will be added to
Cargo's bin directory, located at:
/home/nagas/.cargo/bin
This path will then be added to your PATH environment variable by
modifying the profile files located at:
/home/nagas/.profile
/home/nagas/.bashrc
You can uninstall at any time with rustup self uninstall and
these changes will be reverted.
Current installation options:

default host triple: x86_64-unknown-linux-gnu
  default toolchain: stable (default)
    profile: default
  modify PATH variable: yes

1) Proceed with standard installation (default - just press enter)
2) Customize installation
3) Cancel installation
```



```
nagas@DESKTOP-4Q4GSRN: ~ + ~
>
info: profile set to 'default'
info: default host triple is x86_64-unknown-linux-gnu
info: syncing channel updates for 'stable-x86_64-unknown-linux-gnu'
info: latest update on 2025-03-18, rust version 1.85.1 (4eb161250 2025-03-15)
info: downloading component 'cargo'
info: downloading component 'clippy'
info: downloading component 'rust-docs'
info: downloading component 'rust-std'
info: downloading component 'rustc'
info: downloading component 'rustfmt'
info: installing component 'cargo'
info: installing component 'clippy'
info: installing component 'rust-docs'
18.2 MiB / 18.2 MiB (100 %) 12.1 MiB/s in 1s
info: installing component 'rust-std'
29.2 MiB / 29.2 MiB (100 %) 19.0 MiB/s in 1s
info: installing component 'rustc'
69.5 MiB / 69.5 MiB (100 %) 19.7 MiB/s in 3s
info: installing component 'rustfmt'
info: default toolchain set to 'stable-x86_64-unknown-linux-gnu'

stable-x86_64-unknown-linux-gnu installed - rustc 1.85.1 (4eb161250 2025-03-15)

Rust is installed now. Great!

To get started you may need to restart your current shell.
This would reload your PATH environment variable to include
Cargo's bin directory ($HOME/.cargo/bin).

To configure your current shell, you need to source
the corresponding env file under $HOME/.cargo.

This is usually done by running one of the following (note the leading DOT):
. "$HOME/.cargo/env"      # For /bin/bash/zsh/ash/dash/pdksh
source "$HOME/.cargo/env.fish" # For fish
source "$HOME/.cargo/env.nu"  # For nushell
naga@DESKTOP-4Q4GSRN:~$ rustc --version
Command 'rustc' not found, but can be installed with:
sudo snap install rustup # version 1.27.1, or
sudo apt install rustc   # version 1.75.0+dfsg0ubuntu1~ubuntu7.1
sudo apt install rustup  # version 1.26.0-3
See 'snap info rustup' for additional versions.
nagas@DESKTOP-4Q4GSRN:~$ sudo snap install rustup
```

In “VS Code”, Rust is downloaded as extention.

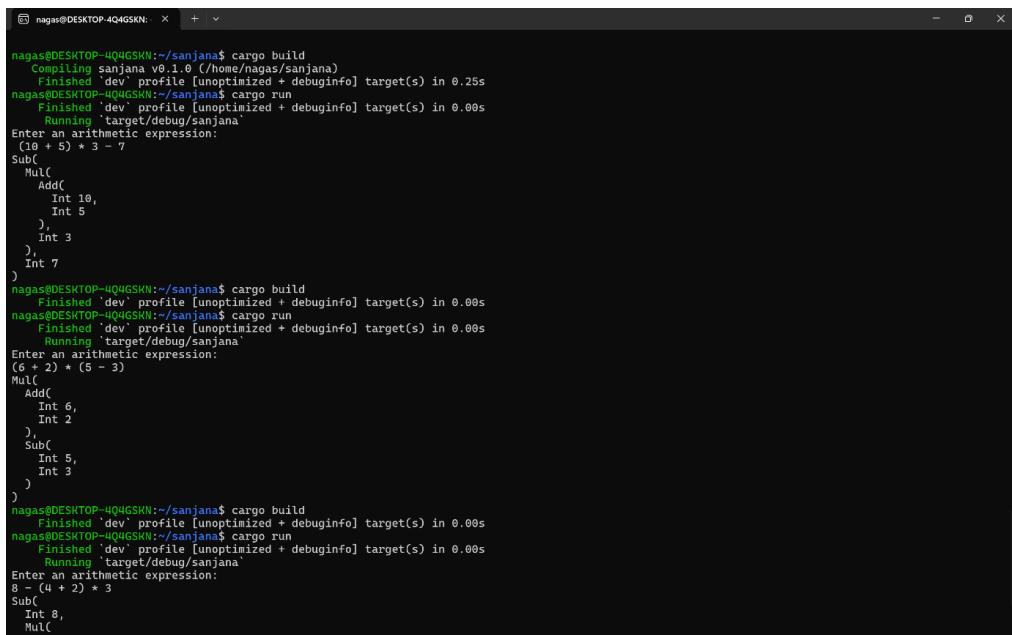
The “Rust” and “Cargo” versions are downloaded.

Then a new directory named “sanjana” is created in ubuntu and it is opened and a new file in named “main.rs” is created.



```
nagas@DESKTOP-4Q4GSKN:~$ source "$HOME/.cargo/env"
nagas@DESKTOP-4Q4GSKN:~$ rustc --version
rustc 1.85.1 (4eb161250 2025-03-15)
nagas@DESKTOP-4Q4GSKN:~$ cargo --version
cargo 1.85.1 (d73d2caf9 2024-12-31)
nagas@DESKTOP-4Q4GSKN:~$ nano src/main.rs
nagas@DESKTOP-4Q4GSKN:~$ cargo new sanjana
  Creating binary (application) 'sanjana' package
  note: see more 'Cargo.toml' keys and their definitions at https://doc.rust-lang.org/cargo/reference/manifest.html
nagas@DESKTOP-4Q4GSKN:~$ cd sanjana
```

The code is saved in the VS Code and run in the ubuntu using the functions “cargo build” and “cargo run”. And then in the output it asks to enter the input, after entering the input the output is given as related to the input.



```
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo build
  Compiling sanjana v0.1.0 (/home/nagas/sanjana)
    Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.25s
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo run
    Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.00s
      Running `target/debug/sanjana`
Enter an arithmetic expression:
(10 + 5) * 3 - 7
Sub(
  Mul(
    Add(
      Int 10,
      Int 5
    ),
    Int 3
  ),
  Int 7
)
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo build
  Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.00s
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo run
    Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.00s
      Running `target/debug/sanjana`
Enter an arithmetic expression:
(6 + 2) * (5 - 3)
Mul(
  Add(
    Int 6,
    Int 2
  ),
  Sub(
    Int 5,
    Int 3
  )
)
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo build
  Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.00s
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo run
    Finished 'dev' profile [unoptimized + debuginfo] target(s) in 0.00s
      Running `target/debug/sanjana`
Enter an arithmetic expression:
8 - (4 + 2) * 3
Sub(
  Int 8,
  Mul(
```

And I also tested my code using some other input testcases.

```
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo build
   Finished dev profile [unoptimized + debuginfo] target(s) in 0.00s
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo run
   Finished dev profile [unoptimized + debuginfo] target(s) in 0.00s
     Running `target/debug/sanjana`  
Enter an arithmetic expression:  
8 - (4 + 2) * 3  
Sub(  
    Int 8,  
    Mul(  
        Add(  
            Int 4,  
            Int 2  
        ),  
        Int 3  
    )  
)  
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo build
   Finished dev profile [unoptimized + debuginfo] target(s) in 0.00s
nagas@DESKTOP-4Q4GSKN:~/sanjana$ cargo run
   Finished dev profile [unoptimized + debuginfo] target(s) in 0.00s
     Running `target/debug/sanjana`  
Enter an arithmetic expression:  
(7 - 2) * (4 + 3) - 1  
Sub(  
    Mul(  
        Sub(  
            Int 7,  
            Int 2  
        ),  
        Add(  
            Int 4,  
            Int 3  
        )  
    ),  
    Int 1  
)  
nagas@DESKTOP-4Q4GSKN:~/sanjana$ |
```