M-LAB
computational physics_

Toolbox: Using Julia in the REPL

You might be familiar with using Julia in a Jupyter notebook. However, there are situations where you want to use Julia in the REPL. Most commonly when you want to quickly test small snippets of code. This document explains how to do so.

1 Start Julia

To start Julia in the REPL, type `julia` in the terminal. Alternatively you can start the REPL in a specific environment by typing `julia --project` while in the environment folder. The REPL will start, and you can start typing Julia code. To exit the REPL, type `exit()`.

2 Julia REPL modes

The Julia REPL has multiple modes. When starting the Julia REPL, you are in the Julia mode. Here you can type and execute Julia code similar to the way it works in Jupyter notebook. Type the code you want to execute, then press `enter` to execute the code. The result will be printed right below it. Variables that you declare this way will be in global scope and as such be remembered by following code snippets in the same session. To clear all previously defined variables you have to restart the session. Apart from that, the most important modes are the package mode and the help mode.

2.1 Package mode

Loading package can be done in the package mode. To enter the package mode, type `]` at the beginning of a line. In this mode, you can for example add `add`, remove `rm` and update `up` packages. You can also activate a specific environment by typing `activate`, compile the current environment with `precompile` and instantiate all the packages in the Project.toml file of your currently active environment with `instantiate`. Like all modes in the Julia REPL, you can exit the package mode by typing `backspace` at the beginning of a line.

2.2 Help mode

If you are not sure what a specific Julia function does, you can enter the help mode by typing `?` at the beginning of a line. In this mode, you can type the name of the function you would like to know more about. The REPL will show you the documentation of the function. Like all modes in the Julia REPL, you can exit the package mode by typing `backspace` at the beginning of a line.

3 Summary

- start Julia in the terminal by typing `julia`

- exit the REPL by typing `exit()`

- you can use the REPL similar to a Jupyter notebook

- enter the package mode by typing `]` and exit it by typing `backspace`

- enter the help mode by typing `?` and exit it by typing `backspace`

- in the package mode you can add, remove and update packages, activate environments, compile the current environment and instantiate all the packages in the Project.toml file of your current environment

- in the help mode, you can get the documentation of a specific function