Julia installation [to run faster than Python]:

Step1. Go to here: https://julialang.org/downloads/ and download source files, for ubuntu:

```
$ curl -fsSL https://install.julialang.org | sh
```

Step2. Reload environment so path to Julia command is available.

```
$ source .bashrc
$ source .profile
```

Step3. Test if Julia is installed, run following and a kernel appears with “julia>” as below!

```
$ julia
```

```
               _
   _       _ _(_)_     |  Documentation: https://docs.julialang.org
  (_)     | (_) (_)    |
   _ _   _| |_  __ _   |  Type "?" for help, "]?" for Pkg help.
  | | | | | | |/ _` |  |
  | | |_| | | | (_| |  |  Version 1.11.0 (2024-10-07)
 _/ |\__'_|_|_|\__'_|  |  Official https://julialang.org/ release
|__/                   |

julia>
```

IJulia installation [to use Julia with JupyterLab]:

See doc here: https://julialang.github.io/IJulia.jl/stable/manual/installation/

Step1. Activate Julia kernel,

$ julia

Step2. Install packages

```
julia> using Pkg
julia> Pkg.add("IJulia")
```

Step3. Launch Jupyterlab (Jupyter lab can be installed with pip, see https://jupyter.org/install) and start with a new notebook. You will find “Julia 1.11.0” appear as a kernel option and select it.

Step4. Test if Julia is installed and use normally

```
[1] println("Hello World")
Hello World
```

ITensor installation [to run Tensor Network simulations]:

Official website: https://itensor.org/
Github: https://github.com/ITensor/ITensors.jl
Doc that you should read instead: https://itensor.github.io/ITensors.jl/stable/index.html

Step1. Start with a Jupyter lab notebook as before. We can simply install the package here.

```
[1] import Pkg; Pkg.add("ITensors")
```

Step2. Other packages that you should install.

```
[2] import Pkg; Pkg.add("ITensorMPS")
[3] import Pkg; Pkg.add("Plots")
[3] import Pkg; Pkg.add("PyPlot")
[4] import Pkg; Pkg.add("LaTeXStrings")
[5] import Pkg; Pkg.add("ITensorTDVP")
[6] import Pkg; Pkg.add("DelimitedFiles")
```

More packages are found: https://julialang.org/packages/

Options: preferably, you can use "]" in the Julia terminal or interactive command-line REPL (read-eval-print loop) to manage your Julia packages

```
(@v1.11) pkg> status
Status `~/.julia/environments/v1.11/Project.toml`
  [5ae59095] Colors v0.12.11
  [8bb1440f] DelimitedFiles v1.9.1
  [7876af07] Example v0.5.5
  [7073ff75] IJulia v1.25.0
  [0d1a4710] ITensorMPS v0.2.5
  [25707e16] ITensorTDVP v0.4.9
  [9136182c] ITensors v0.6.19
  [b964fa9f] LaTeXStrings v1.3.1
  [91a5bcdd] Plots v1.40.8
```

"Backspace" to exit Pkg to `Julia>`
";" to enter shell