FTEC 2101/ESTR2520 Optimization Methods **Spring 2021**

Setting up Julia + Jupyter + JuMP (Local Installation)

In this note, you will be guided to setup the Julia environment for the computing lab exercises in FTEC2101 and ESTR2520. We encourage you to make a local setup on your own labtop/computer as there will be homework exercises that are based on the Julia environment. It will also be the recommended programming language for the practical project.

Installing Julia on Your Computer

- **Step 1**: Install Julia 1.1.1 from `https://julialang.org/downloads/oldreleases/` (note there is a v1.5.3 available as of Feb., 2021, but we shall use v1.1.1 instead for better compatibility).

v1.1.1 (May 16, 2019)

Windows (.exe) [help]	32-bit		64-bit
macOS (.dmg) [help]			64-bit
Generic Linux Binaries for x86 [help]	32-bit (GPG)		64-bit (GPG)
Generic Linux Binaries for ARM [help]			64-bit (AArch64) (GPG)
Generic FreeBSD Binaries for x86 [help]			64-bit (GPG)
Source	Tarball (GPG)	Tarball with dependencies (GPG)	GitHub

- **Step 2**: Open 'Julia' and execute (it may take at most 20-30 min to complete.)

```
using Pkg
Pkg.add(Pkg.PackageSpec(;name="IJulia", version="1.23.1")); using IJulia;
```

- **Step 3**: Download the file '`install_packages_2021.ipynb`' and put it in a certain directory, for example, '`C:\Users\(your user name)\FTEC2101julia`'.

- **Step 3**: Execute from Julia that

```
using IJulia; notebook();
```

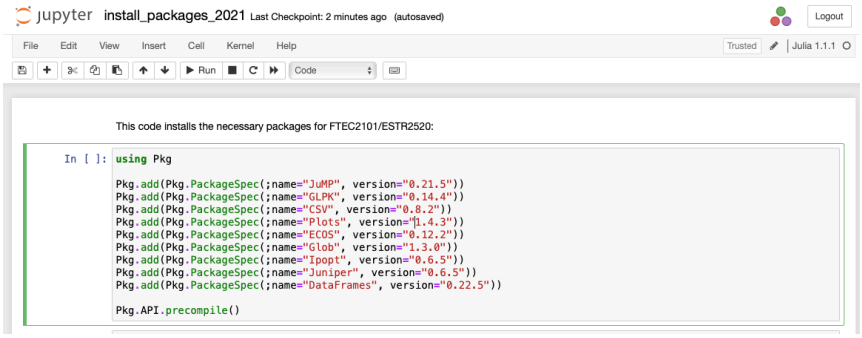
This should open your default browser and shows the content in your user's directory†. You may then navigate to the directory where you have stored '`install_packages_2021.ipynb`'. You shall find the following screen:

(on Windows) If the browser doesn't open with the desired screen. Close Julia and open 'Anaconda Prompt' (the latter should be installed after running the script in Step 1) from start menu; execute

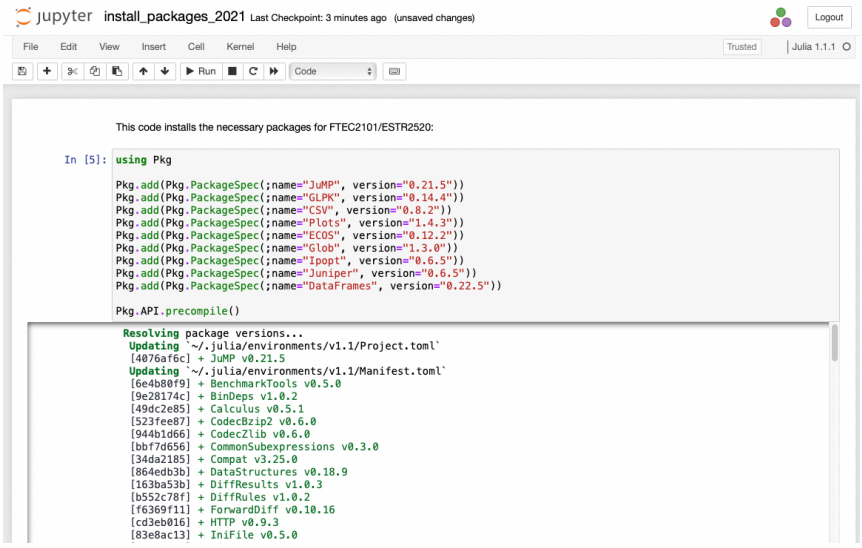
`jupyter notebook --port 9999`

†For Windows, it is '`C:\Users\(your user name)`'. For Mac, it is '`/Users/(your user name)`'

- **Step 4-a**: Click on 'install_packages_2021.ipynb' to launch the script. You will see:



Select the cell and hit 'Shift+Enter' and wait until you see a screen similar to below:



Notice that the status next to the cell is changed from '`In [ ]`' to '`In [*]`', and to '`In [1]`' (or some other numbers inside the square bracket). The last status indicates that a cell is completed.

Make sure that the output status does not contain any error.

- **Step 4-b**: As a good practice, you should select 'File' → 'Close and Halt' to close a notebook to free up resources (RAM and CPU on your computer).

After the installation, you may close the `install_packages_2021.ipynb` file and explore the other program codes.

Additional Help The instructor found that this Youtube video: `https://www.youtube.com/watch?v=4Rnm0n39DCs` maybe useful for the installation procedure on Windows.

If the above doesn't work for you Please do not hesitate to contact the instructor for troubleshooting.

As the last resort, a computer server hosted at the SEEM department is also available. Note, however, that running codes on the server will not be as efficient as running them on your local computer. For example, you will need to VPN to CUHK first to access if you are living off-campus, and the server is limited with resources. Therefore you are strongly advised to setup the environment on your computer using the above procedures.