WEB-BASED TOOLS FOR DATA ANALYSIS: JUPYTERLAB ENVIRONMENT AND WORKFLOW OPTIMIZATION

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1. Operating System

- Linux (e.g., Ubuntu 20.04), OSX Catalina, Windows 10

2. Statistical packages

- Python: install Anaconda – https://www.anaconda.com
- R: https://www.r-project.org
- Julia: https://julialang.org
- Stata: https://www.stata.com
- Recomendation: install RStudio

3. Jupyter

3.1 Install jupyter

- **jupyter notebook**: *pip install notebook* or *conda install -c conda-forge notebook*
- **jupyter lab**: *pip install jupyterlab* or *conda install -c conda-forge jupyterlab*

3.2 Available kernels

- Python: this should be the first one installed ipykernel
- R: irkernel

  Open an R console, e.g. within RStudio, and execute sequentially, *install.packages('IRkernel')*, *IRkernel::installspec()*
- Julia: IJulia

  Run Julia and execute sequentially, *using Pkg*, *Pkg.add("IJulia")*
- Stata: stata_kernel

  Detailed installation by Kyle Barron

Magics – “Magics are programs provided by stata_kernel that enhance the experience of working with Stata in Jupyter.”

3.3 Start ‘notebook’ or ‘lab’

- **jupyter notebook**: *jupyter notebook*
- **jupyter lab**: *jupyter lab*

4. Binder

Running R Projects in MyBinder – Dockerfile Creation With Holepunch

- myBinder
- Gesis Notebooks
- Check the following link on “Configuration Files”

apt.txt - Install packages with apt-get

Examples using the GitHub ‘reisportela/prjs’

- Check this example with RStudio & R 3.6 exercise
- or a setup where we can build a notebook with Python 3.0 or R (you can also run RStudio from this link)

Even better, use GESIS notebooks to launch your image

The concept

5. A gallery of interesting Jupyter Notebooks

- Gallery
- Plotting and Programming in Python
- Exploratory data analysis in Python

6. Books

- Python Data Science Handbook
- Bookdown
- How to Hide all the code cells in Jupyter Notebook Python with single Click

7. Checks

- Binder examples
- Binder Multi-language demo
- mybinder.io

8. SoS NOTEBOOK

- Local installation

pip installation

pip3 install sos

pip3 install sos-pbs

pip3 install sos-notebook

pip3 install sos-papermill

pip3 install sos-r

pip3 install sos-julia

pip3 install sos-stata

python3 -m sos_notebook.install

jupyter kernelspec list

jupyter notebook

9. Discussion on Julia

- use an environment julia-python
- a multi-language-demo
- Using Julia in Binder: interactive web environment for running your code

By default I will not activate a machine running Python, R and Julia as it takes too long to build the image. I recomend using the link.

10. GESIS Notebooks

- Create a login in GESIS Notebooks and add your machine

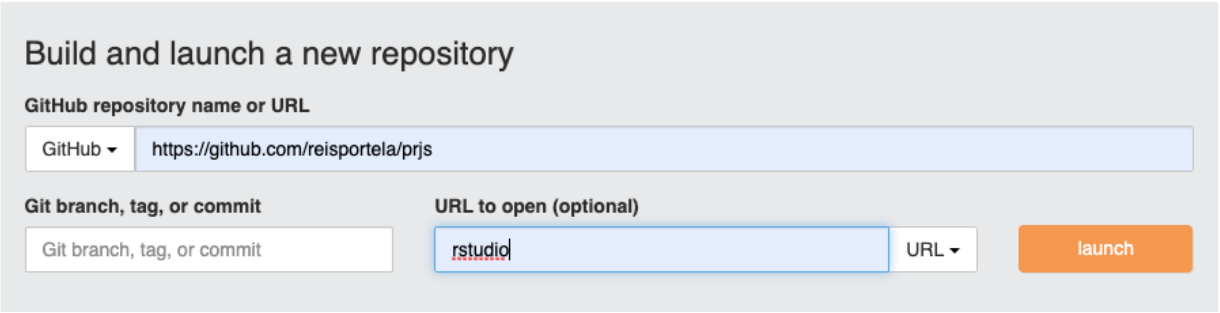

Figure 1: Example

11. Further notes

11.1 Jupyter's extensions

conda install -c conda-forge jupyter_contrib_nbextensions

jupyter contrib nbextension install –user

11.2 Kaggle Kernels

Kaggle

11.3

How to Hide all the code cells in Jupyter Notebook Python with single Click

11.4 Pandas

Pandas cookbook

R and Dropbox

rdrop2