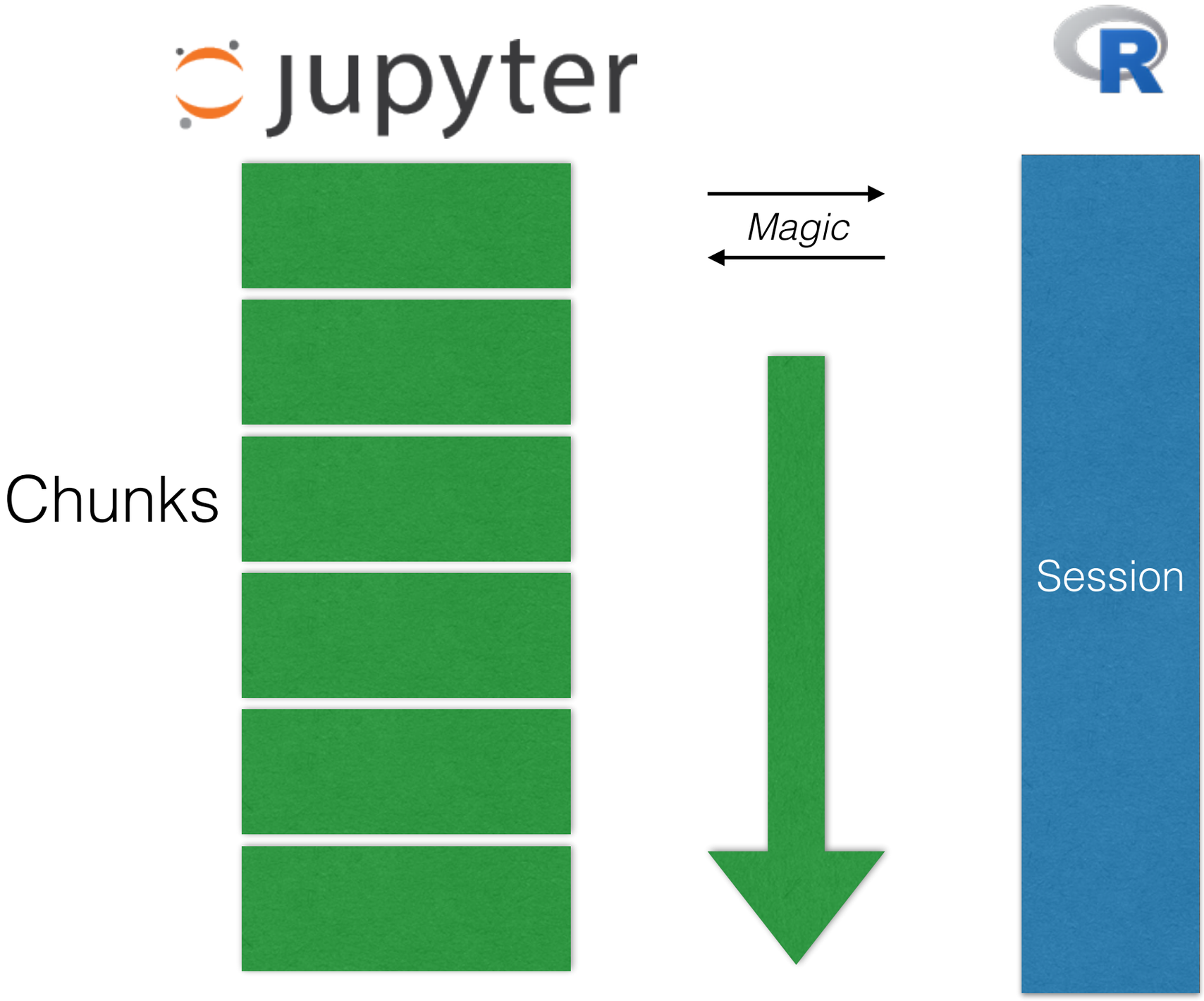
Jupyter


jupyter
R
Chunks
Magic
Session

jupyter

Files | Running | Clusters

Duplicate | Rename | 🗑 | Upload | New ▾ | ↻

1 ▾ / NBN

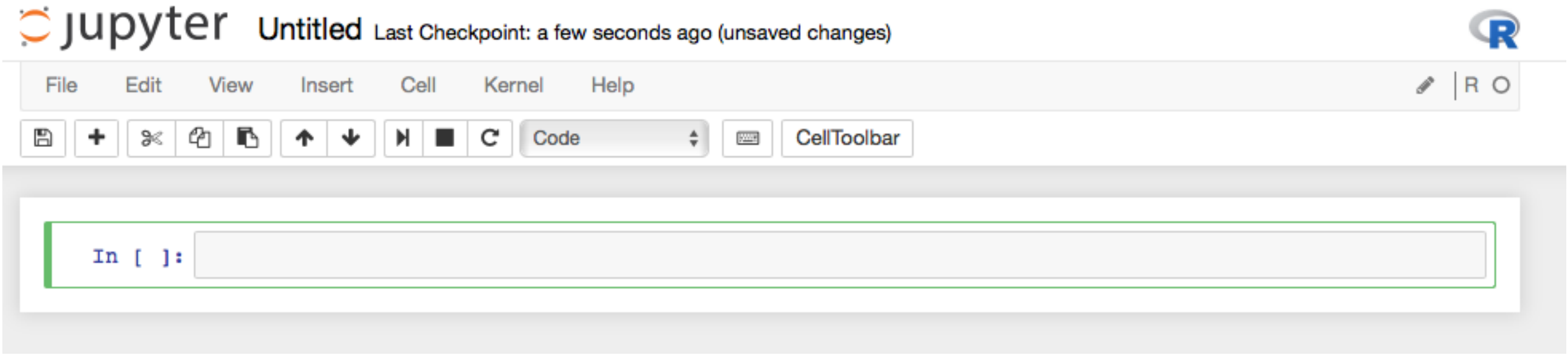
..

NBN.ipynb

Upload | New ▾ | ↻

Text File
Folder
Terminal

Notebooks
Python 2
R


jupyter
Untitled
Last Checkpoint: a few seconds ago (unsaved changes)
File
Edit
View
Insert
Cell
Kernel
Help
R
Code
CellToolbar
In [ ]:

jupyter **Untitled** Last Checkpoint: a minute ago (unsaved changes)

File Edit View Insert Cell Kernel Help

Code CellToolbar

In [3]:
```
sprintf("This is an R session on version %s.%s", version$major, version$minor)
```

Out[3]: 'This is an R session on version 3.2.2'

In [ ]:

jupyter Untitled Last Checkpoint: 6 minutes ago (unsaved changes)

File Edit View Insert Cell Kernel Help

Code CellToolbar

In [8]:
```
x <- 10
```

In [9]:
```
x
```

Out[9]: 10

Demo time

Sharing

Out[11]:

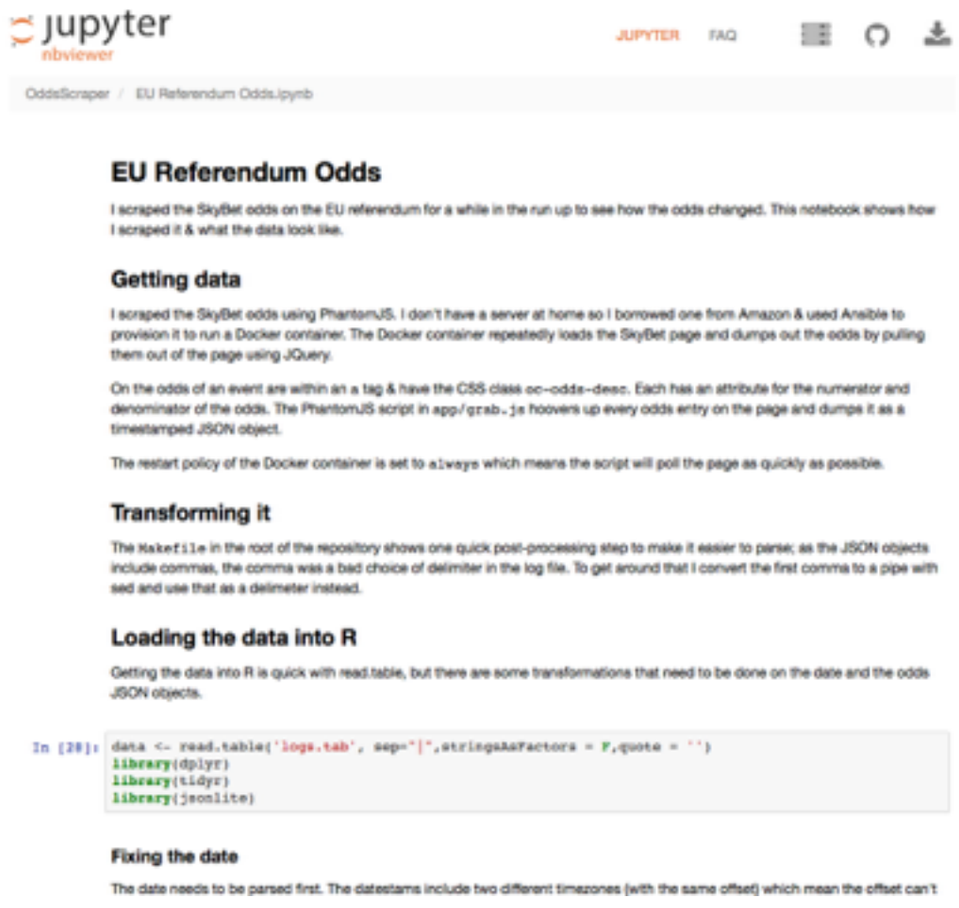
	mpg	cyl	disp	hp	drat	wt	qsec	vs	am	gear	carb
Mazda RX4	21	6	160	110	3.9	2.62	16.46	0	1	4	4
Mazda RX4 Wag	21	6	160	110	3.9	2.875	17.02	0	1	4	4
Datsun 710	22.8	4	108	93	3.85	2.32	18.61	1	1	4	1
Hornet 4 Drive	21.4	6	258	1							
Hornet Sportabout	18.7	8	360	1							
Valiant	18.1	6	225	1							

In [52]:
```
data.plot + geom_point(data=coefficients, colour="blue", shape=3,size=10)
```

notebook files **include the output** so users don't need R

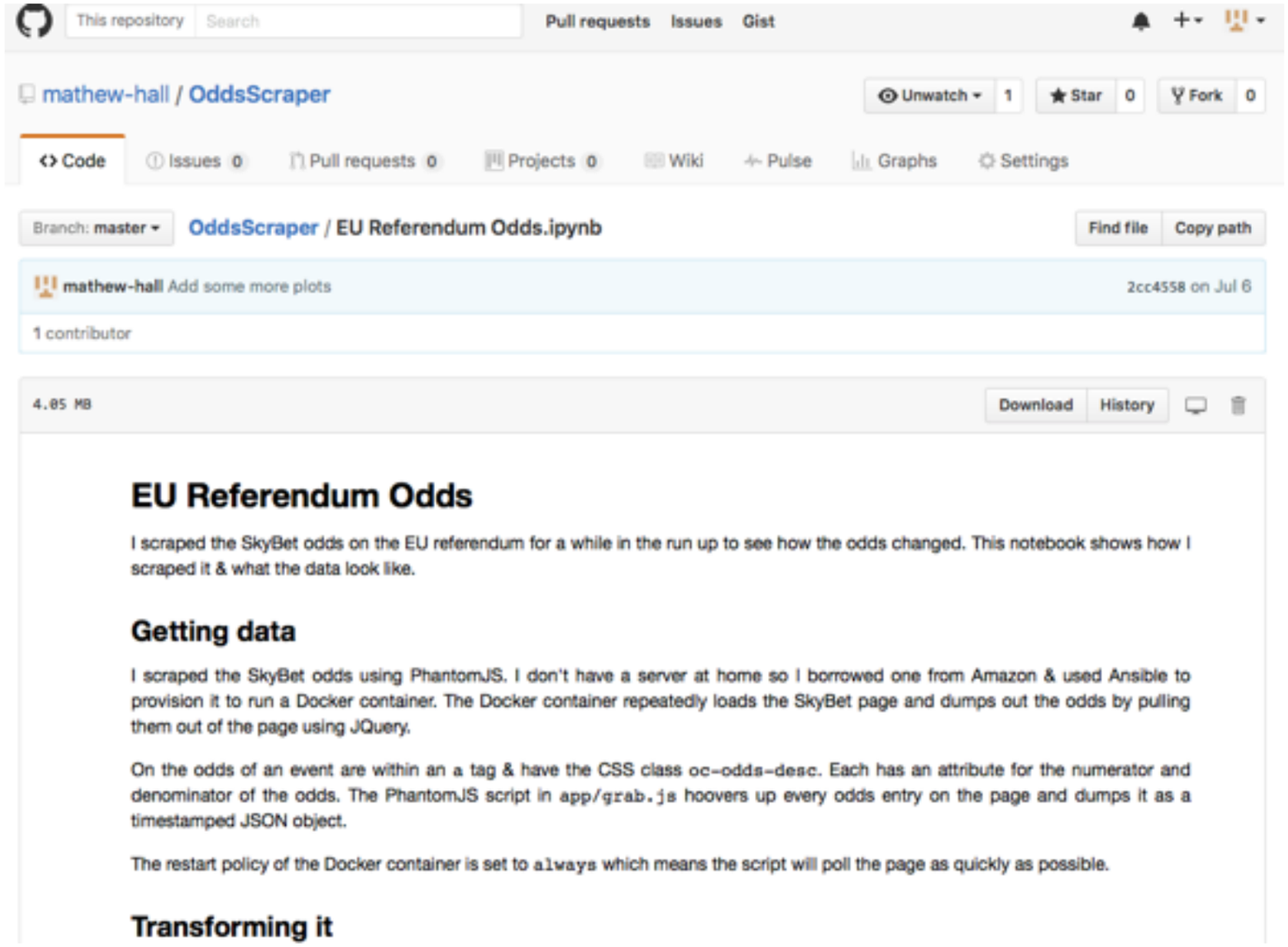
Sharing

nbviewer.org



Allows anyone to view a notebook online

GitHub



notebooks in a GitHub repo show nice previews

	RStudio + RMarkdown	Jupyter Notebooks	RStudio + Source Files
Mix code & data	Yup	Yup	Not really
Generate publication-ready docs	Yup	Not really	Not really
Share repeatable, remixable analyses	Yup	Yup	Not really
Write testable code	Not really	Not really	Yup
Super interactive	Yup*	Yup	Not really

Use cases

Prototyping analyses

Automatic data
cleaning workflows
(with bonus reports)

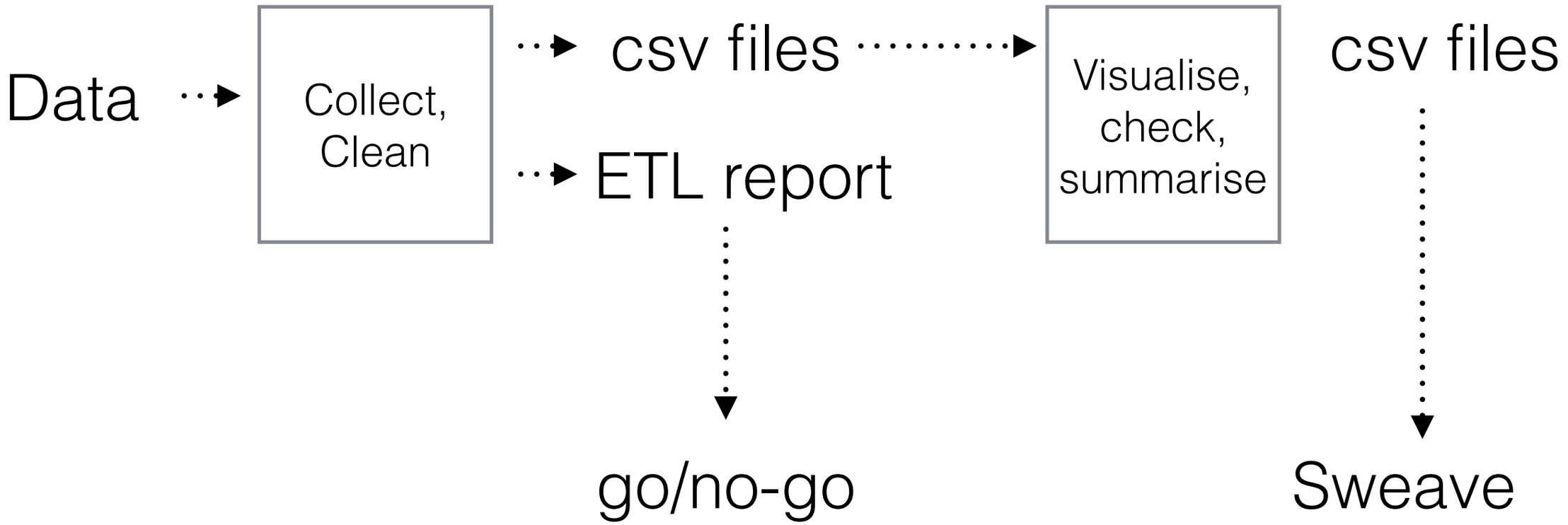
Generating data for use
in reports

Dialogs with
collaborators
(exploratory analyses)

Should I use it?

Just running some R commands	R GUI/RStudio	Yeah
Prototyping an analysis	RMarkdown	Yeah
Preparing analysis for publication	RMarkdown, Sweave	Maybe
Data cleaning	RMarkdown? R GUI/ RStudio	Yeah
Collaboration with a lot of people using Git	RMarkdown ,R Package	Probably not

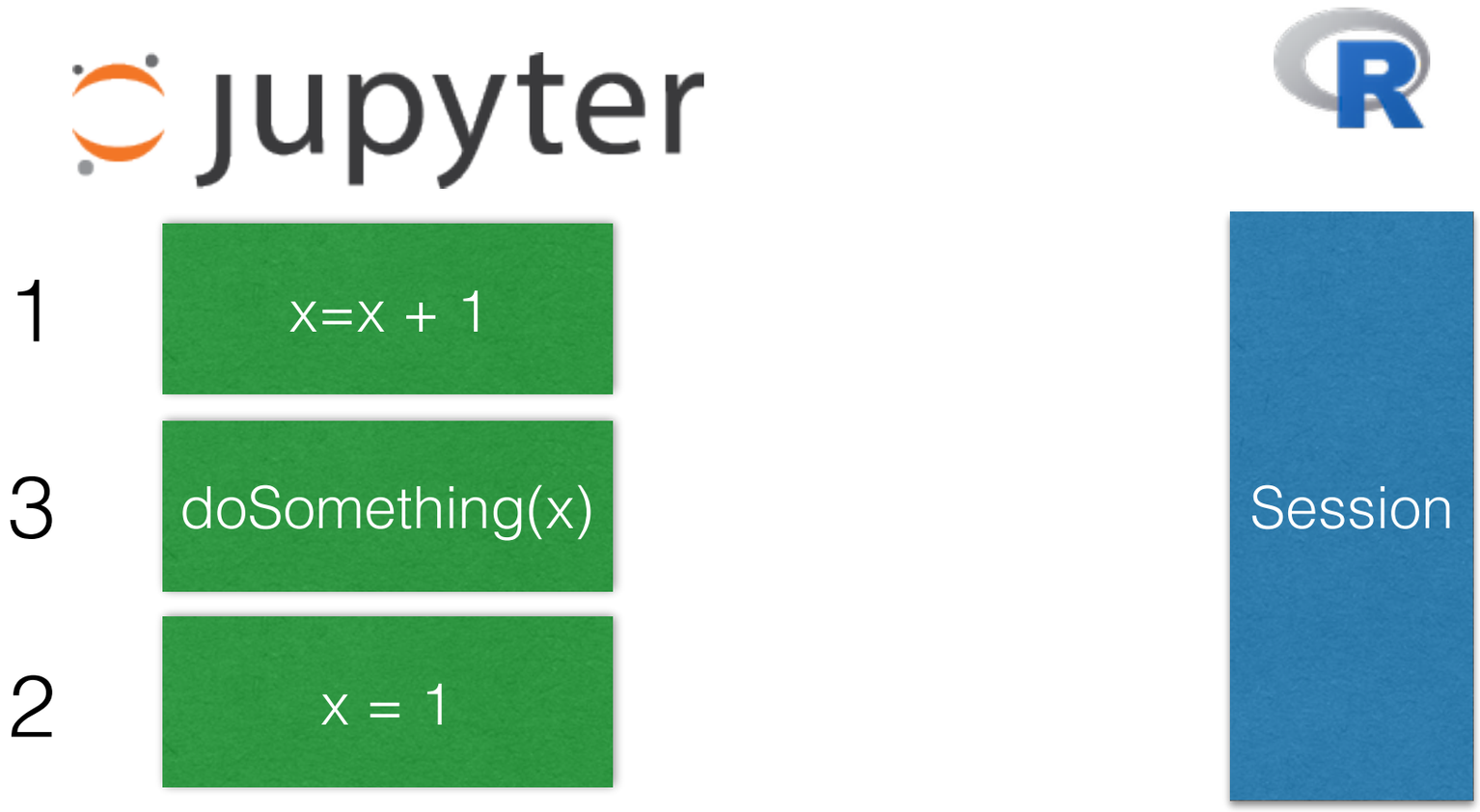
Example



Used as a script with a nicer UI

Developed interactively & deployed as-is

Gotchas



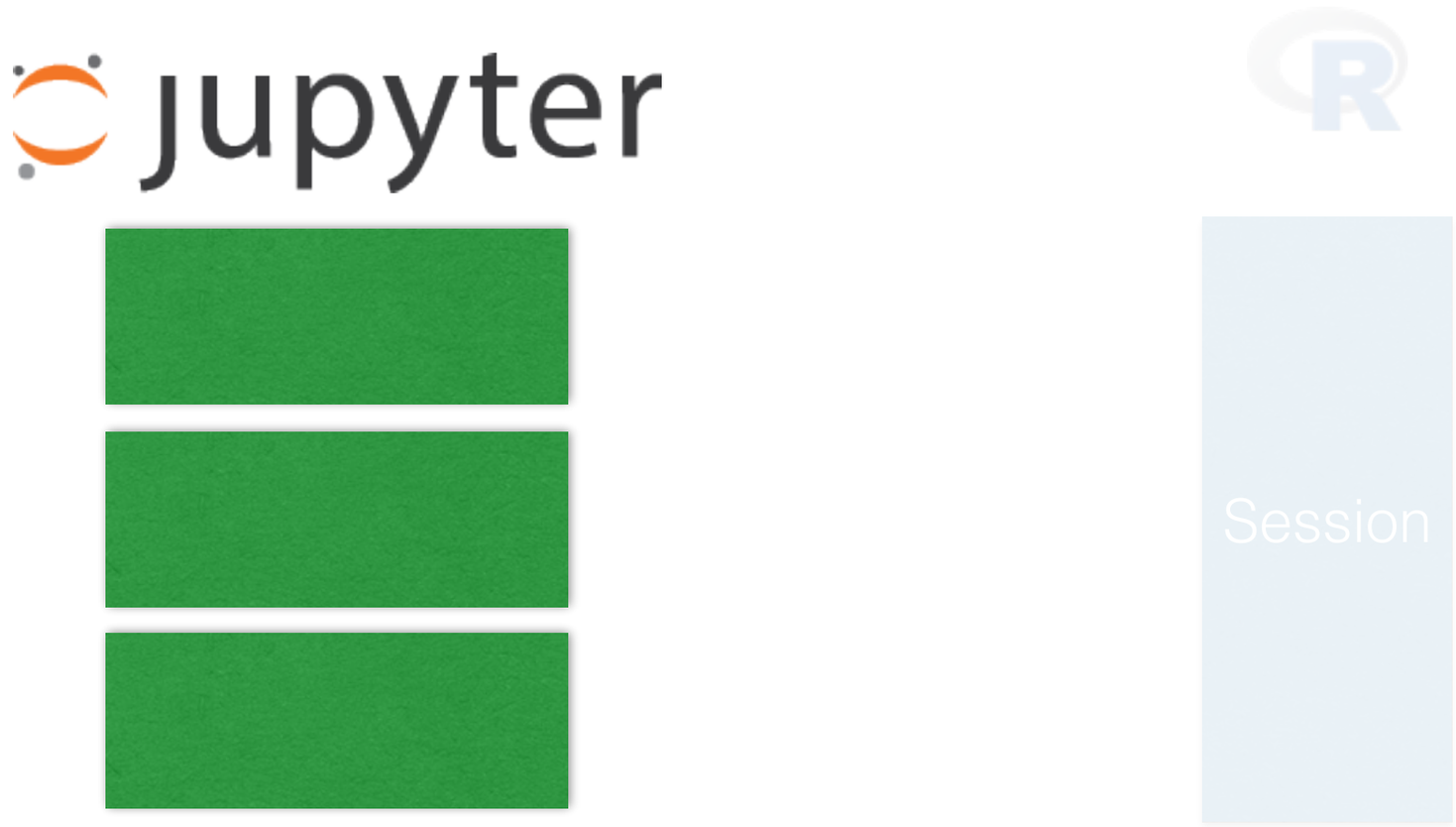
State of the R Session depends on the order chunks run. It's easy to write non-linear notebooks by accident

Gotchas

```
In [53]: library(superAwesomePackage)
Error in library(superAwesomePackage): there is no package called ‘superAwesomePackage’
```

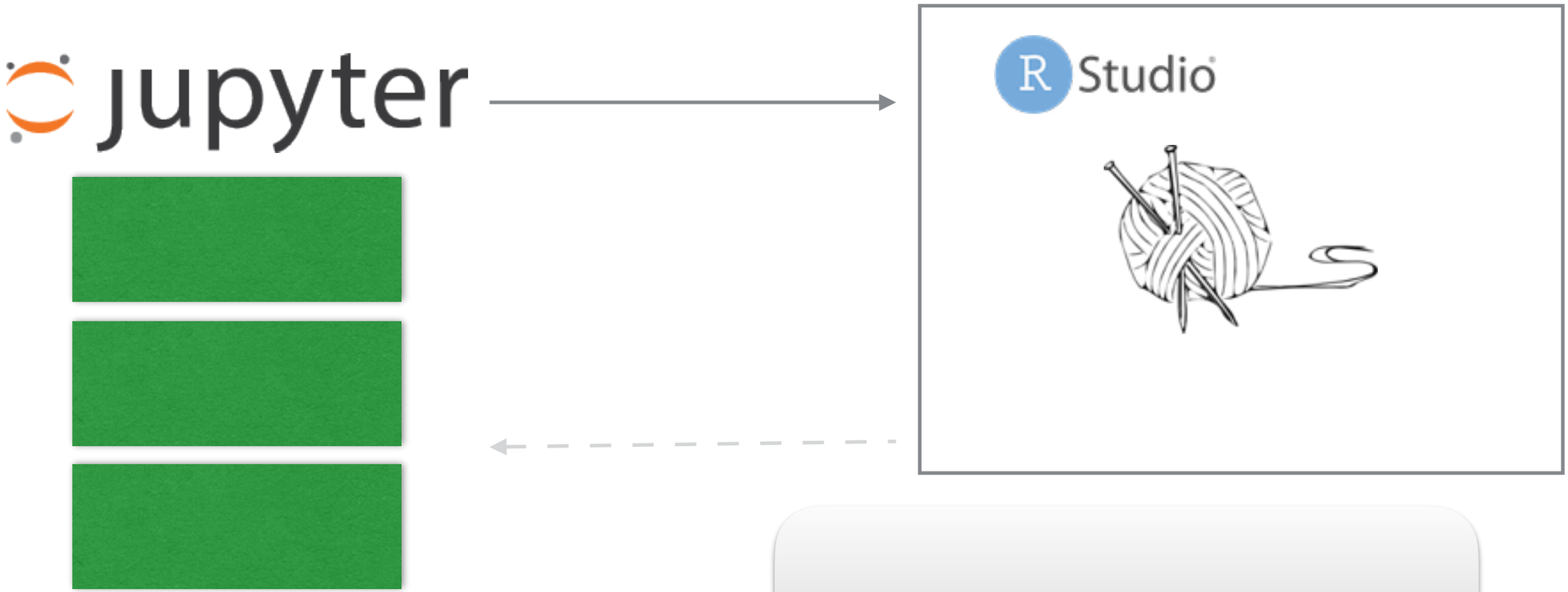
Need a mechanism to fetch dependencies

Gotchas



State of the R Session is not persistent, only the stored outputs are kept in the notebook file

Gotchas



Can turn a notebook into an R file
but much harder to go back

http://stackoverflow.com/questions/32183164/best-practices-for-turning-jupyter-notebooks-into-python-scripts

Tips

Don't get attached to your R session	····▸	Routinely rerun **all** chunks
Don't write enormous notebooks	····▸	Migrate code to packages when sensible
Don't silently depend on data/packages	····▸	Document dependencies/ automate fetching them
Resist temptation to write spaghetti	····▸	Refactor as if the notebook were a source file

Setup

1. Install Jupyter

2. Install IRKernel package

3. Register the kernel in Jupyter

Installing

- Recommended: use Anaconda (https://www.continuum.io/downloads) and R Essentials bundle (http://anaconda.org/r/r-essentials)
- Otherwise: pip install jupyter and follow instructions on (https://irkernel.github.io)
  - Will probably need to install zmq
- Option 3: `docker run -d -p 8888:8888 jupyter/r-notebook`