

Using advanced features of code notebooks

Publishing and sharing a code notebook

- Offline publishing
- Online publishing

Offline publishing your Jupyter Notebook:

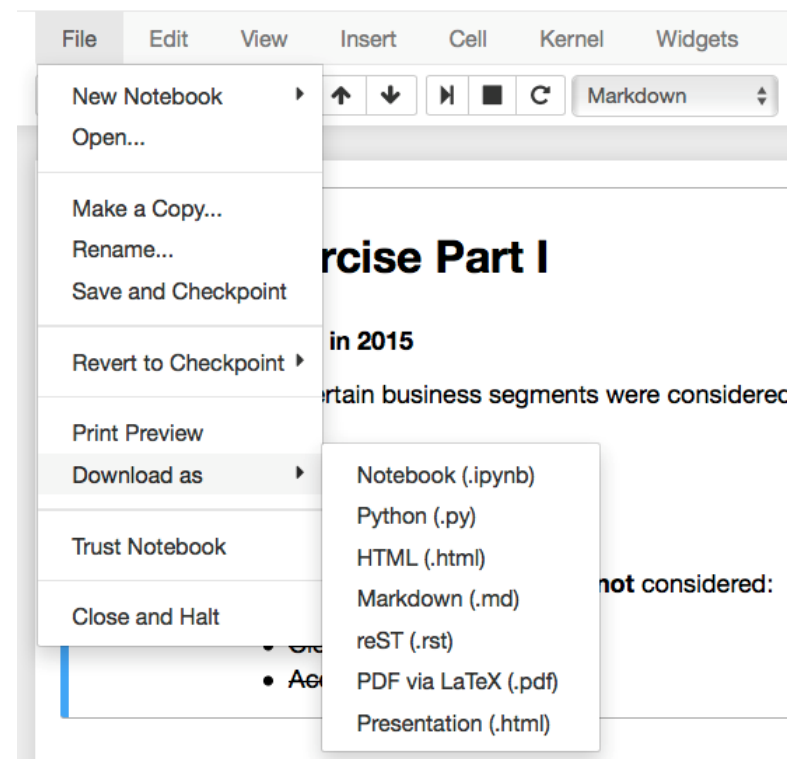
Various format options

Remember: **Google Colab** is an **online service that runs Jupyter Notebook**, not a separate software.

Your Jupyter Notebook may be exported as

- Notebook (.ipynb)
- HTML (Website)
- PDF (Pandoc and LaTeX required)
- ...

This applies to using a local installation of Jupyter Notebooks. Often, if you use an online service for code notebooks such as **Google Colab**, all requirements are already installed.



Offline publishing your Jupyter Notebook: Requirements for PDF export

Windows

1. Pandoc: <http://pandoc.org/installing.html>
2. MiKTeX: <http://miktex.org/2.9/setup>

Mac OS

1. Pandoc: <http://pandoc.org/installing.html>
2. MacTeX: <http://tug.org/mactex/>

Online publishing your (cloud-based) Jupyter Notebook: Link sharing

Some example for some cloud-hosted code notebook services:

- Google Colab:

<https://colab.research.google.com>

- CoCalc:

<https://cocalc.com/>

If you use a cloud hosted code notebook for programming anyways, then publishing online is often very straightforward as these services usually provide the **option to share the link to the respective code notebook**.

The screenshot displays the CoCalc web interface. At the top, there's a header with the CoCalc logo and the text 'Hello, Colaboratory'. Below this is a menu bar with options: File, Edit, View, Insert, Runtime, Tools, Help. A secondary toolbar contains icons for CODE, TEXT, CELL, and another CELL, along with buttons for COPY TO DRIVE, DISCARD CHANGES, and CONNECT. The main content area shows a 'Welcome to Colaboratory!' message, explaining that it's a Google research project for machine learning education, runs in the cloud, and uses Google Drive for storage. Below the welcome message, there's a section for 'PyCon 2018: Using pandas for Better (and Worse) Data Science' with a GitHub link. The notebook code is visible, showing imports for matplotlib and pandas, and a pandas version check. The output of the version check is '0.23.4'. Below the code, there's a section for 'Dataset: Stanford Open Policing Project (video)' with a link. The notebook also shows a pandas DataFrame with columns: stop_date, stop_time, county_name, driver_gender, driver_age_raw, driver_age, driver_race, and violation_raw. The first three rows of data are displayed.

	stop_date	stop_time	county_name	driver_gender	driver_age_raw	driver_age	driver_race	violation_raw
0	2005-01-02	01:55	NaN	M	1985.0	20.0	White	Speeding
1	2005-01-18	08:15	NaN	M	1965.0	40.0	White	Speeding
2	2005-01-23	23:15	NaN	M	1972.0	33.0	White	Speeding

Online publishing your (local) Jupyter Notebook: Publishing as non-interactive content

Nbviewer

IPython Notebook Viewer is a free webservice that allows you to share **static html** versions of **hosted notebook files**.

You need to provide a **public available URL** for your Notebook.



JUPYTER FAQ

nbviewer

A simple way to share Jupyter Notebooks

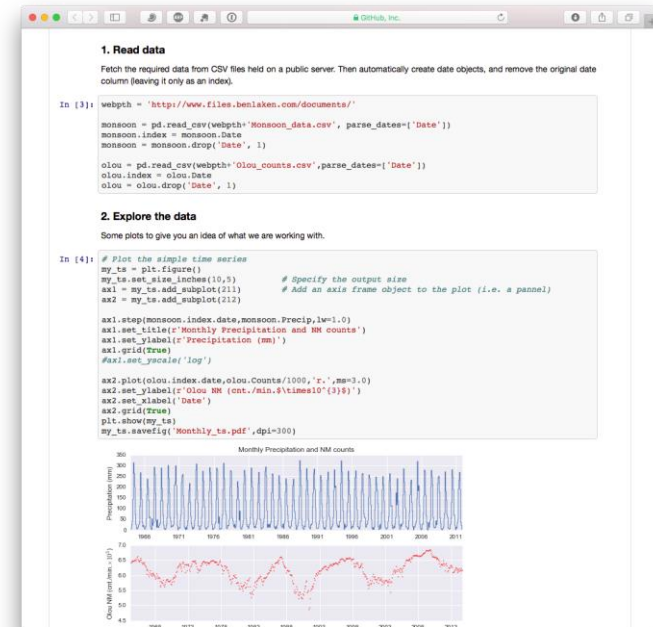
URL | GitHub username | GitHub username/repo | Gist ID

Go!

<https://nbviewer.jupyter.org>

GitHub

Publish your Jupyter notebook directly on GitHub. It will be rendered automatically.



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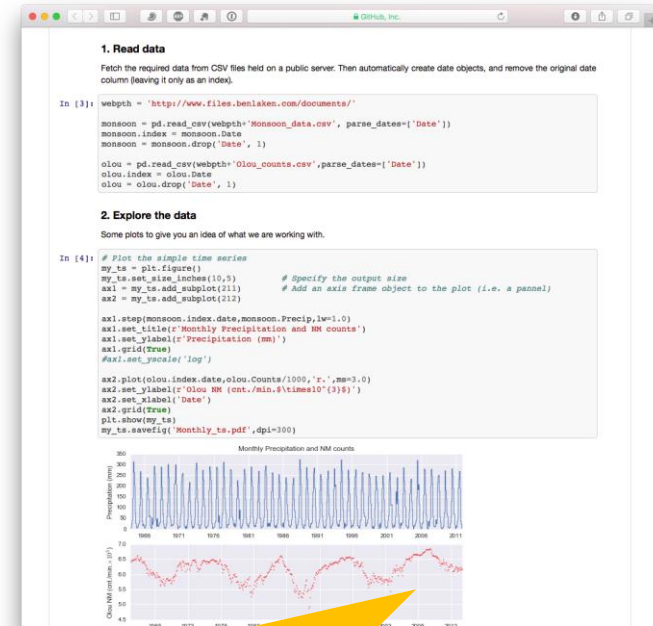
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GitHub

The `.ipynb` file

Publish your Jupyter notebook directly on GitHub. It will be rendered automatically.



Combining a GitHub hosted Jupyter Notebook file with the free online service www.mybinder.org, you can even publish interactive contents.

Further advanced features of Jupyter Notebooks:

Magics

Magics are predefined functions, that can be called with a command line style syntax. There are two kinds of magics:

"%" - one-line magics: Command arguments will all come from that same line

"%%" - cell magics: Entire cell will be used as this command's arguments

Get a first overview

over basic magic commands:

Char	Description
%env	List your environment variables.
%pwd	Show current working directory.
%ls	List files and folders of current working directory.
%time	Times the current line.
%save	Saves the current line.
%load "filename/URL,..."	Loads a file/document.

Further advanced features of Jupyter Notebooks:

Magics example: Embed R code

Insert R code as chunks:

In [20]: `%load_ext rpy2.ipynthon`

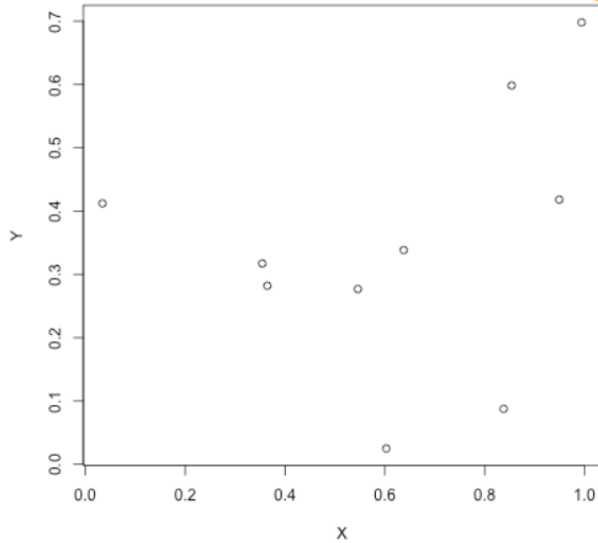
In [21]: `%%R`
`X <- runif(10)`
`Y <- runif(10)`
`plot(X,Y)`

Run R cell ②

R code ③

Load the rpy2 extension. Use `!conda install rpy2` to install if not available. ①

Use `%R plot(X,Y)` if you only have one line of R code ④



Further advanced features of Jupyter Notebooks:

Magics example: Embed a YouTube Video

Goal: Render HTML directly in your notebook and thus embed images and other media.

Example: Include YouTube videos in your website.

Step 1: Go on YouTube, select a video and select "Share">"Embed" and copy the HTML code.

Step 2: use `%%HTML` then add the HTML code in the notebook.

Share **Embed** Email

```
<iframe src="https://www.youtube.com/embed/HW29067qVWk" frameborder="0" allowfullscreen></iframe>
```

```
In [22]: %%HTML
<iframe width="560" height="315" src="https://www.youtube.com/embed/HW290
```

Jupyter Notebook Tutorial: Introduction, Setup, and Walkth...

You can play the video directly from your notebook.



Further advanced features of Jupyter Notebooks:

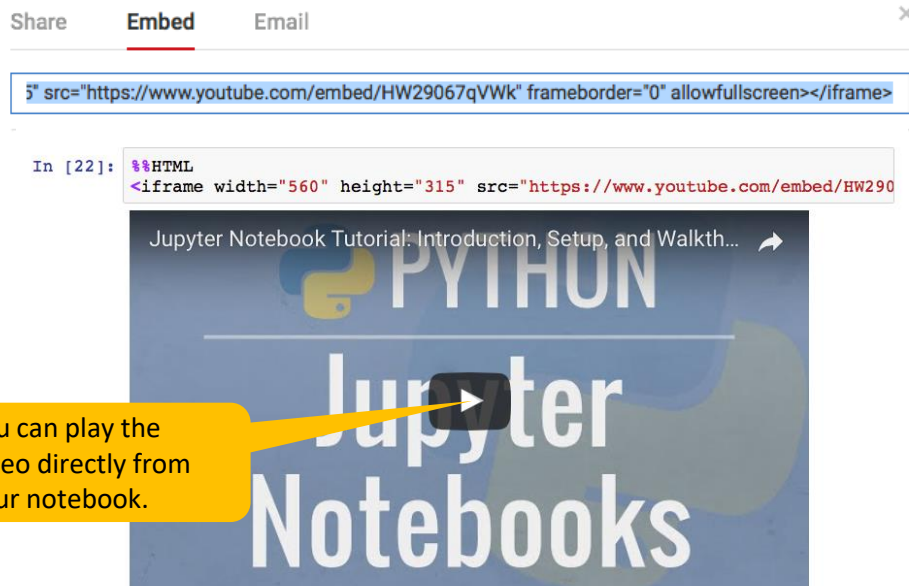
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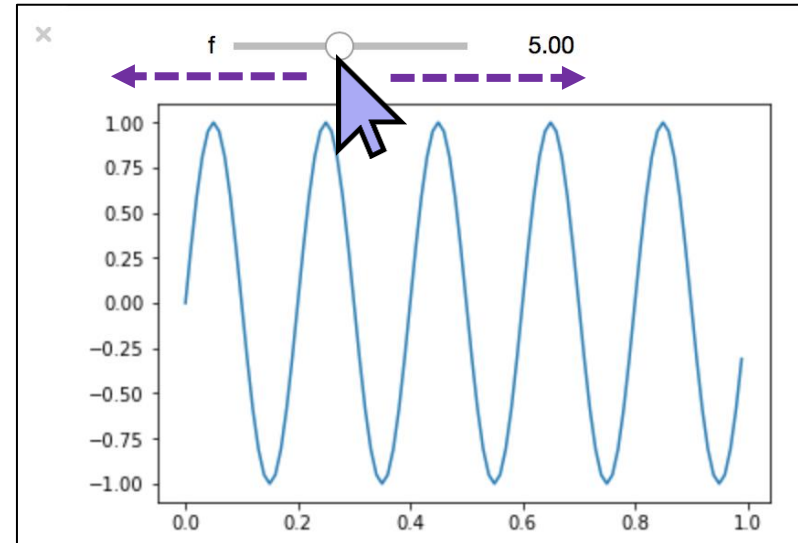
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Further advanced features of Jupyter Notebooks:

Interactive widgets

- Control parameters of Python Code manually
- Generate interactive visualizations
- Provide "lightweight apps"



<https://blog.dominodatalab.com/interactive-dashboards-in-jupyter/>

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