

Version control using Git and Plotting Tutorial

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Why you should use version control

- Does this seem familiar?

```
finalx.tex, finalxFORREAL.tex, finalxIPromise.tex  
finalx!yespickme.tex
```

What is Git?

- Git is the most used version control software in the world ¹
- Git is cross-platform and easy to use.

What is GitHub?

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- Github is a cloud service for git which lets you store your repository online
- Why would you store your repository online?
 - Collaborative work
 - Working remotely
 -
 -

Making a repository

- You can do this online on the Github website
- Create a new repository
- Then click clone to get the url, open git on your computer and type: `git clone url`

Making a repository

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- Make a new repository, then go to the website and make a new folder
- Go to the folder and right click git with bash
- You are now able to use bash for the rest of the talk!

Basic Git commands

- There are four² important commands you will need for git:
- `git pull`
- `git add`
- `git commit`
- `git push`

¹I cheat here and write a bash script which does these in order so I only have to run 1 command.

Advanced Git commands

- The git man page is very useful, especially `man gittutorial`:
-

¹I cheat here and write a bash script which does these in order so I only have to run 1 command.

Why Python?

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- Python is popular, multi-platform and becoming a standard language³
- It is a good high level language to know, it is very flexible

²standard on most of the popular linux distributions

Python syntax

- As with every programming language we should figure out how to do *Hello, world!*

Open python and type:

```
print 'Hello, world!'
```

Plotting

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- Python requires the `numpy` library⁴ for a lot of basic maths functions and arrays.
- We are going to use the `matplotlib` library⁵ for the remainder of this talk.

³<http://www.numpy.org/>

⁴[https:](https://matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html)

[//matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html](https://matplotlib.org/api/_as_gen/matplotlib.pyplot.plot.html)

Example 1, Plotting functions

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- Go to the `src` folder and open `ex1functions.py`
-

Example 1, Plotting functions

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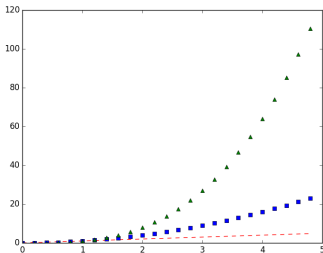


Figure: function plotting

- It could do with some axis labels.
- go into the program and find the line called `plt.ylabel=` and `plt.xlabel=`

Example 2, Complicated functions!

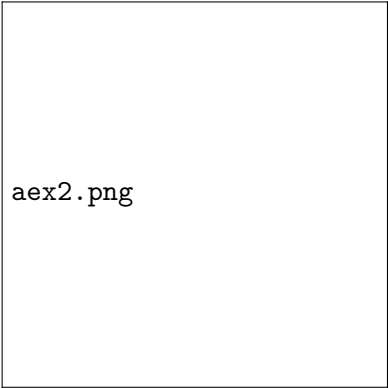
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- In the src folder open `ex2compfunctions.py`
-

Example 2, Complicated functions!

- Figures!



aex2.png

Figure: function plotting

Example 3, Plotting data!

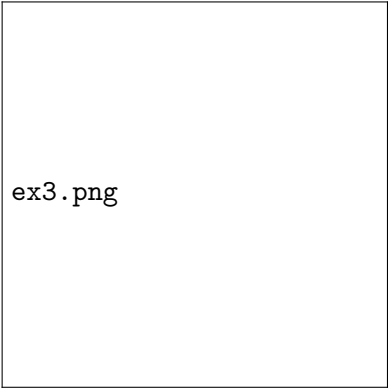
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- once again, in the src folder open `ex3data.py`
-

Example 3, Plotting data!

- figure



ex3.png

Figure: function plotting

Example 4, Histograms!

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- once again, in the src folder open `ex4hist.py`
-

Example 4, Histograms!

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- figure
-

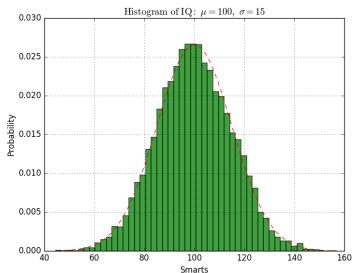


Figure: function plotting

Example 5, Subplots!

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- In the src folder open `ex5subplots.py`
-

Example 5, Subplots!

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- Figures!
-

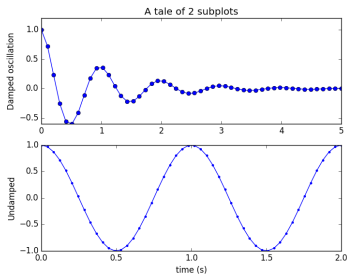


Figure: function plotting

Example 6, Art!

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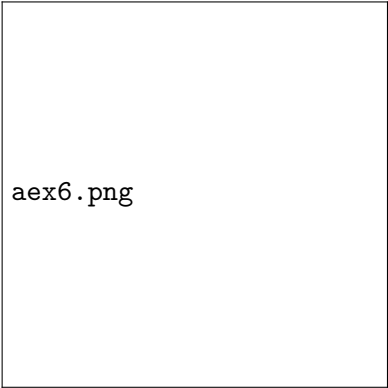
- In the `src` folder open `ex6art.py`
-

Example 6, Art!

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- Figures!



aex6.png

Figure: function plotting

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