Lecture #03
Numpy and Matplotlib
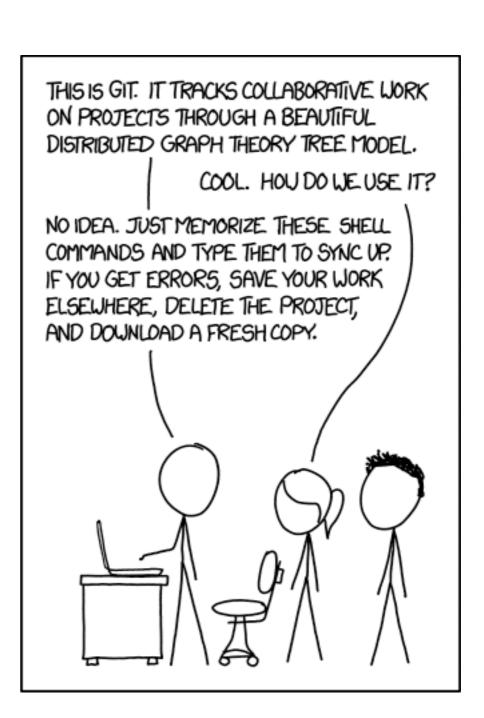
AMath 483/583 - Spring 2016

Today

- Quick demonstration of collaborative git:

  - pull requests

  - setting up other remotes

  - not necessary for class but important for collaborative work

- Overview of how homework is done

- Numpy and Matplotlib

Primary References

- [Numpy Quickstart Tutorial](#)

- [Matplotlib Pyplot Tutorial](#)

Quick Git Demo

- Last time: managing your own public + local repo

- Now: how to connect to other people's versions, initiate pull requests, and merge other changes.

Homework

- Coding portion

  - fill in function definitions

  - run against test suite

  - checked for proper documentation

  - (optionally) tested for performance

- Written portion

  - Questions marked "**Report**"

Homework

- Obtained via a link that I will send you

  - do not fork the repo

  - special system that allows us to easily obtain your homework at the end

  - private repo: only you and admins view/access

- Example: example_python_homework

Numpy

- <u>Fundamental</u> Python package for scientific computing

  - Many sci. packages depend on Numpy.

- Primary construct: multi-dimensional "`ndarray`"

- Explicit data types: array of `int`s, array of `float`s

- Useful tools for linear algebra, signals processing, polynomial arithmetic, statistics, …

Matplotlib

- Standard plotting library for Python

- Excellent notebook integration

- Mostly 2D, some 3D

Rest of the talk…

- …working in a notebook. Doing some examples.

- Notebook will be available in the Lectures repo