Python Intro

Slides at https://goo.gl/a8oMiu

Please install Google Chrome if you don't already have it!

Your Background?

Intro

- Name
- Goals for class
- What you do?

Objectives for Class

If you're a beginner

- We want this workshop to help you decide if programming is right for you
- We want this workshop to help you decide if you should invest more time in Python
- We want you to have material in your hands that can serve as your roadmap for self-study
- The three large user communities in Python...

And we want to “teach you how to fish”
(which can be more frustrating at first)

Objectives for Class

If you're not a beginner

- We want this workshop to help you decide if you should invest more time in Python
- We want you to leave with a roadmap for your own self-study to learn how to program in the *python* way
- We want you to see clearly both the strengths and weaknesses of python

Tooling for Python

Agenda

Tools

- Git / GitHub
- Anaconda

NOTE: This is hard and frustrating, and I only expect about 20% of the class to succeed getting set up. If you don’t succeed setting up your tooling in the workshop, you should try on your own.

BUT, once you have this down, you are in a GREAT position to aggressively learn python!

Tools

- Developers and developer tools are made to run from the command line
- It can be a big task to set up your environment; a task full of perils
- To avoid these perils, we will just use a cloud virtual machine (VM) so we know we are all on the same page

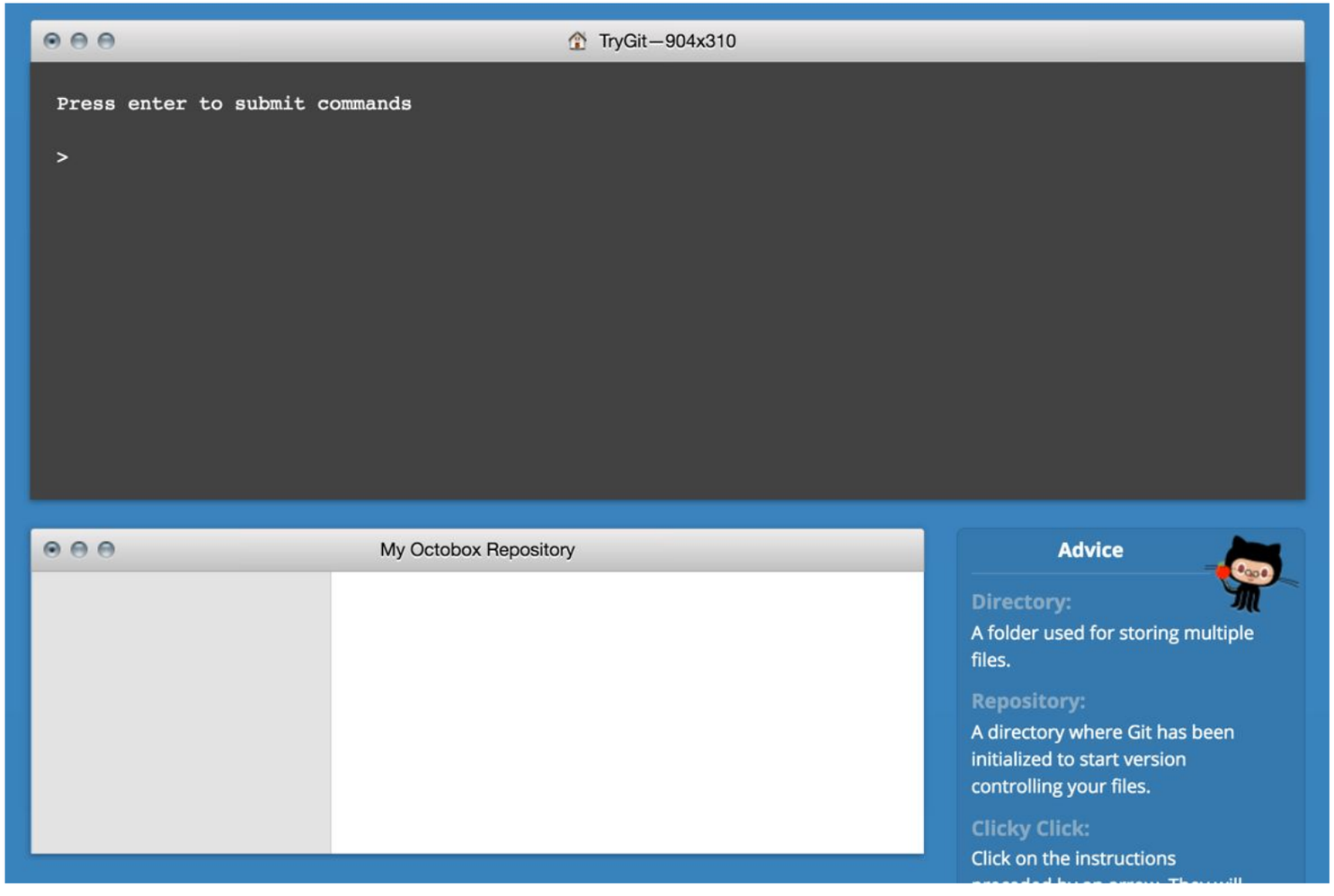
Git / GitHub

Version Control System

- Open Source Software (OSS)
- Immutable
- Fast
- Efficient
- Distributed
- Backbone of developer world….
  - Almost every OSS project on the world is on github (or gitlab)
  - Any job involving code will require you to know git

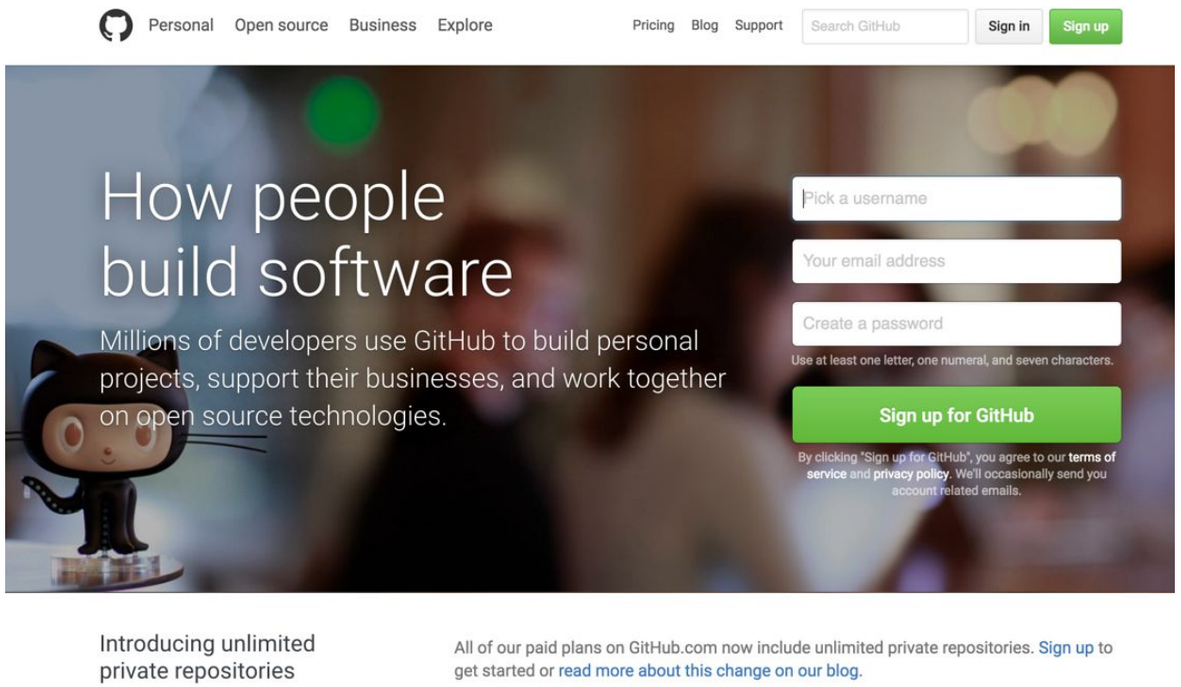
Git

https://try.github.io/



GitHub

- Create an account
- Make a repo (call it “python_class”)
- Clone it to c9
- Copy `test.py` to the repo
- Add, commit, push



Issue Tracking and Pull Requests (PRs)

- Make an issue
- Make a branch
- Fix the issue
- Pull the branch
- Make a PR
- Merge the PR

Jupyter

Google Colab

- Free, hosted solution on Google Cloud
- Notebooks are saved to Google Drive
- https://research.google.com/colaboratory/

Course Notebooks

- https://github.com/anidata/PythonTutorialWithJupyter

Backup

```
%matplotlib inline
import matplotlib.pyplot as plt
from pylab import rcParams
rcParams['figure.figsize'] = (8.0, 6.0)
import pandas as pd
import numpy as np


feed = "http://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/"

# Significant earthquakes in the last 30 days
# url = urllib.request.urlopen(feed + "significant_month.csv")

# Magnitude > 4.5
# url = feed + "4.5_month.csv"
# url = feed + "1.5_month.csv"
url = feed + "1.0_month.csv"
```

https://plot.ly/python/scatter-plots-on-maps/#north-american-precipitation-map

```
import plotly
plotly.tools.set_credentials_file(username=, api_key=)
```

```
import plotly.plotly as py
import plotly
plotly.tools.set_credentials_file(username=, api_key=)

import pandas as pd

# df =
pd.read_csv('https://raw.githubusercontent.com/plotly/datasets/master/2011_february_us_airport_traffic.csv')
# df.head()

feed = "http://earthquake.usgs.gov/earthquakes/feed/v1.0/summary/"

# Magnitude > 4.5
# url = feed + "4.5_month.csv"
# url = feed + "1.5_month.csv"
url = feed + "1.0_month.csv"

df = pd.read_csv(url)



scl = [ [0,"rgb(5, 10, 172)"],[0.35,"rgb(40, 60, 190)"],[0.5,"rgb(70, 100, 245)"],\
    [0.6,"rgb(90, 120, 245)"],[0.7,"rgb(106, 137, 247)"],[1,"rgb(220, 220, 220)"] ]

data = [ dict(
        type = 'scattergeo'
```

```
from sklearn import cluster, datasets
iris = datasets.load_iris()
X = iris.data
y = iris.target

k_means = cluster.KMeans(n_clusters=3)
k_means.fit(X)

labels = k_means.labels_
```