Continuous Integration Testing

http://www.**martinfowler**.com/articles/continuousIntegration.html

Continuous Integration Testing

- Run your tests on every event
  - Commit
  - Pull request
  - http://git-scm.com/book/en/v2/Customizing-Git-Git-Hooks
  - https://help.github.com/articles/creating-webhooks/

- Report status of build
  - Building (compiling and passing all tests)
  - Failing (failed compile or failed test)

Examples

- https://builds.apache.org/

- https://travis-ci.org/

- https://teamcity.jetbrains.com/overview.html
    - select "login as guest"

Our Tools

- GitHub

- Travis Continuous Integration server
  - travis-ci.org
  - Free with **public** GitHub repositories

- Python
  - unittest, DocTest, nosetest

Travis, Jenkins, BuildBot, TeamCity, MS Team Foundation Server, Tinderbox

Requirements

- Specify the build environment

  - which version of Python?

- Automate the build

  - Automate installation of 3rd party libraries

- Automate the testing

  - Unit tests

  - Doc test

  - nosetests

- Hook revision control up to CI server

https://travis-ci.org/

- Let's look at that site again

  https://travis-ci.org/cs360f16/Python-CI-Testing

Add .travis.yml

```
language: python
python:
# - "2.7"
- "3.3"
- "3.4"
# command to install dependencies
install:
- pip install simplejson
# command to run tests
script:
- python -m unittest unittestExample -v
- python -m doctest -v DocTestExample.py
```

Not strictly needed
for demonstration only!

Commit to GitHub!

Travis Configuration

- Log in to Travis with GitHub account

- Allow Travis access to GitHub
  - Travis-ci will show up here:
    https://github.com/settings/applications

- Enable Travis on Python-CI-Testing

Edit README.md

Add some note about testing...

Push to GitHub

Travis CI

- Visit:

  https://travis-ci.org/USER/REPOS

- Lag may be a few minutes

- Did you get an email?

Edit README.md

[![Build Status](https://travis-ci.org/USER/REPOS.svg)](https://travis-ci.org/USER/REPOS)

Push to GitHub

Travis CI

- Visit:

  https://travis-ci.org/USER/REPOS

- Visit:
  - GitHub
  - Do you see the Build status Icon on your README?

Let's Fail a test

- Edit unittestExample.py

- Change any assertEqual to assertNotEqual

- Push to GitHub

- Go check your Travis Page.
  - May lag a few minutes.

- Did you get an email?

Resources

- https://travis-ci.org/

- http://docs.travis-ci.com/user/languages/python/

- http://pythontesting.net/start-here/

- https://nose.readthedocs.org/en/latest/

- **https://github.com/cs360f16/Python-CI-Testing**

Group Exercise

- Willamette shipping calculator
- Items (Cost, Weight, Title, fs)
- get :items, quantity
- shipping
  - .1-1 pounds $5
  - 1.1- 5 pounds $7
  - > 5 pounds $10
  - over $100 cost, free shipping (no matter the weight)
  - Some items are on special and have free shipping!
    - don't count in weight

Build .travis.yml to run the existing test cases

Make sure Travis works.

Add build icon to README.md

Add unittests for each class and invoke via Travis.