PyLadies API Workshop - Installation

Installation Checklist:

- Computer Setup
  - Mac 10.7 and newer:
    - [ ] zlib, libpng, & freetype installation
    - [ ] pip installation
    - [ ] virtualenv installation
    - [ ] Python Package installation
    - [ ] Sanity Check - are all Python packages installed?
    - [ ] Installed a text editor (if you don't have one already)
  - Linux:
    - [ ] update & upgrade system
    - [ ] install compiler, libjpeg, libpng, libfreetype, python dependencies
    - [ ] install virtualenv
    - [ ] Python Package installation
    - [ ] Sanity Check - are all Python packages installed?
    - [ ] Installed a text editor (if you don't have one already)
  - Windows, Mac 10.6 and older, and anyone else having issues:
    - [ ] PythonAnywhere
    - [ ] Python Package installation
    - [ ] Sanity Check - are all Python packages installed?
    - [ ] Installed a text editor (if you don't have one already)
- Application Setup
  - [ ] EchoNest
  - [ ] Spotify
  - [ ] GitHub
- [ ] Before you leave!

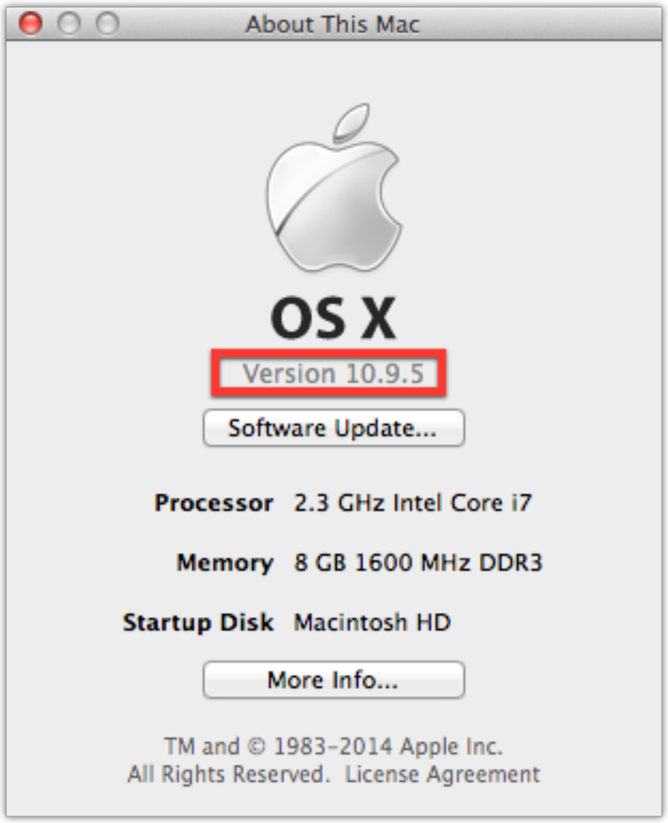
— Computer Setup —

NOTE!!

For Mac or Linux machine having trouble, please feel free to do the Windows/older version of Mac OSX setup as it is all online!

Have a Mac and don't know what version of OS you have?

1. Click on the Apple icon in the upper left corner, and select "About this Mac".
2. A little window will pop up where you can find your version:


About This Mac
OS X
Version 10.9.5
Software Update...
More Info...
TM and © 1983-2014 Apple Inc.
All Rights Reserved. License Agreement

Processor 2.3 GHz Intel Core i7

Memory 8 GB 1600 MHz DDR3

Startup Disk Macintosh HD

Your Mac OS Version

Mac OS X 10.7 and newer (Lion, Mountain Lion & Mavericks)

NOTE: To open up your Terminal application (also called Console):

1. Open up Finder
2. Navigate to "Applications"
3. Navigate to "Utilities"
4. Double-click to launch "Terminal"

I. ZLIB

Have Homebrew installed? If you have homebrew installed (no need to install it!), run first run `brew update`, then `brew install zlib`. Continue onto "II. LIBPNG".

Don't have Homebrew installed? Go to http://www.zlib.net/ and download the latest source code archive. Scroll down to zlib source code, and download version 1.2.7, tar.gz format

In your Downloads folder, double-click the zip file to "unpack" it. Next, in your Terminal window, type the following (no need to type the `$`!):

```
$ cd ~/Downloads
$ cd zlib-1.2.7
$ ./configure
$ make
$ sudo make install
```

GOT AN ERROR? Ask for help!

II. LIBPNG

Have Homebrew installed? If you have homebrew installed (no need to install it!), run `brew install libpng`. Continue onto "III. FREETYPE".

Don't have Homebrew installed? Go to http://www.libpng.org/pub/png/libpng.html and download the latest source code archive. Scroll down and download by clicking the "tar.gz" link on the download.sourceforge.net row.

In your Downloads folder, double-click the zip file to "unpack" it. Next, in your Terminal window, type the following (no need to type the `$`!):

```
$ cd ~/Downloads
$ cd libpng-1.5.14
$ ./configure
$ make
$ make check
$ sudo make install
```

GOT AN ERROR? Ask for help!

III. FREETYPE

Have Homebrew installed? If you have homebrew installed (no need to install it!), run `brew install freetype`. Continue onto "IV. Python Setup".

Don't have Homebrew installed? Go to http://sourceforge.net/projects/freetype/files/latest/download?source=files and the download of the source file should shart automatically

In your Downloads folder, double-click the zip file to "unpack" it. Next, in your Terminal window, type the following (no need to type the `$`!):

```
$ cd ~/Downloads
$ cd freetype-2.4.11
$ ./configure
$ make
$ sudo make install
```

GOT AN ERROR? Ask for help!

IV. Python setup

1. Install pip by following instructions here: get-pip.
2. After you install `pip` with the previous step, run the following commands in your terminal (if prompted for your password, use your password that you use to login to your computer):

```
$ sudo pip install virtualenv
```

GOT AN ERROR? Ask for help!

V. Python Package Installation

For Python Package installation, continue on to **Everyone** below.

Linux (Ubuntu/Debian)

In a terminal:

```
$ sudo apt-get update
$ sudo apt-get upgrade
$ sudo apt-get install build-essential python-dev python-pip libjpeg8-dev libfreetype6-dev libp
ng12-dev
$ sudo pip install virtualenv
```

GOT AN ERROR? Ask for help!

Next, continue on to **Everyone** below.

Linux (Fedora/RHEL)

Note: If `yum <command> <package>` throws an error (it will be my fault because I am trying to do this from memory), I probably gave you the incorrect package name or command. Google "fedora " where package name is the name minus the 'devel', e.g. "fedora install libpng". My apologies for any error!

In a terminal

```
$ sudo yum update
$ sudo yum upgrade
$ sudo yum groupinstall "Development Tools"
$ sudo yum install python-devel python-pip libpng-devel freetype-devel libjpeg-devel
$ sudo pip install virtualenv
```

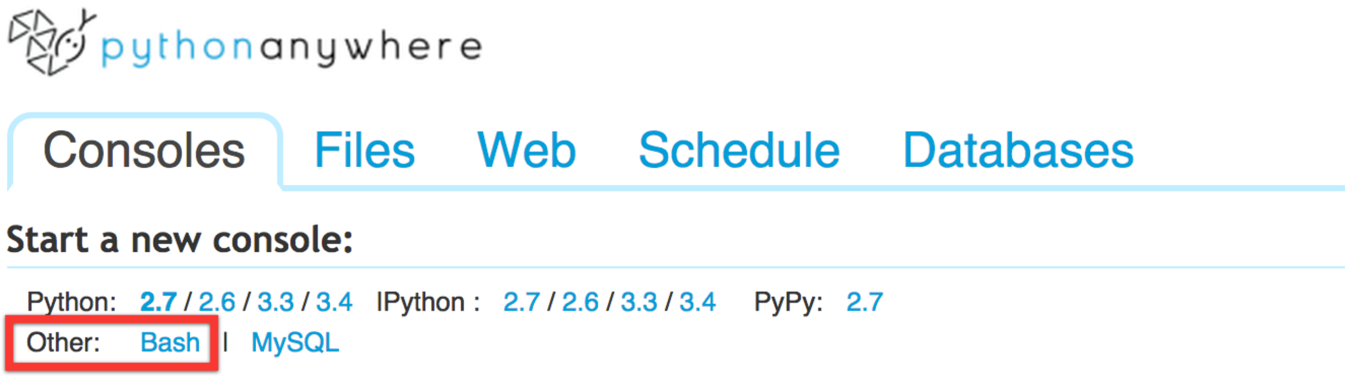
GOT AN ERROR? Ask for help!

Next, continue on to **Everyone** below.

Windows and Mac OS X 10.6 and older

And for anyone with issues setting up their machine :-)

1. Make a free account on PythonAnywhere.
2. Once your account is made, login, and click on "Bash" under "Start a New Console":



PythonAnywhere: Bash console

Continue on to **Everyone** below.

Everyone

Python library installation

Within the console/terminal, setup your project directory with the following commands (no need to type the `$`!):

```
~ $ cd
~ $ mkdir api-project
~ $ cd api-project
~/api-project $ virtualenv env
~/api-project $ source env/bin/activate
# if all is good, you should now see the (env):
(env) ~/api-project $:
```

GOT AN ERROR? Ask for help!

Now for installing:

```
(env) ~/api-project $ pip install github3.py geojson geopy pyen numpy requests
(env) ~/api-project $ pip install matplotlib # for some reason only works *after* numpy is inst
alled
(env) ~/api-project $
```

GOT AN ERROR? Ask for help!

For Mac OSX Mavericks:

For matplotlib to work on Mavericks, *copy and paste* the following commands into your terminal:

First, copy & paste:

```
mkdir ~/.matplotlib
```

Then, copy & paste:

```
echo "backend: TkAgg" >> ~/.matplotlib/matplotlibrc
```

GOT AN ERROR? Ask for help!

Check your setup

1. Close your terminal, and reopen it - let's start fresh!
2. In your terminal, type:

```
$ cd
```

This gets into your "Home" directory. `cd` means "change directory", and we had nothing after it, so it defaults to "Home". You may see "Home" denoted with a `~` sometimes - it means the same.

3. Now move into your project directory by using the same "change directory" command, followed by the new project directory name we created:

```
$ cd api-project
```

Now, if no errors happened, you may (or may not, or something similar, depending on how your console is setup) see the directory name preceding the `$`:

```
~/api-project $
```

GOT AN ERROR? Ask for help!

4. Now to (re-)activate the virtualenv for the project:

```
~/api-project $ source env/bin/activate
```

Here, we "source"-ed a file called "activate". "source" literally executes the contents of the file after it. Here that file is named "activate" within the `env/bin/` directory.

REMEMBER!: Remember the above command, `source env/bin/activate` to turn "on" your virtualenv.

If all is okay, you should see:

```
(env) ~/api-project $
```

GOT AN ERROR? Or don't see the `(env)`? Ask for help!

5. Let's quickly get familar with activating & deactivating our virtualenv. Type the following to turn "off" the virtualenv named `(env)`:

```
(env) ~/api-project $ deactivate
```

You should see your Terminal prompt return to normal, without the `(env)` preceding your directory location and `$`:

```
~/api-project $
```

Now let's reactivate! Do you remember what to do? Hint: it's that `source env/bin/activate` command!

REMEMBER!: Remember the above commands, `source env/bin/activate` to turn "on" your virtualenv, and `deactivate` to turn it off when you are done for the day.

6. Next let's run a Python shell:

```
(env) api-project $ python
```

And you should see something like this:

```
Python 2.7.8 (default, Sep 12 2014, 10:03:22)
[GCC 4.2.1 Compatible Apple LLVM 5.1 (clang-503.0.40)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

GOT AN ERROR? Ask for help!

7. Now, let's see if we can literally import all the Python packages that we `pip installed` earlier. Type the following to see if we can correctly import `geojson`:

```
>>> import geojson
```

With each `import` statement, **you should not see anything happen**, just another `>>>` prompt. That means they have been installed just fine.

However, if you see any error message like the following, please ask for help:

```
>>> import foo
Traceback (most recent call last):
  File "<stdin>", line 1, in
ImportError: No module named foo
```

8. Now continue on testing with the rest of the packages:

```
>>> import geopy
>>> import pyen
>>> import numpy
>>> import matplotlib
>>> import github3
>>> import requests
```

Python setup is complete! Please continue below with “Install a Text Editor”.

Install a Text Editor

If you do not have a text editor already (e.g. Sublime Text 2 or 3, TextMate, Notepad++, gedit, Vim, Emacs, etc. **NOT** TextEdit, Word, or any other word processor), I’d suggest installing Sublime Text 2. It’s free (it will just bug you to register every 10 times you save or so, just ignore).

Sublime Text 2 can be downloaded here.

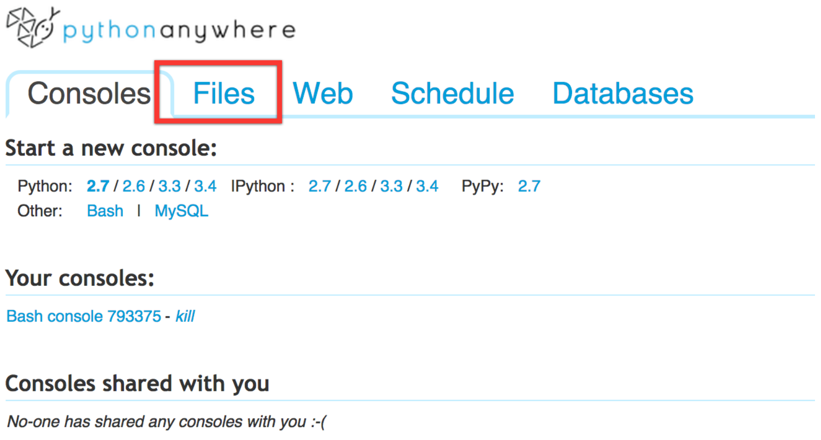
We need a text editor to actually write our Python code.

All done? Once you have a text editor, continue to “App Registration/Setup” down below.

NOTE FOR PYTHONANYWHERE FOLKS

With PythonAnywhere, you can either:

- write code PythonAnywhere instead of in a text editor like Sublime Text:
    1. Click on “Files”:



Start a new console:

Python: 2.7 / 2.6 / 3.3 / 3.4 IPython : 2.7 / 2.6 / 3.3 / 3.4 PyPy: 2.7
Other: Bash | MySQL

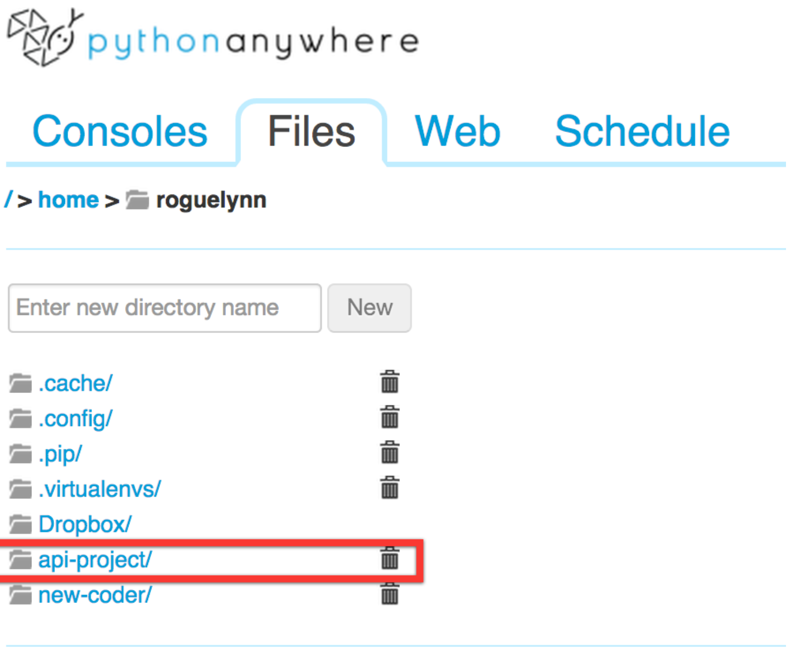
Your consoles:

Bash console 793375 - *kill*

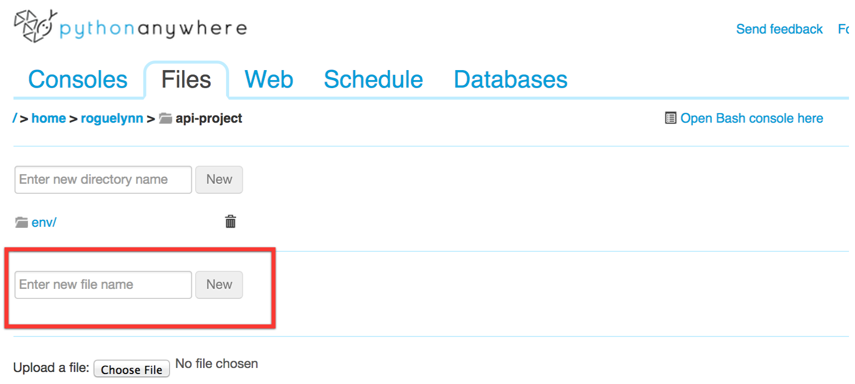
Consoles shared with you

No-one has shared any consoles with you :-(

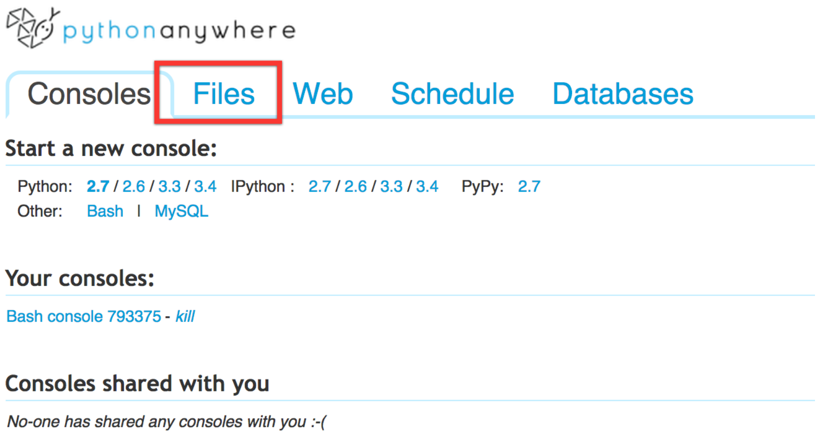
    2. Click on “api-project” directory - the directory you made above:



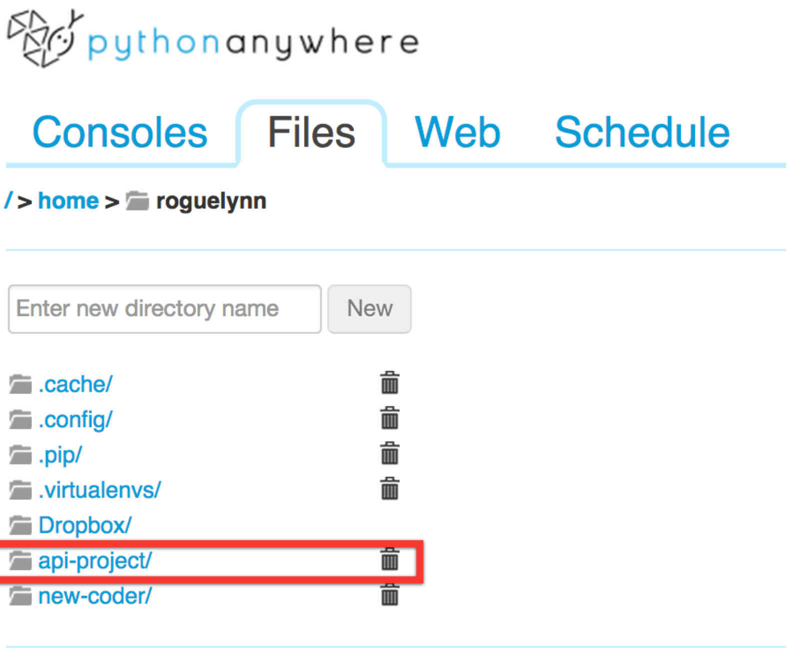
3. (when we are at the workshop Saturday) Create a new file via:



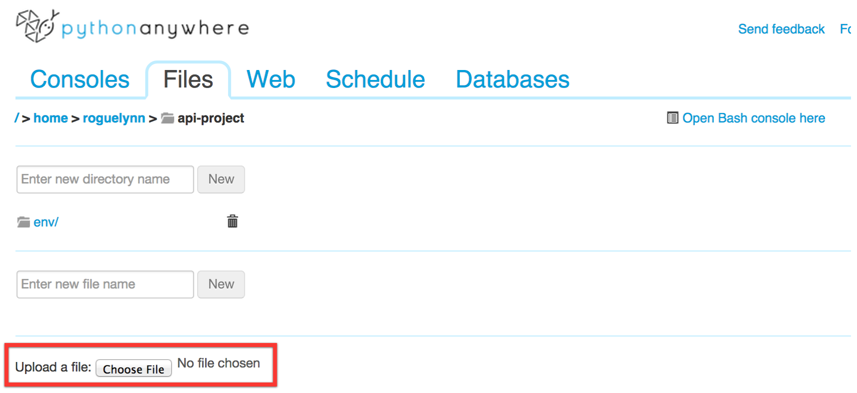
- or write code on Sublime Text or any other text editor and upload it to PythonAnywhere to run:
    1. Click on "Files":


pythonanywhere
Consoles
Files
Web
Schedule
Databases
Start a new console:
Python: 2.7 / 2.6 / 3.3 / 3.4 IPython : 2.7 / 2.6 / 3.3 / 3.4 PyPy: 2.7
Other: Bash | MySQL
Your consoles:
Bash console 793375 - kill
Consoles shared with you
No-one has shared any consoles with you :-(

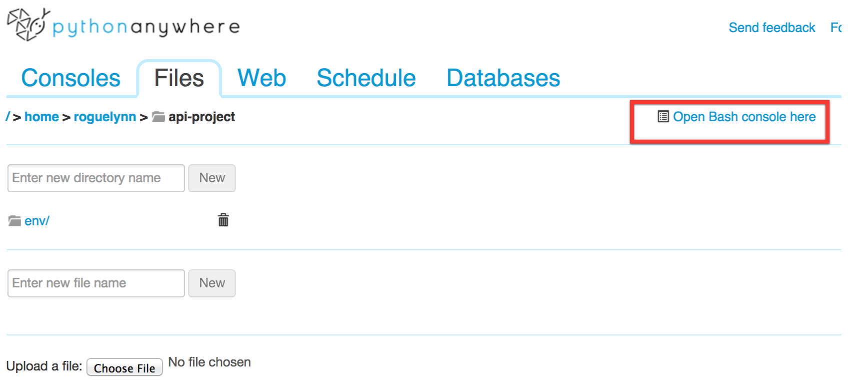
    2. Click on "api-project" directory - the directory you made above:



3. (when we are at the workshop Saturday) Click on “Upload a file” and select the Python file to upload:



When I say “within your terminal” or “console”, this is in reference to running code. The easiest way for PythonAnywhere folks to get to the terminal/console after editing or uploading a file, click “Open Bash Console Here”:



Another option is going back to “Consoles”, clicking the one console under “Your Console”. You should see something like this:

```
(env) roguelynn@giles-liveconsole2:~/api-project$
```

Notice at the end, the `~/api-project$`. This is telling me I am in the `api-project` directory, and this is good!

If you are not taken to where you were left off (e.g. in the same directory, `api-project`, with the `(env)` activated, type the following:

```
roguelynn@giles-liveconsole2:~$ cd api-project
roguelynn@giles-liveconsole2:~/api-project$ source env/bin/activate
(env)roguelynn@giles-liveconsole2:~/api-project$
```

Feel free to play around here to get familiar with going back and forth from your Files and Console, making sure the `(env)` is activated.

— App Registration/Setup —

In working with a company's APIs, you often need to register with their website so you can get a "key" to access the API. Registration is often free for small-time devs like us.

We will need to register for EchoNest and Spotify to use their APIs. If you have a GitHub account, please follow the GitHub instructions. Otherwise, there's no need to create a GitHub account for now.

Create a config file

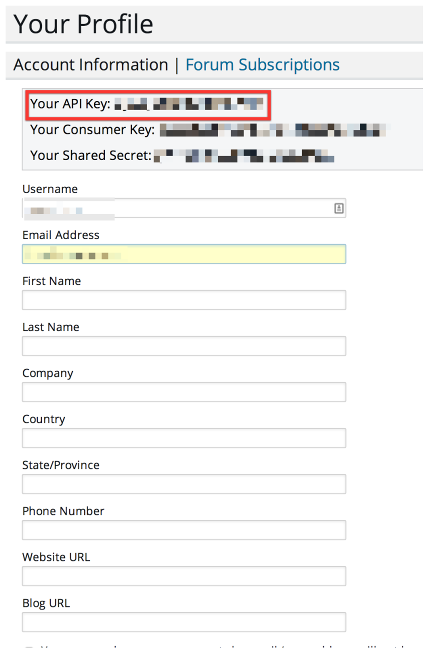
First, in your `api-project` directory, create a file called `config.ini`. We will save all of our developer keys from EchoNest, Spotify, and GitHub here. Copy and paste the following text into your `config.ini` file:

```
[echonest]
api_key =

[spotify]
client_id =
client_secret =

[github]
oauth =
```

EchoNest

Developer's site: EchoNest

1. If you don't already, create a free developer's account for EchoNest here. Be sure to verify your account through the email they send.
2. Once your account is created, you should have the API key information already available in your account profile:



Your Profile

Account Information | Forum Subscriptions

Your API Key: [redacted]
Your Consumer Key: [redacted]
Your Shared Secret: [redacted]

Username: [redacted]

Email Address: [redacted]

First Name

Last Name

Company

Country

State/Province

Phone Number

Website URL

Blog URL

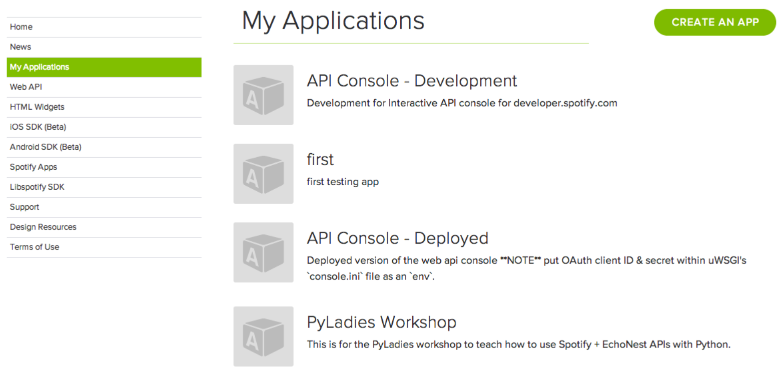
3. Copy and paste your API key to into `newcoder-api/src/newcoder-api/config.ini` like so:

```
[echonest]
api_key = YOUR_SUPER_SECRET_API_KEY
```

Spotify

Developer's site: Spotify.

1. If you don't already, create a free account on Spotify.
2. Create a new application connected to your Spotify account here and click on 'Create an App':



My Applications

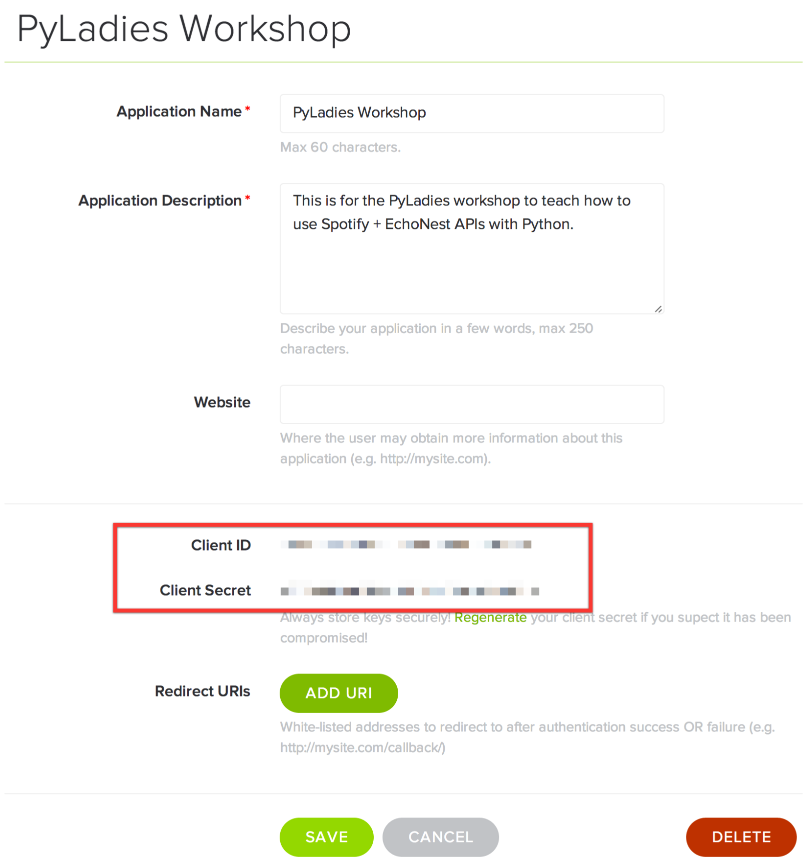
API Console - Development
Development for Interactive API console for developer.spotify.com

first
first testing app

API Console - Deployed
Deployed version of the web api console **NOTE** put OAuth client ID & secret within uWSGI's `console.ini` file as an `env`.

PyLadies Workshop
This is for the PyLadies workshop to teach how to use Spotify + EchoNest APIs with Python.

3. Fill in a name and a description for your application (doesn't matter, but something that makes sense to you).
4. After submitting, you'll be directed to your new app, where you'll see your `Client ID` and `Client Secret`.



PyLadies Workshop

Application Name *	PyLadies Workshop Max 60 characters.
Application Description *	This is for the PyLadies workshop to teach how to use Spotify + EchoNest APIs with Python. Describe your application in a few words, max 250 characters.
Website	 Where the user may obtain more information about this application (e.g. http://mysite.com).
Client ID	[redacted]
Client Secret	[redacted] Always store keys securely! Regenerate your client secret if you supect it has been compromised!
Redirect URIs	ADD URI White-listed addresses to redirect to after authentication success OR failure (e.g. http://mysite.com/callback/)

5. Copy and paste the `Client ID` and `Client Secret` into your `config.ini` file under the `[spotify]` section, like so:

```
[echonest]
api_key = SUPER_SECRET_API_KEY

[spotify]
client_id = MY_SPOTIFY_CLIENT_ID
client_secret = MY_SPOTIFY_CLIENT_SECRET
```

GitHub

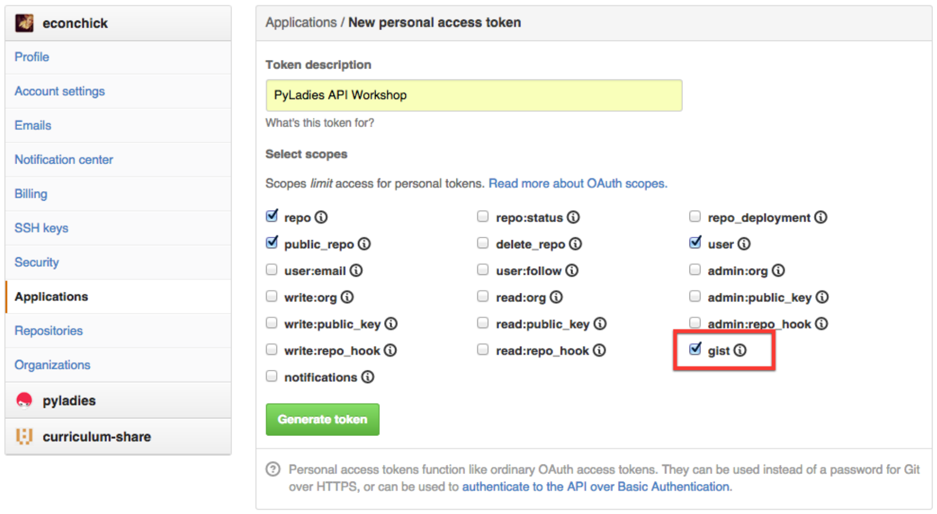
- GitHub

If you don't have an account at GitHub and you don't want to create one, write `None` next to `oauth =` in the `config.ini` file, so you're `config.ini` looks like:

```
[echonest]
api_key = SUPER_SECRET_API_KEY

[spotify]
client_id = MY_SPOTIFY_CLIENT_ID
client_secret = MY_SPOTIFY_CLIENT_SECRET

[github]
oauth = None
```

If you **do** have an account (or want to create a free one, here):

1. Create a token for your application here.
   - Write whatever you'd like in the Token description
   - **IMPORTANT**: be sure to have 'gists' checked!



econchick
Profile
Account settings
Emails
Notification center
Billing
SSH keys
Security
Applications
Repositories
Organizations
pyladies
curriculum-share

Applications / **New personal access token**

Token description

PyLadies API Workshop

What's this token for?

Select scopes

Scopes *limit* access for personal tokens. Read more about OAuth scopes.

✓ repo	☐ repo:status	☐ repo_deployment
✓ public_repo	☐ delete_repo	✓ user
☐ user:email	☐ user:follow	☐ admin:org
☐ write:org	☐ read:org	☐ admin:public_key
☐ write:public_key	☐ read:public_key	☐ admin:repo_hook
☐ write:repo_hook	☐ read:repo_hook	✓ gist
☐ notifications		

Generate token

Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

   - After you click `Generate Token`, copy the token and save it to `config.ini`, under the `[github]` section, like so:

```
[echonest]
api_key = SUPER_SECRET_API_KEY
consumer_secret = SUPER_SECRET_CONSUMER_KEY
shared_secret = SUPER_SECRET_SHARED_SECRET

[spotify]
client_id = MY_SPOTIFY_CLIENT_ID
client_secret = MY_SPOTIFY_CLIENT_SECRET
redirect_uri = http://localhost:5000/callback

[github]
oauth = GITHUB_PERSONAL_OAUTH_TOKEN
```

Before you leave for the evening!

Please grab a mentor, and show him/her the following:

1. Your `config.ini` file.
2. That you have a text editor installed.
3. With your terminal open:
   1. Show that you can get into your project directory, the `api-project`, via the `cd` command (ask for help if you're not sure!)
   2. Show that you can activate & deactivate your virtualenv
   3. **IMPORTANT STEP!** Within the activated virtualenv, run `pip list` for the mentor to review the output
4. Have some wine & cheese.
5. Feel awesome and prepared for Saturday's workshop!

See you in the morning!