

# Django (and Web Application Frameworks)

Joel Bremson

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[jbremson@ucdavis.edu](mailto:jbremson@ucdavis.edu)

@LUGOD

# Web Application Frameworks



# Definition

**A web application framework is a software framework that is designed to support the development of dynamic websites, web applications and web services.**

- [http://en.wikipedia.org/wiki/Web\\_application\\_framework](http://en.wikipedia.org/wiki/Web_application_framework)



WIKIPEDIA  
*The Free Encyclopedia*

# Options!



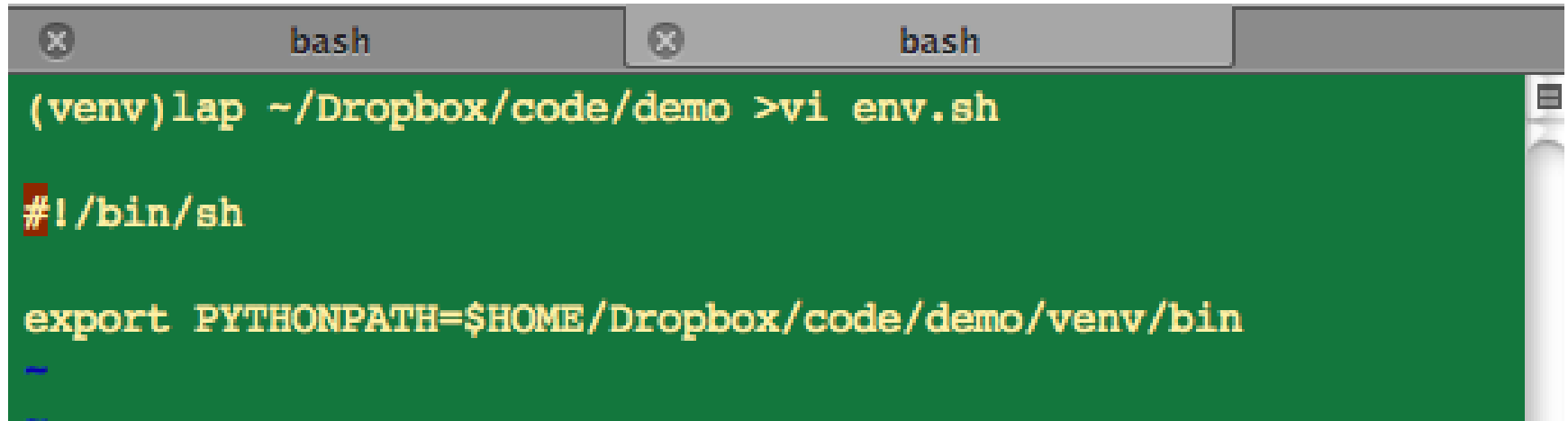
???



# Installing Django

```
lap ~/Dropbox/code >mkdir demo
lap ~/Dropbox/code >cd demo
lap ~/Dropbox/code/demo >virtualenv --no-site-packages venv
New python executable in venv/bin/python
Installing setuptools.....done.
lap ~/Dropbox/code/demo >./venv/bin/activate
-bash: ./venv/bin/activate: Permission denied
lap ~/Dropbox/code/demo >source ./venv/bin/activate
(venv)lap ~/Dropbox/code/demo >which python
/Users/joelbremson/Dropbox/code/demo/venv/bin/python
```

# Installing Django



```
(venv)lap ~/Dropbox/code/demo >vi env.sh
#!/bin/sh
export PYTHONPATH=$HOME/Dropbox/code/demo/venv/bin
-
```

The image shows a terminal window with two tabs, both labeled 'bash'. The terminal content is as follows:

# Installing Django

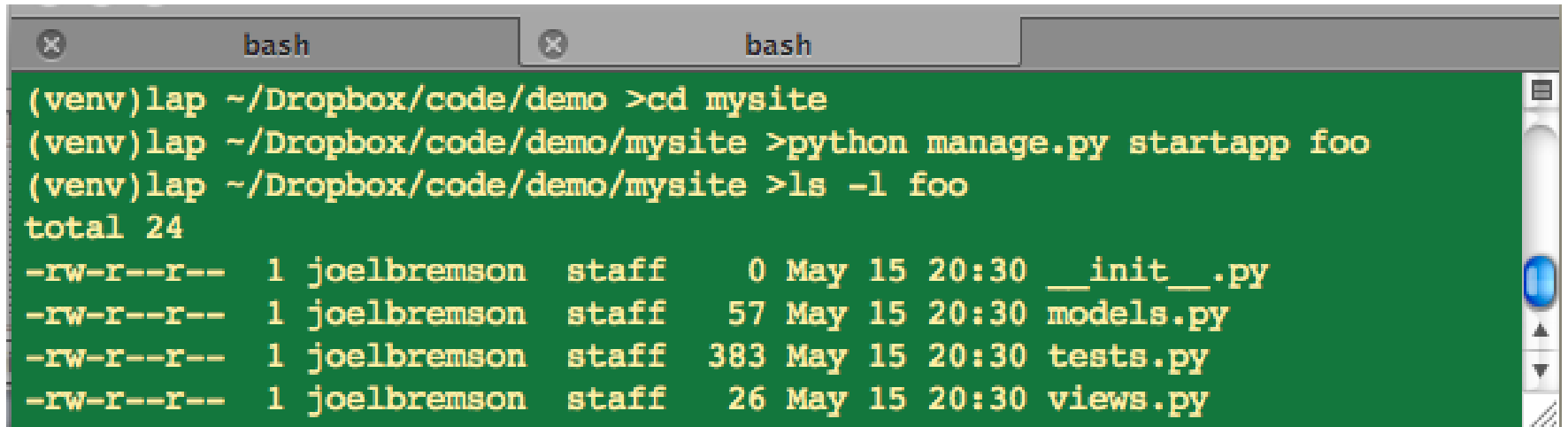
```
(venv)lap ~/Dropbox/code/demo >pip install django
Downloading/unpacking django
  Downloading Django-1.3.tar.gz (6.5Mb): 6.5Mb downloaded
  Running setup.py egg_info for package django
Installing collected packages: django
  Running setup.py install for django
    changing mode of build/scripts-2.6/django-admin.py from 644
to 755
    changing mode of /Users/joelbremson/Dropbox/code/demo/venv/
bin/django-admin.py to 755
Successfully installed django
```

# Installing Django

```
(venv)lap ~/Dropbox/code/demo >django-admin.py startproject mysite
(venv)lap ~/Dropbox/code/demo >ls
env.sh mysite venv
(venv)lap ~/Dropbox/code/demo >ls -l mysite
total 32
-rw-r--r--  1 joelbremson  staff    0 May 15 20:26 __init__.py
-rw-r--r--  1 joelbremson  staff  503 May 15 20:26 manage.py
-rw-r--r--  1 joelbremson  staff 5031 May 15 20:26 settings.py
-rw-r--r--  1 joelbremson  staff  565 May 15 20:26 urls.py
(venv)lap ~/Dropbox/code/demo >
(venv)lap ~/Dropbox/code/demo >
(venv)lap ~/Dropbox/code/demo >
```



# Installing Django



A terminal window with a green background and white text. The window has two tabs labeled 'bash'. The terminal shows the following commands and output:

```
(venv)lap ~/Dropbox/code/demo >cd mysite
(venv)lap ~/Dropbox/code/demo/mysite >python manage.py startapp foo
(venv)lap ~/Dropbox/code/demo/mysite >ls -l foo
total 24
-rw-r--r--  1 joelbremson  staff    0 May 15 20:30 __init__.py
-rw-r--r--  1 joelbremson  staff   57 May 15 20:30 models.py
-rw-r--r--  1 joelbremson  staff  383 May 15 20:30 tests.py
-rw-r--r--  1 joelbremson  staff   26 May 15 20:30 views.py
```

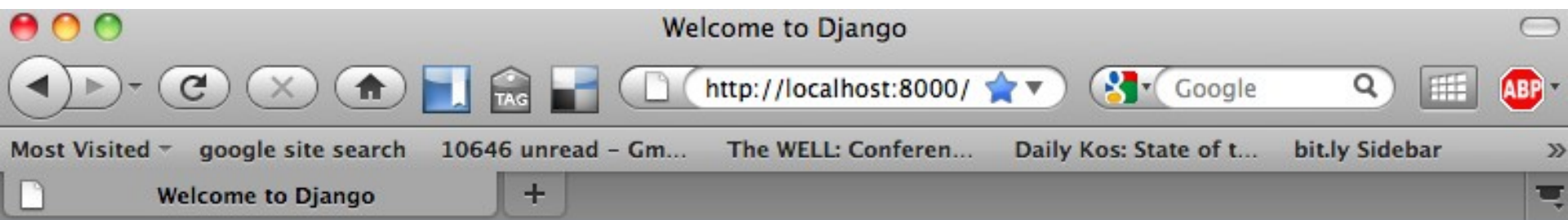
# Installing Django

A terminal window with a dark green background and yellow text. The window has two tabs: 'bash' and 'python'. The text in the terminal shows the execution of 'python manage.py runserver' in a virtual environment, followed by model validation, a confirmation of 0 errors, and the server starting at http://127.0.0.1:8000/.

```
(venv)lap ~/Dropbox/code/demo/mysite >python manage.py runserver
Validating models...

0 errors found
Django version 1.3, using settings 'mysite.settings'
Development server is running at http://127.0.0.1:8000/
Quit the server with CONTROL-C.
```

# Installing Django



**It worked!**

Congratulations on your first Django-powered page.

Of course, you haven't actually done any work yet. Here's what to do next:

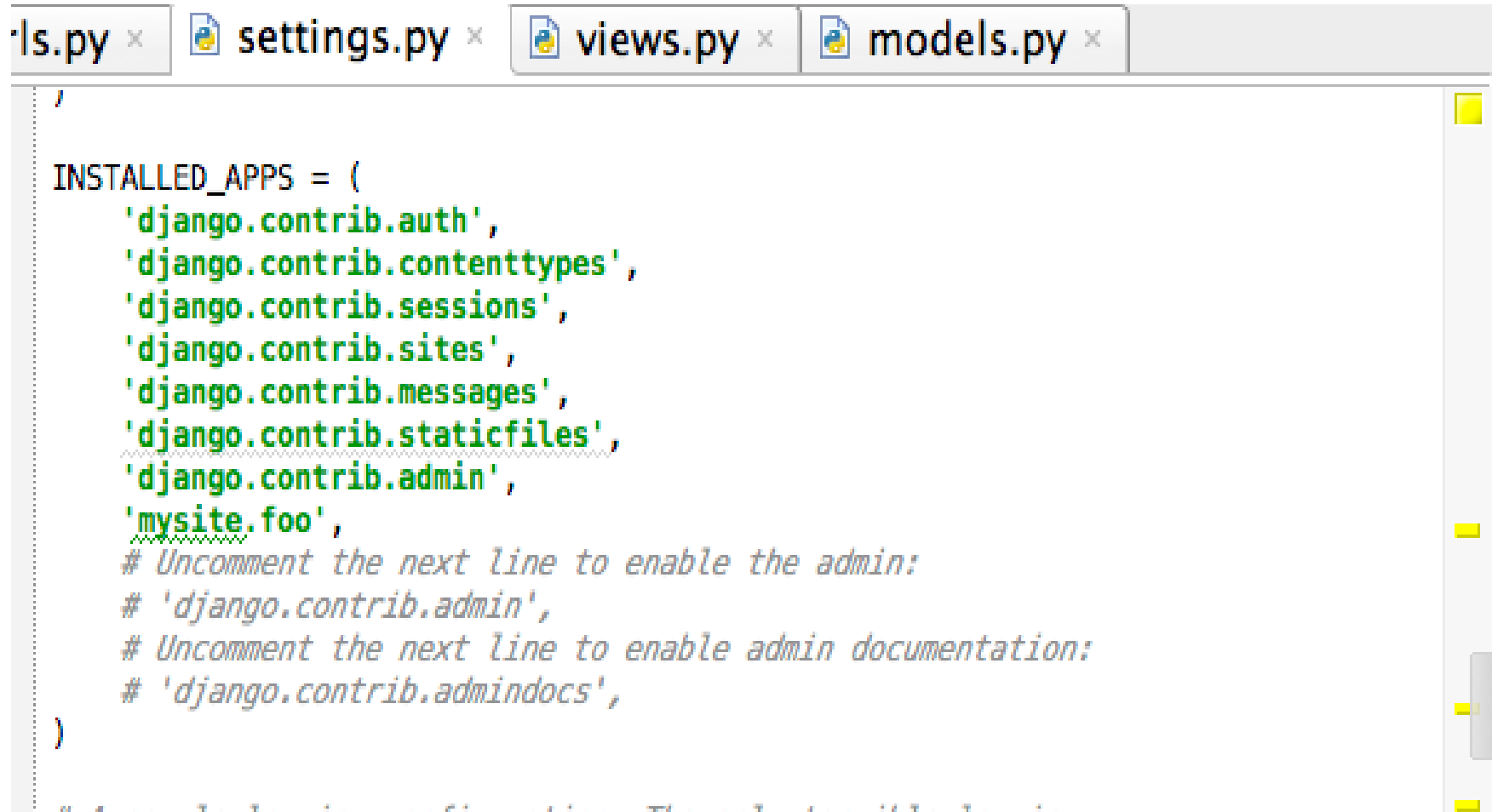
- If you plan to use a database, edit the `DATABASES` setting in `mysite/settings.py`.
- Start your first app by running `python mysite/manage.py startapp [appname]`.

You're seeing this message because you have `DEBUG = True` in your Django settings file and you haven't configured any URLs. Get to work!

# settings.py

```
urls.py × settings.py × views.py × models.py ×
7  ADMINS = [
8      # ('Your Name', 'your_email@example.com'),
9  ]
10
11  MANAGERS = ADMINS
12
13  DATABASES = {
14      'default': {
15          'ENGINE': 'django.db.backends.sqlite3', # Add 'postgresql_psycopg2', 'po
16          'NAME': "%s/Dropbox/code/demo/foo.sqlite" % os.environ['HOME'],
17          'USER': '', # Not used with sqlite3.
18          'PASSWORD': '', # Not used with sqlite3.
19          'HOST': '', # Set to empty string for localhost. No
20          'PORT': '', # Set to empty string for default. Not
21      }
22  }
23
24  # Local time zone for this installation. Choices can be found here:
25  # http://en.wikipedia.org/wiki/List_of_tz_zones_by_name
```

# settings.py



```
ls.py x settings.py x views.py x models.py x  
,  
INSTALLED_APPS = (  
    'django.contrib.auth',  
    'django.contrib.contenttypes',  
    'django.contrib.sessions',  
    'django.contrib.sites',  
    'django.contrib.messages',  
    'django.contrib.staticfiles',  
    'django.contrib.admin',  
    'mysite.foo',  
    # Uncomment the next line to enable the admin:  
    # 'django.contrib.admin',  
    # Uncomment the next line to enable admin documentation:  
    # 'django.contrib.admindocs',  
)  
# A sample Django configuration. The rest of the file is...
```

# Django is Python

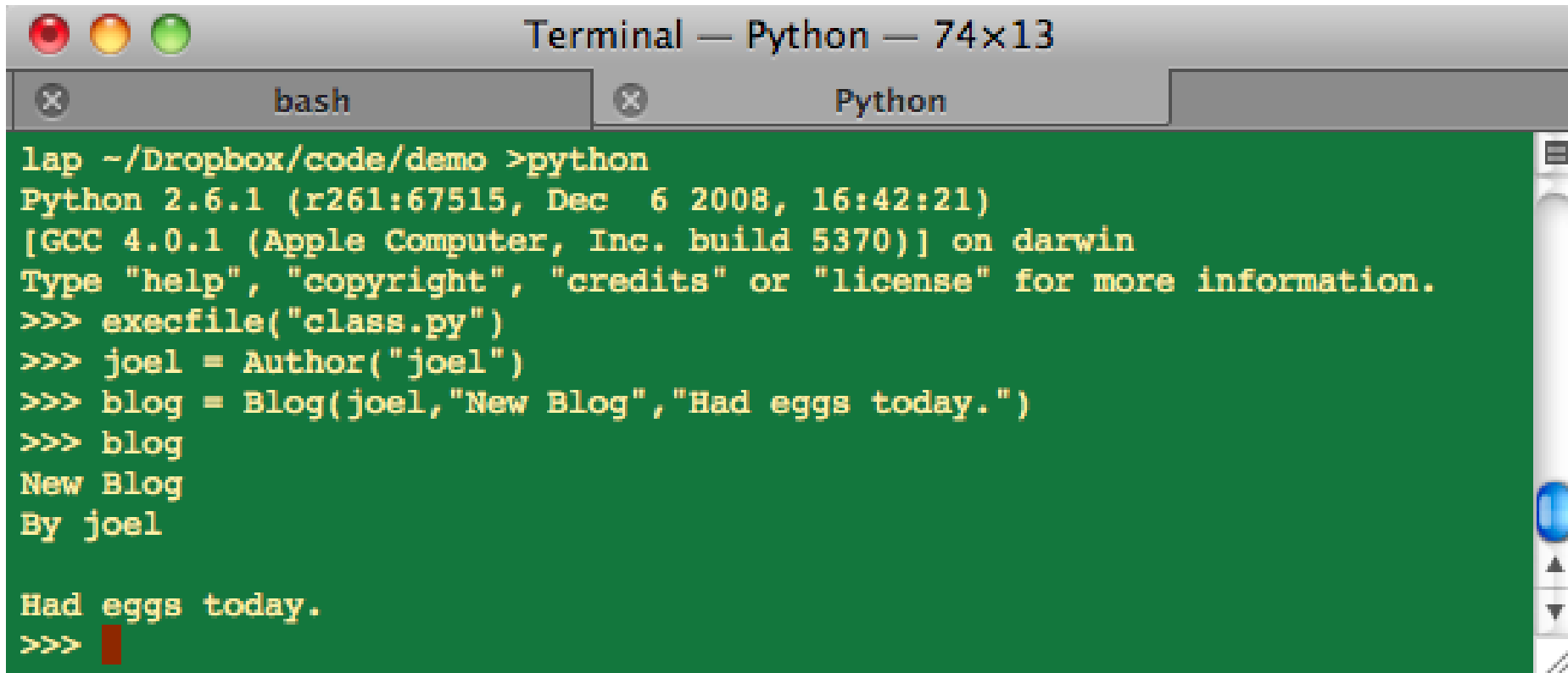
```
class Author:
    def __init__(self, name):
        self.name = name

    def __repr__(self):
        return "Author is %s" % self.name

class Blog:
    def __init__(self, author, title, text=None):
        self.author = author
        self.title = title
        self.text = text

    def __repr__(self):
        return "%s\nBy %s\n\n%s" % (self.title, self.author.name, self.text)
```

# Django is Python

A screenshot of a macOS Terminal window titled "Terminal — Python — 74x13". The window has three tabs: "bash", "Python", and an unlabeled tab. The "Python" tab is active, showing a green background with yellow text. The text shows the execution of a Python script named "class.py" which creates an Author object named "joel" and a Blog object named "New Blog" with the content "Had eggs today.". The output of the script is displayed on the terminal lines.

```
lap ~/Dropbox/code/demo >python
Python 2.6.1 (r261:67515, Dec 6 2008, 16:42:21)
[GCC 4.0.1 (Apple Computer, Inc. build 5370)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
>>> execfile("class.py")
>>> joel = Author("joel")
>>> blog = Blog(joel, "New Blog", "Had eggs today.")
>>> blog
New Blog
By joel

Had eggs today.
>>>
```

# Python -> Django

```
from django.db import models

# Create your models here.

class Author(models.Model):

    name=models.CharField(max_length=40)

    def __unicode__(self):
        return "Author is %s" % self.name

class Blog(models.Model):

    author = models.ForeignKey(Author)
    title = models.CharField(max_length=80)
    text = models.TextField(max_length=500)

    def __unicode__(self):
        return "%s\nBy %s\n\n%s" % (self.title, self.author.name, self.text)
```



# The Tools

- `virtualenv`
- `pip`
- `fabric`

# Getting Help

- [www.djangoproject.com](http://www.djangoproject.com)
- [stackoverflow.com](http://stackoverflow.com)
- [www.python.org](http://www.python.org)
- IRC - #django on freenode.net

# Thanks

- Questions
- <http://autopiagame.com>
- [jbremson@ucdavis.edu](mailto:jbremson@ucdavis.edu)