# Software Installation: Specifics for Linux and Docker

Capstone: Photo Tourist Web Application



#### In this lecture, we will discuss...

- Development Environment Setup for Docker
  - Docker
  - Docker-Compose

#### ♦ WARNING!

- This is not a lesson in learning Docker
- This material is here for individuals already familiar with Docker
- Contains information on how to setup Rails/Docker



## Compose Services/Virtual Machines

- postgres
  - PostgreSQL instance
- → mongo
  - MongoDB instance
- - Rails Server
- - Variant of railsvm
  - Runs all tests
  - No interaction

- ♦ test
  - Variant of railsvm
  - Exposes test debug using VNC server
- - Chrome node
  - Firefox node
  - Exposes test debug through VNC instance

#### Service Contents

- postgres
  - PostgreSQL (latest)
- → mongo
  - MongoDB (latest)

- - Firefox (iceweasel)
  - Ruby (>= v2.2)
  - node.js (latest)
  - ImageMagick (v6.9.x)
  - PhantomJS (v2.1.1)
  - rails (v4.2.6)
  - rails-api
  - bundler

## Prerequisites

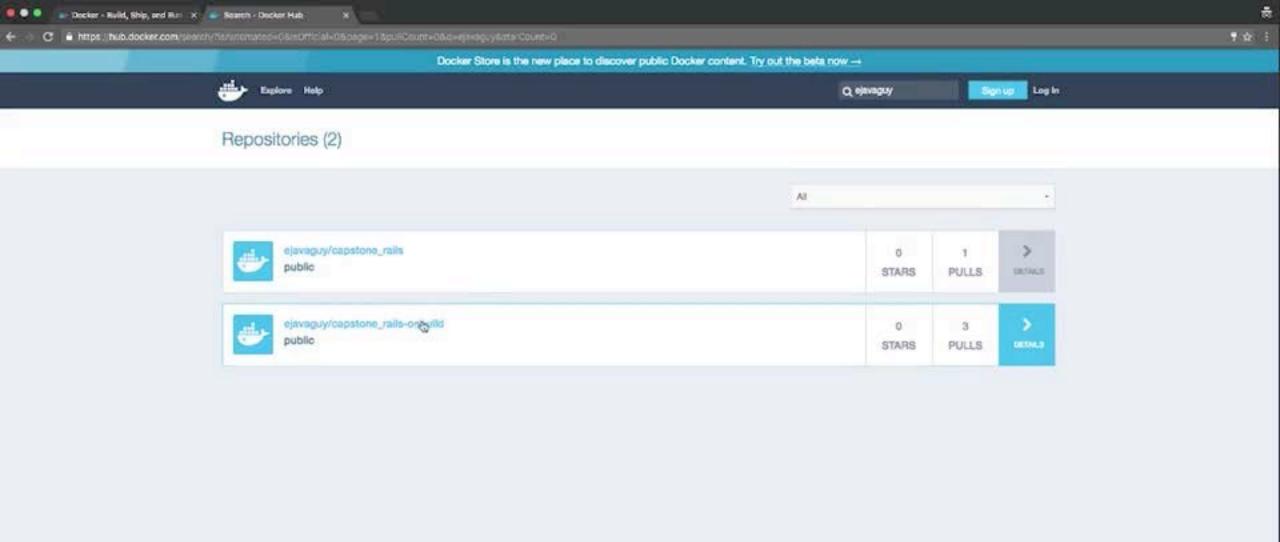
- ♦ Docker Installed
- ♦ Docker-Compose Installed

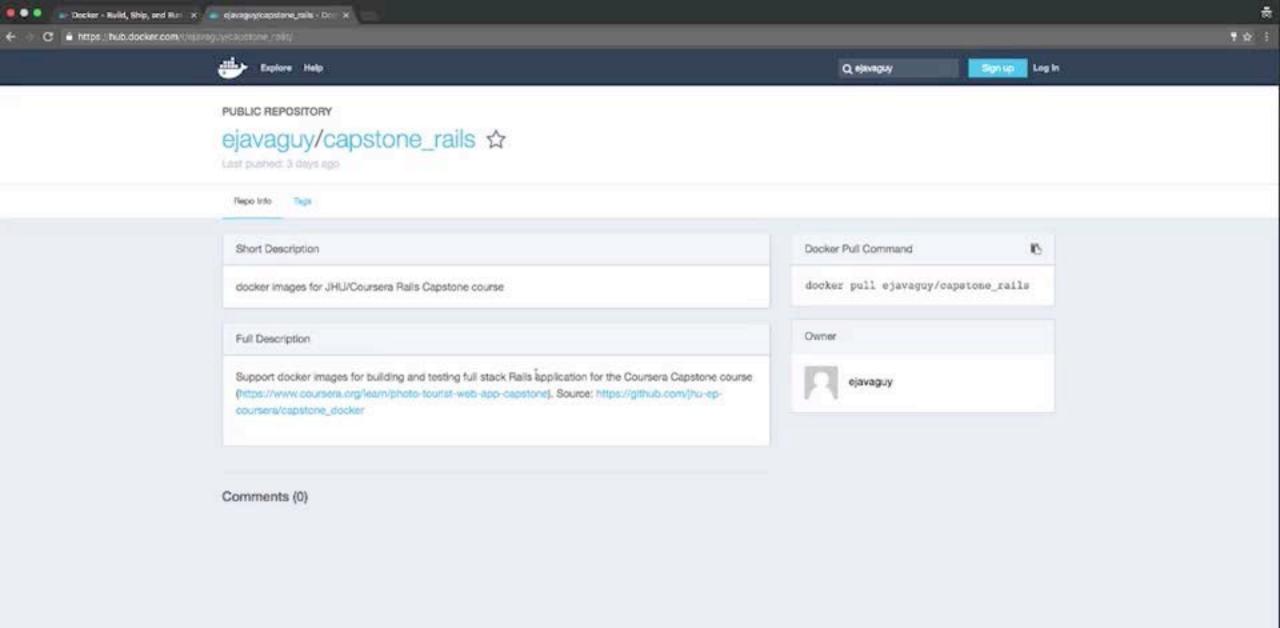
- Jamess-MacBook-Pro:proj jim\$ mkdir docker\_demo
- Jamess-MacBook-Pro:proj jim\$ cd docker

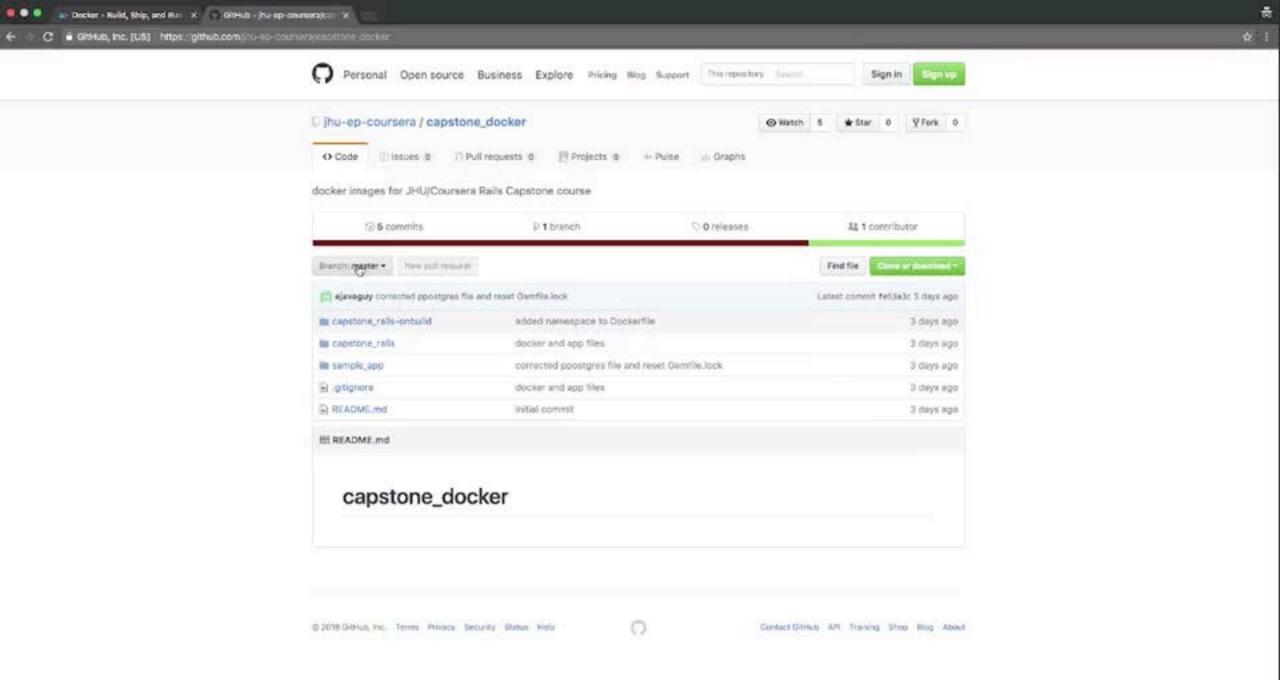
- Jamess-MacBook-Pro:proj jim\$ mkdir docker\_demo
- Jamess-MacBook-Pro:proj jim\$ cd docker\_demo/
- Jamess-MacBook-Pro:docker\_demo jim\$ vi Docker

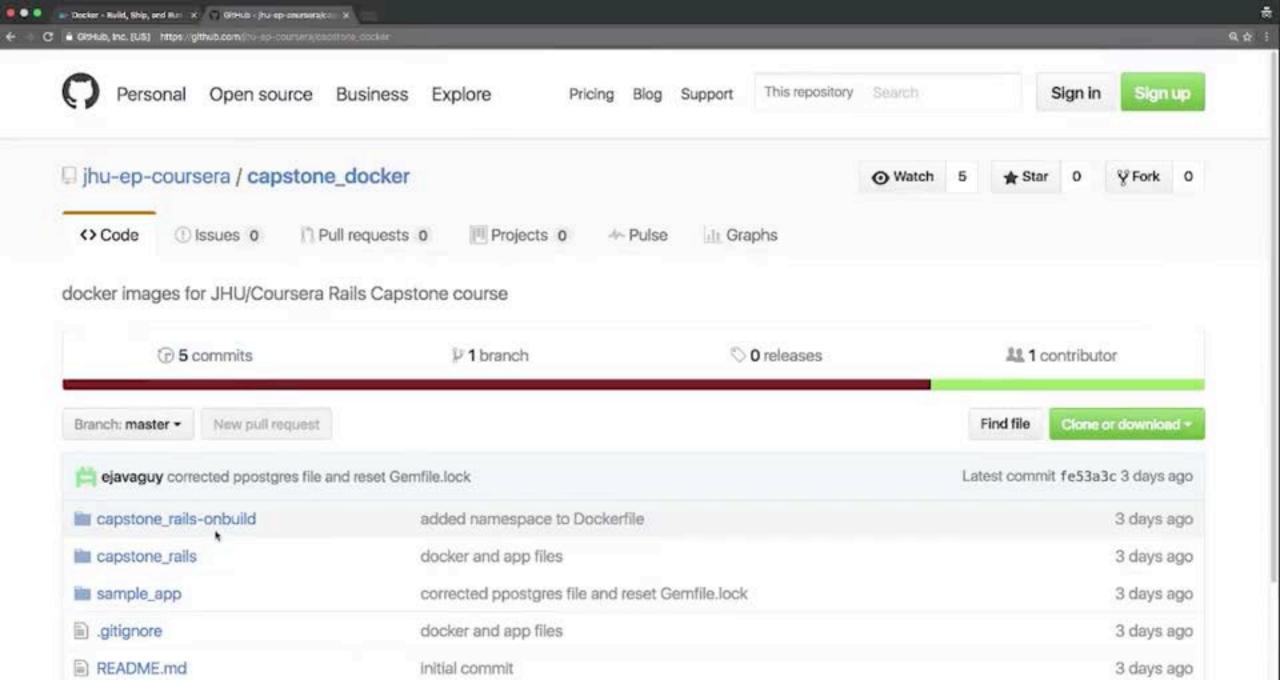
- Jamess-MacBook-Pro:proj jim\$ mkdir docker\_demo
- \*Jamess-MacBook-Pro:proj jim\$ cd docker\_demo/
- Jamess-MacBook-Pro:docker\_demo jim\$ vi Dockerfile

1 FROM ejavaguy/capstone\_rails-onbuild:latest









1 FROM ejavaguy/capstone\_rails-onbuild:latest

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1 source 'https://rubygems.org'
2 gem 'rails', '4.2.6'
3 gem 'rails-api
```

```
Jamess-MacBook-Pro:proj jim$ mkdir docker_demo
Jamess-MacBook-Pro:proj jim$ cd docker_demo/
Jamess-MacBook-Pro:docker_demo jim$ vi Dockerfile
Jamess-MacBook-Pro:docker_demo jim$ vi Gemfile
Jamess-MacBook-Pro:docker_demo jim$ to
```

```
Jamess-MacBook-Pro:proj jim$ mkdir docker_demo
Jamess-MacBook-Pro:proj jim$ cd docker_demo/
Jamess-MacBook-Pro:docker_demo jim$ vi Dockerfile
Jamess-MacBook-Pro:docker_demo jim$ vi Gemfile

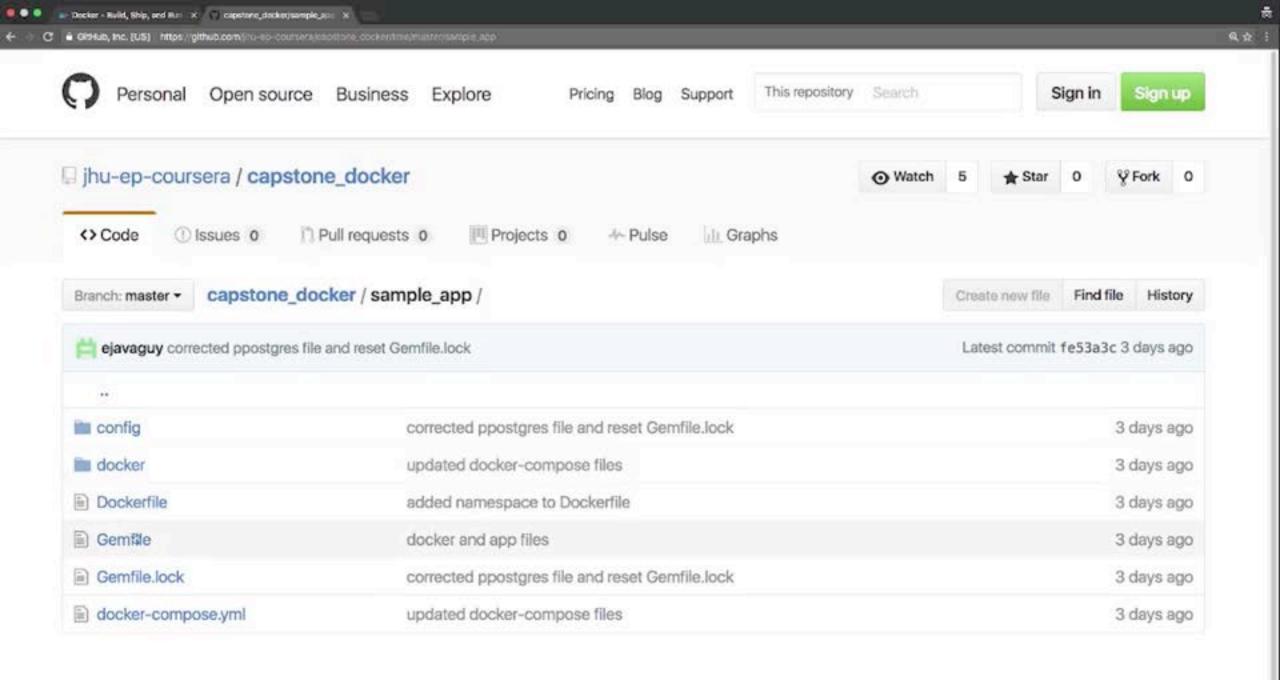
Jamess-MacBook-Pro:docker_demo jim$ touch Gemfile.lock

Jamess-MacBook-Pro:docker_demo jim$
```

Jamess-MacBook-Pro:proj jim\$ mkdir docker\_demo
Jamess-MacBook-Pro:proj jim\$ cd docker\_demo/
Jamess-MacBook-Pro:docker\_demo jim\$ vi Dockerfile
Jamess-MacBook-Pro:docker\_demo jim\$ vi Gemfile

Jamess-MacBook-Pro:docker\_demo jim\$ touch Gemfile.lock

Jamess-MacBook-Pro:docker\_demo jim\$ vi docker-compose.yml



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1 contributor

```
84 lines (82 sloc) 1.86 KB
                                                                                                    Raw Blame History
       # docker-compose run railsvm rails-api new . --force -d postgresql --skip-bundle --skip-test-unit
       # docker-compose build
       # docker-compose run railsvm rake db:create
       # docker-compose run railsvm rake db:migrate
       # docker-compose up railsvm
       # docker-compose up rake
       version: '2'
       services:
         postgres:
  10
           image: postgres
  11
           environment:
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    POSTGRES_PASSWORD

  13
         mongo:
  24
           image: mongo
  15
         railsym:
  16
           build: .
  17
           command: bundle exec rails s -p 3000 -b '0.0.0.0'
  18
           volumes:
  19
            - .:/myapp
  28
           ports:
  21
             - "3000:3000"
           depends_on:
```

dependa\_co:
- postgres
- mongo

```
# docker-compose run railsvm rails-api new . --force -d postgresql --skip-bundle --skip-test-unit
# docker-compose build
# docker-compose run railsvm rake db:create
# docker-compose run railsvm rake db:migrate
# docker-compose up railsvm
# docker-compose up rake
version: '2'
services:
 postgres:
   image: postgres
   environment:
     - POSTGRES PASSWORD
 mongo:
   image: mongo
 railsvm:
   build: .
   command: bundle exec rails s -p 3000 -b '0.0.0.0'
   volumes:
     - .:/myapp
   ports:
     - "3000:3000"
   depends on:
     - postgres
     - mongo
   environment:
     - POSTGRES USER=postgres
     - POSTGRES HOST=postgres
     - POSTGRES PASSWORD
     - MONGO HOST=mongo: 27017
     - GMAPS GEOCODE KEY
     - GMAPS JSMAPS KEY
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1 version: '2'
 2 services:
     postgres:
 4
       image: postgres
       environment:
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    POSTGRES_PASSWORD

     mongo:
 8
       image: mongo
     railsvm:
 9
       build: .
10
11
       command: bundle exec rails s -p 3000 -b '0.0.0.0'
12
       volumes:
13

    .:/myapp

14
       ports:
15
         - "3000:3000"
16
       depends_on:
17
         - postgres
18
         - mongo
19
       environment:
20

    POSTGRES_USER=postgres

21

    POSTGRES_HOST=postgres

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    POSTGRES_PASSWORD

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         - MONGO_HOST=mongo:2701
```

```
1 version: '2'
 2 services:
     postgres:
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       image: postgres
       environment:
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    POSTGRES_PASSWORD

     mongo:
 8
       image: mongo
     railsvm:
 9
       build: .
10
11
       command: bundle exec rails s -p 3000 -b '0.0.0.0'
12
       volumes:
13
         - .:/myapp
14
       ports:
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         - "3000:3000"
16
       depends_on:
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         - postgres
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         - mongo
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       environment:
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    POSTGRES_USER=postgres

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    POSTGRES_HOST=postgres

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    POSTGRES_PASSWORD

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         MONGO_HOST=mongo:27017
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```
1 version: '2'
 2 services:
     postgres:
 4
       image: postgres
       environment:
 6

    POSTGRES_PASSWORD

     mongo:
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       image: mongo
     railsvm:
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       command: bundle exec rails s -p 3000 -b '0.0.0.0'
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       volumes:
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         - .:/myapp
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       ports:
         - "3000:3000"
15
16
       depends_on:
17
         - postgres
18
         - mongo
19
       environment:
20

    POSTGRES_USER=postgres

21

    POSTGRES_HOST=postgres

22

    POSTGRES_PASSWORD

23
         MONGO_HOST=mongo:27017
```

```
Jamess-MacBook-Pro:proj jim$ mkdir docker_demo
Jamess-MacBook-Pro:proj jim$ cd docker_demo/
Jamess-MacBook-Pro:docker_demo jim$ vi Dockerfile
Jamess-MacBook-Pro:docker_demo jim$ vi Gemfile
Jamess-MacBook-Pro:docker_demo jim$ touch Gemfile.lock
Jamess-MacBook-Pro:docker_demo jim$ vi docker-compose.yml
Jamess-MacBook-Pro:docker_demo jim$ docker-compose build
mongo uses an image, skipping
postgres uses an image, skipping
Building railsvm
Step 1 : FROM ejavaguy/capstone_rails-onbuild:latest
```

```
Jamess-MacBook-Pro:docker_demo jim$ vi docker-compose.yml
Jamess-MacBook-Pro:docker_demo jim$ docker-compose build
mongo uses an image, skipping
postgres uses an image, skipping
Building railsvm
Step 1 : FROM ejavaguy/capstone_rails-onbuild:latest
latest: Pulling from ejavaguy/capstone_rails-onbuild
386a066cd84a: Downloading [=======>
                                                                     ] 14.68 MB/51.36 MB
88b459c9f665: Downloading [==========>
                                                                     7 23.43 MB/42.5 MB
1e3ee139a577: Waiting
741de17843a5: Waiting
c7696c3be34d: Waiting
9f3a2b674cef: Waiting
1680518a5b89: Waiting
703cbe4ddcc4: Waiting
17b754b5ead7: Waiting
6e75716afc2b: Waiting
ca3280e32453: Waiting
0d34947ae245: Waitina
34a79d2c3e25: Waiting
c2b9efde4880: Pulling fs layer
886a45d788a6: Waiting
9095d7952877: Waiting
2c899686d401: Waiting
5239fc08fa17: Waiting
1ccdb6eb6166: Waiting
7ff39c525c75: Waiting
c4ebc1b3c0a7: Waitina
37f7c523de0c: Waiting
```

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386a066cd84a: Pull complete
75ea84187083: Pull complete
88b459c9f665: Pull complete
1e3ee139a577: Pull complete
741de17843a5: Pull complete
c7696c3be34d: Pull complete
9f3a2b674cef: Pull complete
1680518a5b89: Pull complete
703cbe4ddcc4: Pull complete
17b754b5ead7: Pull complete
6e75716afc2b: Pull complete
ca3280e32453: Pull complete
0d34947ae245: Pull complete
34a79d2c3e25: Pull complete
c2b9efde4880: Pull complete
886a45d788a6: Pull complete
9095d7952877: Pull complete
2c899686d401: Pull complete
5239fc08fa17: Pull complete
1ccdb6eb6166: Pull complete
7ff39c525c75: Pull complete
c4ebc1b3c0a7: Pull complete
37f7c523de0c: Pull complete
Digest: sha256:371531fef3b37b144f21da3b34c148f090f19d0c373342ef8aedf3098dfa5dcd
Status: Downloaded newer image for ejavaguy/capstone_rails-onbuild:latest
# Executing 3 build triggers...
Step 1 : COPY Gemfile $APP_HOME
Step 1 : COPY Gemfile.lock $APP_HOME
Step 1 : RUN bundle install
```

---> Running in 3ecdde1009eb

```
Installing thor 0.19.4
Using tzinfo 1.2.2
Using nokogiri 1.6.8.1
Using rack-test 0.6.3
Using mime-types 3.1
Using sprockets 3.7.0
Using active support 4.2.6
Using loofah 2.0.3
Using mail 2.6.4
Using rails-deprecated_sanitizer 1.0.3
Using globalid 0.3.7
Using active model 4.2.6
Using rails-html-sanitizer 1.0.3
Using rails-dom-testing 1.0.7
Using activejob 4.2.6
Using activerecord 4.2.6
Using actionview 4.2.6
Using actionpack 4.2.6
Using actionmailer 4.2.6
Using railties 4.2.6
Using sprockets-rails 3.2.0
Using rails-api 0.4.0
Using rails 4.2.6
Bundle complete! 2 Gemfile dependencies, 36 gems now installed.
Bundled gems are installed into /usr/local/bundle.
 ---> 1e00bae11ded
Removing intermediate container 888b07290584
Removing intermediate container bc8f47ed1afe
Removing intermediate container 3ecdde1009eb
Successfully built 1e00bae11ded
```

Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm rake db:create
Creating network "dockerdemo\_default" with the default driver
Pulling mongo (mongo:latest)...
latest: Pulling from library/mongo
386a066cd84a: Already exists
524267bc200a: Pull complete
476d61c7c43a: Pull complete
0750d0e28b90: Pull complete
4bedd83d0855: Pull complete
162b67684652: Pull complete
46f53b7d829e: Downloading [=============>

cef8f3d7f866: Download complete 2272eba3cacc: Download complete

] 24.87 MB/70.82 MB

```
476d61c7c43a: Pull complete
0750d0e28b90: Pull complete
4bedd83d0855: Pull complete
162b67684652: Pull complete
46f53b7d829e: Pull complete
cef8f3d7f866: Pull complete
2272eba3cacc: Pull complete
Digest: sha256:5c0b6ec4ed120b591ba625806d4b4e59379e0e8ecb0591e41b3f16cfdf0015a2
Status: Downloaded newer image for mongo:latest
Pulling postgres (postgres:latest)...
latest: Pulling from library/postgres
386a066cd84a: Already exists
e6dd80b38d38: Pull complete
9cd706823821: Pull complete
40c17ac202a9: Pull complete
7380b383ba3d: Pull complete
538e418b46ce: Pull complete
c3b9d41b7758: Pull complete
dd4f9522dd30: Pull complete
920e548f9635: Pull complete
628af7ef2ee5: Pull complete
01f12ce02828: Pull complete
Digest: sha256:3aa888ee9bf0f0e408e23d05bfe1243cd61d3c39a44eb439ba228a4b35e6add6
Status: Downloaded newer image for postgres:latest
Creating dockerdemo_mongo_1
Creating dockerdemo_postgres_1
rake aborted!
No Rakefile found (looking for: rakefile, Rakefile, rakefile.rb, Rakefile.rb)
/usr/local/bundle/gems/rake-11.3.0/exe/rake:27:in `<top (required)>'
(See full trace by running task with --trace)
```

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Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_USER']"
postgres

Jamess-MacBook-Pro:docker\_demo jim\$

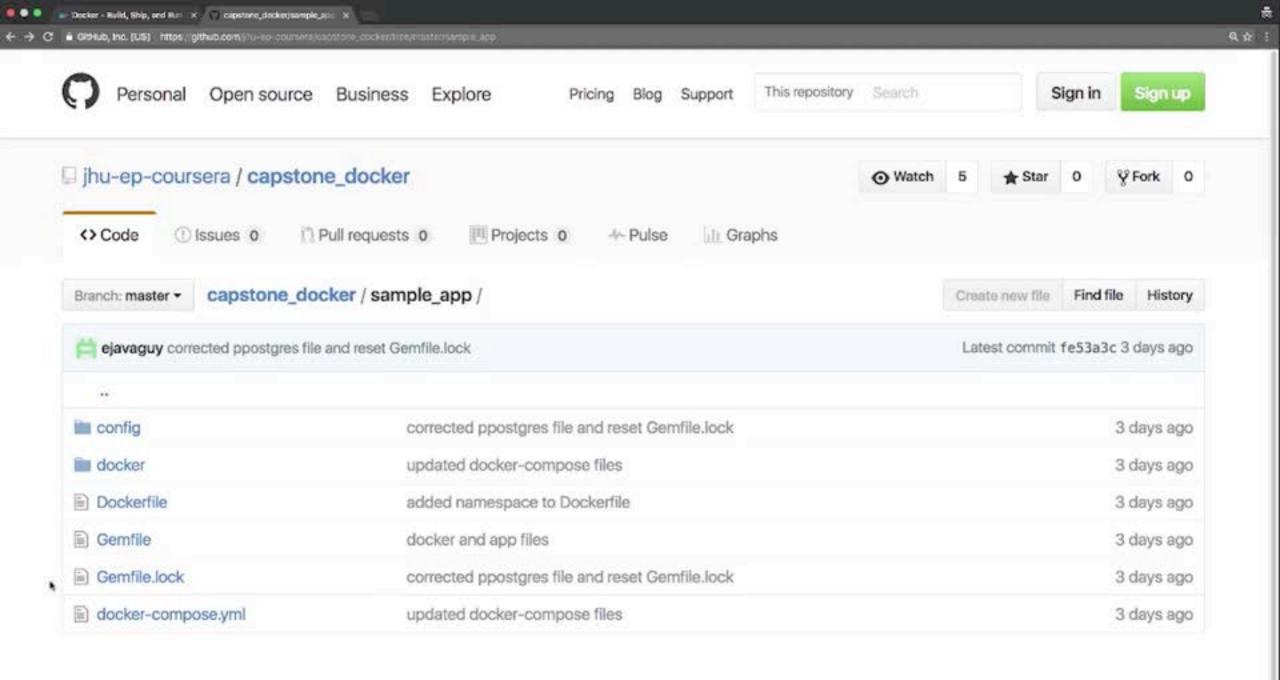
X back MI N elle NO

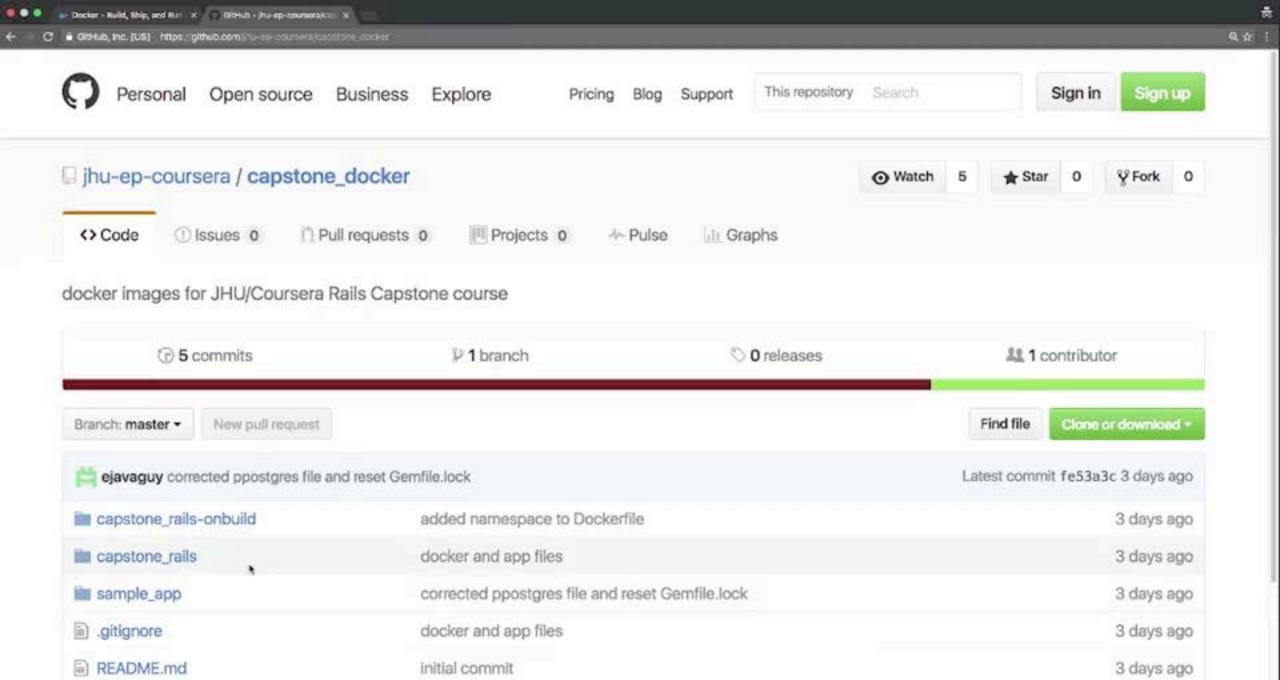
- Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_USER']"
  postgres
- Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_HOST']"
  postgres
- Jamess-MacBook-Pro:docker\_demo jim\$

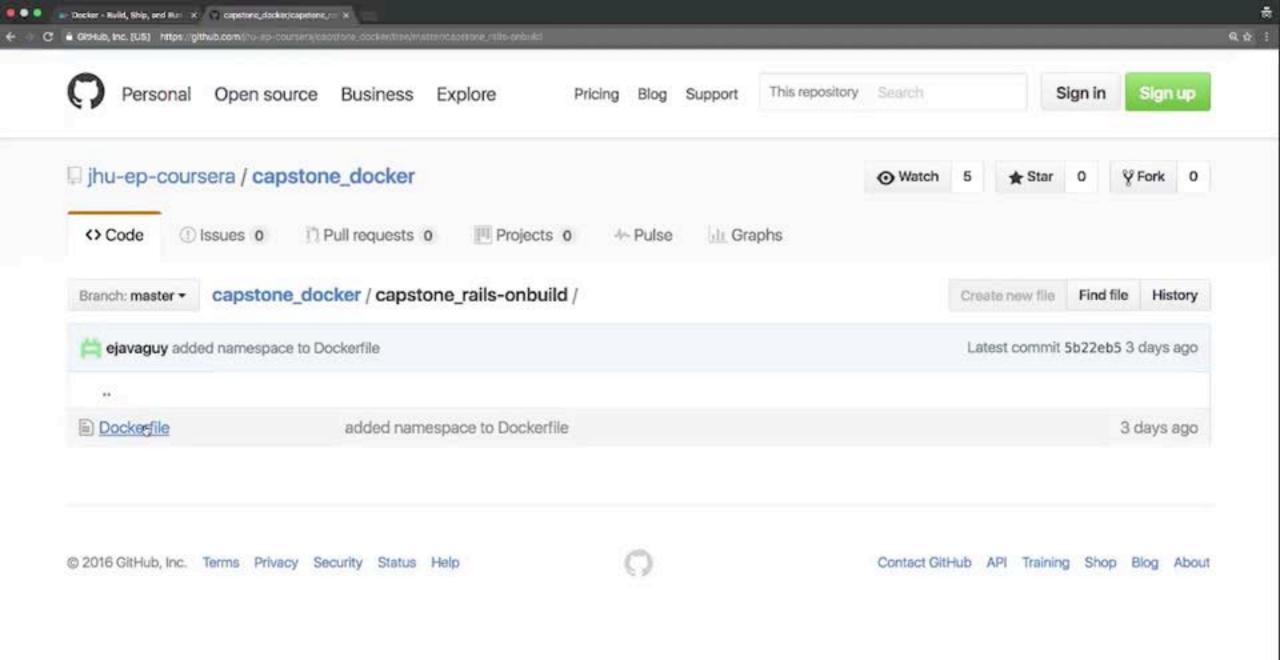
Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_USER']" postgres
Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_HOST']" postgres
Jamess-MacBook-Pro:docker\_demo jim\$ vi .env
Jamess-MacBook-Pro:docker\_demo jim\$

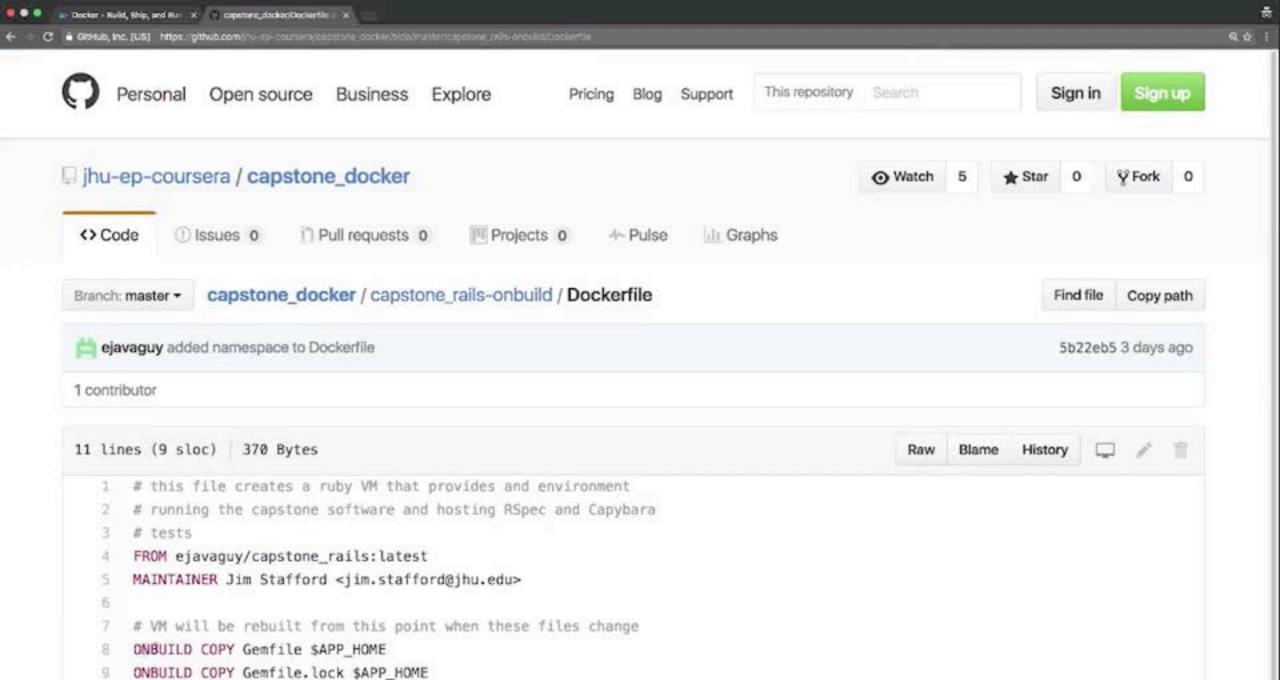
Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_USER']"
postgres
Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_HOST']"
postgres
Jamess-MacBook-Pro:docker\_demo jim\$ vi .env
Jamess-MacBook-Pro:docker\_demo jim\$ docker-compose run railsvm ruby -e "puts ENV['POSTGRES\_PASSWORD']"
capstone

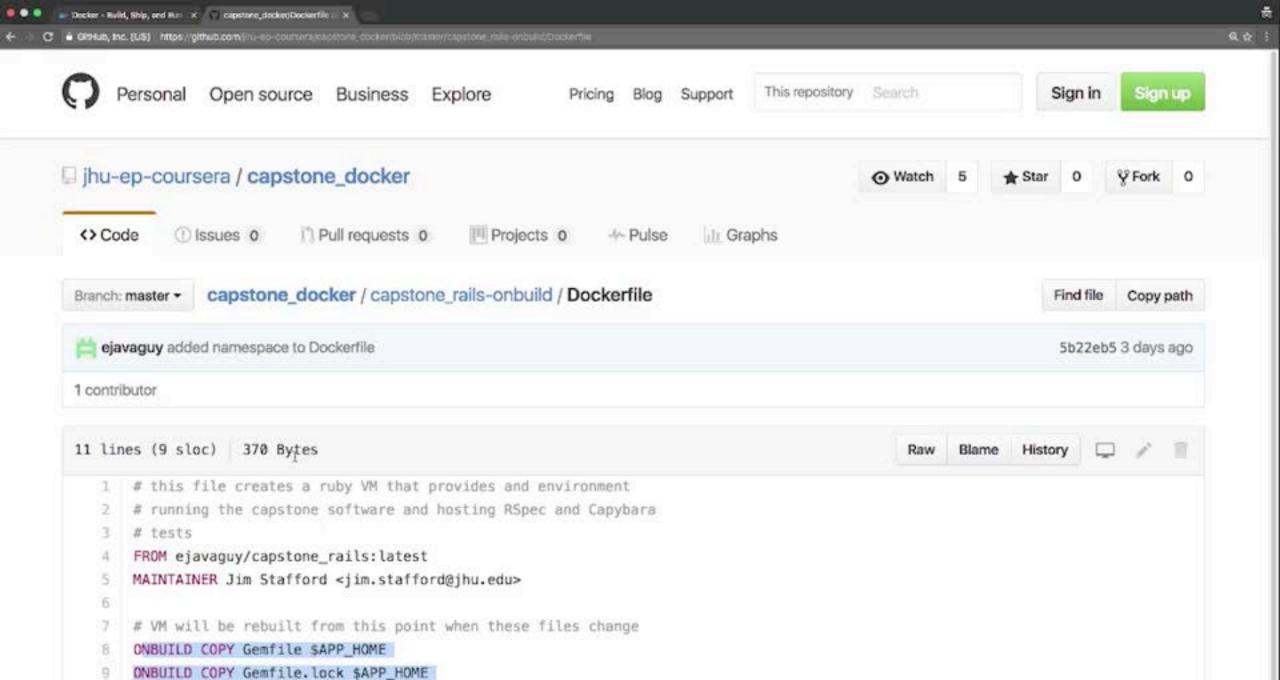
Jamess-MacBook-Pro:docker\_demo jim\$

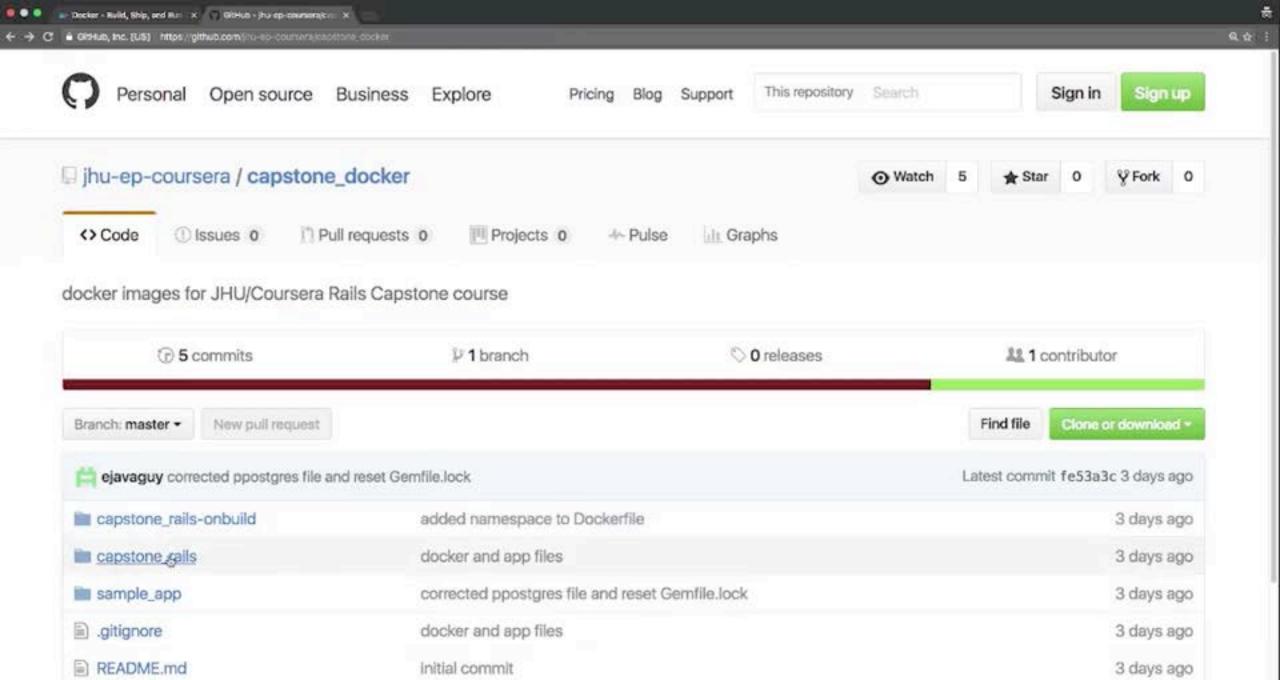


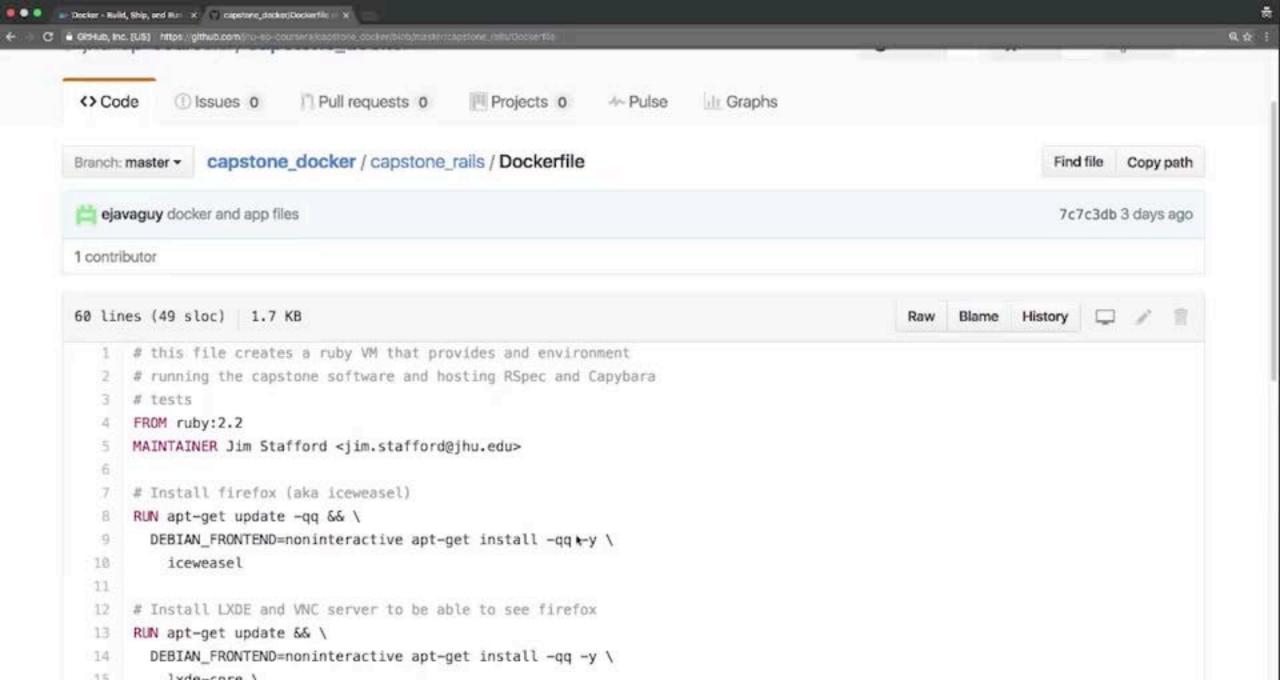












C ■ Globub, Inc. (US) https://github.com/pro-ap-coursers/capitone-cocker/biob/maskincapitone-rails/Goosentie

1 contributor

```
60 lines (49 sloc) 1.7 KB
                                                                                                         Blame
                                                                                                                 History
                                                                                                    Raw
       # this file creates a ruby VM that provides and environment
       # running the capstone software and hosting RSpec and Capybara
       # tests
       FROM ruby: 2.2
       MAINTAINER Jim Stafford <jim.stafford@jhu.edu>
       # Install firefox (aka iceweasel)
       RUN apt-get update -qq && \
         DEBIAN_FRONTEND=noninteractive apt-get install -gg -y \
   9
  IØ
           iceweasel
  11
       # Install LXDE and VNC server to be able to see firefox
       RUN apt-get update && \
  14
         DEBIAN_FRONTEND=noninteractive apt-get install -qq -y \
           lxde-core \
  15
  16
           lxterminal \
  17
           tightvncserver
       ENV USER root
  19
       # install phantomis - download from https://bitbucket.org/ariya/phantomis/downloads
       ADD https://bitbucket.org/ariya/phantomjs/downloads/phantomjs-2.1.1-linux-x86 64.tar.bz2 .
       RUN tar -xjf phantomjs-2.1.1-linux-x86_64.tar.bz2
       RUN mv ./phantomjs-2.1.1-linux-x86_64/bin/phantomjs /usr/local/bin
```

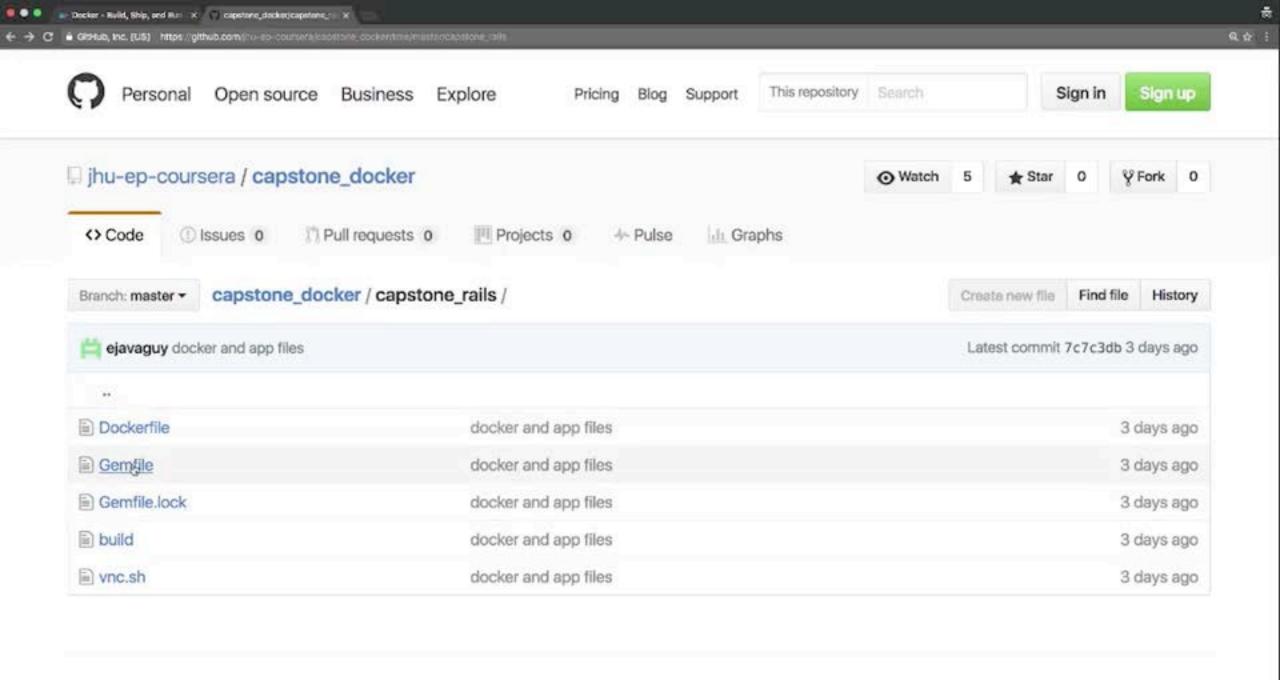
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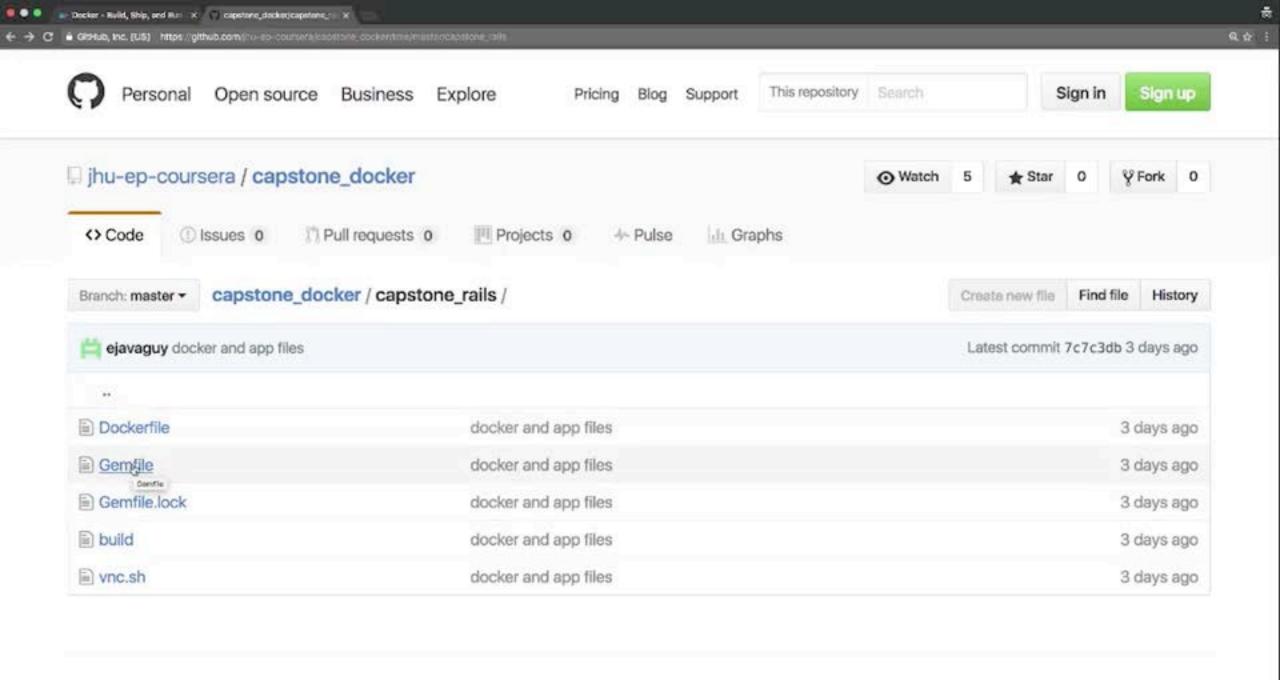
1 contributor

```
60 lines (49 sloc) 1.7 KB
                                                                                                         Blame
                                                                                                                 History
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   9
  IØ
           iceweasel
       # Install LXDE and VNC server to be able to see firefox
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           lxde-core \
  15
  16
           lxterminal \
  17
           tightvncserver
       ENV USER root
  19
       # install phantomis - download from https://bitbucket.org/ariya/phantomis/downloads
       ADD https://bitbucket.org/ariya/phantomjs/downloads/phantomjs-2.1.1-linux-x86 64.tar.bz2 .
       RUN tar -xjf phantomjs-2.1.1-linux-x86_64.tar.bz2
       RUN mv ./phantomjs-2.1.1-linux-x86_64/bin/phantomjs /usr/local/bin
```

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C - GitHub, Inc. (US) https://github.com/sru-so-coursers/capstone-docker/biob/masterscapstone-rails/bodkerflig
           RUN apt-get update -qq && \
             DEBIAN_FRONTEND=noninteractive apt-get install -gg -y \
       9
      10
               iceweasel
      11
           # Install LXDE and VNC server to be able to see firefox
           RUN apt-get update && \
      14
             DEBIAN_FRONTEND=noninteractive apt-get install -qq -y \
      15
               lxde-core \
      16
               lxterminal \
      17
               tightvncserver
           ENV USER root
      18
      19
           # install phantomis - download from https://bitbucket.org/ariya/phantomis/downloads
           ADD https://bitbucket.org/ariya/phantomjs/downloads/phantomjs-2.1.1-linux-x86_64.tar.bz2 .
      21
           RUN tar -xif phantomis-2.1.1-linux-x86 64.tar.bz2
      23
           RUN mv ./phantomjs-2.1.1-linux-x86_64/bin/phantomjs /usr/local/bin
           RUN rm -rf ./phantomjs-2.1.1-linux-x86_64
      25
           RUN phantomis --version
      26
           # install postgres and node;s Rails support packages
      28
           RUN apt-get update -gg && \
      29
             DEBIAN_FRONTEND=noninteractive apt-get install -qq -y \
      30
               build-essential \
      31
               libpq-dev \
      32
               postgresql-client \
      33
               nodejs
```



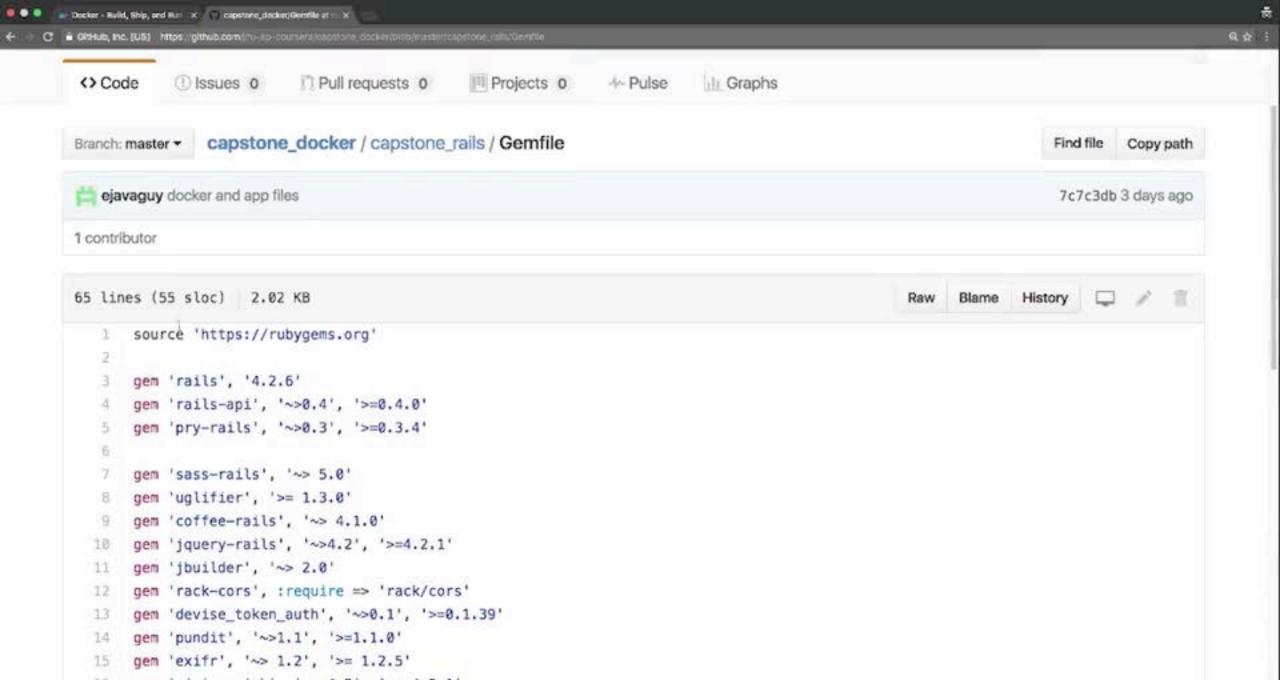


```
gem 'rails', '4.2.6'
    gem 'rails-api', '~>0.4', '>=0.4.0'
     gem 'pry-rails', '~>0.3', '>=0.3.4'
 6
     gem 'sass-rails', '~> 5.0'
    gem 'uglifier', '>= 1.3.0'
     gem 'coffee-rails', '~> 4.1.0'
     gem 'jquery-rails', '~>4.2', '>=4.2.1'
     gem 'jbuilder', '~> 2.0'
     gem 'rack-cors', :require => 'rack/cors'
    gem 'devise_token_auth', '~>0.1', '>=0.1.39'
    gem 'pundit', '~>1.1', '>=1.1.0'
    gem 'exifr', '~> 1.2', '>= 1.2.5'
15
    gem 'mini_magick', '~> 4.5', '>= 4.5.1'
17
     gem 'geokit-rails', '~>2.2', '>= 2.2.0'
18
19
     group :development do
20
      gem 'web-console', '~> 2.0'
21
    end
22
     group :development, :test do
24
       gem 'puma', '~>3.6', '>=3.6.0', :platforms=>:ruby
       gem 'webrick', '~>1.3', '>=1.3.1', :platforms=>[:mingw, :mswin, :x64_mingw, :jruby]
25
26
       gem 'tzinfo-data', :platforms=>[:mingw, :mswin, :x64_mingw, :jruby]
27
       gem 'sqlite3', '~>1.3', '>=1.3.12'
       gem 'byebug', '~>9.0', '>=9.0.6'
28
```

```
Docker - Ruid, Ship, and Rui X (v) capstone, docker, Gentile at (v) X
```

23 gem 'pry-byebug', '~>3.4', '>=3.4.8' gem 'spring', '~>2.0', '>=2.0.0' 36 31 gem 'httparty', '~>0.14', '>=0.14.0' 32 33 gem 'rspec-rails', '~> 3.5' 34 gem 'mongoid-rspec', '~> 3.0' 35 gem 'capybara', '~> 2.7' 36 gem 'poltergeist', '~> 1.10' 37 gem 'selenium-webdriver', '~> 2.53' gem 'chromedriver-helper', '~>1.0', '>=1.0.0' 38 39 gem 'launchy', '~>2.4', '>=2.4.3' 40 end 43 group :production do gem 'rails\_12factor', '~>0.0', '>= 0.0.3' 43 gem 'puma', '~>3.6', '>=3.6.0' 45 end 45 47 gem 'pg', '~>0.19', '>=0.19.0' gem 'mongoid', '~>5.1', '>=5.1.5' gem 'factory girl\_rails', '~>4.7', '>=4.7.0' gem 'faker', '~>1.6', '>=1.6.6' gem 'database\_cleaner', '~>1.5', '>=1.5.3' 53 source 'https://rails-assets.org' do nem 'rails-assets-hootstran', 'as3.3', 's= 3.3.7'

风业 :



## Summary

♦ Software installation for Docker/Docker-Compose

## What's Next

♦ Application Setup