DevOps for the Lazy

Aja Hammerly

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Developer Advocate

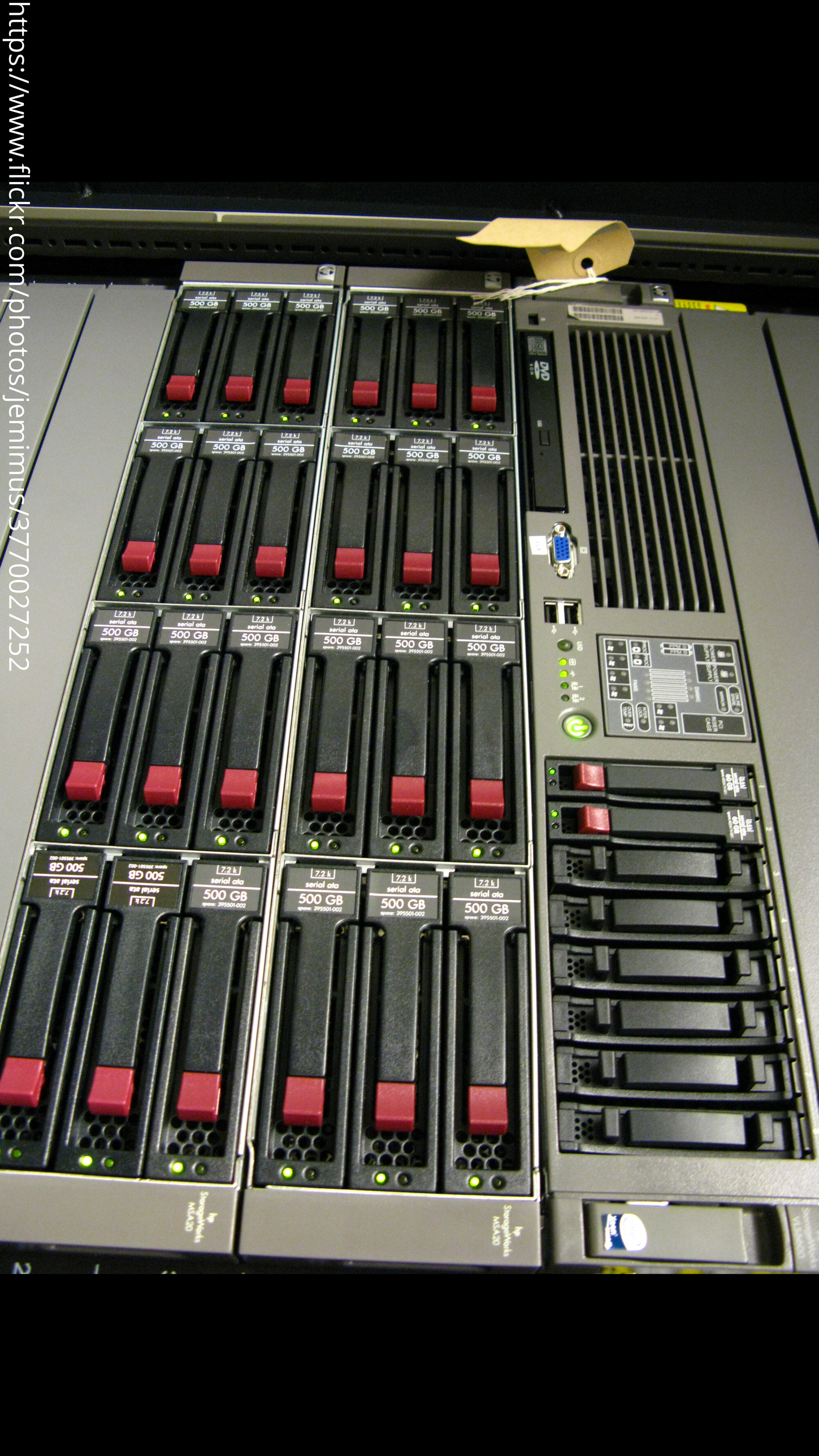
@thagomizer_rb

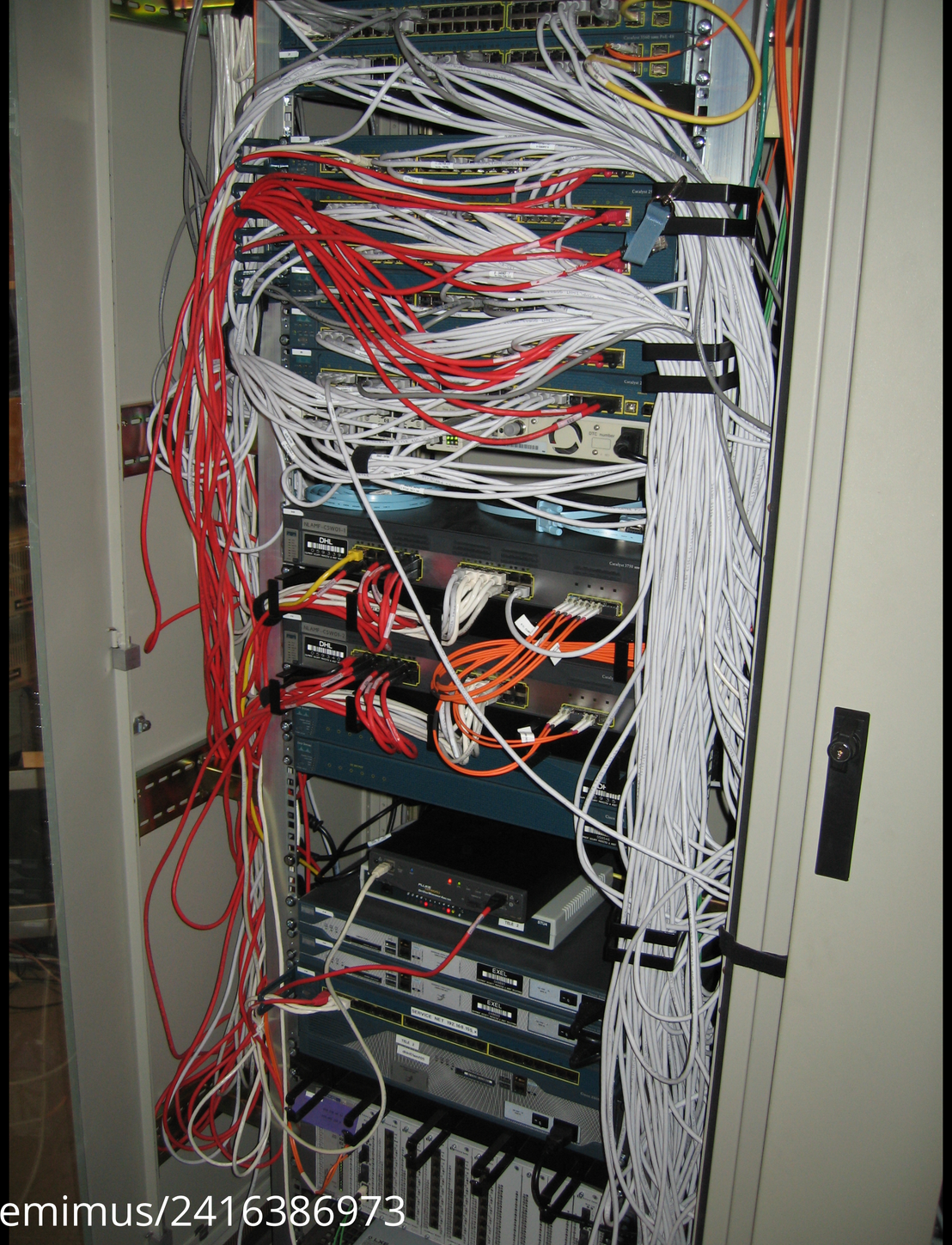
github.com/thagomizer/examples

Google Cloud Platform

Licensing:

All code is copyright Google and licensed under Apache V2.





https://www.flickr.com/photos/jemimus/2416386973

Lazy

OK

Lazy

https://www.flickr.com/photos/dahlstroms/3144199355/

What

Sharing Hardware

Environment Package

Application

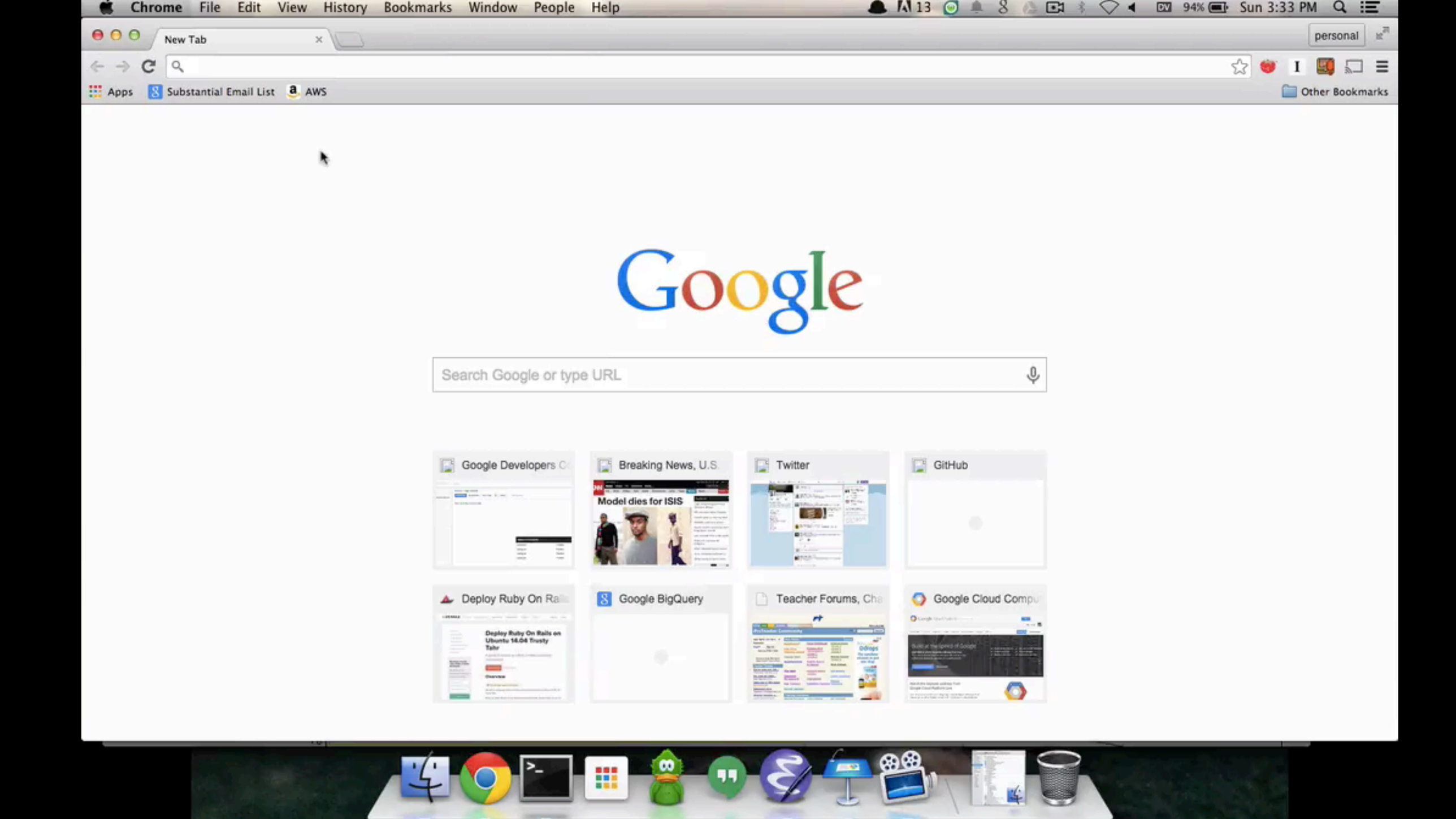
+

Execution Env

How-To

Docker

How


Chrome File Edit View History Bookmarks Window People Help
Sun 3:33 PM
New Tab
personal
Apps
Substantial Email List
AWS
Other Bookmarks
Google
Search Google or type URL
Google Developers C
Breaking News, U.S
Model dies for ISIS
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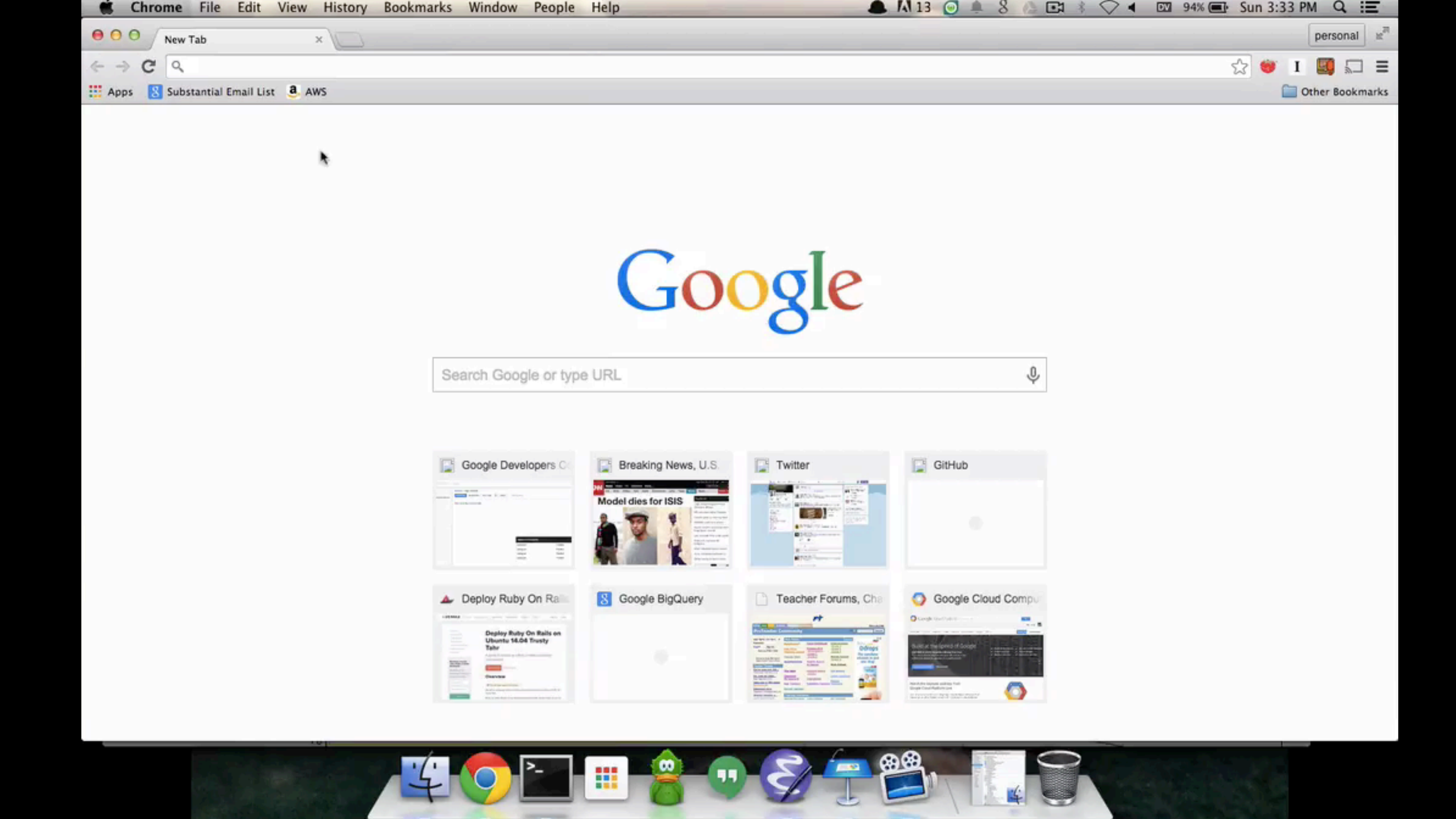
Deploy Ruby On Ra
Deploy Ruby On Rails on Ubuntu 14.04 Trusty Tahr
Google BigQuery
Teacher Forums, Cha
Google Cloud Compu


Chrome File Edit View History Bookmarks Window People Help
Sun 3:33 PM
New Tab
personal
Apps
Substantial Email List
AWS
Other Bookmarks
Google
Search Google or type URL
Google Developers C
Breaking News, U.S
Model dies for ISIS
Twitter
GitHub
Deploy Ruby On Ra
Deploy Ruby On Rails on Ubuntu 14.04 Trusty Tahr
Google BigQuery
Teacher Forums, Cha
Google Cloud Compu

Application

```
rails new todo
```

```
rails g scaffold task \
  title:string \
  notes:string \
  due:datetime \
  completion:integer
```

postgres

Gemfile

```
# Bundle edge Rails instead: gem 'rails', github: 'rails/rails'
gem 'rails', '4.2.0'
# Use SCSS for stylesheets
gem 'sass-rails', '~> 5.0'
# Use Uglifier as compressor for JavaScript assets
gem 'uglifier', '>= 1.3.0'
# Use CoffeeScript for .coffee assets and views
gem 'coffee-rails', '~> 4.1.0'
# See https://github.com/sstephenson/execjs#readme for more supported runtimes
# gem 'therubyracer', platforms: :ruby

# Use jquery as the JavaScript library
gem 'jquery-rails'
# Turbolinks makes following links in your web application faster. Read more: https://github.com/rails/turbolinks
gem 'turbolinks'
# Build JSON APIs with ease. Read more: https://github.com/rails/jbuilder
gem 'jbuilder', '~> 2.0'
# bundle exec rake doc:rails generates the API under doc/api.
gem 'sdoc', '~> 0.4.0', group: :doc

# Use ActiveModel has_secure_password
# gem 'bcrypt', '~> 3.1.7'

# Use Unicorn as the app server
# gem 'unicorn'

group :production do
  # Use pg in production for the database
  gem 'pg'
end

# Use Capistrano for deployment
gem 'capistrano-rails', group: :development

group :development, :test do
  # Call 'byebug' anywhere in the code to stop execution and get a debugger console
  gem 'byebug'

  # Access an IRB console on exception pages or by using <%= console %> in views
  gem 'web-console', '~> 2.0'

  # Spring speeds up development by keeping your application running in the background. Read more: https://github.com/rails/spring
  gem 'spring'

  # Use sqlite3 as the database for Active Record
  gem 'sqlite3'
end
```

```
# Bundle edge Rails instead: gem 'rails', github: 'rails/rails'
gem 'rails', '4.2.0'
# Use SCSS for stylesheets
gem 'sass-rails', '~> 5.0'
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# Use jquery as the JavaScript library
gem 'jquery-rails'
# Turbolinks makes following links in your web application faster. Read more: https://github.com/rails/turbolinks
gem 'turbolinks'
# Build JSON APIs with ease. Read more: https://github.com/rails/jbuilder
gem 'jbuilder', '~> 2.0'
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# Use ActiveModel has_secure_password
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  gem 'spring'

  # Use sqlite3 as the database for Active Record
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```
group :production do
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  gem 'pg'
end
```

```
group :development, :test do
  gem 'byebug'

  gem 'web-console', '~> 2.0'

  gem ‘spring'

  # Use sqlite3 as the db for Dev/Test
  gem ‘sqlite3’
end
```

database.yml

```
production:
  <<: *default
  adapter: postgresql
  encoding: unicode
  database: todo_production
  username: <%= ENV['PG_ENV_POSTGRES_USER'] %>
  password: <%= ENV['PG_ENV_POSTGRES_PASSWORD'] %>
  host:     <%= ENV['PG_PORT_5432_TCP_ADDR'] %>
```

Dockerfile

```
FROM rails:onbuild

ENV RAILS_ENV=production

CMD ["sh", "/usr/src/app/init.sh"]
```

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ENV RAILS_ENV=production

CMD ["sh", "/usr/src/app/init.sh"]
```

```
FROM rails:onbuild

ENV RAILS_ENV=production

CMD ["sh", "/usr/src/app/init.sh"]
```

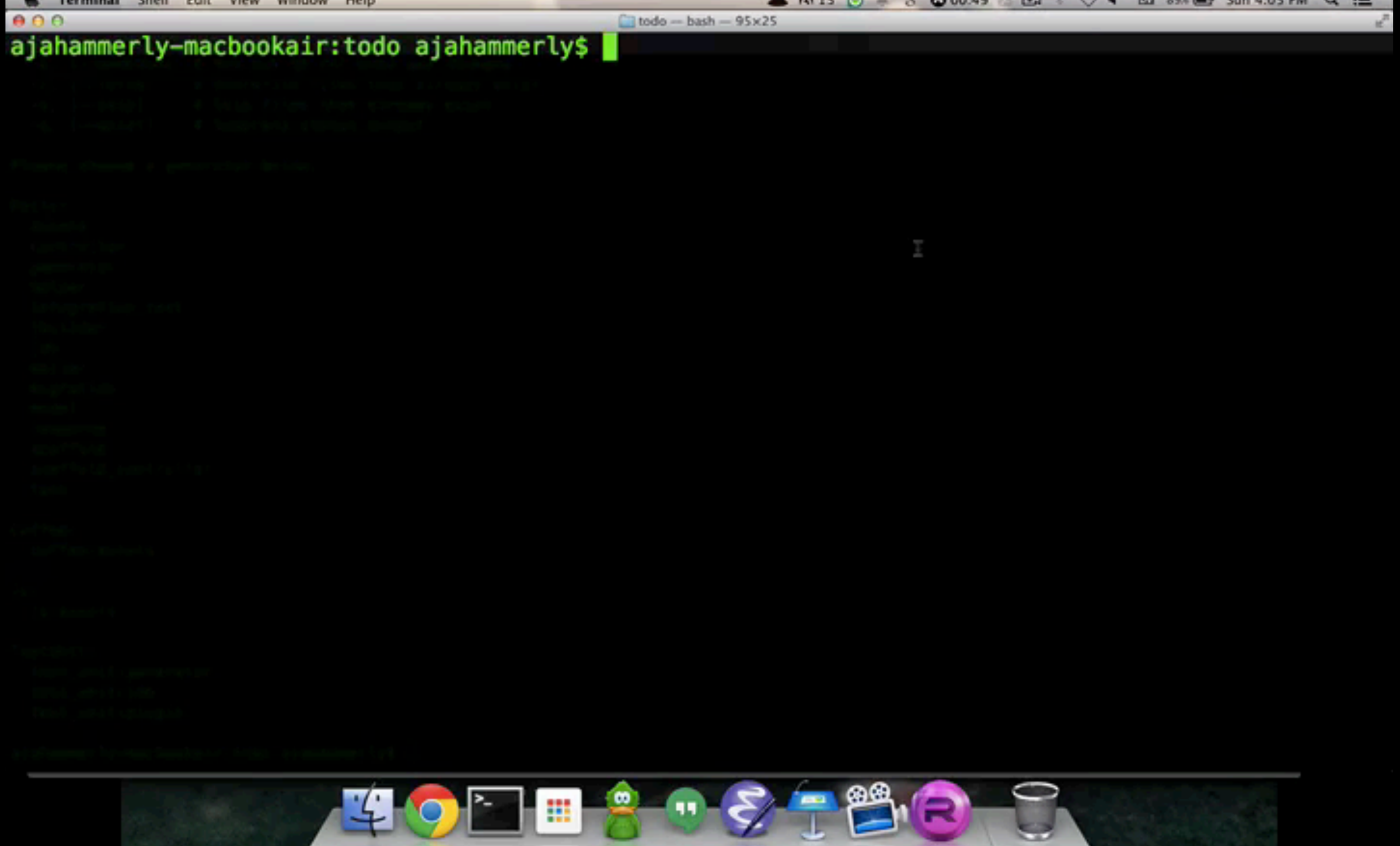
init.sh

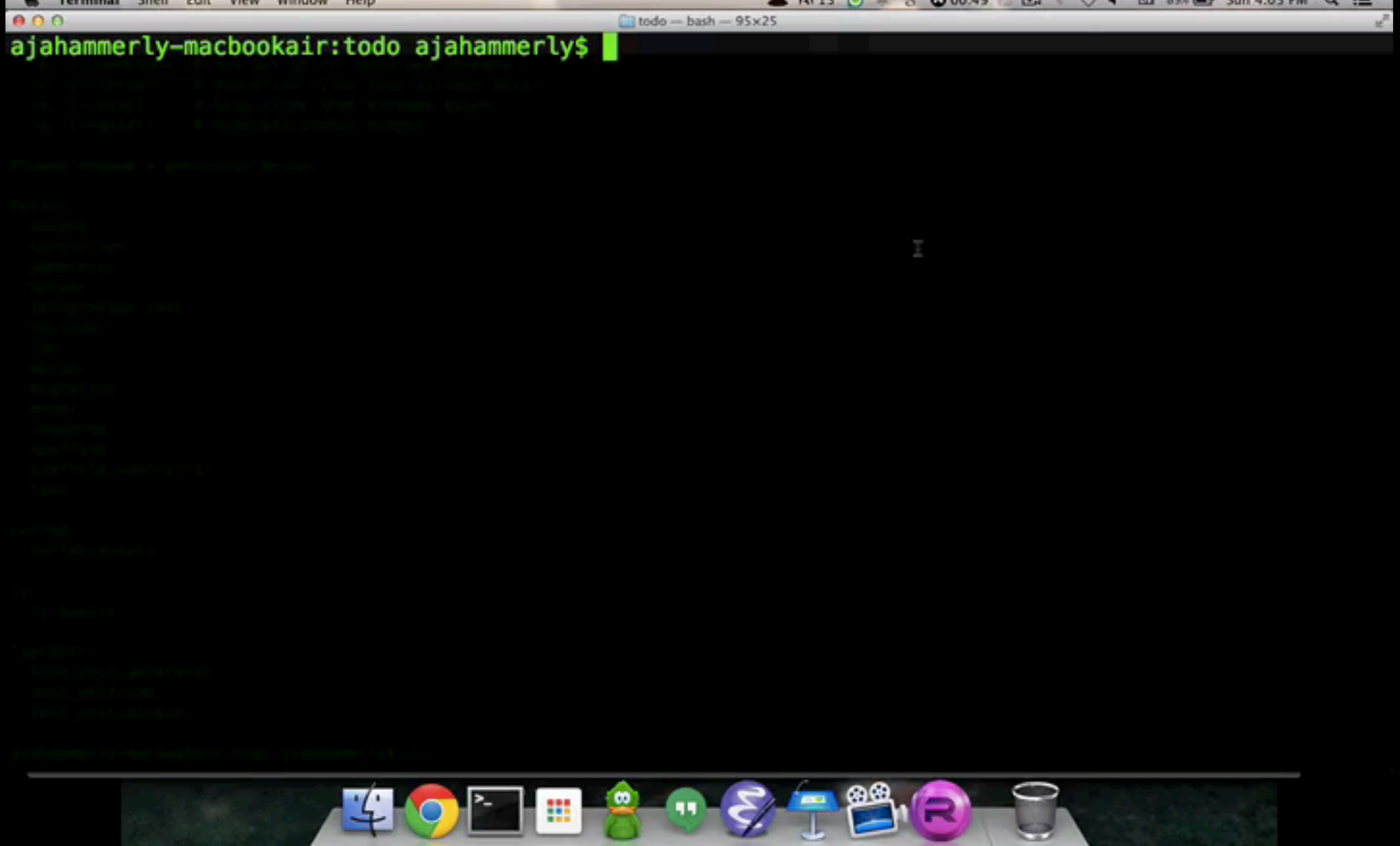
```
export SECRET_KEY_BASE=$(bundle exec rake secret)

bundle exec rake db:create db:migrate
bundle exec rails server -b 0.0.0.0
```

Build It

```
docker build –t thagomizer/todo .
```


todo — bash — 95×25
ajahammerly-macbookair:todo ajahammerly$


todo — bash — 95×25
ajahammerly-macbookair:todo ajahammerly$

Run It

```
docker run --name db \
-e POSTGRES_PASSWORD=password \
-e POSTGRES_USER=rails \
-d \
postgres
```

```
docker run --name db \
-e POSTGRES_PASSWORD=password \
-e POSTGRES_USER=rails \
-d \
postgres
```

```
docker run --name db \
-e POSTGRES_PASSWORD=password \
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-d \
postgres
```

```
docker run --name db \
-e POSTGRES_PASSWORD=password \
-e POSTGRES_USER=rails \
-d \
postgres
```

```
docker run --name web \
-d \
-p 3000:3000 \
-link db:pg \
thagomizer/todo
```

```
docker run --name web \
-d \
-p 3000:3000 \
--link db:pg \
thagomizer/todo
```

```
docker run --name web \
-d \
-p 3000:3000 \
--link db:pg \
thagomizer/todo
```

```
docker run --name web \
-d \
-p 3000:3000 \
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```
docker run --name web \
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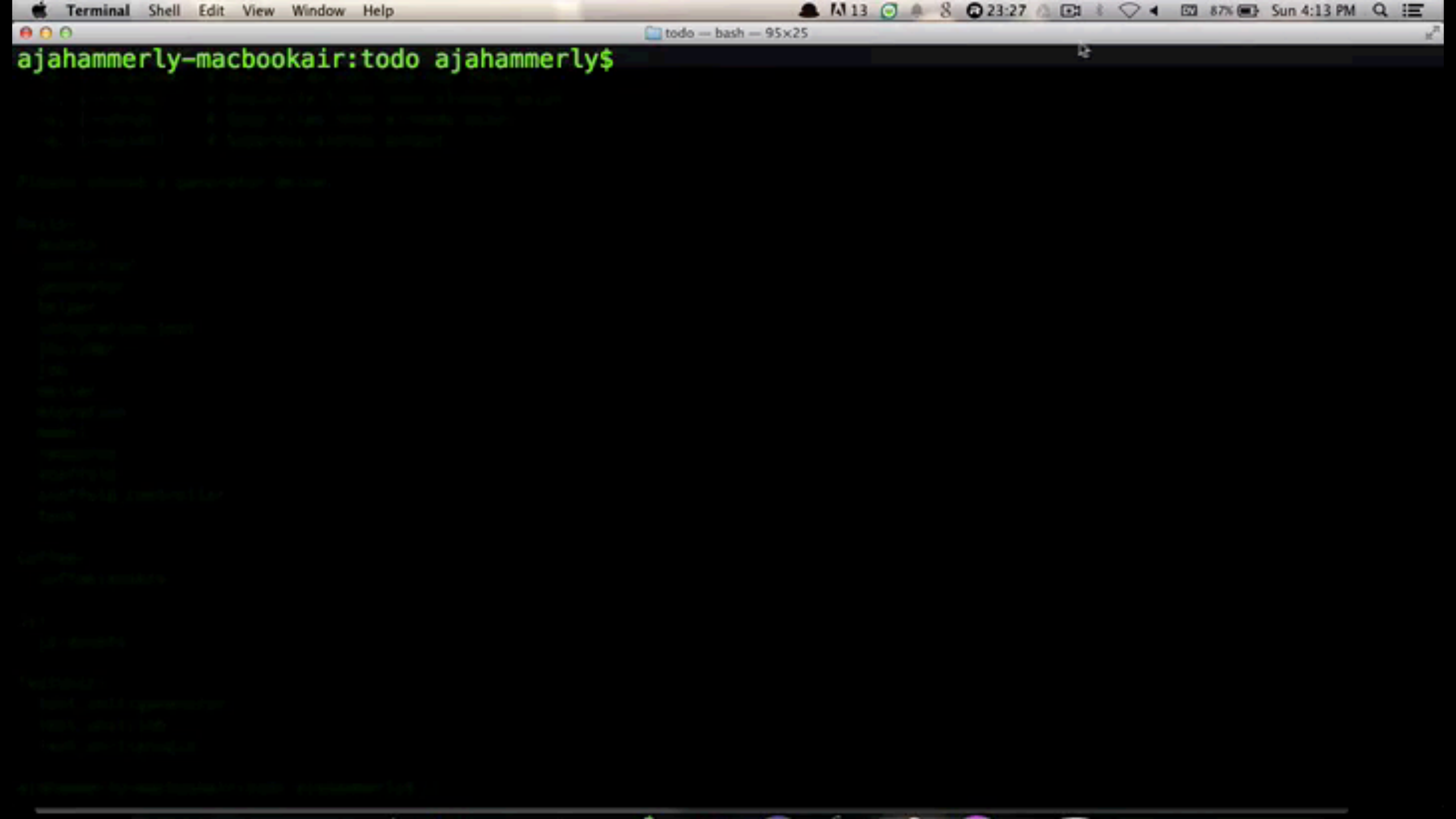
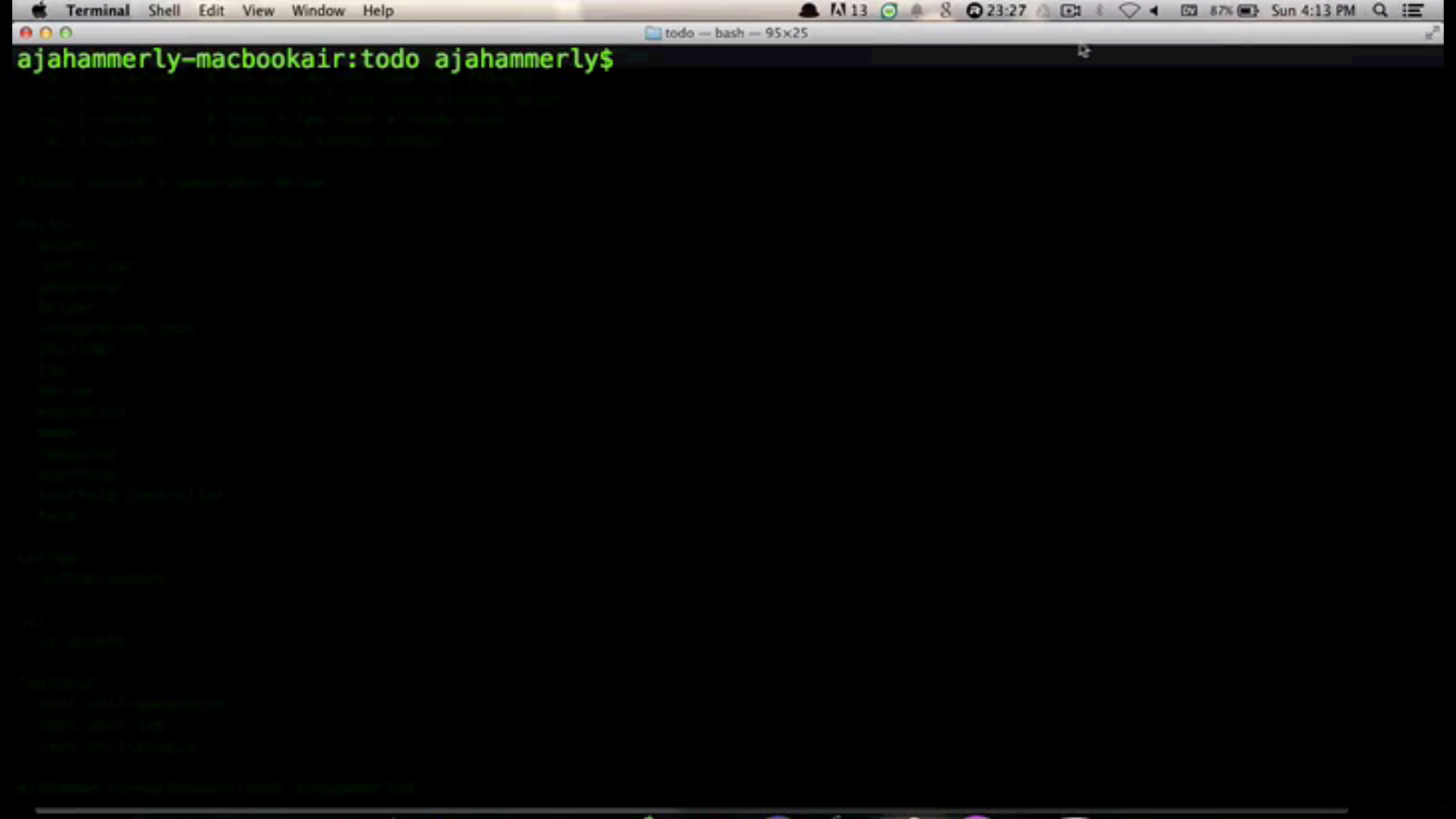
--link db:pg \
thagomizer/todo
```


Terminal Shell Edit View Window Help
13
23:27
87%
Sun 4:13 PM
todo — bash — 95×25
ajahammerly-macbookair:todo ajahammerly$


Terminal Shell Edit View Window Help
13
23:27
87%
Sun 4:13 PM
todo — bash — 95×25
ajahammerly-macbookair:todo ajahammerly$

< 20 loc

Why?

Pro

Consistency

Speed

Flexibility

Portability

Repeatability

Con

YAGNI

You Are Gonna Need It

New

Deployment

Managing Containers

Kubernetes

Open Source

Vocab

Master

Minion

Pod

Service

Replication Controller

Notes

Options

Code

```
{
  "id": "thingy",
  "kind": "Pod",
  "apiVersion": "v1beta1",
  "desiredState": {
    "manifest": {
      "version": "v1beta1",
      "id": "db",
      "containers": [{ ...}]
      }
    },
  "labels": {
      "name": "thingy"
  }
}
```

Database

Pod

```
{
...
     "containers": [{
          "name": "db",
          "image": "postgres",
          "env": [{
            "name": "POSTGRES_PASSWORD",
            "value": "password"
          },
          {
            "name": "POSTGRES_USER",
            "value": "rails"
          }],
          "db": [{
              "containerPort": 5432,
              "hostPort": 5432
          }]
        }]
...
}
```

Service

```
{
  "id": "db",
  "kind": "Service",
  "apiVersion": "v1beta1",
  "port": 5432,
  "containerPort": 5432,
  "selector": {
    "name": "db"
  }
}
```

Web

Replication Controller

```
    "desiredState": {
        "replicas": 2,
        "replicaSelector": {"name": "web"},
        "podTemplate": {
            "desiredState": {
                "manifest": {
                    "version": "v1beta1",
                    "id": "web-controller",
                    "containers": [{
                        "name": "web",
                        "image": "thagomizer/todo-prod",
                        "env": [{
                            "name": "POSTGRES_PASSWORD",
                            "value": "password"
                        },
                        {
                            "name": "POSTGRES_USER",
                            "value": "rails"
                        }],
                        "ports": [{"name": "http-server", "containerPort": 3000}]
...
```

```
    "desiredState": {
        "replicas": 2,
        "replicaSelector": {"name": "web"},
        "podTemplate": {
            "desiredState": {
                "manifest": {
                    "version": "v1beta1",
                    "id": "web-controller",
                    "containers": [{
                        "name": "web",
                        "image": "thagomizer/todo-prod",
                        "env": [{
                            "name": "POSTGRES_PASSWORD",
                            "value": "password"
                        },
                        {
                            "name": "POSTGRES_USER",
                            "value": "rails"
                        }],
                        "ports": [{"name": "http-server", "containerPort": 3000}]
...
```

```
    "desiredState": {
        "replicas": 2,
        "replicaSelector": {"name": "web"},
        "podTemplate": {
            "desiredState": {
                "manifest": {
                    "version": "v1beta1",
                    "id": "web-controller",
                    "containers": [{
                        "name": "web",
                        "image": "thagomizer/todo-prod",
                        "env": [{
                            "name": "POSTGRES_PASSWORD",
                            "value": "password"
                        },
                        {
                            "name": "POSTGRES_USER",
                            "value": "rails"
                        }],
                        "ports": [{"name": "http-server", "containerPort": 3000}]
...
```

Service

```
{
  "id": "web",
  "kind": "Service",
  "apiVersion": "v1beta1",
  "port": 3000,
  "containerPort": "http-server",
  "selector": {
    "name": "web"
  },
  "labels": {
    "name": "web"
  },
  "createExternalLoadBalancer": true
}
```

Google Container Engine

```
> gcloud alpha container kubectl create -f db-pod.json
```

```
> gcloud alpha container kubectl get pods

POD   IP          CONTAINER(S)  IMAGE(S)   HOST                LABELS    STATUS    CREATED
db    10.76.1.3   db            postgres   k8s-todo-node-1   name=db   Running   14 s
```

```
> gcloud alpha container kubectl create -f db-service.json
```

```
> gcloud alpha container kubectl get services

NAME  LABELS  SELECTOR  IP              PORT
db    <none>  name=db   10.79.254.22  5432
```

```
> gcloud alpha container kubectl create -f web-controller.json
```

```
> gcloud alpha container kubectl get rc

CONTROLLER      CONTAINER(S) IMAGE(S)                SELECTOR   REPLICAS
web-controller  web          thagomizer/todo-prod    name=web   2
```

```
> gcloud alpha container kubectl get pods

POD                IP          CONTAINER(S)  IMAGE(S)   HOST                LABELS     STATUS    CREATED
web-controller-b   10.76.2.4   web           todo-prod  k8s-todo-node-2   name=web   Running   4 m
web-controller-n   10.76.3.4   web           todo-prod  k8s-todo-node-3   name=web   Running   4 m
```

```
> gcloud alpha container kubectl create -f web-service.json
```

```
> gcloud alpha container kubectl get services

NAME  LABELS    SELECTOR  IP              PORT
web   name=web  name=web  10.79.254.225   3000
```

```
> gcloud alpha container kubectl \
  resize --replicas=5 rc web-controller
```

```
> gcloud alpha container kubectl get pods

POD                    IP          CONTAINER(S)  IMAGE(S)   HOST              LABELS    STATUS    CREATED
web-controller-bfi4b   10.76.2.4   web           todo-prod  k8s-todo-node-2   name=web  Running   26 minutes
web-controller-j8ynv   10.76.3.6   web           todo-prod  k8s-todo-node-1   name=web  Running   20 seconds
web-controller-k9s0z   10.76.3.5   web           todo-prod  k8s-todo-node-3   name=web  Running   20 seconds
web-controller-ndxuq   10.76.3.4   web           todo-prod  k8s-todo-node-3   name=web  Running   26 minutes
web-controller-q4csg   10.76.2.5   web           todo-prod  k8s-todo-node-2   name=web  Running   20 seconds
```

Hand Waves

Disk

Security

Replication

linux

Size

Learn More

Shipping Ruby Apps with Docker

Bryan Helmkamp @ RedDotRuby

https://cloud.google.com/container-engine/docs

http://kubernetes.io/

#google-containers
@freenode.net

Stack Overflow

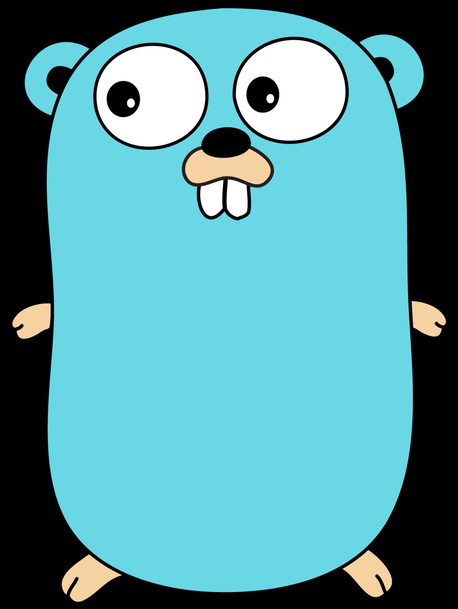
Google Cloud Platform

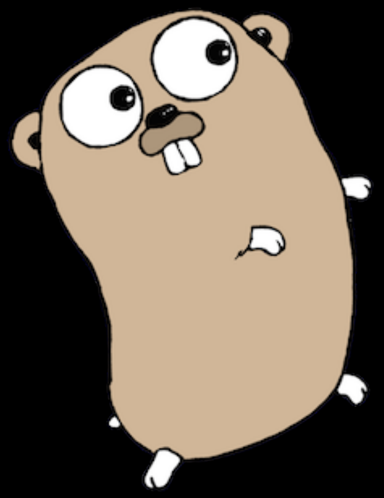
cloud.google.com/free-trial/

Thank You

If oil is made from decomposed dinosaurs, and plastic is made from oil,

are plastic dinosaurs made from real dinosaurs?






SQL

Questions?

Thank You