Deployment

Lab-12c
Deploy

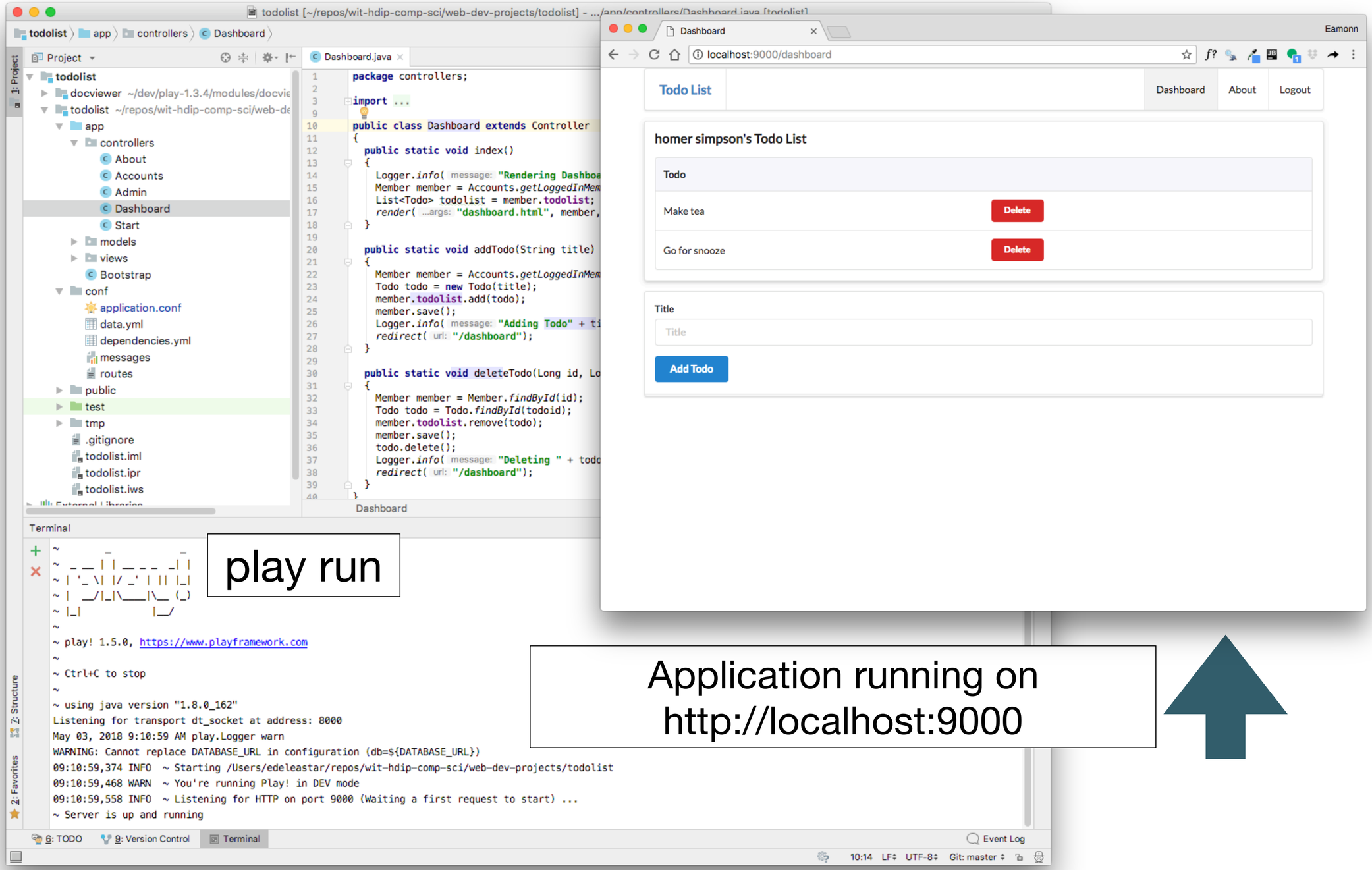
Deploy a Play Application to the cloud

Application runs in 2 Modes

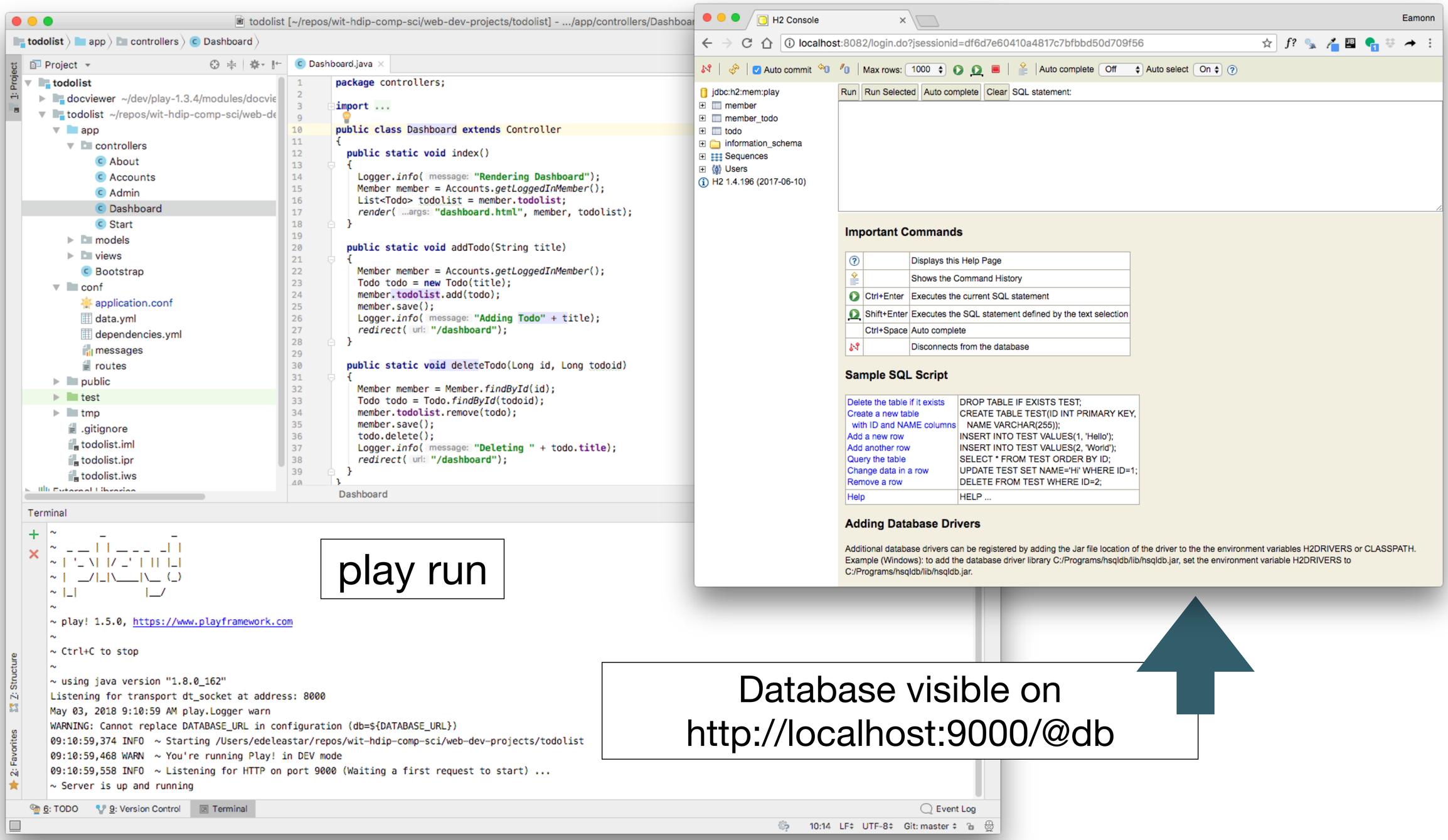
Development Mode → Application runs on developer workstation. Accessible locally

Production Mode → Application runs on cloud server. Accessible globally

Development Mode



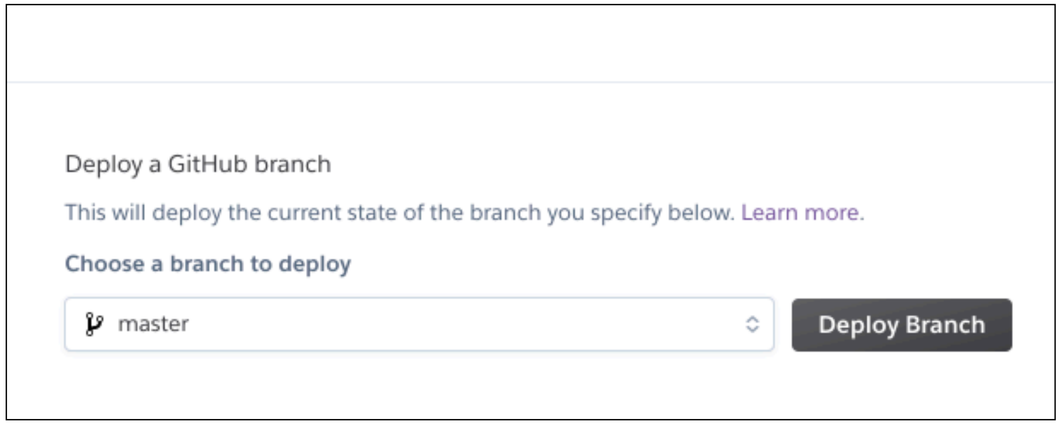
Development Mode

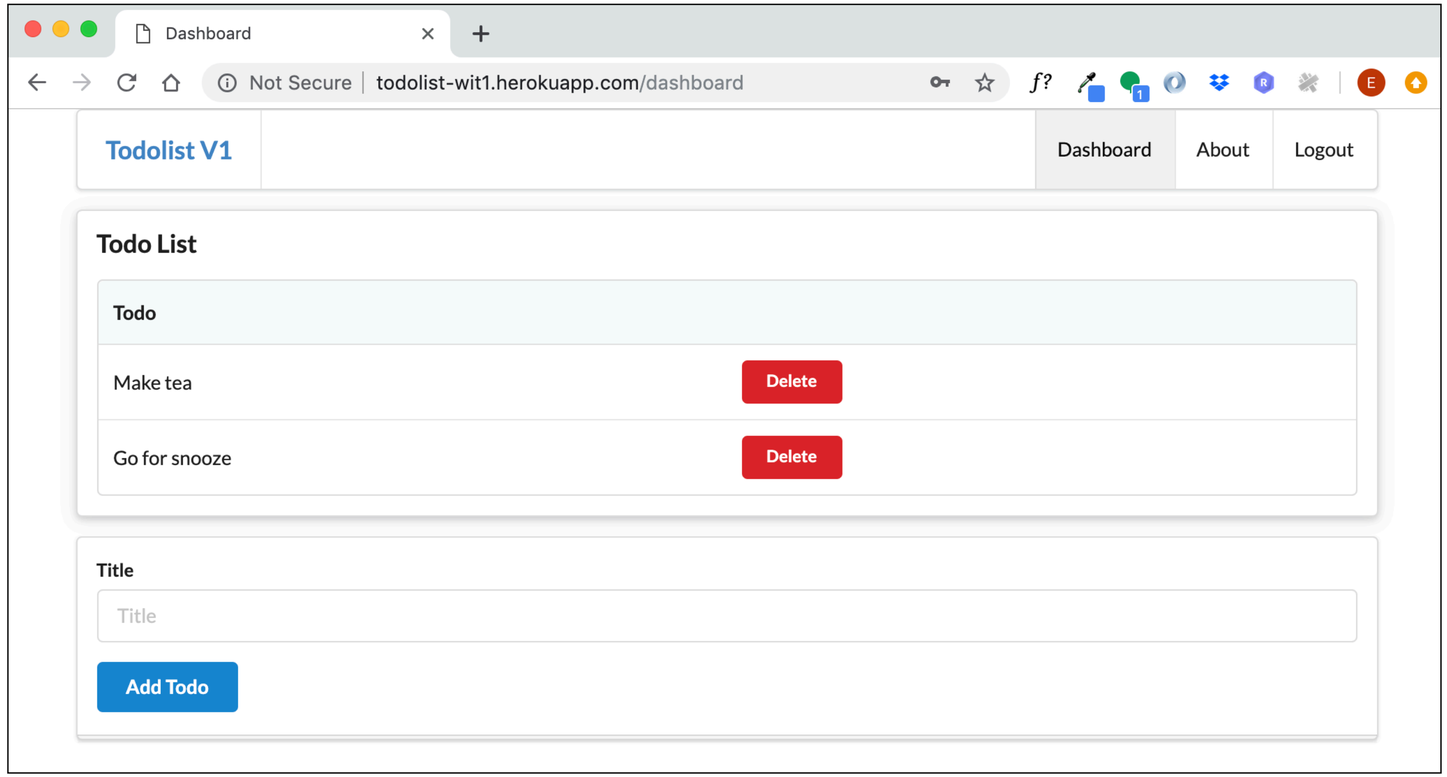


play run

Database visible on http://localhost:9000/@db

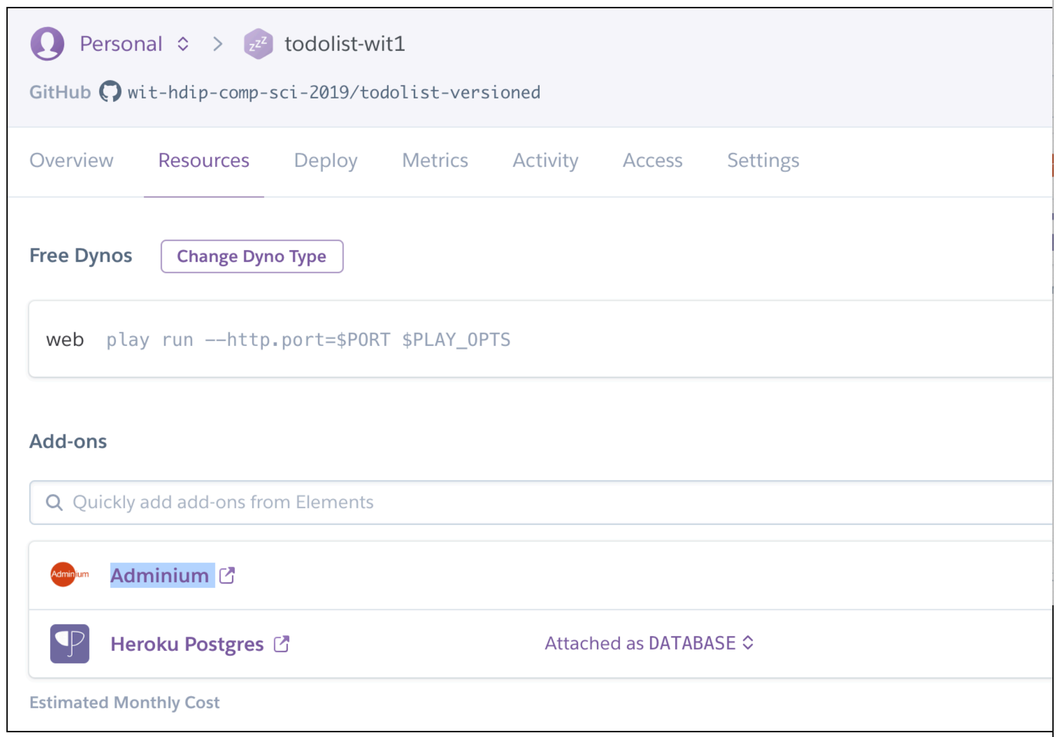
Production Mode

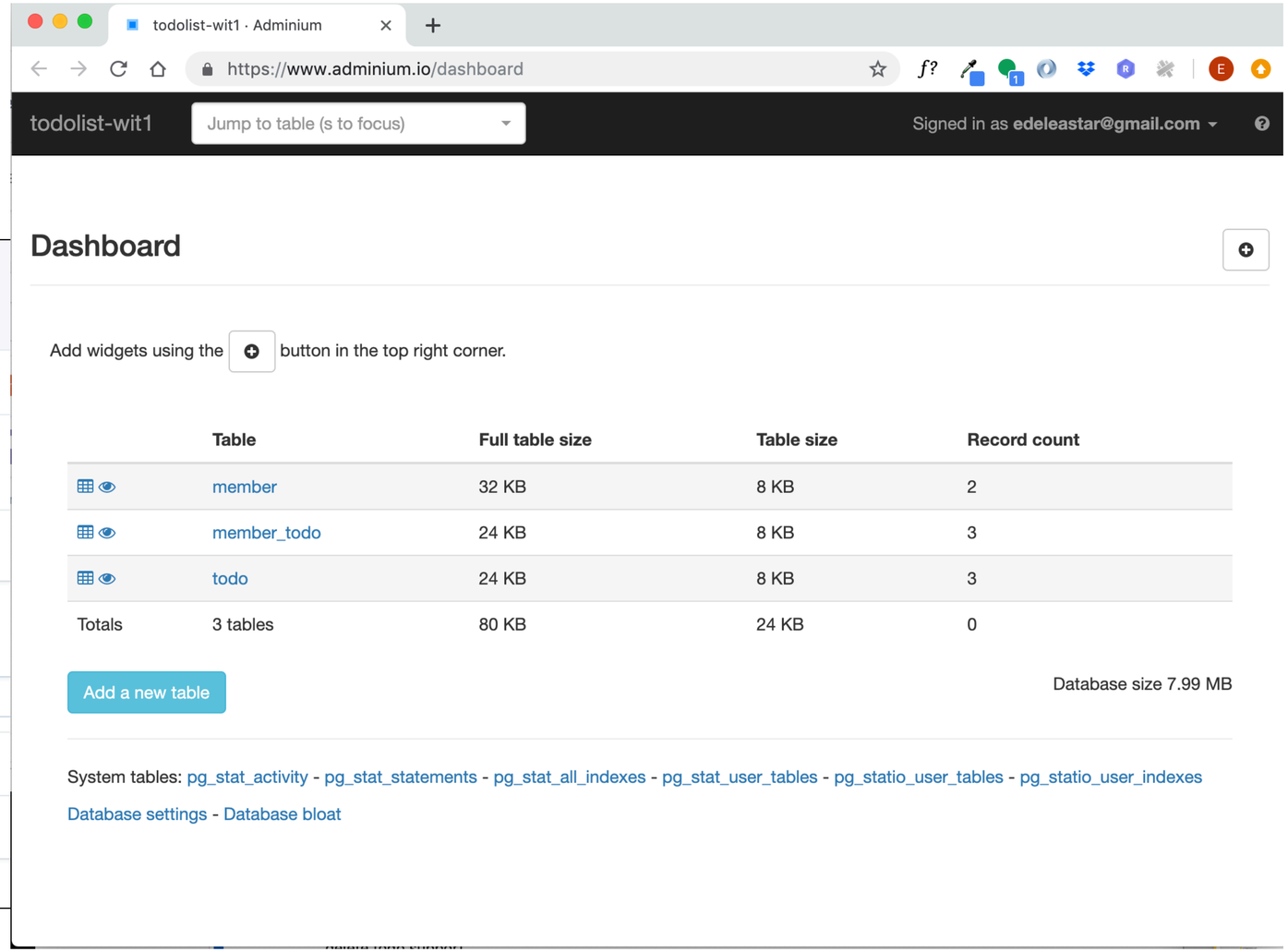




Application running on
http://todolist-wit1.herokuapp.com

Production Mode





Database available on
https://www.adminium.io/dashboard

https://en.wikipedia.org/wiki/Software_deployment

Software deployment is all of the activities that make a software system available for use.

The general deployment process consists of several interrelated activities with possible transitions between them.

Transition from *Development Mode* to *Production Mode*

Deploying a Play Application

Lab-12c
Deploy

Deploy a Play Application to the cloud

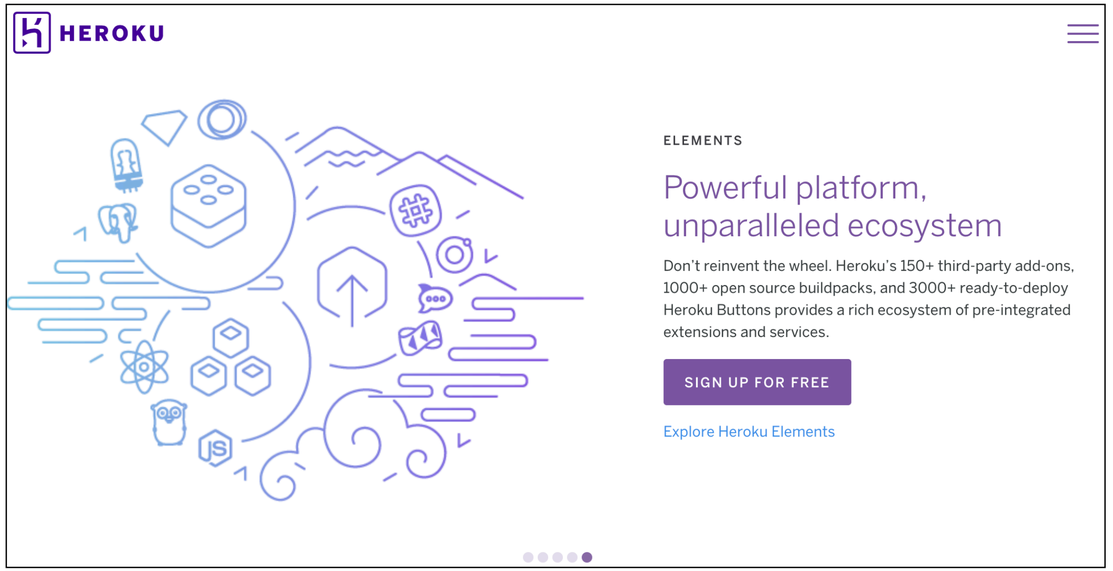
1.Configuration

2.Staging

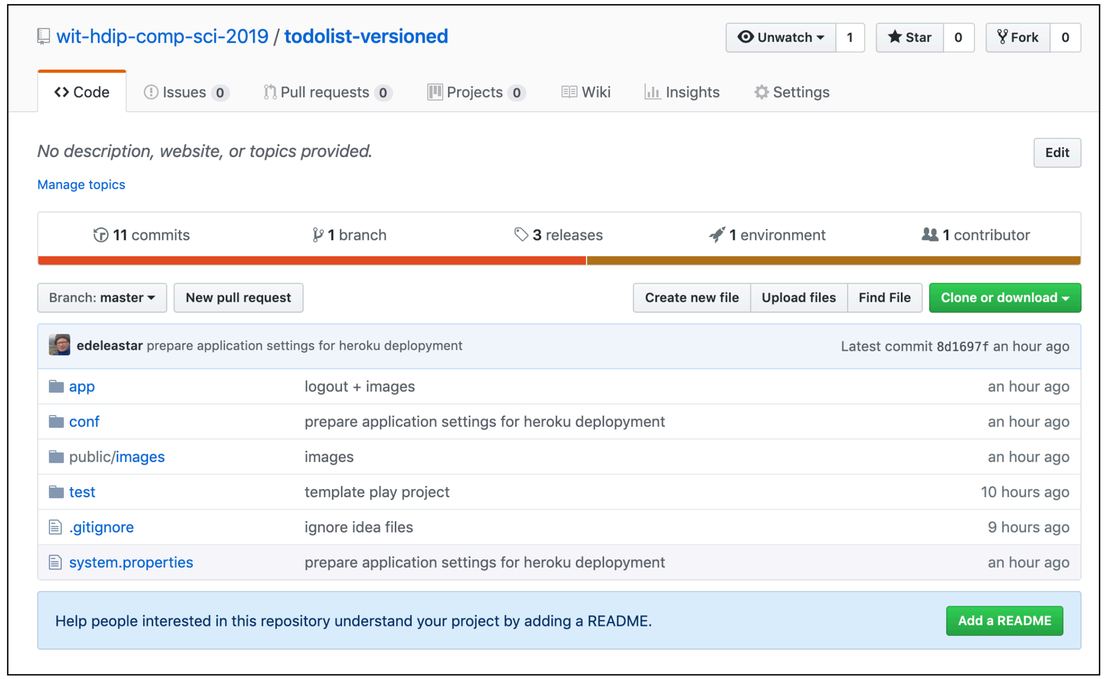
3.Deployment

Deployment: Platforms & Tools

Heroku: Application Service Provider



Github: Host for the application source



Deploying a Play Application

Lab-12c
Deploy

Deploy a Play Application to the cloud

1.Configuration

Four Key Configuration Parameters

1.1- JDK Version
1.2- Play Version
1.3- Database Connection String
1.4- Production Mode

1-1. JDK Version

1.Configuration

https://devcenter.heroku.com/articles/java-support

Heroku supports multiple versions of the JDK

Supported Java versions

Heroku currently uses OpenJDK 8 to run your application by default. OpenJDK versions 9 and 7 are also available. Depending on the major version you select the latest available update of that JDK will be used each time you deploy your app.

Current default versions are:

- Java 7 - `1.7.0_171`
- Java 8 - `1.8.0_161`
- Java 9 - `9.0.4`
- Java 10 - `10`

Place this file in project root:

system.properties

```
java.runtime.version=8
```

1-2. Play Version

1.Configuration

https://www.playframework.com/download#alternatives

Play Application Framework Versions

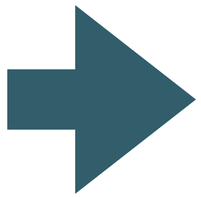
1.5 Setup Instructions

play-1.5.2.zip	Oct 30 2018	79M
play-1.5.1.zip	Jul 17 2018	79M
play-1.5.0.zip	Sep 29 2017	79M

Edit existing file:

conf/dependencies.yml

```
# Application dependencies

require:
    - play
```



```
# Application dependencies

require:
    - play 1.5.2
    - org.postgresql -> postgresql 42.2.2:
        force: true
```

1-3. Database Connection String

1.Configuration

Edit existing file:

conf/application.conf

```
db.default=mem
```

Comment out this line by placing a # in the first line:

```
# db.default=mem
```

Insert the following directly below:

```
db=${DATABASE_URL}
jpa.dialect=org.hibernate.dialect.PostgreSQLDialect
jpa.ddl=update
```

Dev mode
Application
connected to in
memory database

Production Mode
Application connected to
Postgres Database,
specified by platform

1-4. Production Mode

1.Configuration

Edit existing file:

(4) Production Mode

Also 'application.conf' - at the top of the file we have this:

```
# Application mode
#
# Set to dev to enable instant reloading and other development help.
# Otherwise set to prod.
application.mode=dev
%prod.application.mode=prod
```

This needs to be changed to this:

```
# Application mode
#
# Set to dev to enable instant reloading and other development help.
# Otherwise set to prod.
#application.mode=dev
prod.application.mode=prod
```

Production Mode optimises additional features

Deploying a Play Application

Lab-12c
Deploy

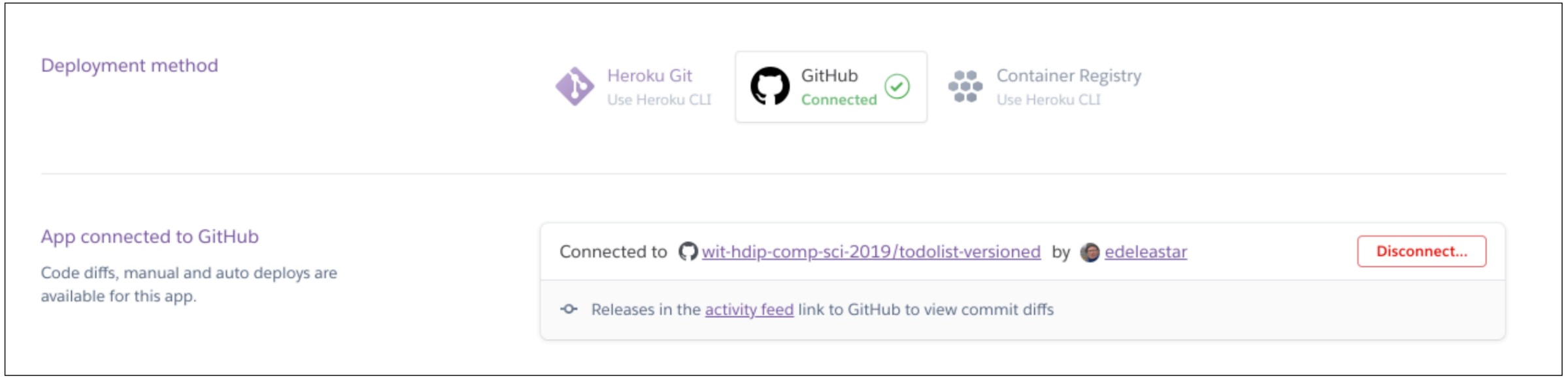
Deploy a Play Application to the cloud

2.Staging

Simple process

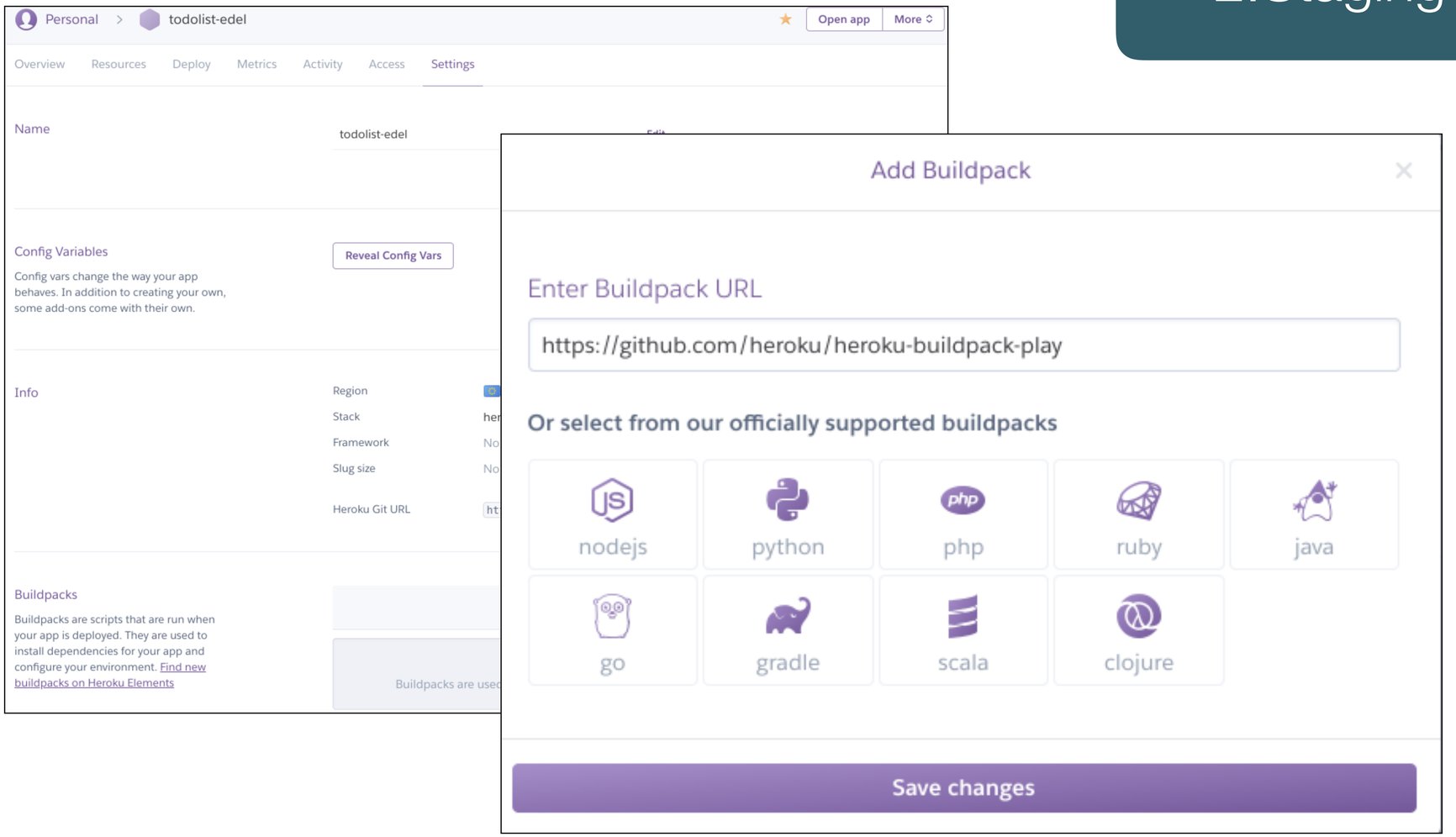
2.1- Link a Github Repository containing the project source
2.2 - Configure Buildpack

2.1- Link a Github Repository containing the project source



2.4- Configure Build Pack

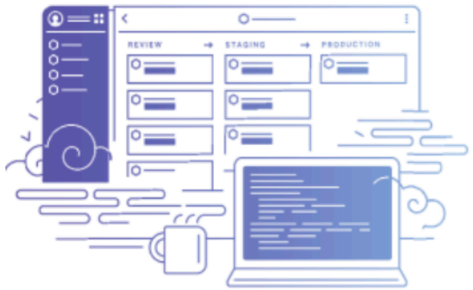
2.Staging



Instructs Heroku that the application is a Play Framework app.

Deploying a Play Application

Lab-12c
Deploy



Deploy a Play Application to the cloud

3.Deployment

Two Processes:

3.1- Build & Deploy
3.2- Monitor

3.1- Build

3. Deployment

Manual deploy

Deploy the current state of a branch to this app.

Deploy a GitHub branch

This will deploy the current state of the branch you specify below. Learn more.

Choose a branch to deploy

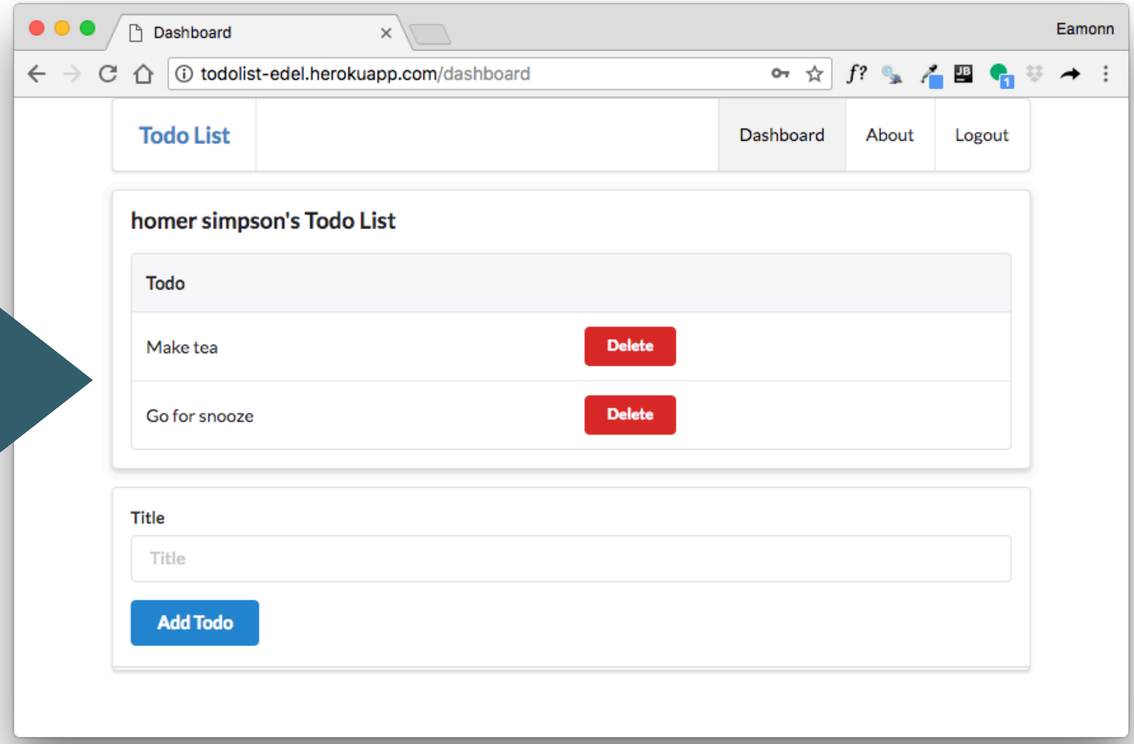
master

Deploy Branch

Deploy Branch

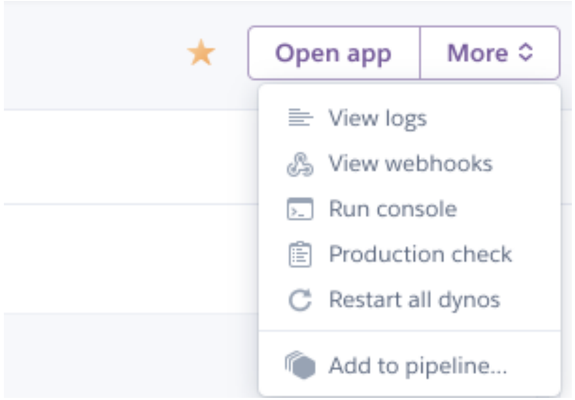
```
       ~        lib/org.osgi.enterprise-4.2.0.jar
       ~        lib/org.osgi.core-4.3.1.jar
       ~
       ~ Done!
       ~
       Precompiling: .play/play precompile ./ --silent 2>&1
       Listening for transport dt_socket at address: 8000
       Apr 15, 2019 5:22:19 PM play.Logger warn
       WARNING: Cannot replace DATABASE_URL in configuration (db=${DATABASE_URL})
       17:22:20,292 INFO  ~ Starting /tmp/build_7027466a2409dba595926690c9f06867
       :: loading settings :: url = jar:file:/tmp/build_7027466a2409dba595926690c9f06867/.play/framework/lib/ivy-
2.4.0.jar!/org/apache/ivy/core/settings/ivysettings.xml
       17:22:20,865 INFO  ~ Precompiling ...
       17:22:27,441 INFO  ~ Done.
       ~ Warning: no application.mode defined in you conf/application.conf. Using DEV mode.
       ~ using java version "1.8.0_201-heroku"
-----> No Procfile found. Will use the following default process:
       play run --http.port=$PORT $PLAY_OPTS
-----> Discovering process types
       Procfile declares types     -> (none)
       Default types for buildpack -> web
-----> Compressing...
       Done: 94.5M
-----> Launching...
       Released v6
       https://todolist-wit1.herokuapp.com/ deployed to Heroku

Build finished
```

Logs



3.2- Monitor - Application Console

3. Deployment



Replicates the Console visible when the app is running on localhost

Application Logs

ALL PROCESSES

```
2018-04-28T06:46:57.262005+00:00 heroku[web.1]: Starting process with command `play run --http.port=8575 --%prod -Dprecompiled=true`
2018-04-28T06:46:59.289767+00:00 app[web.1]: Create a Procfile to customize the command used to run this process: https://devcenter.heroku.com/articles/procfile
2018-04-28T06:46:59.580802+00:00 app[web.1]: Picked up JAVA_TOOL_OPTIONS: -Dfile.encoding=UTF-8
2018-04-28T06:47:00.525471+00:00 app[web.1]: 06:47:00,524 INFO  ~ Starting /app
2018-04-28T06:47:00.960385+00:00 app[web.1]: :: loading settings :: url = jar:file:/app/.play/framework/lib/ivy-
2.4.0.jar!/org/apache/ivy/core/settings/ivysettings.xml
2018-04-28T06:47:01.491954+00:00 app[web.1]: 06:47:01,491 INFO  ~ Application is precompiled
2018-04-28T06:47:04.238824+00:00 app[web.1]: 06:47:04,237 INFO  ~ HikariPool-1 - Starting...
2018-04-28T06:47:04.457666+00:00 app[web.1]: 06:47:04,457 INFO  ~ HikariPool-1 - Start completed.
2018-04-28T06:47:04.477044+00:00 app[web.1]: 06:47:04,476 INFO  ~ Connected to jdbc:postgresql://ec2-79-125-14-195.eu-west-
1.compute.amazonaws.com:5432/dcbjsg53rodgeo for default
2018-04-28T06:47:07.963782+00:00 app[web.1]: 06:47:07,963 INFO  ~ Application 'todolist' is now started !
2018-04-28T06:47:08.830163+00:00 app[web.1]: 06:47:08,825 WARN  ~ Precompiled template /conf/data.yml not found, trying to load it dynamically...
2018-04-28T06:47:08.830174+00:00 app[web.1]: java.lang.RuntimeException: Cannot load precompiled template /conf/data.yml
2018-04-28T06:47:08.830176+00:00 app[web.1]:    at play.templates.BaseTemplate.loadPrecompiled(BaseTemplate.java:44)
2018-04-28T06:47:08.830177+00:00 app[web.1]:    at play.templates.TemplateLoader.load(TemplateLoader.java:75)
2018-04-28T06:47:08.830178+00:00 app[web.1]:    at play.test.Fixtures.loadModels(Fixtures.java:223)
2018-04-28T06:47:08.830180+00:00 app[web.1]:    at play.test.Fixtures.loadModels(Fixtures.java:191)
2018-04-28T06:47:08.830181+00:00 app[web.1]:    at Bootstrap.doJob(Bootstrap.java:16)
2018-04-28T06:47:08.830183+00:00 app[web.1]:    at play.jobs.Job.doJobWithResult(Job.java:64)
2018-04-28T06:47:08.830184+00:00 app[web.1]:    at play.jobs.Job$2.apply(Job.java:224)
2018-04-28T06:47:08.830185+00:00 app[web.1]:    at play.db.jpa.JPA.withTransaction(JPA.java:285)
2018-04-28T06:47:08.830187+00:00 app[web.1]:    at play.db.jpa.JPA.withinFilter(JPA.java:238)
2018-04-28T06:47:08.830188+00:00 app[web.1]:    at play.db.jpa.JPAPlugin$TransactionalFilter.withinFilter(JPAPlugin.java:304)
2018-04-28T06:47:08.830189+00:00 app[web.1]:    at play.jobs.Job.withinFilter(Job.java:201)
2018-04-28T06:47:08.830190+00:00 app[web.1]:    at play.jobs.Job.call(Job.java:220)
2018-04-28T06:47:08.830192+00:00 app[web.1]:    at Invocation.Job(Play!)
2018-04-28T06:47:08.830193+00:00 app[web.1]: Caused by: play.exceptions.UnexpectedException: Unexpected Error
2018-04-28T06:47:08.830194+00:00 app[web.1]:    at play.libs.IO.readContent(IO.java:133)
2018-04-28T06:47:08.830196+00:00 app[web.1]:    at play.templates.BaseTemplate.loadPrecompiled(BaseTemplate.java:41)
2018-04-28T06:47:08.830197+00:00 app[web.1]:    ... 12 more
2018-04-28T06:47:08.830199+00:00 app[web.1]: Caused by: java.io.FileNotFoundException: File '/app/precompiled/templates/conf/data.yml' does not exist
2018-04-28T06:47:08.830200+00:00 app[web.1]:    at org.apache.commons.io.FileUtils.openInputStream(FileUtils.java:292)
2018-04-28T06:47:08.830201+00:00 app[web.1]:    at org.apache.commons.io.FileUtils.readFileToByteArray(FileUtils.java:1815)
2018-04-28T06:47:08.830202+00:00 app[web.1]:    at play.libs.IO.readContent(IO.java:131)
2018-04-28T06:47:08.830203+00:00 app[web.1]:    ... 13 more
2018-04-28T06:47:09.342593+00:00 app[web.1]: 06:47:09,342 INFO  ~ Listening for HTTP on port 8575 ...
2018-04-28T06:47:09.666880+00:00 heroku[web.1]: State changed from starting to up
2018-04-28T06:47:15.508850+00:00 app[web.1]: 06:47:15,508 INFO  ~ Rendering Start
2018-04-28T06:47:15.647864+00:00 heroku[router]: at=info method=GET path="/" host=todolist-edel.herokuapp.com request_id=8b963b67-6c63-43b0-b800-7571681a1328
fwd="86.44.43.185" dyno=web.1 connect=1ms service=225ms status=200 bytes=1454 protocol=https
2018-04-28T06:47:17.790158+00:00 heroku[router]: at=info method=GET path="/login" host=todolist-edel.herokuapp.com request_id=0c63d948-66b5-4d51-9c57-4fd95d8a85e1
fwd="86.44.43.185" dyno=web.1 connect=1ms service=27ms status=200 bytes=1878 protocol=https
2018-04-28T06:47:17.855407+00:00 heroku[router]: at=info method=GET path="/public/images/todo-2.jpg" host=todolist-edel.herokuapp.com request_id=31eb8230-2d5e-
491a-b376-8f668de20be6 fwd="86.44.43.185" dyno=web.1 connect=1ms service=39ms status=200 bytes=173344 protocol=https
2018-04-28T06:47:25.509132+00:00 app[web.1]: 06:47:25,509 INFO  ~ Attempting to authenticate with homer@simpson.com:secret
2018-04-28T06:47:25.523568+00:00 app[web.1]: 06:47:25,523 INFO  ~ Authentication successful
2018-04-28T06:47:25.576685+00:00 app[web.1]: 06:47:25,576 INFO  ~ Rendering Dashboard
2018-04-28T06:47:25.834299+00:00 heroku[router]: at=info method=GET path="/dashboard" host=todolist-edel.herokuapp.com request_id=daa255f3-3b12-4426-a72a-
fba887e5b192 fwd="86.44.43.185" dyno=web.1 connect=2ms service=271ms status=200 bytes=2217 protocol=http
2018-04-28T06:47:25.531339+00:00 heroku[router]: at=info method=POST path="/authenticate" host=todolist-edel.herokuapp.com request_id=5befb30f-1445-4cb3-967e-
4d17745e0885 fwd="86.44.43.185" dyno=web.1 connect=0ms service=46ms status=302 bytes=499 protocol=https
```

Autoscroll with output

Save

3.2- Monitor - Build

3. Deployment

If app malfunctioning, check Build Logs to see if application was compiled correctly.

Deploying a Play Application

Lab-12c
Deploy

Deploy a Play Application to the cloud

1.Configuration

1.1- JDK Version
1.2- Play Version
1.3- Database Connection String
1.4- Production Mode

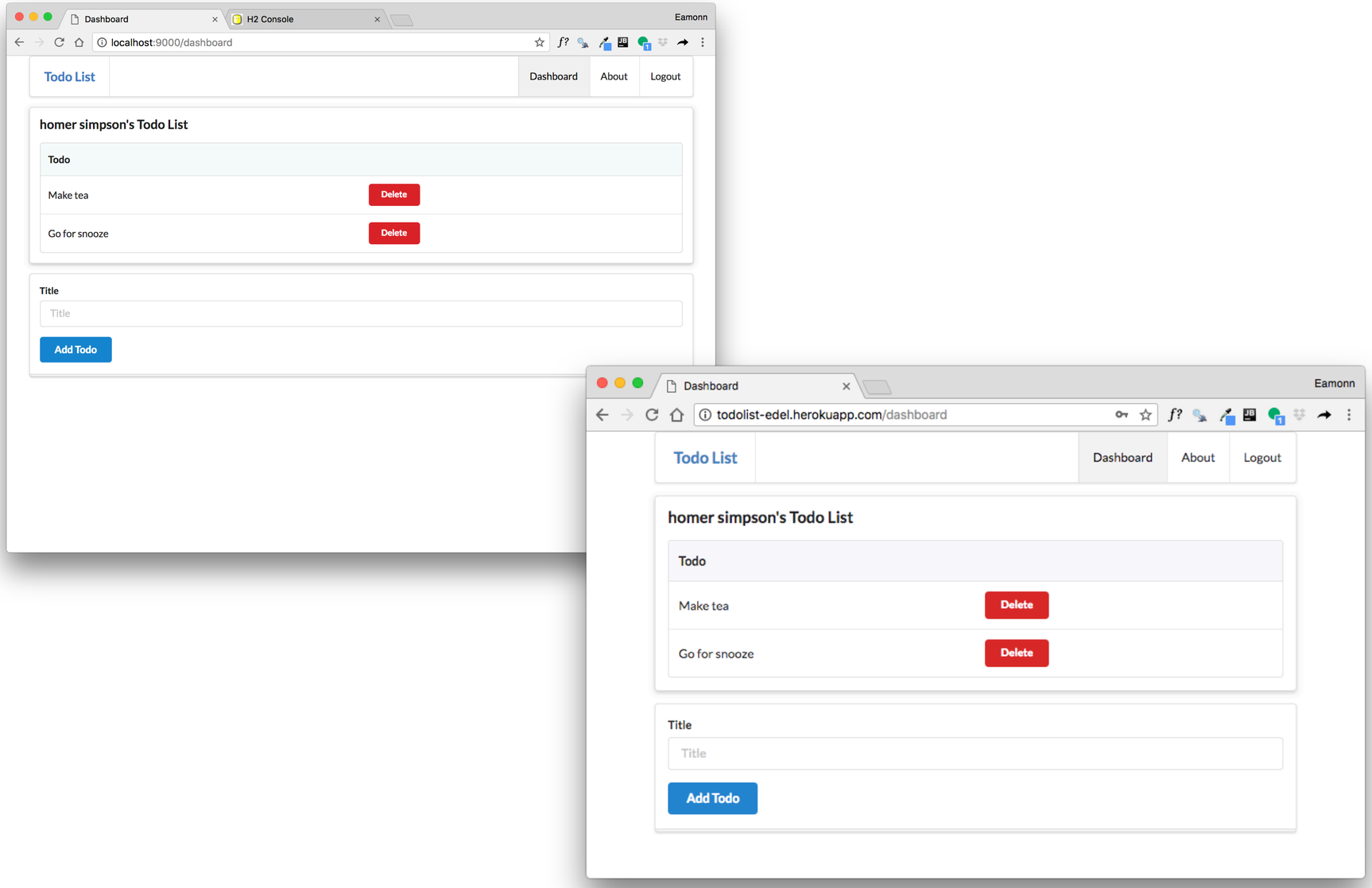
2.Staging

2.1- Link a Github Repository containing the project source
2.2 - Configure Buildpack

3.Deployment

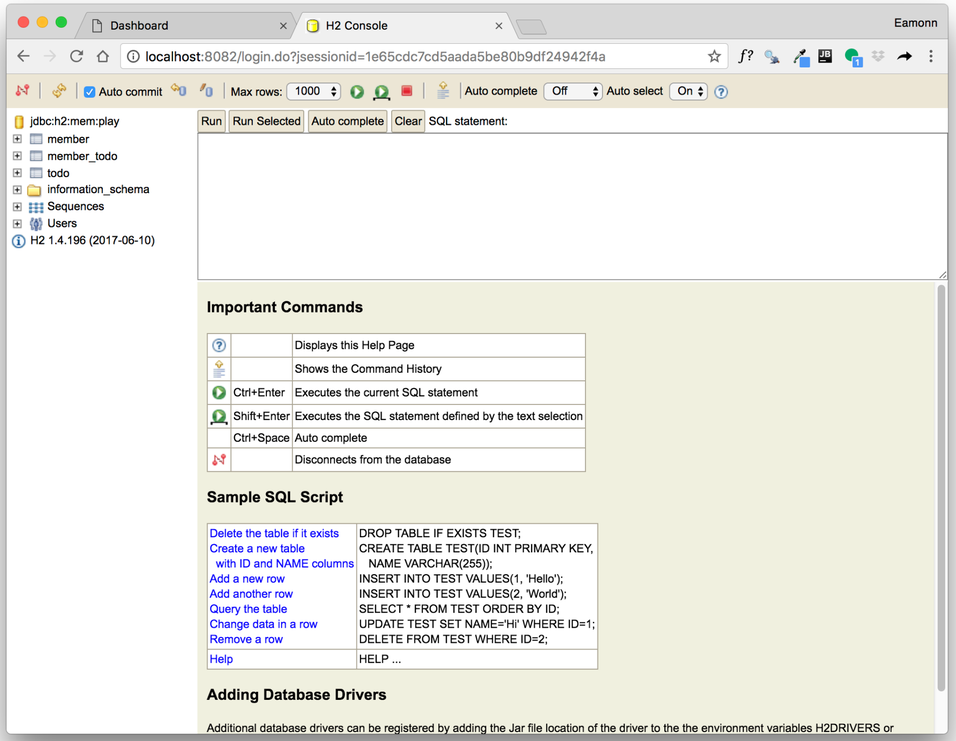
3.1- Build & Deploy
3.2- Monitor

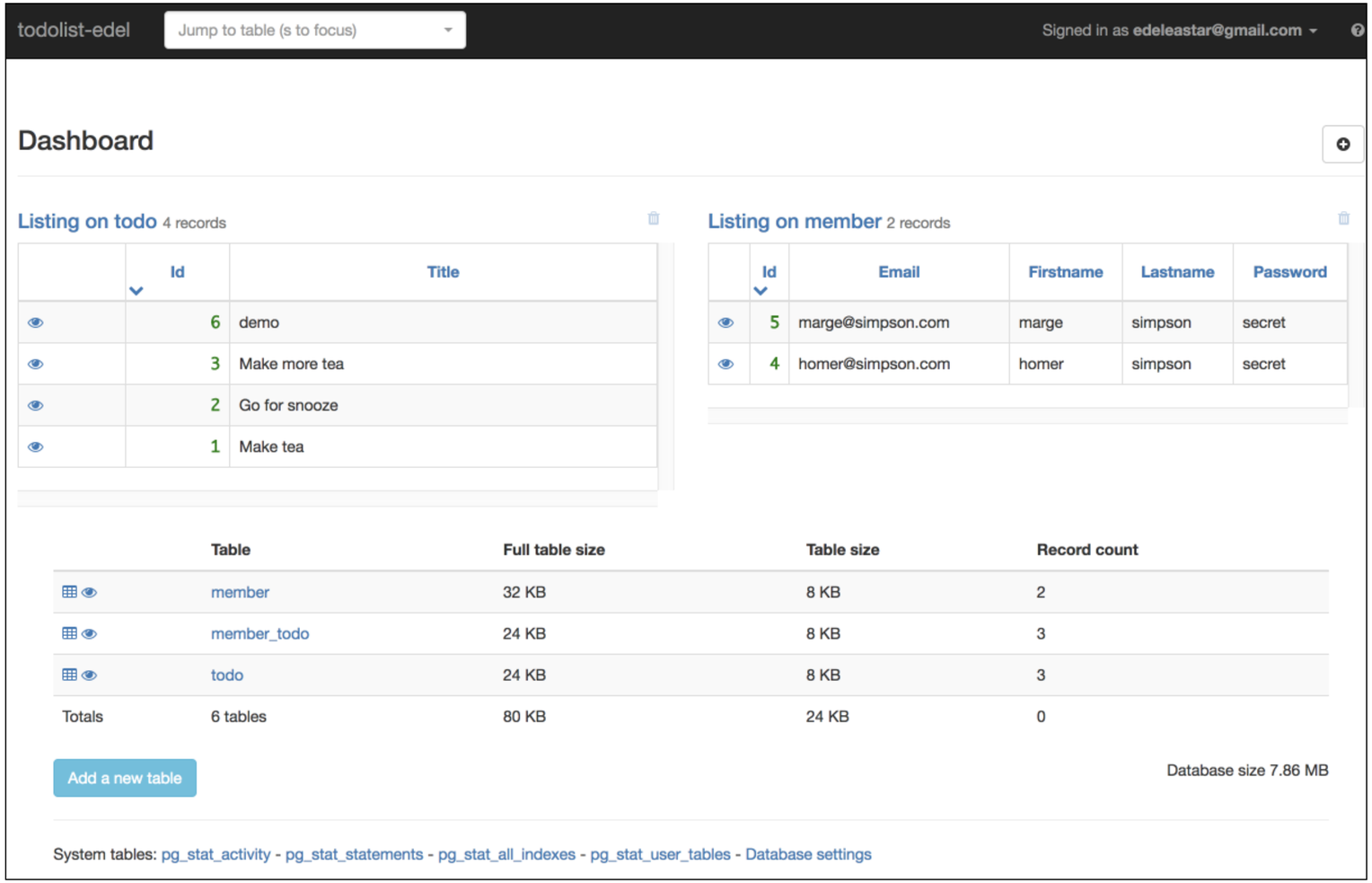
http://localhost:9000

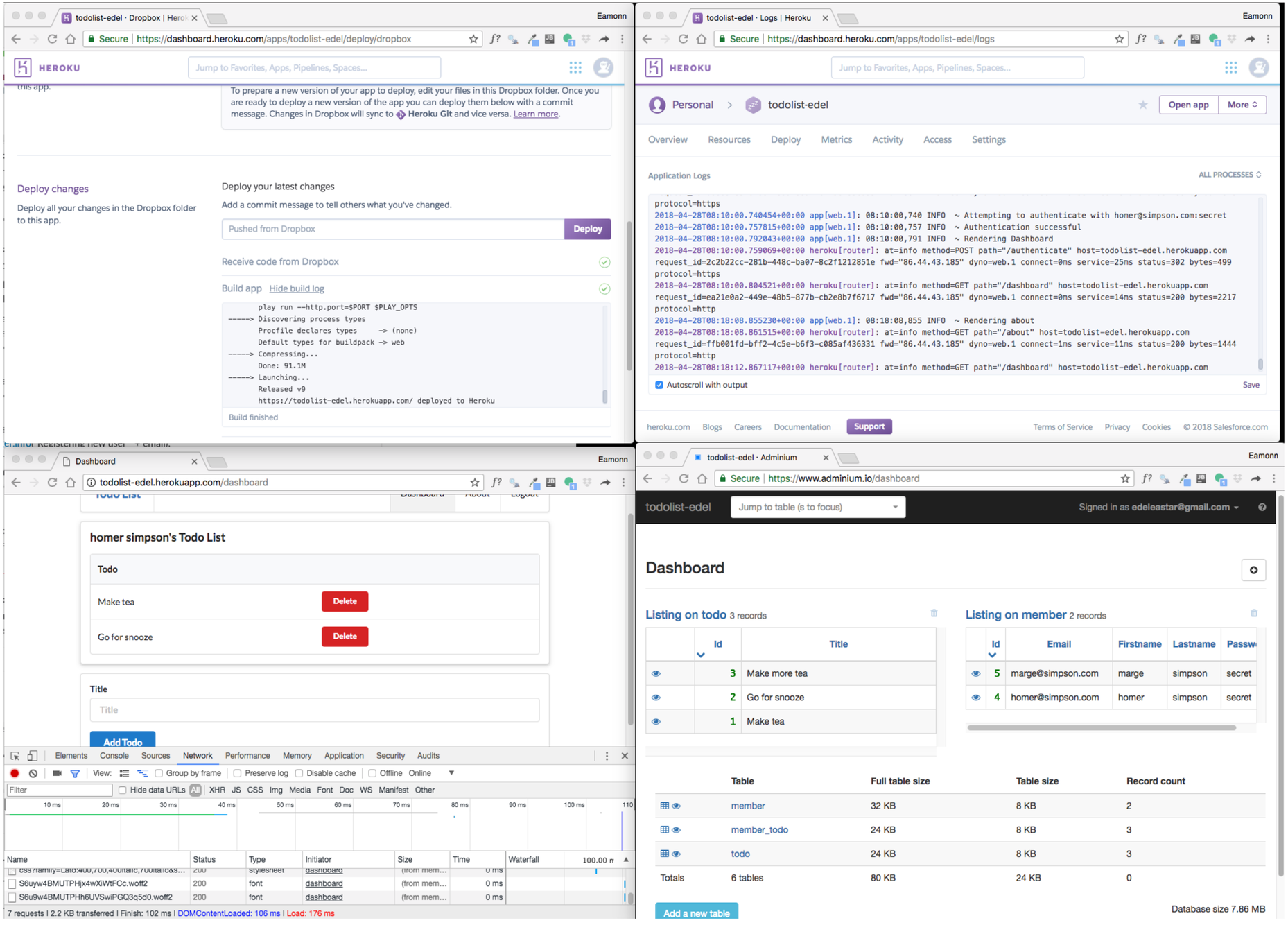


http://todolist-edel.herokuapp.com/dashboard

http://localhost:9000/@db





https://www.adminium.io/dashboard

Monitoring the Deployed app…