

# Graduate Programming Project

## Online Lottery Game—LuckyYou

### --Sha Lu

### 1. Introduction

An online lottery game—LuckyYou is built based on the assignment 6- flip a coin. A user will first sign up by entering the name, email and password on sign up page. After the user logs into the game, he/she will be able to make a deposit. Then the user will be able to play the game by clicking a button to send a request to the server. The win/lost ratio is set to be 40:60. If the user plays long enough, he or she will lost all deposit.

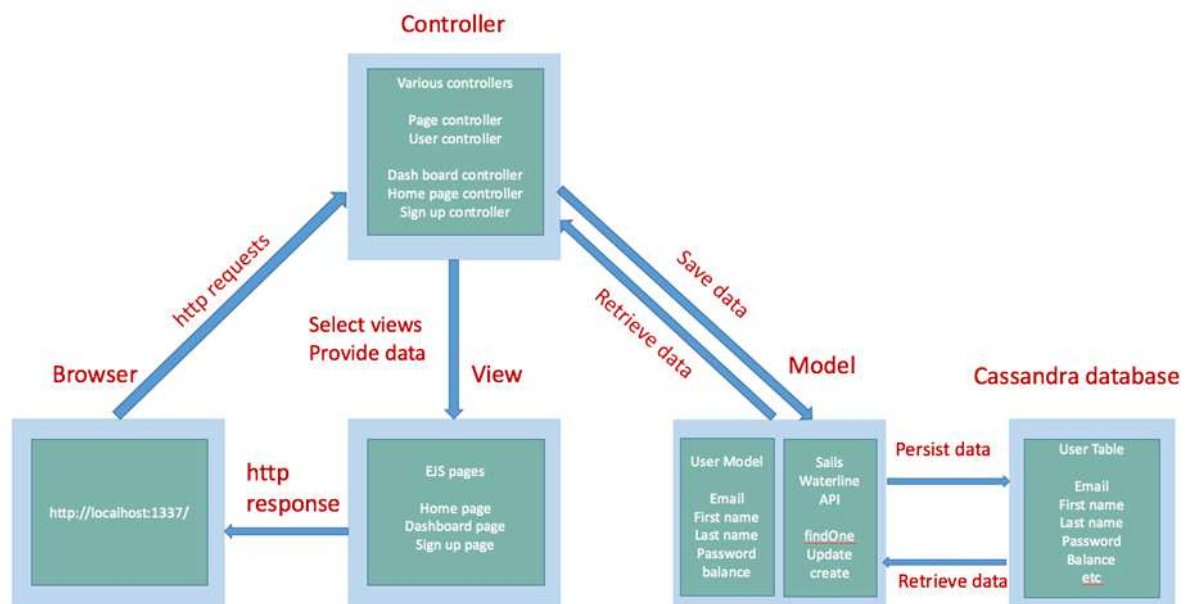
### 2. Technologies

Framework: Sails.js

Client side: Angular

Database: Cassandra

### 3. Software architecture



LuckyYou is built based on MVC architecture provided by Sails framework. The browser sends get/put/post requests to user and page controller by following route definition in `routes.js`.

All business logic of the application is implemented in various controllers including user controller, signUp controller, and etc. controllers will query Cassandra database, provide data to selected view.

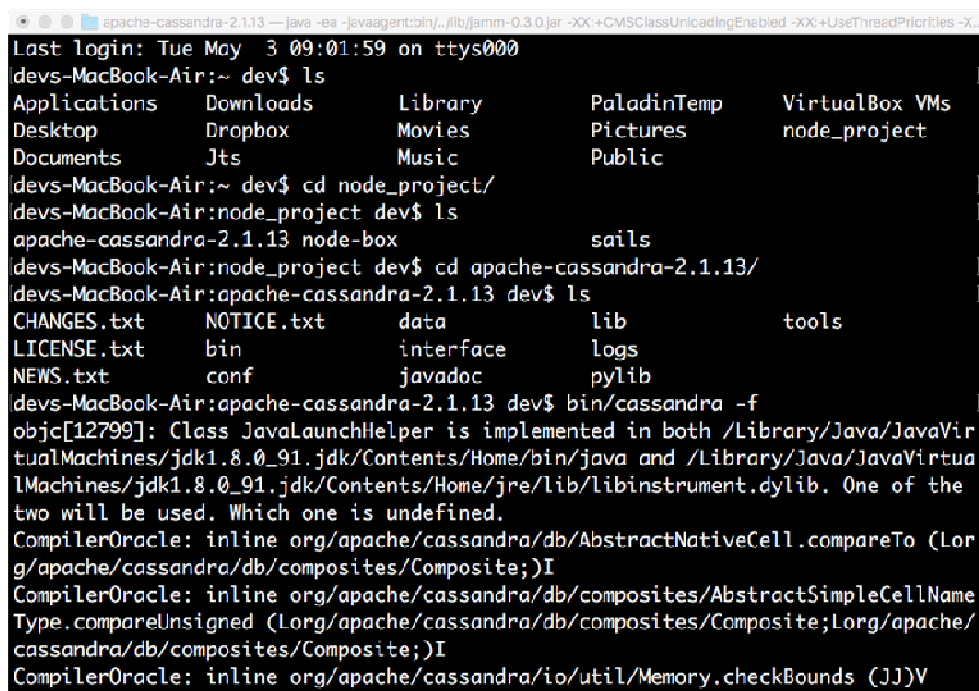
Views are implemented in EJS pages configured with various parameters. Sessions is used to maintain the state of the application.

User model is created to store user data such as email, name, title, password and balance. Waterline API is used in Sails to provide database access. Functions findOne, Update and create are used to find a user, update user data and create a user. With Waterline API, it is very easy to switch from Cassandra to another database such as Couch database as long as its driver implements Waterline API

I have tried the driver from <https://github.com/dtoubelis/sails-cassandra> and everything in LuckyYou is working fine except one problem. If Cassandra database is restarted, there will be an exception that prevents the user data to be read from the database.

## 4. How to run LuckyYou

1. Start Cassandra database by command: `bin/cassandra -f`



```

Last login: Tue May 3 09:01:59 on ttys000
devs-MacBook-Air:~ dev$ ls
Applications    Downloads      Library       PaladinTemp   VirtualBox VMs
Desktop        Dropbox       Movies        Pictures      node_project
Documents      Jts          Music        Public

devs-MacBook-Air:~ dev$ cd node_project/
devs-MacBook-Air:node_project dev$ ls
apache-cassandra-2.1.13  node-box      sails
devs-MacBook-Air:node_project dev$ cd apache-cassandra-2.1.13/
devs-MacBook-Air:apache-cassandra-2.1.13 dev$ ls
CHANGES.txt  NOTICE.txt  data        lib        tools
LICENSE.txt   bin         interface   logs
NEWS.txt      conf        javadoc     pylib

devs-MacBook-Air:apache-cassandra-2.1.13 dev$ bin/cassandra -f
objc[12799]: Class JavaLaunchHelper is implemented in both /Library/Java/JavaVirtualMachines/jdk1.8.0_91.jdk/Contents/Home/bin/java and /Library/Java/JavaVirtualMachines/jdk1.8.0_91.jdk/Contents/Home/jre/lib/Instrumentation.dylib. One of the two will be used. Which one is undefined.
CompilerOracle: inline org/apache/cassandra/db/AbstractNativeCell.compareTo (Lorg/apache/cassandra/db/composites/Composite;)I
CompilerOracle: inline org/apache/cassandra/db/composites/AbstractSimpleCellNameType.compareUnsigned (Lorg/apache/cassandra/db/composites/Composite;Lorg/apache/cassandra/db/composites/Composite;)I
CompilerOracle: inline org/apache/cassandra/io/util/Memory.checkBounds (JJ)V
```

2. Run LuckyYou by command: sails lift

```

LuckyYou — grunt + node user/local/bin/sails lift — 30x24
devs-MacBook-Air:luckyYou dev$ sails lift

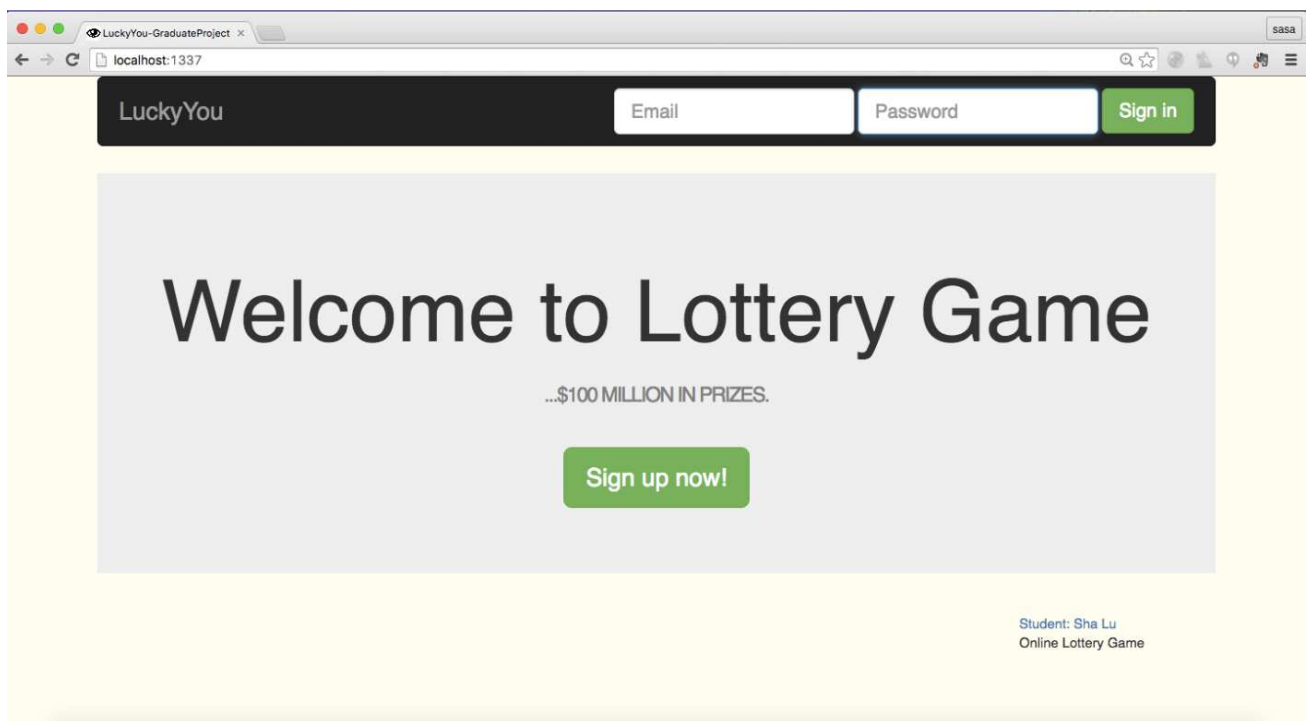
info: Starting app...

info:
info:
info:      .-.-.-.
info:
info:  Sails      <|      .-.-.-.
info:  v0.11.5
info:
info:      / \
info:     /  \
info:    /    \
info:   /      \
info:  /_____\  \
info: /         \
info:/         \
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info:  \       /
info:   \    /
info:    \  /
info:     \/
info:
info:  -----
info:  -----
info:
info: Server lifted in `~/Users/dev/node_project/sails/luckyYou`
info: To see your app, visit http://localhost:1337
info: To shut down Sails, press <CTRL> + C at any time.

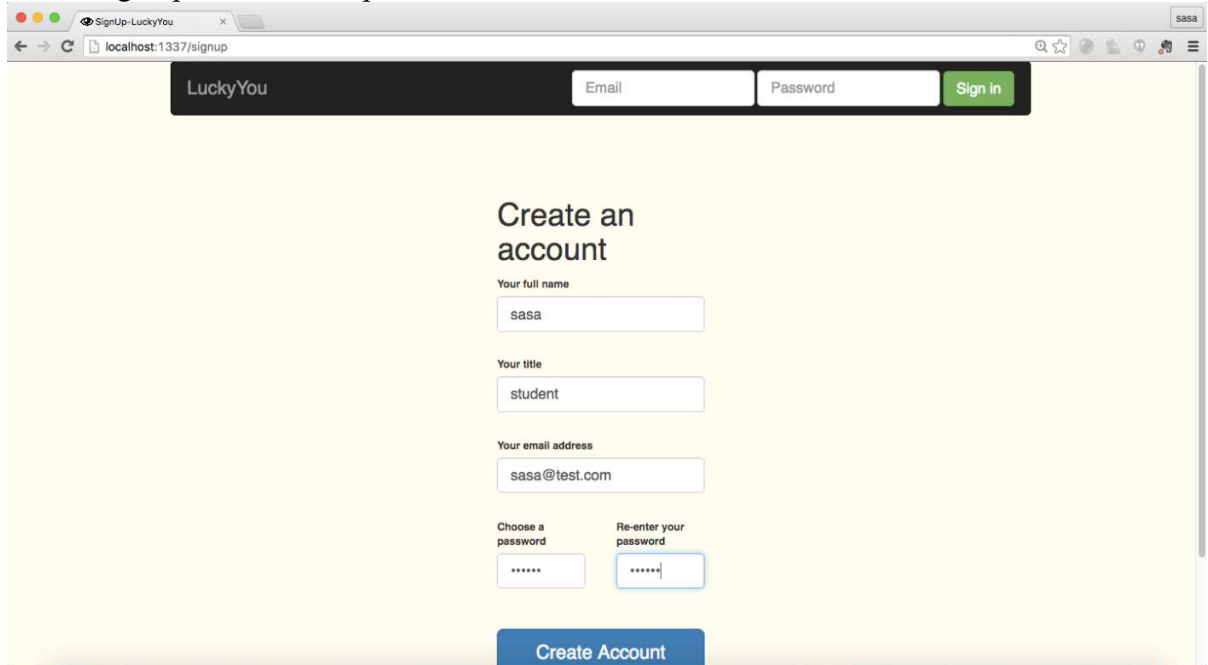
debug: -----
debug: :: Tue May 03 2016 20:03:16 GMT-0700 (PDT)

```

3. Go to Chrome access LuckyYou: **localhost:1337**

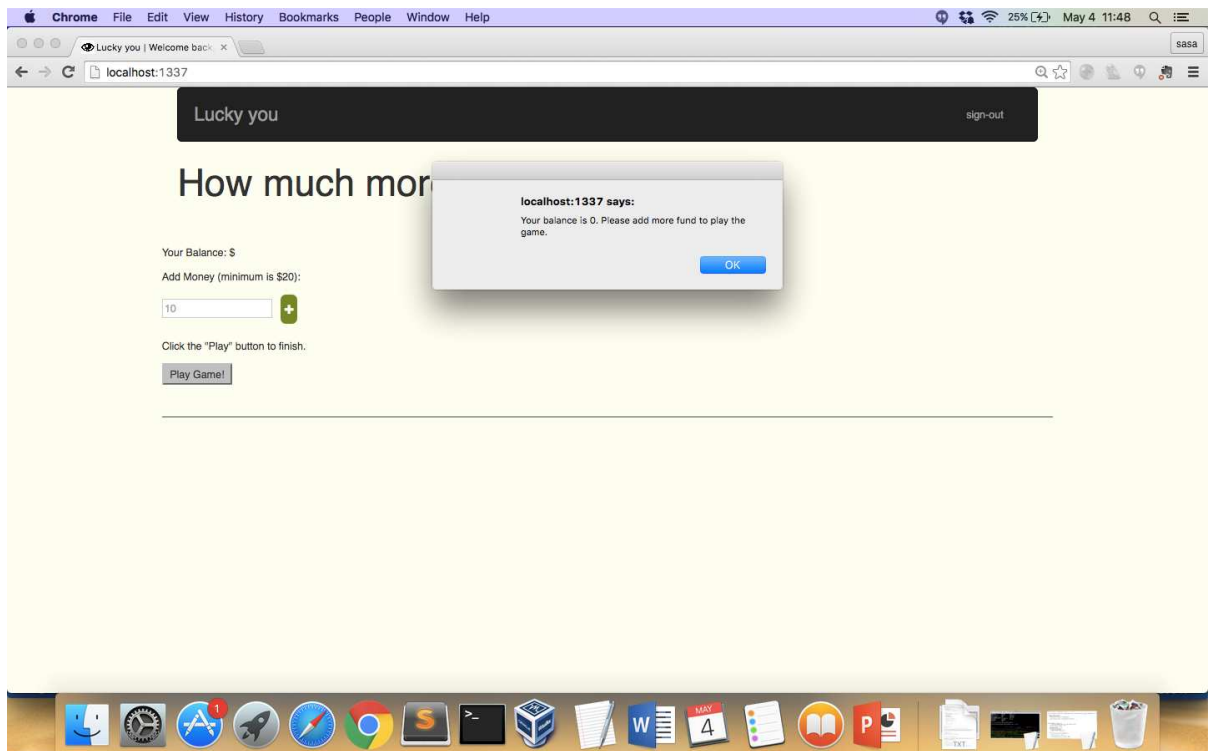


4. Register a user.  
click "Sign up now!" and input the user information to finish.



The screenshot shows a web browser window with the URL `localhost:1337/signup`. The page has a dark header with the text "LuckyYou" and a "Sign in" button. Below the header, there is a "Create an account" section. It contains four input fields: "Your full name" (filled with "sasa"), "Your title" (filled with "student"), "Your email address" (filled with "sasa@test.com"), and "Choose a password" (filled with "\*\*\*\*\*"). There is also a "Re-enter your password" field (filled with "\*\*\*\*\*"). A "Create Account" button is at the bottom of the form.

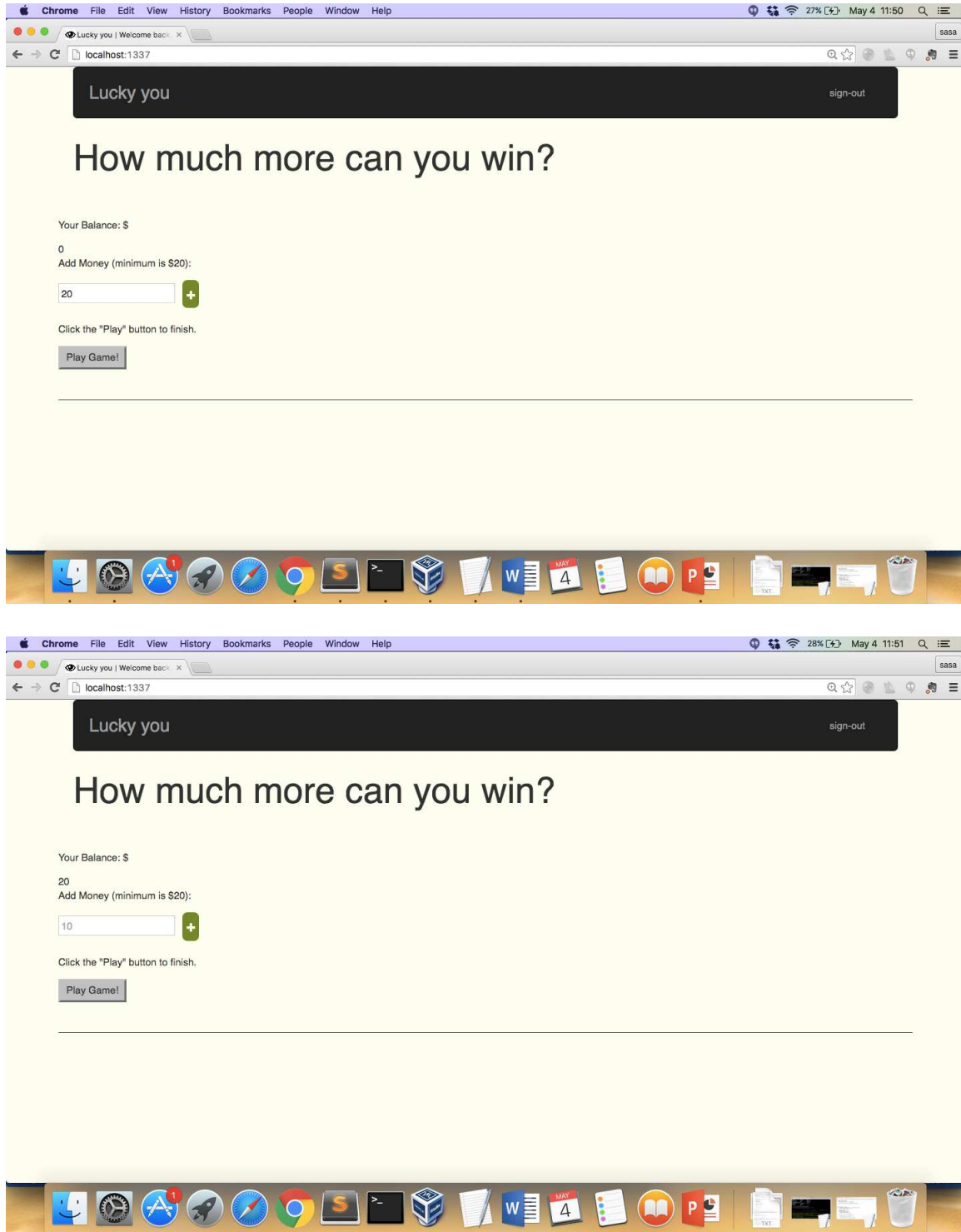
5. log into user page to start game  
if you are the first time to login, there will have information alert you to deposit money to start game.



The screenshot shows a web browser window with the URL `localhost:1337`. The page has a dark header with the text "Lucky you" and a "sign-out" button. Below the header, there is a "How much more" section. It contains a "Your Balance: \$" label, an "Add Money (minimum is \$20):" label, and a text input field with the value "10". There is a green "+" button next to the input field. Below the input field, there is a "Click the 'Play' button to finish." label and a "Play Game!" button. A modal dialog box is open in the center of the page, displaying the message: "localhost:1337 says: Your balance is 0. Please add more fund to play the game." with an "OK" button.

## 6. Deposit Money

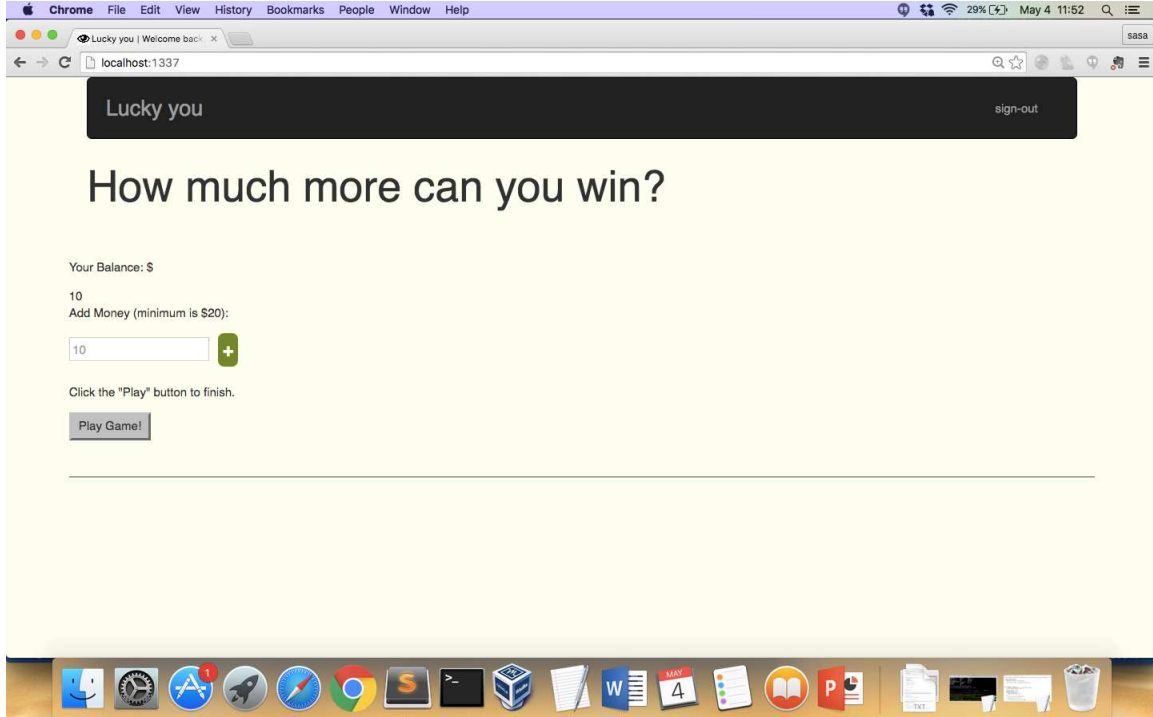
User can deposit more than 20 dollars money to play. and win/lose 10 dollars each time.



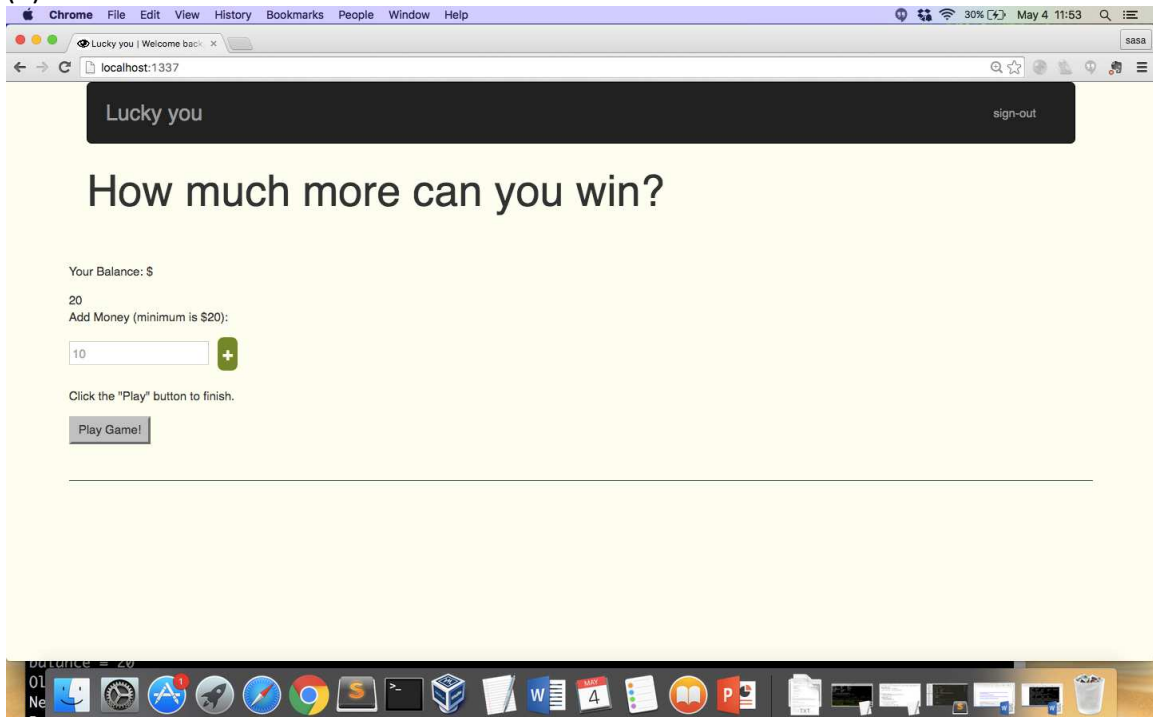
## 7. Play game.

After User account have enough money, user will click Play Game button to start lottery game.

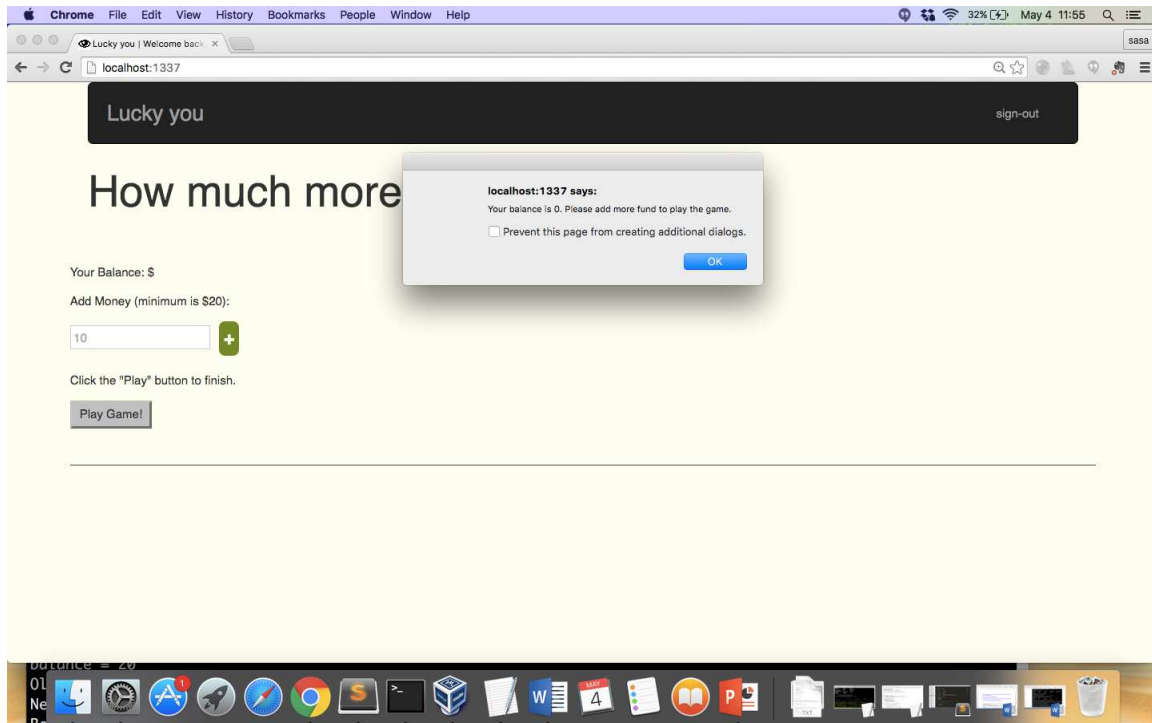
(1). User lose 10 dollars at the first time, so the balance show current money in account.



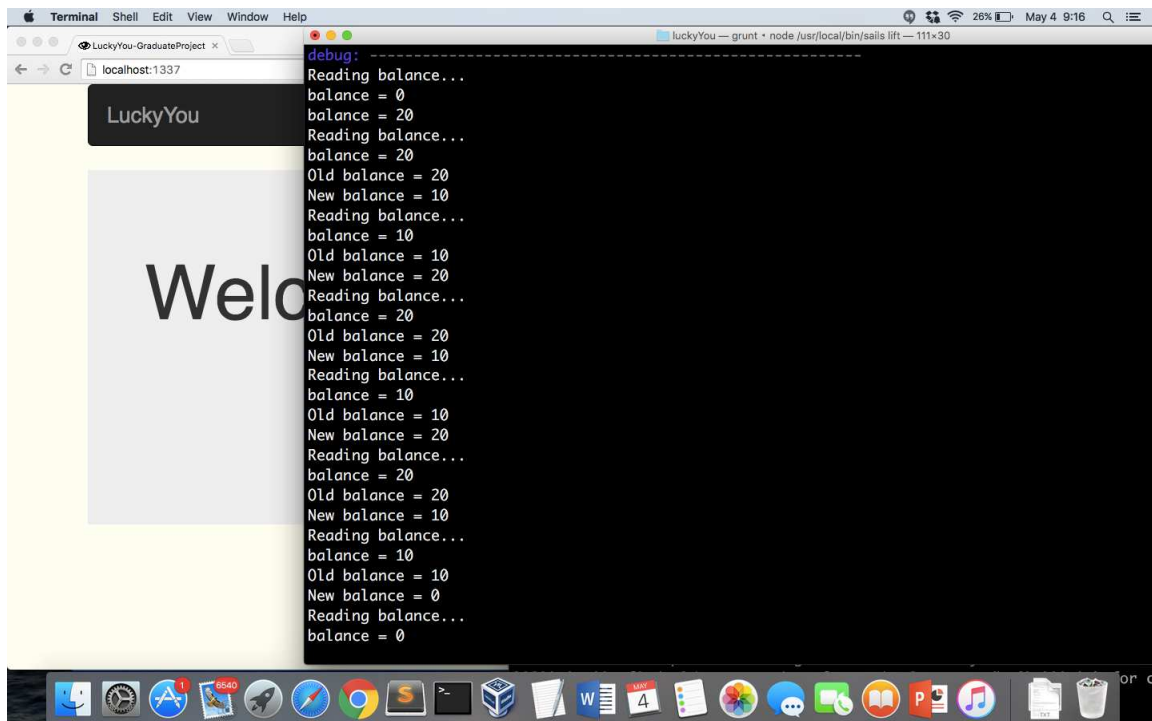
(2). user win 10 dollars at the 2nd time.



(3). finally user lose all money. and it will have alert to let user deposit more money to start game again.



## 8. Server side and Database





```

CREATE
CREATE_COLUMNFAMILY
CREATE_COLUMNFAMILY_OPTIONS
CREATE_COLUMNFAMILY_TYPES
CREATE_INDEX
CREATE_KEYSPACE
CREATE_TABLE

GRANT
INSERT
LIST
LIST_PERMISSIONS
LIST_USERS
PERMISSIONS
REVOKE

UPDATE_SET
UPDATE_USING
UPDATE_WHERE
USE
UUID_INPUT

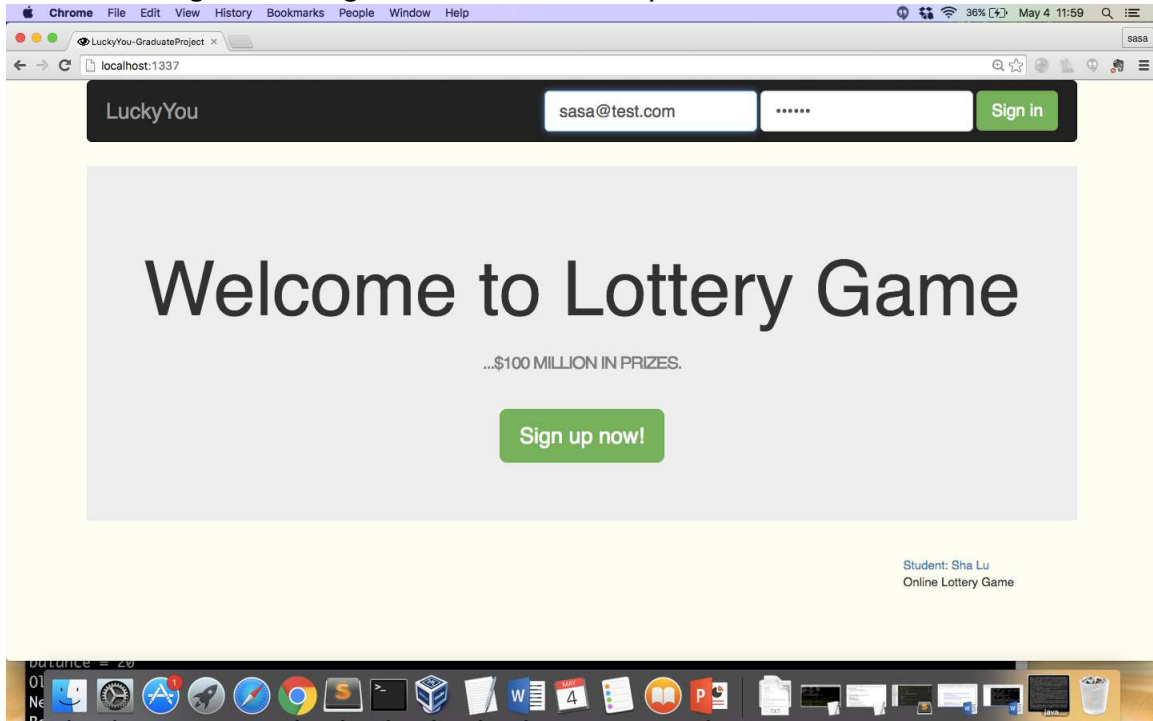
cqlsh> use demo_1461654339_634d204350ac3ce8095ed765404d3fda
... ;
cqlsh:demo_1461654339_634d204350ac3ce8095ed765404d3fda> select * from User
... ;

id | balance | createdat | email | encryptedpassword | name | t
  | gravatarurl | lastloggedin |
-----+-----+-----+-----+-----+-----+
f3886dc1-1210-11e6-9e5e-8a3eced81e16 | 0 | 2016-05-04 15:57:49+0000 | sasa@test.com | $2a$10$3SsLo9t0rLmmVDvKVigrD.n86WROB | sasa | t
Jo9wp7rhJ00557pctMJipB00 | http://www.gravatar.com/avatar/b8f57e663fc544187dbf1b05c6f4f6e6? | 2016-05-04 15:57:49+0000 | sasa | d
student | 2016-05-04 16:00:52+0000 |
e2179882-1211-11e6-9ef3-97b6db495a53 | 0 | 2016-05-04 16:04:29+0000 | s1@a.com | $2a$10$i0NS7J1Yc5QWrLkK9wjR5es/D6k.t | sa | t
ic18Tko5b7ukx54HxoK1Ye1e | http://www.gravatar.com/avatar/59740fccd284a9ea5e0782589a32f00b? | 2016-05-04 16:04:29+0000 | sa | d
1 | 2016-05-04 16:04:29+0000 |
80414013-1212-11e6-990a-84c516ec0bf2 | 20 | 2016-05-04 16:08:55+0000 | sasa@test.com | $2a$10$948T/OkRjYUXymCxaS8hU.VrmC3zJ | sasa | d
HhrcTHNsQyOMLWtsoQ15mGC2 | http://www.gravatar.com/avatar/b8f57e663fc544187dbf1b05c6f4f6e6? | 2016-05-04 16:08:55+0000 | sasa | d
evelper | 2016-05-04 16:09:14+0000 |

(3 rows)
cqlsh:demo_1461654339_634d204350ac3ce8095ed765404d3fda>

```

9. User can log out and login with old account any time





**Reference:**

1. <http://sailsjs.org/documentation/concepts/>
2. <https://docs.angularjs.org/tutorial/>
3. <https://github.com/irlnathan> (I have learned Sails.js by this github user--  
<https://github.com/irlnathan>. LuckYou project also uses his project activityoverload as a reference project.)
4. <http://www.tutorialspoint.com/angularjs/>