CSC667-867 Spring 2019

I. Title Page

Team Number: 08

List of Members: Jianfei Zhao
Alan Ng
Philip Yu
Hang Li
Eric Chen

Milestone: 2
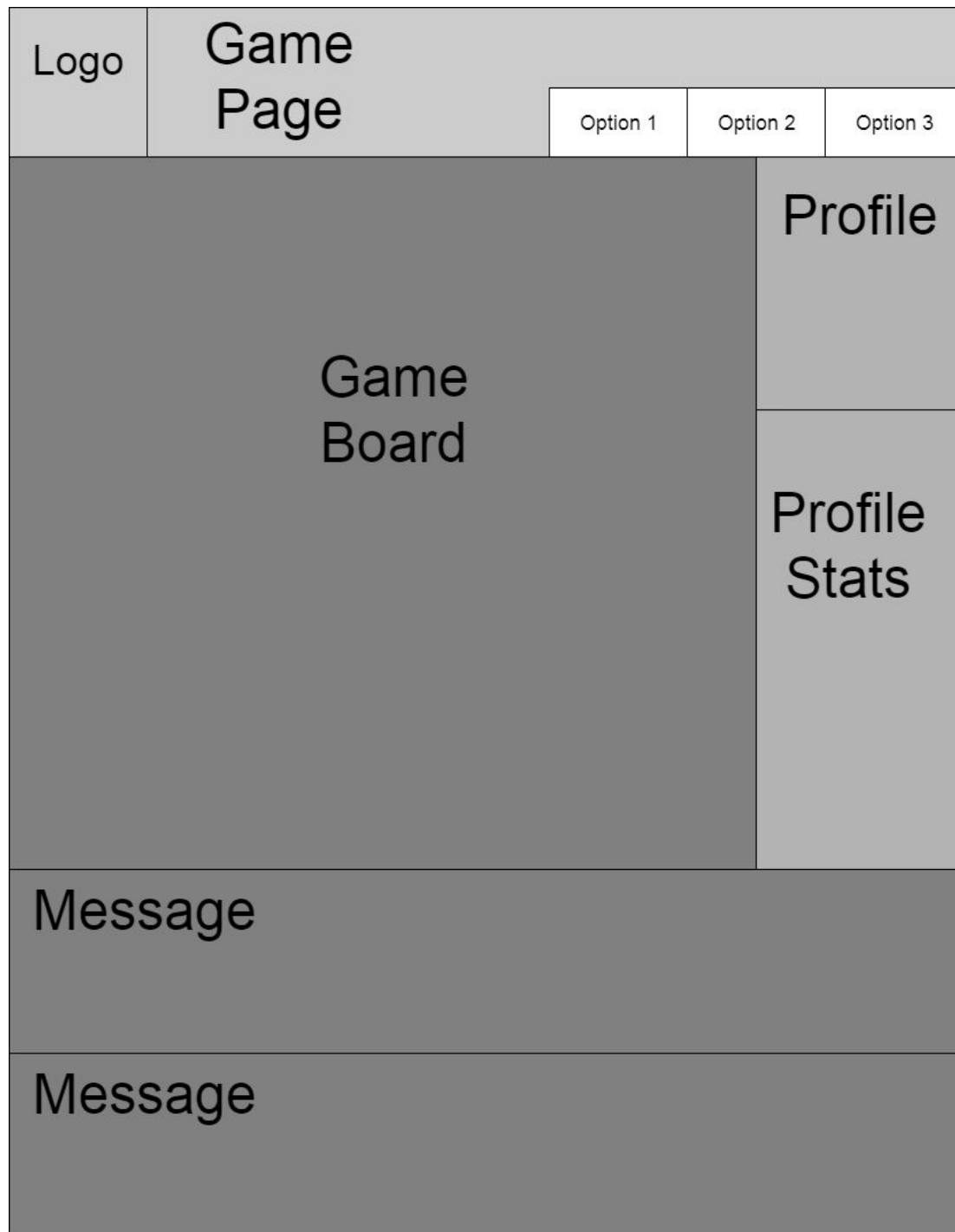
Due Date: 03/22/2019

Link: https://github.com/csc667-02-sp19/csc667-sp19-Team08/tree/milestones/milestones/m2

II. Wire Frame

i). Lobby Page / Game Lobby

Logo	Lobby Page		Option 1	Option 2	Option 3

List of
Game Rooms

Misc.

Misc.

Misc.

ii). Game Page / Game Room

Logo	Game Page			
		Option 1	Option 2	Option 3

Game Board	Profile
	Profile Stats

Message

Message

iii). Login Page

| Logo | Login Page | | Option 1 | Option 2 | Option 3 |

Log In

Username*

Password*

Forgot Password?

Login

Contact

Miscellaneous

iv). Registration Page

Logo	Registration Page			
		Option 1	Option 2	Option 3

Create an Account

Email

Username*

Password*

Confirm Password*

Enter CAPTCHA

☐ Agree to TOS*

Register

Miscellaneous

v). Profile Page / User Dashboard

Logo	Profile Page		Option 1	Option 2	Option 3

Profile Info

Profile Image

Username

Rank

Win: X Games

Lose: Y Games

Draw: Z Games

Records

Miscellaneous

Miscellaneous

vi). Record Page / Playing Results

Logo	Record Page		Option 1	Option 2	Option 3

Game ID	Opponent Player	Game Result	Game Time
112	Timmy	Win	03/22/2019
113	Zachary	Draw	03/23/2019
114	Lilian	Win	03/23/2019
115	Jason	Lose	03/24/2019
116	William	Win	03/24/2019

III. Site Map
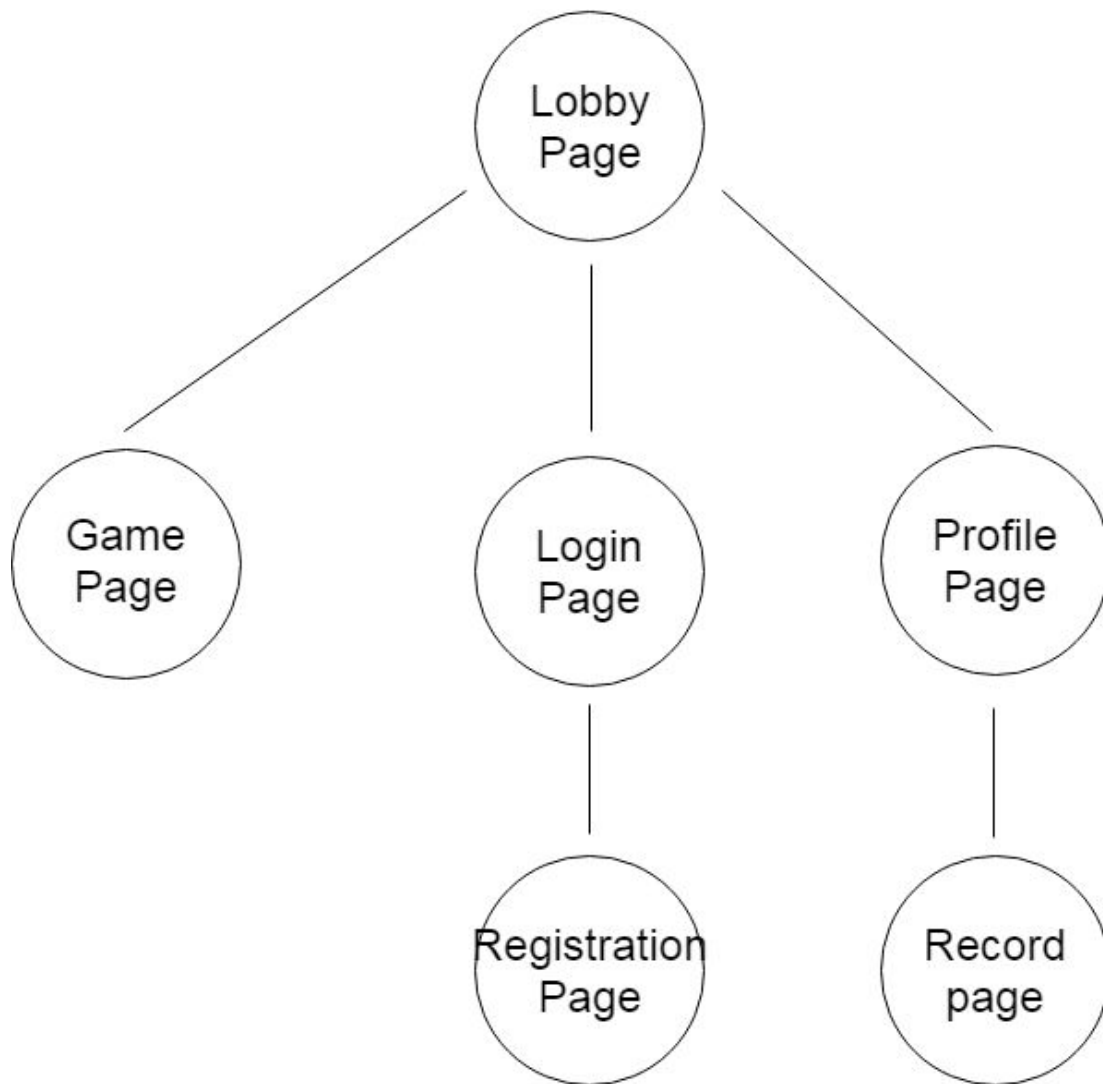
The above figure shows the site map for our group project. These pages are required to complete all the features listed in section VI.

Basically, the lobby page (game lobby) would be the kernel web page during the implementation. It should contain multiple available game rooms, from which the registered user may choose to start a game with an opponent player. To launch a game, each participant should either log in his/her account or register a new account. Moreover, user dashboard (profile page) will also be available after login or registration, and therefore each player can view his/her history of playing records and results.

IV. List of Technologies

Below is the list of technologies used in our team project (on server), with the version numbers.
- Server Provider: Amazon Web Services - Elastic Compute Cloud (AWS - EC2)
- Server System: Windows R2012
- Web Server: Apache 2.4.33
- Server Side Language: PHP 7.1.16
- Front-end Framework: JavaScript + Bootstrap v3 + HTML5
- Back-end Framework: Laravel 5.8
- Tool of Instant Messaging: Socket.IO 2.0
- Database: MySQL 5.7.21
- Link to the "Hello World" Page (Home Page): http://54.183.220.150/uno

V. List of Database Entities

i). User
- id (primary key, user id)
- username
- password
- win (number of WINs)
- lose (number of LOSEs)
- draw (number of DRAWs)

ii). Game
- id (primary key, game id)
- host_user_id (foreign key, user id of the host of this room)
- status (game status)
- onboard_card_id (foreign key, card id of the card on game board)
- unplayed (unplayed cards in pile, encoded as json string)
- remaining (remaining cards for each user, encoded as json string)
  Below is an example of json string to store the remaining cards for each participating player, where "user1", "card1", etc. will be replaced by numeric ids.
  {

        "user1": ["card1", "card2", "card3"],
        "user2": ["card4", "card5", "card6"],
        "user3": ["card7", "card8", "card9"],
    }

iii). Card
- id (primary key, card id)
- color (1~4: normal colors, including blue, red, green, yellow; 0: functional cards)
- number (0~9: normal cards; >9: functional cards)

iv). Record
- id (primary key, record id)
- game_id (foreign key, game id)
- user_id (foreign key, user id of the participating player)
- result (0: draw; 1: win; -1: lose)

VI. List of Features

i). Users / Players
- The Uno Card Game shall be able to support two players in a game instance.
- Each user shall register or login before playing with others.
- The application shall support concurrent games.
- Each user shall be permitted to take part in multiple games in different tabs.

ii). Game Playing
- The sequence of cards shall be randomized initially.
- The user who firstly plays the card shall be determined randomly.
- Both normal and functional cards shall be provided in each game, in which normal cards are numbered from 0~9 with 4 colors available, and functional cards contain "Wild", "Wild Draw 4", "Draw 2", and "Skip".
- If a user plays a card, his/her opponent shall see the card immediately, without refreshing the entire web page.

iii). Game States

- The state of each game shall be stored in a table in database.
- If a user closes a tab and reconnects to the game, the game shall be reloaded for that user.
- The state shall be updated in real time in response to user events and interaction with the game.

iv). Game Rule
- The user who firstly plays all cards shall be the winner, and thus his/her opponent shall be taken as the loser.
- If two players use up all the cards in the pile but both have remaining cards in hand, the game shall be determined as a "Draw".
- When playing a numerical card, it shall have the same color or the same number as the one shown on game board.
- "Wild" and "Wild Draw 4" shall maintain or change the color.
- "Wild Draw 4" and "Draw 2" shall force the opponent player to draw cards.
- "Skip" shall skip the next round of the opponent player.

v). Chatting
- Chatting shall be enabled for all users in the lobby, after the login/registration.
- Chatting shall be enabled in each game room, for those users participating in an instance of game.

vi). Registration
- All the required information shall be marked on registration page.
- The username shall be checked for uniqueness and the password shall be confirmed during registration.

vii). Login
- Each registered user shall be able to login by using the username and password.
- The user information shall be saved in session, with no need for repeated login.
- The user shall be able to log out if needed.

viii). User Dashboard
- Each user shall be able to view his/her user dashboard.
- The dashboard shall include all his/her previous playing records
- Each playing record shall list the basic information, such as the user s/he played against and the result (win/draw/lose).