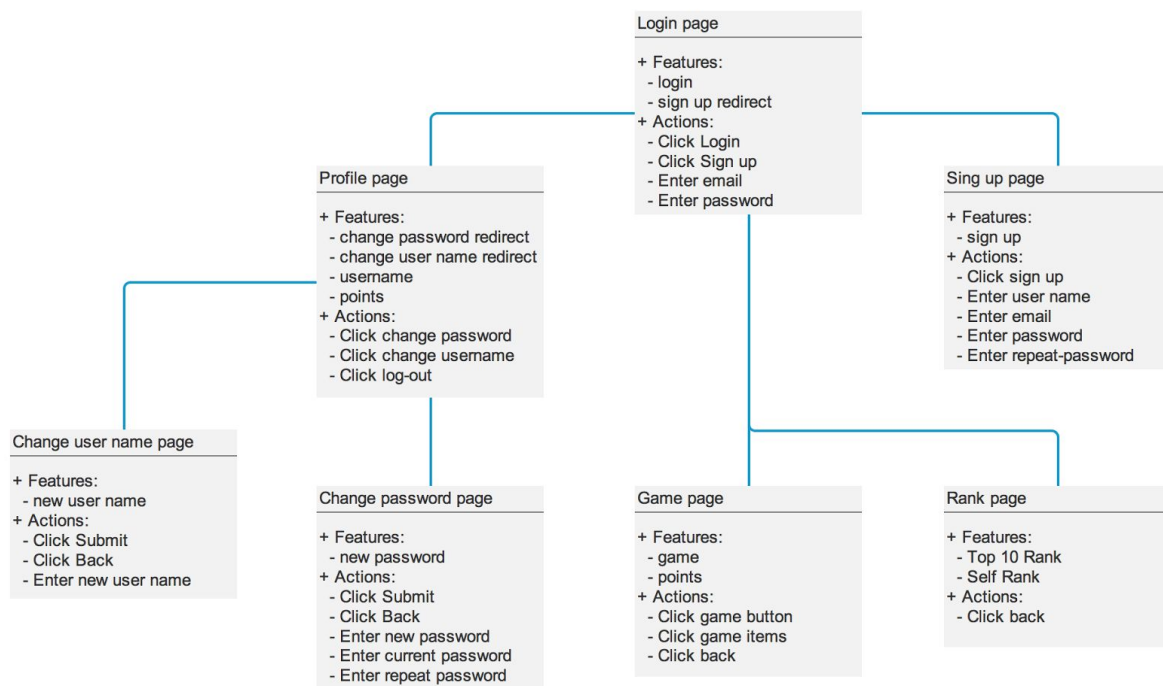# Team 14 : Defect Log

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1 Classification of Components
1.1 Define all components

Component 1 - **Login page**
The login page is showed once this app is launched before users login. It provide users sign up redirect and Login redirect.

Input: 'sign up' button, 'login' button, username, password
Output:

1. If login verification succeeds with valid username/password, redirect to main page.
2. If the verification fails, prompt fail message, stays on the page.
3. Click 'sign up' button, redirect to 'sign up' page.

Component 2 - **Sign up page**
Once the user clicked the sign up button on the login page, the sign page will appear and it provide user click "Sign up" or "Cancel" and input email , username, password and repeat password.

  Input: 'sign up' button, 'Cancel' button, e-mail, username, password, repeat_password
  Output:
        1. Verify all input format legality, click sign up, redirect to game level page
        2. Invalid input format , register fail and show up failure information.
        3. Click on "Cancel", redirect to sign up page

Component 3 - **Game level page**
Once the user login success , the game level page will appear. It provide users choose different game level to start the game.

  Input: Click 'level 1' button, Click 'level 2' button, Click 'level 3' button.
  Output: Redirect to game page by clicking the game level button.

Component 4 - **Game page**
Once the user is guided to the game page, the game will start with its respective levels. After the game is finished (whether you lose the game or beats the game), the result is loaded on the screen and prompts the user for re-play

  Input: tile button, item button
  Output:
        1. If the user presses the tile, the tile is revealed.
                a. If the tile is a mine, the game is done, reveals all remaining mines and result is loaded
                b. If the tile is not a mine and there is a neighboring mine, the number shows up on the tile
                c. If the tile is not a mine and there is no neighboring mine, all the tiles are revealed until algorithm finds tiles with a neighboring mine.
        2. If the user presses the tile for 1.5 seconds, the flag appears.
        3. If the user clicks the item button, respective item effects are in effect

Component 5 - **Ranking page**
Once the user clicked the ranking button on the navigation bar. User can check his or her rank and click different level ranking button in this page.

  Input: Click 'level 1' button, Click 'level 2' button, Click 'level 3' button.
  Output: Show up top 5 ranking score for each level

Component 6 - **Profile page**
Once the user clicked the profile button on the navigation bar. User can check his or her username, coins, click change username button and click change password button in this page. Or go back to the login page by clicking the 'logout' button.

  Input: 'change username' button, 'change password' button, 'log out' button
  Output:
        1. Redirect to change user name page by clicking the 'Change Username' button
        2. Redirect to change password page by clicking the 'Change Password' button
        3. Redirect to login by clicking the 'log out' button

Component 7 - **Change username page**
Once the user clicked the change username button on the profile page, the change username page will appear and it provide user click "Back" or "Looks Good" and input new username.

  Input: "Back" button, "Looks Good" button, new username, password, repeat password
  Output:
        1. Verify input format legality, click 'Looks Good', redirect to profile page
        2. Invalid input format , change user name fail and show up failure information.
        3. Click on "Back", redirect to profile page

Component 8 - **Change password page**
Once the user clicked the change password button on the profile page, the change password page will appear and it provide user click "Back" or "Submit" and input current password, new password and re-enter new password.

  Input: "Back" button, "Submit" button, current password, password, repeat password
  Output:
        1. Verify current password correct and input format legality, click 'Submit', redirect to profile page
        2. Invalid input format , change password fail and show up failure information.
        3. Click on "Back", redirect to profile page

1.2 Form of Incremental Testing

Bottom up testing

1. Object oriented programming languages like Swift and Java programming language follows bottom up approach.
2. Bottom-up approach does differentiate between high frequency low severity and low frequency high severity events
3. Advantageous if major flaws occur toward the bottom of the program.
4. Test conditions are easier to create.
5. Observation of test results is easier.

Incremental Testing

Component 8 - **Change password page**			
Defect No	Description	Severity	How To Correct
1	If the new password is shorter than 4 characters of longer than 15 characters, the error message is too long and doesn't the fit the screen on the iphone 7 simulator.	3	Make the text "Fit the screen"
Component 7 - **Change username page**			
Defect No	Description	Severity	How To Correct
2	If the new username is shorter than 4 characters of longer than 16 characters, the error message is too long and doesn't the fit the screen on the iphone 7 simulator.	3	Make the text "Fit the screen"
Component 4 - **Game page**			
Defect No	Description	Severity	How To Correct
3	Background image of a tile is not changing to pressed tile when the user click on it.	3	Changed the zPosition of image
4	Revealing all non-neighboring mine tiles until the neighboring mine tiles does not occur.	2	Added a recursive function to the GameBoard
5	Game screen does not load, but crashes.	3	The frame size is adjusted to right size in Game-ViewController
6	Edge tiles sometimes does not get revealed	1	Changed the algorithm in revealing neighbor cells.

7	When revealing multiple tiles, edge of revealed block should be composed by tiles that are not mines and have at least one neighboring mine	2	Alter the algorithm to check all 8 neighboring tiles rather than just check the tiles above and beneath
8	The tab bar item for game page doesn't show properly.The image would become too large if user click on the button.	3	Override the implementation of tab bar in the game view controller
9	After the games ends, clicking the "play again" button leads to a new game.	2	Keep the original array and use a new 2-D array to store the changes of status of tiles when user is playing the game. Reload the original array after user select the "play again" button

Component 5 - **Ranking page**

Defect No	Description	Severity	How To Correct
10	If Username is too long, it won't be shown properly and affect the scores also	3	Make the label message long enough to hold 16 characters and split username and scores into 2 labels.
11	Click on the level2 or level3 button doesn't update the level's rank. It's still showing the level1's rank.	2	Inside click button function, change the value of 'level' to read the correct level data.

Component 8 - **Change password page**, Component 6 - **Profile page**

Defect No	Description	Severity	How To Correct
No defect found.			

Component 7 - **Change username page**, Component 6 - **Profile page**

Defect No	Description	Severity	How To Correct
12	Changing the username changes the account name (email addresses) instead	3	Modify submitChange() to accept username instead of email addresses.

Component 4 - **Game page**, Component 3 - **Game level page**

Defect No	Description	Severity	How To Correct
13	Clicking tile does not respond with its respective functionalities on level 2 or 3	3	Changed parameters in Init() so that images don't overlap tileTexture in not only level 1 but 2 and 3 also.

14	Game level does not change game board for the game page	3	Made a variable to keep track of difficulties and implemented functions to modify the variable.
15	After flag the last mine, the game stops automatically. But the remaining tiles can't be included	2	After check all flags are correct and all remaining tiles are not mines, then game end and include the remaining tiles into the grade.
16	When the number in one tile is zero, can not show up correct number around zero tile.	2	If two adjacent tile is revealed, reveal the corner tile that is between the two revealed tile
17	Number of mines can be small even when the level of difficulty is high	2	Number of mines is fixed for each level rather than be a random number inside a fixed range

Component 5 - **Ranking page**, Component 3 - **Game level page**

Defect No	Description	Severity	How To Correct
18	Ranking of the user does not change when a new record is made for different game levels	2	Implemented a function to keep scores for three different levels

Component 6 - **Profile page**, Component 1 - **Login page**

Defect No	Description	Severity	How To Correct
19	Profile page does not show the profileView, but crashes	2	Use FirebaseAuth module to authenticate the user first. Then project the view.

Component 3 - **Game level page**, Component 1 - **Login page**

Defect No	Description	Severity	How To Correct
20	By choosing different level of difficulty, the application should give different game board	1	Passing variable that represent the level of difficulty through segue

Component 2 - **Sign up page**, Component 1 - **Login page**

Defect No	Description	Severity	How To Correct

| 21 | When a user input is incorrect, the application should be able to display the whole error message despite of the message is long | 3 | Custumized the label by using the sizeToFit property. |

Regression testing

Defect No	Description	Severity	How To Correct
1	Moving the game logic (calculations) to GameBoard causes the images to be not shown	3	Created a texture array to keep all assets, use the array for GameBoard, and only linked GameBoard to the view.
2	Score is not updated to the rank whenever the user decides to play the game again from GameEndView	2	Assigned a variable in Init() to keep track of the score whenever the board is loaded.
3	Game level page does not change the level of the game once it is set.	2	Changed Init() to keep a variable level so that it can reload whenever assigned a new value.
4	Changing the user profile does not change the display of name on the ranking page	1	Rather than storing the username for Ranking class in database, store the unique id and fetch the username from User class.
5	After finishing the game, the game stats does not get reset	2	Implemented new function to reset a board and game stats for each new games.
6	Choosing a level on Game level page does not affect the difficulty of the game board	3	Separated the View structure for game level and the game itself. Implemented a new function for manage the number of mines/cells