Incremental Testing and Regression Testing

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# Classification of Components

* Start
  + input: None
  + output: None
  + Parent Dependency: None
  + Child Dependency: Main page
* Main page
  + input: User’s login session
  + output: Leaderboard information (show when logged in, not show when logged out)
  + Parent Dependency: LeaderBoard, Logout Page, login Page, sign up page, break page
  + Child dependency: LeaderBoard, Logout Page, login Page, sign up page, break page
* Logout page
  + input: None
  + output: None
  + parent Dependency: main page
  + Child dependency: main page
* sign up Page
  + input: Email, password, Display Name
  + output: None
  + parent Dependency: login page, break page, main page
  + Child dependency: login page, break page, main page
* Login Page
  + input: email, password
  + output: credential validation
  + parent Dependency: main page, break page, sign up page
  + Child dependency: main page, break page, sign up page
* Break Page
  + input: None
  + output: None
  + parent Dependency: main page, sign up page, login page
  + Child dependency: main page, sign up page, login page
* LeaderBoard
  + input: User’s session
  + output: if user is logged in, show scores. if not, request to login
  + parent Dependency: Main page
  + Child dependency: Main page

Top-down incremental testing

In this project, we followed top-down incremental testing. We tested tasks from start to leaderboard following the control flow. This allowed us to discover the defects occurring in the top of the program. Using top-down testing ensured the major components could work well which helped us test the rest of the parts of the system more conveniently because if the leaderboard works, it means data from the game is stored well, and login in session is implemented well.

# Incremental and Regression Testing

|  |  |
| --- | --- |
| Module | Login Page |

Incremental Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | If login is unsuccessful, the alert should pop out with “Error: The password is invalid or the user does not exist.” | 3 | Using firebase database, compared to the data in database to check if it is correct then redirect to the main page, otherwise pop the dialog |

Regression Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | Closing the alert does not clear the password field. | 2 | add the a line to make val() blank in condition when it fails to find correct information from database. |

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| Module | Sign up page |

Incremental Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | After successfully signed up, database should store correct user’s uid and information | 1 | create global variable to store user information when signed up and store it to database |

Regression Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| 1 | Fixing duplicate email by comparing it with the other emails in the database | 1 | Since we use firebase, set it to block the duplicated sign up, and print error message when the user email is duplicated |

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| Module | logout page |

Incremental Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | when the user logs out, the user should automatically be redirected to the main page and shown the login button | 1 | when user hits the logout, add a line of code to redirect and a line of code that change welcome message button to login button |

Regression Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| N/A | N/A | N/A | N/A |

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| --- | --- |
| Module | main page |

Incremental Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| 1 | When the user clicks the menu in navbar, user should be able to redirect to the pages | 1 | created href lines for each menus in navbar |
| 2 | when the user is logged in, user should not see login button and sign up button | 2 | add lines of code to change the href and value in of login and sign up to welcome message and logout |

Regression Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| 1 | Fixing change of name for buttons only worked in main pages. | 1 | Catch no changes in login and sign in button for each page by using session cookie of user. |

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| Module | LeaderBoard |

Incremental Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | if the user is not logged in yet, leaderboard should not be appeared | 1 | check the session of user to verify if the user is logged in and replaced table to message to request log in |

Regression Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| 1 | fixing show-ability of leaderboard showed both leaderboard and message to request login when user is logged in. | 2 | add a line to split those two conditions to return only one between them |

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| Module | Break page |

Incremental Testing

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| Defect No. | Description | Severity | How To Correct |
| 1 | The game should stop when all the bricks are broken | 1 | currently not fixed yet, need to make to count all bricks in the game and check when it reaches 0. |
| 2 | the bricks should added more each time goes by | 1 | currently not fixed yet, need to make to count the time and add blocked at the top at certain time. (e.g. if(time%1000) {  addblock();  } |

Regression Testing

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| --- | --- | --- | --- |
| Defect No. | Description | Severity | How To Correct |
| 1 | Since the game does not stop when all the brick are broken, leaderboard cannot be updated with data in realtime | 1 | added data in database manually to check the functionality of leaderboards |

# Update Product Backlog

**To instructor/Coordinator**: Since Nick Minnella has dropped out from the class and left the team, we removed some user stories that does not effect on the functionality of the game Break!. We had assumed 395 hours to finish this project, but since Nick is not in the team anymore, we reduced it by the 70 hours that Nick was in charge of.

Functional Requirements

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| --- | --- | --- | --- |
| Backlog Id | Functional Requirement | Hours | Status |
|  | As a user, I would like to be able to link my facebook account to my profile. | 20 | moved into sprint 2 |
|  | As a user, I would like to be able to see how my scores rank against my facebook friends. | 10 | moved into sprint 2 |
|  | ~~As a user, I would like to see how my scores rank on a global leaderboard.~~ | 10 | completed in sprint 1 |
|  | ~~As a user, I would like to see how my scores rank against other players within the last week, day, or hour or from all time.~~ | 15 | completed in sprint 1 |
|  | ~~As a user, I would like to earn in-game achievements for passing levels.~~ | 15 | Since Nick Minnella has dropped out the class, removed the function to earn in-game achievements. |
|  | ~~As a user, I would like to be able to save my progress on a level/game and exit the app.~~ | 15 | Since Nick Minnella has dropped out the class, removed the function to save the game. |
|  | ~~As a user, I would like to be able to continue playing a session I had saved~~. | 10 | Since Nick Minnella has dropped out the class, removed the function to save the game. |
|  | As a user, I would like to be able to pause and resume the game. | 20 | moved into Sprint 2 |
|  | As a user, I would like to be able to speed up the game after shooting balls. | 15 | Sprint 2 |
|  | As a user, I would like customize the ball color. | 10 | Sprint 2 |
|  | As a user, I would like to unlock new ball colors. | 10 | Sprint 2 |
|  | As a user, I would like to have the feedback for reporting a bug. | 10 | Sprint 2 |
|  | ~~As a user, I would like to view my personal user profile page.~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to create an account.~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to delete an account~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to update my password~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to reset my password if forgotten~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to see my highest score.~~ | 10 | completed in Sprint 1 |
|  | ~~As a user, I would like to be able to view a tutorial.~~ | 10 | Since Nick Minnella has dropped out the class, removed the tutorial. |
|  | As a user, I would like to have sound options. | 15 | moved into Sprint 2 |
|  | ~~As a user, I would like to see each score in each mode after the game ends.~~ | 15 | in progress - moved into Sprint 2 |
|  | ~~As a user, I would like to see my highest score in each mode.~~ | 10 | completed in Sprint 1 |
|  | As a user, I would like to have a item that explodes and break blocks nearby | 10 | Sprint 2 |
|  | As a user, I would like to have a item that shoots firing ball that counts 5 hits to each block the ball hits. | 10 | Sprint 2 |
|  | As a user, I would like the survival mode to have an unlimited number of balls and have the blocks to continuously move down the screen. | 30 | Sprint 2 |
|  | ~~As a user, I would like to see effects when the user breaks 10 blocks in a row.~~ | 20 | Since Nick Minnella has dropped out the class, removed the function to add effects. |
|  | As a user, I would like the game to end when the blocks hit the bottom of the screen. | 10 | Sprint 2 |
|  | As a user, I would like my score to increase constantly as time goes on in the survival mode. | 10 | Sprint 2 |
|  | As a user, I would like the blocks come down to the bottom constantly speeding up as the user gets more score. | 15 | Sprint 2 |
|  | ~~As a user, I would like to have a time limit during playing time mode.~~ | 10 | completed in Sprint 1 |
|  | As a user, I would like to have unlimited balls during playing time mode. | 10 | Sprint 2 |

Non-Functional Requirements

1. As a developer, I would like the app to be able to update leaderboard near live time.
2. As a developer, I would like the app to work without errors/crashing
3. As a developer, I would like the app to store and encrypt the user’s passwords
4. As a developer, I would like the app to be able to handle scalable amount of users
5. As a developer, I would like the app to be accessible through different browsers