Break!

Product Backlog

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# Problem Statement

Many students have trouble when they have an hour rest between the classes. As time goes by, going to starbucks is now boring and studying is not fun at all. Therefore, we decided to create a web application which allows users to spend their time enjoyably by breaking blocks and competing with other users by comparing how many blocks they broke. Even though there are some similar apps, the games in market are very iterative, boring, and not creative. Break! has many different modes that allows users to have a different experience every time they play the game. Now, play, break, and try to clear all modes in game and stop letting your mind wander while waiting for your next class with **Break!**

# Background Information

Targeted Users

Going to starbucks, reading a book, studying meaninglessly… Those are the things that everyone does everyday, and they are all cliche to spend time now. However, here we introduce Break!, it is for people who have nothing to do when they have free time. Although it feels like there are similar apps in market, Break! has more modes, more levels, and more fun to attract users!

Similar Applications

There are games that exist with a similar concept to Break!. For example, Swipe is a game that involves shooting balls to break blocks. While Swipe only allows users to play one mode, Break! includes multiple different game modes, has unlockable upgrades and colors, and integrates Facebook authentication to make creating an account and comparing scores with your friends as easy as possible.

Limitations

The game Break! has a different game mode that have different limitations to each mode, make the players accomplished when they clear the game.

# Environment

We will write the application in JavaScript. All of the data will be stored in a firebase database. We will use the firebase console to create a minimum viable product. For testing, there are many javascript frameworks such as unit.js, node.js, and mocha.js that we will use for test our application. We can also perform unit testing of cloud functions using the firebase console.

# 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 | sprint 1 |
|  | ~~As a user, I would like to be able to see how my scores rank against my facebook friends.~~ | 10 | sprint 1 |
|  | ~~As a user, I would like to see how my scores rank on a global leaderboard.~~ | 10 | 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 | sprint 2 |
|  | As a user, I would like to earn in-game achievements for passing levels. | 15 | Sprint 2 |
|  | ~~As a user, I would like to be able to save my progress on a level/game and exit the app.~~ | 15 | Sprint 1 |
|  | ~~As a user, I would like to be able to continue playing a session I had saved~~. | 10 | Sprint 1 |
|  | ~~As a user, I would like to be able to pause and resume the game.~~ | 20 | Sprint 1 |
|  | 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 | Sprint 1 |
|  | ~~As a user, I would like to create an account.~~ | 10 | Sprint 1 |
|  | ~~As a user, I would like to delete an account~~ | 10 | Sprint 1 |
|  | ~~As a user, I would like to update my password~~ | 10 | Sprint 1 |
|  | ~~As a user, I would like to reset my password if forgotten~~ | 10 | Sprint 1 |
|  | ~~As a user, I would like to see my highest score.~~ | 10 | Sprint 1 |
|  | As a user, I would like to be able to view a tutorial. | 10 | Sprint 2 |
|  | ~~As a user, I would like to have sound options.~~ | 15 | Sprint 1 |
|  | ~~As a user, I would like to see each score in each mode after the game ends.~~ | 15 | Sprint 1 |
|  | ~~As a user, I would like to see my highest score in each mode.~~ | 10 | 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 | Sprint 2 |
|  | 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 | 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

# Use Cases

case 1: As a user, I would like to be able to link my facebook account to my profile.

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| **Action** | **Response** |
| Click ‘Authenticate with Facebook’ button | User is redirected to Facebook to login. |
| User logs in on Facebook | User is redirected to Break! and is logged in with their facebook profile. |

case 2: As a user, I would like to be able to see how my scores rank against my facebook friends.

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| **Action** | **Response** |
| Click ‘Leaderboards’ button in navigation bar | User is directed to the leaderboards page. |
| Click ‘My Friends’ button | User’s highest score and facebook friends highest scores are shown. |

case 3: As a user, I would like to see how my scores rank on a global leaderboard.

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| **Action** | **Response** |
| Click ‘Leaderboards’ button in navigation bar | User is directed to the leaderboards page. |
| Click ‘Global button’ button | Top scores of all time are shown. |

case 4: As a user, I would like to see how my scores rank against other players within the last week, day, or hour.

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| **Action** | **Response** |
| Click ‘Leaderboards’ button in navigation bar | User is directed to the leaderboards page. |
| Click ‘Last week’, ‘Last day’, ‘Last hour’ option | Scores from the appropriate time period are shown. |

case 5: As a user, I would like to earn in-game achievements for passing levels.

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| **Action** | **Response** |
| User passes a certain number of levels. | An achievement corresponding to that number of levels is added to the user’s profile page. |

case 6: As a user, I would like to be able to save my progress on a level/game and exit the app.

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| **Action** | **Response** |
| Click the pause button. | Game pauses and allows user to resume, save and quit, or quit without saving. |
| Click the save and quit button. | User’s is brought to the home page and their progress on the level is saved. |

case 7: As a user, I would like to be able to continue playing a session I had saved.

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| **Action** | **Response** |
| Choose a mode. | The chosen game mode is selected. |
| Click ‘Play’ button. | If the user has a previously saved session for the mode, the session is resumed, otherwise a new game is started. |

case 8: As a user, I would like to be able to pause and resume the game.

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| **Action** | **Response** |
| Click ‘Pause’ button | Game action stops and a button to resume the game appears. |
| Click ‘Resume’ button | Game continues where it was paused, and the balls begin to shoot again. |

case 9: As a user, I would like to be able to speed up the game after shooting balls during playing time mode.

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| **Action** | **Response** |
| Click a button with a specific icon at top | Increases the speed of the balls. |
| All the balls are shot | Speed decreases to the normal game speed. |

case 10: As a user, I would like customise the ball color.

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| **Action** | **Response** |
| Click the ‘Customize’ button on the home screen for changing color | A new window opens, displaying all the available and unlocked balls |
| Click on the desired ball. | Window closes, changing the default ball to the selected one. |

case 11: As a user, I would like to unlock new ball colors.

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| **Action** | **Response** |
| Complete a requirement listed for a ball color that has not been unlocked. | That ball color is added to the user’s available balls. |

case 12: As a user, I would like to have the feedback for reporting a bug.

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| **Action** | **Response** |
| Click on ‘Report a Bug’ in settings | A dialogue screen pops up which allows the user to write a description of the bug. |
| User clicks ‘Send Feedback’ to report the bug, or the ‘Cancel’ if they decide not to. | User Feedback message is sent to our database and an alert is sent to developers. |

case 13: As a user, I would like to view my personal user profile page.

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| **Action** | **Response** |
| Click the ‘User profile’ | Direct user to their profile page. |

case 14: As a user, I would like to create an account using an email and password.

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| **Action** | **Response** |
| Click on ‘create account’ on the login screen | Window containing different options to create an account appears |
| Fill in email and password | Application will alert the user if either of the fields are invalid. |

case 15: As a user, I would like to delete an account

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| **Action** | **Response** |
| Click the ‘Settings’ button | opens settings |
| Click on ‘Delete Account’ button in settings | show alert asking user to verify account deletion |
| Verify account deletion by selecting appropriate option | deletes user account |

case 16: As a user, I would like to update my password

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| **Action** | **Response** |
| Click the ‘settings’ button | opens settings |
| Click on ‘Change Password’ button | redirects user to update password page, which includes fields for the current password, new password, and confirm password. |
| User enters current and new passwords and clicks on ‘Save’ | password is updated to the new one provided by the user. |

case 17: As a user, I would like to reset my password

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| **Action** | **Response** |
| Click the ‘settings’ button | opens settings |
| Click on Forgot Password’ button | redirects user to reset password page, which includes a field for the user to enter his/her email. |
| User enters registered email | verifies email is in system and sends the reset password link to the user via email. |
| User opens email and clicks on the ‘Reset Password’ link and follows instructions to change password | New password stored in system successfully. |

case 18: As a user, I would like to see my highest score.

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| **Action** | **Response** |
| Click the ‘Leaderboards’ button. | User’s highest score is shown at the top of the screen. |

case 19: As a user, I would like to view a tutorial.

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| **Action** | **Response** |
| Click on ‘tutorial’ button on the main screen | A new window appears, containing a simple video tutorial |
| Click on ‘skip tutorial’ | Window disappears, returning the user to the main screen. |

case 20: As a user, I would like to have sound options.

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| **Action** | **Response** |
| User drags on a audio icon to control the volume in the settings | The volume is adjusted by the distance the icon is dragged. |

case 21: As a user, I would like to see each score in each mode.

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| **Action** | **Response** |
| The game ends. | The highest score and the score from the last game shows up |

case 22: As a user, I would like to see my highest score in each mode.

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| **Action** | **Response** |
| User opens leaderboard and clicks on ‘Personal Bests’ | Window showing the highest score of the user in every mode opens. |

case 23: As a user, I would like to have a item that explodes and break blocks nearby

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| **Action** | **Response** |
| hit the item with ball | Item explodes and break blocks nearby |

case 24: As a user, I would like to have an item that shoots firing ball that counts 5 hits to each block the ball hits.

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| **Action** | **Response** |
| Click on ‘fire ball’ on the ball selection menu. | The ‘fire ball’ is chosen as the default ball. |
| User shoots the ball | Each time user hits a block, it counts as 5 hits. |

case 25: As a user, I would like the survival mode to have an unlimited number of balls and have the blocks continuously move down the screen

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| **Action** | **Response** |
| User clicks on ‘survival mode’ in the Modes section | Game starts in the survival mode. |
| User shoots continuously | The blocks deal damage as they are moving down continuously with a specific speed. |

case 26: As a user, I would like to see effects when the user breaks 10 blocks in a row.

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| **Action** | **Response** |
| User start playing time mode | Start the time mode |
| User shoot the ball to break 10 blocks in a row without missing any balls. | Score boost occurs and an animation shows to indicate the length of the streak. |

case 27: As a user, I would like the game to end when the blocks hit the bottom of the screen.

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| **Action** | **Response** |
| User plays the game in any mode | user score increases as more blocks are broken. |
| One or more blocks reach the bottom of the screen. | The game ends and gives the user an option to exit the mode or restart. |

case 28: As a user, I would like my score to increase constantly as time goes on in the survival mode.

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| **Action** | **Response** |
| keep alive as long as user can | user gets score as long as he lives |

case 29: As a user, I would like the blocks come down to the bottom constantly speeding up as the user gets more score during playing survival mode.

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| **Action** | **Response** |
| User start playing survival mode | Start the survival mode |
| User shoot the ball to break blocks and get more score as block breaks | The block comes down faster as the user gets more score |

case 30: As a user, I would like to have a time limit during playing time mode.

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| **Action** | **Response** |
| User start playing time mode | Start the time mode |
| User shoot the the ball to break blocks | The game ends after 1 minute |

case 31: As a user, I would like to have unlimited balls during playing time mode.

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| **Action** | **Response** |
| User start playing time mode | Start the time mode |
| User shoot the the ball to break blocks | User is able to shoot the ball infinitely |