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 every day, and they are all cliché 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 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 testing our application. We can also perform unit testing of cloud functions using the firebase console.

Functional Requirements

Backlog Id	Functional Requirement	Hours	Status
1.	~~As a user, I would like to be able to link my Facebook account to my profile.~~	20	sprint 1
2.	~~As a user, I would like to be able to see how my scores rank against my Facebook friends.~~	10	sprint 1
3.	~~As a user, I would like to see how my scores rank on a global leaderboard.~~	10	sprint 1
4.	~~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
5.	~~As a user, I would like to be able to pause and resume the game.~~	20	Sprint 1
6.	As a user, I would like to be able to speed up the shooting ball by the distance between target point and shoot point. Farther the distance between them, higher ball speed.	15	Sprint 2
7.	~~As a user, I would like to customize the ball color.~~	10	Sprint 2
8.	~~As a user, I would like to unlock new ball colors.~~	10	Sprint 2
9.	~~As a user, I would like to have the feedback for reporting a bug.~~	10	Sprint 2
10.	~~As a user, I would like to view my personal user profile page.~~	10	Sprint 1
11.	~~As a user, I would like to create an account.~~	10	Sprint 1
12.	~~As a user, I would like to delete an account~~	10	Sprint 1
13.	~~As a user, I would like to update my password~~	10	Sprint 1
14.	~~As a user, I would like to reset my password if forgotten~~	10	Sprint 1
15.	~~As a user, I would like to see my highest score.~~	10	Sprint 1
16.	~~As a user, I would like to have sound options.~~	15	Sprint 1

17.	~~As a user, I would like to see each score in each mode after the game ends.~~	15	Sprint 1
18.	~~As a user, I would like to see my highest score in each mode.~~	10	Sprint 1
19.	As a user, I would like to have a item that explodes and break blocks nearby	10	Sprint 2
20.	As a user, I would like to have balls to shoot.	10	Sprint 1
21.	As a user, I would like the time mode to have the blocks to continuously move down the screen.	30	Sprint 2
22.	As a user, I would like the game to end when the blocks hit the bottom of the screen.	10	Sprint 2
23.	As a user, I would like to have bricks to break.	10	Sprint 1
24.	As a user, I would like to gain an extra ball every time a ball hits an extra ball indicator.	15	Sprint 2
25.	~~As a user, I would like to have a time limit during playing time mode.~~	10	Sprint 1
26.	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.

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.

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.

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.

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 be able to pause and resume the game.

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 6: As a user, I would like to be able to speed up the shooting ball by the distance between target point and shoot point. Farther the distance between them, higher ball speed.

Action	Response
Click farthest of the game screen from the shoot point to shoot the ball.	Increases the speed of the balls.
Click the closest of the game screen to the shooting point to shoot the ball.	Ball speed is decreased.

case 7: As a user, I would like customize the ball color.

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

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

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

Action	Response
Click the 'User profile'	Direct user to their profile page.

case 11: As a user, I would like to create an account using an email and password.

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

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

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

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

Action	Response
Click the 'Leaderboards' button.	User's highest score is shown at the top of the screen.

case 16: As a user, I would like to have sound options.

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

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

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

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

case 19: As a user, I would like to have a item that explodes and break blocks nearby

Action	Response

hit the item with ball	Item explodes and break blocks nearby

case 20: As a user, I would like to have balls to shoot.

Action	Response
Click the game screen to shoot the ball.	The balls launch.
The launched balls hit the bricks.	The ball lowers the bricks counts and break the bricks.

case 21: As a user, I would like the time mode to have the blocks to continuously move down the screen.

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

case 22: As a user, I would like the game to end when the blocks hit the bottom of the screen.

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 23: As a user, I would like to have bricks to break.

Action	Response
User shoot the ball to break bricks.	Bricks have its' own 'brick counts', if the ball hit the brick 'brick counts' amount, the brick breaks.

case 24: As a user, I would like to gain an extra ball every time a ball hits an extra ball indicator.

Action	Response
User start playing classic mode	Start the classic mode with 1 ball.
User shoot the ball and it hits an extra ball indicator.	The now shoots an extra ball each time the balls are shot.

case 25: As a user, I would like to have a time limit during playing time mode.

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

Action	Response
User start playing time mode	Start the time mode
User shoot the the ball to break blocks	User can shoot the ball infinitely