Break!

Test Plan

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| Identification and Classification | Test Case 1: Login using email and password  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User is presented the login form 2. User enters in their username and password 3. User clicks login 4. The credentials are sent to firebase to be verified 5. Firebase sends a confirmation if the id and password match |
| Expected Behavior | 1. If the user’s credentials are correct, the app should redirect to the home page 2. If the user’s credentials are incorrect, the app should display an alert message indicating a failed login |

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| Identification and Classification | Test Case 2: Create an account  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User is presented the login form. 2. If the User does not have an account, user clicks the Create new account button below the login button. 3. New window shows up and users are able to create an username and password. 4. The Firebase stores the data. 5. Login window shows up and user is able to login |
| Expected Behavior | 1. After the user submit username and password, the data are Stored on the Firebase. |

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| Identification and Classification | Test Case 3: Create an account  Test Case Type: Boundary value  Severity: 1 |
| Test Steps | 1. User tries to create account even though he/she had already created one before. |
| Expected Behavior | 1. App identifies existing user and alerts the user saying that an account for this user already exists, and asks the user to login. |

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| Identification and Classification | Test Case 4: Delete an account  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User opens the settings view and clicks on ‘Delete Account’ 2. User is asked to verify his/her action by responding on the alert |
| Expected Behavior | 1. The app alerts the user to verify account deletion action when ‘Delete Account’ is clicked. 2. Upon verification, the current user’s account is deleted and all relevant records are deleted from the database. |

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| Identification and Classification | Test Case 5: Create an account boundary  Test Case Type: Boundary value  Severity: 1 |
| Test Steps | 1. A user tries to create an account with user id/email that is already created 2. A user tries to create an account without write user id/email or password |
| Expected Behavior | 1. An error message will appear alerting them that the account is already existing 2. An error message will appear alerting of invalid value |

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| Identification and Classification | Test Case 6: User resets password  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. A user clicks reset password on the login screen with a registered account. 2. A user clicks reset password without a registered account. 3. User submits their new account password and is redirected to the home screen. |
| Expected Behavior | 1. An email is sent to the valid user with a link to change their password. 2. User clicks on the link and is redirected to a form to change their password. 3. The password is updated for the valid user. 4. The user without a valid account who clicks reset password gets an error response. |

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| Identification and Classification | Test Case 7: Continue saved session.  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User clicks on ‘Play saved session’ |
| Expected Behavior | 1. The game page pulls user’s saved session information from firebase. 2. Then, it sets up the game board based on the saved information. 3. Game starts with the saved information. |

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| Identification and Classification | Test Case 8: Login using Facebook Sign-in  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User is presented the login form 2. User clicks on ‘Login with Facebook’ 3. User enters facebook account credentials and signs in. 4. User grants Break! required permissions (if doing it for the first time). 5. User exits Facebook form. |
| Expected Behavior | 1. Clicking on ‘Login with Facebook’ should redirect user to the Facebook login page where the user has to enter credentials. 2. Upon submitting the correct credentials to Facebook, it asks the user if they want to grant access to Break! 3. Upon granting access, the user exits facebook form and is presented with the home page of the app. |

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| Identification and Classification | Test Case 9: Earn in-game achievement  Test Case Type: functionality  Severity: 3 |
| Test Steps | 1. User passes a certain level |
| Expected Behavior | 1. An alert message that user earned in-game achievement |

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| Identification and Classification | Test Case 10: Earn in-game achievement boundary  Test Case Type: boundary value  Severity: 3 |
| Test Steps | 1. user passes a certain level |
| Expected Behavior | 1. If user passed the level before, it skips an alert message to give user an in-game achievement. |

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| Identification and Classification | Test Case 11: Save progress and exit  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User clicks on ‘save progress and exit’ button |
| Expected Behavior | 1. The page saves a snapshot of all the relevant information at that time on firebase. 2. The user should be returned to the main page. |

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| Identification and Classification | Test Case 12: Pause/resume game  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User clicks on pause button while on the game screen |
| Expected Behavior | 1. A pop-up window should appear, providing the resume, save and exit, and restart options. 2. Game should take appropriate action based on the option selected. |

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| Identification and Classification | Test Case 13: Speed up the game after shooting balls during playing time mode.  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User click a button with a speed icon at top 2. Play the round until speed up is exhausted. |
| Expected Behavior | 1. Rate of ball shooting increases after speed up pressed 2. Speed decreases to normal after last ball from the round reaches the ground. |

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| Identification and Classification | Test Case 14: Select Ball color  Test Case Type: functionality  Severity: 3 |
| Test Steps | 1. Play a round with the currently selected ball color. 2. Exit the round and change the color of the ball to something different. 3. Play another round. |
| Expected Behavior | 1. The color of the ball in the second round should match the color selected. |

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| Identification and Classification | Test Case 15: Select Ball color  Test Case Type: Equivalence  Severity: 3 |
| Test Steps | 1. Select currently selected ball color 2. Select unlocked ball color 3. Select locked ball color |
| Expected Behavior | 1. Ball color should not change. 2. Ball color should change to selected color 3. Ball color should not change. |

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| Identification and Classification | Test Case 16: Unlock ball color  Test Case Type: functionality  Severity: 3 |
| Test Steps | 1. View currently unlocked ball colors. |
| Expected Behavior | 1. User should see a list of currently unlocked ball colors. 2. Once the user unlocks a new color, that options should now be selectable. |

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| Identification and Classification | Test Case 17: Report a bug  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User clicks on ‘Report a bug’ on the main screen. 2. User completes the bug report, and hits ‘submit’. |
| Expected Behavior | 1. A new pop-up should appear containing the bug-report form. 2. User should be able to enter the required information regarding the bug in the form. 3. Once the user hits ‘submit’, the bug report should be sent to a specific admin email. |

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| Identification and Classification | Test Case 18: User update password  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User goes to settings page. 2. User clicks ‘Update password’ 3. User enters their current password in ‘Current Password’ field 4. User enters new desired password in ‘New Password’ field 5. User enters new desired password in ‘Confirm New Password’ field 6. User clicks ‘Update’ button |
| Expected Behavior | 1. User’s password is updated to the new password. |

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| Identification and Classification | Test Case 19: User update password  Test Case Type: boundary  Severity: 2 |
| Test Steps | 1. User tries to update password with incorrect current password. 2. User tries to update password with ‘New Password’ field value not matching ‘Confirm New Password’ field value. |
| Expected Behavior | 1. User’s password is not updated and the user is alerted that their password was incorrect. 2. User’s password is not updated and the user is alerted that the passwords did not match. |

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| Identification and Classification | Test Case 20: See highest score  Test Case Type: functionality  Severity: 3 |
| Test Steps | 1. User navigates to the Leaderboards page 2. User views their highest score from the leaderboards page. 3. User plays the game until they beat their highest score. 4. User views their highest score from their leaderboards page. |
| Expected Behavior | 1. User high score displayed the second time should be greater than the high score displayed the first time. |

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| Identification and Classification | Test Case 21: See highest score  Test Case Type: boundary  Severity: 3 |
| Test Steps | 1. User tries to view their highest score without having previously played a game. |
| Expected Behavior | 1. User’s highest score displayed is 0. |

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| Identification and Classification | Test Case 22: View tutorial  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User opens the app for the first time. 2. User can click the ‘Skip Tutorial’ button. |
| Expected Behavior | 1. The tutorial is shown. 2. The tutorial is skipped if the user clicks the ‘Skip Tutorial’ button. |

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| Identification and Classification | Test Case 23: View tutorial  Test Case Type: boundary  Severity: 2 |
| Test Steps | 1. User opens the app after already having opened it in the past. |
| Expected Behavior | 1. The tutorial is not shown. |

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| Identification and Classification | Test Case 24: Used all available balls  Test Case Type: equivalence  Severity: 1 |
| Test Steps | 1. use all balls when ball is limited |
| Expected Behavior | 1. when the amount of balls reaches 0, it should stop shooting a ball. |

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| Identification and Classification | Test Case 25: Sound options  Test Case Type: functionality  Severity: 3 |
| Test Steps | 1. User clicks on the ‘Settings’ button. 2. User clicks on the ‘Sounds’ button. 3. User adjusts desired options, such as volume, in game sounds, music and saves the selection. |
| Expected Behavior | 1. The settings page opens up when the user clicks on ‘Settings’. 2. On clicking the ‘Sounds’ button, a pop-up window opens up with options to change the volume, turn in-game sounds on or off, and set the music to on or off. 3. Upon adjusting and saving/exiting settings, the new sound preferences are saved. |

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| Identification and Classification | Test Case 26: Sound options  Test Case Type: Equivalence  Severity: 3 |
| Test Steps | 1. Move volume slider to position with value 0. 2. Move volume slider to any position with value > 0. |
| Expected Behavior | 1. There should be no sound output from the game. 2. There should be sound output from the game. |

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| Identification and Classification | Test Case 27: Shooting a ball  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. after game starts, shoot a ball |
| Expected Behavior | 1. ball should break block when it touches the block. 2. ball should be reflected by the angle to the block’s perpendicular with which it hit the block. |

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| Identification and Classification | Test Case 28: Ball hits a wall or block  Test Case Type: equivalence  Severity: 1 |
| Test Steps | 1. after game starts, shoot a ball 2. make a ball hit the wall or block |
| Expected Behavior | 1. if ball hits a block, it should break or reduce hp of block and be reflected appropriately. 2. if ball hits the wall, it should be reflected appropriately to the direction of the reflecting angle. 3. A ball should not pass a block or wall. |

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| Identification and Classification | Test Case 29: Duplicated score in leaderboard  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. make 2 or 3 different users and get exact same score in same game mode 2. Check leaderboard |
| Expected Behavior | 1. Leaderboard should show same rank for them. |

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| Identification and Classification | Test Case 30: Ending or losing the game  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. While playing, one or more blocks on the user’s screen reach the bottom of the screen. 2. The user exits the game or restarts. |
| Expected Behavior | 1. The game ends after one or more blocks hit the bottom of the screen. 2. The user’s current score along with their highest score for that mode are shown. 3. A confirmation message alerting users to exit game or play again. |

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| Identification and Classification | Test Case 31: Generating blocks  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. Survival mode and the classic mode generates blocks after user takes a turn to shoot the balls. 2. After each turn, existing blocks move one space down. 3. Time mode generates blocks constantly from the top of the screen moving down to the bottom of the screen. 4. As the user get more scores, the blocks with the more hit points generates. |
| Expected Behavior | 1. Blocks cannot be generated on top of each other. 2. Blocks hit points get higher when the user scores get higher. |

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| Identification and Classification | Test Case 32: End game in survival mode  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. At least one block touches the ‘ground’ in the survival mode. |
| Expected Behavior | 1. The game should end instantaneously, displaying the score, along with restart/main menu options. 2. If the user has scored more than any of his previous games in this mode, the game should update the user’s high score for this mode on firebase. |

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| Identification and Classification | Test Case 33: Display rank in global leaderboard  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. make 101 different users than leaderboard can handle. 2. play game to remain scores in leaderboard. |
| Expected Behavior | 1. Leaderboard shows only top 100 people’s rank. |

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| Identification and Classification | Test Case 34: Increase score constantly in survival mode.  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User begins in survival mode. 2. User score increases constantly as user continues to survive. |
| Expected Behavior | 1. Score corresponds to amount of time user stayed alive. 2. Score is recorded once the user fails in survival mode. |

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| Identification and Classification | Test Case 35: Generating shooting ball  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. Survival mode, after each turn the user took, extra shooting ball is generated. |
| Expected Behavior | 1. Able to generate extra shooting ball after user takes a turn. |

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| Identification and Classification | Test Case 36: Generating items  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. When the user takes turn, there are high chance of generating blocks and small chance of generating items. 2. User shoot the ball to hit the item and when the ball hits the item, the item effects are triggered. 3. There should be 90% of generating blocks and 10% of generating items. 4. Item list: Fireball, Exploding bomb, ect |
| Expected Behavior | 1. After the user takes turn, there are 10% chance to generate the items and 90& chance to generate blocks. 2. Item effects are triggered when the user hit the item with the shooting balls. |

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| Identification and Classification | Test Case 37: Fireball item  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. In the Item mode, when the blocks generate, there are random chance to generate items. 2. Generate fireball item. 3. Shoot the ball and hit the fireball item. 4. After hitting the fireball item, the balls sets on fire and each ball counts 5 hit to the blocks. |
| Expected Behavior | 1. The fireball item is able to be generated randomly during the game. 2. Hitting the fireball item with the shooting balls, the balls sets on fire. 3. Balls on fire counts 5 hit to the blocks. 4. On the next turn, the balls should be normal and each ball counts 1 hit to the blocks. |

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| Identification and Classification | Test Case 38: Exploding Item that breaks blocks adjacent to it.  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User is presented with an item on screen which when hit, explodes. 2. User hits the item with a ball. |
| Expected Behavior | 1. While playing, an item appears randomly amongst the blocks. 2. When a ball hits the item, the item should explode, breaking blocks in its surrounding vicinity. |

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| Identification and Classification | Test Case 39: Time mode ends after 1 minute  Test Case Type: equivalence  Severity: 1 |
| Test Steps | 1. user starts time mode 2. user plays the game until time runs out |
| Expected Behavior | 1. Timer in the game does not run under 0. |

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| Identification and Classification | Test Case 40: Time mode ends after 1 minute  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User starts time mode 2. User plays the game until either the time runs out or the blocks hit the bottom. |
| Expected Behavior | 1. The game stops when either the blocks hit the bottom or the 1 minute timer run out. |

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| Identification and Classification | Test Case 41: The ball shoots unlimited on time mode  Test Case Type: functionality  Severity: 1 |
| Test Steps | 1. User starts time mode 2. User clicks shooting button and the ball shoots infinitely. 3. Each ball damages the blocks and breaking them. |
| Expected Behavior | 1. The ball shoots infinitely and able to break the blocks. |

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| Identification and Classification | Test Case 42: View facebook friends’ scores  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User clicks on leaderboard > facebook friends |
| Expected Behavior | 1. A leaderboard containing only the scores of the user’s facebook friends should appear. 2. The friends should be ranked based on their respective scores. |

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| Identification and Classification | Test Case 43: View facebook friends’ scores  Test Case Type: equivalence  Severity: 2 |
| Test Steps | 1. User has at least one facebook friend and attempts to view friends scores 2. User has no facebook friends :( and attempts to view friends scores 3. User has not linked facebook and attempts to view friends scores |
| Expected Behavior | 1. User can navigate to the facebook friends section of the leaderboard and can view all of their friends scores. 2. User is unable to navigate to the ‘Friends’ section of the leaderboards page. 3. List of friends scores on leaderboards page is empty. |

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| Identification and Classification | Test Case 44: View scores from different time periods  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User navigates to the global leaderboards page. 2. User chooses to view top scores since ‘This Week’, ‘Today’, ‘This Hour’, or from ‘All Time’. |
| Expected Behavior | 1. Only scores that have occured within the time period selected are shown. |

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| Identification and Classification | Test Case 45: View personal best scores from every mode  Test Case Type: functionality  Severity: 2 |
| Test Steps | 1. User navigates to the leaderboard page. 2. User chooses to view ‘Personal Bests’. |
| Expected Behavior | 1. Highest scores of that user for every mode he/she has played in is displayed |