Block Game - Requirements Analysis Document

Project Name: Block Game

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Date: 8 July 2025

1. Introduction

This document defines the technical and user-oriented requirements of the game "Block Blast" to be developed.
It is based on previously defined user scenarios (use cases) and aims to clarify the scope of the project.

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2. Functional Requirements

These are the core functions and features the game must provide to the user.

- **FR-1: Game Board System**
    - The game will be played on an 8x8 grid positioned at the center.
    - The system must track whether each cell in the grid is empty or filled in real-time.
- **FR-2: Block Mechanics**
    - The player will be presented with 3 randomly selected blocks from a predefined block set.
    - The player should be able to drag and drop blocks onto the game board.
    - When a block is dropped, the system must validate the placement (within bounds and on empty cells).
    - If invalid, the block returns to its original position. If valid, it gets placed and the corresponding cells are marked as filled.
- **FR-3: Scoring and Progression Mechanics**
    - When a row or column is completely filled, it should be cleared and the cells should be marked as empty again.
    - Each clear should add points to the player's score.
    - Clearing multiple lines in one move (combo) should award bonus points in addition to the base score.
- **FR-4: Game Loop and State Management**

    - When the player uses up all 3 blocks, the system should automatically provide a new set of 3 blocks.
    - Upon giving a new set, it must check whether at least one block can be legally placed.
    - If no valid moves are available, the game ends and a "Game Over" screen appears.
- **FR-5: UI Requirements**
    - **Main Menu**: Should contain a "Play" button and display the high score.
    - **In-Game UI**: Should show current score, high score, and a pause button.
    - **Pause/Game Over Screens**: Should provide options like "Retry", "Return to Main Menu", or "Continue".
- **FR-6: Data Persistence**
    - The highest score should persist across game sessions and be saved locally (e.g., using PlayerPrefs).

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3. Non-Functional Requirements

These are standards that determine the game's quality, performance, and overall user experience.

- **NFR-1: Performance**
    - The game should run smoothly (minimum 30 FPS) on target mobile devices.
    - No noticeable delays should occur during critical animations (block placement, line clearing).
- **NFR-2: Usability**
    - Controls and mechanics should be intuitive and easily understood, even by first-time players.
    - UI elements (buttons, blocks) should be large enough for comfortable use on touchscreens.
- **NFR-3: Visual and Audio Feedback**
    - Core game events (line clear, combo, game over) should be accompanied by satisfying visual effects and animations.

- Each event should have distinct sound effects.
- A non-distracting background music track should be integrated to support the game experience.