

FLUTTER MOBILE GAME

COMP-5450 Mobile Programming

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This is a “Catch The Ball” game built with Flutter. Players can drag a bucket at the bottom of the screen to catch falling balls. Every 10 balls caught will advance the level and increase falling speed of the balls. You can also set the winning goal and falling speed through the game settings. The app is cross-platform. It supports Android, iOS and Web platforms. However, since the project was developed and tested primarily on an Android 15 emulator, I highly recommend you run it on an Android device or emulator.

This project was built using Flutter 3.29.3 and Dart 3.7.2. The code is written in Dart and the development environment is Android Studio. The game was tested on a Pixel 4 emulator with Android 15.0 (API 35). It is a virtual x86 device.

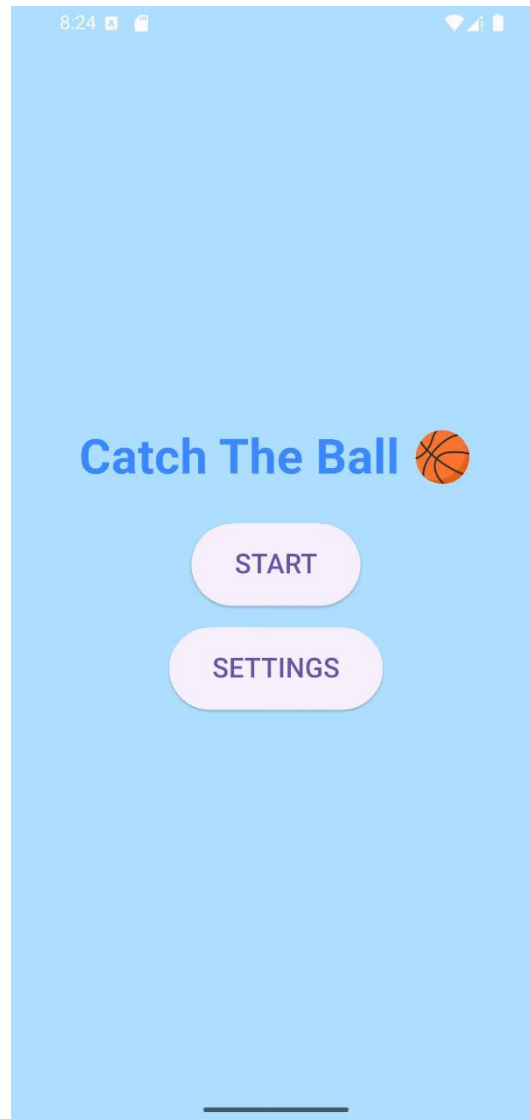
File Structure:

```
game_exercise3/
├── assets/                # Save ball and bucket images
├── lib/
│   ├── game/
│   │   ├── ball.dart      # Set the falling ball parameters
│   │   ├── bucket.dart    # Set the bucket parameters
│   │   └── game_settings.dart # The game logic and settings
│   └── main.dart          # Entry point
├── pubspec.yaml           # Dependencies
└── pubspec.lock           # Store the dependency versions
```

Graph 1: The file structure of the game

This is the file structure of this game. The game folder contains all the Dart files that define the main game components, including ball.dart for setting the falling ball parameters, bucket.dart for setting the bucket parameters, and game_settings for handling the game logic and configuration. The main.dart file is the entry point of the game, it also contains some game logic. All game assets like ball and bucket images are stored in the assets folder. The pubspec.yaml file declares the dependencies and the pubspec.lock file sets the versions of those dependencies.

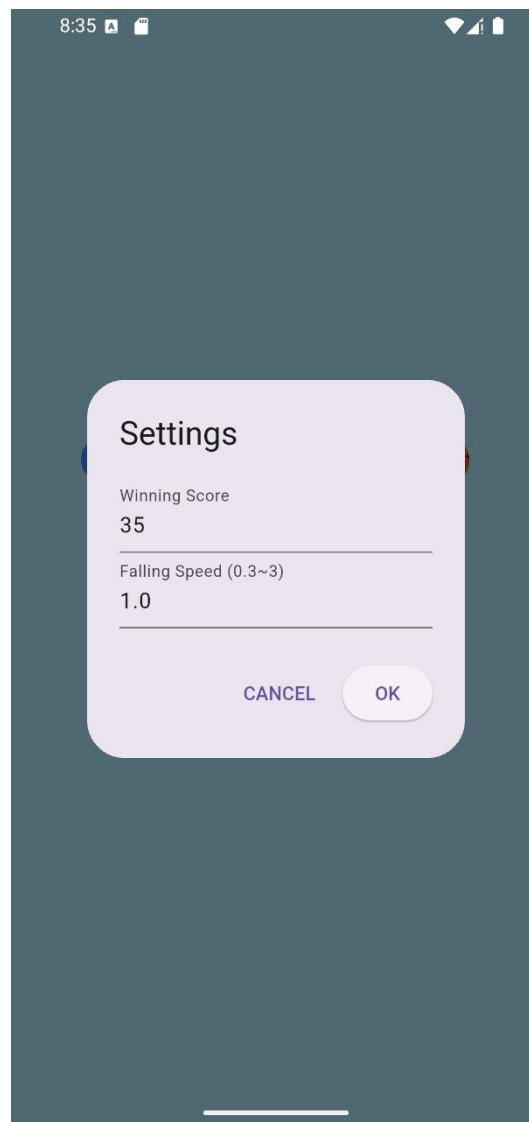
Start Page:



Graph 2: Start Page

This is the start page of the game. It is the first screen the user sees when launching the game. You can see the game title, “START” button, and “SETTINGS” button here.

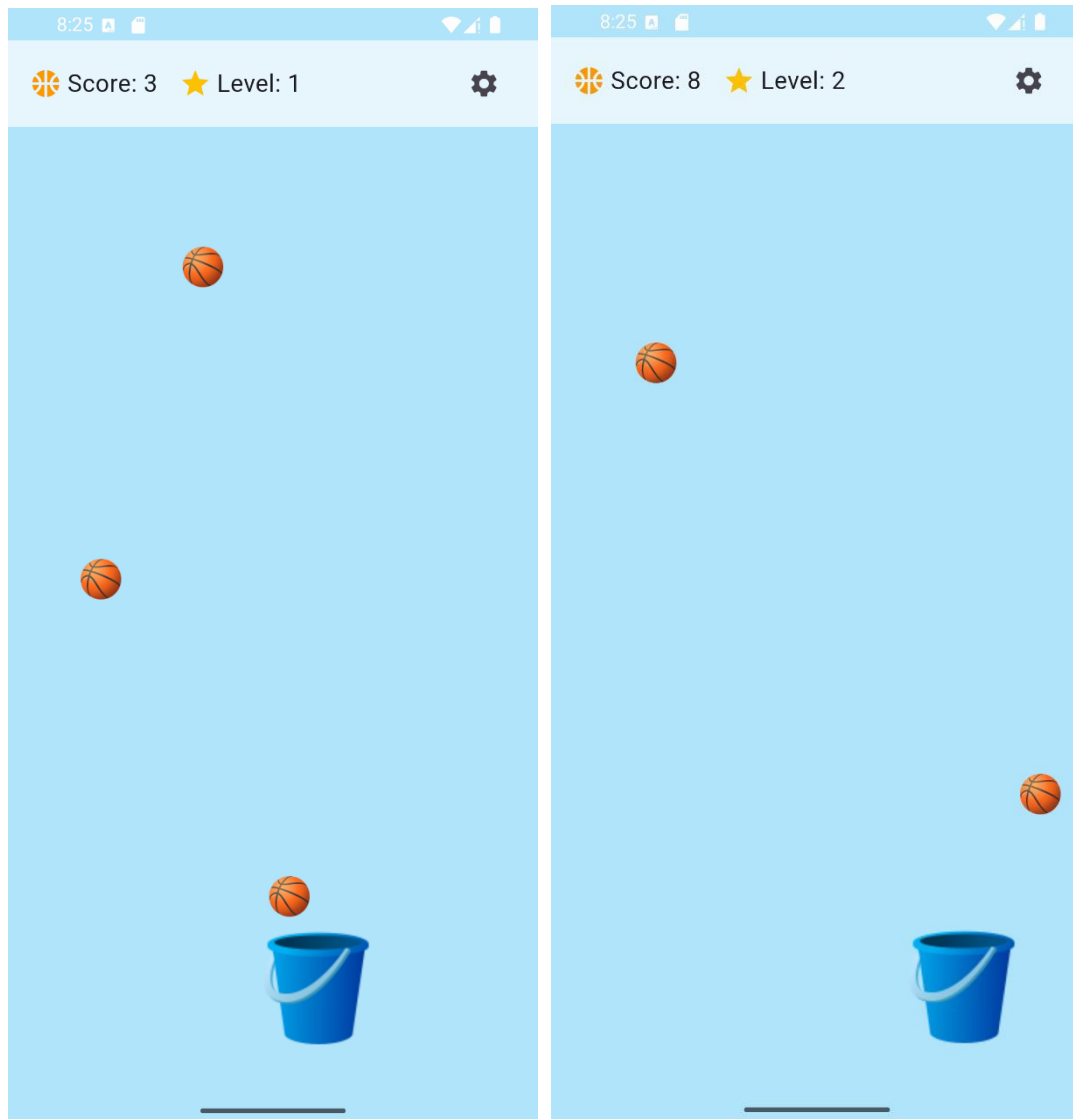
Game Settings:



Graph 3: Game settings

Tapping the "SETTINGS" button will navigate to a settings page. Players can change game settings here. Such as the winning goals, which the number of balls that must be caught to win, and the falling speed of the balls.

Game Demo:

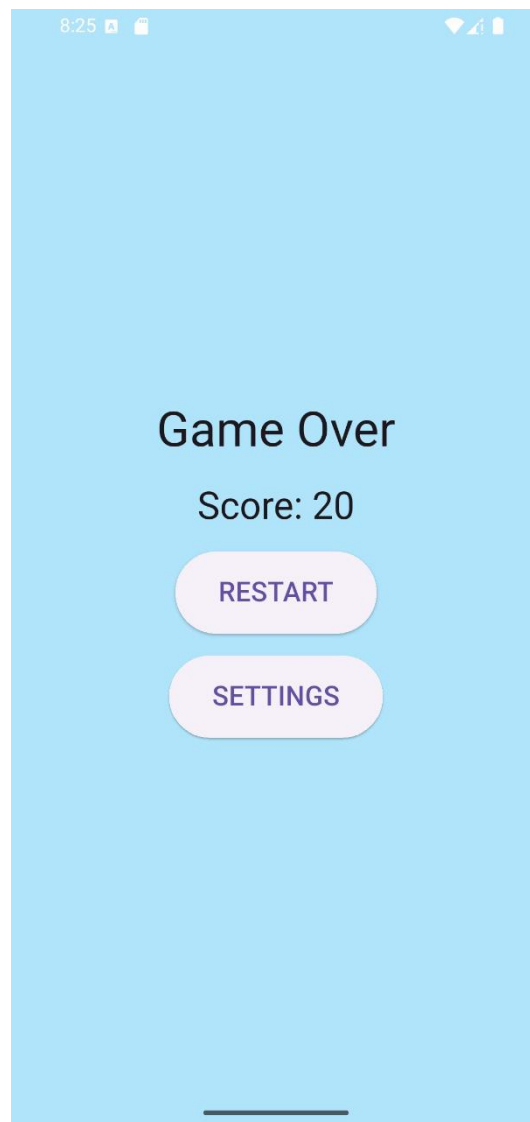


Graph 4: The game displays

Tapping the “START” button will begin the game. This is the gameplay screen, basketballs fall from the top of the screen, and the player must move the blue bucket at the bottom by dragging it to catch the balls.

The top bar displays the current score and the game level. The score increases as the player catches balls, and the level increases after every 5 successful catches. Leveling up will increase the falling speed of the balls.

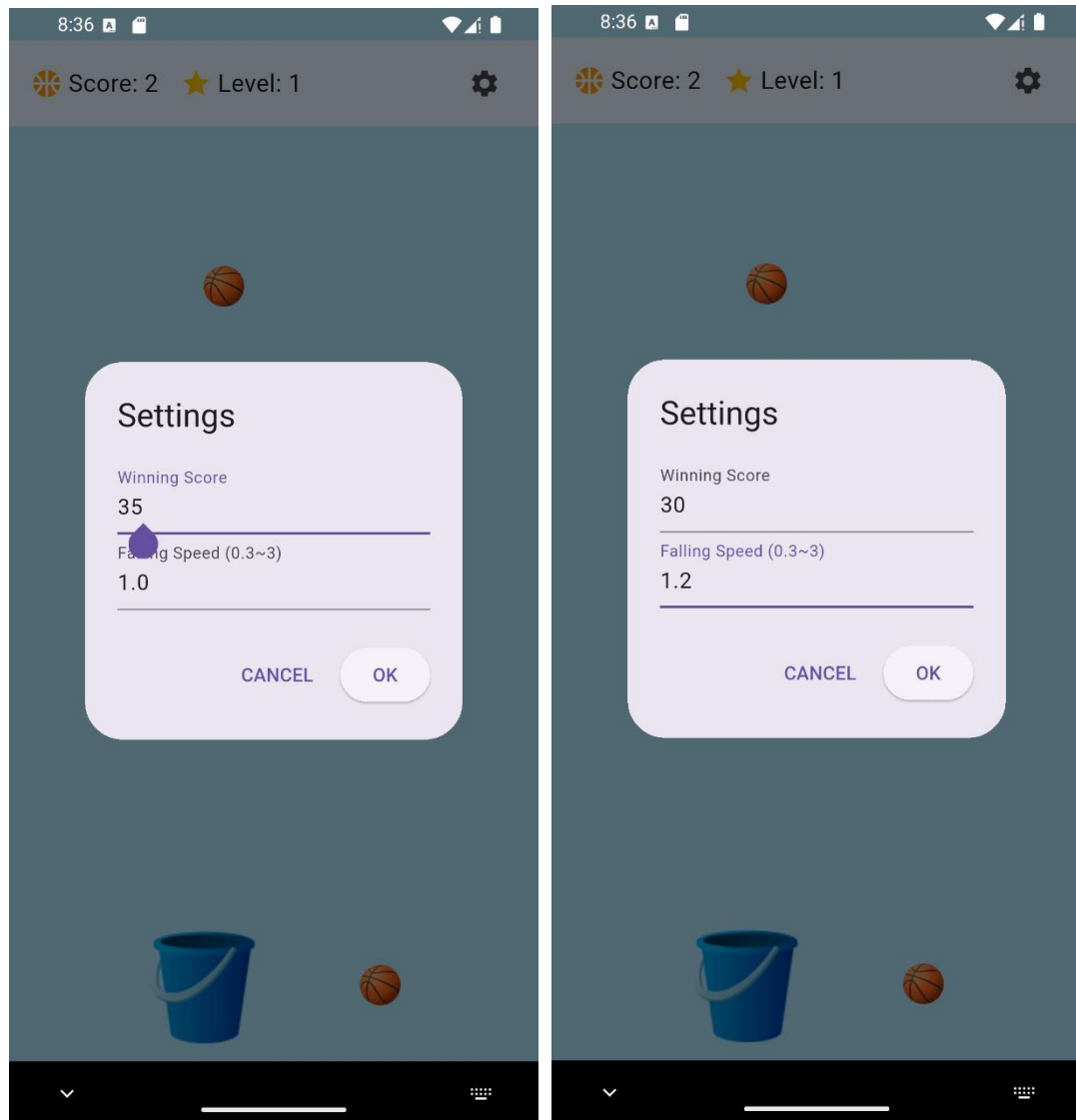
Game Over:



Graph 5: Game over page

When the player misses any ball, the game ends. This screen displays the final score, and the player can restart the game or change game settings here.

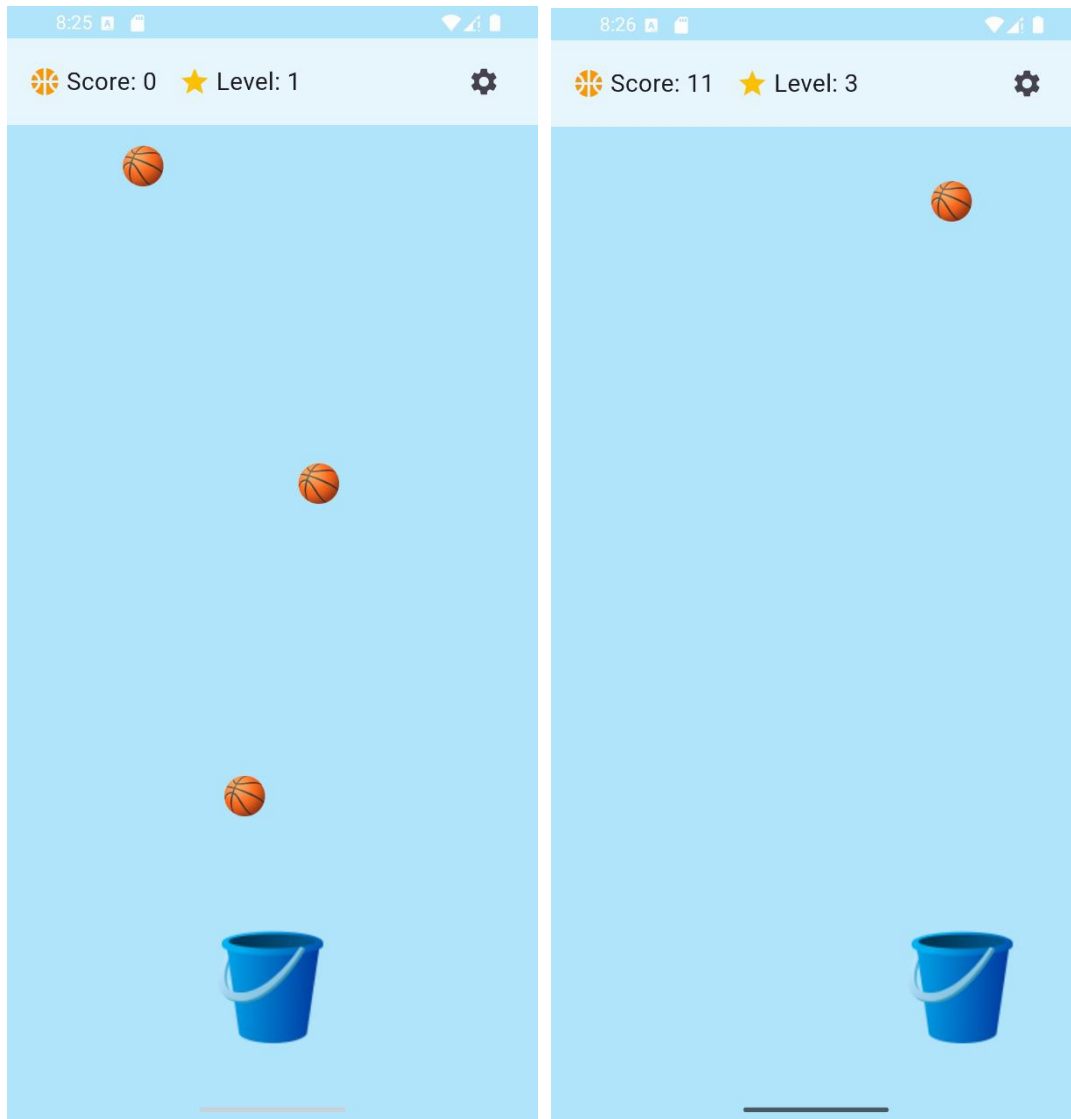
Change settings during the game:



Graph 6: Change settings in game

Players can change the game settings during the game. Tapping the gear icon will open the setting popup and pause the game. The game will continue when setting is finished.

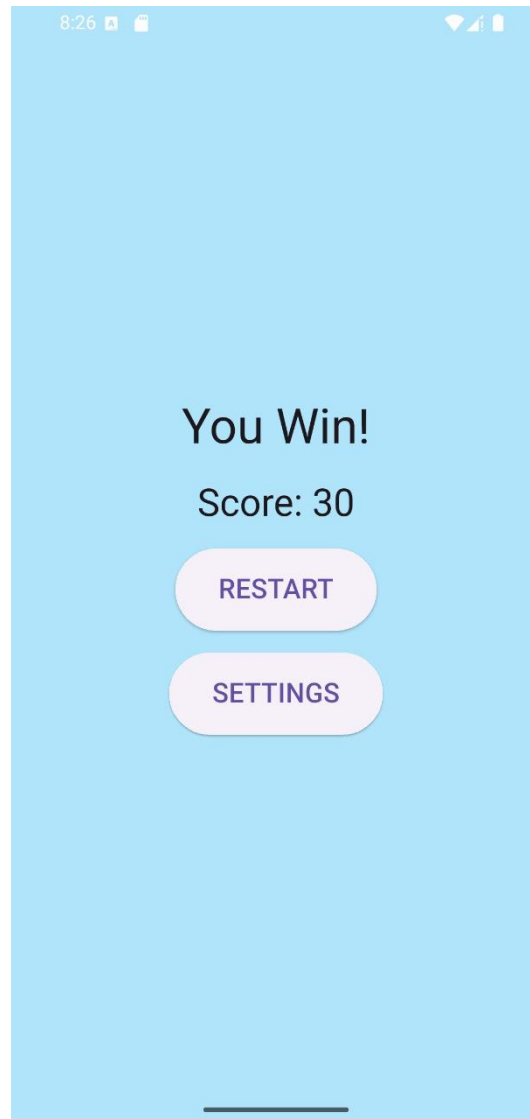
Game demo with changed settings:



Graph 7: Game demo with changed settings

Here is the game play with new game settings, the player only needs 30 score to win but the falling speed is faster.

Game Winning:



Graph 8: Victory page

When the player reaches the winning score. The screen will show a victory message with the final score. The player can tap "RESTART" button to play again or "SETTINGS" button to change settings.

Conclusion

This is a ball-catching game built with Flutter. It can track score, increase game levels, and change game settings. It also has winning goals and losing condition. The app is cross-platform, and according to the test, it runs well on the Android 15 devices.