Color Switch
AP Final Project

A popular Android/ iOS game,
recreated using Java and JavaFX.

Karanjot Singh (2019050)

Samarth Saxena (2019328)

Features & Description

The user is greeted with several options on the home screen.

The homeScreen has the following options:

- ▸ Play game starts the gameplay, wherein you have to move up by jumping the ball(orb) using the spacebar.
  - ▹ Pause , Resume, Save & Quit, and Quit Functionality is implemented
- ▸ Load Game- to select from your saved games (if any) and resume gameplay.
- ▸ Other 3 icons at the bottom of the screen are: Help, Player info, and Settings
  - ▹ Player Info shows your high score and total collected stars.
  - ▹ Settings has several options: Play/pause game music, Change colour theme, and a test mode (for demo and testing).

Gameplay

Design and Implementation

- Design patterns:

  Factory: Used to generate the Obstacles for the Gameplay

  Singleton: Player and Game Music classes are made singleton to save memory

  Facade: Abstraction in Game Functions (including Obstacle Addition to screen) for the client.

  State: Obstacle behaviour is changed on the basis of state

  Iterator: Iterators are used to Iterate through the data irrespective of Type.

- Threading: Threads were created to add Music and Sound effects.
- Interfaces: Game animation for rotating and animating obstacles
- Exceptions: InsufficientStarsException, NoSavedGameException
- Screens are displayed via FXML, and styled using stylesheets.

Contributions

Karanjot

- ▸ Deadline 1: Class diagram and assisted in Use Case diagram

- ▸ Deadline 2: Implemented animation of the elements

- ▸ Deadline 3:

  Obstacle animation

  Orb jump with Gravity

  Score tracking

  Music addition

  Serialisation

Samarth

- ▸ Deadline 1: Use case diagram and assisted in Class Diagram

- ▸ Deadline 2: Designed the screen and elements

- ▸ Deadline 3:

  Elements addition & infinite loop

  Gameplay pause, revive and end

  Themes and settings

  Screen interactions

  Deserialisation

Bonus Implementation

➜ **Game settings for customising theme and the appearance of the game.**

➜ **Game Music and Sound Effects**

➜ **Implementation of Levels for increase in difficulty as the game progresses**

➜ **Special Killer Obstacles in higher levels**

➜ **Highscore Scoreboard for different Players**