

Color Switch

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Implementation Details

The code has used 10 classes with different type of relationships among them

Serialization is used to implement saved game.

If the user has a score greater than equal to 5, he/she can resume the game(on game over). Also, 5 points will be deducted too if they resume.

Design Patterns used:

- 1) Singleton- Used in GameApp so that only one instance of GameApp is instantiated and multiple instances are not allowed.
- 2) Template- Used in the GameElement Class to define the algorithm for obstacle class and deferring some steps to subclasses which can be added according to the need.
- 3) Facade- Large and complex code of obstacle and game loops and serializable classes are replaced by a simplified and efficient version of code.
- 4) Iterator- Used for traversing arraylist in game class, iterator is to access the element of a collection object in a sequential manner without any need to know its underlying representation

Problems Faced

- Unequal spaces between the obstacles.
- Was difficult to code such a complex structure.
- Group layouts, scene and Imageview are not serializable
- Unnecessary Code Repetition and flexibility to add any component with different functionality without changing the base code

Solution

- Solved with hardcoding the space between obstacles for 3 obstacles.
- UML came in handy, it was followed to a large extent, almost 95 percent in class Structure.
- Made them transient, and then again built them from scratch while loading a saved game.
- Used facade and template design pattern.

Contribution

Shivam Verma

Animations, collisions logic, saveGame, gameOver and design pattern.

Aditya Gupta

**UI(different screens and other gui components)
bonus components, obstacles, color changer
and Design Pattern.**

Bonus Components

- Background music and sound effects in the game.
- Delete Button→To delete all the saved Games in the Database.
- Button to change the background of the gameplay screen.(Any random color out of 5 colors).
- High Score is maintained over all the games played by user.