Color Switch
AP Final Project

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Problems & Solutions

- Our initial roadblock was how to collaborate with one another in this online settings. For this, we linked our IntelliJ project with a **private** git repository to share code with each other.
- Second problem was using all the concepts taught in the class for which we used lectures slides along with the help of GFG, stackoverflow, etc and TAs helped too.
- In order to view the definition of the various components and their structures, we used manpage of the java oracle. It contained all the technical aspects of the javafx.
- The problem of moving the obstacles with respect to the ball was a major one. We solved this problem by using the timeline feature of javafx to move the objects in comparison to the local bounds of the ball. The same strategy was used to move the color changer and stars too.
- One problem was to view how our fxml pages looked which was solved using the scene builder extension in the IntelliJ.
- Google Meets was used to solve the problem of communication with each other for one on one interaction along with screen sharing feature to show our progress and doubts to one another.

Design Pattern and Miscellaneous

In our final code for the game code we've majorly used **3 design patterns** - Singleton , Strategy and Iterator . Singleton has been implemented in the class GameDataTable(a class) and Ball. Strategy has been implemented by the use of abstract class for the obstacles so common features can be grouped together without creating objects. Iterator has been implemented to iterate over various objects of different classes in our code. We've tried culminating and intermingling other design patterns too to enhance our project .

We've tried and applied all the concepts we've learned so far in Advanced Programming 2020, i.e. from Interfaces to Threads to Design Patterns. We've put in our best efforts to use our theoretical knowledge for practical hands on experience via the end sem project, which has been a source of immense learning and knowledge

Individual Efforts

1. We both complemented each other as a team. **We shared the responsibility equally and divided the work**, broke them into small chunks and found solution to them, **eventually leading to building up the whole game**.
2. Initially both of us dealt with the UML diagrams and static GUI components by aiding one another. Both were responsible for explaining our code to the TAs during demo however Harshal took the lead during tricky situations.
3. For deadline 3 , Harshal dealt with the design and implementation of OOPs concept in the project along with building static components of the GUI whereas Hitesh dealt with the implementation of various logics and algorithms across the projects to facilitate animations, class and use case diagram. Both had written the code simultaneously with each other help.

Bonus Components

1) **HARD GAME MODE** -- By checking this checkbox from the settings page located at the home page , the game's difficulty escalates and increases, as the user keeps on keeps on playing the game for a significant amount of time.

2) **Background Music** - Dramatic music has been added in the game which keeps the user engaged and hooked to the game.

3) **Youtube tutorial** - Youtube video demonstrating how to play the game and explaining the game has been uploaded on Harshal Dev's youtube channel so that the game is easily understandable in case there's any doubt.

4) **Facebook share button** - Facebook share button has been added on the home page so that users can spread their word and reviews about the game on their facebook feed.