

ColorRoad

Mini Project 1

Game Design Document

Deadline: 11:59pm Tuesday 6th of November, 2018

Guidelines

This mini project should be done **individually**. You can share ideas, consult the manual, and search online. However, all work done in this mini project must be done by your hands and your hands only.

The main aim of this mini project is to test your ability to develop the core parts of a videogame that can be deployed on a mobile platform.

You are not allowed to use any external assets except for music/audio clips. **Any and all external assets used must be credited in the credits section of the Title Screen.**

Use Unity and C# to create this project. Once you are done, build the project into an **.exe** as well as an **.apk** files and compress them into a zip file (make sure to include the “**_Data**” folder). All three files, .exe .apk .zip, should be named in the following format “Tutorial_ID_Name” for example: “T01_31_1234_Adam.zip”.

Use the following link to login and submit your .zip file:

<http://mini-project-1-adv-lab.herokuapp.com/>

The following links might be helpful to you during your implementation:

<https://docs.unity3d.com/Manual/CreateDestroyObjects.html>

<https://unity3d.com/learn/tutorials/topics/mobile-touch/accelerometer-input>

<https://docs.unity3d.com/Manual/android-GettingStarted.html>

Game Design

Gameplay

The player controls a colored Sphere that moves forward automatically on an infinite floor. The floor is divided into three lanes and throughout his/her journey, the player encounters sphere collectibles and color changing zones. The goal of the game is to collect as many of the matching color spheres scattered throughout the game while avoiding the non-matching color spheres. When a player enters a color changing zone, the color of the player's Sphere changes. When a player collects a non matching color sphere, the player loses half of their score. The game ends when the score reaches zero.

Rules of Play

1. The player automatically (not controlled by the input) moves forward in the positive z-direction (think about the final effect and not just the literal meaning of the sentence).
2. The player can steer left and right to change lanes.
3. The player collects matching color spheres that add points to his/her score.
4. The player should avoid non matching color spheres by steering left or right.
5. The player sphere color changes when the player enters a color change zone.
6. The color change zones span all three lanes and cannot be avoided.
7. The game becomes harder by the ball's automatic forward motion being faster according to the player's score.
8. The player can pause the game.
9. The player can quit the game from the pause menu.

Technical

Screens

1. Title Screen
 - a. Start Game
 - b. Options
 - i. Mute Sound
 - ii. How to Play
 - iii. Credits
 - iv. High Score/Hall of Fame (**Optional**)
2. Game Pause Screen
 - a. Resume
 - b. Restart
 - c. Quit
3. Game Over Screen
 - a. Restart
 - b. Quit

Controls

- **Windows:**
 1. The player moves left and right using the left arrow and right arrow, or A and D.
 2. The player should be able to switch between cameras by pressing C.
 3. The player pauses and resumes by pressing the esc button.
- **Android:**
 1. The player moves right and left according to the x-axis of the accelerometer.
 2. The player should be able to switch between cameras by pressing on a camera button on the bottom right/left of the screen.
 3. The player pauses by pressing on a pause button on the top left/right of the screen.

Note: The buttons for the android controls do not have to be hidden in the windows version.

Mechanics

1. The player's score starts at 0 and can never become less than that.
2. The player's forward motion speed doubles every 50 points in the score.
3. The color change zones can have red, green, or blue color.
4. The player can not physically hit the color change zone. However, when they pass through it, the player's color will change to match the color of the zone.
5. The collectible spheres can be colored red, green, or blue.
6. If the player hits a sphere that matches their color, it adds 10 points to their score.
7. If the player hits a sphere that does not match his/her color, they lose half their score points.
8. If the player's score reaches zero, it's considered a game over. In which case, the Game Over screen should be displayed.
9. Both the color change zones and sphere collectibles are generated automatically and randomly throughout the entire game.
10. The sphere collectibles are destroyed whenever the player collects them.
11. The color change zones should be generated every fixed interval on the road.
12. All Game Objects are destroyed after they are no longer needed (i.e. they go past the player). This is done in order to maintain a tolerable memory usage. Otherwise, your memory usage will continue to grow indefinitely until the game crashes.

Cameras

1. The player can view the game from the third-person perspective of the ball.
2. The player can view the game from the top view.
3. The player can toggle between the different cameras.

Graphics

Style Attributes

Minimalist design with only primitive shapes.

Graphics Needed

- | | | |
|-----------------|---|---|
| 1. Player | → | Sphere. |
| 2. Collectibles | → | Blue, green and red spheres. |
| 3. Environment | → | Walls or pavement on the left and right. |
| 4. Lighting | → | Light sources on the color change zones indicating their color. |

Sounds/Music

Sounds Needed

1. Effects
 - a. When the sphere changes color.
2. Feedback
 - a. When the player collects a matching color sphere.
 - b. When the player hits a non-matching color sphere.

Music Needed

1. Slow-paced track for the title, pause, and game over screens.
2. Exciting and/or tensing track for the game.