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FG-Project Brief

Unity project overview

(Important: All feature branches have been merged with the main branch)

The application

The application was created to demonstrate author's capabilities as a beginner Unity programmer. The project provides several examples of his coding style for evaluation by the interviewing parties. They include showcases of his understanding of various programming concepts as well as his ability to write scripts in a clean and understandable way.

Scenes

Three scenes have been added to the project, each representing a different approach to creating object movement:

1) **MAIN RotateAroundScene** – the ball has the script "BallRotateAround" attached.
2) **AddForceScene** – the ball has the script "BallAddForce" attached.
3) **PivotScene** – the ball is a child of "PivotPoint" object, which itself is a child of "Cube" object. "PivotPoint" has the script "PivotRotator" attached.

For the sake of simplicity in the presentation, only the "**MAIN RotateAroundScene**" includes all the additional features and will be referred to as "**the main scene**" throughout the document.

Functionality and user interactions:

The user has two ways of interacting with the main scene:

1) By clicking the cube – it will randomize the color of the cube and the ball rotating it.
2) By pressing the spacebar – it will spawn an additional ball within a certain range around the cube.

Project styling

A particle effect accompanies the color changes and ball spawns for a visually appealing effect in the scene. Furthermore, all the objects have a child object that acts as a light source, adding extra reflective effects when they move.

Scripts used within the main scene

The main scene uses three fully functional scripts:

BallRotateAround.cs

This class uses the RotateAround() method from the Transform class to provide movement to the ball.

ColorSwitcher.cs

This script is attached to the "Cube" object and controls the color changes of both the cube and the original ball (not spawned balls). It uses the DelayedColorChange() method, which is an IEnumerator, to ensure that the color switch occurs when half of the particle effect has been played. Additionally, it uses the CreateNewColor() method to generate a random RGB color. The CreateNewColor() method is also utilized in the SpawnBall.cs script.

SpawnBall.cs

This script is responsible for spawning new ball objects when the spacebar is pressed. It creates new objects within a designated spawn range while excluding the immediate range around the cube. The spawn ranges are represented by BoxColliders within the main scene. Additionally, the newly created balls have random colors generated by the CreateNewColor() method from the ColorSwitcher.cs script, and a particle effect is played when they appear.