Bouncing Ball Simulation

Introduction

This repository hosts the code for a simple yet engaging Bouncing Ball simulation, which demonstrates the principles of physics and game development. The simulation is built using OpenGL and GLUT frameworks, providing a real-time rendering of a ball bouncing within a defined environment.

Features

- Realistic bouncing effect using physics calculations.
- Adjustable parameters for gravity, elasticity, and surface friction.
- 3D camera controls to observe the simulation from different angles.

Getting Started

Prerequisites

Before running the simulation, ensure you have the following installed:

- C++ Compiler (GCC recommended)
- OpenGL
- GLUT

Building and Running the Simulation

1. Clone the repository to your local machine:

```
git clone https://github.com/AndreeaDraghici/Bouncing-Balls-3D.git
```

2. Navigate to the project directory:

```
cd Bouncing-Balls-3D
```

3.Compile the code (example given for g++):

```
g++ -o Bouncing-Balls-3D Application.cpp Ball.cpp Camera.cpp Scene.cpp -lGL -lGLU
-lglut
```

4.Run the simulation:

```
./Bouncing-Balls-3D
```

Development Environment

The simulation was developed on a Windows 10 machine, using Visual Studio 2022, and is written in C++ for cross-platform compatibility. It uses the OpenGL library for rendering graphics and the GLUT framework for managing the GUI and handling input events.