

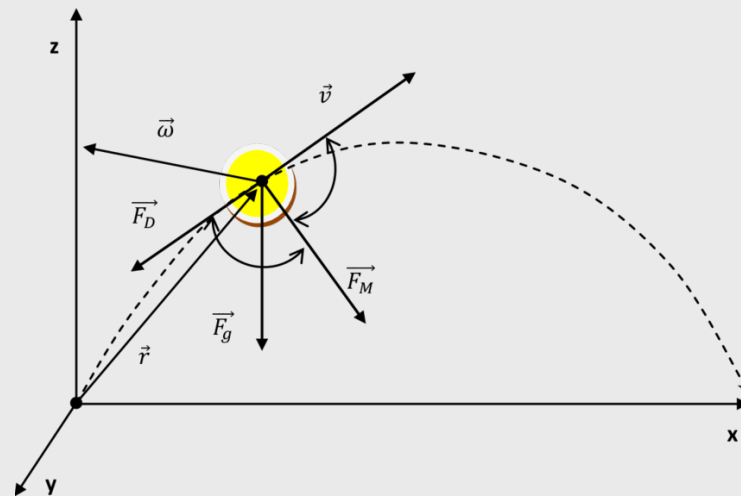
The title card features a light gray background with two horizontal, overlapping brush strokes. The top stroke is a medium blue, and the bottom stroke is a lighter, cyan blue. A white rectangular border is centered over these strokes, containing the title and authors' names.

Newton's Playground

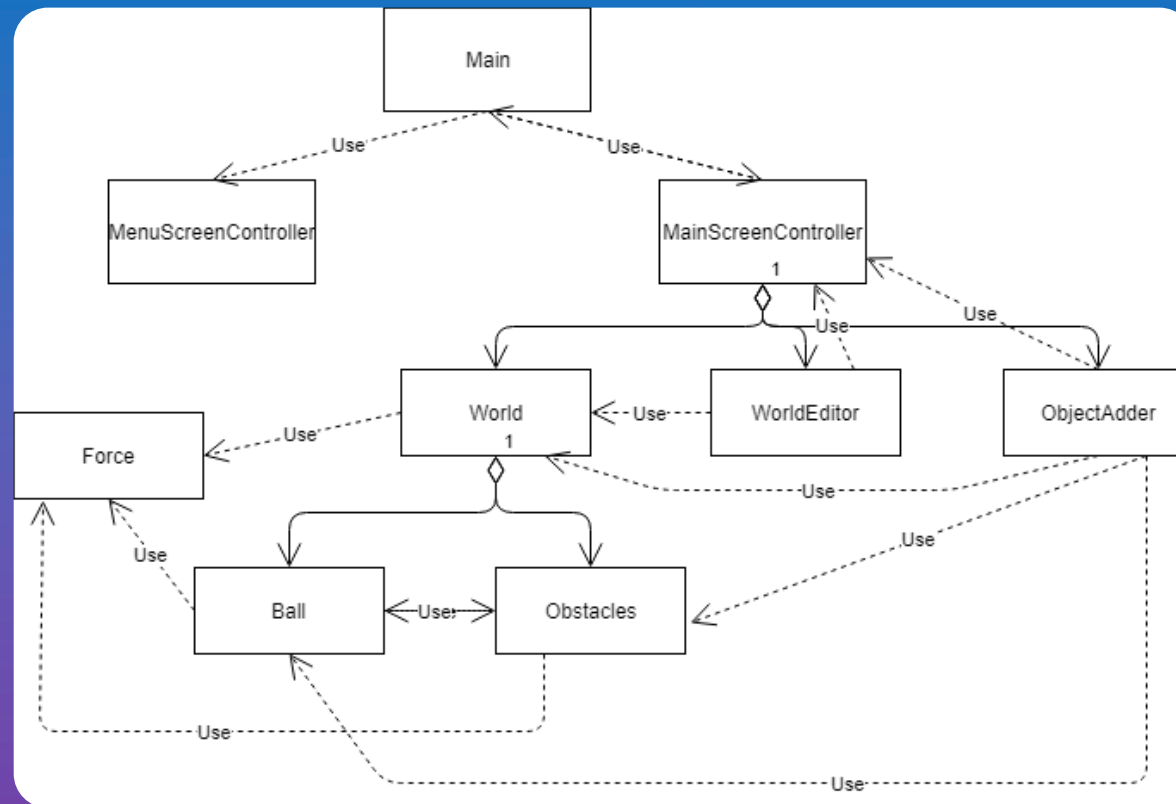
By Samrudh Shenoy and Samarth Shah

Introduction

- Kinematics Physics simulator similar to the simulators on PHET
- Used to test different experiments and learn how forces like gravity affect the movement of objects



Code Overview





Code Overview

- JavaFX Code split up into Model, View, Controller
 - Model: classes related to the objects like the ball and the world
 - View: FXML files used to make the UI
 - Controller: classes used to control the UI and put data from the model into the UI



Major Issues

Collisions

We were at first checking if the ball was hitting a line instead of a line segment, so the ball would bounce randomly

Bounces

We needed help doing the math to make the bounces realistic with angles other than horizontal and vertical

Phasing

The ball would go through the obstacles because the velocity was so high it would pass through it before the collision was detected

Others:

Interactable UI, File Loading and Saving

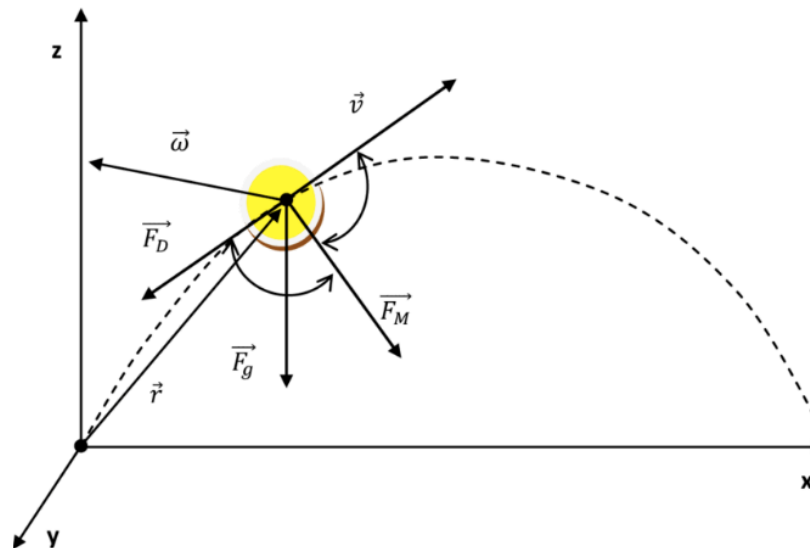


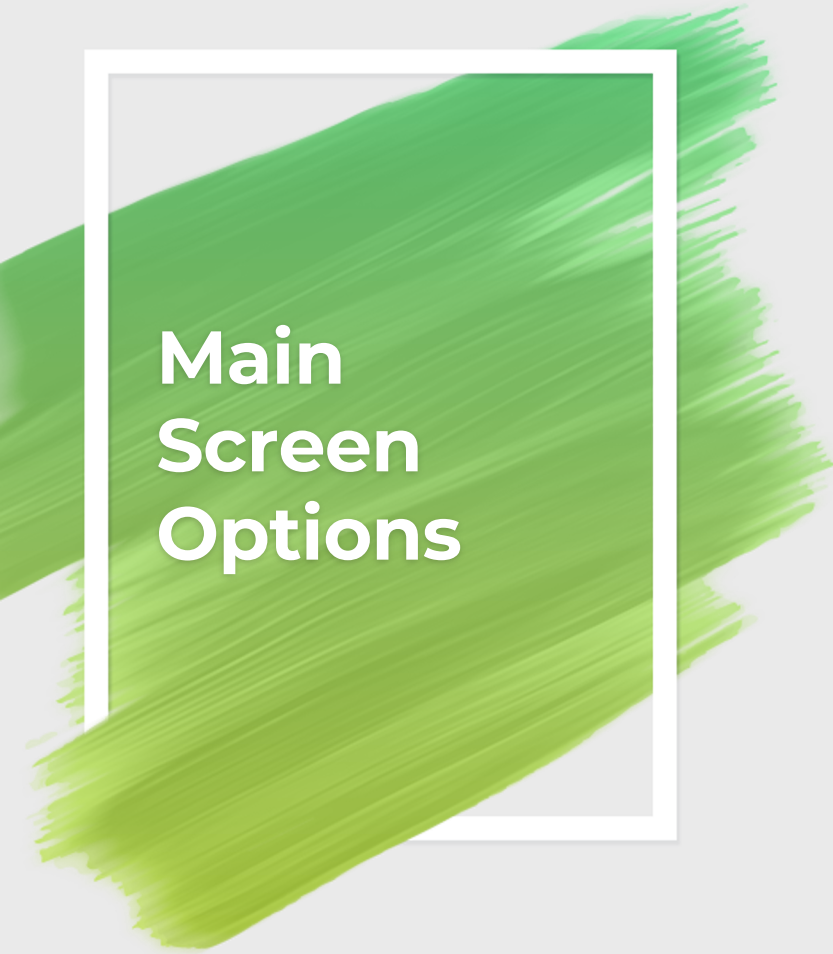
Newton's Playground

Start

Help

Quit





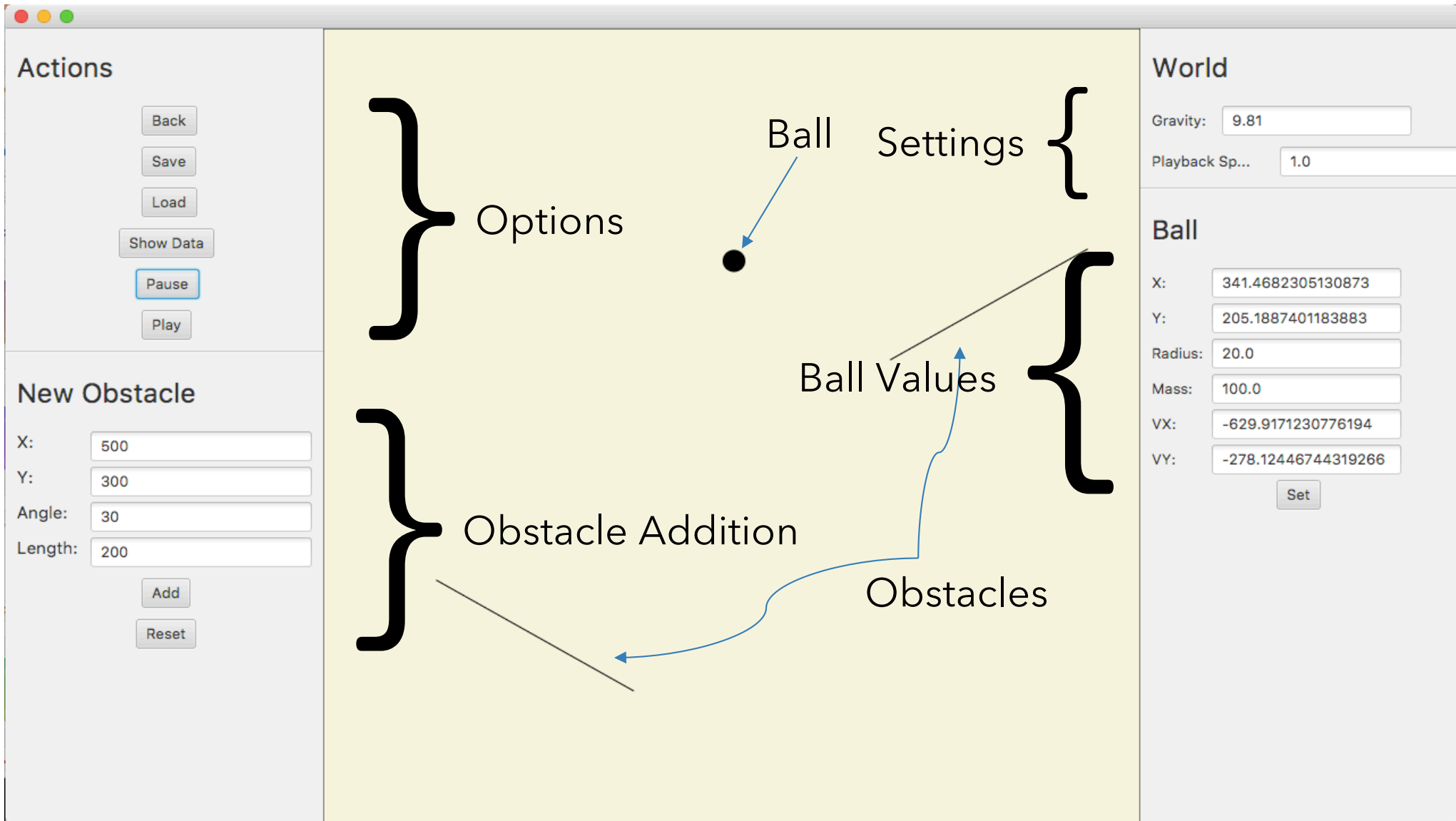
Main Screen Options


Help

Brings up a window with a complete help menu and detailed instructions

Quit

Quits the program





What's Next for Newton's Playground

**3D User
Interface
and
Object
POV**

**Different
Obstacles
and
Objects**

**Networked
(LAN) Live
Experiments**



**Thank
You!!**