Dodgeball

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Project Type: Game
Project Name: Dodgeball
System Requirements: 1) Python3 installed
2) Pygame installed

Problem to Solve:

It’s a videogame. It solves boredom.

Future Plans:

This game was primarily designed to use the physics engine made. The future would be to create a renderer and general shape bodies. I could have added general shape bodies in this game but I couldn’t understand rotation in dimensions > 3. Once I get these two in place this engine could be used to teach people about higher dimensions by visualizing 3D cross sections. Like a 4 dimensional sandbox.

How to Play:

Run Game.py
Set your frame rate according to the refresh rate of your screen. By default the frame rate is limited to 60 FPS
Press Play
The smaller ball which is saturated green and hollow will move towards your mouse cursor and can be directed
All other balls are out of your control and must be avoided for as long as possible
All balls are gravitationally attracted to each other
Every few seconds a new ball will be spawned along with a new randomly placed triangle making the collision more chaotic with time.
When you collide with another ball that’s game over
The longer you survive the higher your score

Summarising .py files:

1) Custom_math.py: Miscellaneous math functions not available directly in the in-built math class

2) Game.py: Responsible for interaction with player and connecting all components of the game and main menu. For example keeping track of all objects and surfaces. Using physics and rendering
3) Physics.py: Responsible for calculating all physics related stuff like gravitational forces and collision between bodies.
4) Radial_Object and surface.py: Class definitions for balls and surfaces respectively

Note:

1) The physics engine is designed for all dimensions >=2. The only part of this game limiting it to 2D is pygame used as renderer.
2) Specific code explanation is given in file as comments
3) This game is primarily a tech demo for the developed physics engine