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V 1.4

This program creates a solar system and uses Newton's Law of gravitation to animate motion. It allows the user to manipulate and explore the system at will.

Requires:

- * OpenGL - a graphics library
- <http://pyopengl.sourceforge.net/>
- * numpy - a math library
- <http://www.numpy.org/>

Usage:

- * Run the NBodyV_1_3.py file
- * The extra folders allow for people without Python to run the program on a Windows machine by running the executable in the \dist folder
- * Collisions with debris are still very unstable, but they are relatively easy to disable. You can disable collisions by commenting out the line with `updateCollisions()`; also, if you just want to remove debris, comment out the if block in the `updateCollisions()` function and the `else:` line in the `NewtonV_1_3.py` file, then tab over everything that was in the else block

Features:

- * Gravitation between multiple Astronomical objects

- * Adding and subtracting objects from the system
- * Camera rotation about the center of the system with keyboard input
- * Scene traversal with keyboard input
- * Scene traversal with mouse input
- * Collisions with debris

Future Features:

- * More variation in mass and density
- * Better collisions (fix disappearing sun and conserve energy)
- * Larger systems
- * Generation of high speed, high mass external Astronomical objects
- * N number of stars
- * Lighting control
- * Bugfixes for movement

Controls:

- * w: move forward
- * s: move backward
- * a: turn left
- * d: turn right
- * e: turn up
- * q: turn down
- * p: pause/play
- * i: rotate camera up

- * k: rotate camera down
- * j: rotate camera left
- * l: rotate camera right
- *]: add Astronomical object
- * [: remove Astronomical object
- * mouse: changes camera facing
- * left click: move forward
- * right click: move backward
- * middle click: stop moving forward or backward

Credits:

- * Nick Walker

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