PS3 N-Body Simulation

Overview:

This program takes in a text file as input that contains x position, y position, x velocity, y velocity, mass, and filename for a celestial object, and simulates planetary motion based on the input.

Implementation:

A class called CelestialBody was implemented, that sets up each celestial body in its correct position, and gets its associated image. Another class class Universe held CelestialBody objects, and implemented the movement for the bodies. It accomplishes this by using Newton's laws of motion and gravity, as well as the leapfrog finite difference approximation scheme.

What I Learned:

- How to animate with SFML.
- How to calculate forces acting on objects.
- How to use a unique_ptr.

Output: