# Orbiter 2

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The Problem: Space is such an interesting part of our world but very few games delve into the science of planets in a solar system. One of the few games that does delve into this topic is Universe sandbox. However, the game comes with lots of options and can be overwhelming for new players at times. As such I plan to make a simpler simulation of a basic solar system, aimed at a younger target audience. **The Issue**: To develop our understandings of space and our solar system, through a simple simulation. Allow others to make their own custom solar systems.

Solution: Using newton's universal law of gravitation that take in the mass of the planet, the mass of the sun it is orbiting, and lastly the distance between the two bodies. These values are then used to calculate the force that pulls the two bodies towards each other. To stop all the planets from falling into the sun, we would also have to add an extra force to the planets accelerating them forwards. Using matrix transformations the planets slowly rotates. Basic lighting is also emitted from the central start as well.
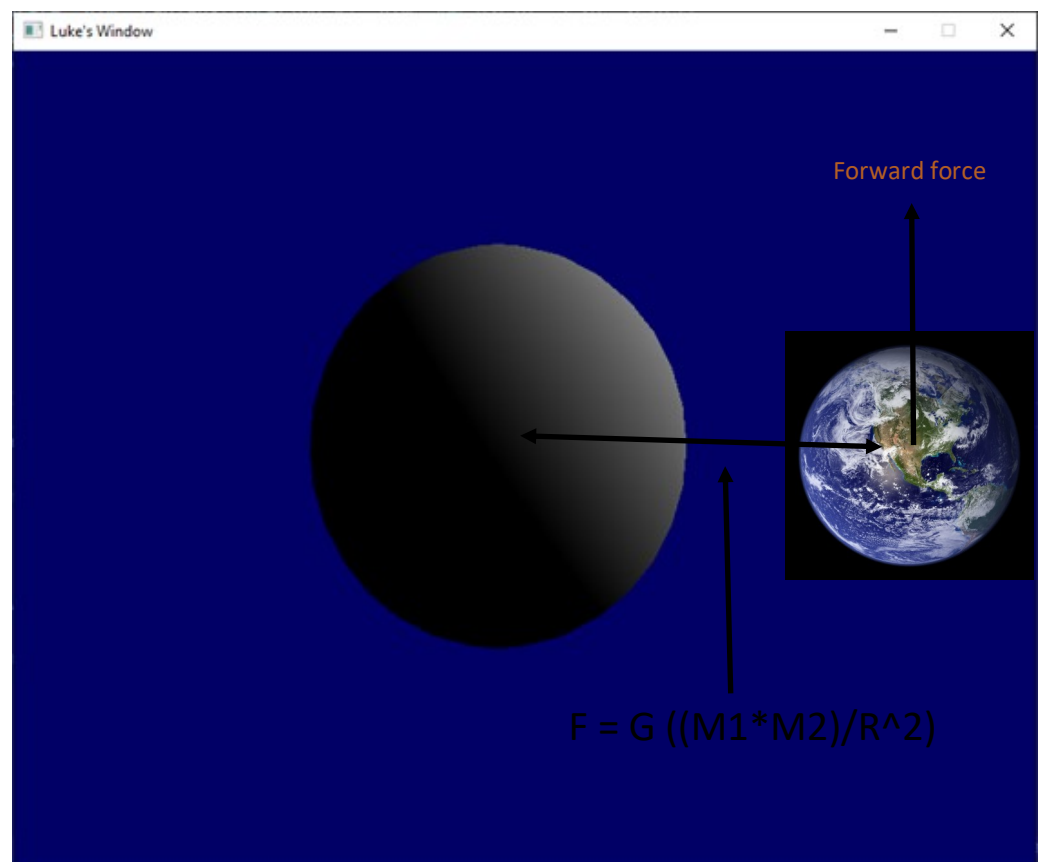
$$F = G \left(\frac{M1 * M2}{R^2} \right)$$

Start
Float Get GravitationalConstant
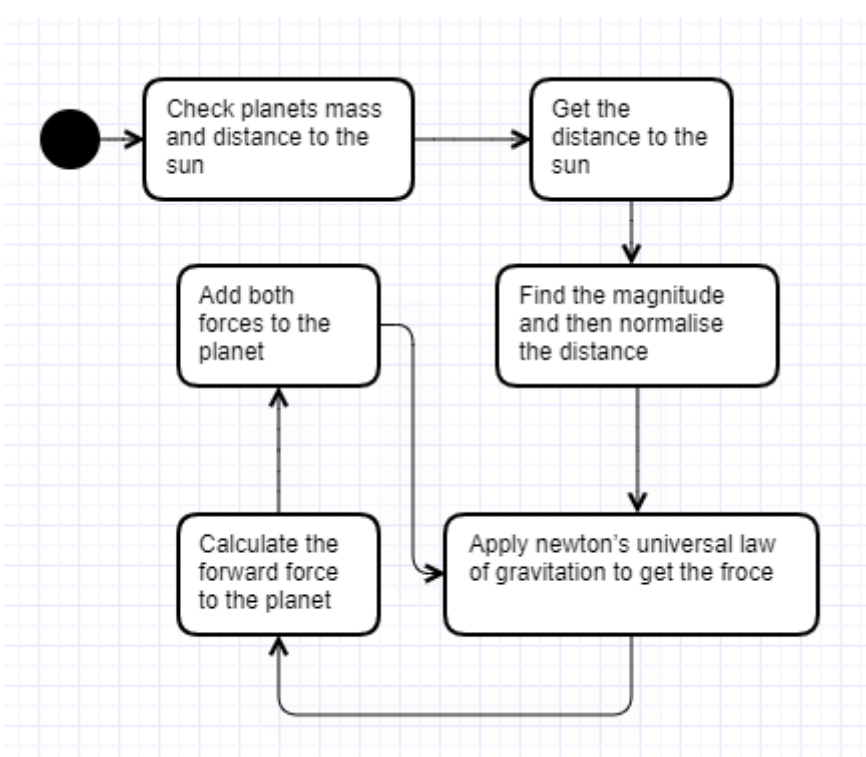Float Get SunMass
Float PlanetMass
Int Distance = sun location —
planet location
Distance.magnitude
Distance.normalized
Float Force = GravitationalConstant *
((PlanetMass * SunMass) / Distance^2)
Add Force to planet

Positives: All planets share a class so it is easy to add more planets. Simple easy way to start getting into the world and science of space. **Improvements**: Variations to the planets: gas giants, ringed planets and ocean planets. More orbiting bodies such as moons, asteroids and meteors. Lastly different central bodies such as binary stars, black holes and trinary stars.