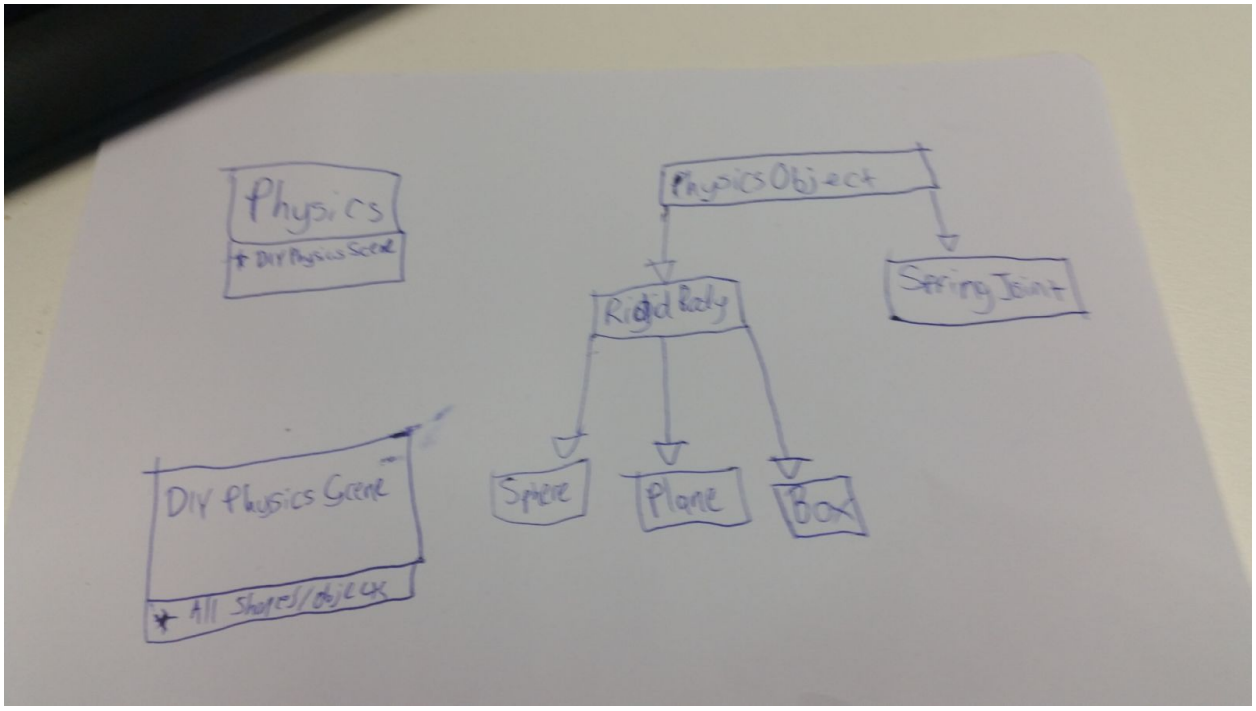
Documentation for custom physics



There is also a main.cpp that runs everything, it gets a reference to Physics and runs everything in there through the main function.

Physics also contains functionality for projectiles.

DIYPhysicsScene contains all the functionality of the project, including collisions and collision responses for all objects, a list of PhysicsObjects, pointers to each shape, gravity, timeStep(deltaTime), an update function which also renders objects and adds them to the list of objects. DIYPhysicsScene also has a set up function and a shutdown function.

PhysicsObject contains information that each object requires, including an enum that gives each shape its own ID and allows it to collide with other objects based on that ID. This class also contains a position and a mass. The rest is virtual, is overridden or both.

Rigidbody then inherits from that and overrides the functions that are in PhysicsObject. RigidBody contains velocity, colour, acceleration, drag, and variables that decide whether the object is kinematic or dynamic. Lastly, Rigidbody contains functions that allow forces to be applied to objects.

Then there are the four different shapes, there is also an ID in PhysicsObject called NumberShape and that is just there to check whether an object should be able to collide or not.

The four shapes contain the following :

Sphere

Contains a radius, a colour, an acceleration and a draw function.

Box

Contains centre, extents, acceleration, colour and a draw function.

Plane

Contains a normal, distance and a draw function.

SpringJoint

Contains an update and a draw function, a rest length, connections, damping and a spring Coefficient.