**Springies Part 1: Design Document**

Abstract Force Class

This class will have certain properties involving the interaction of masses with gravity, springs, and walls.

* Gravity Subclass extends Force – Interaction between mass and gravity.
* Springy Subclass extends Force – Interaction between the line segments of mass.
* Walls Subclass extends Force– Interaction between mass and walls.
  + Right/Left/Ceiling/Floor Subclass extends Wall

Muscle Class

Class with arguments *Speed* and *Amplitude*. Muscle class is the interaction between two line segments within a Mass class.

We’re not completely sure how the muscles interact with each other, but we think that there’s an overarching sinusoidal wave that dictates the movement of segments and the strength between the segments.

Mass Class

Consists of point masses, which are defined by x-coordinates and y-coordinates. They can be connected to each other via springs (line segments). We assume that this class will read in from XML files, and will be initialized in the main Java file.

Spring Class

Object that needs two point masses. We think that each pair of point masses should have a unique spring to it. This will prevent an ambiguity of springy forces when we initialize the Mass Class.

Each spring should take in properties from the Springy class (that inherits from Force). Although we aren’t completely sure, we believe that the Spring class should also inherit properties from the Muscle Class as well.