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CS 308
Springies Design Plan

We separated masses and muscles/springs into different categories of objects. There should be an abstract superclass of masses whom fixed masses and unfixed masses inherit from. All masses share common characteristics that can be instance variables: float mass, float x and y coordinates, and a list of connected springs/muscles. Unfixed masses will have extra data such as acceleration and a method for calculating force from acceleration. The force will be applied to the springs/muscles connected to it.

We determined that the muscles and springs had similarities that could be abstracted into a MusclesAndSprings superclass. They, for example, shared the instance variables: float end to end coordinates*,* float length at rest, spring constant, and a list of connected masses and their type (fixed/ unfixed.) Their behaviour, however, differed. Muscles could change their own lengths while spring length was subject to whatever force it experienced from attached unfixed masses. As a result, we determined that each muscle should have a ChangingLength method while each spring should have a CalculateForceFromAcceleration-- the CalculateForceFromAcceleration method that would be called at regular intervals.

It may also be necessary to have an energy wave object. This energy wave would be a sinusoid that has a specified phase shift (location on the energy wave slider), amplitude, and frequency. Each muscle can have its own energy wave object. All energy waves would have the same frequency and amplitude specified by the user, but a different phase shift depending on the location of the slider.