Table 5
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Project Update

1. What were you able to accomplish for your project this week?

This week we were able to refine the specifics of our project, such as which variables would be our controls and which ones would be our independent and dependent ones, and decided exactly how to collect the data based on the variables we would change. We will be changing variables such as mass, angle of release (for the pendulum mass), and how compressed or uncompressed the spring will be when we release it from rest. We were able to figure out a practical and methodical way of collecting the data for our lab as well as begin collecting some data. We figured out how to use our analysis tools (tracker, Python plots, etc.) and came up with interpretations of sample data before analyzing our actual data. In addition, we were able to calculate the spring constants for the springs available to us in the lab. We began to analyze the data we collected in the lab yesterday, however, we still need to collect more data as we did not have all of the materials we needed to finish.

2. Is something holding back your project progress (like materials not arriving yet, poor quality data etc.)?

We have planned to use a set of 3-5 springs for our lab, however, we were only able to find 2 springs that were usable in the lab. We are waiting for more springs to arrive on Tuesday next week before we can collect the rest of our data. We were able to collect a good amount of data with the two springs we had.

3. Any specific advice you might require for your project?

We would definitely like to know more on the topic of elastic pendulums and the paths of motion that they take. We have found many resources online and have a decent understanding of the topic but we feel any advice (such as any equations we should be using (or not be using), better ways of going about analysis and interpreting our results) we can receive would be greatly appreciated. We are open to any suggestions for how you would like us to go about data collection and completing the lab.

4. Do you have any trouble with data analysis? Be specific.

It took some time to figure out how to use Tracker but we were able to obtain the path of motion for our pendulum and several plots that showed the path of oscillation in both the x and y directions. We were able to successfully analyze and create more plots in Python using the x and y accelerations obtained from the accelerometer. We also have to determine how the Arduino spinning while oscillating will affect accelerometer data as we will need to analyze motion in the x, y and z directions. If there is any strange behavior linked to the Arduino spinning, we will try to mitigate this spinning effect by securing the Arduino more tightly or testing different ways of observing the elastic pendulum so that there is no spinning.