The Results and the Discussion sections should include the following:

- **Results**
  - Calibration of the spring
  - Theoretical estimate of the undamped natural frequency of the spring mass system
  - Experimental estimate of the damped natural frequency using Phyphox. Use the FFT code you had used in Exp. 5 to find the damped natural frequency. Clearly mention the sampling rate in your report. Assuming that you repeated the experiment 3 times, report all the three values of the natural frequency. In addition, show the accelerations measured in the 3 different directions in a single figure and demonstrate that magnitude of the acceleration observed in the vertical direction is much larger than the magnitude observed in the other two directions. This is to confirm that the phone was indeed oscillating in the vertical plane.
  - Experimental estimate of the damped natural frequency using Arduino + accelerator. Use the data sheet to convert the measured voltages to acceleration (for sensitivity $\pm 1.50g$, the conversion factor is $800mV/g$). Use the FFT code you had used in Exp. 5 to find the damped natural frequency. Assuming that you repeated the experiment 3 times, report all the three values of the natural frequency. Clearly mention the sampling rate in your report.
  - Use the viscous damping model to model the decay in the experimentally measured acceleration values. Calculate the damping coefficient and the damping ratio. You can use either the Phyphox data or the data collected using the Arduino. Note: Damping due to air is modeled using the viscous damping model.
  - Any other results you obtained as part of the experiment.
- **Discussion**
  - Comment on the linearity of the spring used in the experiment.
  - Compare the analytical result with the experimental results obtained using Phyphox and Arduino. (You can compare the median frequency - assuming you have the repeated the experiment three times). Comment on the sources of differences, if any.
  - Using the damping ratio that you have estimated, analytically calculate the damped natural frequency - how close is to the experimental value - comment.
  - Compare the two experimental results with each other and comment on the similarities and the differences.
  - Comment on validity of the viscous damping model to model the the decay that you observed. If the model does not the fit the data well, comment on the probable causes.
  - Any other observation.