Today you will read an experimental data file and create a few plots. The data is from Lab 4 of PH 411, and if you're taking that class you are welcome to bring in and use your own data.

From Python you can read most data file formats. But your simplest option is usually to put your data into a text format before reading it using Python. There are a couple of common text formats: tab-delimited and comma-delimited. These consist of numbers separated by either tabs or commas. Either is easily readable using just the `numpy` package.

If you ever need to read an entire spreadsheet file directly, you would probably want to use pandas. But that is more complicated, and we'll avoid using it in this course. For perspective, in my research I read and write data files all the time using Python, and have only once in my lengthy career used `pandas`, which was when a graduate student wrote code to scrape data off a NIST website. In any case, I'll ask you not to use `pandas` in this course, primarily to ensure your code is comprehensible to the rest of the class.

Your task

1. Download the following two files to your computer: the RL circuit data and the LR circuit data. Open them using your text editor, VS Code, to see what they look like. These files are each in a different format.

2. Write a program that uses `numpy` to read the RL data file and print the data to a terminal. You should be able to see when you are getting the right data.

3. Plot the voltage as a function of time for this circuit.

4. Plot an exponential curve on the same plot, and tweak the parameters of that exponential until it overlays the experimental data on one of the time segments.

5. Make the plot pretty enough that you could use it in a lab report. e.g. add axis labels, etc.

6. Repeat using the LR data, which is in a different format, and may require more effort to read.