Coding Homework #1

Instructions (Note: it is very important you follow these instructions in order!)

1. Run the first *Code Cell* below.

2. Make a *Markdown Cell* that contains the following information:

- Your name (small header)
- The name of this class (italicized)
- The date (bolded)

3. **Important!**: For each *Code Cell* that you create, make at least one line of code with a `#` in front of it that describes what your code does.

4. Make a *Code Cell* that turns `v_rest_sst.csv` into a `Pandas DataFrame` called `pandas_data1`, and `v_rest_pvalb.csv` into a `Pandas DataFrame` called `pandas_data2`. Recall that we covered how to import `.csv` files as `Pandas DataFrames` in our in-class coding activity on February 5th.

5. Make a *Code Cell* that converts `pandas_data1` into a `list` variable called `data1`, and converts `pandas_data2` into a `list` variable called `data2`. The following syntax is an example of how to do this:

```
data1 = pandas_data1.values.tolist()
```

6. When you convert a `Pandas DataFrame` into a `list`, it brackets each individual element - we don't want that! To get around this issue, make a *Code Cell* that flattens `data1` and `data2` using the `numpy.squeeze()` function. Your first *Code Cell* imported the `NumPy` module as `np`, so we can use the following code to flatten `data1`:

```
data1 = np.squeeze(data1)
```

Repeat this for `data2`.

7. Make a *Code Cell* that prints the length of `data1`.

8. Make a *Code Cell* that prints the 3rd, 4th, 5th, and 6th elements of `data2`.

9. Make a *Code Cell* that prints the second-to-last and last elements of `data1` (use negative indexing).

10. Make a *Code Cell* that prints the `type` of `data2` by using the `type` function.

11. The first *Code Cell* you ran imports a module called `matplotlib`. In a new *Code Cell*, use `matplotlib` to make a histogram of `data1`. You can use the syntax `plt.hist()` to do this (remember that the variable you are applying the function to goes inside of the parentheses).

12. In a new *Code Cell*, re-make your histogram and use the `plt.xlabel()` and `plt.ylabel()` functions to label your axes.

13. In a new *Code Cell*, follow the instructions in steps 11 and 12 to make another histogram with axis labels for `data2`.

14. In a new *Markdown Cell*, write a brief description of any differences that you observe between your two histograms. Does one group of cells seem to have a higher/lower resting membrane potential than the other group of cells?

15. In a new *Code Cell*, create a new variable called `data3`. Let `data3` be a list containing both `data1` and `data2`.

16. Make a *Code Cell* that prints the last element of `data2`. You must index `data3` to do this.

17. Save a copy of this notebook to your GitHub repo with the title "coding_homework_1.pynb".

```
# Import matplotlib

from matplotlib import pyplot as plt

import pandas as pd

import numpy as np
```