Lecture 23: Plotting with Matplotlib
Consider CSV data of the form:

alabama,10,20,30
alaska,32,43,56
.
.
.
Wyoming,2,0,78

Write a function `to_data` that takes a filename and returns a dictionary `data` where each key is a state name and each value is a list of integers.

```python
>>> data["Minnesota"]
[47, 156, 107, 193, 121, 128]
>>> data["Iowa"]
[15, 36, 52, 57, 62, 45]
```
```python
def plot1(data, states, years):
    for state in states:
        plt.plot(years, data[state], label=state)
    plt.legend(loc="best")
    plt.xlabel("Year")
    plt.ylabel("No. Students Taking CS AP Exam")
    plt.title("No. Students Taking CS AP Exam by Year")
    plt.savefig("out.png")
```

No. Students Taking CS AP Exam by Year

- California
- Massachusetts
- Minnesota
- Alabama
```python
def plot2(data, states, years):
    colors = plt.cm.Paired(np.linspace(0,1,len(states)))
    patches = []
    for state,c in zip(states,colors):
        plt.fill_between(years, data[state], color=c, alpha=0.5)
        patches.append(mpatches.Patch(color=c, label=state))
    plt.legend(handles=patches, loc="upper left")
    plt.xlabel("Year")
    plt.ylabel("No. Students Taking CS AP Exam")
    plt.title("No. Students Taking CS AP Exam by Year")
    plt.savefig("out2.png")
```

```python
def plot3(data, states, years):
    colors = plt.cm.Set1(np.linspace(0, 1, len(states)))
    for i, state, c in zip(count(), states, colors):
        ax = plt.subplot2grid((len(states), 1), (i, 0))
        ax.fill_between(years, data[state], color=c)
        ax.set_ylabel("Count")
        for tick in ax.yaxis.get_major_ticks():
            tick.label.set_fontsize(8)

    plt.tight_layout()
    plt.xlabel("Year")
    plt.savefig("out3.png")
```