CS196

Data Science

Data Visualization (hardcore)

Ben's gonna destroy y'all. RIP

Week 5 of 196 (week 6 of school) :)

Tyler is busy running R|P

Week 4 Challenge Answers

1) Calculate the survival rates of passengers by class (First, Second, Third)

In [94]:
```
titanic_df.groupby('pclass').mean().survived
```

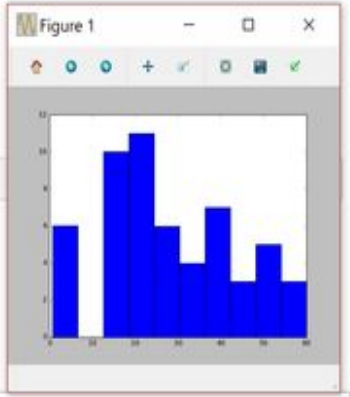
Out[94]:
```
pclass
1    0.629630
2    0.472826
3    0.242363
Name: survived, dtype: float64
```

2) Calculate the average fare paid by those who survived compared to the fare paid by those who didn't

In [65]:
```
titanic_df.groupby('survived').mean().fare
```

Out[65]:
```
survived
0    22.117887
1    48.395408
Name: fare, dtype: float64
```

3) Plot the ages of the female survivors that embarked at Cherbourg



In [*]:
```
import numpy as np
import matplotlib.pyplot as plt
data = titanic_df[titanic_df.embarked=='C'][titanic_df.sex=="female"][titanic_df.age==titanic_df.age][titanic_df.survived==1].age
plt.hist(data.values)
plt.show()
```

```
C:\Users\mattc\Anaconda2\lib\site-packages\ipykernel\__main__.py:3: UserWarning: Boolean Series key will be reindexed to match D
ataFrame index.
  app.launch_new_instance()
```

Current Leaderboard

Keep it up fam

- All ranked people are those who've done week 3 challenge.

- Still plenty of chances to turn it over and take a GenEd with me

1st: Osmar, Tyson

2nd: Drake, Ish, Matthew C.

3rd: Dean Lin

4th: Aaron, Charlie, Shachi

- 1 point difference between 1st and 2nd
- 1 point difference between 2nd and 3rd
- 1 point difference between 3rd and 4th
- 0.5 point difference between 4th and 90% of the rest

Data Visualization

Why Bother right?

- Easily Digestible / Sharable
  - Reduces the ‘wall-of-text’ effect #irony
- Visually exposes patterns
- A medium for **explaining** and **exploring** data

Overview

Static

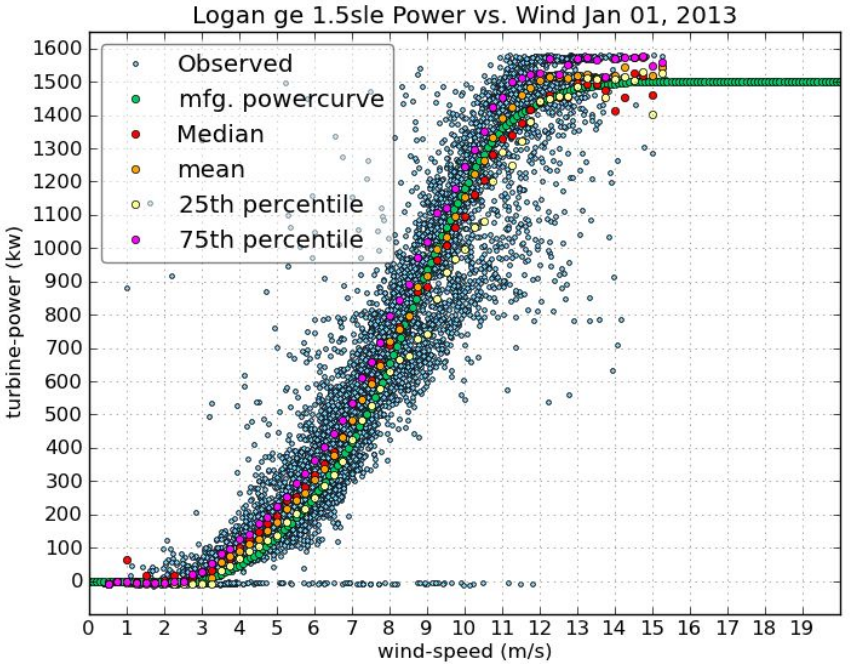
- Matplotlib (Python)
- Seaborn (Python)
- Ggplot2 (R)
- Chart.js (Python)

Dynamic

- D3.js (Javascript)
- Plotly (Proprietary w/ various APIs)
- Tableau (Proprietary)
- Highcharts (Javascript)

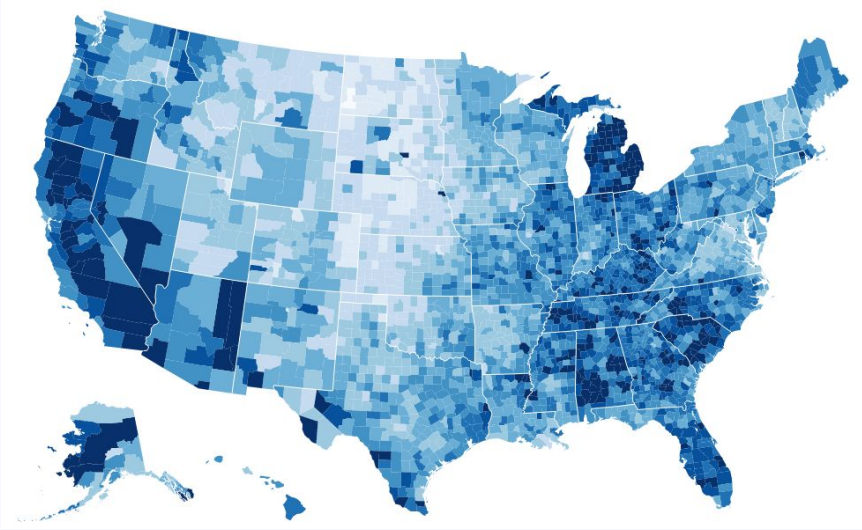
Matplotlib

- Many built-in plot types
- Used mostly for static visualizations
- Great for making ‘production-ready’ plots



D3.js

- Best for in-browser visualizations
- Not as 'batteries included' as matplotlib
    - D3 is a DOM-data binding library at its root, forces you to do a lot of things by yourself

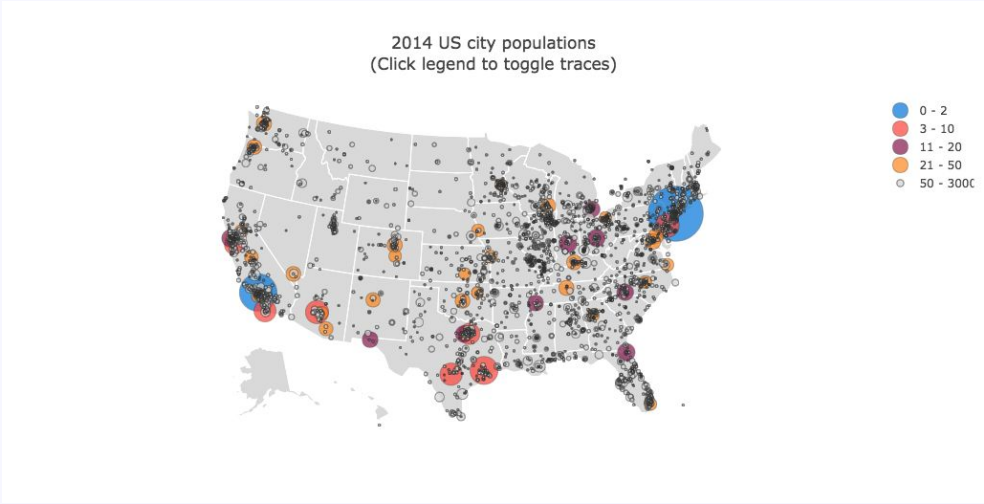


D3.js

Example

Plotly

- Dynamic Plots
  - Gives you dynamic plots without having to ‘reinvent the wheel’ each time
- APIs for various languages (Python, JS, R, etc.)
- Not everything is free... :(



Week 5 Attendance

http://bit.ly/week5attendance

Jupyter Time fam

http://github.com/CS196Illinois/Data_Hackerspace

CS196

Week 5 Challenge

Surprise us with visualizations