

# KEY\_Practice19B\_BarCharts\_Histograms

August 20, 2019

## 1 Bar Charts and Histograms

As always, let's begin by importing our necessary packages and reading in/previewing our data. In this practice we will continue to explore the `titanic` dataset.

```
[1]: # import seaborn
import seaborn as sns
```

```
[2]: # read in titanic data
titanic = sns.load_dataset("titanic")
# preview data
titanic.head()
```

```
[2]:
```

|   | survived | pclass | sex    | age  | sibsp | parch | fare    | embarked | class | \ |
|---|----------|--------|--------|------|-------|-------|---------|----------|-------|---|
| 0 | 0        | 3      | male   | 22.0 | 1     | 0     | 7.2500  | S        | Third |   |
| 1 | 1        | 1      | female | 38.0 | 1     | 0     | 71.2833 | C        | First |   |
| 2 | 1        | 3      | female | 26.0 | 0     | 0     | 7.9250  | S        | Third |   |
| 3 | 1        | 1      | female | 35.0 | 1     | 0     | 53.1000 | S        | First |   |
| 4 | 0        | 3      | male   | 35.0 | 0     | 0     | 8.0500  | S        | Third |   |

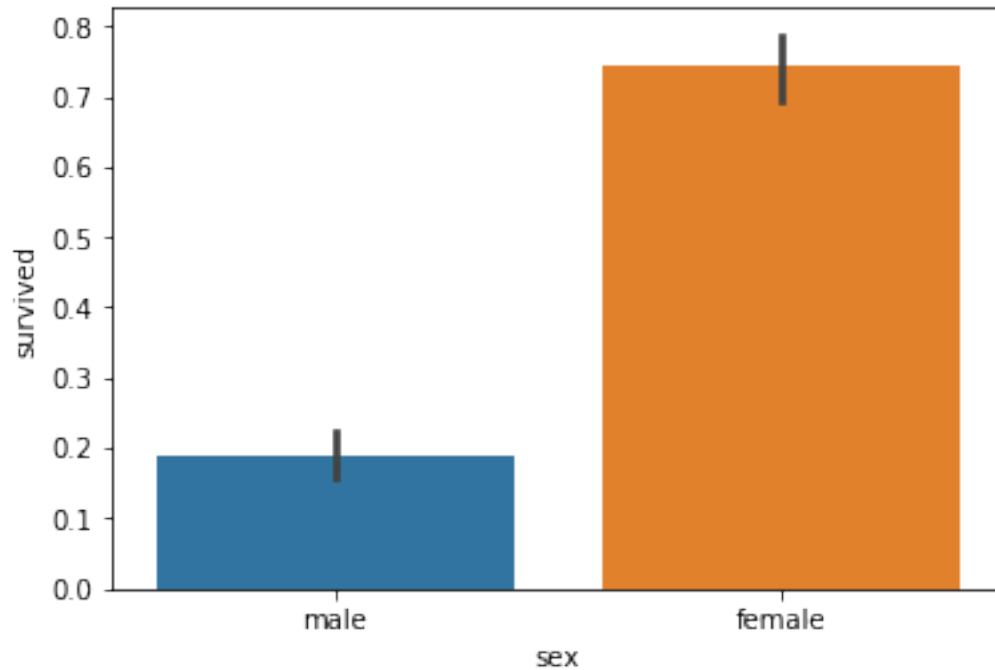
|   | who   | adult_male | deck | embark_town | alive | alone |
|---|-------|------------|------|-------------|-------|-------|
| 0 | man   | True       | NaN  | Southampton | no    | False |
| 1 | woman | False      | C    | Cherbourg   | yes   | False |
| 2 | woman | False      | NaN  | Southampton | yes   | True  |
| 3 | woman | False      | C    | Southampton | yes   | False |
| 4 | man   | True       | NaN  | Southampton | no    | True  |

### 1.1 Bar Charts

Generate a barplot of `survived` (y-axis) across `sex` (x-axis).

```
[5]: # barplot of sex vs survived
sns.barplot(x="sex", y = 'survived', data=titanic)
```

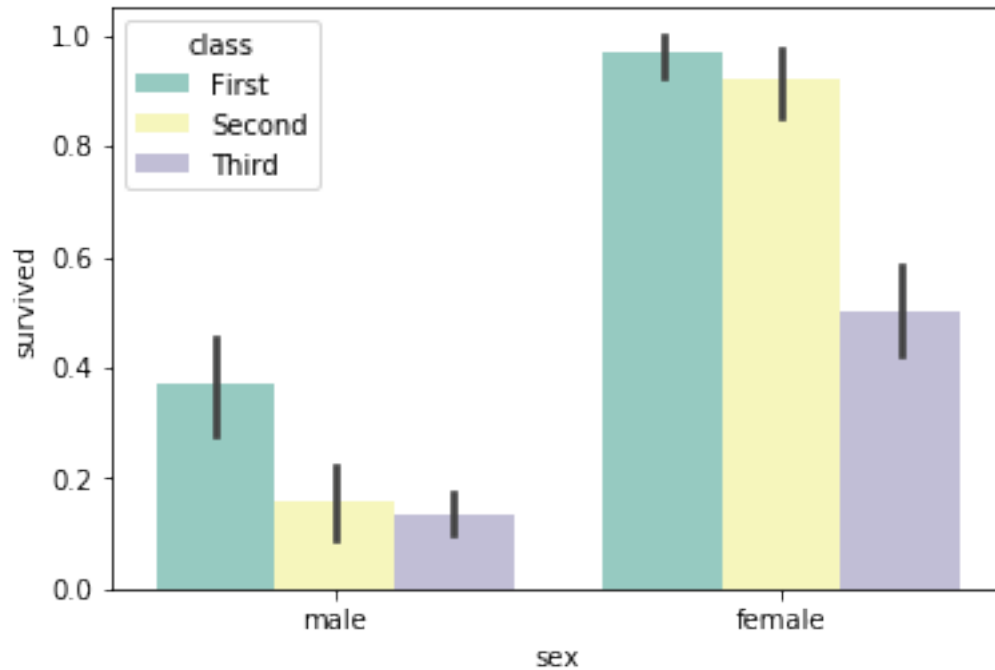
```
[5]: <matplotlib.axes._subplots.AxesSubplot at 0x1a162ba438>
```



Now, generate a barplot of `survived` (y-axis) across `sex` (x-axis), stratified by `class`. Choose your favorite color palette.

```
[4]: # barplot of sex vs survived stratified by class
sns.barplot(x="sex", y = 'survived', hue = "class", palette =_
↪ "Set3",data=titanic)
```

```
[4]: <matplotlib.axes._subplots.AxesSubplot at 0x1a161fac18>
```



## 1.2 Histograms

Generate a histogram of fare

```
[6]: #histogram of fare  
sns.distplot(titanic['fare'], kde=False)
```

```
[6]: <matplotlib.axes._subplots.AxesSubplot at 0x1a16399048>
```



Now let's play with the `bins` parameter. First let's try a small number of bins, like 10:

```
[12]: #histogram of fare with 10 bins  
sns.distplot(titanic['fare'], kde=False, bins=10)
```

```
[12]: <matplotlib.axes._subplots.AxesSubplot at 0x1a16be4a20>
```



Now, let's try a larger number of bins, say 100.

```
[14]: #histogram of fare with 100 bins  
sns.distplot(titanic['fare'], kde=False, bins=100)
```

```
[14]: <matplotlib.axes._subplots.AxesSubplot at 0x1a16e180b8>
```



As you can see, most of the values are pretty small ( $< 100$  dollars), and there are only a few really large values. This is called a long-tailed distribution. Can you plot a histogram of just the fares that are less than 100 dollars?

```
[15]: #histogram of fare  
sns.distplot(titanic.query('fare < 100')['fare'], kde=False)
```

```
[15]: <matplotlib.axes._subplots.AxesSubplot at 0x1a16fc14e0>
```



### 1.3 Count Plots

Generate a count plot to visualize the distribution the `deck` variable across all passengers in our data set. Choose a sequential color palette.

```
[16]: # count plot of deck
sns.countplot(x="deck", palette = "Purples", data=titanic)
```

```
[16]: <matplotlib.axes._subplots.AxesSubplot at 0x1a171378d0>
```



Now stratify your plot using the `class` variable. What kind of color palette is appropriate now?

```
[17]: # count plot of deck stratified by class
sns.countplot(x="deck", hue = "class", palette = "Set2", data=titanic)
```

```
[17]: <matplotlib.axes._subplots.AxesSubplot at 0x1a17218710>
```





## 1.4 Congratulations!

You just completed all of the lessons in the GWC Data Science Summer Experience! Now it's time to put your data science skills to the test in your projects.