

PYTHON ADVANCED VISUALIZATIONS

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AGENDA

- Box plots
- Word clouds
- Violin plot

PRE MADE PROCESS

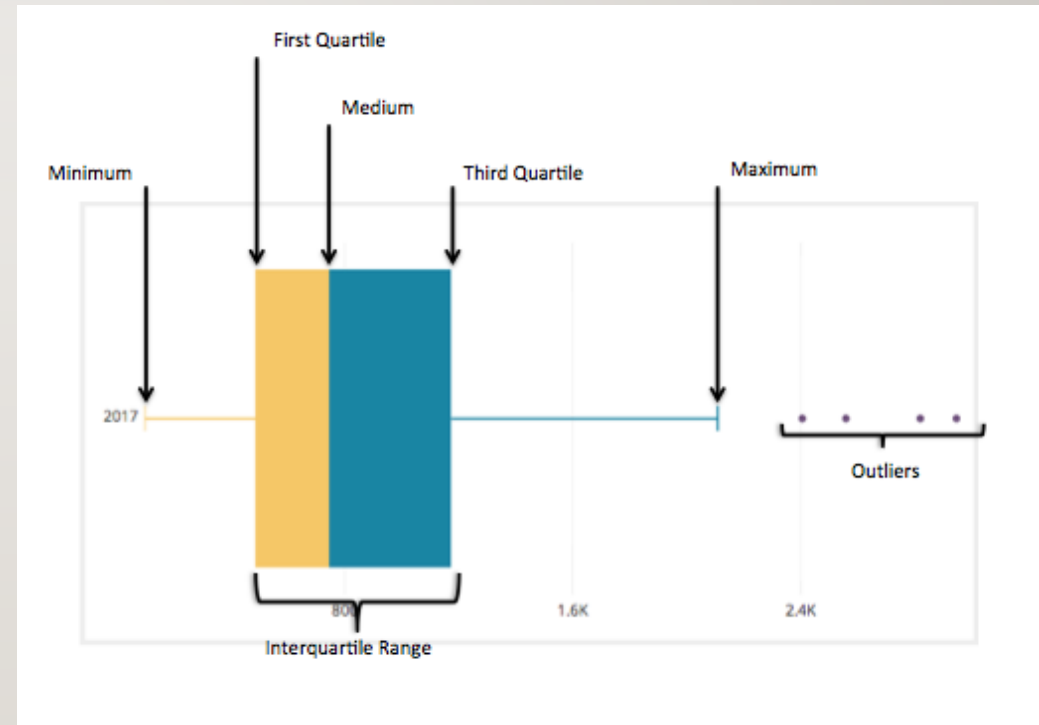
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as pltimport matplotlib as mpl
import seaborn as sns
import warnings; warnings.filterwarnings(action="once")
df = pd.read_csv("nhanes_2015_2016.csv")
```

BOX PLOTS

A Box Plot is the visual representation of the statistical five number summary of a given data set.

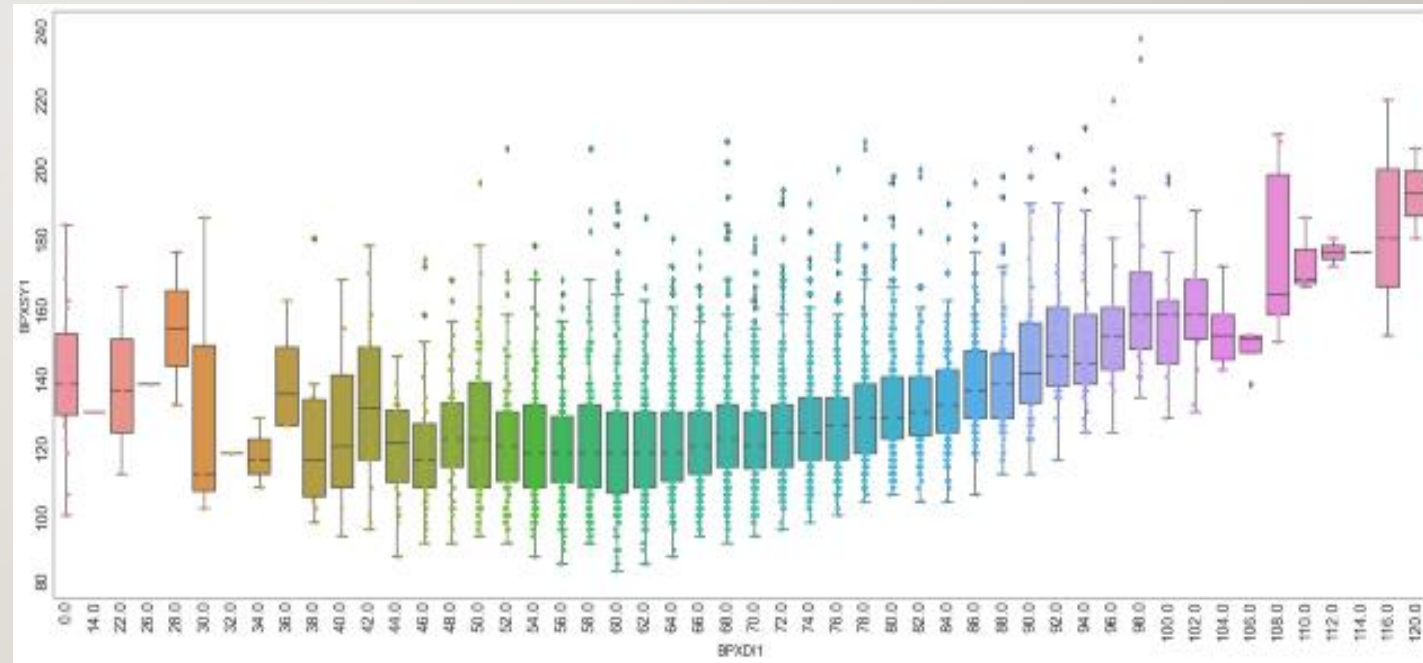
A Five Number Summary includes:

- Minimum
- First Quartile
- Median (Second Quartile)
- Third Quartile
- Maximum



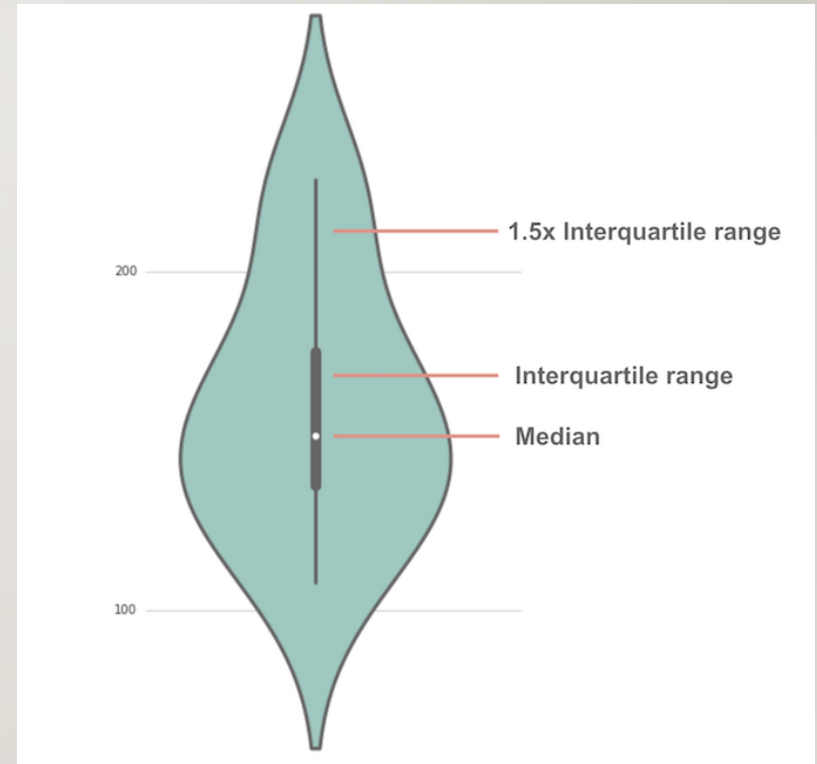
BOX PLOTS

```
fig, ax = plt.subplots(figsize=(30, 12))  
ax = sns.boxplot(x="BPXDI1", y="BPXSY1", data=df)  
ax.tick_params(rotation=90, labels=18)  
ax = sns.stripplot(x="BPXDI1", y="BPXSY1", data=df)
```



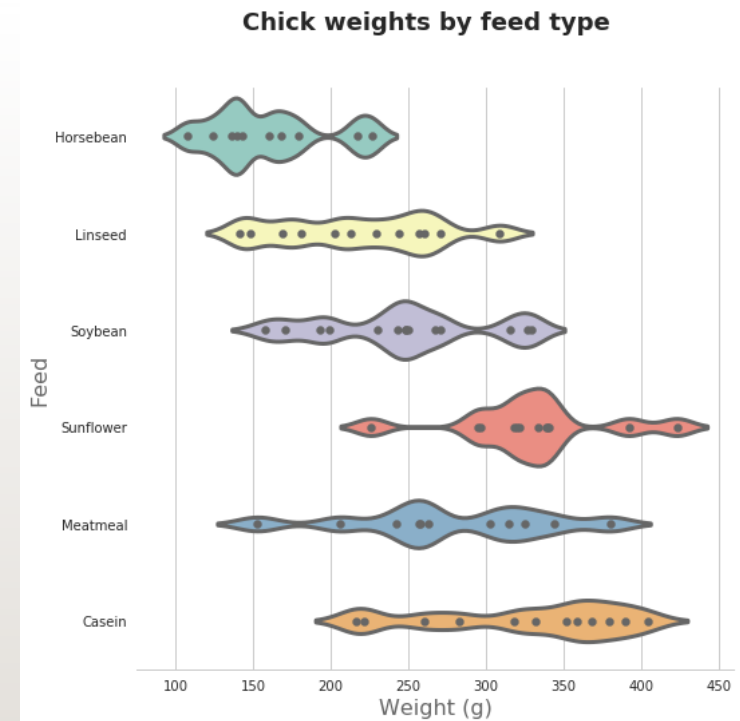
VIOLIN PLOT

A violin plot is a hybrid of a box plot and a kernel density plot, which shows peaks in the data. It is used to visualize the distribution of numerical data. Unlike a box plot that can only show summary statistics, violin plots depict summary statistics and the density of each variable.



VIOLIN PLOT

```
import seaborn as sns
import matplotlib.pyplot as plt
sns.set(style="whitegrid")
df = datasets[0]
f, ax = plt.subplots(figsize=(8, 8))
# Show each distribution with both violins and points
sns.violinplot(x="weight", y="feed", data=df, palette="Set3", inner="points",
               bw=.2, cut=2, linewidth=3)
sns.despine(left=True)
f.suptitle('Chick weights by feed type', fontsize=18, fontweight='bold')
ax.set_xlabel("Weight (g)", size=16, alpha=0.7)
ax.set_ylabel("Feed", size=16, alpha=0.7)
```



WORD CLOUDS

- Word clouds (also known as text clouds or tag clouds) work in a simple way: the more a specific word appears in a source of textual data (such as a speech, blog post, or database), the bigger and bolder it appears in the word cloud.
- A word cloud is a collection, or cluster, of words depicted in different sizes. The bigger and bolder the word appears, the more often it's mentioned within a given text and the more important it is.



WORD CLOUDS

```
word_cloud = WordCloud(width=3000,  
                        height=2000, random_state=1,  
                        background_color="salmon",  
                        colormap="Pastel1",  
                        collocations=False,  
                        stopwords=STOPWORDS,  
                        ).generate(text)  
plt.imshow(word_cloud)  
plt.axis("off")  
plt.show()
```

