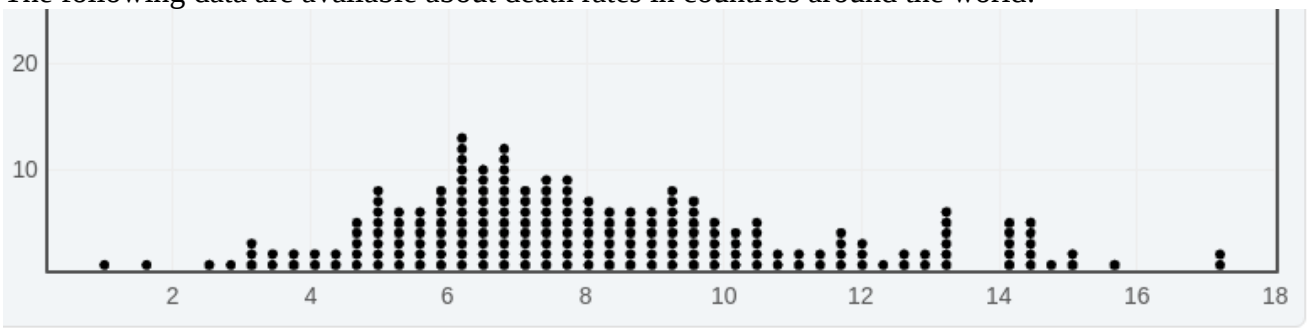
Exploring Univariate and Multi-variate analysis

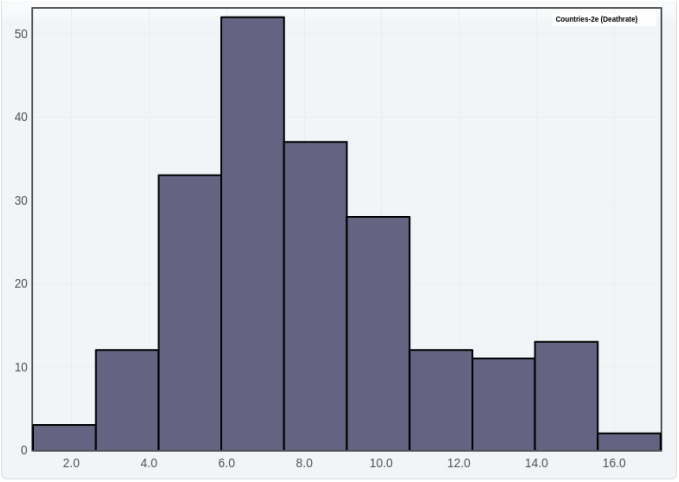
Review Exercise: Country's Death Rate

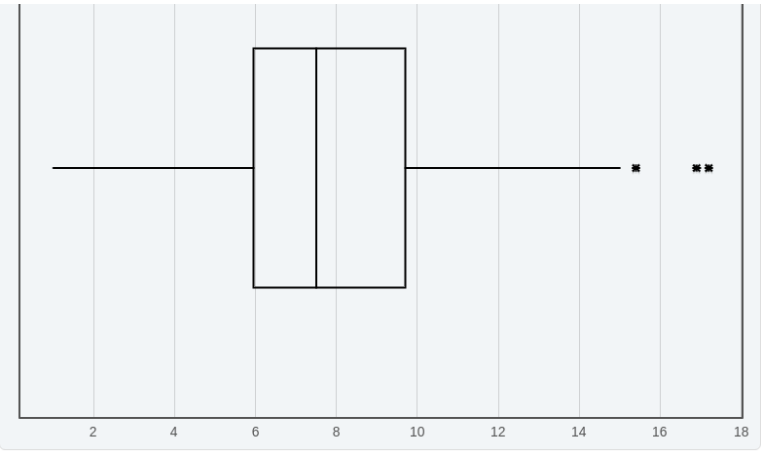
The following data are available about death rates in countries around the world:



Summary Statistics

Statistic	Value
Sample Size	203
Mean	8.073
Standard Deviation	3.133
Minimum	1
Q_1	5.950
Median	7.500
Q_3	9.700
Maximum	17.2





1. Describe the shape of the distribution of this data: Consider the degree to which it is "mound shaped" or "bell shaped"

Load the link called "The Noraml Distribution" located on today's table entry for Tue, 12 March. Dedicate a few moments to tinkering with the tool's features and options.

(Assume normally distributed data for the remainder of the questions)
2. What percent of countries in this dataset would we expect to have death rates ABOVE 11.206? (Hint: compute the mean + 1 standard deviation)?

3. What percent of countries would we expect to have death rates above 1.5 standard deviations higher than the mean death rate?

4. What death rate value is the cutoff below which 25% of all sampled countries fall?

5. What percent of countries would we expect to have death rates above 9?
Hint: Use the equation for the Z-score of a value, compute the z-score, then find the tail area using the online tool.

6. If you learned that the CDC measured a country's death rate to be 6.33, how would you describe the rarity of this event with respect to all other measured countries?

Gait Length:

1. What variables might impact how far a person walks with each step?

2. What variables are likely to be unrelated to how far a person walks in each step?

3. After collecting our class data, please populate our quantitative variable profile:

lower fence Q1 - 1.5*IQR:	inter-quartile range IQR=Q3-Q1:	upper fence Q3 + 1.5*IQR:
lower outliers:		upper outliers:
box plot: annotate the box [Q1, MEDIAN, Q3] & whiskers, fences, outliers		
computed descriptive statistics		
mean(x-bar):	variance(s^2):	
standard deviation(s):		
1 Standard Deviation (x^{bar}−s, x^{bar}+s): %obs:	**2 Standard Deviations** (x^{bar}−2s, x^{bar}+2s): %obs:	**3 Standard Deviations** (x^{bar}−3s, x^{bar}+3s): %obs:

4. Create a bivariate plot of step count for our track versus leg length in CM. Sketch the plot below and describe the relationship between leg length and number of steps required.

5. Predicted values: Track down a person who didn't participate in our project and measure their leg length. Predict their steps required. Analyze your error rate.