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Date: 1/24/2025

1. Explain your data collection process:

I measured leaves from three plant types at the potted plant section of my local Trader Joe's using a ruler. I recorded their length, width, and species name.

2. What instrument did you use to collect data with?

A small plastic ruler with centimeter markings.

3. Argue the accuracy and precision of your instrument:

Accuracy refers to how close measurements are to the true value, while precision is how consistent repeated measurements are. My ruler provides precise measurements with consistent readings for similar-sized leaves, but accuracy might be affected by leaf curves or my positioning.

4. How many data points did you collect? Why?

I collected 60 points (20 per species) to ensure a good variety while keeping it manageable for analysis.

5. Define the size of your data in terms of both N and n:

– N = 60 (total data points)

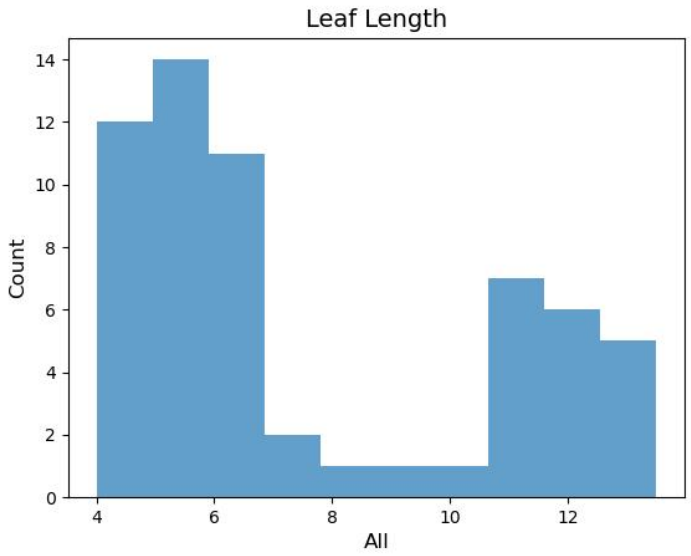
– n = 20 (per species).

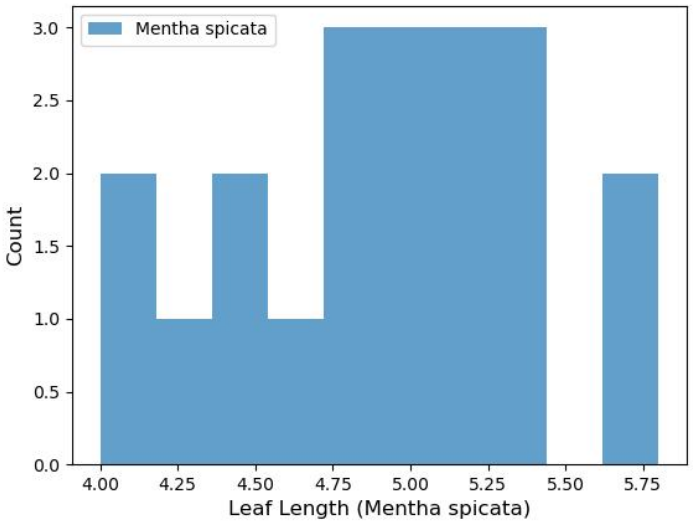
6. Explain any problems that you ran into during the data collection process:

Identifying plant species was difficult, curled leaves affected measurements, and measuring in the store felt awkward.

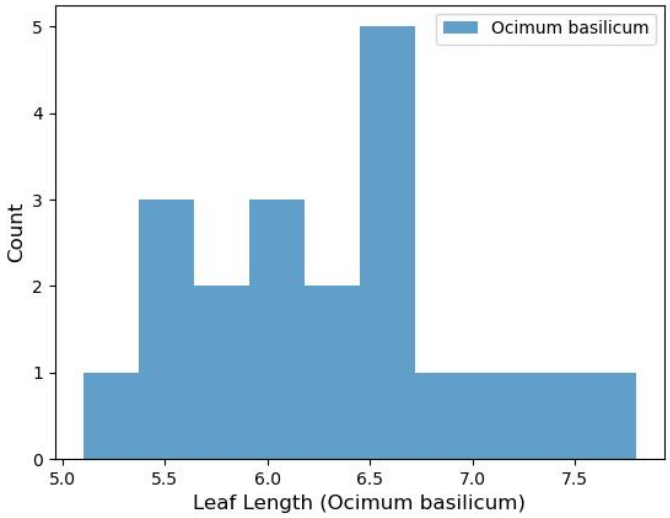
Analysis/Visualization

1. Graph histograms of your data with appropriate labels.

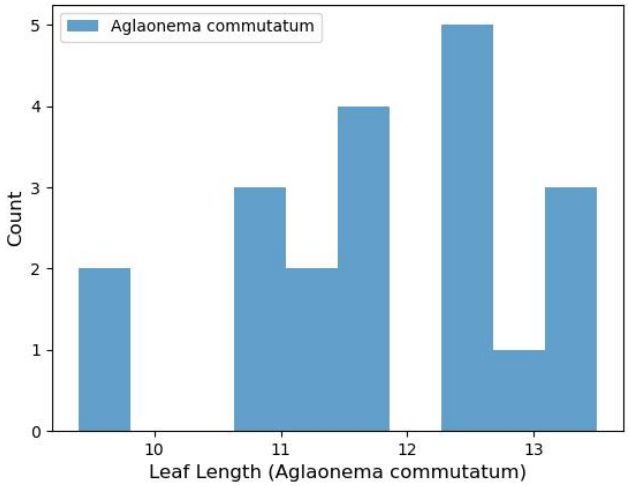




variance=0.2424, mean=4.915, median=4.9, and standard deviation=0.4923

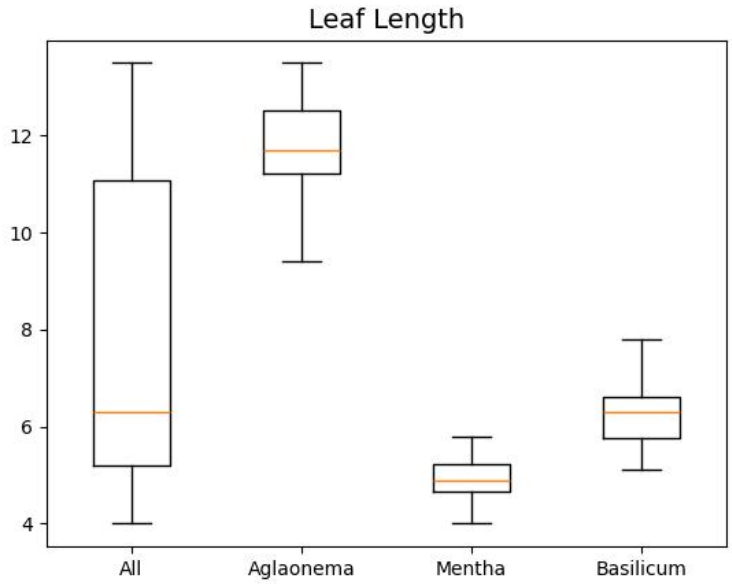


variance=0.4588, mean=6.31, median=6.3, and standard deviation=0.6774

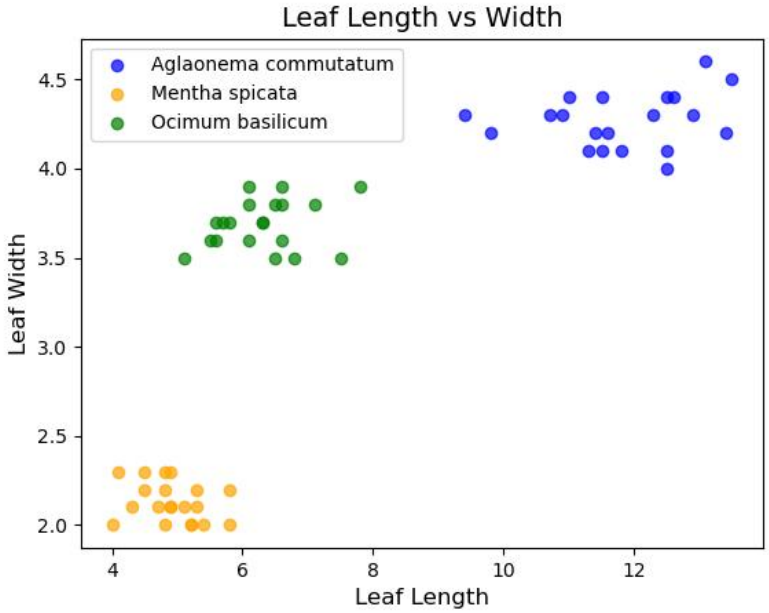


variance=1.2504, mean=11.81, median=11.7, and standard deviation=1.1182

2. Graph boxplots of your data with appropriate labels.



3. Graph a scatter plot of your entire data set with each subset different color and a ledger.



4. Explain each graph in terms of variance, mean, median, and standard deviation.

- Mentha spicata：

variance=0.2424, mean=4.915, median=4.9, and standard deviation=0.4923

- Ocimum basilicum

variance=0.4588, mean=6.31, median=6.3, and standard deviation=0.6774

- Aglaonema commutatum

variance=1.2504, mean=11.81, median=11.7, and standard deviation=1.1182

5. What can you infer with data and graphs that you have?

The data shows that Aglaonema commutatum has the longest and most varied leaves, while Mentha spicata has the shortest and most consistent leaf lengths.