Math 123-01
Fall 2025
Dr. Lily Yen

Assignment 6

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Problem 1: Below is a stem-and-leaf plot of a sample data set of ages of volunteers in CapU's Jazz Festival. Answer the following questions. Remember to include units when applicable.

1	7 8 8 9
2	3 4 4 6
3	2 5 5 5
4	8
5	1 5 8
6	2 3 3 9

a. How many volunteers were sampled?

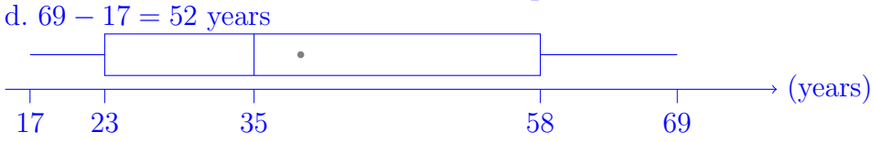
b. Find the median.

c. Find the mode(s).

d. Find the range.

e. Draw a boxplot for the data; clearly label the first, second, and third quartiles.

a. $n = 20$ volunteers; b. the median is $\frac{35+35}{2} = 35$ years; c. the mode is $\{35\}$ years, and d. $69 - 17 = 52$ years



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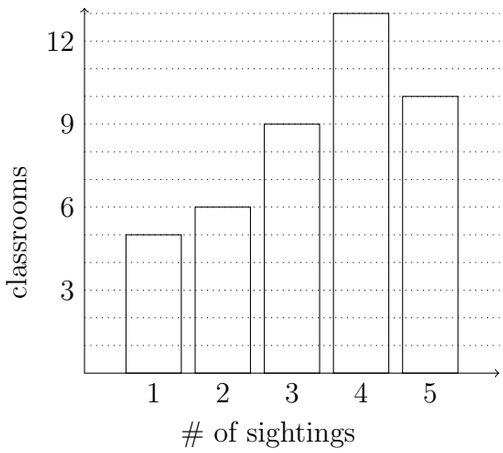
Problem 2: The bar graph shown is a summary of a survey of the number of sightings of mouse droppings (on the horizontal axis) from a sample of classrooms at CapU's North Vancouver campus in the Fall semester. Answer the following questions. Remember to include units when applicable.



a. Find the number (n) of classrooms surveyed.

b. Find the average number of sightings per classroom in the sample.

c. Find the variance and the standard deviation of the sample data.

a. The number of classrooms surveyed is $n = 5 + 6 + 9 + 13 + 10 = 43$ students.

b. The average number of sightings is
$(5 \times 1 + 6 \times 2 + 9 \times 3 + 13 \times 4 + 10 \times 5)/43 = 146/43 \approx 3.4$ sightings per classroom.

c. The variance is

$$\frac{5 \times (1 - \frac{146}{43})^2 + 6 \times (2 - \frac{146}{43})^2 + 9 \times (3 - \frac{146}{43})^2 + 13 \times (4 - \frac{146}{43})^2)^2 + 10 \times (5 - \frac{146}{43})^2}{43} \approx 1.681 \approx 1.7$$

so the standard deviation is $\sqrt{1.681} \approx 1.296$, or 1.3 sightings per classroom.

Score: /5

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If you used sample variance and deviation formula to get $s^2 \approx 1.7$ and $s \approx 1.3$ sightings per classroom, that is OK, too.