15 problems based on Descriptive Stats: 30 mins



Introduction to Statistics

1. Problem:

A researcher collects the following data on the heights (in cm) of a sample of five plants:

120, 125, 130, 135, 140 .

Classify the type of data as:

a) Structured b) unstructured

c) Numerical d) categorical

Answer: c

2. Problem:

A survey records the following data for 10 individuals: their age, favorite color, and hours

spent on social media per day.

Identify the types of data for:

a) Age

b) Favorite color

c) Hours spent on social media

Answer:

a) Numerical

b) Categorical

c) Numerical



Measures of Central Tendency

3. Problem:

Calculate the mean, median, and mode for the dataset:

3, 7, 7, 10, 15, 20

Answer:

Mean = 10.33

Median = 8.5

Mode = 7

4. Problem:

The weights (in kg) of five parcels are: 12, 15, 18, 21, 25 .

Add an outlier weight of 50 . How does this affect the mean and median?

Answer:

Original mean= 19/5 = 18.2 , New Mean= 141/6 = 23.5

Original Median = 18, New Median= (18+21)/2= 19.5



Measures of Dispersion

5. Problem:

Find the range and interquartile range (IQR) for the dataset:

5, 10, 15, 20, 25, 30, 35 .

Answer:

Range = 35-5= 30

Q1 = 10, Q3 = 30

IQR= 30-10=20

6. Problem:

A dataset has a standard deviation of . If all values in the dataset are doubled, what is the 5

new standard deviation?

Answer:

New SD= 2x5= 10

7. Problem:

Calculate the coefficient of variation for a dataset with a mean of 50 and a standard

deviation of .

Answer:

CV

(SD/Mean)x100= (5/50)x 100 = 10%



Correlation and Skewness

8. Problem:

|  |  |  |  |
| --- | --- | --- | --- |
| Two variables, X | and Y | , have a correlation coefficient of 0.85 | . Interpret this value. |

Answer:

Strong positive correlation; as X increases, Y increases.

9. Problem:   
A dataset has a positive skew. Which measure of central tendency (mean, median, or mode) is likely the largest?

Answer:

Mean is likely the largest (positive skew = tail to the right)

10. Problem:   
Calculate the Pearson correlation coefficient for the following paired data:

X : 1, 2, 3, 4   
Y : 2, 4, 6, 8

Answer:

R = 1.0



Five Point Summary and Visualization

11. Problem:   
Determine the five-point summary for the dataset: 5, 8, 12, 14, 18, 20, 24 .

Answer:

Min= 5

Q! = 8

Median = 14

Q3= 20

Max = 24

12. Problem:   
A box plot shows the median closer to Q1, with a long tail extending to the right. What does this indicate about the dataset's skewness?

Answer:

Positive skew

13. Problem:   
Construct a histogram for the following dataset: 2, 2, 3, 3, 3, 4, 5, 6, 6, 7 .

Suggest appropriate bin sizes.

Suggested bin size= 1 or 20

Bins-

2-3 high

4-5 medium

6-7 medium



Application Problems

14. Problem:   
A factory measures daily production output (units): 200, 210, 190, 220, 230, 240, 205 .

Find the standard deviation.

Answer:

Mean = 213.57

SD ~ 17.08

15. Problem:   
 You are analyzing sales data for two products.

Product A: Mean sales = 100 , Standard deviation = 20 , Standard deviation = 30 Product B: Mean sales = 150   
Which product has higher relative variability?

Answer:

CV for A= (20/100)x100 = 20%

CV for B = (30/150)x100 = 20%

Both have same relative variability which is 20%

