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Batch: **Data Analytics Dec Live Batch**

Assignment: **Descriptive Statistics**

Assignment

Question 1: Understanding Central Tendency (Easy)

A bakery tracks the daily sales of muffins (in dozens) over a week: [10, 12, 11, 15, 14, 13, 12].

What is the most representative value of their weekly sales, and why?

Answer:

$$(10+12+11+15+14+13+12) \% 7 = \mathbf{12.43}$$

The most representative value is about 12 dozen muffins per day, because mean shows the typical daily sales.

Question 2: Mean in Real Life (Easy)

A teacher records the marks of her students in a short quiz: [12, 15, 14, 16, 18, 20, 19].

What is the mean score, and what does it tell us about the class's performance?

Answer:

$$(12+15+14+16+18+20+19) \% 7 = \mathbf{16.3}$$

The average score is about 16 marks.

Question 3: Mode in Real Life (Easy)

A store records the shoe sizes sold in one day: [7, 8, 9, 8, 8, 10, 7, 9].

What is the mode, and why is this information useful for the store manager?

Answer:

Mode = 8 because it appears most

The store should **stock more size 8 shoes** because customers buy them the most.

Question 4: Median in Real Life (Medium)

A car dealer notes the prices of used cars: [\$8,000, \$9,500, \$10,200, \$11,000, \$50,000].

Why is the median a better measure than the mean in this case?

Calculate the median.

Answer:

Median (middle value):

= **\$10,200**

Median is better than mean because

- \$50,000 is an extreme value.
- Mean would be misleading.
- Median shows a typical car price.

Question 5: Dispersion Introduction (Medium)

A student times how long it takes to finish a puzzle each day: [25, 30, 27, 35, 40].

What does the range tell us about the variation in the student's puzzle-solving time?

Answer:

Range: $40 - 25 = \text{15}$

- The student's time varies by **15 minutes**.
- Shows inconsistency in performance.

Question 6: Range in Action (Medium)

A farmer records the weekly weight of harvested apples (kg): [100, 105, 98, 110, 120].

Find the range. How can this help the farmer in planning his packaging?

Answer:

Range: Maximum value – Minimum value

$120 - 98 = \text{22 Kg}$

- Helps farmers plan **flexible packaging sizes**.
- Shows how much harvest quantity can change.

Question 7: Variance for Decision-Making (Medium)

Two delivery companies track delivery delays (in minutes). Company A: variance = 6 Company B: variance = 15

Which company is more consistent, and why?

Answer:

Company A is more consistent.

Because Lower variance means less fluctuation in delays.

Question 8: Standard Deviation in Context (Hard)

A finance student compares the daily price fluctuations of two cryptocurrencies. Coin A: standard deviation = \$30 Coin B: standard deviation = \$120

Which coin is riskier to invest in, and why?

Answer:

Coin B is riskier.

Higher standard deviation means higher price fluctuation.

Question 9: Combining Measures (Hard)

A family records their monthly electricity usage (in kWh): [400, 420, 390, 450, 410].

Find the mean and standard deviation. What do these values together tell you about the family's energy use pattern?

Answer:

Mean: $(400+420+390+450+410) \div 5 = \mathbf{414}$ kWh

Standard Deviation: $\sim \mathbf{21}$ kWh

Low SD shows stable monthly consumption.

Question 10: Practical Application (Hard)

A basketball player's points in 8 games are recorded: [15, 18, 20, 22, 25, 17, 19, 21].

Find the mean, median, mode, range, and standard deviation. What insights can these measures provide about the player's scoring performance?

Answer:

- **Mean:** $157 \div 8 = 19.6$
- **Median:** $(19 + 20) \div 2 = 19.5$
- **Mode:**
No mode (all values unique)
- **Range:** $25 - 15 = 10$
- **Standard Deviation:**
 ≈ 3.2

Player scores **around 20 points regularly**

Low variation shows **consistent performance**

No extreme highs or lows