Descriptive Statistics Assignment

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Assignment Name: Descriptive Statistics Assignment

Excel sheet in GitHub Link: - CODE

Q1: 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?

<=   Data - 10,12,11,15,14,13,12

Most representative value= mean

Mean= (10+12+11+15+14+13+12) \7

=87\7 = 12.42 dozens

And mean is the hole of the week average vale represent.

Q2: 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?

<=   Data – 12,15,14,16,18,20,19

Mean = (12+15+14+16+18+20+19) \7

=114\7 = 16.28 score

Average score is 16.28 so, class performance is good.

Q3: 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?

<=   Data – 7,8,9,8,8,10,7,9

Mode = 8 (max repeated)

This information useful for the store manager because sell of size 8 is max so, store manager size 8 stock max.

Q4: 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.

<=   Data – 8000,9500,10200,11000,50000

Last value is 50000 max value so mean vale not accurate calculate so median is better.

Median = 10200

Q5: 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?

<=   Data – 25,30,27,35,40

Range = 40-25 = 15 minutes

Puzzle variation medium level.

Q6: 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?

<=   Data – 100,105,98,110,120

Range = 120-98= 22kg

The farmer will understand how much the apple weight varies, which will helps him decide the size of the packaging boxes.

Q7: 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?

<= Lower variance – more consistent

Company A is more consistent

Q8: 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?

<=   Higher standard deviation = max upper price – down = high risk

Coin B is high risky.

Q9: 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?

<=   Data – 400,420,390,450,410

Mean – (400+420+390+450+410) \5

= 2070\5 = 414 kwh

Standard deviation (SD)-

 (400-414)2 = (-14)2= 196

(420-414)2 = (6)2 = 36

(390-414)2 = (-24)2 = 576

(450-414)2 = (36)2 = 1296

(410-414)2 = (-4)2 = 16

Sum = 196+36+576+1296+16 = 2120

Variance = 2120\5 = 424

SD = 20.59

Family pattern is stable.

Q10: 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?

<=   Data – 15,18,20,22,25,17,19,21

Mean = (15+18+20+22+25+17+19+21) \8

=157\8 = 19.62

Sorted data – 15,17,18,19,20,21,22,25

Middle two – (19+20) \2 = 19.5 Median

Mode – any no not repeated so no mode in this data.

Range = 25-15 = 10

Standard deviation = 3.22

Players performance –

Mean = 19.6 – average score 20 point approx.

Median =19.5 – consistent scoring

Range =10 -score is not fluctuate max

SD = 3.22 – stable, predictable scorer

No mode = different score in every match.