QUARTILE DEVIATION: UNDERSTANDING SPREAD IN DATA DISTRIBUTION

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INTRODUCTION

❑ Welcome to the presentation on quartile deviation and its significance in measuring the spread of data.

❑ Quartile deviation is a statistical measure that provides insights into the spread of values in a dataset.

❑ In this presentation, we will explore the definition, calculation, interpretation, and practical applications of quartile deviation.

DEFINITION OF QUARTILE DEVIATION

❑Quartile deviation is a measure of dispersion that quantifies the spread between the upper quartile (Q3) and the lower quartile (Q1) in a dataset.

❑It indicates the range within which the middle 50% of the data lies.

CALCULATION OF QUARTILE DEVIATION

❑To calculate the quartile deviation:

❑Arrange the dataset in ascending order.

❑Calculate the value of Q3, which represents the 75th percentile.

❑Calculate the value of Q1, which represents the 25th percentile.

❑Subtract Q1 from Q3 to obtain the quartile deviation.

INTERPRETATION OF QUARTILE DEVIATION

❑Quartile deviation measures the dispersion of values within the middle 50% of the dataset.

❑A smaller quartile deviation indicates a more concentrated or narrower spread of values.

❑A larger quartile deviation indicates a more dispersed or wider spread of values.

PRACTICAL APPLICATIONS OF QUARTILE DEVIATION

- Quartile deviation is used in various fields, including:

☐ **Descriptive statistics:** Summarizing the spread of data within the interquartile range.

☐ **Outlier detection:** Identifying potential extreme values that fall outside the quartile range.

☐ **Comparative analysis:** Comparing the spread of data across different groups or datasets.

☐ **Data exploration:** Assessing the variability and distributional characteristics of a dataset.

QUARTILES AND THE BOX PLOT

❑Quartiles, including Q1, Q2 (median), and Q3, are commonly used in constructing box plots.

❑The box plot provides a visual representation of the quartiles and other important statistical measures.

LIMITATIONS OF QUARTILE DEVIATION

❏Quartile deviation provides limited information about the spread beyond the middle 50% of the dataset.

❏It is less sensitive to extreme values compared to measures like standard deviation.

❏Quartile deviation does not capture information about the shape or specific characteristics of the distribution.

CONCLUSION

❑Quartile deviation is a useful measure for assessing the spread of values within the interquartile range.

❑It provides insights into the concentration or dispersion of data in the middle 50% of a dataset.

❑Understanding the calculation and interpretation of quartile deviation enhances accurate data analysis and decision-making.

THANK YOU