PES University, Bangalore

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UE19CS203 – STATISTICS FOR DATA SCIENCE

Unit-1 - Introduction to Data Science

QUESTION BANK – SOLVED

Statistics

Exercises for Section 1.2 [Text Book Exercise– Pg. No. [23 – 25]]

1. **What are the types of Descriptive Statistics?**

   [Other Sources]

   Solution:
   Descriptive statistics allow you to characterize your data based on its properties. There are four major types of descriptive statistics:

   1. Measures of Frequency:

   * Count, Percent, Frequency

   * Shows how often something occurs

   * Use this when you want to show how often a response is given

   2. Measures of Central Tendency

   * Mean, Median, and Mode

   * Locates the distribution by various *points*

   * Use this when you want to show how an average or most commonly indicated response

   3. Measures of Dispersion or Variation

   * Range, Variance, Standard Deviation

* Identifies the spread of scores by stating intervals

* Range = High/Low points

* Variance or Standard Deviation = difference between observed score and mean

* Use this when you want to show how "spread out" the data are. It is helpful to know when your data are so spread out that it affects the mean

4. Measures of Position

* Percentile Ranks, Quartile Ranks

* Describes how scores fall in relation to one another. Relies on standardized scores

* Use this when you need to compare scores to a normalized score (e.g., a national norm)

2. **In a sample of 20 men, the mean height was 178 cm. In a sample of 30 women, the mean height was 164 cm. What was the mean height for both groups put together?**

   [Text Book Exercise – Section 1.2 – Q. No.11 – Pg. No. 24]

   Solution:
   The total height of the 20 men is $20 \times 178 = 3560$.

   The total height of the 30 women is $30 \times 164 = 4920$.

   The total height of all 50 people is $3560 + 4920 = 8480$.

   There are $20 + 30 = 50$ people in total.

   Therefore the mean height for both groups put together is $8480/50 = 169.6$ cm.

3. **Find a sample size for which the median will always equal one of the values in the sample.**
   [Text Book Exercise – Section 1.2 – Q. No.4 – Pg. No. 23]

   Solution:
   The sample size can be any odd number.