1. 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?

   A most representative value here is 12 dozen muffins per day. If we sort the data, the median is 12, which represents the central value of the week. The mode is also 12, since it's the most frequently occurring sales figure. There are no extreme outliers, and most values cluster around 12.

2. 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?

   The mean score is approximately 16.3. This represents the average performance of the class on the quiz. It suggests that, overall, students performed fairly well, with most scores being around the mid-to-high teens.

3. 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?

   Mode is 8. Knowing the mode helps the store manager understand which shoe size sells the most. Since size 8 is the most frequently sold. the manager can stock more shoes in size 8 and make better inventory and ordering decisions.

4. 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.

   Median is $10200. The median is better than the mean here. Since the $50,000 car is an outlier (a usually high or low value, this extreme value would pull the mean upward making it seem like used cars are more expensive than they typically are. The median is not affected by outliers, so it better represents the typical used car price.

5. 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?

   Range= Maximum time-minimum time
   40-25=15 minutes.
   A range of 15 minutes means the student's puzzle-solving time can differ by as much as 15 minutes from day to day. This indicates a noticeable amount of variation in how long the student takes to finish the puzzle.

6. 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?

   Range=Maximum-Minimum
   120-98=22kg
   A range of 22 kg shows how much the weekly apple harvest can vary. This helps the farmer:
   Plan flexible packaging amounts
   Ensure enough boxes or crates are available during higher-yield weeks
   Avoid shortages or excess packaging when harvest amounts change

7. Two delivery companies track delivery delays (in minutes).
   Company A: variance = 6
   Company B: variance = 15
   Which company is more consistent, and why?

   Company A is more consistent because a smaller variance means the delivery times are closer to the average and less spread out.

8. 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?

   Coin B is riskier to invest in because a larger standard deviation means greater price volatility and less predictability.

9. 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?

   Mean= Total/Count
   2070/5=414 kWh
   Standard Deviation = 20.6 kWh
   Together, these values indicate that the family's energy use is fairly consistent, with only moderate month-to-month variation and no extreme spikes or drops in electricity usage.

10. 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?

    Mean= Total/Count
    157/8=19.6 points

    Ordered 15,17,18,19,20,21,22,25
    Median = Middle of two values/2
    19+20/2=19.5

    Mode
    There is no mode since no score repeats

    Range= Maximum-Minimum
    25-15=10

    Standard Deviation = 2.9 Points
    The player shows steady and reliable scoring performance, with moderate variation and no extreme inconsistencies from game to game.