The Interquartile Range (IQR) is a powerful statistical tool in data science used to understand the spread and variability of a dataset.

📊 **What is IQR?**

- **IQR is the range between the first quartile (Q1) and the third quartile (Q3).**
- **Formula: IQR = Q3 − Q1**
- **It captures the middle 50% of the data, excluding the extremes.**

Greater Outlier Formula

A data point is considered a **greater outlier** if:

Value>Q3+1.5×IQR\text{Value} > Q3 + 1.5 \times \text{IQR}

Where:

- **Q3** = Third quartile (75th percentile)
- **IQR** = Interquartile Range = Q3−Q1Q3 - Q1

Explanation

- The IQR measures the spread of the middle 50% of the data.
- By adding **1.5×IQR** to the upper quartile (Q3), we set a threshold beyond which values are unusually high.
- Any value **above this threshold** is flagged as a **greater outlier**.

A data point is considered a **lesser outlier** if:

Value<Q1−1.5×IQR\text{Value} < Q1 - 1.5 \times \text{IQR}

Where:

- **Q1** = First quartile (25th percentile)
- **IQR** = Interquartile Range = Q3−Q1

Explanation

- The IQR measures the spread of the middle 50% of the data.
- By subtracting **1.5×IQR** from the lower quartile (Q1), we set a threshold below which values are unusually low.
- Any value **below this threshold** is flagged as a **lesser outlier**.