Outlier Detection Using IQR (Interquartile Range)

- IQR measures the spread of the middle 50% of the data.

IQR = Q3 – Q1

Q1 (First Quartile) = 25th percentile (lower boundary of the middle 50%)

Q3 (Third Quartile) = 75th percentile (upper boundary of the middle 50%)

Lower Bound = Q1 – 1.5×IQR

Upper Bound = Q3 + 1.5×IQR

Any value smaller than the lower bound or greater than the upper bound is considered an outlier

Example

[10,20,22,24,25,28,30,50]

1. Arrange the data in ascending order: [10, 20, 22, 24, 25, 28, 30, 50]
2. Q1 is the 25th percentile (median of the first half)

$$Q1 = 21$$

3. Q3 is the 75th percentile (median of the second half)

$$Q3 = 29$$

$$IQR = Q3-Q1 = 8$$

$$\text{Lower Bound} = Q1 - 1.5 \times IQR = 9$$

$$\text{Upper Bound} = Q3 + 1.5 \times IQR = 41$$