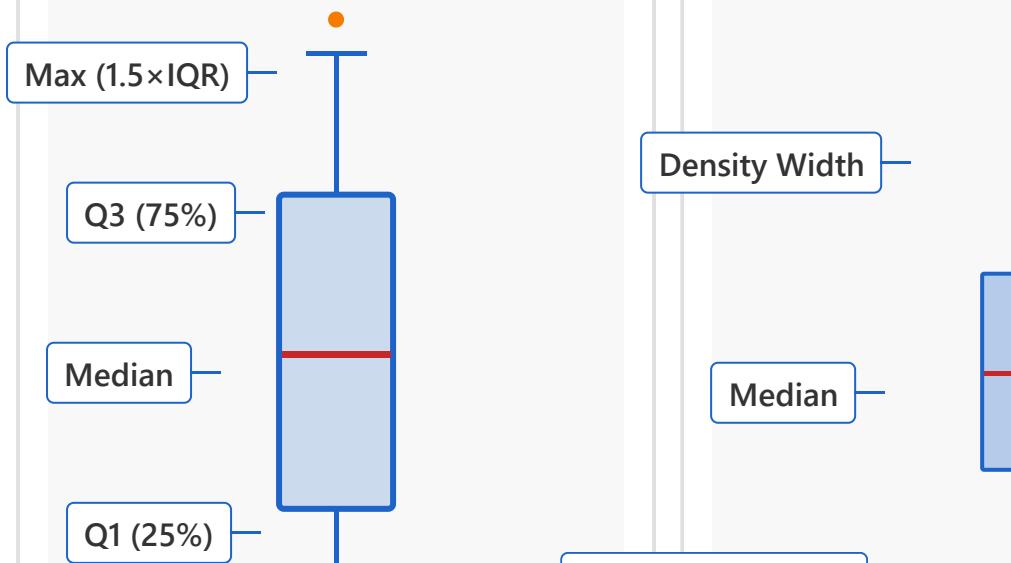


Distribution Comparison: Boxplot & Violin Plot

Anatomy and Components of Distribution Visualizations

Boxplot Anatomy



Violin Plot Anatomy

Density Width

Median



Key Features

- Boxplot shows 5-number summary
- Violin reveals full distribution
- $IQR = Q3 - Q1$
- Width = density at each value

Whisker Formula

Upper: $Q3 + 1.5 \times IQR$

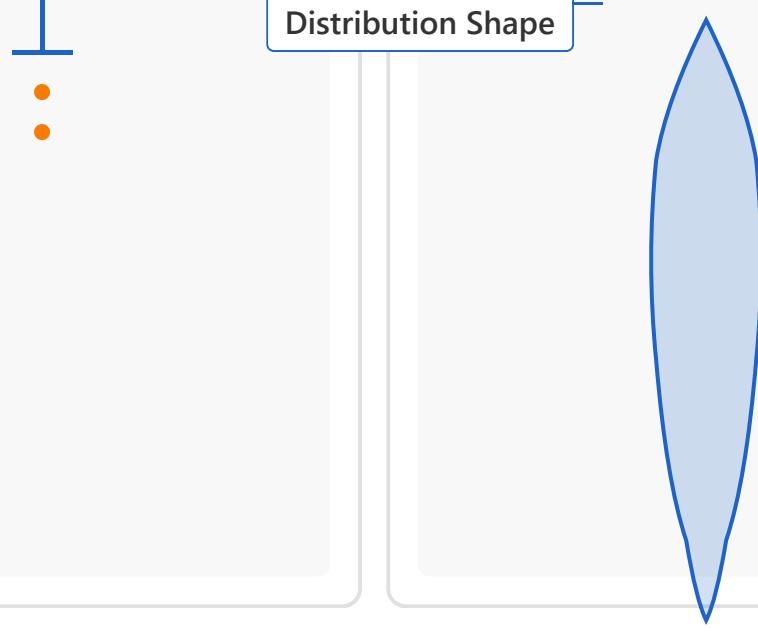
Lower: $Q1 - 1.5 \times IQR$

Comparison

Min ($1.5 \times \text{IQR}$)

Outliers

Distribution Shape



Boxplot: Summary stats

Violin: Full shape + KDE

When to Use

- ✓ Comparing groups
- ✓ Identifying outliers
- ✓ Seeing data spread
- ✓ Detecting multimodality