\*\*Robustness\*\* refers to the property of a statistical method to perform well even when the underlying assumptions of the model are violated, particularly when dealing with outliers or non-normality in the data. A robust method is one that provides reliable estimates that are not heavily influenced by a small number of atypical observations. For example, in the context of regression analysis, the \*\*Least Absolute Deviation (LAD) regression\*\* or \*\*Median Regression\*\* is robust because it minimizes the sum of absolute errors rather than the sum of squared errors, which makes it less sensitive to outliers compared to Ordinary Least Squares (OLS) regression.

\*\*Resistance\*\*, on the other hand, refers to the ability of a statistical procedure to produce reliable results even when a portion of the data is contaminated or erroneous. A resistant method is designed to minimize the impact of outliers or leverage points by either excluding them or reducing their influence. An example of a resistant method from our studies is the \*\*Trimmed Mean\*\*. For instance, when calculating a 10% trimmed mean, we remove the lowest and highest 10% of the data points before computing the mean. This reduces the effect of extreme values, making the estimate more resistant to outliers. In the context of regression, the \*\*Least Median of Squares (LMS) regression\*\* is also resistant because it focuses on minimizing the median of the squared residuals, which inherently reduces the influence of outliers since the median is less affected by extreme values than the mean.

In summary, while robustness deals with maintaining performance under model misspecification, resistance focuses on the procedure's ability to handle data contamination by minimizing the influence of outliers or errors. Both LAD regression exemplifies robustness, and the trimmed mean exemplifies resistance in statistical methods we've studied.