Data Analysis in Excel

Aggregate function: A function that operates over an entire column or range to return a single summary value (for example SUM, AVERAGE, or COUNT)

AVERAGEIF / AVERAGEIFS: Excel functions that compute the average of values that meet a single criterion (AVERAGEIF) or multiple criteria across ranges (AVERAGEIFS)

Calculated Field: A custom field created within a PivotTable that uses a formula referencing other PivotTable fields to compute values that are not directly present in the source data

Confidence Interval: A range defined by a lower and upper bound around a forecasted value that quantifies the uncertainty of the prediction and is associated with a chosen probability level (e.g., 95% confidence).

COUNTIF / COUNTIFS: Excel functions that count the number of cells that satisfy a single condition (COUNTIF) or multiple conditions across one or more ranges (COUNTIFS)

Custom Grouping (PivotTable): The process of combining selected PivotTable row or column items into user-defined categories (for example grouping countries into continents) to simplify analysis and comparisons

Data Table (What-If Data Table): An Excel feature that computes and displays outputs for a series of input values arranged in one- or two-dimensional tables, commonly used for sensitivity analysis

Column Quality: A Power Query preview feature that reports the proportion of valid, error, and missing values per column to help detect data quality issues

Event-Driven Architecture: A system design in which agents and services publish and subscribe to events in real time so components can react to changes immediately and maintain shared context

FORECAST.ETS: An Excel function that generates point forecasts for time-series data using exponential triple-smoothing (ETS) and is typically paired with FORECAST.ETS.CONFINT to calculate associated prediction intervals

Goal Seek: An Excel tool that finds the input value required for a formula cell to reach a desired target by iteratively changing a single input cell

IF function: An Excel logical function that tests a condition and returns one value if the condition is true and another value if it is false

IFS function: An Excel function that evaluates multiple logical tests in order and returns the result corresponding to the first true test, simplifying multiple-IF logic but returning an error if no test is true

Mean: The arithmetic average of a set of numbers, calculated by summing the values and dividing by the count of values

Median: The middle value in an ordered list of numbers that separates the higher half from the lower half, used as a measure of central tendency less sensitive to outliers

Nested IF: A technique that places one IF function inside another to evaluate multiple conditional branches sequentially and return different results for each condition

PivotTable: An Excel feature that summarizes, aggregates, and reorganizes large datasets by dragging fields into rows, columns, and values to quickly compute totals, averages, counts, and other metrics

Range: A simple measure of dispersion equal to the difference between the maximum and minimum values in a dataset

Scenario analysis: A type of what-if analysis that compares the outcomes of specific, named sets of input values (scenarios) to evaluate different possible futures or strategies

Sensitivity analysis: A method of systematically varying one or more inputs across a range to observe how the dependent variable responds, often displayed in a table or heatmap to highlight impacts

SUMIF / SUMIFS: Excel functions that sum values in a range that meet a single criterion (SUMIF) or multiple criteria across one or more ranges (SUMIFS)

Summary Statistics: Numeric measures that describe key characteristics of a dataset, such as central tendency and spread, commonly including mean, median, mode, range, and standard deviation

SWITCH function: An Excel function that evaluates a single expression and returns a result that matches one of several specified values, optionally providing a default result if no match is found

What-if analysis: A set of techniques used to explore how changes to input variables affect outputs in a model or spreadsheet, enabling scenario exploration and planning