

# Intermediate Data Modeling in Power BI

**Date Dimension Table:** A dedicated table in a Power BI data model that contains one row per calendar date and attributes such as day, month, quarter, and year, required for time intelligence functions.

**CALENDAR():** A DAX function that generates a continuous table of dates between a specified start and end date, used to create custom date dimension tables.

**Surrogate Key:** A system-generated integer identifier assigned to each row in a dimension table, used as the primary key in a star schema instead of a natural business key.

**Natural Key:** A key derived from real-world business attributes that uniquely identifies a record without a system-generated value.

**Composite Key:** A primary key made up of two or more columns that together uniquely identify a row, used when no single column provides uniqueness.

**Cardinality:** The nature of the relationship between two columns in terms of uniqueness; the three types in Power BI are one-to-many, one-to-one, and many-to-many.

**One-to-Many Relationship:** The most common relationship type in Power BI, where each row in the primary table corresponds to multiple rows in the related table.

**Many-to-Many Relationship:** A relationship type where rows in both tables can match multiple rows in the other, handled in Power BI via bridge tables or bi-directional filtering.

**Cross-filter Direction:** The direction in which filter context propagates between two related tables; options are single-direction and bi-directional.

**Bi-directional Cross-filtering:** A relationship setting that allows filter context to flow in both directions between related tables, enabling more flexible queries at the cost of model complexity.

**Role-Playing Dimension:** A single dimension table that participates in multiple relationships to a fact table, each relationship serving a different analytical purpose.

**USERELATIONSHIP():** A DAX function that activates an inactive relationship between two tables within a specific measure calculation, used in role-playing dimension patterns.

**Star Schema:** A data model design pattern where a central fact table is surrounded by dimension tables connected via one-to-many relationships.

**Fact Table:** A table in a star schema that stores measurable, quantitative business events at a specific grain, such as sales transactions or support tickets.

**Grain:** The level of detail represented by each row in a fact table, defined by the combination of dimension keys present.

**Calculated Column:** A column defined using DAX that is evaluated row by row at model refresh time and stored in memory.

**DirectQuery:** A Power BI storage mode that queries the source database in real time without importing data.

**Import Mode:** A Power BI storage mode that copies data into the model's in-memory engine for fast queries.

**Performance Analyzer:** A Power BI Desktop tool that records the time taken to render each visual and query the data model.