

## Combining Data in Tableau

### ◆ Why Combine Data?

- Real-world data is stored across multiple sources (Excel, CSV, databases, etc.).
  - Business analysis often requires **merged or appended** data from all these sources.
  - Tableau allows data combination using four main methods.
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### ◆ 4 Ways to Combine Data in Tableau:

1. **Joins**
  2. **Relationships**
  3. **Blending**
  4. **Union**
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## Joins

- Combines **tables with common columns**.
- Performed in **physical layer** (Right-click table in logical layer → Open).
- **Requirements:**
  - At least one common column.
  - Matching datatypes for joining columns.

### ✖ Types of Joins:

Type	Description
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<b>Inner Join</b>	Only matching data from both tables.
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<b>Left Join</b>	All data from left table, matched data from right.
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<b>Right Join</b>	All data from right table, matched data from left.
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<b>Full Outer</b>	All data from both tables.
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## Relationships

- More **flexible and efficient** than joins.
- Performed in the **logical layer**.
- Tableau automatically handles aggregation, nulls, and joins.

### Key Concepts:

- **Cardinality** (Row mapping types):
    - One-to-One
    - One-to-Many
    - Many-to-One
    - Many-to-Many
  - **Referential Integrity** (Matching rows in both tables):
    - “All records match” (✓ integrity)
    - “Some records match” (default)
  - **Performance Options** help optimize queries but must be set correctly to avoid data issues.
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### 3 Blending

- Combines data from **multiple sources**.
- Done in **worksheet**, not in data source pane.
- Works like a **left join** by default.



#### Blending Features:

- Data from the **primary source** (blue check) is matched with the **secondary** (orange check).
  - Aggregated data is combined **after** retrieval.
  - Can blend on multiple columns using **Edit Blend Relationship**.
  - Remove NULLs to simulate **inner join**.
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### 4 Union

- Used when **same schema** data is spread across multiple tables (e.g., monthly sales data).
- **Appends** rows (like stacking files).
- **No common column needed**.
- Must be from the **same data source**.
- Cannot union across multiple connections.