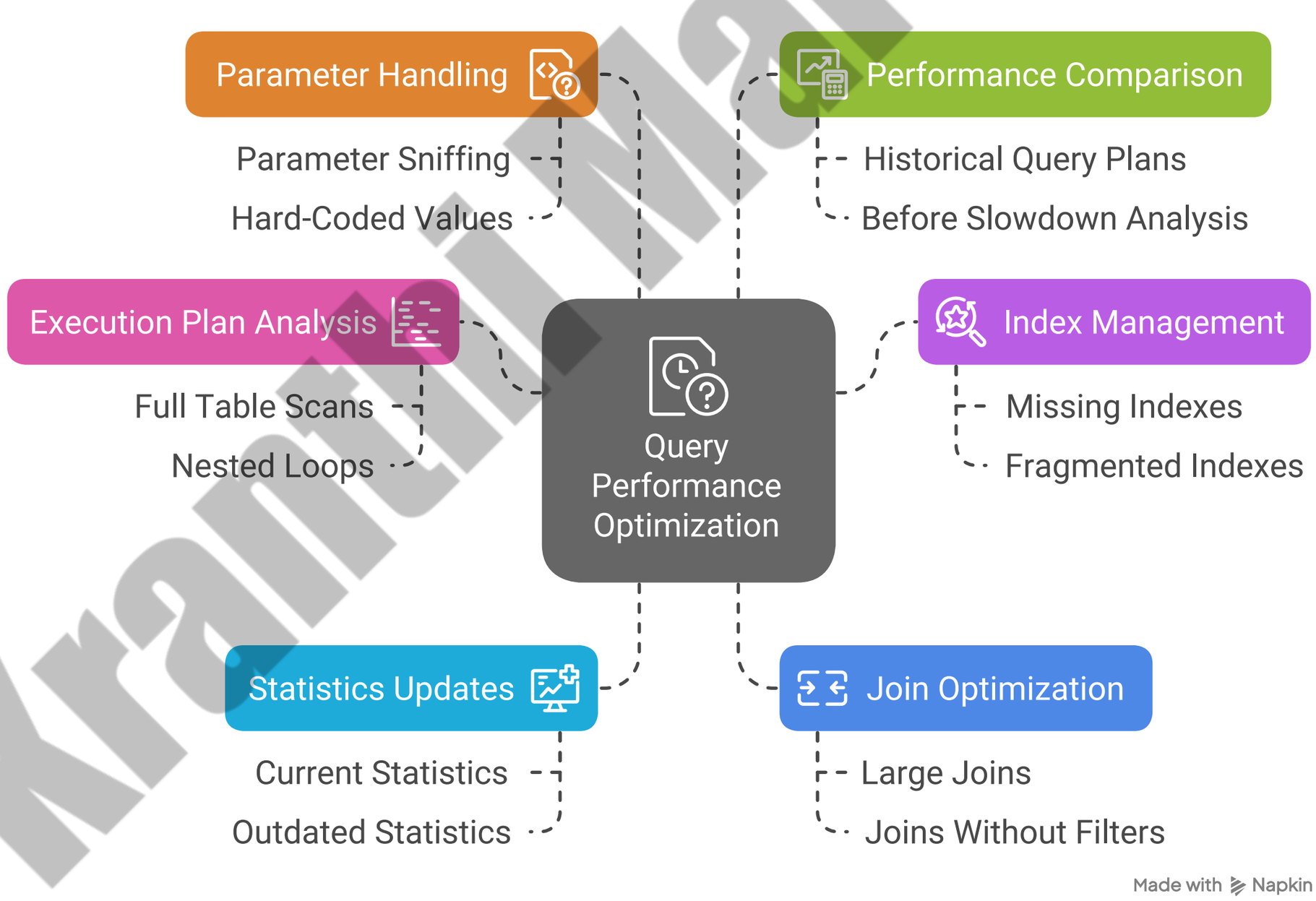
Most Important Power BI & SQL Interview Questions with Expert Answers

Query performance dropped—how would you fix it?

Enhanced Answer:

- Analyze the **execution plan** to find costly operations like full table scans or nested loops.
- Check if indexes are missing or fragmented.
- Review **statistics updates** and ensure they are current.
- Investigate **joins**—maybe large joins without filters are causing the slowdown.
- Look for **parameter sniffing** or hard-coded values.
- Compare query performance before and after the slowdown using historical query plans.

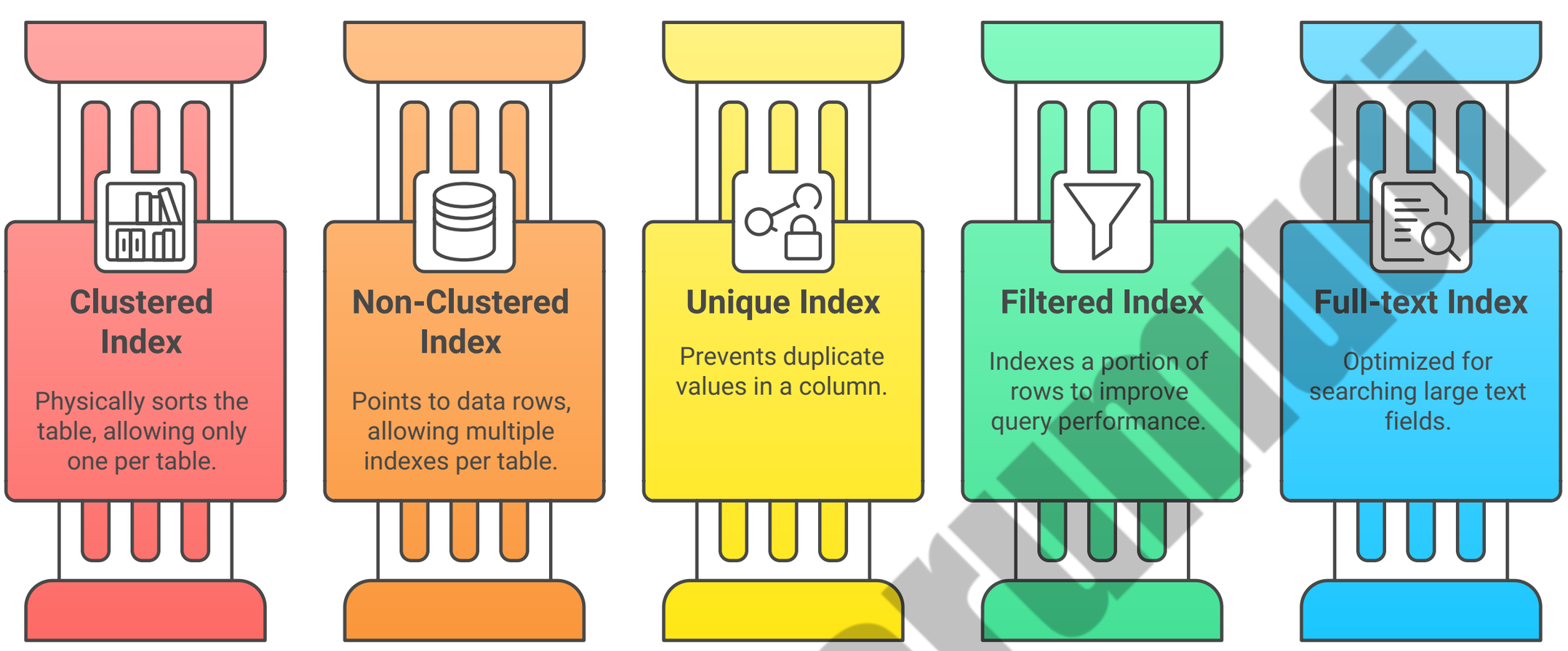


Types of Indexes in SQL:

Enhanced Answer:

- **Clustered Index** – Only one per table, physically sorts the table.
- **Non-Clustered Index** – Points to the data rows; can have multiple.
- **Unique Index** – Prevents duplicate values in the column.

- **Filtered Index** – Indexes only a portion of rows, improving performance for queries using WHERE clauses.
- **Full-text Index** – Used for searching large text fields.
- **XML/Spatial Indexes** – Specialized types for specific data.



DDL, DML, DQL Commands in SQL:

Type	Purpose	Examples
DDL	Define structure	`CREATE`, `ALTER`, `DROP`
DML	Modify data	`INSERT`, `UPDATE`, `DELETE`
DQL	Query data	`SELECT`

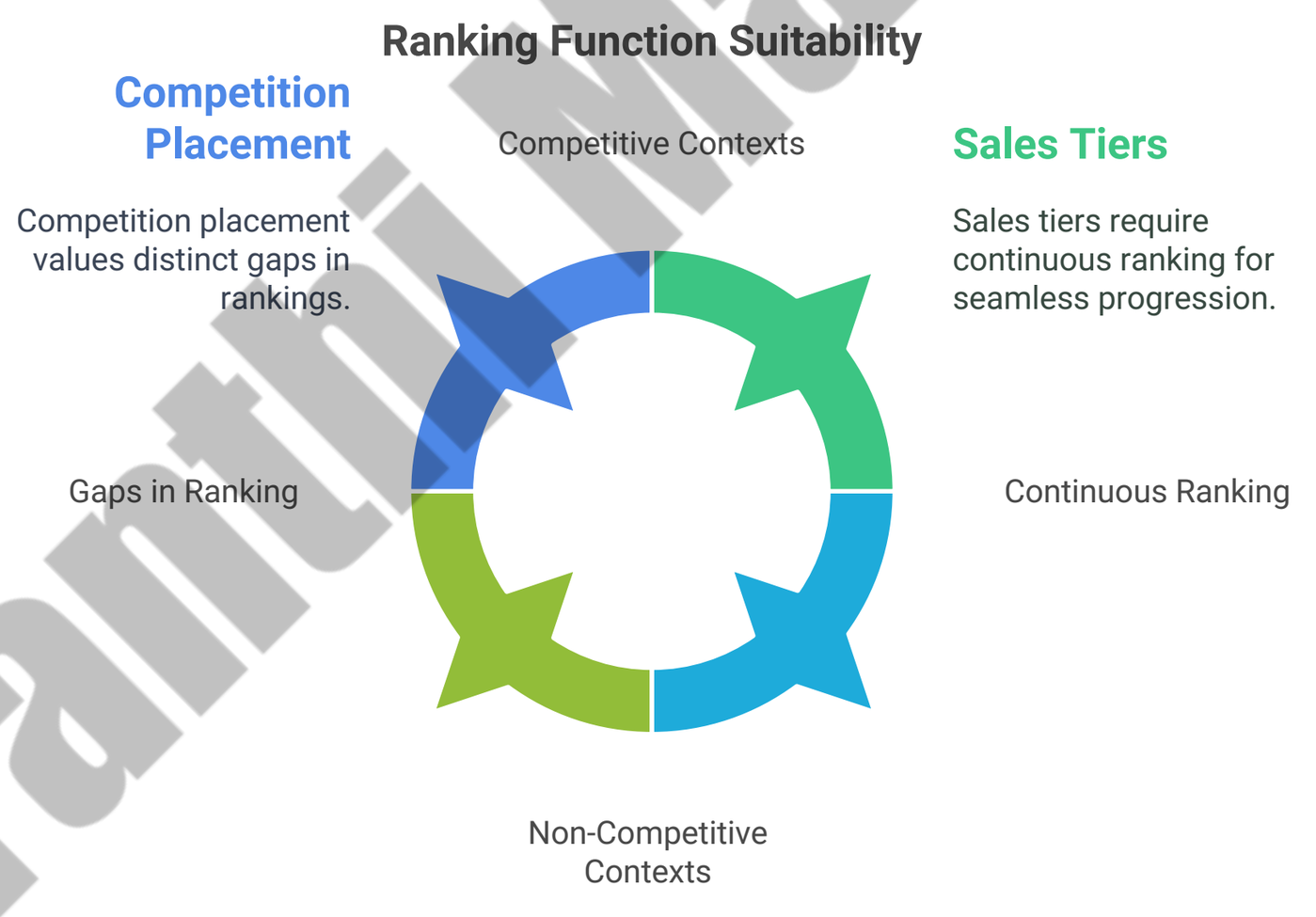
Also, **DCL (Data Control Language)** like `GRANT` and `REVOKE` controls access.

Finding 5th Highest Salary – Alternative:

```
SELECT MIN(Salary)
FROM (
  SELECT DISTINCT TOP 5 Salary
  FROM Employees
  ORDER BY Salary DESC
) AS TopSalaries;
```

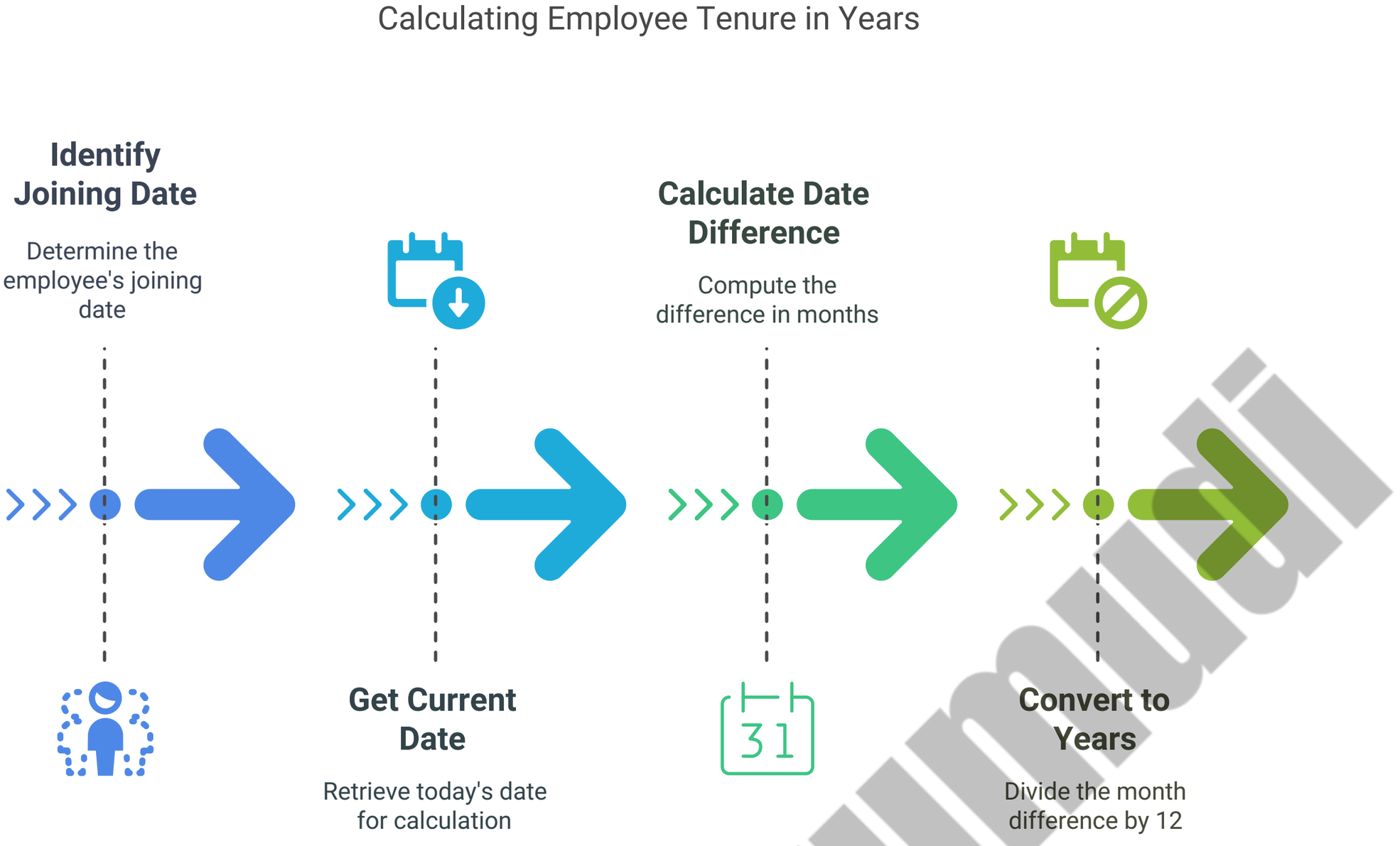
RANK vs DENSE_RANK – Real-time Use Case:

Use **RANK()** when gaps in ranking are meaningful (e.g., competition placement), and **DENSE_RANK()** when you want continuous ranking (e.g., sales tiers).



DAX: Calculate Tenure with Months:

```
Tenure =
DATEDIFF(Employee[JoiningDate], TODAY(), MONTH) / 12.
```

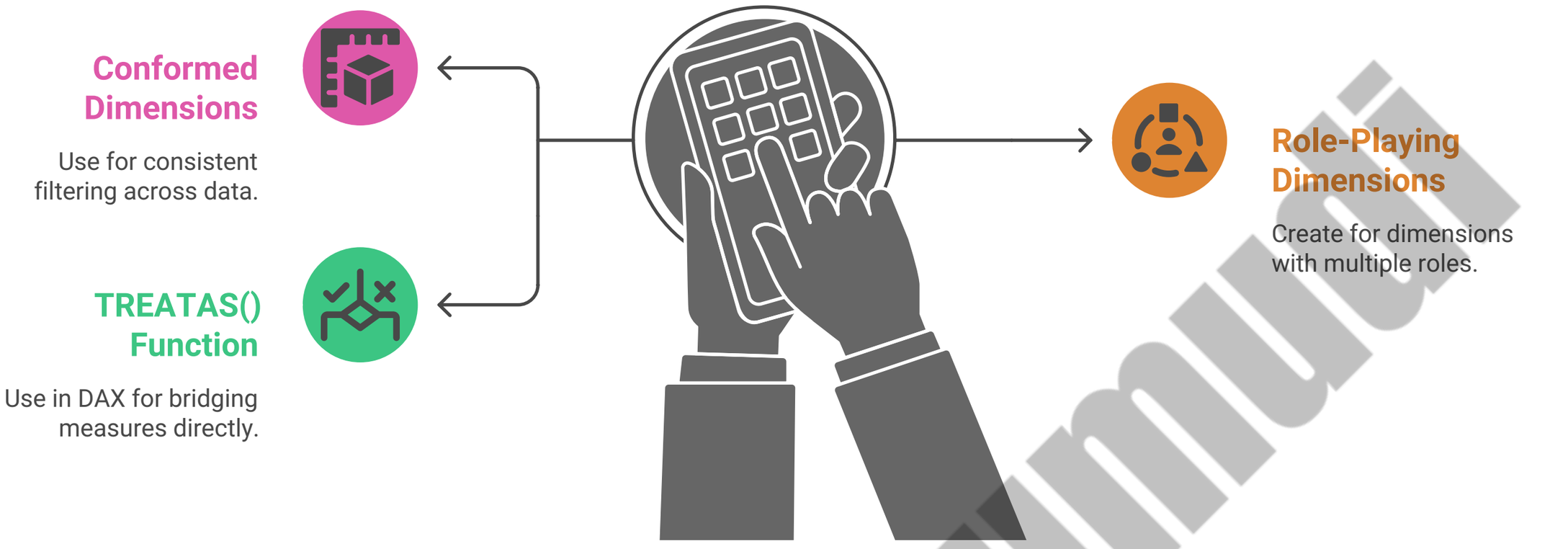


Round it using **ROUND** or **FORMAT** for a cleaner display.

Handling Multiple Fact Tables:

- Use **conformed dimensions** for consistent filtering.
- Create **role-playing dimensions** if the same dimension plays different roles (e.g., Order Date vs Ship Date).
- For direct relationships, use **TREATAS()** in DAX to bridge measures.

Data Dimension Guidelines



Calculated Column vs Measure – Use Case:

- **Use Calculated Column:** for slicers, filters, or grouping.
- **Use Measure:** for dynamic calculations like YTD, % growth, totals.
- Performance-wise, measures are better because they're calculated at query time.

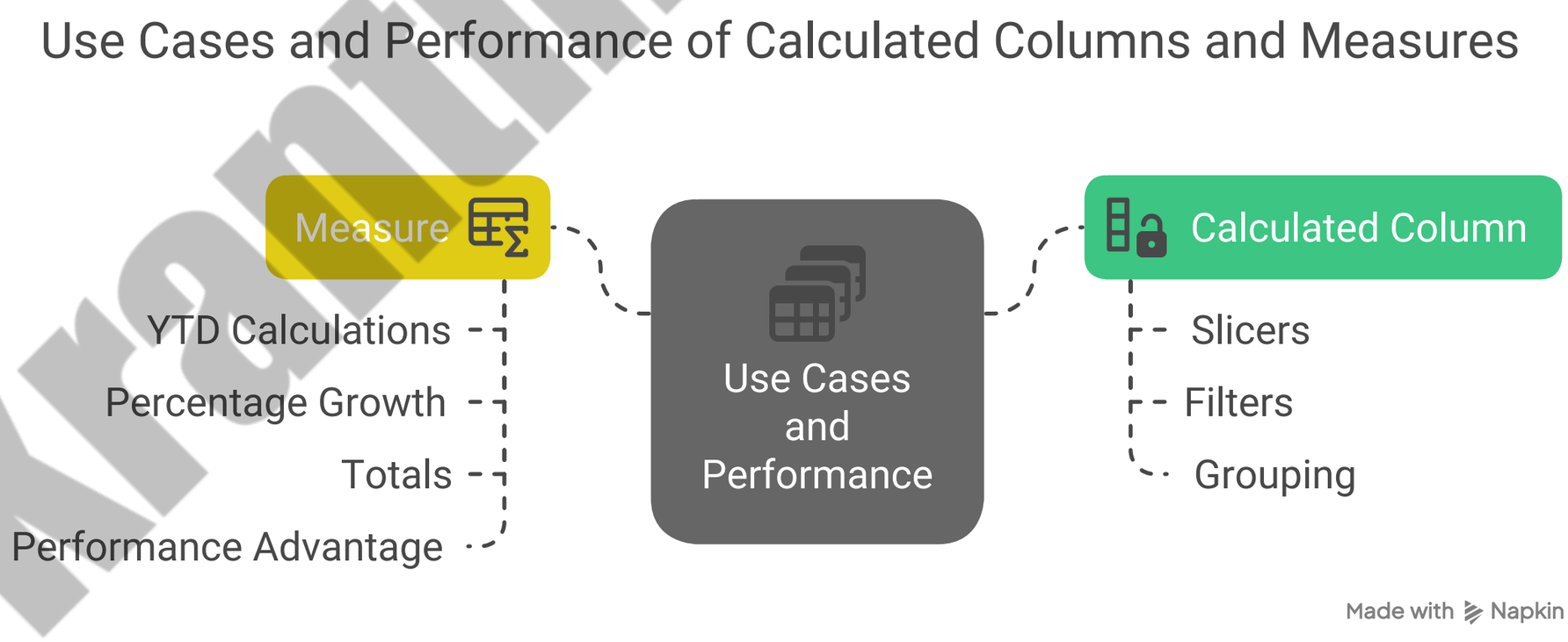


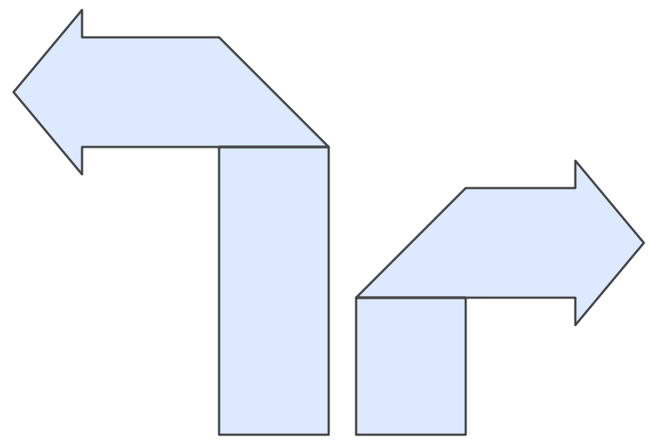
Table vs Matrix – Real-time Example:

- **Table:** Display detailed transaction-level data (e.g., invoice line items).
- **Matrix:** For comparing values across multiple dimensions (e.g., monthly sales by region and product).

Which visualization should be used for the data?

Use Matrix

Best for comparing values across multiple dimensions, such as monthly sales by region and product.



Use Table

Ideal for displaying detailed, transactional data like invoice line items.