

Top 10 Concepts You Must Know in Power BI



Data Modeling Basics

- A model defines how your data tables connect.
- It is the foundation for all your reports.
- Relationships link tables using key columns.
- The most common relationship type is one-to-many.
- Avoid circular relationships to prevent errors.
- A well-structured model ensures accurate calculations.



DAX Formulas Explained

- DAX is the formula language for custom calculations.
- It is used to create measures and columns.
- Understanding filter context is key to mastering DAX.
- Common functions include CALCULATE, SUMX, and RELATED.
- Measures are calculated on the fly during analysis.
- Columns are computed during data refresh.



Power of CALCULATE

- **CALCULATE is the most powerful DAX function.**
- **It modifies the filter context of a calculation.**
- **You can add or remove filters with it.**
- **It is essential for time intelligence calculations.**
- **Often used with functions like ALL or FILTER.**
- **Mastering CALCULATE is a major step in DAX.**



Time Intelligence Functions

- These functions simplify time-based analysis.
- Examples include **TOTALYTD**, **SAMEPERIODLASTYEAR**, and **DATESBETWEEN**.
- They require a properly marked date table.
- Enable easy period-over-period comparisons.
- Calculate running totals, moving averages, and more.
- Crucial for financial and sales reporting.



Row Context vs Filter

- Row context is like a loop through table rows.
- It exists when creating a calculated column.
- Filter context is the set of filters applied.
- It is created by slicers, visuals, and filters.
- CALCULATE can transform row context into filter context.
- Confusing them is a common beginner mistake.



Power Query ETL

- Power Query is the tool for data preparation.
- ETL stands for Extract, Transform, and Load.
- Clean and shape your data before modeling.
- Remove errors, split columns, and pivot data.
- Combine data from multiple sources into one.
- Queries can be reused and scheduled to refresh.



M Language Basics

- M is the language behind Power Query.
- It handles the data transformation steps.
- You can see the M code in the Advanced Editor.
- Custom M code allows for complex transformations.
- Understanding M helps automate data cleaning tasks.
- It is different from the DAX formula language.



Using Measures Correctly

- Measures are for dynamic, aggregated calculations.
- They save memory compared to calculated columns.
- Use them for ratios, sums, and complex logic.
- Always define measures in the fact table.
- They respond to user filters and slicers.
- Improper use can lead to slow reports.



Optimizing Report Performance

- Reduce the number of visuals on a page.
- Limit the use of high-cardinality columns.
- Avoid complex DAX in calculated columns.
- Use summarized tables instead of detailed data.
- Check performance with the Performance Analyzer tool.
- A fast report provides a better user experience.



Putting It All Together

- Start with a clean data model in Power Query.
- Build relationships between your tables.
- Create core measures using DAX for analysis.
- Utilize time intelligence for trend reporting.
- Design intuitive and performant report pages.
- Continuous learning is key to mastering Power BI.



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