Portfolio Project:

Configuring a Semantic Model in Power BI

Project Overview

This project focused on developing a semantic model in Power BI, which involved creating relationships between various tables, configuring their properties, and enhancing the usability of the data model. The goal was to establish a well-structured data model that facilitates effective data analysis and reporting. This project provided hands-on experience in creating hierarchies, quick measures, and managing many-to-many relationships within the Power BI environment.

Objectives:

1. **Create Model Relationships:**
   - Establish relationships between tables to enable data filtering and interaction.
2. **Configure Table and Column Properties:**
   - Enhance the usability of the data model by setting appropriate properties for tables and columns.
3. **Create Hierarchies:**
   - Organize data into hierarchies for better navigation and reporting.
4. **Create Quick Measures:**
   - Utilize quick measures to simplify common calculations like profit and profit margin.
5. **Configure Many-to-Many Relationships:**
   - Manage complex relationships between tables to ensure accurate data representation and analysis.

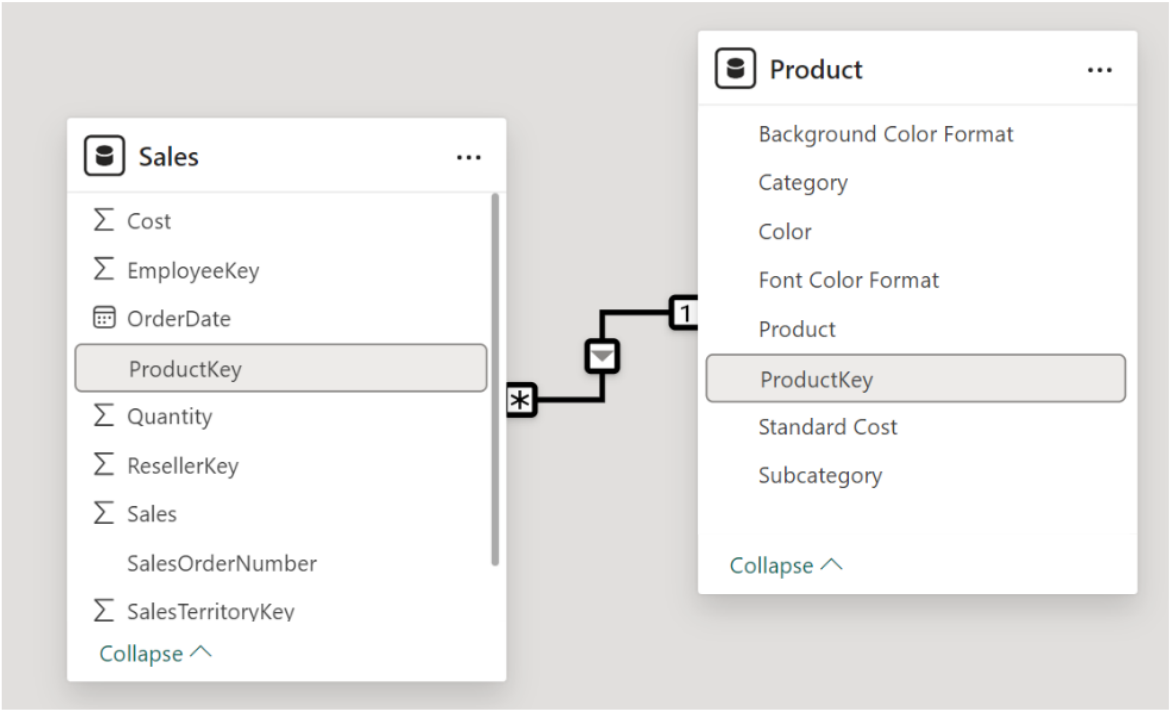
Experience

Data Preparation

- Downloaded the necessary project files from the provided GitHub link.
- Extracted the files to the designated folder on the local machine.
- Opened the 03-Starter-Sales Analysis.pbix file in Power BI Desktop.

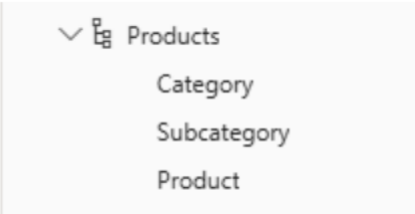
Creating Model Relationships

- Switched Model view and used the Manage Relationships feature to create relationships between the Product and Sales tables.
- Configured properties such as cardinality and cross-filter direction.
- Created additional relationships by dragging and dropping columns in the model diagram.



Configuring the Product Table

- Created a hierarchy named "Products" with levels for Category, Subcategory, and Product.
- Organized columns into a display folder for better structure.

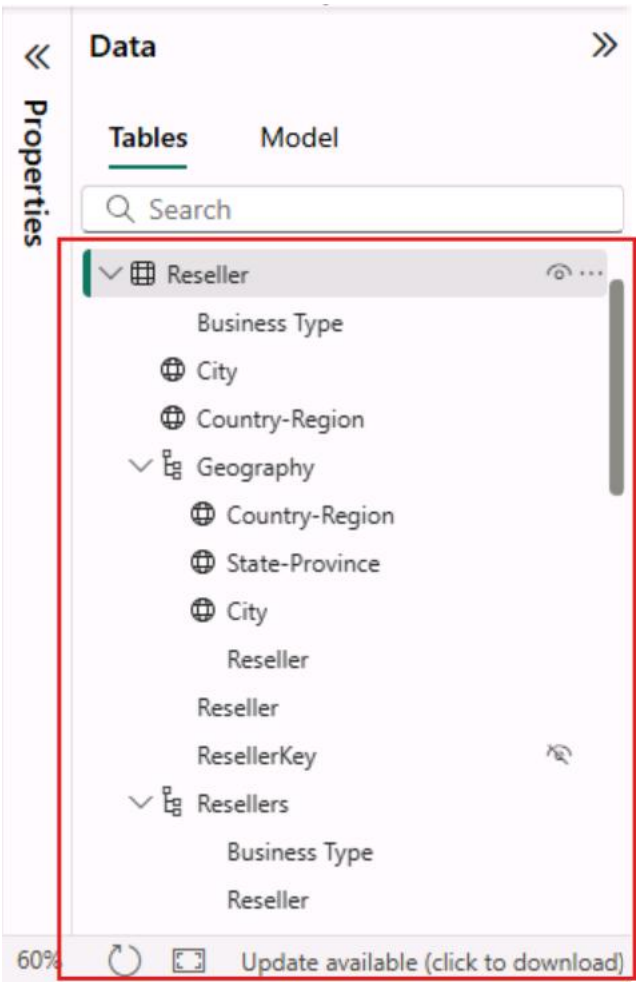


Configuring the Region Table

- Created a hierarchy named "Regions" with levels for Group, Country, and Region.
- Set the data category for the Country column to enhance map visualizations.

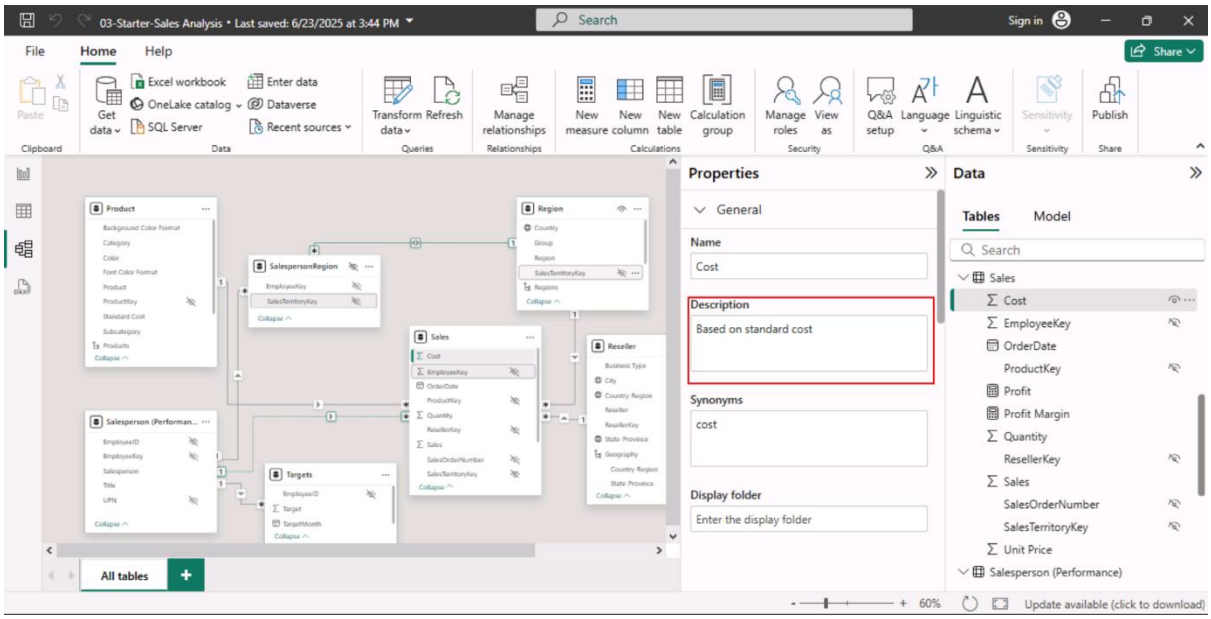
Configuring the Reseller Table

- Created two hierarchies: "Resellers" and "Geography" with appropriate levels.
- Updated data categories for relevant columns.



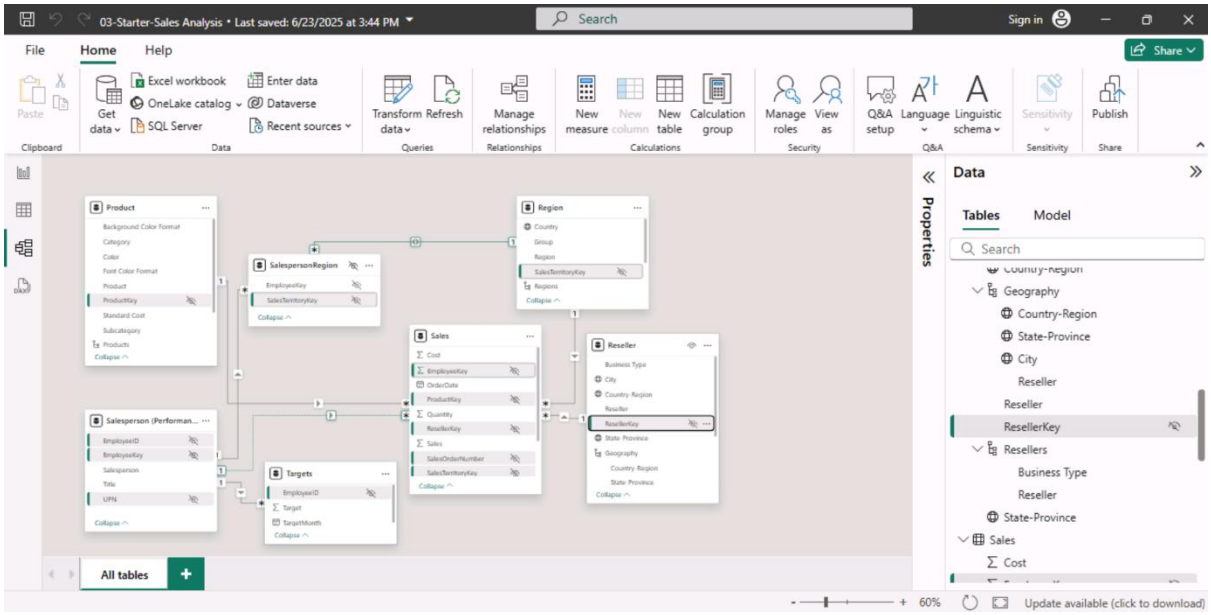
Configuring the Sales Table

- Added descriptions and formatting to key columns.
- Set the default summarization for the Unit Price column to Average.



Bulk Updating Properties

- Used bulk updates to hide unnecessary columns and format multiple columns simultaneously.

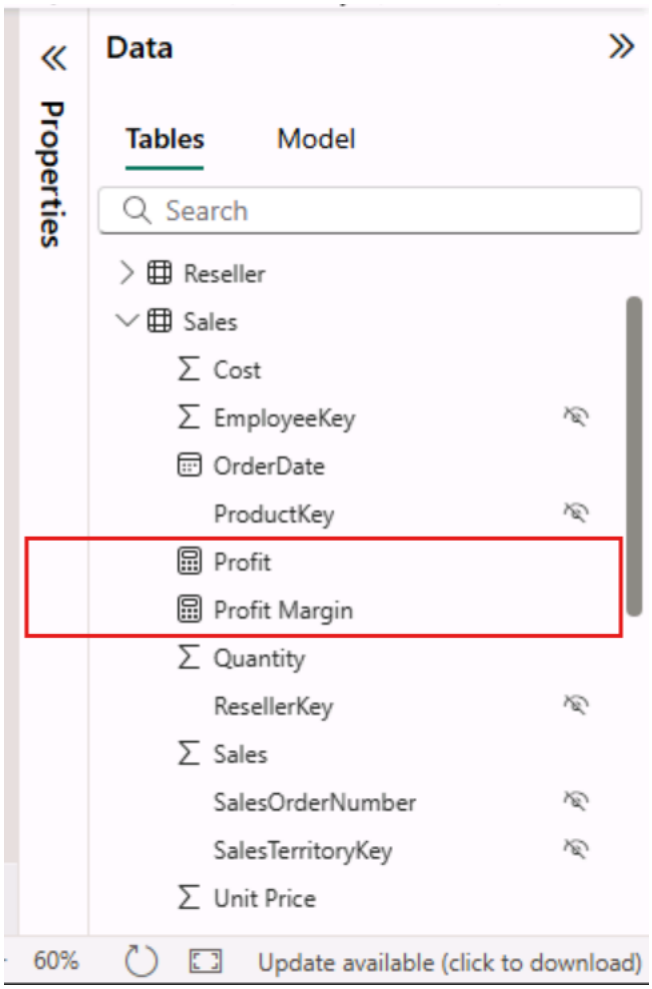


Exploring the Model Interface

- Reviewed the data model interface in Report view and configured the auto date/time setting to prevent incorrect date hierarchies.

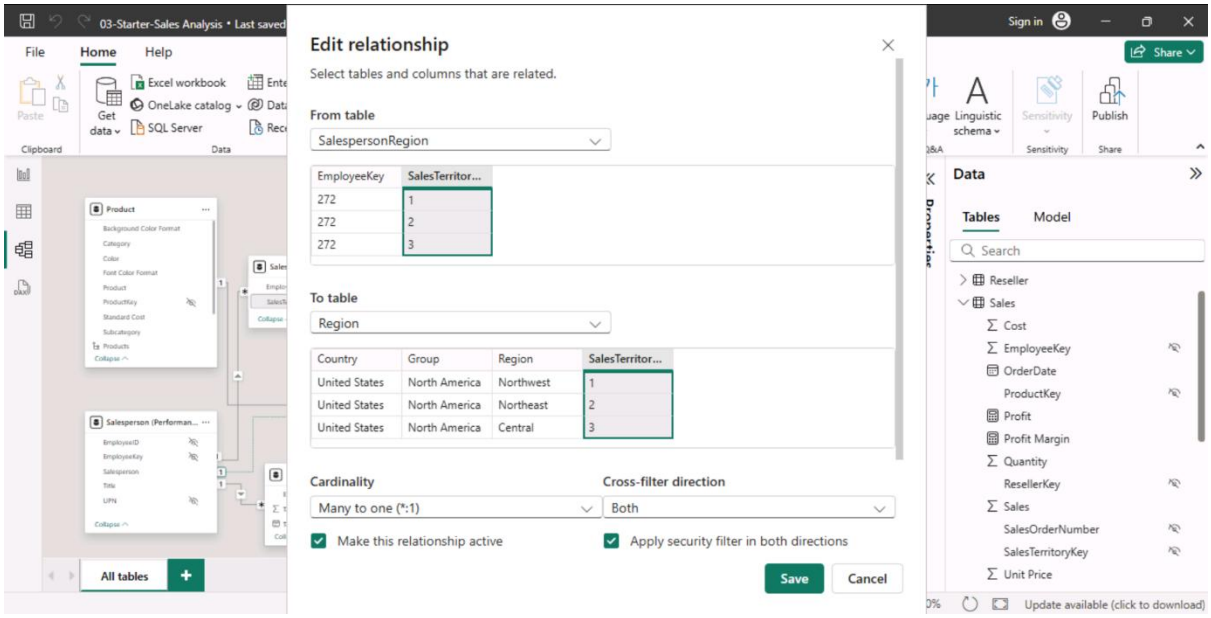
Creating Quick Measures

- Created quick measures for calculating profit and profit margin using the built-in functionality in Power BI.



Creating a Many-to-Many Relationship

- Established a many-to-many relationship between the Salesperson and Sales tables using a bridging table.
- Adjusted relationship properties to ensure proper filter propagation.



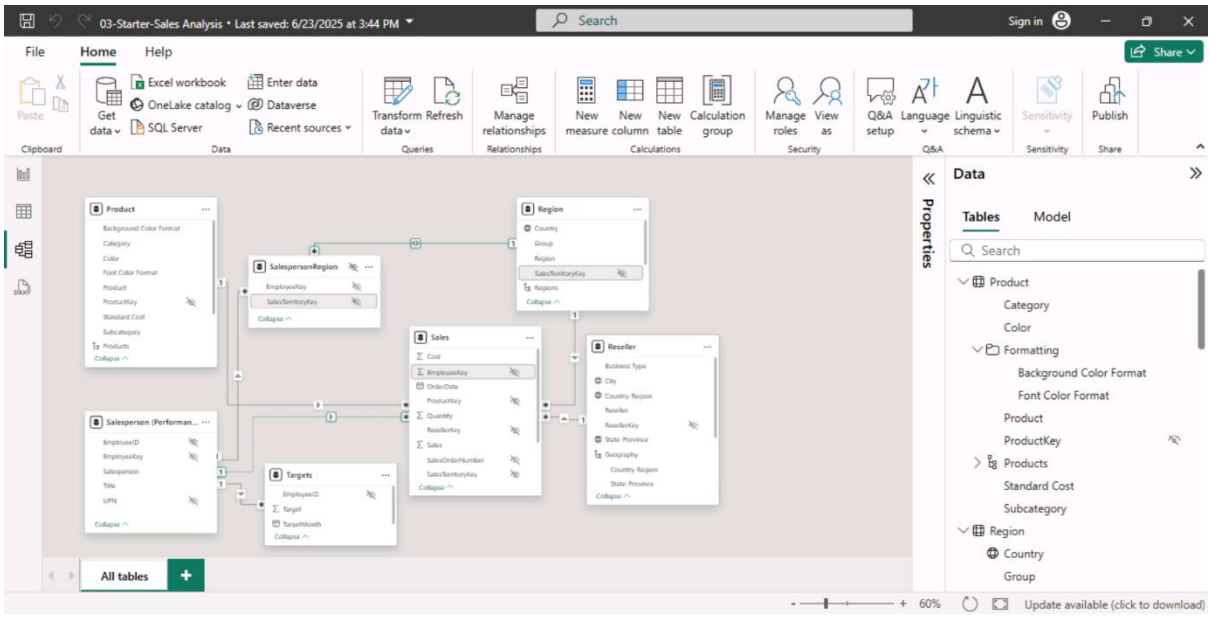
Relating the Targets Table

- Created a relationship between the Salesperson (Performance) and Targets tables.
- Added the Targets field to the report visual for analysis.

Salesperson	Sum of Sales	Sum of Target
Amy Alberts	$10,288,626	$19,450,000
Brian Welcker	$77,548,570	$221,700,000
David Campbell	$12,004,822	$19,625,000
Garrett Vargas	$13,875,633	$23,675,000
Jae Pak	$8,410,883	$13,575,000
Jillian Carson	$7,633,387	$13,675,000
José Saraiva	$13,875,633	$18,875,000
Linda Mitchell	$25,634,503	$40,850,000
Lynn Tsoflias	$1,391,025	$3,210,000
Michael Blythe	$21,987,348	$31,150,000
Pamela Ansman-Wolfe	$30,005,939	$53,850,000
Rachel Valdez	$1,877,743	$4,125,000
Ranjit Varkey Chudukatil	$4,527,840	$9,050,000
Shu Ito	$18,001,116	$59,850,000
Stephen Jiang	$65,868,919	$110,150,000
Syed Abbas	$1,391,025	$3,050,000
Tete Mensa-Annan	$12,004,822	$17,100,000
Tsvi Reiter	$7,638,607	$13,250,000
Total	**$77,548,570**	**$676,210,000**

Final Review

Conducted a final review of the data model and saved the Power BI Desktop file.



Results

- Successfully configured a semantic model in Power BI with well-defined relationships and properties.
- Enhanced the usability of the data model through hierarchies and quick measures.
- Gained practical experience in managing complex relationships and optimizing data for analysis.

Conclusion

This project significantly improved skills in Power BI, particularly in configuring semantic models and understanding the intricacies of data relationships.

Resources

Source file: https://github.com/MicrosoftLearning/PL-300-Microsoft-Power-BI-Data-Analyst/blob/Main/Allfiles/Labs/03-configure-semantic-model/03-Starter-Sales%20Analysis.pbix

GitHub: https://github.com/ThatoMTNG/Microsoft-Power-BI-Data-Analyst-PL-300

Mentions

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