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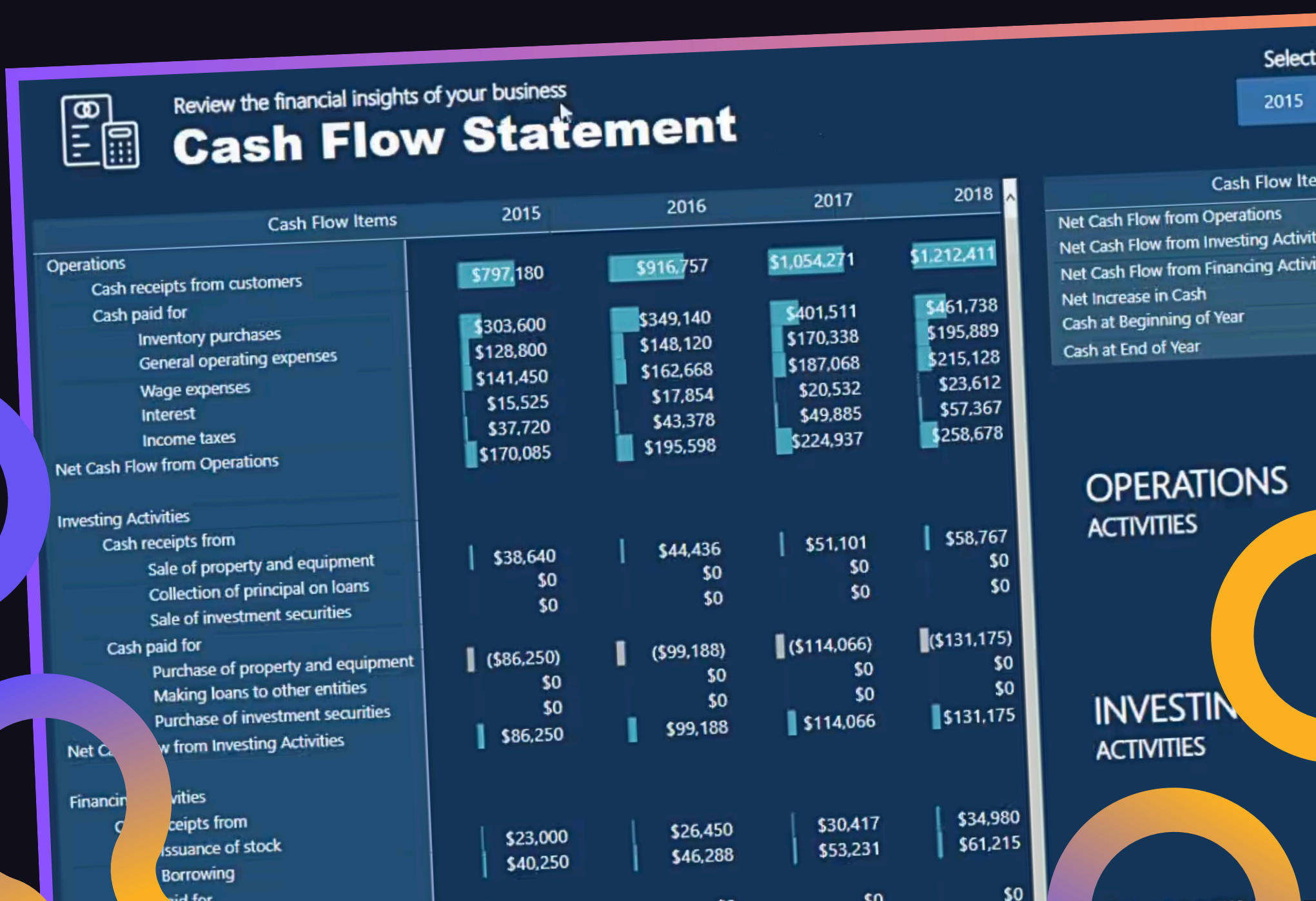
Financial Reporting with Power BI

– a detailed guide



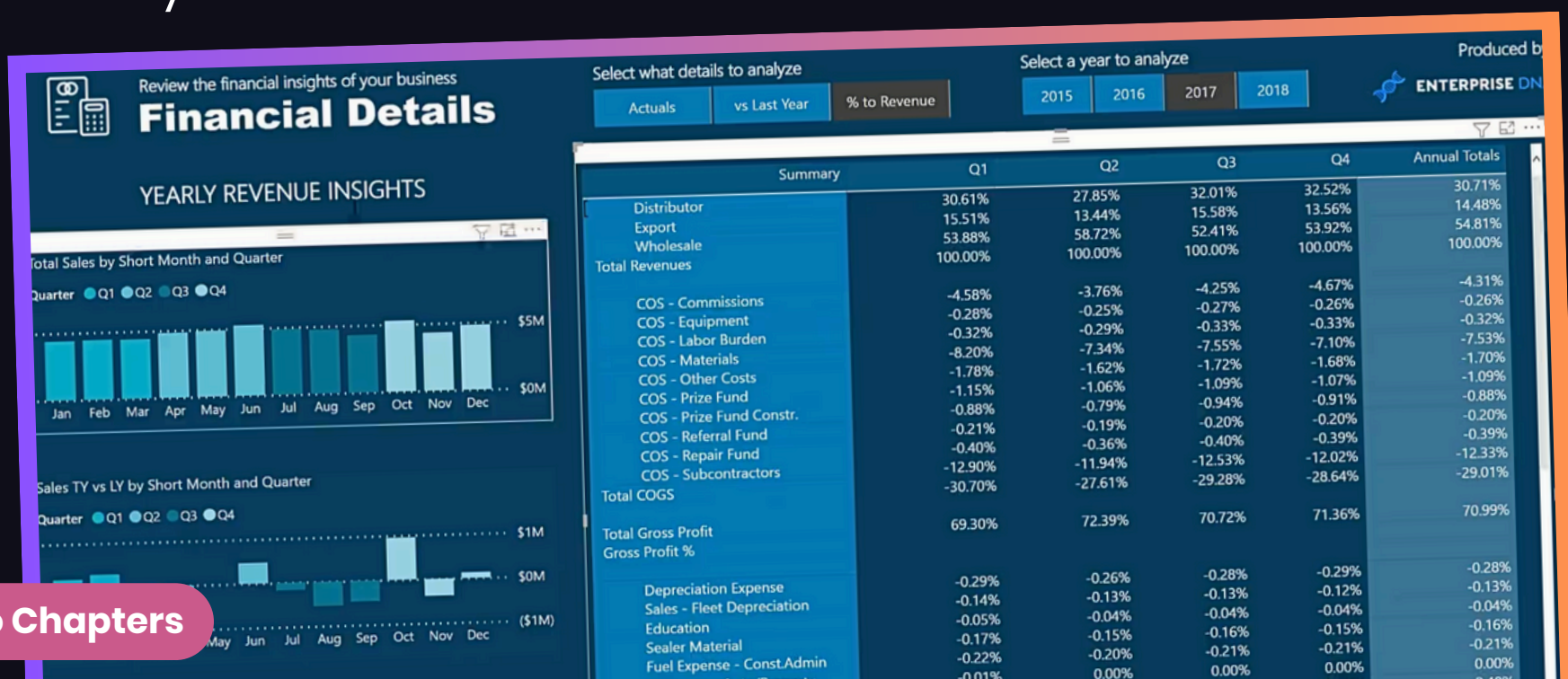
CHAPTERS

1

Introduction

Explore the techniques and concepts needed to create high-quality financial reports in Power BI. Whether you're dealing with income statements, balance sheets, or cash flow statements, the strategies provided will enable you to deliver scalable and professional results.

- Learn to create dynamic income statements, balance sheets, and cash flow statements tailored to various business needs.
- Develop techniques for accounts receivable analysis, enabling you to manage outstanding invoices efficiently.
- Gain insights into revenue and sales trends by integrating advanced DAX formulas and dynamic visualizations.



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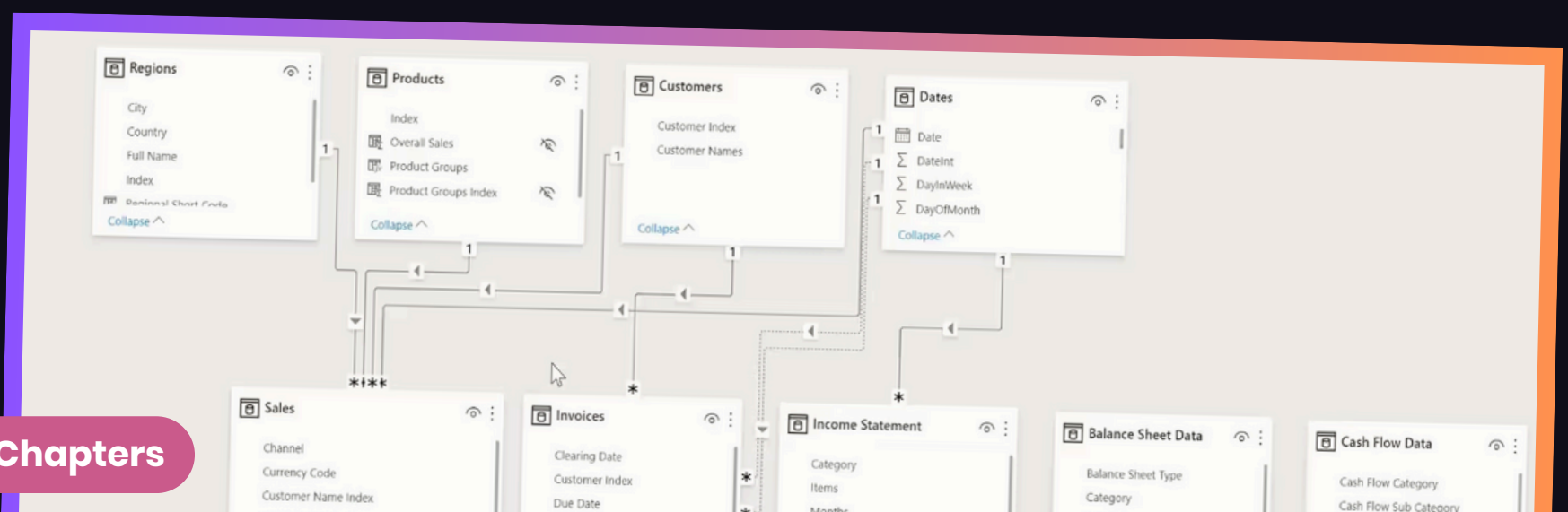
Planning Your Data Model

Creating a well-structured data model is essential for any successful Power BI project, especially when dealing with financial reporting. A clear and efficient data model ensures that your reports are scalable, dynamic, and capable of handling complex calculations. Discover the foundational steps of planning and building a Power BI data model that integrates multiple data sources and accommodates unique financial reporting needs.

- Learn to differentiate between fact tables, lookup tables, and supporting tables to build a clear data model.
- Understand how data flows through a model, using lookup tables to filter calculations within fact tables.



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- Discover how to create templates for financial reports like income statements, balance sheets, and cash flow statements.
- Incorporate essential elements like a date table to facilitate time-based analysis and comparisons.

Planning your data model is a critical step in creating a successful Power BI report. By understanding the distinction between fact tables, lookup tables, and supporting tables, you can build a scalable and efficient data structure that handles complex financial reporting needs.

A25

	A	B	C	D	E	F
1	Balance Sheet Type	Category	Sub Category	2014	2015	2016
2	Assets	Current Assets	Cash	11,874	11,875	11,876
3	Assets	Current Assets	Accounts receivable	4,215	4,216	4,217
4	Assets	Current Assets	Inventory	2,145	2,146	2,147
5	Assets	Current Assets	Prepaid expenses	354	355	356
6	Assets	Current Assets	Short-term investments	254	255	256
7	Assets	Fixed (Long-Term) Assets	Long-term investments	1,208	1,209	1,210
8	Assets	Fixed (Long-Term) Assets	Property, plant, and equipment	15,340	15,341	15,342
9	Assets	Fixed (Long-Term) Assets	(Less accumulated depreciation)	-2,200	-2,199	-2,198
10	Assets	Fixed (Long-Term) Assets	Intangible assets	2,215	2,216	2,217
11	Assets	Other Assets	Deferred income tax	134	135	136
12	Assets	Other Assets	Other	324	325	326
13	Liabilities	Current Liabilities	Accounts payable	8,060	8,061	8,062
14	Liabilities	Current Liabilities	Short-term loans	200	201	202
15	Liabilities	Current Liabilities	Income taxes payable	3,145	3,146	3,147
16	Liabilities	Current Liabilities	Accrued salaries and wages	50	51	52
17	Liabilities	Current Liabilities	Unearned revenue	333	334	335
18	Liabilities	Current Liabilities	Current portion of long-term debt	0	1	2
19	Liabilities	Long-Term Liabilities	Long-term debt	3,450	3,451	3,452
20	Liabilities	Long-Term Liabilities	Deferred income tax	252	253	254
21	Liabilities	Long-Term Liabilities	Other	111	112	113
22	Owner's Equity	Owner's Equity	Owner's investment	7,178	7,179	7,180
23	Owner's Equity	Owner's Equity	Retained earnings	4,389	4,390	4,391
24	Owner's Equity	Owner's Equity	Other	0	1	2
25						
26						
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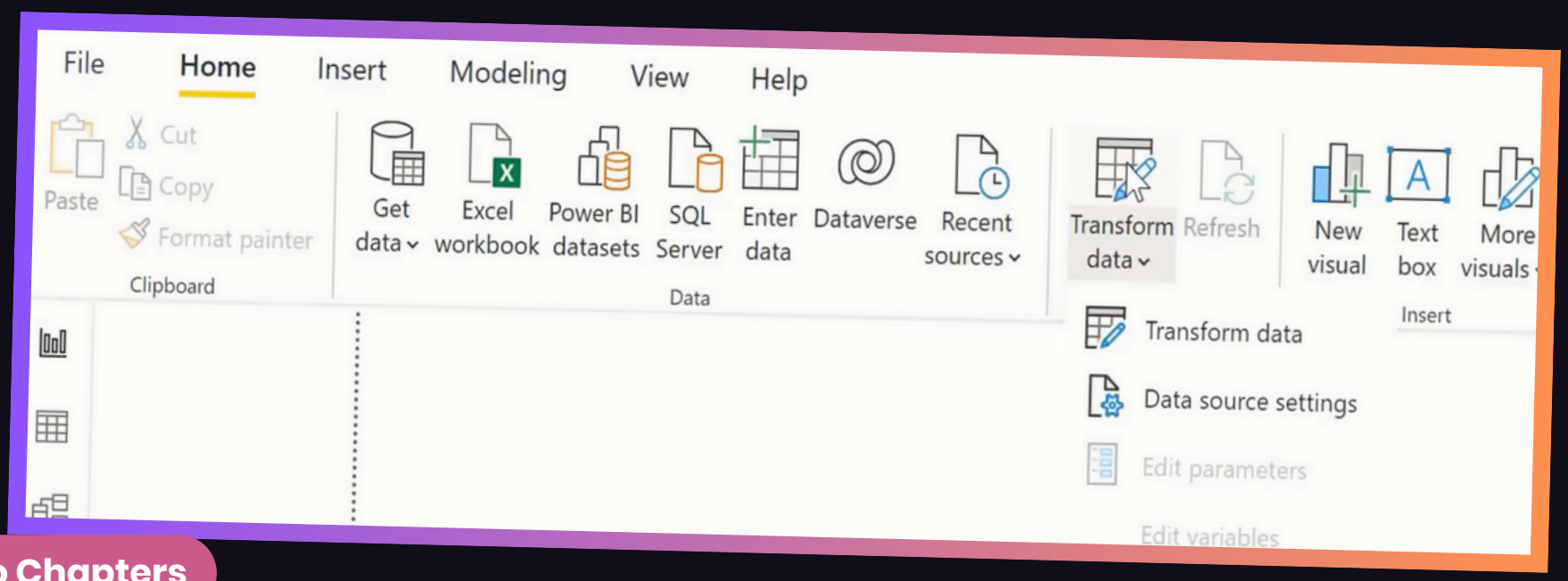
One of the most critical steps in any Power BI project is bringing your data into the model. Properly importing and preparing your data lays the foundation for successful reporting and analysis. Discover the process of loading data into Power BI, focusing on best practices such as using the Query Editor, organizing your tables, and setting up essential components like a date table.

- Power BI supports data imports from various sources, including Excel, ERP systems, and Azure databases. Regardless of your source, it's essential to ensure that the data is properly cleaned and organized before you start building your model.
- Always start by loading your data through the Query Editor. This allows you to handle multiple datasets simultaneously and perform necessary transformations before the data reaches your model.



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PRO TIPS

- Aim for clarity and simplicity and avoid overcomplicating your data model, as complex models can lead to calculation errors and confusion for users.
- Place lookup tables at the top and fact tables at the bottom of your data model and filters should flow from lookup tables to fact tables to ensure seamless calculations across the entire report.
- Organize your model with lookup tables at the top and fact tables at the bottom.
- During development, use helper columns to debug your model, but remove them once your model is finalized to improve performance.
- If your data is already in a pivoted format, avoid forcing it into a table structure that could cause errors. Instead, maintain a row-based structure where possible.
- Don’t wait until later to organize your tables. Do it as soon as you import them to avoid confusion.

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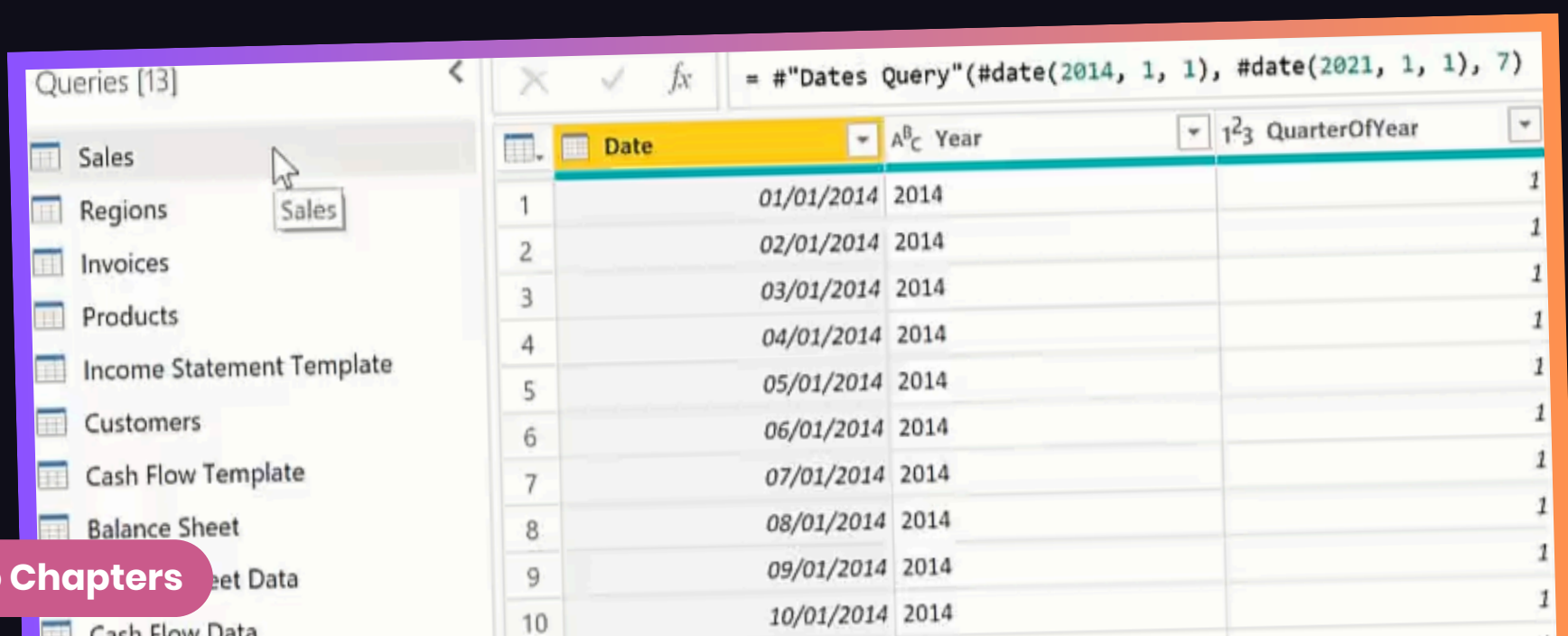
Query Editor

Once you've brought your data into Power BI, the next crucial step is to clean and transform it within the Query Editor. Skipping this stage often leads to messy models, difficult DAX calculations, and confusion for future users of your report. The Query Editor offers a powerful set of tools to ensure that your data is well-structured, easy to understand, and optimized for modeling.

Explore the practical techniques for renaming tables and columns, grouping queries, removing unnecessary columns, and performing common transformations.

- Rename tables and columns for clarity and consistency. Use simple, intuitive names that make writing DAX formulas faster and more efficient.



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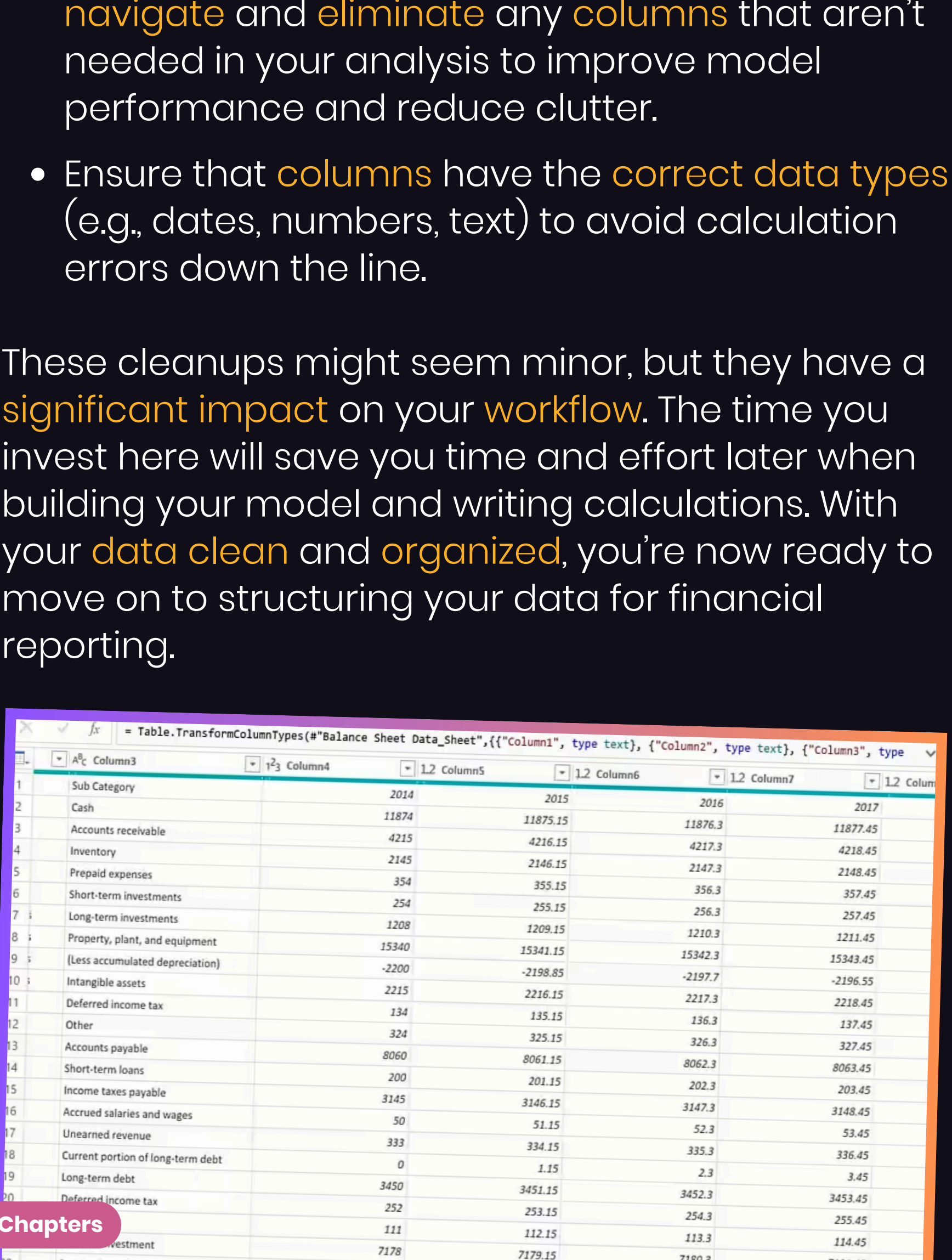
- Learn to group related queries into folders to keep your workspace clean and easy to navigate and eliminate any columns that aren't needed in your analysis to improve model performance and reduce clutter.
- Ensure that columns have the correct data types (e.g., dates, numbers, text) to avoid calculation errors down the line.

These cleanups might seem minor, but they have a significant impact on your workflow. The time you invest here will save you time and effort later when building your model and writing calculations. With your data clean and organized, you're now ready to move on to structuring your data for financial reporting.



	Column3	Column4	Column5	Column6	Column7	Colum
1	Sub Category	2014	2015	2016	2017	
2	Cash	11874	11875.15	11876.3	11877.45	
3	Accounts receivable	4215	4216.15	4217.3	4218.45	
4	Inventory	2145	2146.15	2147.3	2148.45	
5	Prepaid expenses	354	355.15	356.3	357.45	
6	Short-term investments	254	255.15	256.3	257.45	
7	Long-term investments	1208	1209.15	1210.3	1211.45	
8	Property, plant, and equipment	15340	15341.15	15342.3	15343.45	
9	(Less accumulated depreciation)	-2200	-2198.85	-2197.7	-2196.55	
10	Intangible assets	2215	2216.15	2217.3	2218.45	
11	Deferred income tax	134	135.15	136.3	137.45	
12	Other	324	325.15	326.3	327.45	
13	Accounts payable	8060	8061.15	8062.3	8063.45	
14	Short-term loans	200	201.15	202.3	203.45	
15	Income taxes payable	3145	3146.15	3147.3	3148.45	
16	Accrued salaries and wages	50	51.15	52.3	53.45	
17	Unearned revenue	333	334.15	335.3	336.45	
18	Current portion of long-term debt	0	1.15	2.3	3.45	
19	Long-term debt	3450	3451.15	3452.3	3453.45	
20	Deferred income tax	252	253.15	254.3	255.45	
		111	112.15	113.3	114.45	
	vestment	7178	7179.15	7180.3		

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PRO TIPS

- Use clear, intuitive names for tables and columns to speed up DAX formula writing and improve readability.
- Group your queries for better organization. Use folders like Data Model, Templates, and Measure Groups.
- Keep your model lean by removing columns you don't need. This reduces file size and improves performance.
- Perform similar cleanup actions in one step to keep your applied steps efficient.
- When performing transformations like renaming columns or removing columns, try to batch similar steps together. Power BI's Query Editor records each transformation as a step in the Applied Steps pane.
- Use Column from Examples feature to quickly create new columns based on patterns without writing complex formulas.

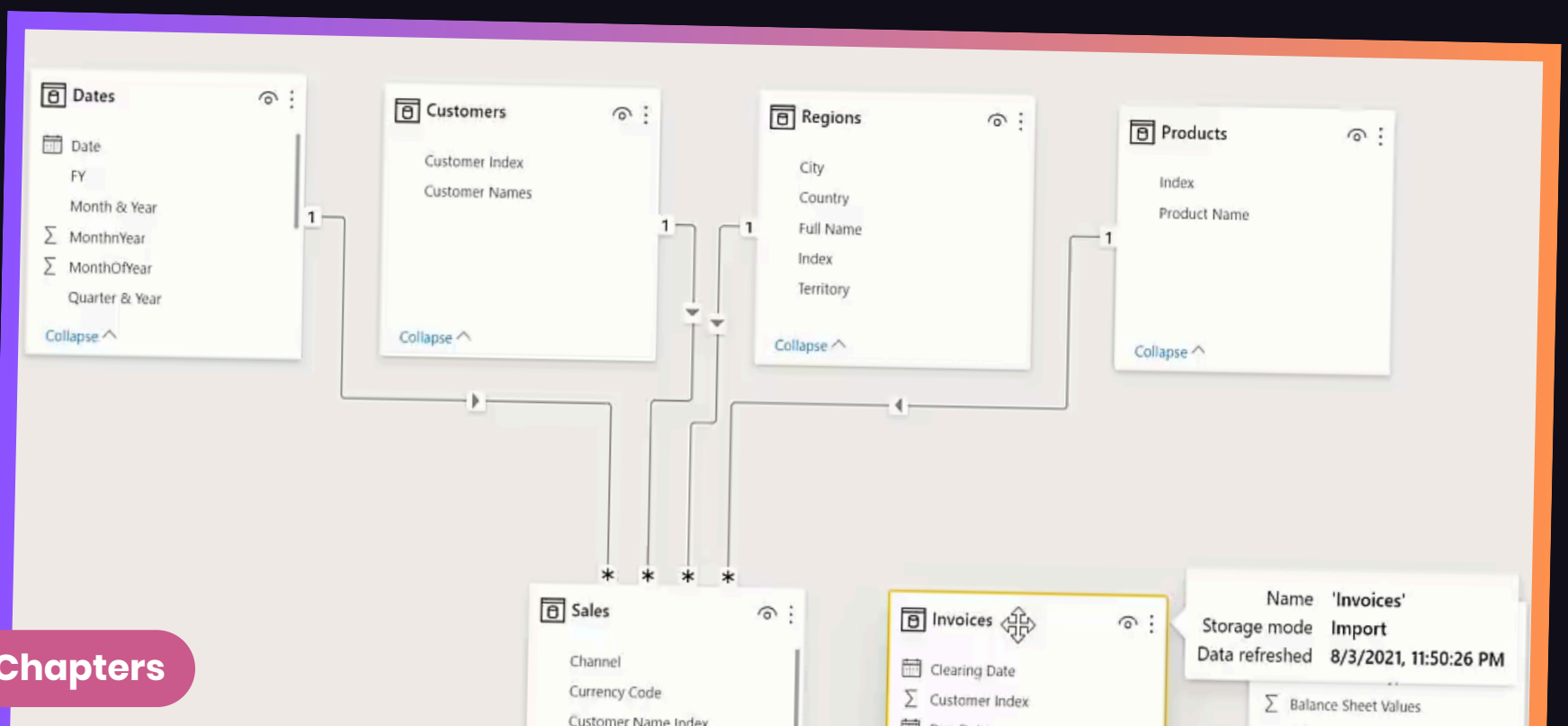
4

Data Model Development

Developing your data model involves organizing tables, creating the right relationships, and ensuring that filters flow correctly through your model.

The way you structure your data model directly impacts the performance, accuracy, and usability of your reports. Discover the best practices for organizing tables, building optimal relationships, and managing complex scenarios like multiple dates and virtual relationships.

- Understand how to organize tables into lookup and fact tables to create a model that's easy to navigate and maintain.



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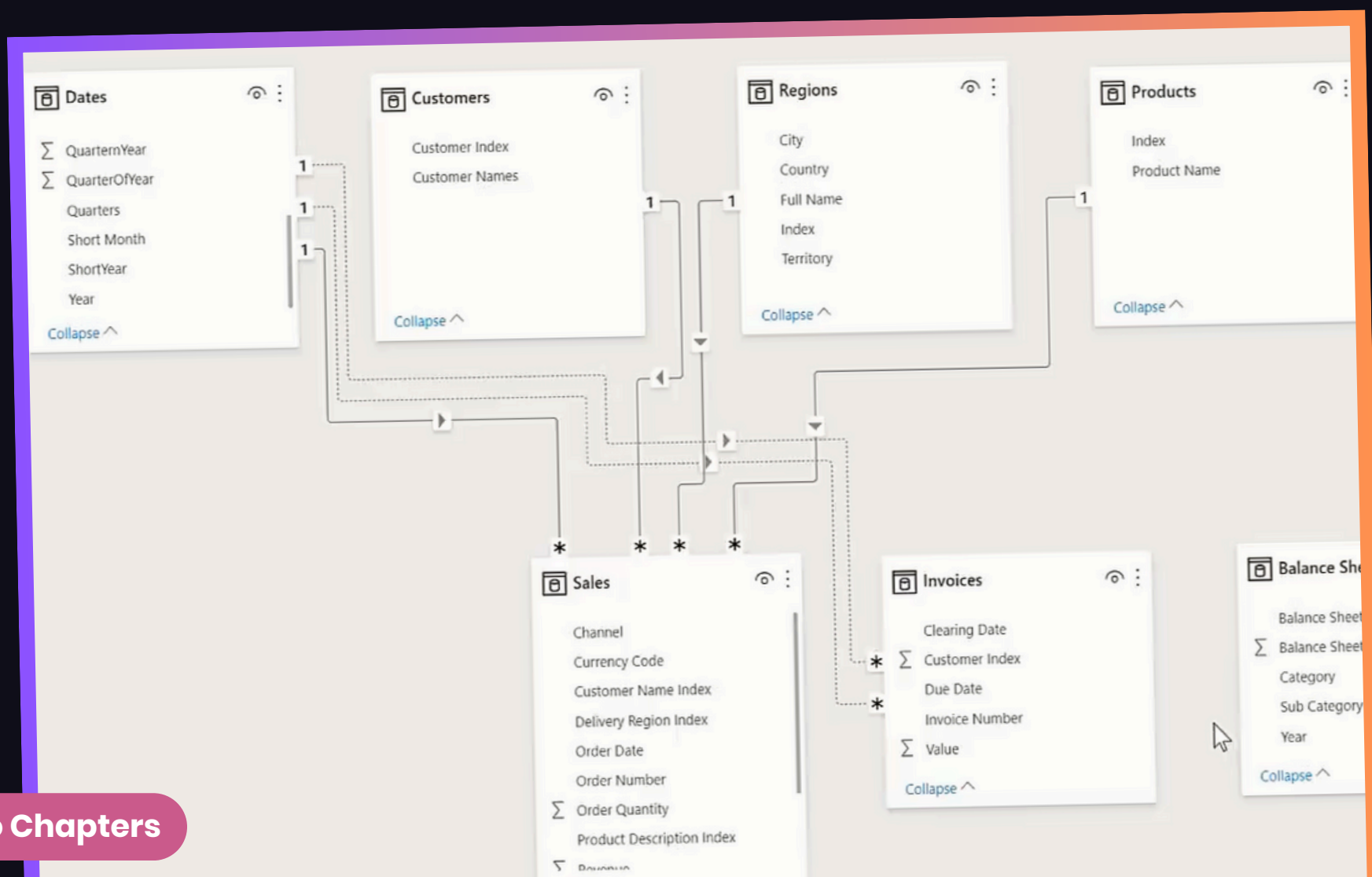
- Learn how to manually build one-to-many relationships to ensure filters flow correctly through your model, avoiding common pitfalls like bidirectional and many-to-many relationships.
- Discover how to handle multiple date columns using inactive relationships and activate them dynamically with DAX for more flexible time-based analysis.

Managing complex scenarios, such as multiple dates and virtual relationships, further enhances your model's flexibility and performance. With a solid data model in place, you're now ready to integrate financial data from multiple sources and start building impactful financial reports.



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PRO TIPS

- Financial data often includes a Year column that needs to link to a date table. However, directly linking the Year column from financial data to the Year column in the date table can result in a many-to-many relationship, which should be avoided.
- It's common to encounter fact tables with multiple date columns (e.g., order date, due date, clearing date). Power BI only allows one active relationship between tables, so you need to manage additional dates using inactive relationships.
- While Power BI allows many-to-many relationships and bidirectional filtering, these should be avoided whenever possible. They can cause unexpected filtering behavior and make your model difficult to manage.
- Use inactive relationships and the USERELATIONSHIP function in DAX to manage multiple dates in fact tables.

5

Table Integration

Financial reports often require data from multiple sources, each with varying levels of granularity. To build an accurate and dynamic income statement in Power BI, it's essential to integrate these data sources into a single table that can be used in your financial templates.

Learn how to create new tables using DAX, summarize data to match different levels of detail, and append tables using functions like UNION.

- Learn how to generate new tables directly in Power BI using SUMMARIZE to aggregate and structure data at the appropriate level for your reports.

```
1 Channel Revenues =
2 SUMMARIZE( Sales, Sales[Channel], Dates[Month & Year],
3     "Category", "Revenue",
4     "First Date", MIN( Dates[Date] ),
5     "Sales Values", [Total Sales] )
```

Channel	Month & Year	Category	First Date	Sales Values
Wholesale	Jan 2015	Revenue	01/01/2015	$2,228,540.60
Wholesale	Feb 2015	Revenue	01/02/2015	$2,161,815.30
Wholesale	Mar 2015	Revenue	01/03/2015	$2,199,248.20
	Apr 2015	Revenue	01/04/2015	$3,089,731.80
Wholesale	May 2015			

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- Discover how to use the UNION function to combine tables generated by DAX, creating a single table that integrates both revenue and expense data.
- Understand how to align different levels of data granularity, such as daily sales data and monthly expenses, to create a consistent and comparable dataset.

With a clean and optimized Income Statement Data table in place, you'll be able to write efficient DAX formulas and generate dynamic financial reports with ease. This step is essential for handling complex financial data and delivering high-quality insights in your Power BI reports.

```
1 Income Statement Data =
2 UNION( 'Company Expenses',
3     SUMMARIZE( 'Channel Revenues', 'Channel Revenues'[Channel], 'C
```

Expense Items	Expense Category	Month	Expense Values
Expense re-imbursement	Other Expenses	Wednesday, 1 November 2017	26335.9444709087
Expense re-imbursement	Other Expenses	Friday, 1 December 2017	25545.8661367814
Expense re-imbursement	Other Expenses	Monday, 1 January 2018	26567.7007822527
Expense re-imbursement	Other Expenses	Thursday, 1 February 2018	27364.7318057202
Expense re-imbursement	Other Expenses	Thursday, 1 March 2018	28732.9683960063
Expense re-imbursement	Other Expenses	Sunday, 1 April 2018	27870.9793441261
Expense re-imbursement	Other Expenses	Tuesday, 1 May 2018	27592.2695506848
Export	Revenue	Friday, 1 January 2016	626805.1
Export	Revenue	Thursday, 1 January 2015	552810.3
	Revenue	Sunday, 1 February 2015	555590.8
	Revenue	Monday, 2 March 2015	891669.5

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PRO TIPS

- Ensure that your tables have the same granularity before attempting to append them. Use SUMMARIZE to create monthly summaries for daily sales data.
- When appending tables created through DAX, use the UNION function to combine them. This method is essential when dealing with tables that aren't part of the original data source.
- Keep your model clean by hiding tables that are used solely for supporting calculations. Only keep the main tables visible in the report view.
- Always link your integrated table to the Date Table to enable time-based filtering and analysis.
- Once the Income Statement Data table is created, you can optimize your model by hiding the supporting tables (e.g., Channel Revenues and Company Expenses) from the report view.

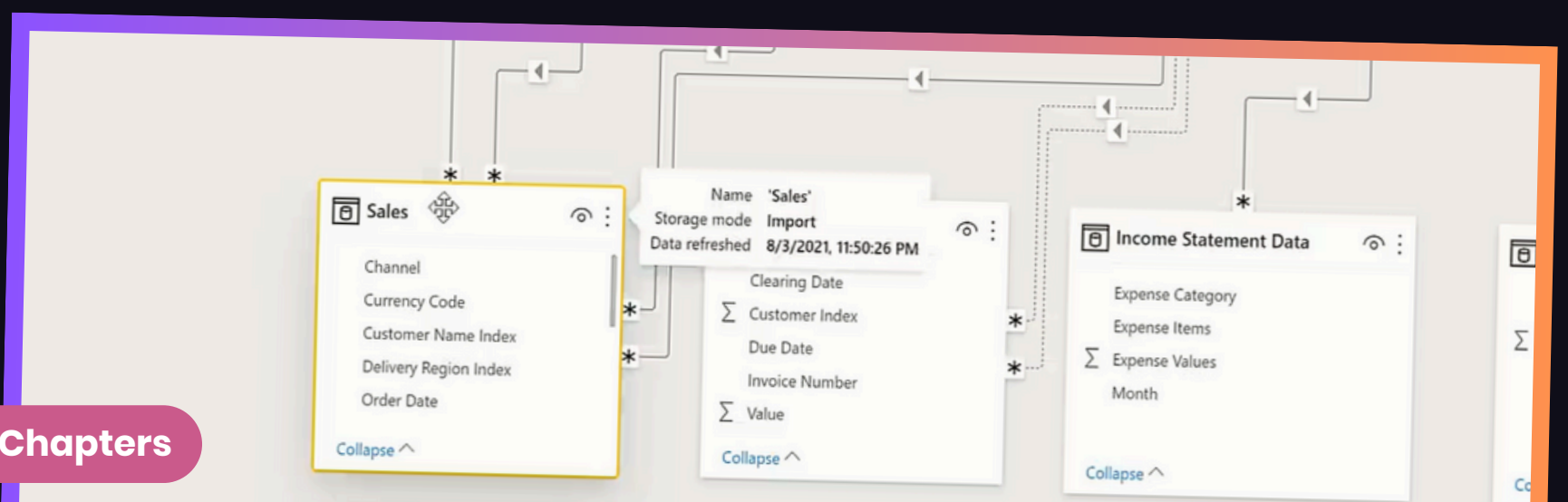
6

Model Organization

A well-organized Power BI model isn't just about aesthetics—it's about efficiency, clarity, and scalability. The more tables, measures, and relationships your model contains, the more essential it becomes to structure everything logically from the start.

Learn practical strategies to keep your model clean and structured by arranging tables and relationships, creating measure groups, and managing visibility within your model. These steps will save you time and effort in future development, ensuring that your Power BI model remains easy to work with as it grows.

- Understand why maintaining consistent table sizes and shapes in your model view improves visual clarity and helps manage relationships more effectively.



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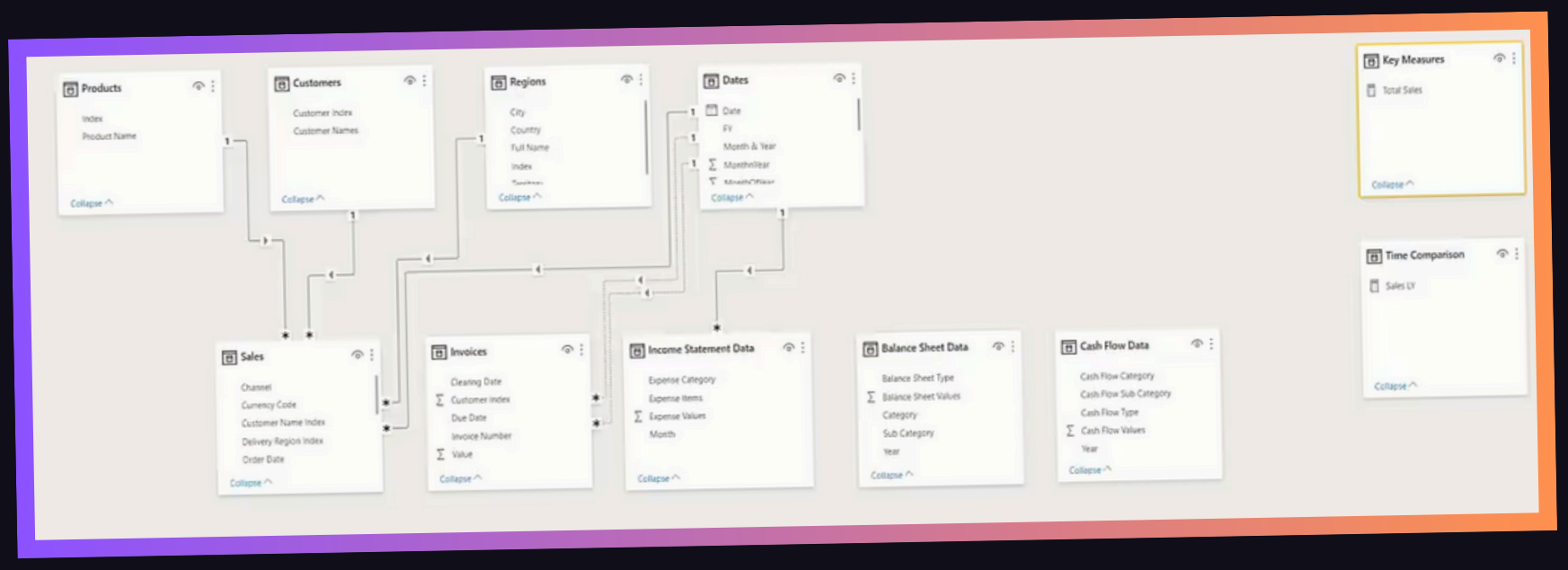
- Learn how to arrange lookup tables, fact tables, and supporting tables in a structured, logical way to improve readability and navigation within the model view.
- Discover how to create measure groups to organize your calculations by category (e.g., Key Measures, Time Comparisons), reducing clutter and making your model easier to navigate.
- Learn when to hide supporting tables and measure groups from the report view to keep your data model clean and focused on essential tables.

These small organizational tweaks will save you significant time and effort as your model grows. With a clean, structured model, you'll be able to focus more on building insightful reports and less on troubleshooting messy relationships and scattered measures.



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PRO TIPS

- Arrange your tables logically in a waterfall structure—lookup tables at the top, fact tables below, supporting tables at the bottom, and measure groups to the side.
- Resize tables to consistent shapes to improve visual clarity and make relationships easier to follow.
- Organize DAX calculations into dedicated measure tables for better model management and faster reporting.
- Keep the report view clean by hiding supporting tables and measure groups that don't need to be visible.
- Maintain consistency by grouping measure tables in the Query Editor to simplify adjustments and updates.
- Hide measure groups to reduce clutter in the report view, while keeping them accessible in the model.

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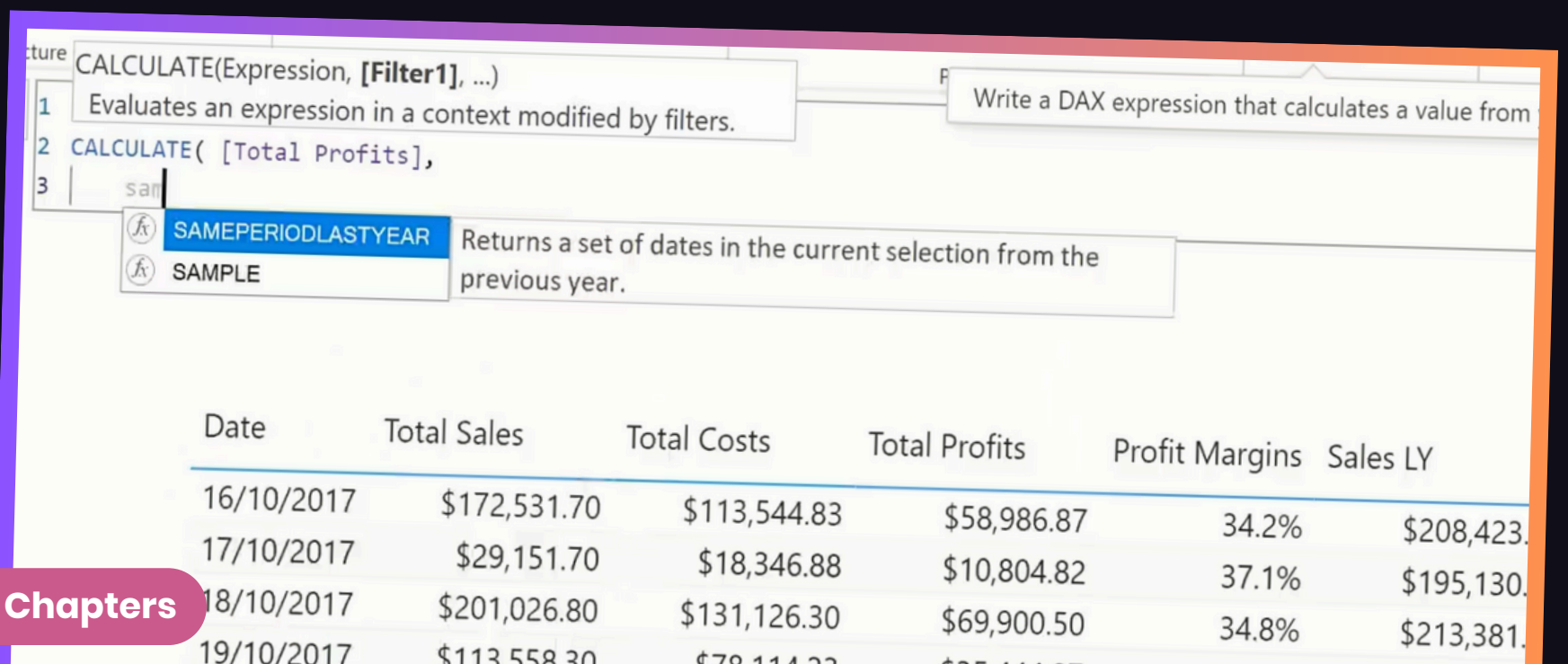
DAX Formulas

DAX (Data Analysis Expressions) is the formula language that powers Power BI's analytical capabilities. It allows you to create custom calculations, aggregate data, and perform advanced time-based analysis.

Understanding the difference between aggregating functions and iterating functions, as well as the concept of measure branching, will be pivotal as you build more advanced financial reports. With these foundational formulas, you'll be able to create dynamic and reusable measures that simplify your reporting process.

- Learn how to use functions like SUM, AVERAGE, and COUNT to perform simple aggregations across your data.



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- Understand how functions like SUMX, AVERAGEX, and COUNTX work by iterating over each row in a table, allowing for more complex calculations.
- Discover how to build measures that reference existing measures, creating a chain of calculations that are easy to maintain and modify.
- Utilize functions like DATEADD and SAMEPERIODLASTYEAR to perform time-based comparisons in your reports.

Starting with basic measures and building up to more complex calculations using time intelligence functions will set a strong foundation for your financial reporting. With these formulas in place, you're now ready to move into creating dynamic report pages with income statements, balance sheets, and more.

```
1 Sales Year to Date =
2 CALCULATE(
3     [Total Sales] ,
4     DATESYTD( Dates[Date] ) )
```

Date	Total Sales	Total Costs	Total Profits	Profit Margins	Sales LY	Profits LY	Sales TY vs LY
16/05/2017	$98,657.50	$63,504.01	$35,153.49	35.6%	$290,981.00	$93,587.14	($192,323.50)
17/05/2017	$148,780.20	$97,102.70	$51,677.50	34.7%	$200,162.50	$89,967.60	($51,382.30)
18/05/2017	$172,551.80	$97,022.63	$75,529.17	43.8%	$117,290.20	$45,127.31	$55,261.60
19/05/2017	$119,521.30	$85,757.92	$33,763.38	28.2%	$168,237.00	$62,893.77	($48,715.70)
20/05/2017	$81,458.60	$47,440.02	$34,018.58	41.8%	$139,011.60	$47,117.95	($57,553.00)
21/05/2017	$289,895.60	$204,152.15	$85,743.45	29.6%	$144,994.70	$57,460.94	$144,900.90
22/05/2017	$85,431.70	$49,174.65	$36,257.05	42.4%	$193,475.90	$76,824.14	($108,044.20)
23/05/2017	$218,768.40	$136,268.35	$82,500.05	37.7%	$154,515.40	$56,710.68	$64,253.00
24/05/2017	$216,477.00	$149,212.95	$67,264.05	31.1%	$130,985.00	$46,282.53	$85,492.00
25/05/2017	$70,698.40	$34,140.52	$36,557.88	51.7%	$175,138.00	$54,361.59	($104,439.60)
/05/2017	$207,472.20	$130,870.36	$76,601.84	36.9%	$59,549.60	$21,720.06	$147,922.60
05/2017	$96,225.40	$75,318.85	$20,906.55	21.7%	$56,990.20	$20,777.37	$39,235.20
28/05/2017	$133,939.70	$73,225.64	$60,714.06	45.3%	$113,156.30	$36,622.67	$20,783.40
				39.3%	$137,450.50	$39,237.21	$47,040.70

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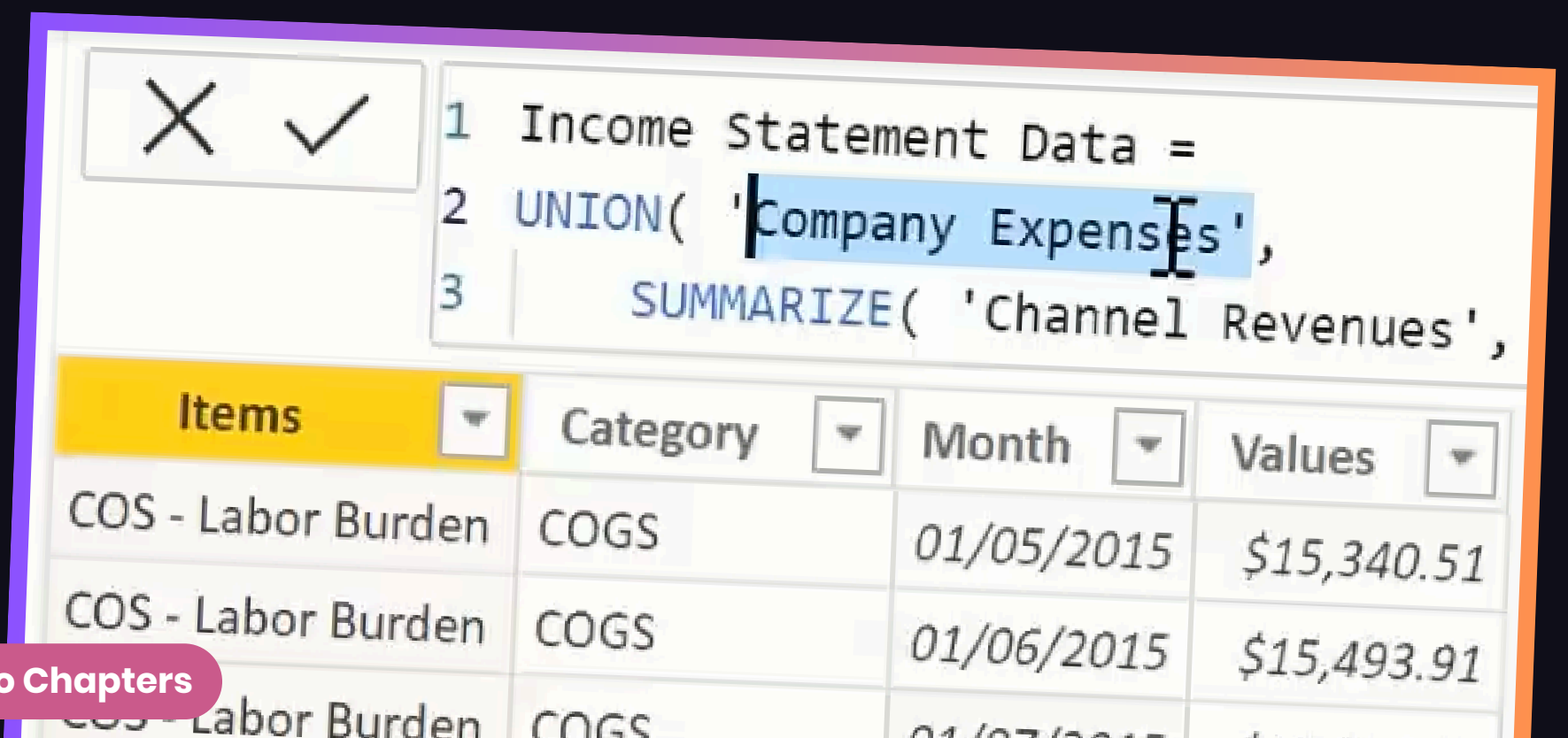
Explore adding roll-ups to categorize revenues and expenses, sorting them correctly, and creating initial DAX measures to populate the income statement template.

- Learn how to add a calculated column to categorize data into revenue and expense groups for your income statement.
- Understand how to use an index column to control the order of revenues and expenses in your report.
- Discover how to organize your DAX measures into measure groups to keep your model clean and structured.

By categorizing revenues and expenses, sorting them appropriately, and managing positive and negative values, your financial reports will be accurate and easy to interpret.



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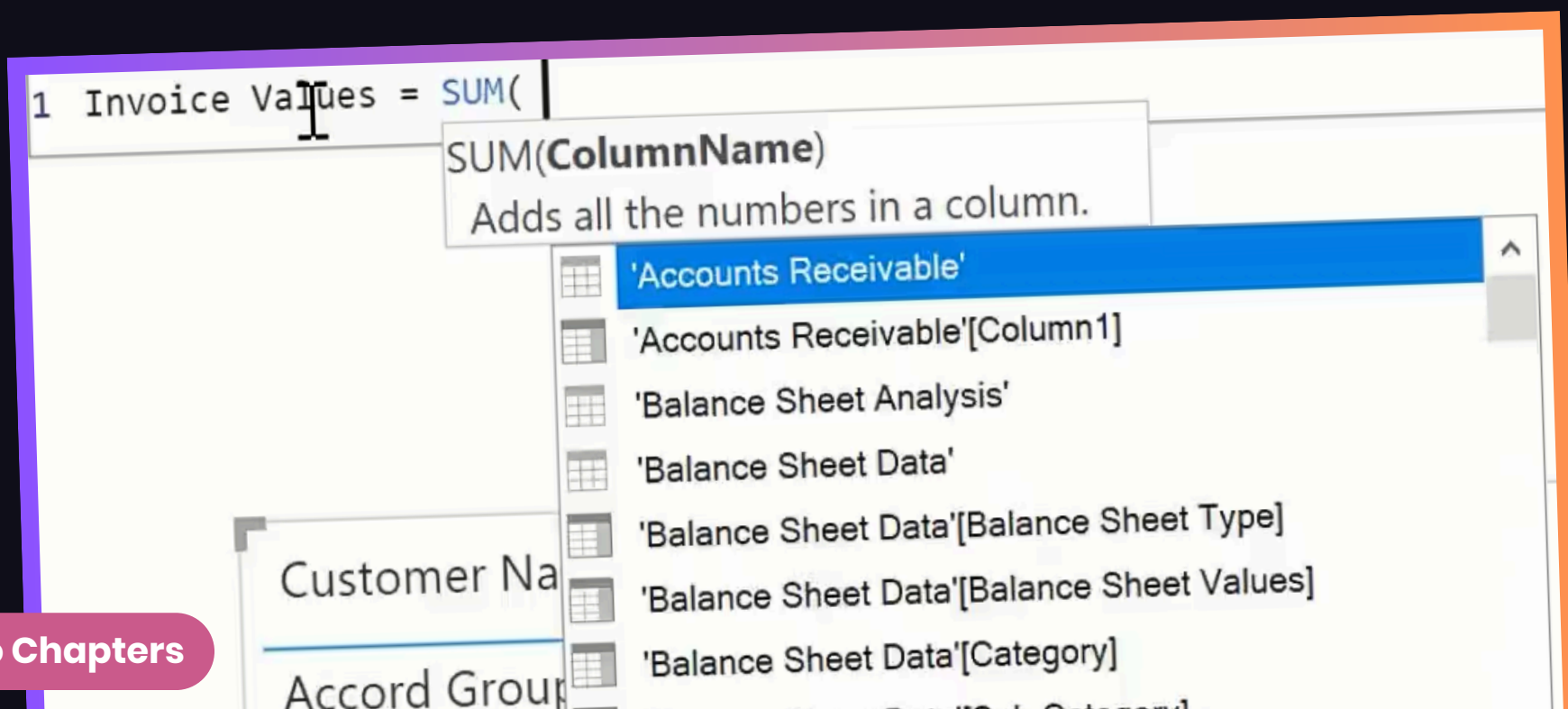
Discover creating the initial DAX formulas required to dynamically group invoices based on their aging from a selected date. Explore calculating the selected date, invoice date, and due date, then progress to calculating the days left until an invoice is due while accounting for already-paid invoices.

- Learn to use slicers to filter data based on a selected date and calculate the state of play at any point in time.
- Understand how to break down complex formulas into manageable steps using measure branching to ensure accuracy and traceability.
- Use DATEDIFF() to calculate the difference in days between the due date and the selected date, a key step in dynamic grouping.
- Apply IF() and AND() statements to filter out irrelevant invoices, ensuring the report shows only active invoices as of the selected date.



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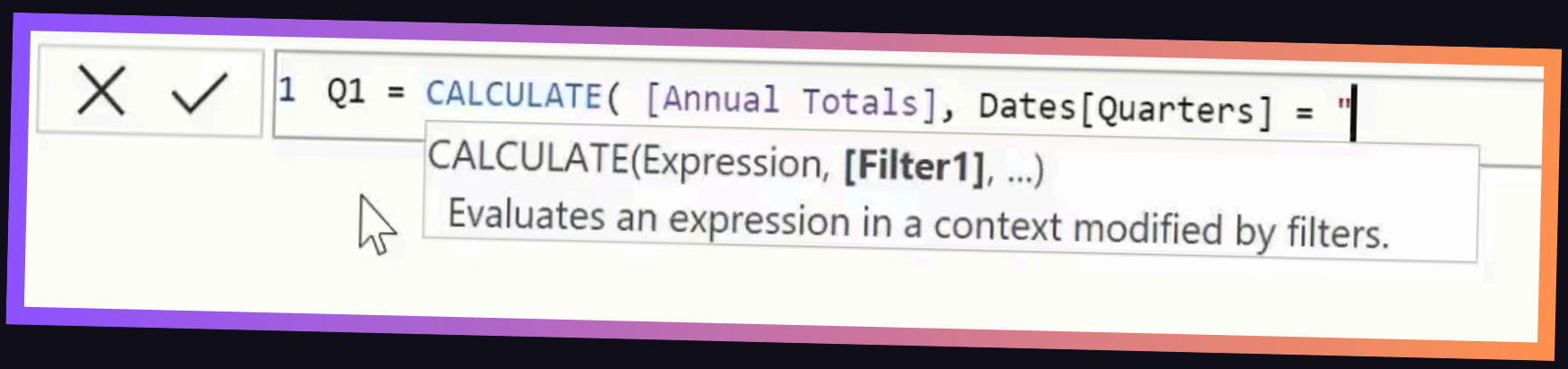
DAX formulas in Power BI are not just about generating static calculations—they offer the flexibility to create dynamic and interactive tables.

Explore how to use DAX to dynamically break down annual totals into quarterly insights and beyond. You'll see how measure branching simplifies complex calculations and how you can quickly scale your reports by leveraging previously created measures.

- Learn how to break down annual dynamic numbers into quarterly values using DAX and understand how to utilize your date table to filter dynamic calculations by different time frames (quarter, month, year).
- See how previously built measures can be reused and adapted to various visualizations without rewriting complex formulas and explore how to sort short month names correctly in your date table to ensure reports display in the right order.



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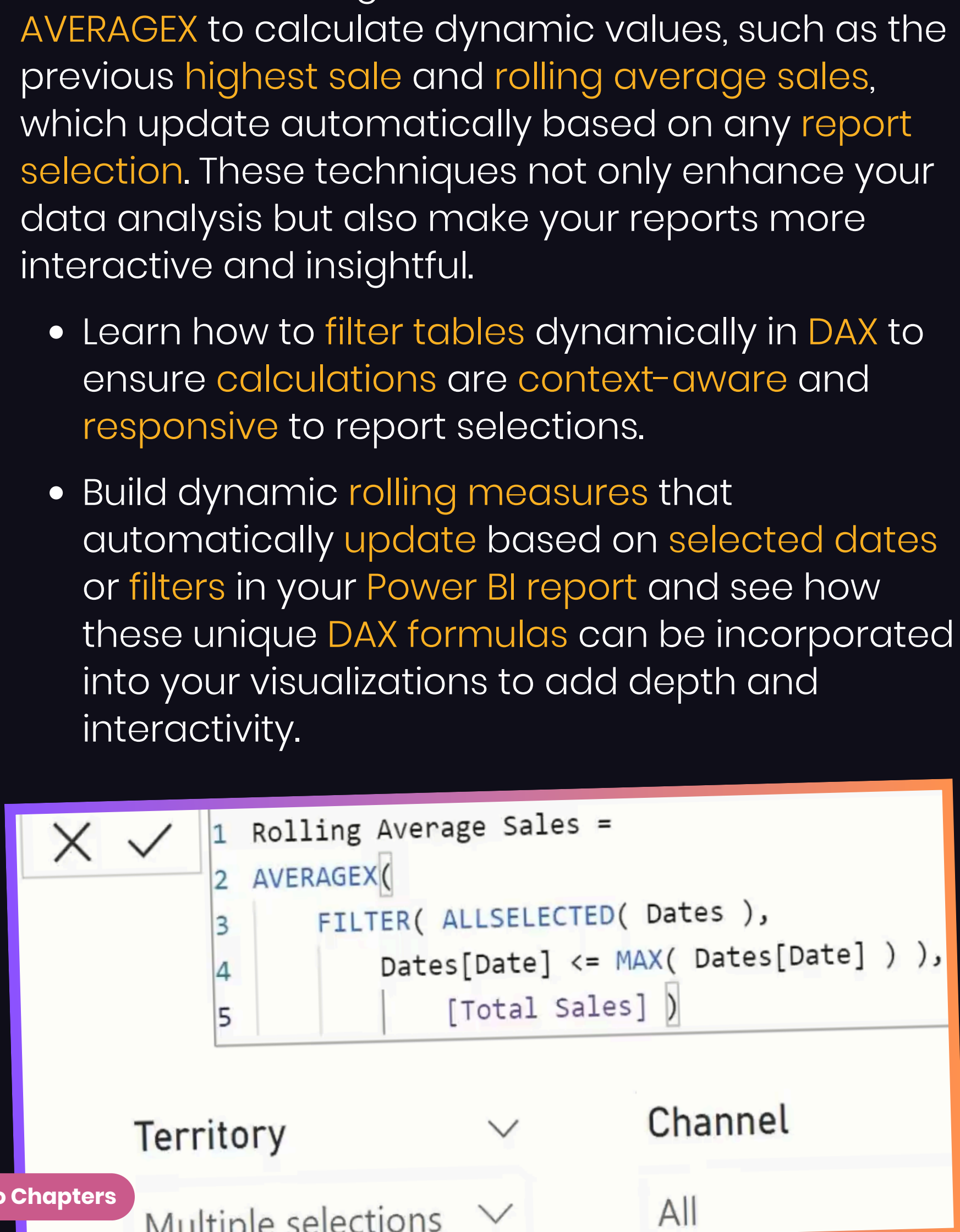
Discover creating unique and dynamic insights using advanced DAX formula combinations. Explore how to use iterating functions like MAXX and AVERAGEX to calculate dynamic values, such as the previous highest sale and rolling average sales, which update automatically based on any report selection. These techniques not only enhance your data analysis but also make your reports more interactive and insightful.

- Learn how to filter tables dynamically in DAX to ensure calculations are context-aware and responsive to report selections.
- Build dynamic rolling measures that automatically update based on selected dates or filters in your Power BI report and see how these unique DAX formulas can be incorporated into your visualizations to add depth and interactivity.



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PRO TIPS

- Always test your DAX formulas in a table visual first to understand how they behave across different contexts.
- Build your measures step-by-step by referencing existing measures. This approach is faster, cleaner, and more scalable.
- Use measures instead of calculated columns wherever possible. Measures are more efficient and flexible.
- Use time intelligence functions to create dynamic comparisons across different time periods.
- Apply appropriate formatting to your measures (e.g., currency, percentage) to make your reports more readable.
- Iterating functions perform row-by-row calculations, making them ideal for creating measures based on values that don't exist directly in your data table.

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PRO TIPS

- Use measure branching to break down complex formulas into simpler steps. This makes it easier to debug and understand each part of your calculation.
- The DATEDIFF() function is a cleaner way to calculate the difference between two dates compared to subtracting date values directly. It allows you to specify the unit of time (e.g., days, months).
- Ensure your report only shows relevant invoices by applying conditional logic. This avoids confusion and ensures the data reflects the actual state as of the selected date.
- Always add your measures to a table visual to see if they calculate correctly before applying them to more complex visuals.

8

+ve/-ve Numbers

In financial reporting, it is crucial to manage positive and negative numbers correctly to ensure that your income statement calculations are accurate. In Power BI, you might encounter a situation where all values—both revenues and expenses—are positive, making your calculations meaningless without adjustments.

Discover how to create a master measure that handles positive and negative numbers appropriately.

- Learn how to create a master measure called "Actuals" that can be reused and branched into other measures.
- Discover how to simplify large values by dividing them into thousands, making your financial report more concise.

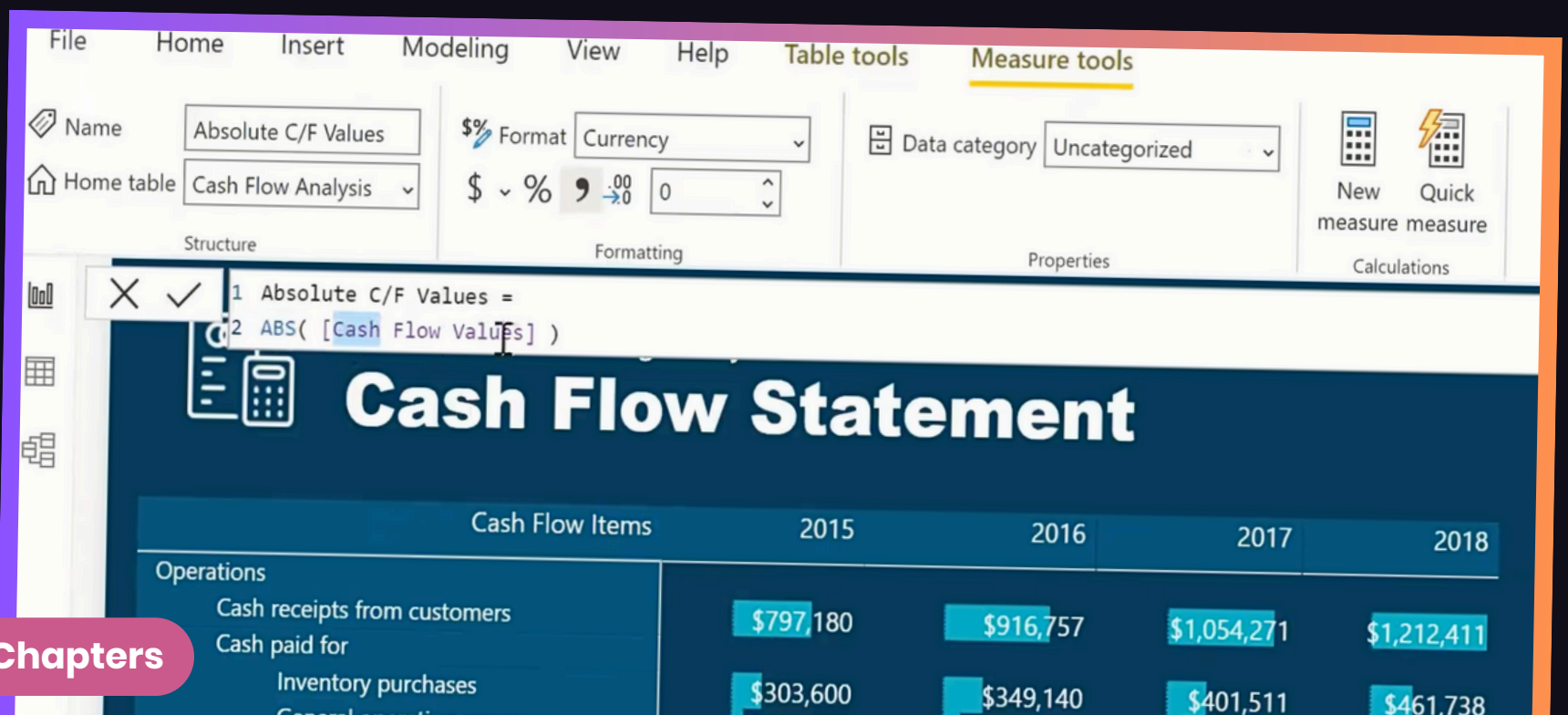
```
1  Actuals (,000) =
2  VAR Revenue = CALCULATE( [Income Values], 'Income Statement Data'[Type] = "Revenues" )
3  VAR Expense = CALCULATE( [Income Values], 'Income Statement Data'[Type] = "Expenses" ) * -1
4  DIVIDE(Numerator, Denominator, [AlternateResult])
5   Safe Divide function with ability to handle divide by zero case.
6  DIVIDE(
7  IF( SELECTEDVALUE( 'Income Statement Data'[Type] ) = "Revenues", Revenue,
8      IF( SELECTEDVALUE( 'Income Statement Data'[Type] ) = "Expenses", Expense,
9          Revenue + Expense ) ), 1000, 0
```

Back to Chapters

Visualizing cash flow activities such as operations, investing, and financing can be challenging when dealing with negative values. Popular charts like donut charts and pie charts do not support negative values, which can cause issues when presenting data in a clear, visual format.

Explore how to overcome this limitation by creating absolute value calculations for cash flow data and applying visual-level filters to generate clean, dynamic visuals that break down cash in and cash out activities.

- Understand why negative values cause issues in donut and pie charts, and learn how to handle them by applying absolute value transformations.
- Learn how to use the ABS() function to transform cash flow values into absolute values for visualization purposes.



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PRO TIPS

- Managing positive and negative numbers is critical in financial reports. Without proper signage, your income statement could display incorrect values, misleading your audience.
- Ensuring that revenues are positive and expenses are negative is crucial for accurate financial reporting.
- When working with financial reports, it's common to deal with large numbers in the millions or billions. Displaying such large numbers can clutter your report and make it harder to interpret.
- Using IF statements and SELECTEDVALUE allows your measure to adjust dynamically based on the type of data being displayed.
- Using variables in DAX allows you to simplify your formulas and reduce redundancy. Instead of repeating the same calculation multiple times, you can define a variable once and reuse it.

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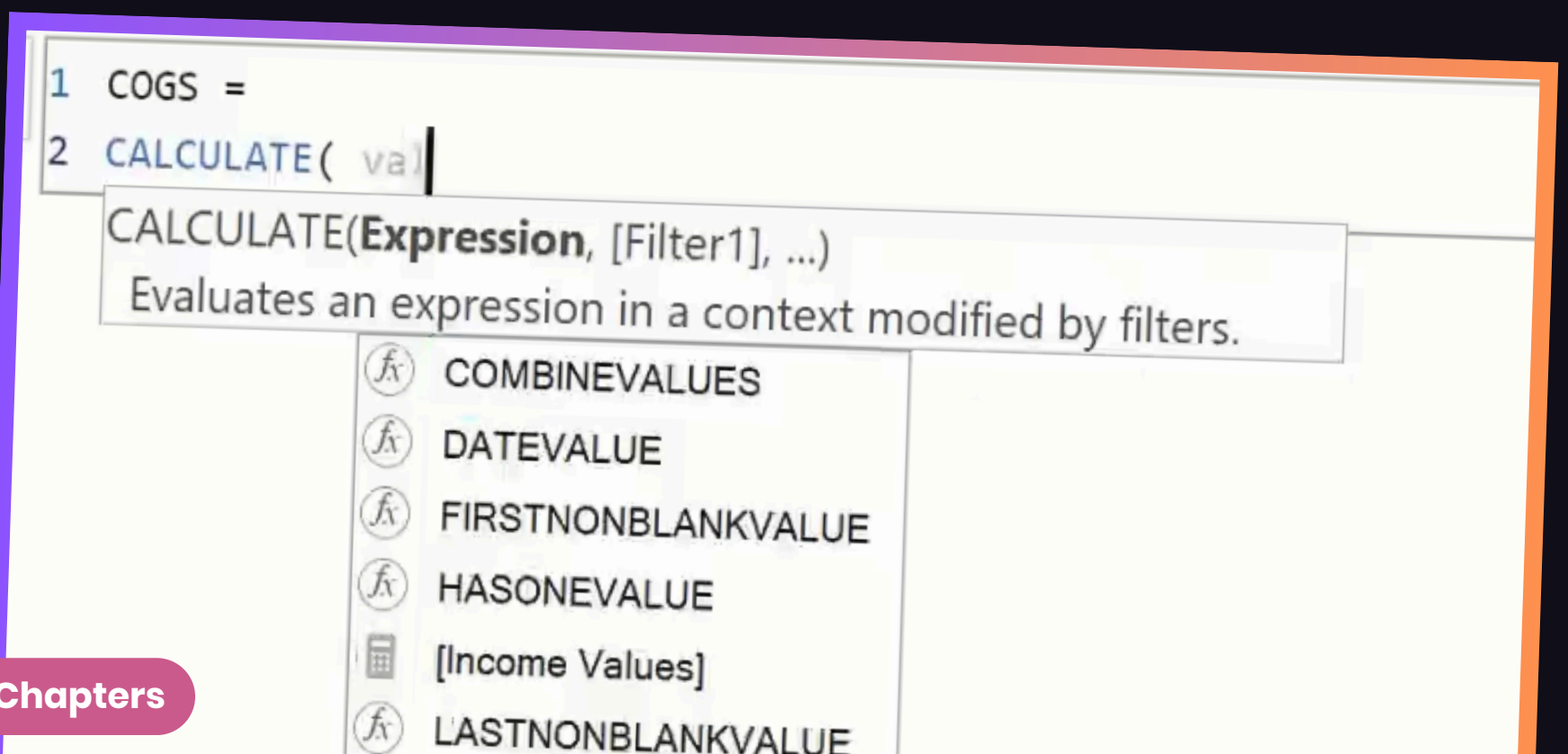
9

Rollup Subtotals Calculations

When creating financial reports in Power BI, it's essential to calculate rollup subtotals to structure your income statement correctly. These subtotals, such as revenues, cost of goods sold, and gross profit, need to be calculated individually using DAX formulas. Without these measures, your report will lack the necessary context to populate template sections accurately.

Learn how to create these subtotals, using simple filtering and calculation techniques that will serve as the foundation for building your income statement, balance sheet, and cash flow templates.



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- Learn how to create subtotals that summarize key sections of your financial data, such as total revenues, cost of goods sold (COGS), gross profit, and net profit. These subtotals are essential for structuring your income statement and providing clarity to users.
- Discover how to take large sets of financial data and break them down into smaller, more manageable DAX measures. By calculating subtotals individually, you'll make your reports more efficient and easier to maintain.
- Understand how to reuse existing measures to create new calculations without rewriting complex formulas. This technique will save you time and improve the consistency of your financial models.

```
1 Income Statement Data =
2 UNION( 'Company Expenses',
3     SUMMARIZE( 'Channel Revenues', 'Channel Revenues'[Channel]
```

Items	Category	Month	Values	Type	Type Index
Home Show Branch Di	Marketing	01/09/2017	$2,856.38	Expenses	2
Home Show Branch Di	Marketing	01/10/2017	$2,942.07	Expenses	2
Home Show Branch Di	Marketing	01/11/2017	$2,912.65	Expenses	2
Home Show Branch Di	Marketing	01/12/2017	$2,854.40	Expenses	2
Home Show Branch Di	Marketing	01/01/2018	$2,740.22	Expenses	2
Home Show Branch Di	Marketing	01/02/2018	$2,712.82	Expenses	2
Home Show Branch Di	Marketing	01/03/2018	$2,658.56	Expenses	2
Home Show Branch Di	Marketing	01/04/2018	$2,658.56	Expenses	2
Home Show Branch Di	Marketing	01/05/2018	$2,658.56	Expenses	2

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PRO TIPS

- Begin by calculating simple subtotals like revenues and COGS before moving on to more complex measures. This step-by-step approach ensures accuracy and builds a strong foundation for your report.
- Always ensure that expenses are represented as negative numbers. This makes it easier to calculate net profit and display accurate subtotals in your report.
- Reuse existing measures to create new ones through measure branching. For example, use your revenues and COGS measures to calculate gross profit without rewriting the entire formula.
- Where possible, use variables to simplify your DAX formulas. Variables make your formulas cleaner, easier to read, and more efficient.
- Always refer back to your income statement template when creating measures.

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10

Template Embedding

Learn how to map the template structure from Excel into Power BI, manage row ordering, and format the table correctly to display your subtotals, spaces, and indentations.

- Explore how to take your existing financial templates, such as income statements, and transform them into Power BI tables that retain the structure and formatting you designed in Excel.
- Discover the importance of a row index to ensure that your template items appear in the correct order inside your Power BI report, even when new data is added.

Row Index	Income Statement Items
24	Sealer Material
25	Fuel Expense - Const.Admin
26	Insurance - Auto/Property
27	Insurance - Health
28	Insurance - Liability/Umbrella
29	Insurance - Life

Back to Chapters

PRO TIPS

- Embedding templates into Power BI allows you to create standardized financial reports across different models.
- Sorting by row index is a key technique for ensuring that your financial reports display correctly.
- Financial reports are often divided into sections, such as revenues, COGS, and expenses. Maintaining gaps between these sections improves readability and makes your report more professional.
- Power BI's default settings for tables may include Word Wrap, which can make your tables look messy.
- Before finalizing your report, test your template with sample data to ensure that all items appear correctly and the formatting is consistent. Adjust row index values or DAX formulas as needed to fine-tune the report.

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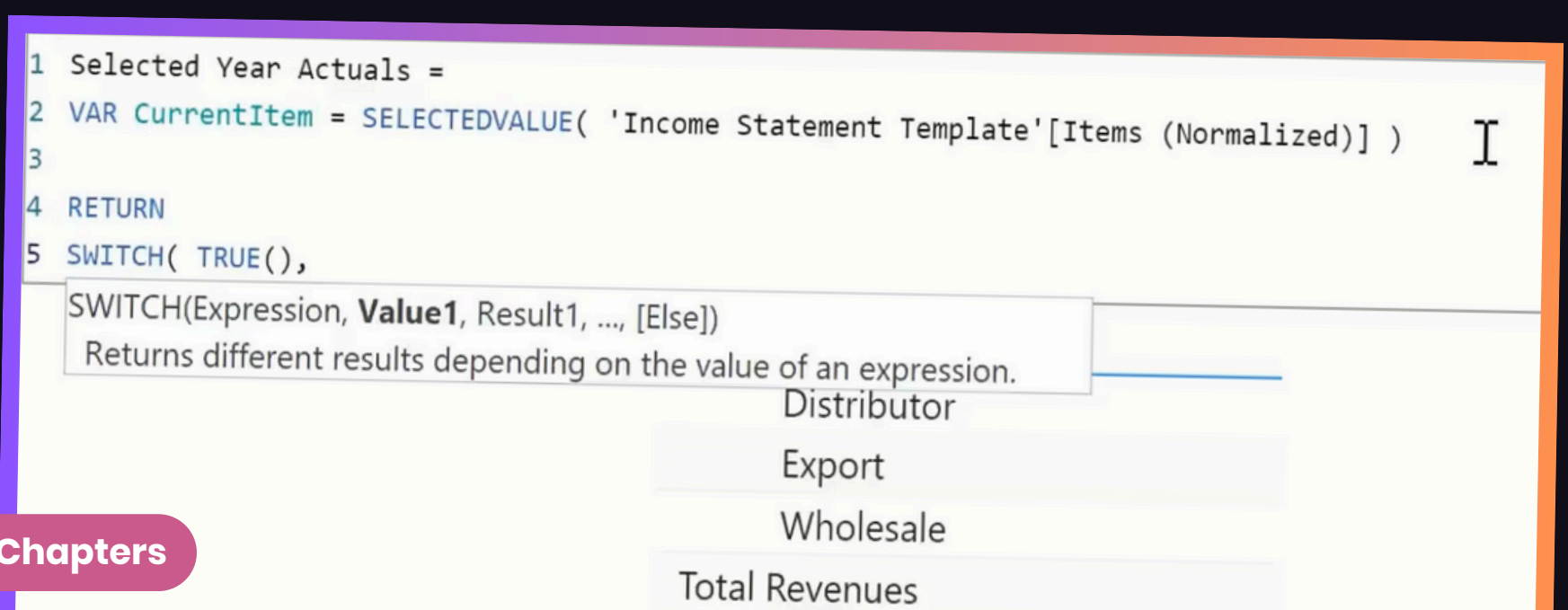
11

DAX Design Integration

Embedding DAX calculations into a financial template in Power BI requires a smart approach to dynamically associate values with their corresponding rows in the template.

Learn how to use SWITCH TRUE logic to connect your calculated values to their respective positions in a financial template.

- Explore how to apply different formats (e.g., percentages) within the same measure using the FORMAT function.
- Understand how to apply virtual filters in DAX to calculate values based on the context of the current row.



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PRO TIPS

- Using variables in DAX formulas makes your code more readable and efficient. For example, defining CurrentItem once and using it throughout the formula reduces redundancy and improves performance.
- The SWITCH TRUE function is an essential tool for mapping calculations to template rows. It allows you to handle multiple conditions within a single measure, simplifying your DAX code.
- Virtual filters in DAX enable you to dynamically filter data based on the context of the current row. This technique is particularly useful when dealing with financial templates that include both subtotals and detailed line items.
- The FORMAT function allows you to apply different formats (e.g., currency, percentage) within the same DAX formula. This is especially useful when working with financial reports that display different types of values in the same column.

12

Time Comparison Calculations

Time comparison calculations are essential for any financial report, providing valuable insights by showing how performance changes over time.

Understanding how to create last year's subtotals for key financial metrics like revenue, cost of goods sold (COGS), and net profit will help you see trends and performance changes from one period to another.

- Learn how to use DAX functions like DATEADD and SAMEPERIODLASTYEAR to calculate previous year values.
- Understand how to calculate key financial metrics such as Revenues Last Year, COGS Last Year, and Net Profit Last Year.

```
Previous Year Actuals =
VAR CurrentItem = SELECTEDVALUE( 'Income Statement Template'[Items (Normalized)] )

RETURN
SWITCH( TRUE(),
    CurrentItem = "Total Revenues" , DIVIDE( [Revenues LY], 1000, 0 ),
    CurrentItem = "Total COGS" , DIVIDE( [COGS LY], 1000, 0 ),
    CurrentItem = "Total Gross Profit", DIVIDE( [Gross Profit LY], 1000, 0 ),
    CurrentItem = "Total Other Expenses", DIVIDE( [Other Expenses LY], 1000, 0 ),
    CurrentItem = "Total Net Profit", DIVIDE( [Net Profit LY], 1000, 0 ),
    CurrentItem = "Gross Profit %", FORMAT( [Gross Margins LY], "0.00%" ),
```

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PRO TIPS

- The DATEADD function provides more flexibility than SAMEPERIODLASTYEAR, allowing you to shift dates by months, quarters, or years.
- Define key metrics like Revenues Last Year and COGS Last Year as variables within your master measure to reduce redundancy.
- Use the FORMAT function to apply different formats within the same measure. This is especially useful for metrics like gross margin percentages, which require a different format than dollar values.
- Virtual filters allow you to dynamically calculate values based on the current row in the template.
- Always test your time comparison calculations in a table visual before applying them to your final report. This helps you identify any errors or inconsistencies in your calculations.

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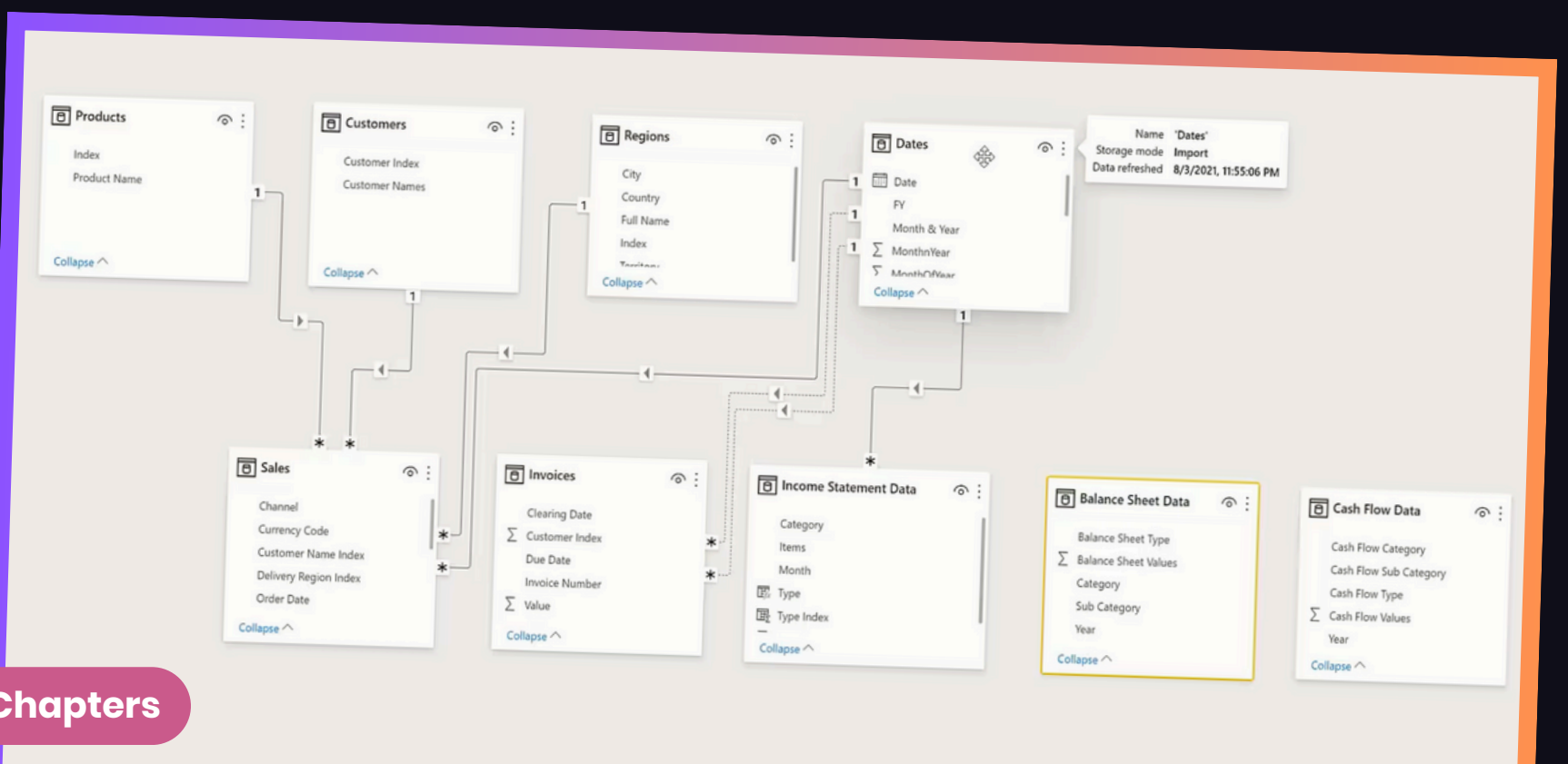
13

Data Managing

Explore how to manage data at different granularities when creating balance sheet and cash flow reports in Power BI. Unlike the income statement, where relationships between tables are more straightforward, balance sheet and cash flow data require a different approach due to their granular differences and lack of direct relationships to the date table.

Discover how to handle balance sheet and cash flow data, even without creating physical relationships in your data model.

- Learn why balance sheet and cash flow data require different handling compared to income statement data due to their unique granularity.



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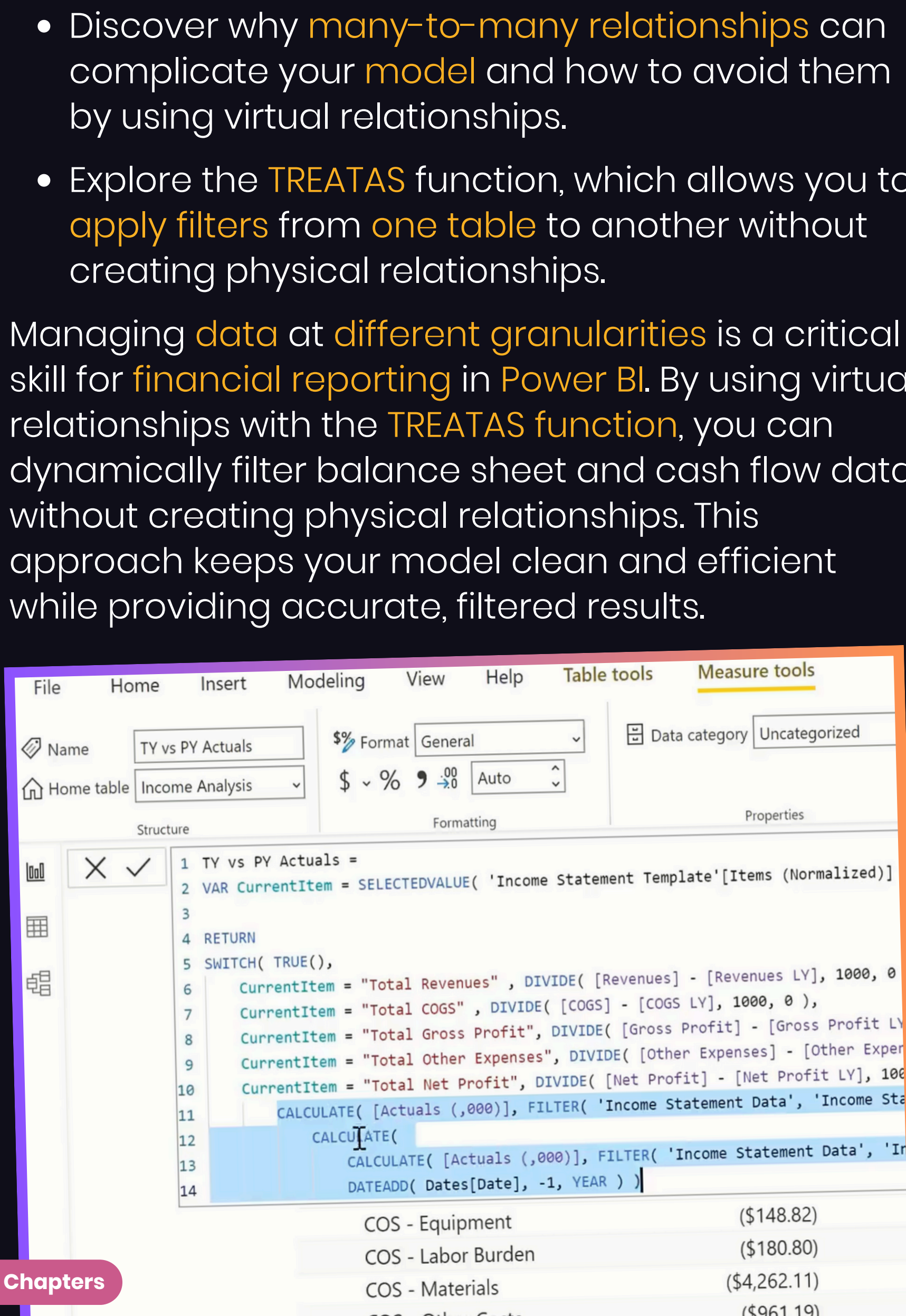
- Discover why many-to-many relationships can complicate your model and how to avoid them by using virtual relationships.
- Explore the TREATAS function, which allows you to apply filters from one table to another without creating physical relationships.

Managing data at different granularities is a critical skill for financial reporting in Power BI. By using virtual relationships with the TREATAS function, you can dynamically filter balance sheet and cash flow data without creating physical relationships. This approach keeps your model clean and efficient while providing accurate, filtered results.



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PRO TIPS

- Power BI allows many-to-many relationships, but they can create ambiguous filtering paths and slow down your model.
- Creating unnecessary relationships can clutter your model and make it harder to maintain. Using virtual relationships keeps your model clean, reduces the number of physical relationships, and improves performance.
- Before applying your measures to complex visuals, test them in a table visual to ensure they are working as expected.
- The same TREATAS technique can be applied to your Cash Flow Data. Create a separate measure group for cash flow analysis and use TREATAS to apply year filters from the Dates table.

14

SWITCH/TRUE Logic

Explore creating a master DAX formula using SWITCH/TRUE logic to dynamically populate a balance sheet template in Power BI. This approach will allow us to automate the placement of balance sheet values and financial ratios into the correct rows of our report, making it easy to switch between different years and contexts.

- Learn how to use SWITCH/TRUE logic to identify and populate the correct rows in your template based on your normalized balance sheet structure.
- Discover how to calculate and format subtotals and common financial ratios directly within your master formula to streamline your report-building process.

```
B/S Values =
VAR CurrentItem = SELECTEDVALUE( 'Balance Sheet Template'[Balance Sheet Normalized] )

RETURN
SWITCH( TRUE(),
    CurrentItem = "Total current assets", [Current Assets],
    CurrentItem = "Total Fixed Assets", [Fixed Assets],
    CurrentItem = "Total Other Assets", [Other Assets],
    CurrentItem = "Total Assets", [Total Assets],
    CurrentItem = "Total Current Liabilities", [Current Liabilities],
    CurrentItem = "Total Long-Term Liabilities", [Long-Term Liabilities],
    CurrentItem = "Total Owner's Equity", [Owners Equity],
    CurrentItem = "Total Liabilities and Owner's Equity", [Liabilities and Owners Equity],
    CurrentItem = "Debt Ratio (Total Liabilities / Total Assets)", FORMAT( DIVIDE( [Current Liabilities] + [Long-Term Liabilities], [Total Assets], 0), "0.00" ),
    CurrentItem = "Current Ratio (Current Assets / Current Liabilities)", FORMAT( DIVIDE( [Current Assets], [Total Assets], 0 ), "0.00" ),
    CurrentItem = "Working Capital (Current Assets - Current Liabilities)", FORMAT( [Current Assets] - [Current Liabilities], "0" ),
    CurrentItem = "Assets-to-Equity Ratio (Total Assets / Owner's Equity)", FORMAT( DIVIDE( [Total Assets], [Owners Equity], 0 ), "0.00" ),
    CurrentItem = "Debt-to-Equity Ratio (Total Liabilities / Owner's Equity)", FORMAT( DIVIDE( curr, [Owners Equity], 0 ), "0.00" ),
        CALCULATE( [BS Values], FILTER( 'Balance Sheet Data', 'Balance Sheet Data'[Sub Category
```

CURRENCY — Returns the value as a currency data type.
[Current Assets]
[Current Liabilities]
currentitem

Property, plant, and equipment
(Less accumulated depreciation)
Intangible assets

Back to Chapters

Now that we've created and applied our SWITCH/TRUE logic measure to dynamically populate the balance sheet template, it's time to refine the visual design of our report. Explore how to optimize the balance sheet view by displaying it by year using a matrix visual, ensuring that subtotals and summary calculations are presented correctly without unnecessary duplications from Power BI's built-in features.

- Understand how to turn off built-in subtotals and grand totals in Power BI to avoid redundancy, ensuring that your custom measures take precedence.
- Learn how to transition from a table visual to a matrix visual to dynamically display balance sheet items by year.
- Discover how TreatAs enables you to filter your balance sheet data by year even without physical relationships between tables.

Balance Sheet Items	2015	2016	2017	2018	Total
Assets					
Current Assets					
Cash	$11,875.15	$11,876.30	$11,877.45	$11,878.60	**$47,507.50**
Accounts receivable	$4,216.15	$4,217.30	$4,218.45	$4,219.60	**$16,871.50**
Inventory	$2,146.15	$2,147.30	$2,148.45	$2,149.60	**$8,591.50**
Prepaid expenses	$355.15	$356.30	$357.45	$358.60	**$1,427.50**
Short-term investments	$255.15	$256.30	$257.45	$258.60	**$1,027.50**
Total current assets	$18,847.75	$18,853.50	$18,859.25	$18,865.00	**$75,425.50**
Fixed (Long-Term) Assets					
Long-term investments	$1,209.15	$1,210.30	$1,211.45	$1,212.60	**$4,843.50**
Property, plant, and equipment	$15,341.15	$15,342.30	$15,343.45	$15,344.60	**$61,371.50**
(Less accumulated depreciation)	($2,198.85)	($2,197.70)	($2,196.55)	($2,195.40)	**($8,788.50)**
Intangible assets	$2,216.15	$2,217.30	$2,218.45	$2,219.60	**$8,871.50**
Total fixed assets	$16,567.60	$16,572.20	$16,576.80	$16,581.40	**$66,298.00**
ets					
eferred income tax	$388.30	$390.60	$392.90	$395.20	**$1,567.00**

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PRO TIPS

- Use variables in your formulas to make them cleaner and more efficient. Variables also help improve performance by reducing redundant calculations.
- Instead of creating separate measures for each financial ratio, incorporate them directly into your SWITCH/TRUE logic. This makes your model more streamlined and efficient.
- Leverage virtual filters in CALCULATE to dynamically filter values based on the current row in your template. This eliminates the need for physical relationships and keeps your data model cleaner.
- Always test your measures in a table visual to ensure they produce the expected results before embedding them in more complex visuals. This helps you catch errors early and understand how your formula behaves in different contexts.

15

Summary Table

Learn how to extract key financial ratios from our balance sheet table and present them in a separate summary table.

Applying filters and leveraging templated structures will allow you to reuse existing measures and present key insights more concisely without duplicating work.

- Learn how to reuse your existing balance sheet table to create custom summary visuals with minimal effort.
- Understand how to apply field filters to target specific rows in your templated table, allowing you to showcase only key financial ratios.

Balance Sheet Items	2015	2016	2017	2018
Total Other Assets	$460.30	$462.60	$464.90	$467.20
Total Assets	$35,875.65	$35,888.30	$35,900.95	$35,913.60
Liabilities and Owner's Equity				
Current Liabilities				
Accounts payable	$8,061.15	$8,062.30	$8,063.45	$8,064.60
Short-term loans	$201.15	$202.30	$203.45	$204.60
Income taxes payable	$3,146.15	$3,147.30	$3,148.45	$3,149.60
Accrued salaries and wages	$51.15	$52.30	$53.45	$54.60
Unearned revenue	$334.15	$335.30	$336.45	$337.60
Current portion of long-term debt	$1.15	$2.30	$3.45	$4.60
Total current liabilities	$11,794.90	$11,801.80	$11,808.70	$11,815.60
Long-Term Liabilities				
Long-term debt	$3,451.15	$3,452.30	$3,453.45	$3,454.60
ed income tax	$388.30	$390.60	$392.90	$395.20
	$438.45	$441.90	$445.35	$448.80

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PRO TIPS

- Instead of creating new visuals from scratch, reuse your templated tables to save time. The work you've done in setting up the template and calculations can be easily repurposed to create new insights.
- Applying field filters allows you to extract specific rows or categories from your templated table. This approach is far more efficient than creating new measures for every subset of data you want to showcase.
- To maintain clean and concise reports, avoid showing the same values in multiple places. If you create a standalone summary table, consider removing those values from the original table to avoid confusion.
- You can further customize your summary table by applying additional filters. For example, you can create a time-based filter to show how financial ratios have changed over time.

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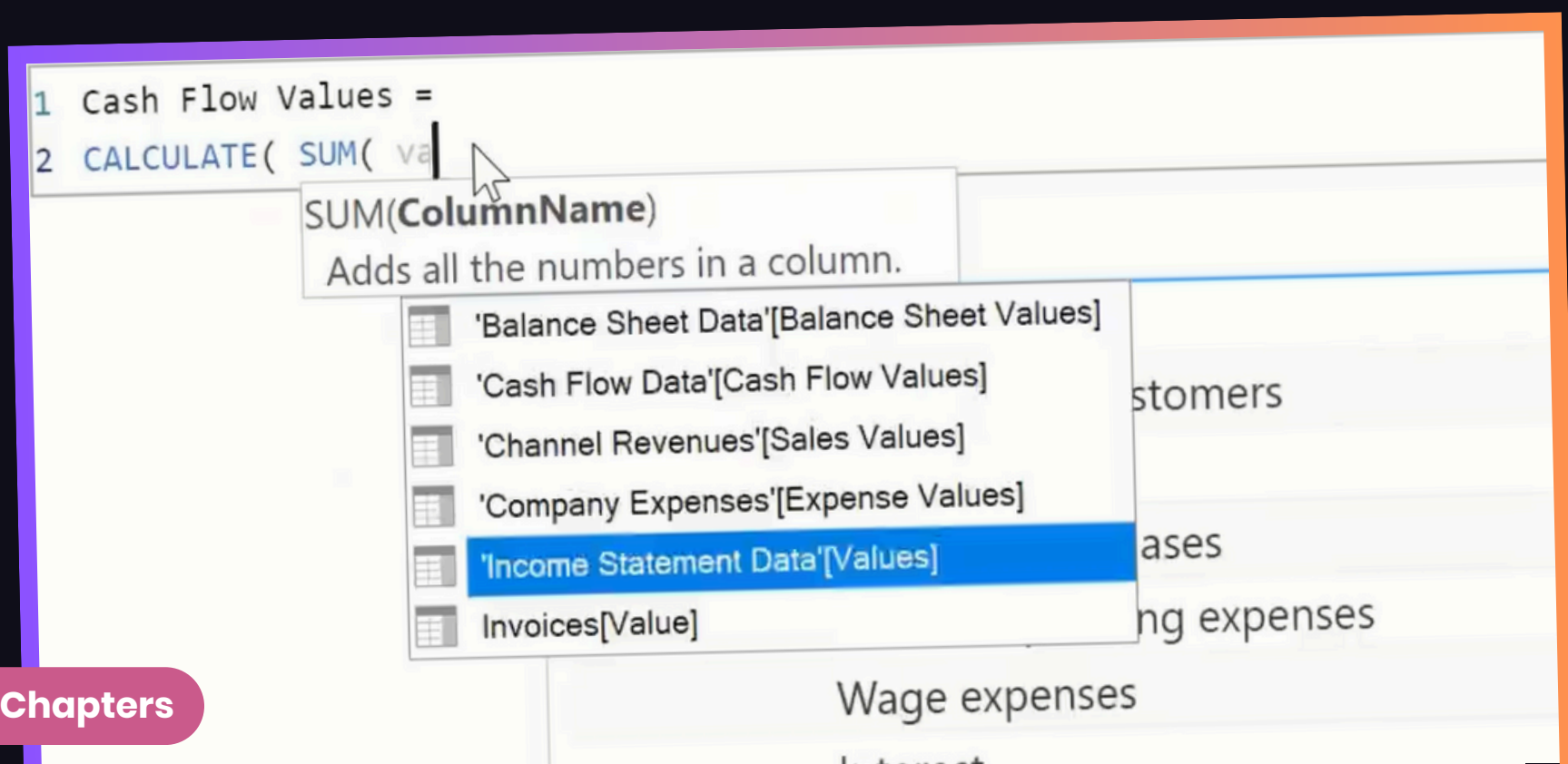
16

DAX Functions

Discover creating the cash flow statement in Power BI, using DAX functions to build a dynamic report template. The cash flow statement is often more unique and complex than other financial reports, with categories like operating activities, investing activities, and financing activities.

- Learn how to create virtual relationships to filter your cash flow data by year without creating a physical relationship in the data model.
- Understand how to integrate your cash flow template design into Power BI for a fully dynamic report and create an initial DAX measure to sum up your cash flow values and connect them to your report template.



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PRO TIPS

- Instead of creating a many-to-many relationship in your model, use the TREATAS function to establish a virtual relationship. This keeps your data model cleaner and more efficient.
- Ensure your cash flow template is properly formatted before creating your DAX calculations. This includes adjusting row headers, column headers, and word wrap settings to make your table look professional and easy to read.
- The cash flow statement can be broken down into Operating, Investing, and Financing Activities, and ensure your measures are structured to align with these sections.
- Always begin with a master calculation that sums your values and applies filters as needed. This measure will serve as the foundation for all subsequent subtotals and calculations.

17

Summary Totals

Explore calculating the summary totals and subtotals required for your cash flow statement. These subtotals are critical for breaking down your cash flow data into meaningful sections, such as operating activities, investing activities, and financing activities.

Discover creating measures for cash receipts and cash payments, calculate net cash flows, and ensure that the beginning and ending cash balances are correctly included that can be dynamically displayed in your cash flow template.

- Learn how to calculate the key subtotals for operating, investing, and financing activities using DAX measures.

```
1 Cash Paid For - Financing =
2 CALCULATE( [Cash Flow Values],
3     FILTER( 'Cash Flow Data',
4         'Cash Flow Data'[Cash Flow Category] = "Cash paid for" &&
5         'Cash Flow Data'[Cash Flow Type] = "Financing Activities" ))
```

Cash receipts from customers

Cash paid for

Inventory purchases

General operating expenses

Wage expenses

Back to Chapters

PRO TIPS

- Keep your measure names consistent and descriptive. For example, use names like Cash Flow from Operations (Receipts) and Cash Flow from Operations (Payments) to make it clear what each measure represents.
- When creating subtotals, ensure that your filters are accurate. Double-check your data to ensure you're capturing the correct cash receipts and cash payments for each section.
- Use measure branching to automate the calculation of net cash flows by subtracting payments from receipts. This approach makes it easier to maintain your model and update it if your data changes.
- Refer back to your cash flow template to ensure you're capturing all necessary subtotals. The template design should guide your measure creation process.

18

Dynamic Grouping

Explore advanced dynamic grouping techniques to categorize invoices based on their aging status from a selected date. This technique is highly reusable and applicable to a wide range of grouping scenarios in Power BI.

Discover creating a dynamic grouping table, implement a DAX formula to categorize invoices into specific aging buckets, and build a summary table that displays the grouped totals.

- Learn to create a custom grouping table in Power BI, which is essential for dynamic group-based analysis.
- Discover how to use DAX filters to iterate through rows of a table and evaluate if data belongs in a specific group.

```
1 Receivables Per Group =
2 CALCULATE( [Invoice Values],
3     FILTER( Invoices,
4         COUNTROWS(
5             FILTER( 'Aged Debtor Groups',
6                 [Days Left] >= 'Aged Debtor Groups'[Min] &&
7                 [Days Left] <= 'Aged Debtor Groups'[Max] ) ) > 0 ) )
```

Customer Names	Invoice Number	Due Date	Age 1 - 30 Days	Age 31 - 60 Days	Age 61 - 90 Days	Age 9
Accord Group	Inv00092	30/07/2019				
		Total				
	Inv00607	14/03/2019		9925		
		Total		**9925**		

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PRO TIPS

- The key to dynamic grouping is creating a separate grouping table. This table must contain the group names, sort order, and range boundaries (Min/Max values).
- The dynamic grouping formula is reusable across different reports. Simply adjust the grouping table to suit your needs.
- Break down complex formulas into smaller measures to make your calculations more efficient and easier to debug.
- Ensure your dynamic grouping formula works with various date selections and data sets to verify accuracy.
- Always start with a dedicated grouping table for flexibility. It allows for easy adjustments without modifying formulas.

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19

Dynamic Visualization

Dynamic visualizations allow users to interact with their financial data in a more intuitive way by selecting different metrics or results directly within their reports. Learn how to build a dynamic table that changes based on user input, showcasing metrics like actuals, previous year comparisons, and percentage to revenue, all within a single formula-driven structure.

- Learn how to create custom tables that act as slicers for dynamic visualizations. These tables allow users to switch between different metrics seamlessly.

```
% to Revenue =
VAR CurrentItem = SELECTEDVALUE( 'Income Statement Template'[Items (Normalized)] )

RETURN
SWITCH( TRUE(),
    CurrentItem = "Total Revenues", FORMAT( 1, "0.00%" ),
    CurrentItem = "Total COGS", FORMAT( DIVIDE( [COGS], [Revenues], 0 ), "0.00%" ),
    CurrentItem = "Total Gross Profit", FORMAT( DIVIDE( [Gross Profit], [Revenues], 0 ), "0,00%" ),
    CurrentItem = "Total Other Expenses",  FORMAT( DIVIDE( [Other Expenses], [Revenues], 0 ), "0.00" ),
    CurrentItem = "Total Net Profit", FORMAT( DIVIDE( [Net Profit], [Revenues], 0 ), "0.00%" ),
        FORMAT( DIVIDE( CALCULATE( [Actuals (,000)] * 1000,
            FILTER( 'Income Statement Data', 'Income Statement'[Items] = CurrentItem ) ), [Revenues], 0 ), "0.00%" ) )
```

Export
Wholesale
Total Revenues
COS - Commissions
COS - Equipment

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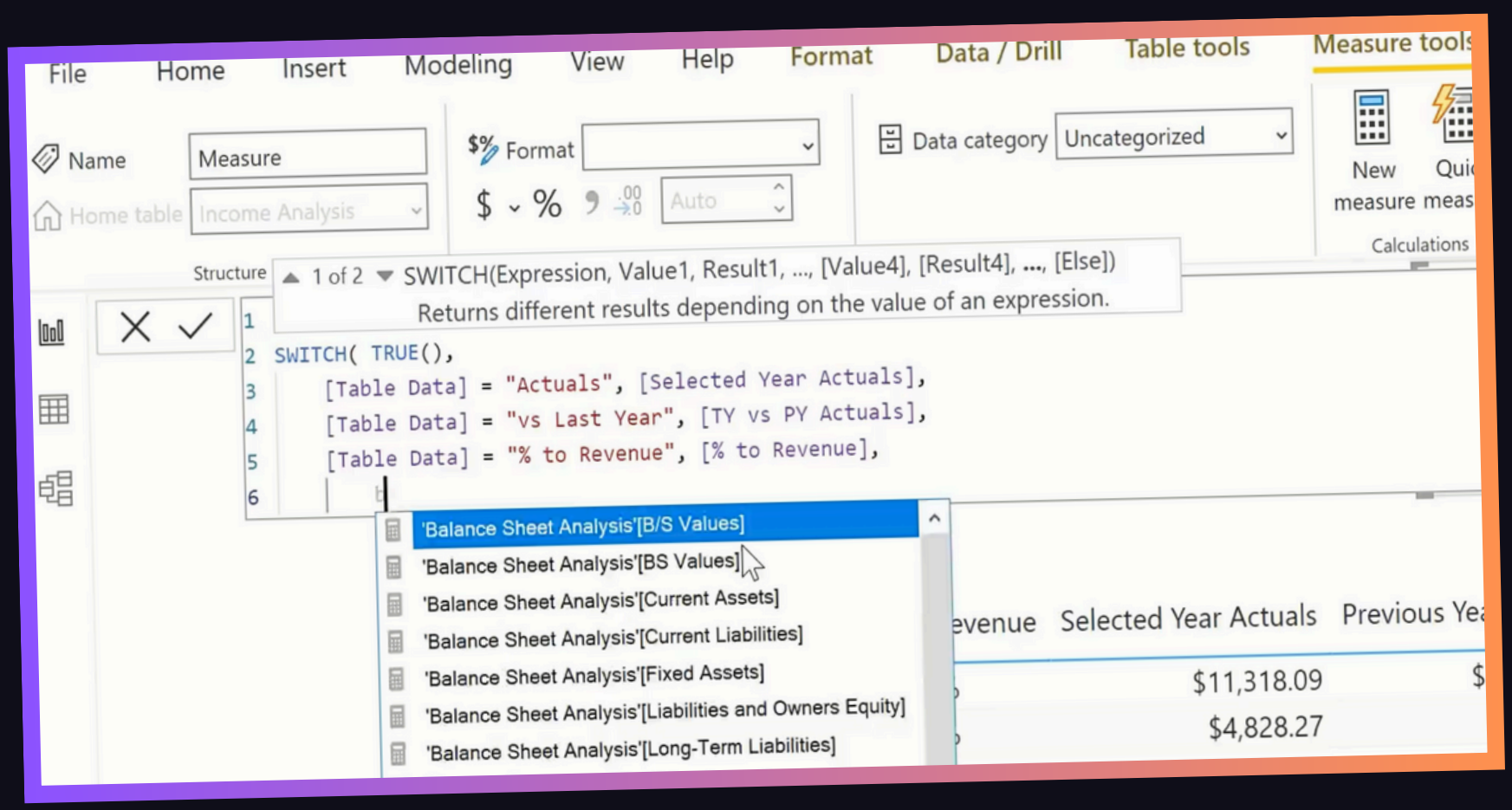
- Understand how to apply SWITCH/TRUE logic to dynamically update your tables and visuals based on user selections.
- Discover how to reuse existing measures in dynamic calculations, reducing redundancy and improving performance.
- Gain insights into how SELECTEDVALUE works to filter your visuals dynamically based on user inputs.

Dynamic visualizations in Power BI bring financial reports to life by allowing users to interact with the data. By leveraging supporting tables, SWITCH/TRUE logic, and SELECTEDVALUE, you can create flexible and engaging reports that adapt to user inputs.



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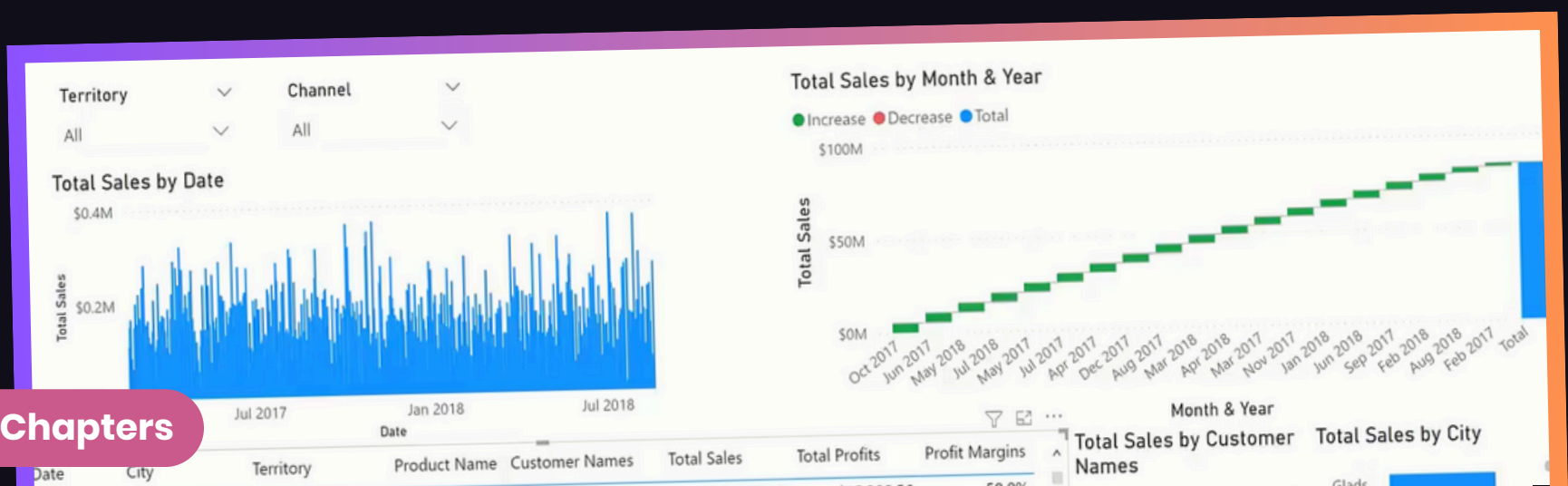
Key Revenue Insights

Bringing it together, explore creating a fully dynamic Revenue Insights Dashboard in Power BI. This dashboard will provide a breakdown of key revenue figures, sales performance by various dimensions, and insightful visualizations such as waterfall charts and sales summaries.

Learn how quickly and efficiently you can generate actionable insights by leveraging your existing DAX measures and data models.

- Use your pre-built DAX formulas such as Total Sales, Total Profit, and Profit Margins to populate your report pages with key metrics and learn how to create and configure slicers for date, territory, and channel, allowing users to drill into specific data points.



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PRO TIPS

- Make sure all visuals on the page are filtered by the same Date Slicer, Territory, and Channel slicers to ensure consistency across your report.
- Waterfall charts are perfect for visualizing how revenue or profit has changed over time. They show the incremental changes in values clearly and effectively.
- Use dynamic DAX measures, such as This Year vs. Last Year or Percentage to Revenue, to add more depth to your insights.
- Apply conditional formatting to your tables and charts to highlight key insights, such as high-performing customers or months with negative profit margins.
- Waterfall charts are an excellent way to visualize how values increase or decrease over time, and they are much easier to create in Power BI compared to Excel.

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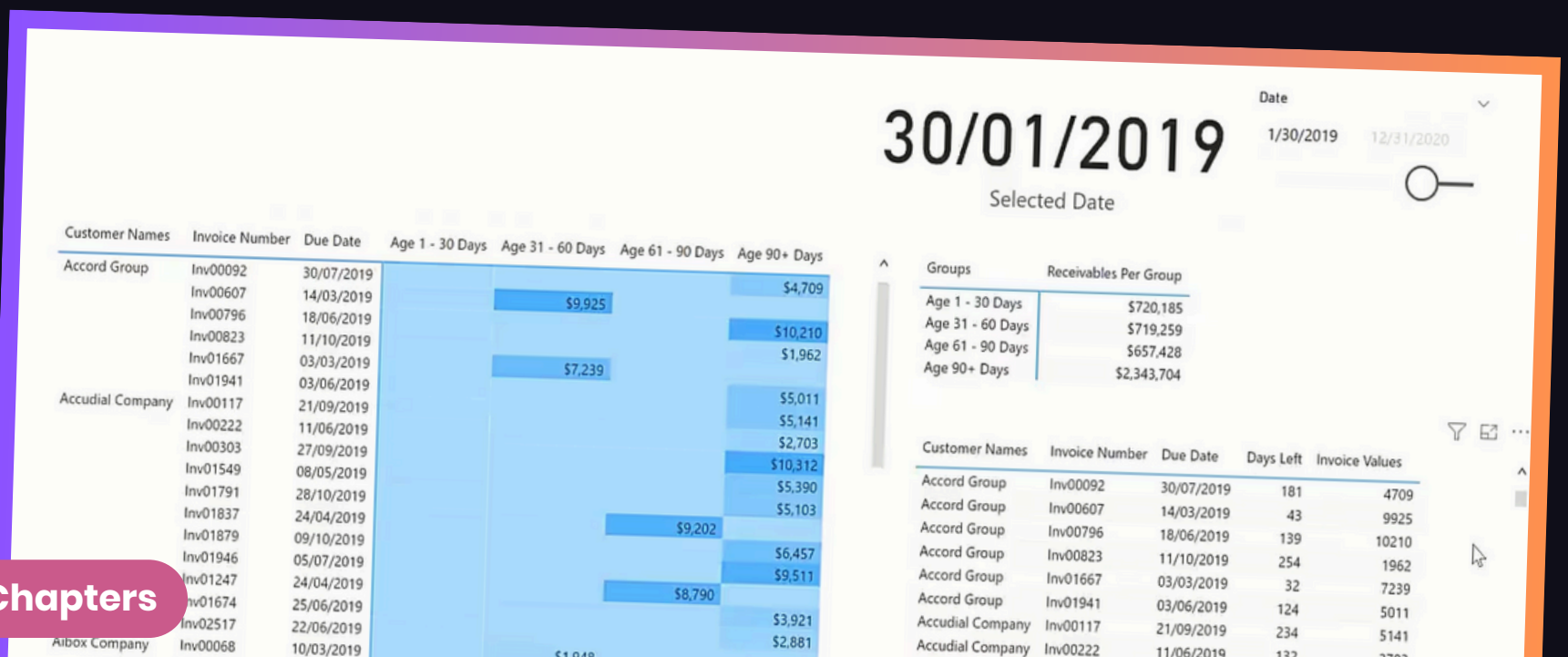
Visualization Tips

Explore how to make your Power BI reports more visually appealing and user-friendly by applying various formatting techniques, improving readability, highlighting key insights, and ensuring your reports look professional and polished.

- Titles should clearly indicate what the report or visual represents. Use text boxes to add context or instructions for users.
- Use icons or logos to improve the aesthetic of your report. Ensure logos are placed in a clean, unobtrusive way that doesn't distract from the content.
- Change slicer styles (e.g., dropdowns, sliders) to fit your report layout. Adjust slicer colors and formatting to match your report's theme.



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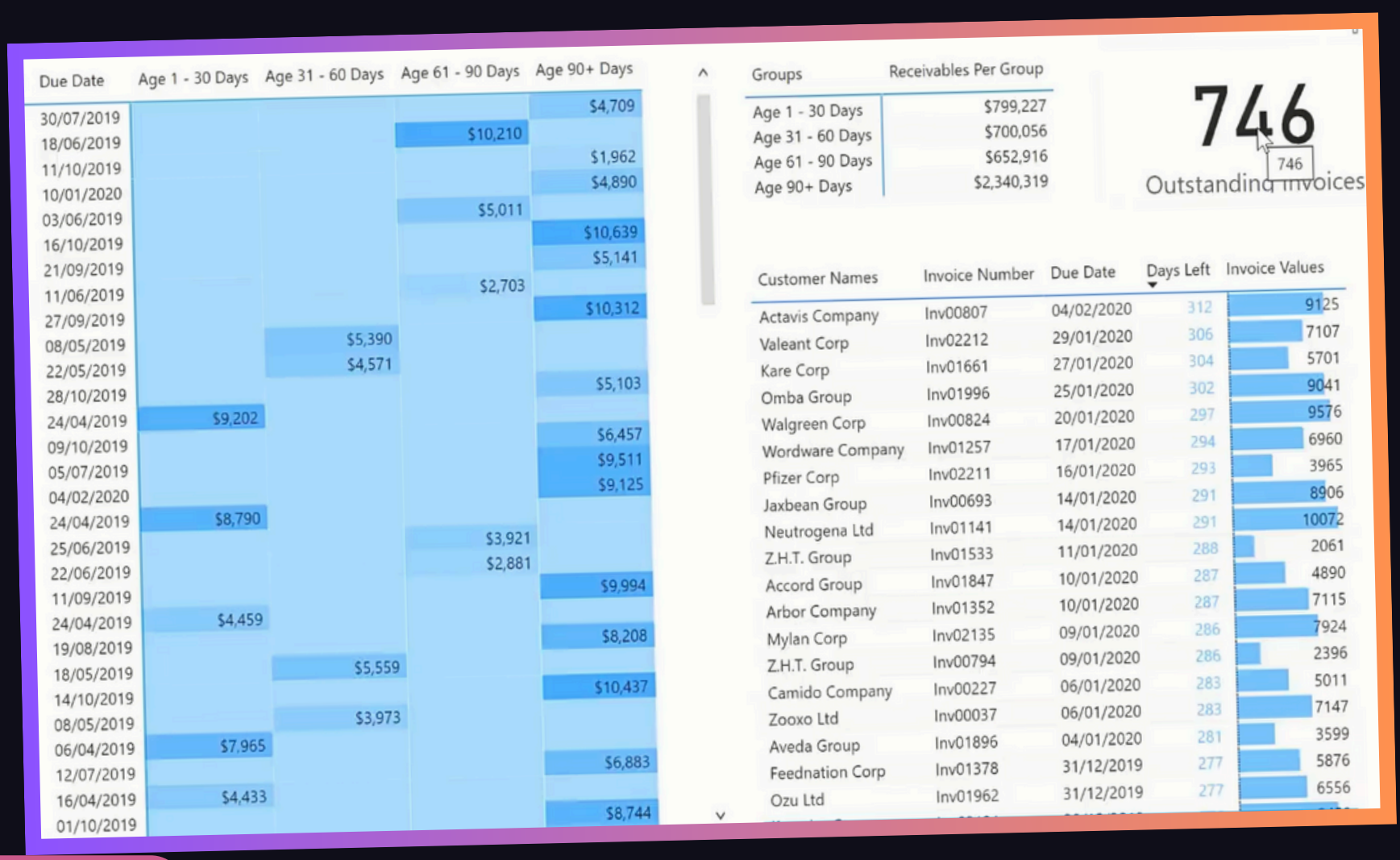
Learn how to set up a colour palette, apply conditional formatting, adjust table and chart settings, and create visually appealing layouts.

- Learn how to create a custom JSON-based colour palette and apply it as a theme in Power BI and understand the importance of a consistent colour scheme to maintain a professional report look.
- Discover why darker backgrounds help visuals stand out and apply background colours that improve readability and make data pop.
- Use conditional formatting to highlight key metrics and add data bars for quick, visual representation of values within tables.



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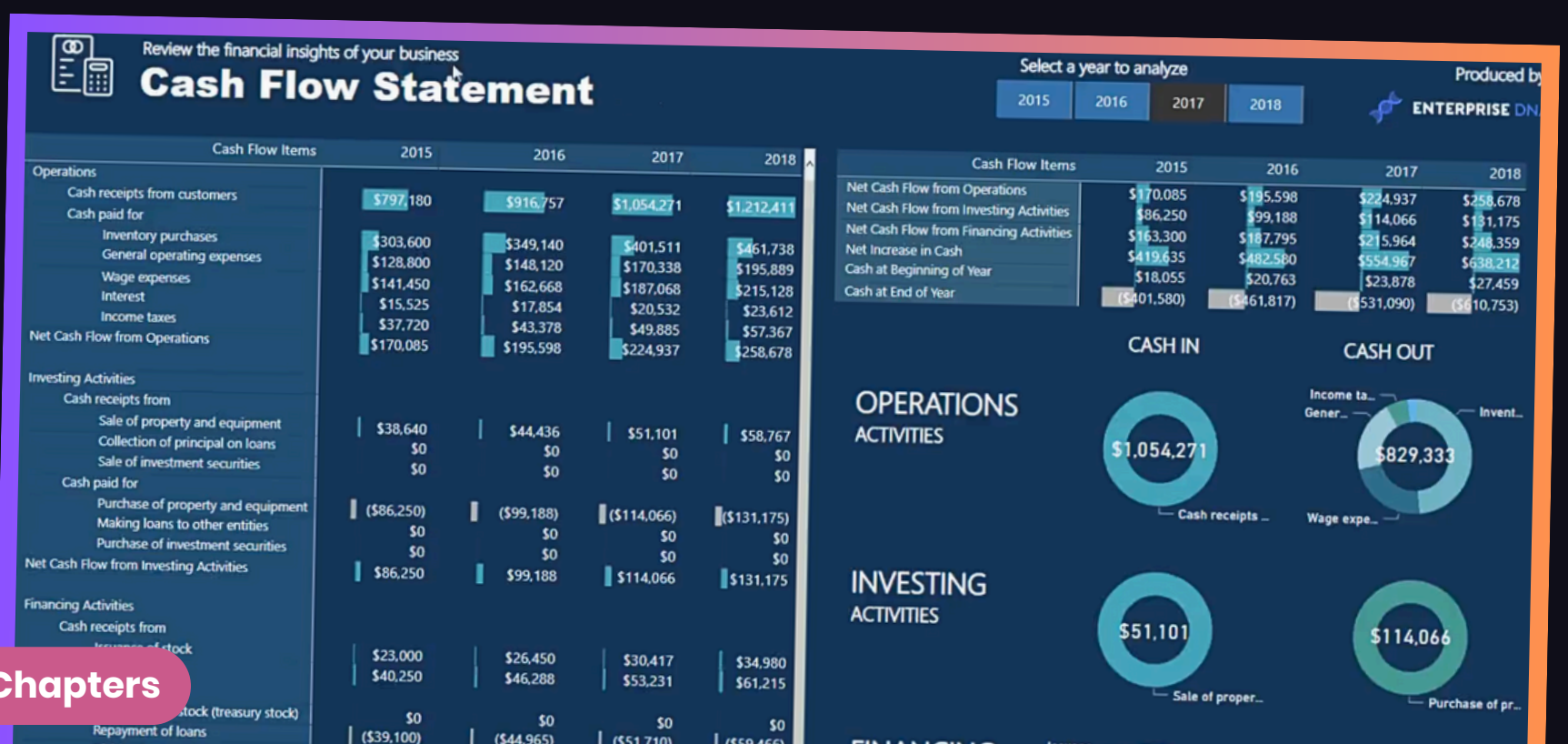
Interactive report navigation can transform your Power BI report into a user-friendly, app-like experience. By using unique icons and bookmarks, you can make it easier for users to move between different report pages, adding a layer of professionalism and enhancing user engagement.

- Learn how to create bookmarks for specific report pages and states, including filters and use bookmarks to control the view users see when navigating through your report.
- Use unique icons to create interactive buttons for users to click and navigate between pages and customize actions on icons to link them to specific bookmarks.
- Add tooltips to icons to guide users on what each button does and ensure users can easily understand the purpose of each navigation element.



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PRO TIPS

- A well-thought-out color palette improves the readability and professionalism of your report. Avoid random colors that clash with your theme.
- Keep your report layout clean and avoid overcrowding with too many visuals. Focus on the most important insights.
- Experiment with different chart types (e.g., bar charts, waterfall charts) to see which best represents your data.
- Use subtle background colors or shapes to group related visuals and make your report visually appealing.
- Apply your theme consistently across all visuals to maintain a polished look and avoid random colour choices that can distract users.
- Keep the report page clean and avoid overcrowding visuals and use whitespace effectively to make key insights stand out.

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Check out ‘Financial Reporting With Power BI’ to learn more

Course now available on EDNA Learn

*This resource content was created from this comprehensive course within Enterprise DNA’s learning platform EDNA Learn

This is fancy QR code. Give it a try.

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For further deep dives into R and Data Analysis topics check out

Skills Advisor

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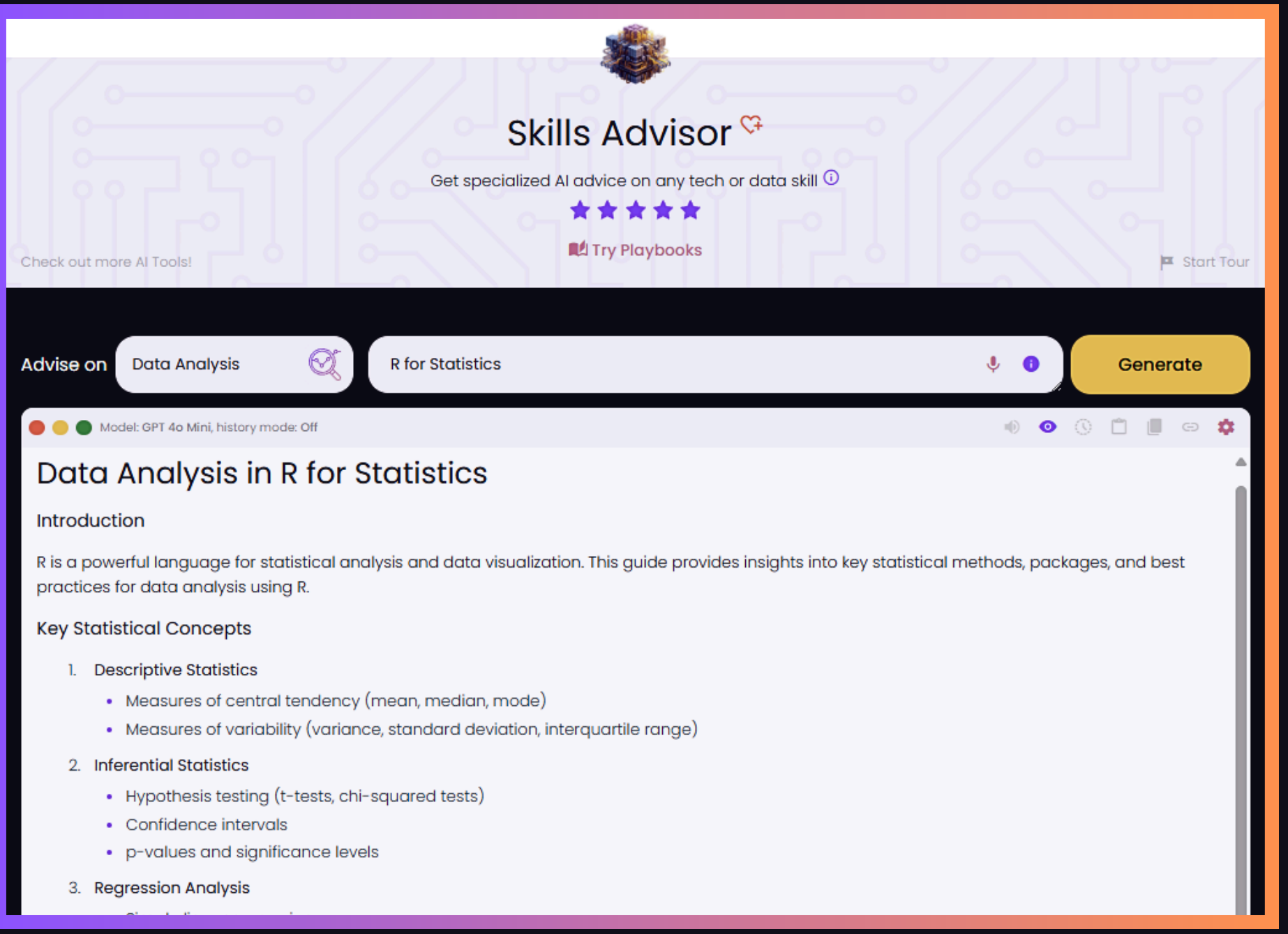

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