

## Case Study #1

### Case Study Overview:

As the lead analyst for **Maven Cycles**, you've been tasked with building out a new Power BI reporting solution that will enable exploratory analysis for other users in the company. Once built, you'll need to publish and distribute this report using Power BI Service.

Below is a summary of the data used by Maven Cycles for reporting:

Table Name	Column Name	Data Type
Calendar_Lookup	date_key	Whole Number
	date	Date
	year	Whole Number
	quarter	Whole Number
	month	Whole Number
	week	Whole Number
Customer_Lookup	customer_key	Whole Number
	first_name	Text
	last_name	Text
	address	Text
Product_Lookup	product_key	Whole Number
	subcategory_key	Whole Number
	product_name	Text
	product_cost	Decimal
	product_price	Decimal
Returns_Data	return_date	Date
	territory_key	Whole Number
	product_key	Whole Number
	quantity_returned	Whole Number
Sales_Data	order_date	Date
	order_number	Whole Number
	product_key	Whole Number
	customer_key	Whole Number
	territory_key	Whole Number
	quantity_ordered	Whole Number
Territories_Lookup	territory_key	Whole Number
	region	Text
	country	Text
	continent	Text

Source: AdventureWorks sample database | License: The MIT License

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### Important Notes:

- User access is currently controlled via static RLS policies based on [region]
- Each territory manager is responsible for a single region
- Sales\_Data also contains columns for **shipping\_date**, **discount\_rate**, **item\_profit\_ratio**
- Returns\_Data also contains columns for **return\_initiated\_date**, **return\_type**
- You may encounter the following issues in the data:
  - Blank & null values
  - Inconsistent categorical values (*country name vs. abbreviation*)
  - Possible outlier values
  - Incorrect data types (*text formatted as values*)

### Project Requirements:

- The leadership team would like to be able to see total sales by:
  - Region name (*i.e. "North", "South", "East", "West"*)
  - Year, Quarter, Month (*i.e. "2021", "Q1 2021", "Apr 2021"*)
  - Customer Age Group (*i.e. "18-24", "25-34", "35-54", "55+"*)
- The VP of Inventory Management has requested visuals showing:
  - Sales transaction trends
  - Inventory turnover ratio
- Territory managers have requested visuals showing:
  - Transaction trends (*i.e. YTD, Previous Month, Previous Quarter*)
  - Transactions by Product
  - Returns by Product Category