

# Lab 3 – Create PBI reports

## Lab Guide

October 2024

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## Lab overview

This lab bridges the gap between raw data and actionable insights, enabling Contoso to create powerful, data-driven reports. Through this exercise, we see how Contoso is moving from data consolidation and integration to the active deployment of insights across the business, all enabled by the advanced analytics and visualization capabilities of Power BI.

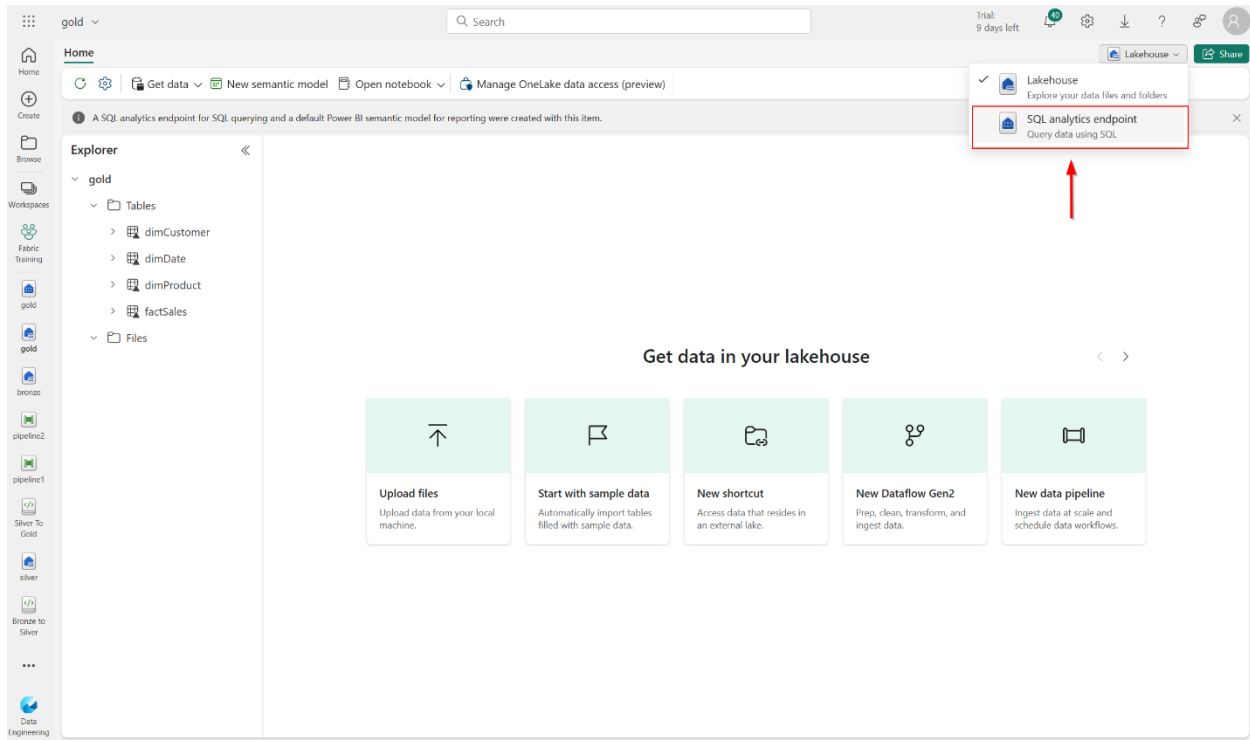
In this lab, you will perform the following tasks:

1. Create a semantic model and its relationships
2. Create a Power BI report by using Direct Lake mode

## Task 01: Create a new semantic model and choose required tables

Begin by crafting a new semantic model in Power BI, selecting the necessary tables from the gold lakehouse. This model serves as the foundation for all further analysis, encapsulating the logic and structure needed to explore Contoso's data effectively.

Open your gold lakehouse. In the upper-right, next to Share, select the menu and select SQL analytics endpoint:



You will land in the SQL analytics endpoint where after some seconds you can see the tables of your gold lakehouse under the dbo schema.

gold

Home

Create

Browse

Workspace

Fabric Training

gold

bronze

pipeline2

pipeline1

Silver To Gold

silver

Browse to Silver

...

SQL analytics endpoint

Reporting

New SQL query

New visual query

New report

New measure

Explorer

Warehouses

gold

Schemas

dbo

Tables

dimCustomer

dimDate

dimProduct

factSales

Views

Functions

Stored Procedur...

guest

INFORMATION SCHE...

queryinsights

sys

Security

Queries

My queries

Shared queries

Data preview

Showing 417 rows

Search

	12L CustomerIDKey	123 CustomerID	ABC Title	ABC FirstName	ABC MiddleName	ABC LastName	ABC Suffix	ABC CompanyName	ABC EmailAddress
1	0	29784	Ms. Jeanie	R.	Glenn	PhD		Big-Time Bike Store	jeanie0@adventure-works.co
2	1	29557	Mr. Alexander	J.	Berger	II		Odometers and Accessories Company	alexander0@adventure-works
3	2	29562	Mr. Steven	B.	Brown	IV		Golf and Cycle Store	stevan1@adventure-works.co
4	3	29577	Mr. Lester	J.	Bowman	Sr.		Metal Processing Company	lester0@adventure-works.co
5	4	29584	Mr. Walter	J.	Brian	IV		Futuristic Bikes	walter0@adventure-works.co
6	5	29714	Mr. Rudolph	J.	Dillon	Sr.		Sundry Sporting Goods	rudolph0@adventure-works.c
7	6	29975	Mr. Walter	J.	Mays	Sr.		Sports Products Store	walter1@adventure-works.co
8	7	29980	Mr. Tomas	M.	Manzanaros	II		Authentic Sales and Service	tomas0@adventure-works.co
9	8	30000	Mr. James	L.	McCoy	II		Leather Seat Factory	james12@adventure-works.co
10	9	30083	Mr. Glenn	J.	Track	II		Active Life Toys	glenn0@adventure-works.co
11	10	30109	Mr. Nieves	J.	Vargas	II		Exhilarating Cycles	nieves0@adventure-works.co
12	11	29522	Mr. Thomas	B.	Armstrong	Jr.		Resale Services	thomas1@adventure-works.co
13	12	29532	Mr. James	B.	Bailey	Jr.		Road-Way Mart	james3@adventure-works.co
14	13	29533	Mr. Douglas	A.	Baldwin	Jr.		Small Cycle Store	douglas1@adventure-works.c
15	14	29546	Mr. Christopher	R.	Beck	Jr.		Bulk Discount Store	christopher1@adventure-wor
16	15	29550	Mr. Stanley	A.	Alan	Jr.		Another Bicycle Company	stanley0@adventure-works.co
17	16	29558	Mr. John	M.	Berger	Jr.		Scratch-Resistant Finishes Company	john10@adventure-works.co
18	17	29588	Mr. Willie	P.	Brooks	Jr.		Nonskid Tire Company	willie0@adventure-works.co
19	18	29608	Mr. Timothy	B.	Burnett	Jr.		Farthest Bike Store	timothy0@adventure-works.c
20	19	29627	Mr. Johnny	A.	Caprio	Jr.		Bikes and Motorbikes	johnny0@adventure-works.co
21	20	29822	Mr. James	B.	Haug	Jr.		Family Cycle Store	james0@adventure-works.co
22	21	30027	Mr. Joseph	P.	Miltzner	Jr.		Engineered Bike Systems	joseph4@adventure-works.co
23	22	30105	Mr. Gregory	T.	Vanderblout	Jr.		Convenient Sales and Service	gregory1@adventure-works.c
24	23	29485	Ms. Catherine	R.	Abel	null		Professional Sales and Service	catherine0@adventure-works
25	24	29489	Ms. Frances	B.	Adams	null		Area Bike Accessories	frances0@adventure-works.co
26	25	29490	Ms. Margaret	J.	Smith	null		Bicycle Accessories and Kits	margaret0@adventure-works
27	26	29499	Ms. Amy	E.	Alberts	null		Valley Toy Store	amy1@adventure-works.com
28	27	29517	Ms. Ramona	J.	Antrim	null		Novelty Bikes	ramona0@adventure-works.c

Succeeded (9 sec 923 ms)

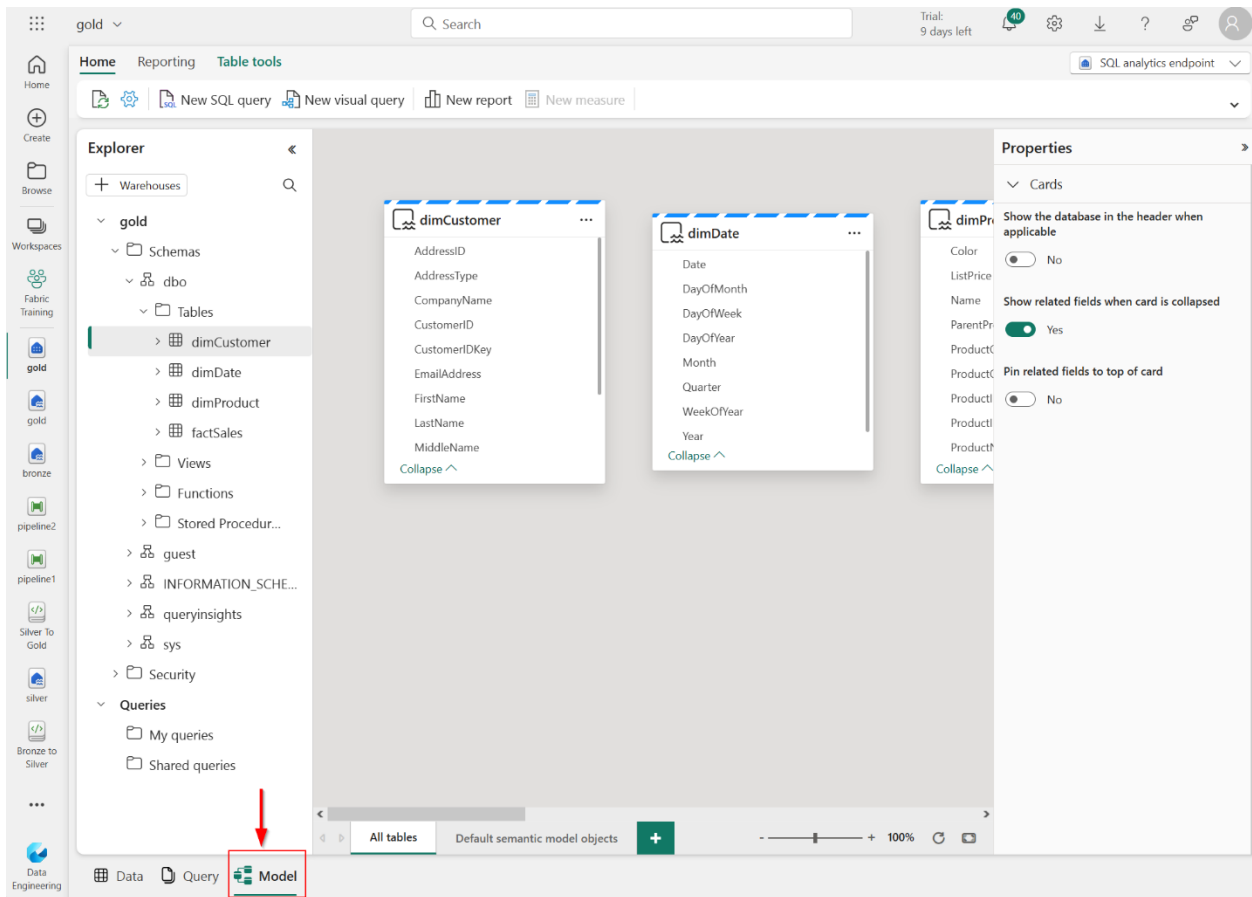
Columns: 12 Rows: 417

Data

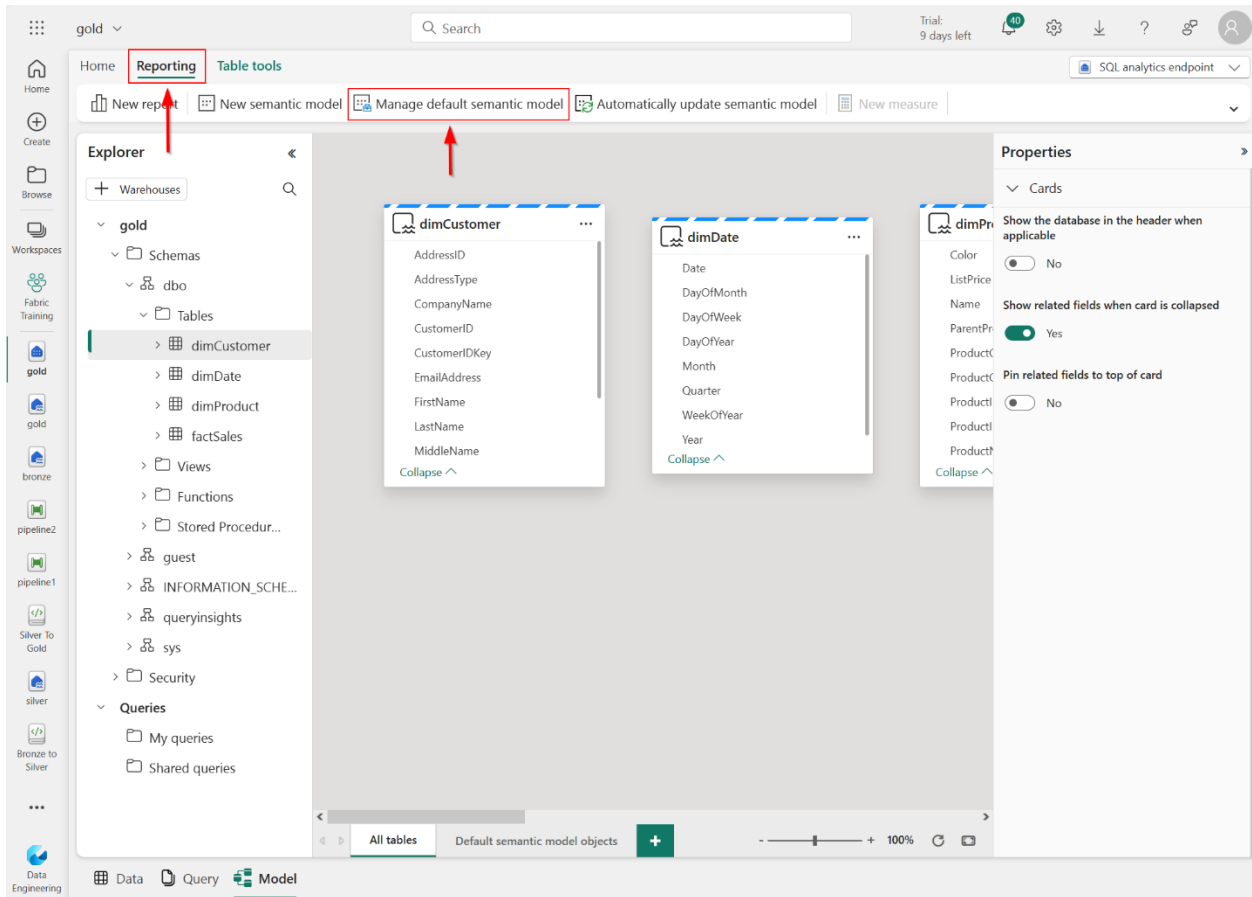
Query

Model

In the lower-left, select Model to change the view.




In the upper-left, select Reporting and then select Manage default semantic model.




In the Manage default semantic model dialog box, select 'Select all' and then select Confirm:

## Manage default semantic model


Select or deselect objects for the semantic model. Only objects that can be added to the semantic model are shown. [Learn more](#) 

☒ Select all


☒

 dbo


☒

 Tables


☒

 dimCustomer


☒

 dimDate


☒

 dimProduct

☒

 factSales

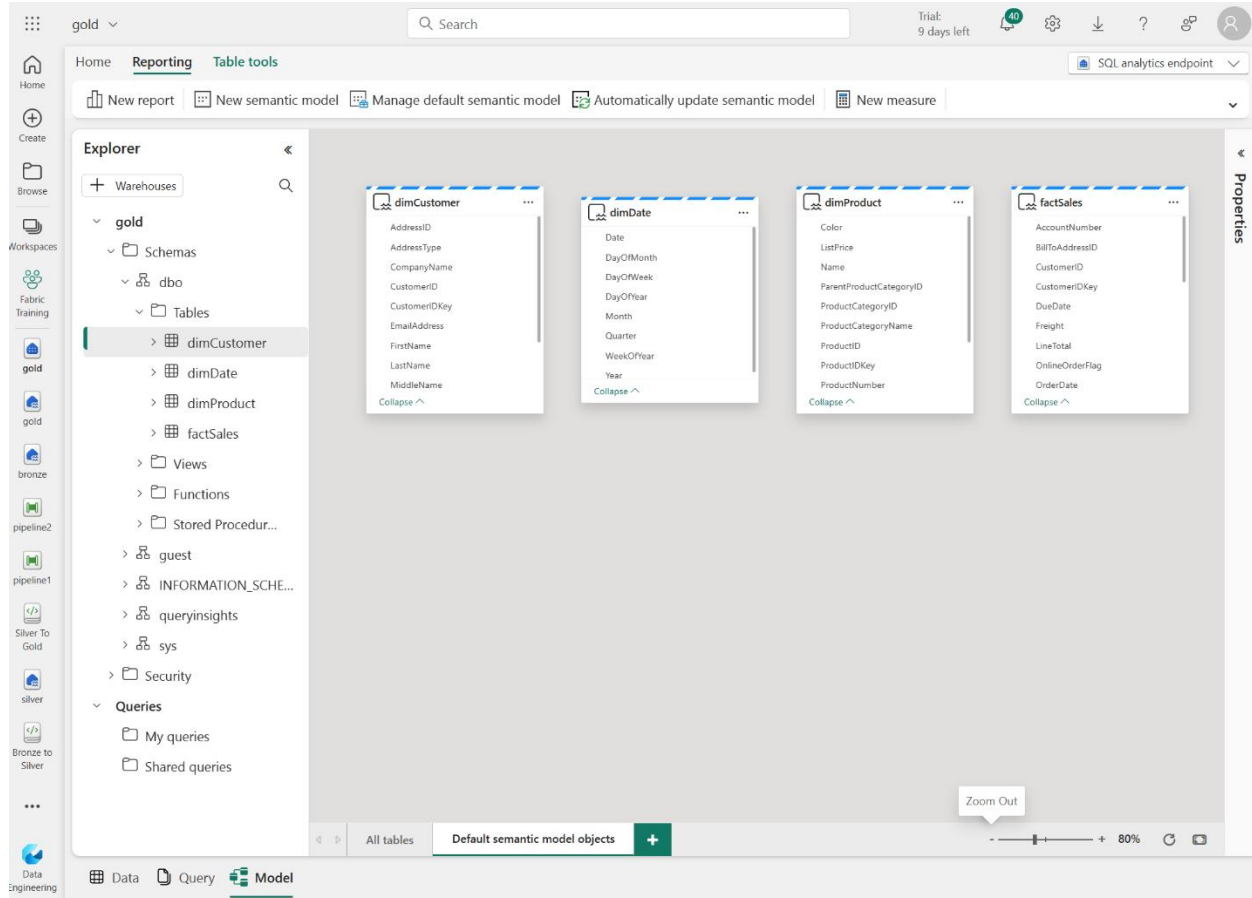
☐

 Views

Confirm

Cancel

After clicking on 'Confirm', you will land on the 'Default semantic model objects' pane where you can see the tables you added in the default semantic model:

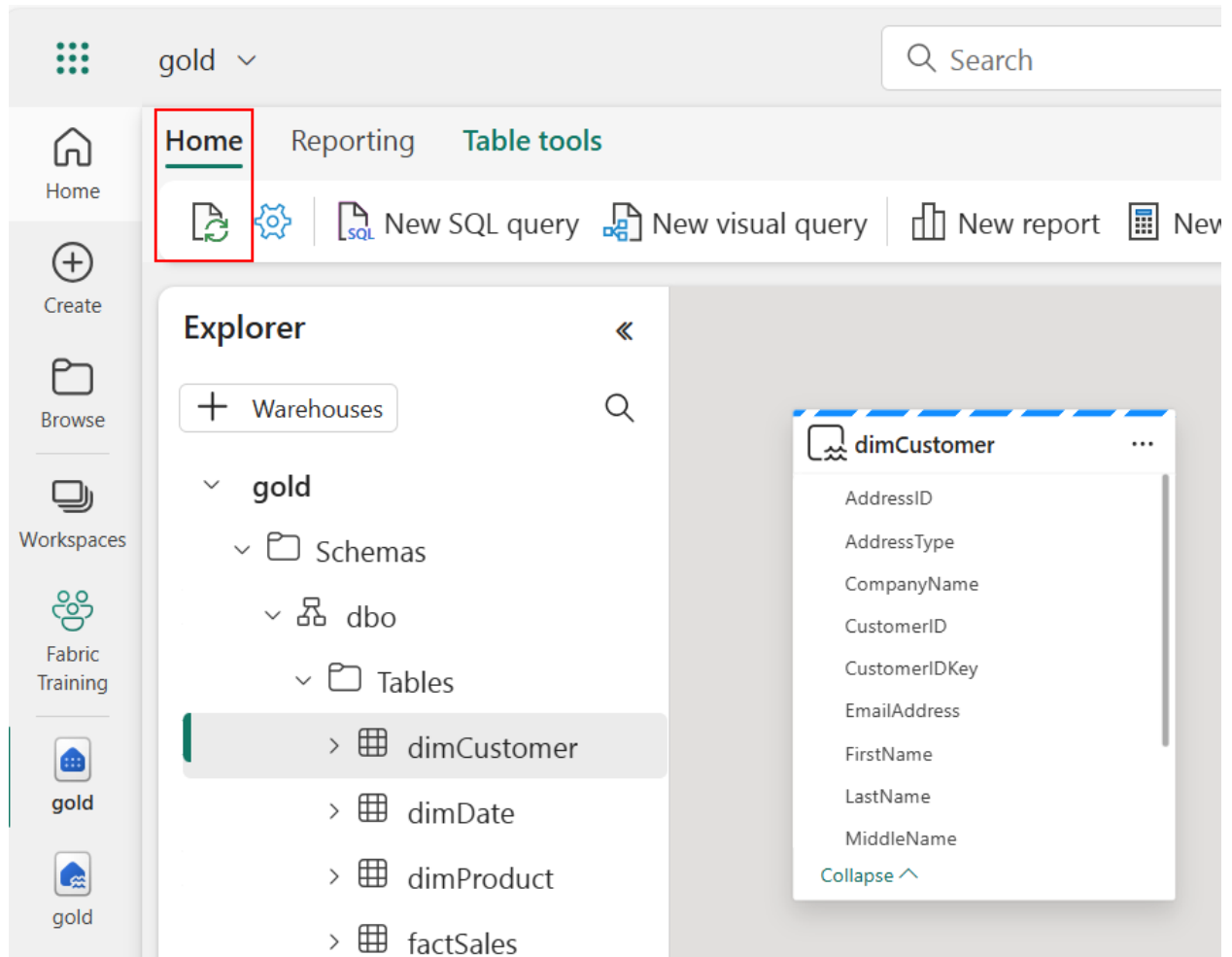


## Task 02: Create relationships

We will now establish relationships between the tables within the semantic model. This step is crucial for creating a coherent data model that accurately reflects the intricacies of Contoso's operations, ensuring that the reports generated provide meaningful insights.

1. In the upper left, select **Home** and then select the **Refresh** icon.

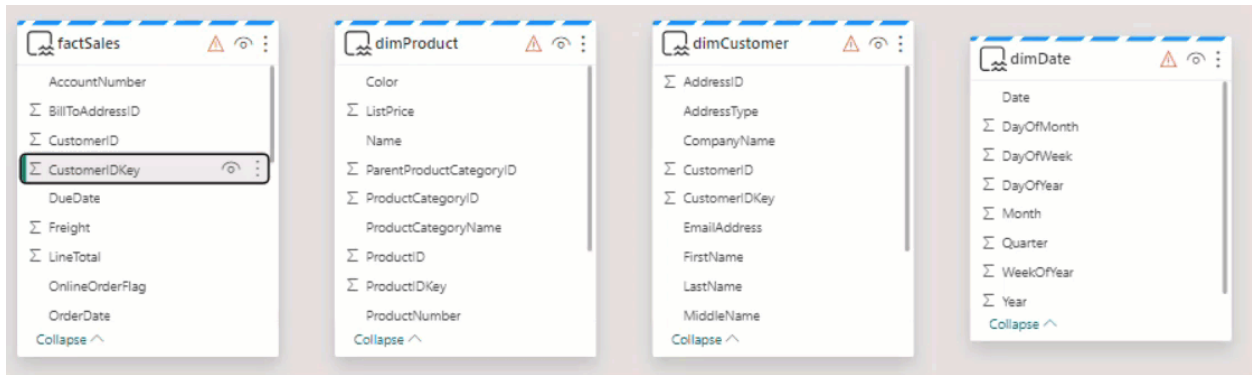




This refresh is required for the workspace to show the proper objects. There should be four tables in the view. Use the Scale sliders to adjust the view as necessary.

In order to create relationships, you can drag and drop the common columns between the tables.

2. Drag **factSales > CustomerIDKey** to **dimCustomer > CustomerIDKey** to create the relationship between the two tables.



3. In the **New relationship** window, select the **Assume referential integrity** checkbox and then select **Save**.

## New relationship



Select tables and columns that are related.

Table 1

factSales

Column: CustomerIDKey

Table 2

dimCustomer

Column: CustomerIDKey

Define cardinality and cross filter direction for tables and columns

Cardinality

Many to one (\*:1)

Cross-filter direction

Single

☒ Make this relationship active

☒ Assume referential integrity.



[Learn more](#)

Save

Cancel

4. Following the same logic as before, Drag **factSales** > **ProductIDKey** to **dimProduct** > **ProductIDKey**
5. In the **New relationship** window, select **Assume referential integrity** and then select **Save**.

6. Following the same logic, Drag **factSales** > **OrderDate** to **dimDate** > **Date**. On the following **New relationship window**, **DO NOT** select the **Assume referential integrity** option.

## New relationship



Select tables and columns that are related.

Table 1

dimDate

Column: Date

Table 2

factSales

Column: OrderDate

Define cardinality and cross filter direction for tables and columns

Cardinality

Many to one (\*:1)

Cross-filter direction

Single

☒ Make this relationship active

☐ Assume referential integrity.

[Learn more](#)

Save

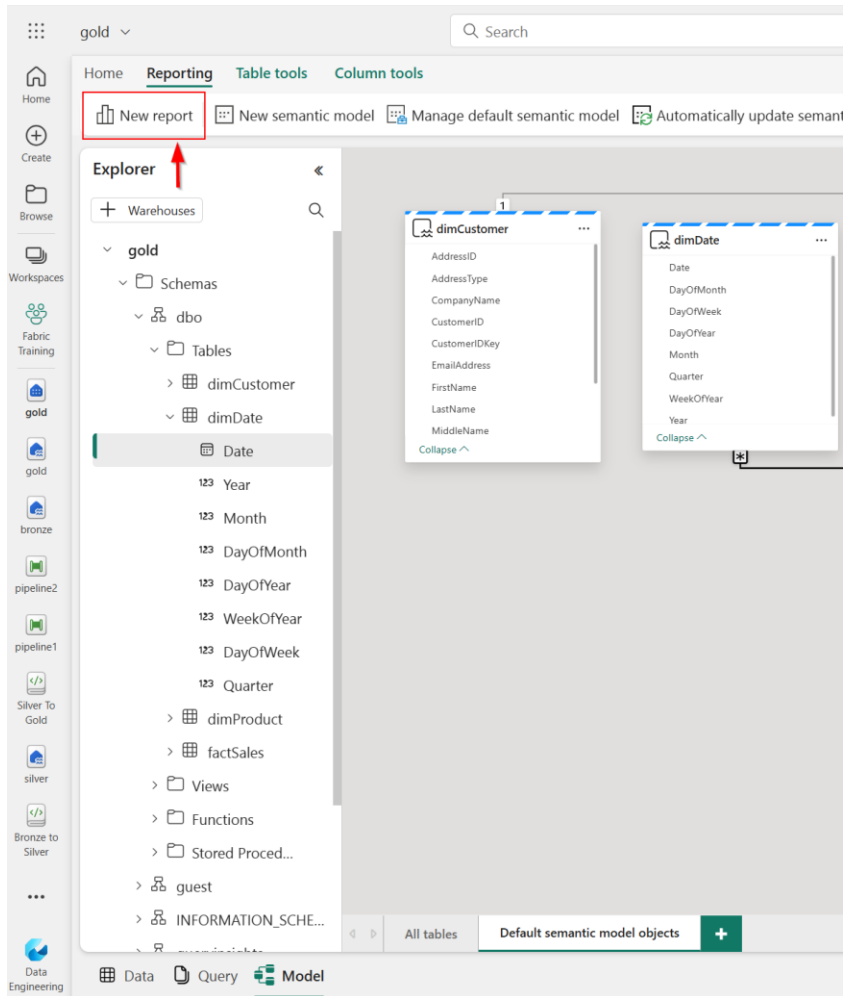
Cancel

## Task 03: Create a PowerBI report point to the semantic model (using direct lake mode)

With the model and relationships set up, create a Power BI report that points directly to the semantic model, utilizing Direct Query mode to access the data lake. This approach allows Contoso to generate real-time insights from their data, supporting dynamic decision-

making processes and fostering a culture of informed strategy development across the organization.

On the menu above the canvas, select New report:

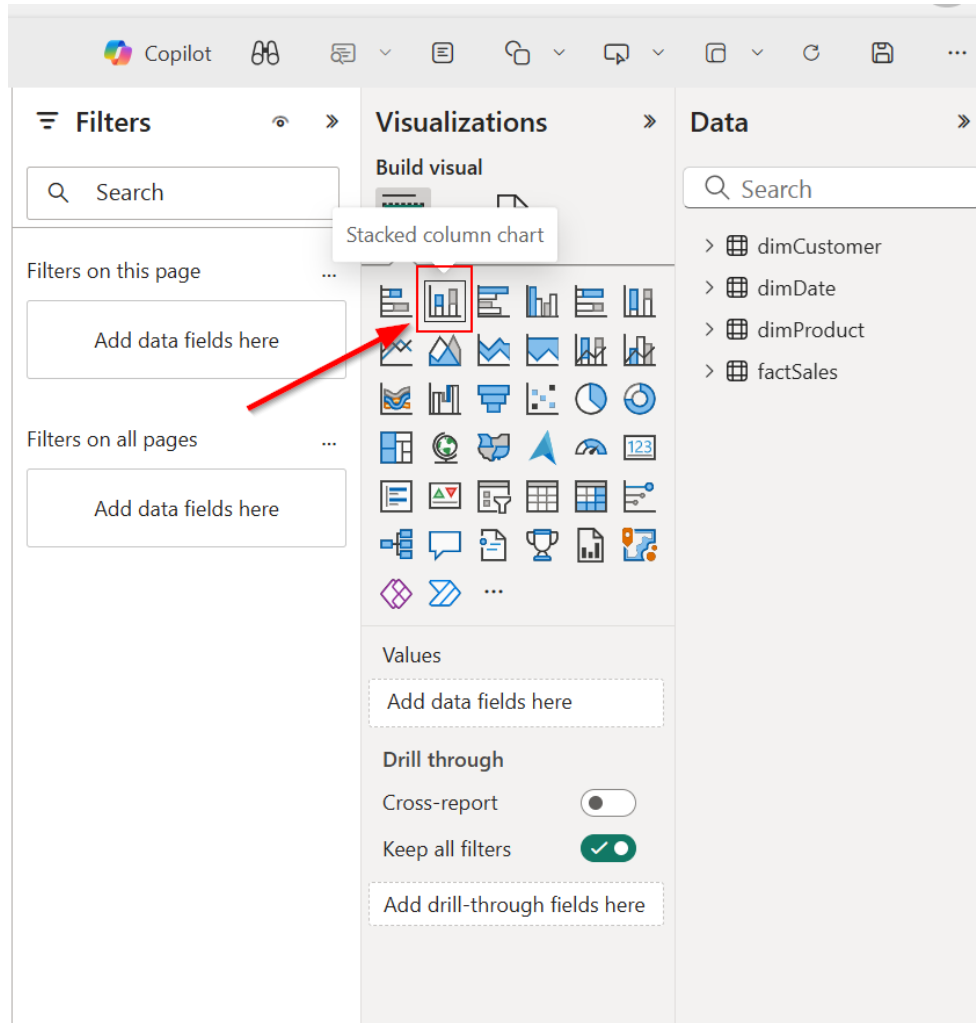


If you use a trial license, you will get a message about Upgrade to Power BI Pro License: Select Try free.

Also, in the All paid features of Power BI are yours for 60 days dialog box, select Got it.

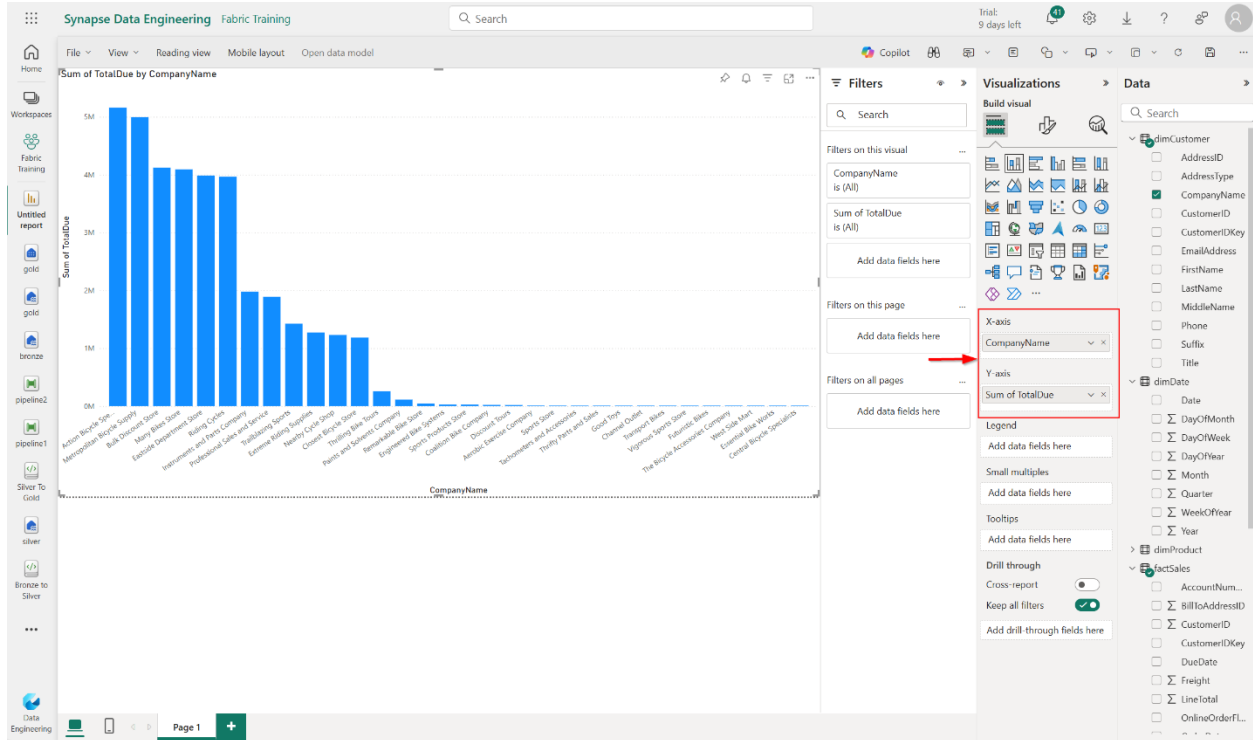
Now, let's start creating the report.

On the Visualizations pane, select the Stacked column chart:



You can expand the chart to cover the whole report page.

On the X-axis drag and drop dimCustomer > CompanyName and on the Y-axis factSales > TotalDue



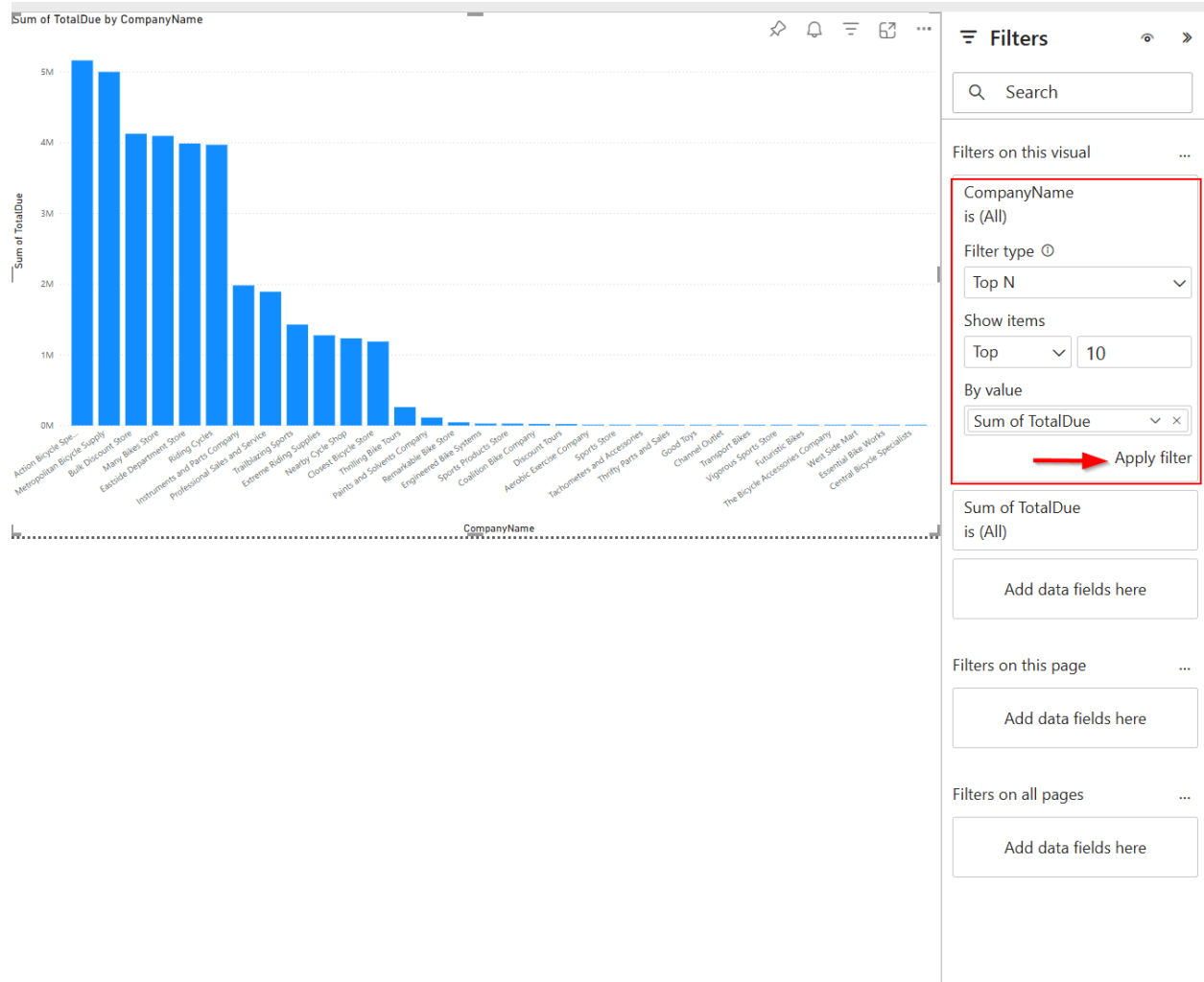
On the Filters pane, select the CompanyName is (All) filter card.

Select the Filter type menu and then select Top N.

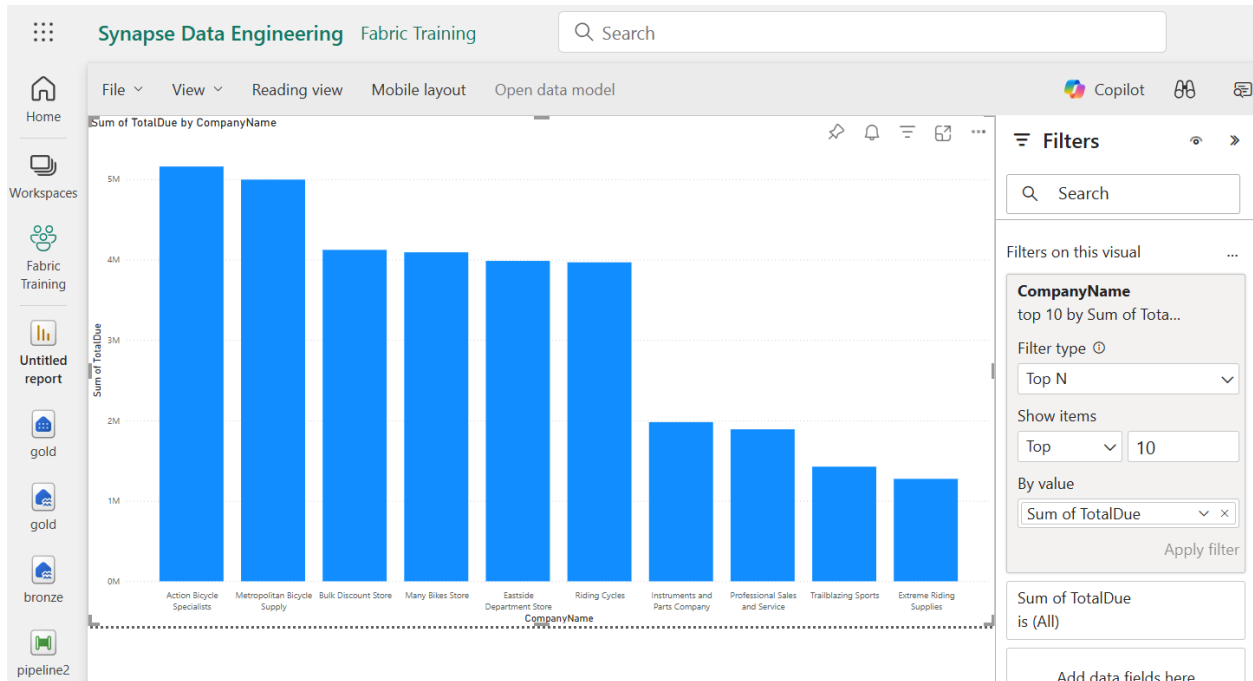
In the Show items box, enter 10.

On the Data pane, select factSales > TotalDue and drag it to the By value box on the filter card.

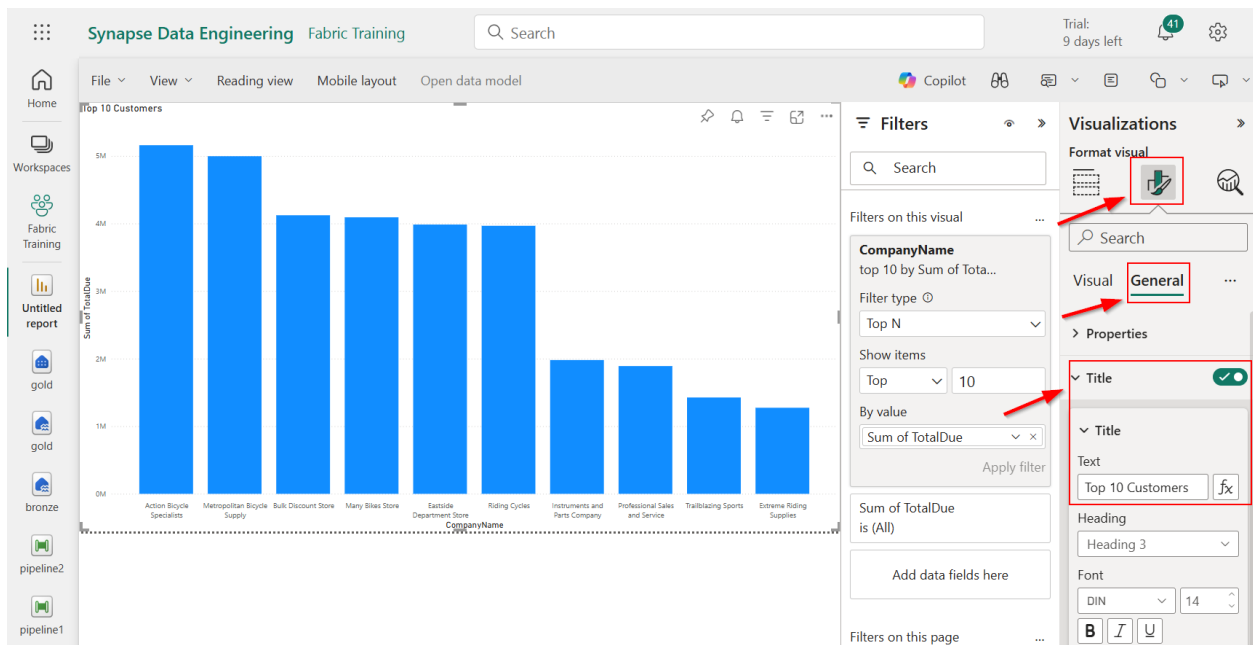
Then select Apply filter.



You will notice that now the visual shows only the top 10 companies based on the TotalDue value:



The last change we would like to do is add a Title in our Visual. To do so, with the chart selected go to the Format your Visual pane and then General. Expand Title and in the Text box enter Top 10 Customers:



Your report is now ready!



