Microsoft Power Platform

Power BI

Fundamentals of Data Modeling

Data Modeling Labs

Overview

The estimated time to complete this lab is 1 hour and 35 minutes.

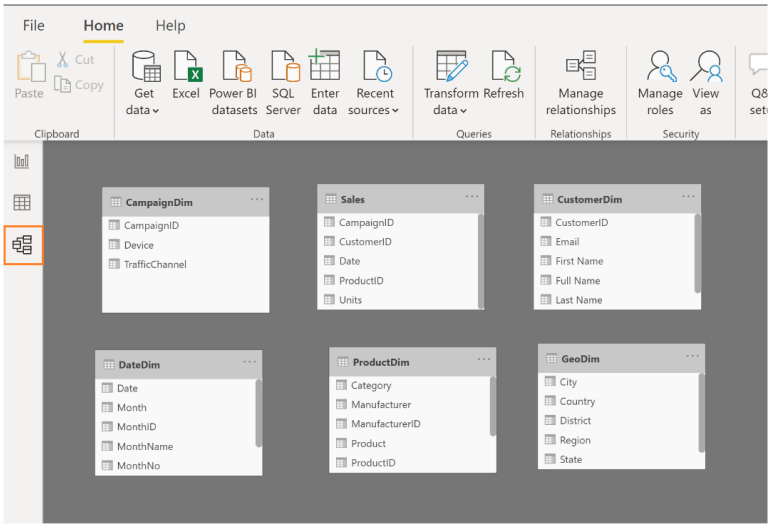
In this lab, you will create and enhance a working data model. You will learn how to add new measures and columns, as well as test new additions using PowerBI visualizations.

Lab 01: Create relationships between tables

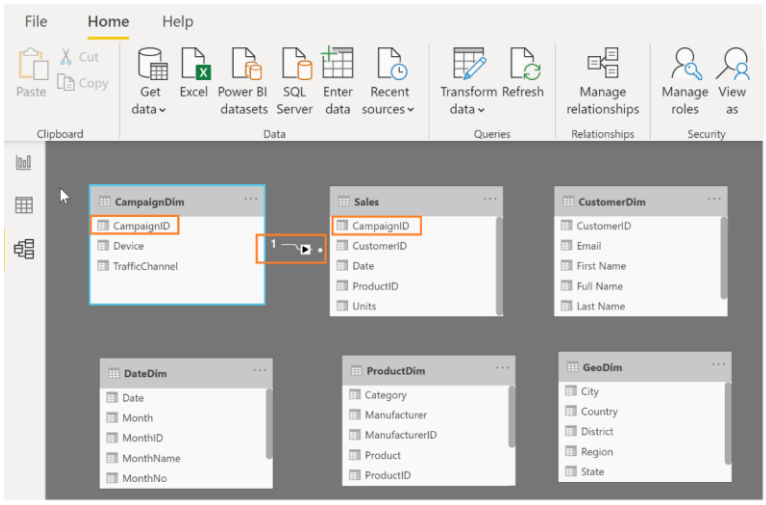
Task: Create relationships between multiple tables.

The estimated time to complete this lab is 10 minutes.

1. Open the the file **Student Modeling Pre-class.pbix**
2. Navigate to **model** view



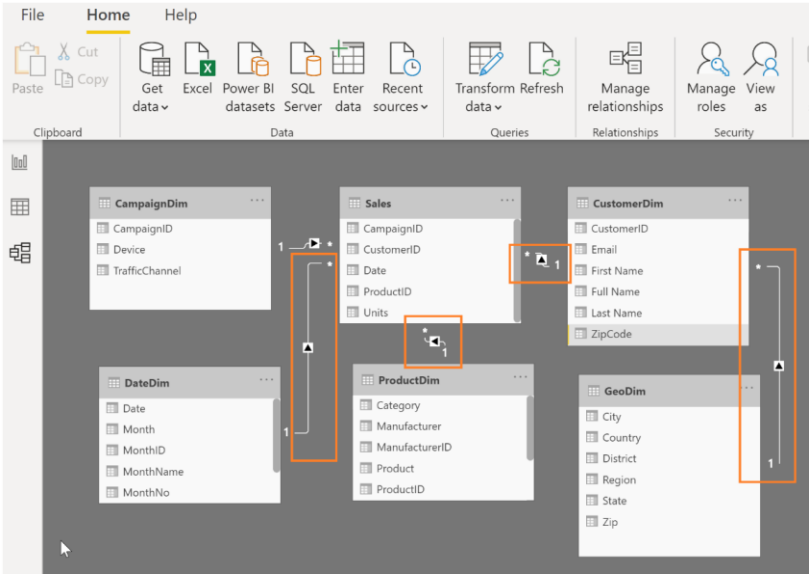
3. Drag a **relationship** line between **CampaignID** field from **CampaignDim** table and **CampaignID** field from **Sales** table



4. Similarly, create relationship between

   CustomerID fields in **CustomerDim** and **Sales** table
   ProductID fields in **ProductDim** and **Sales** table

Date fields in **DateDim** and **Sales** table
Zip field from **GeoDim** table and **ZipCode** from **CustomerDim** table



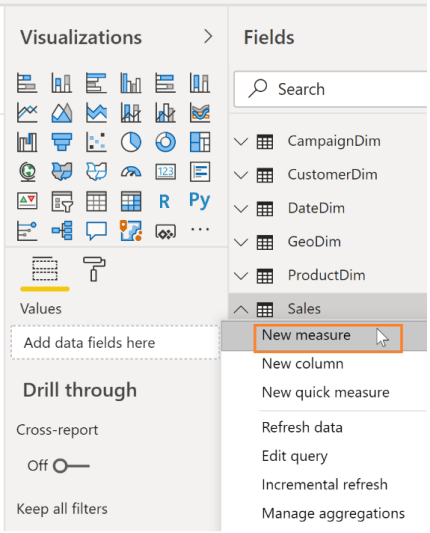
Lab 02: Create new measures and columns

Tasks: You will create a new measure for Total Units Sold, a new calculated column that combines Product Category and Campaign Traffic together, and create visualizations to test the new measure and column

Task 1. Create **Total Units Sold** measure

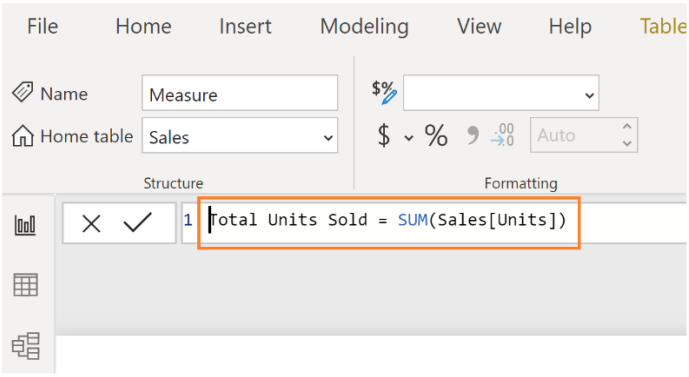
The estimated time to complete this lab is 30 minutes.

1. Select **Sales** Table. From the ribbon select **Modeling -> New Measure**

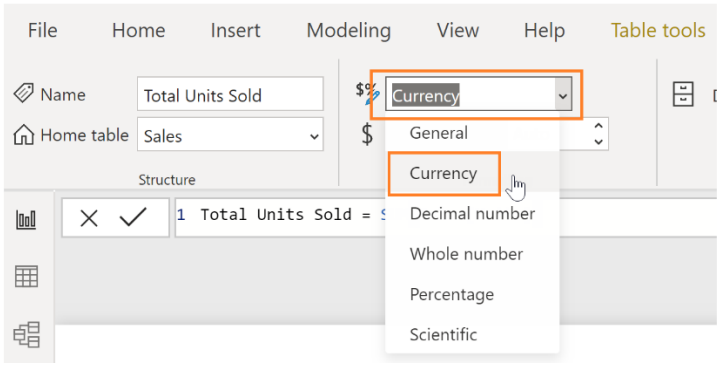


2. In the formula bar enter:

Total Units Sold = SUM(Sales[Units])

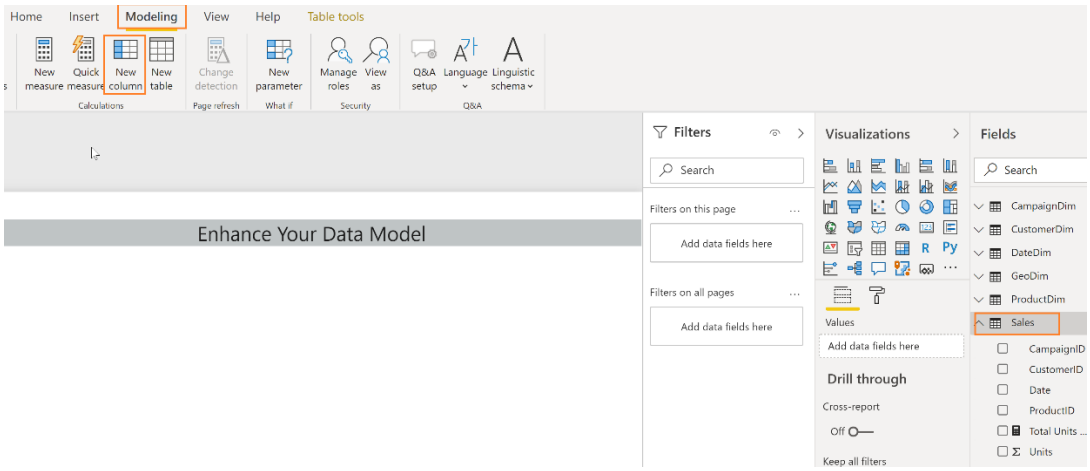


3. From the ribbon select **Format -> Currency** to format the measure



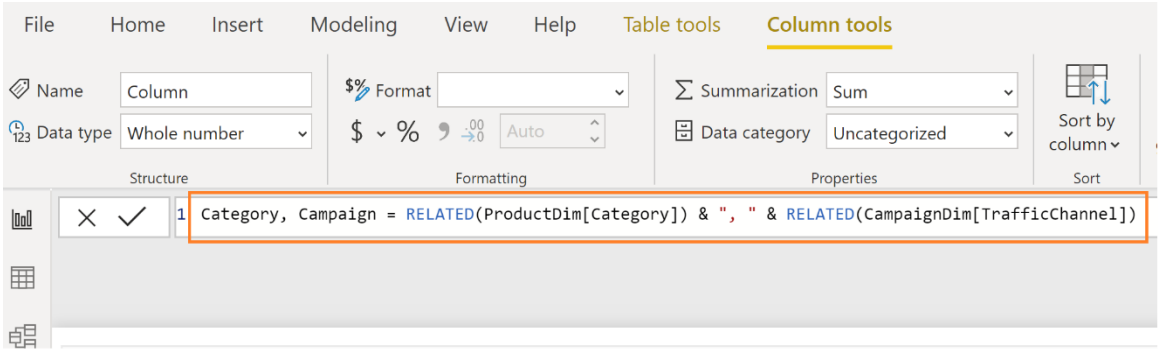
Task 2: Create calculated column that combines Category and TrafficChannel

4. Select **Sales** table. From the ribbon select **Modeling -> New Column**.

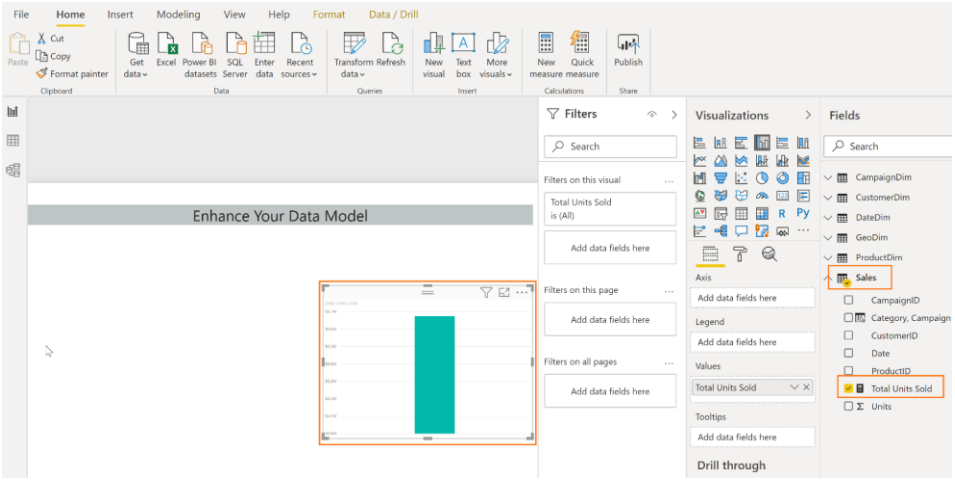


5. In the formula bar enter:

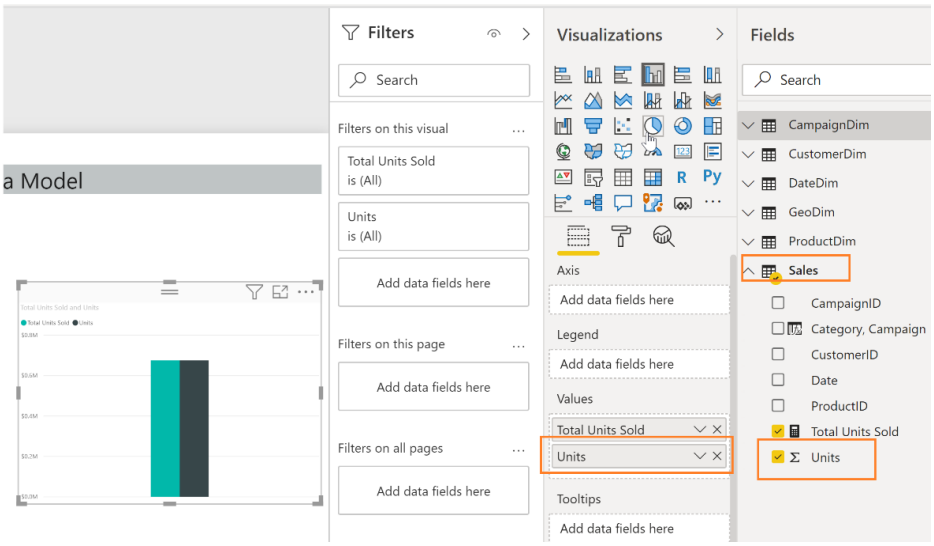
Category, Campaign = RELATED(ProductDim[Category]) & ", " & RELATED(CampaignDim[TrafficChannel])



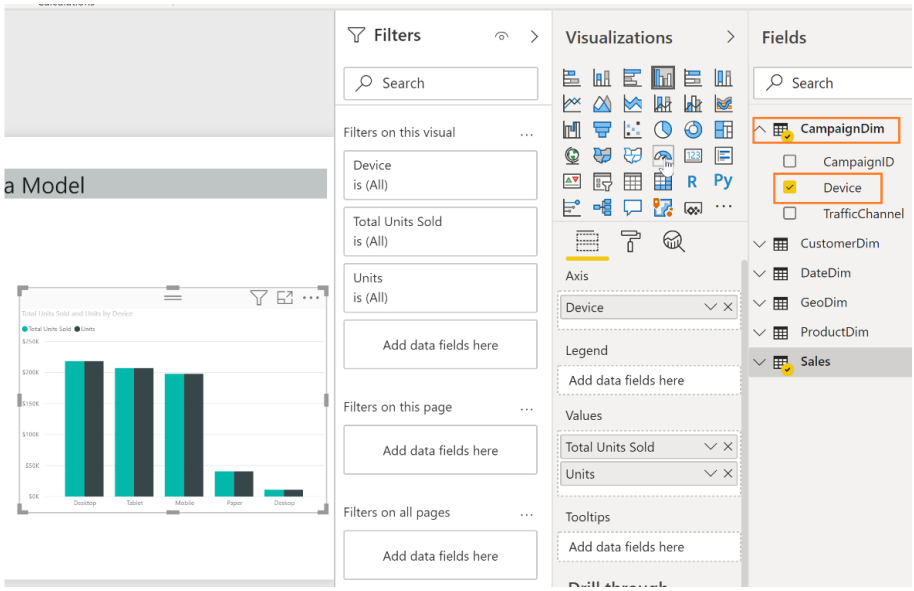
6. Drag newly created **Total Units Sold** measure to the canvas. A clustered column chart is created



7. Drag **Units** field from **Sales** table to this visual



8. Select **Device** field from **CampaignDim** table



Lab 03: Create a report for the VP in charge of the Youth and Accessory Segments

Task 3: Create three new measures and a Power BI visualization

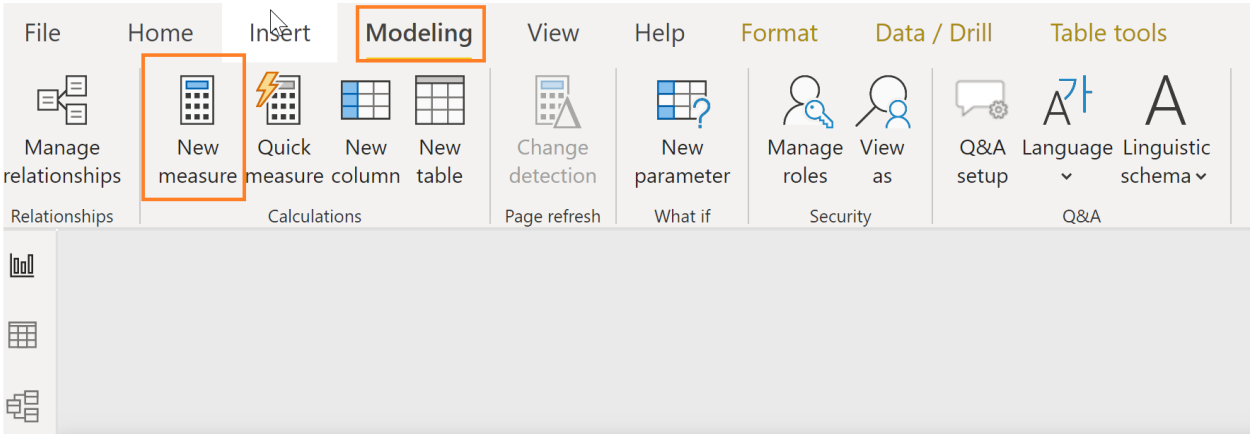
The estimated time to complete this lab is 45 minutes.

The expected result is three new measures used to accomplish the following tasks:

1. Include a table visualization showing total units sold in the Youth Segment, Accessory Segment, and all other segments by Campaign Device
2. Include a line chart showing total units sold in Youth and Accessory Segments by month

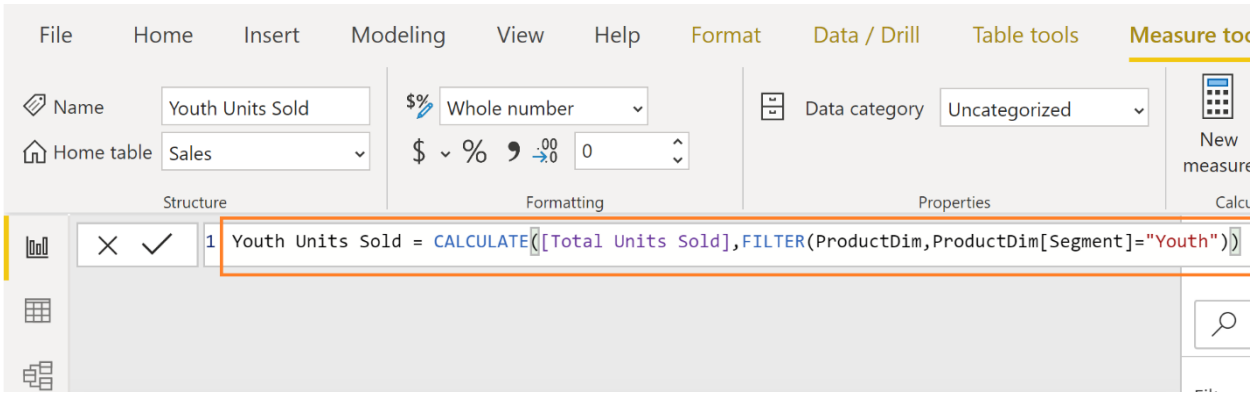
BONUS: Use the Unit Cost and Unit Price from the ProductDim table to calculate Sales Amount, Cost of Goods Sold, Profit and build some visuals around them

1. Select **Sales** Table. From the ribbon select **Modeling -> New Measure**.

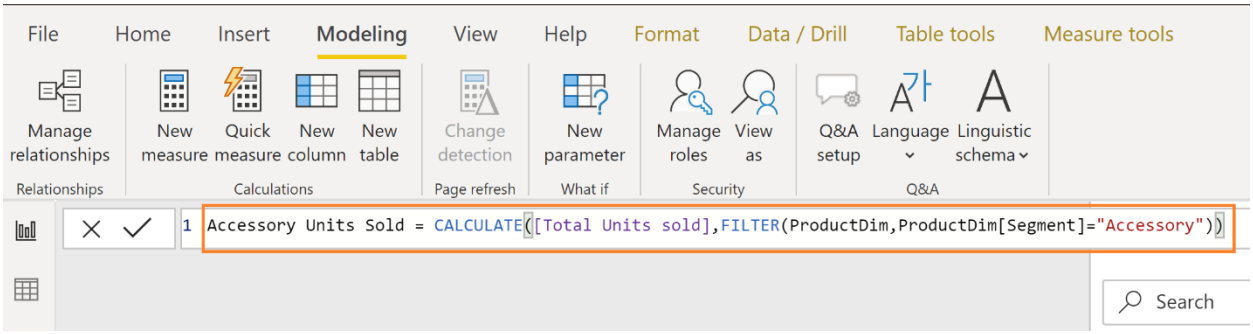


2. Create 3 measures:

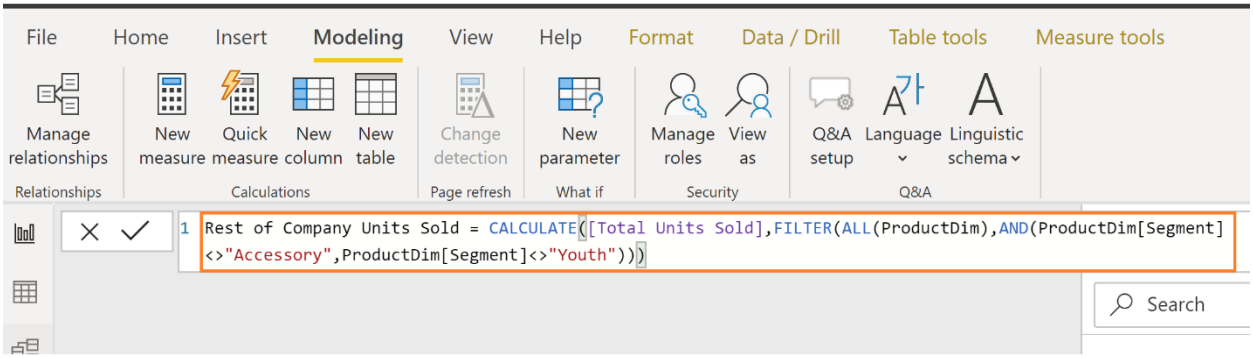
Youth Units Sold = CALCULATE([Total Units Sold],FILTER(ProductDim,ProductDim[Segment]="Youth"))



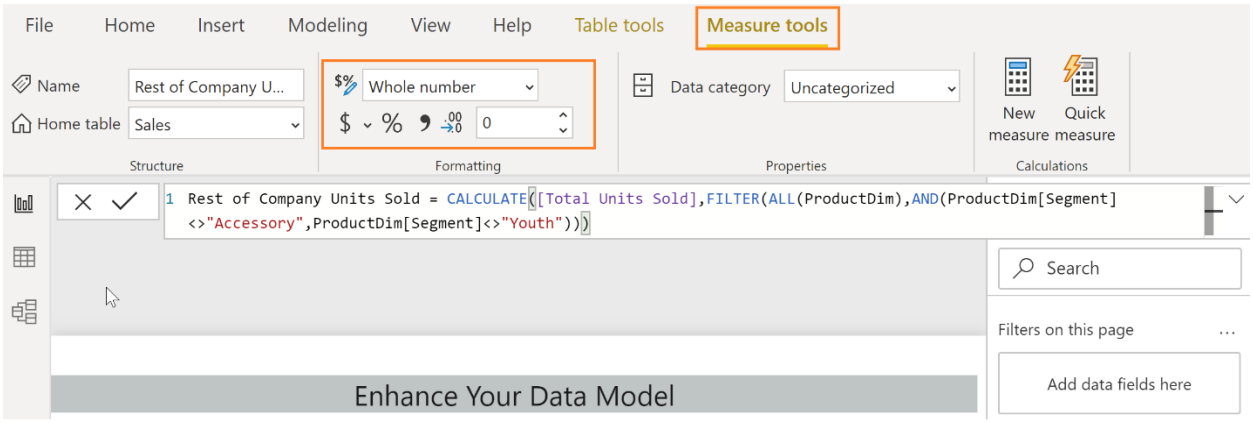
Accessory Units Sold = CALCULATE([Total Units sold],FILTER(ProductDim,ProductDim[Segment]="Accessory"))



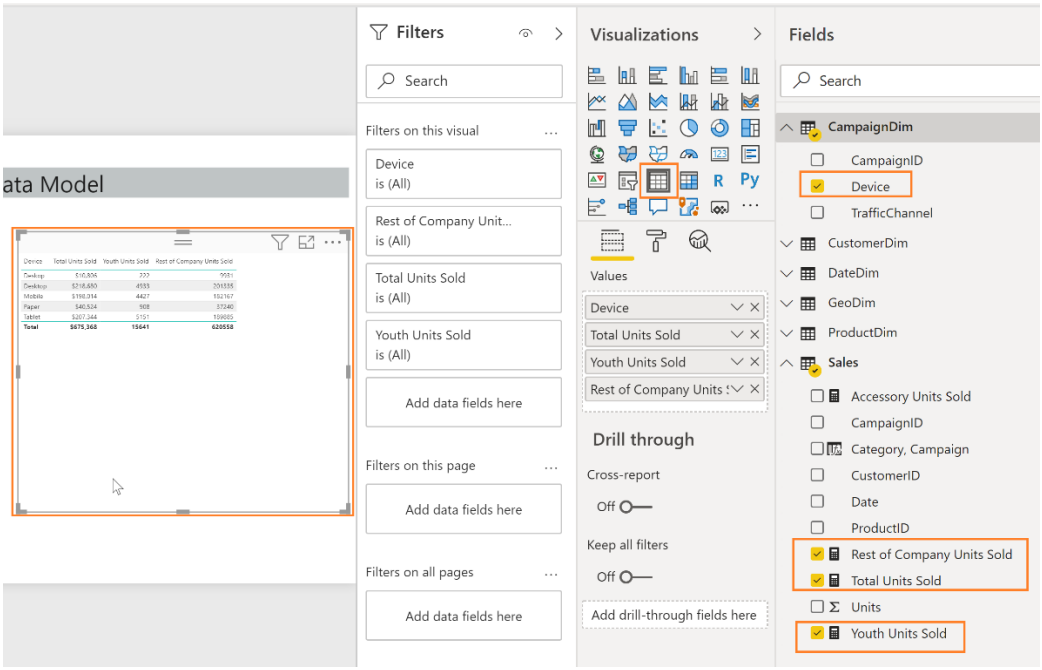
Rest of Company Units Sold = CALCULATE([Total Units Sold],FILTER(ALL(ProductDim),AND(ProductDim[Segment]<>"Accessory",ProductDim[Segment]<>"Youth")))



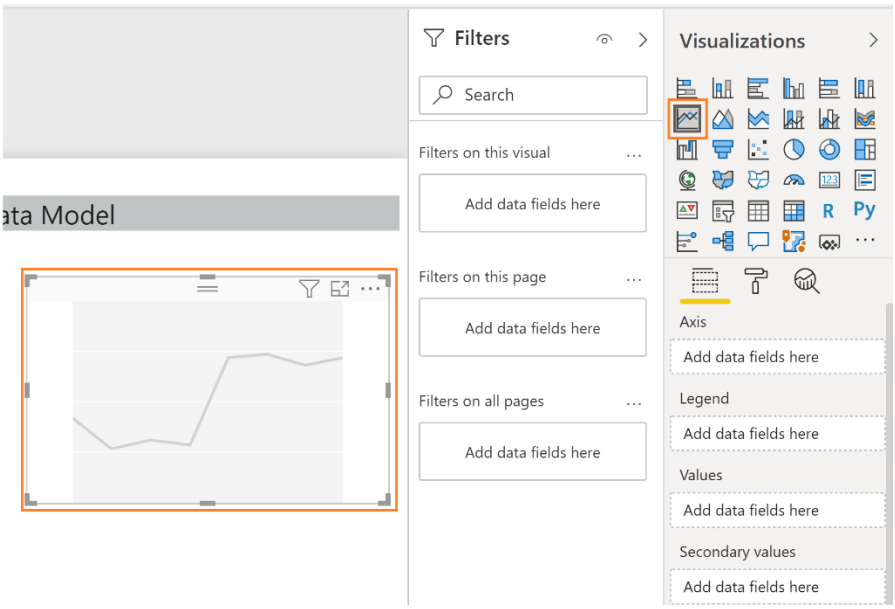
3. From the ribbon select **Measure tools -> Whole Number and Comma** to format the measure



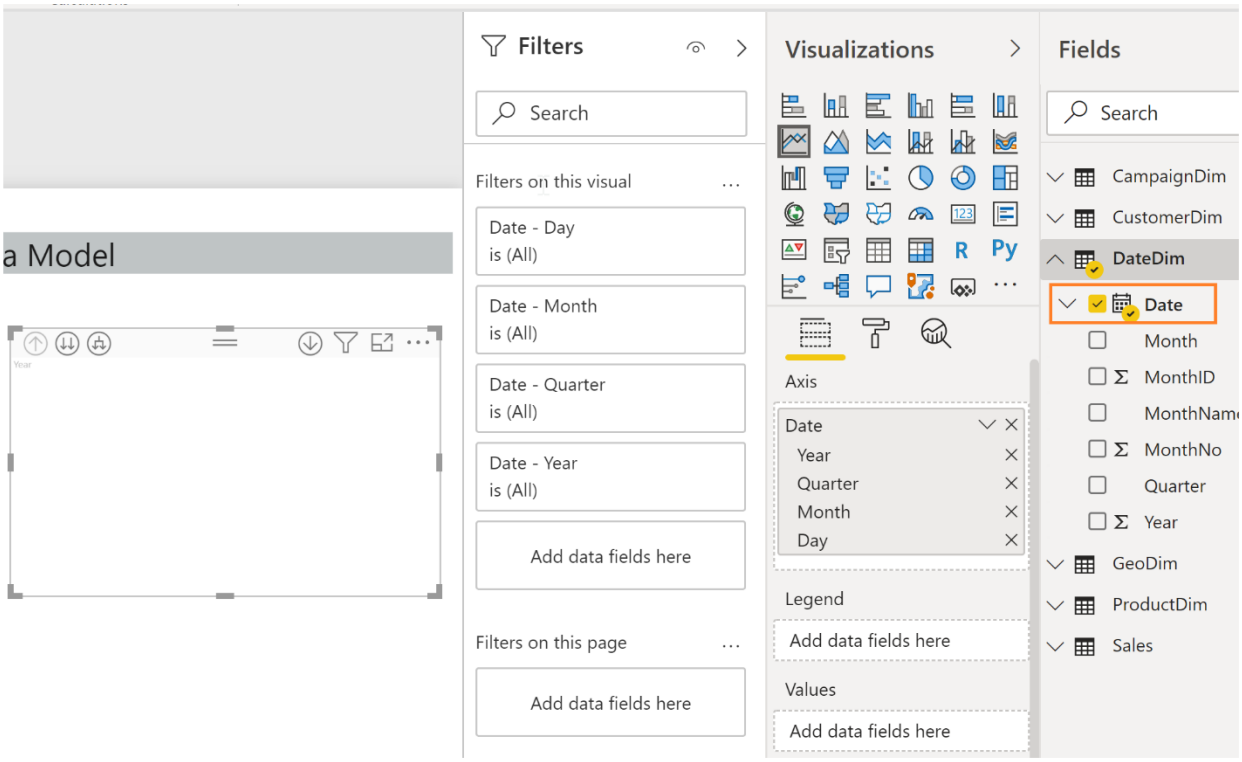
4. Add a table visual and drag or select **CampaignDim -> Device** and the **3 newly created measures**



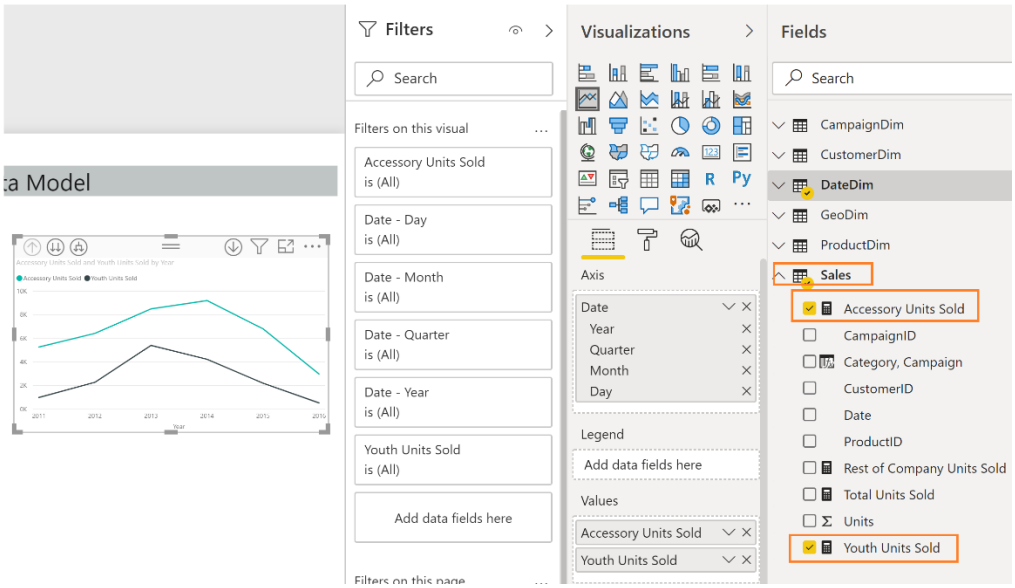
5. Select **Line Chart** visual.



6. Select **Date** from Date table

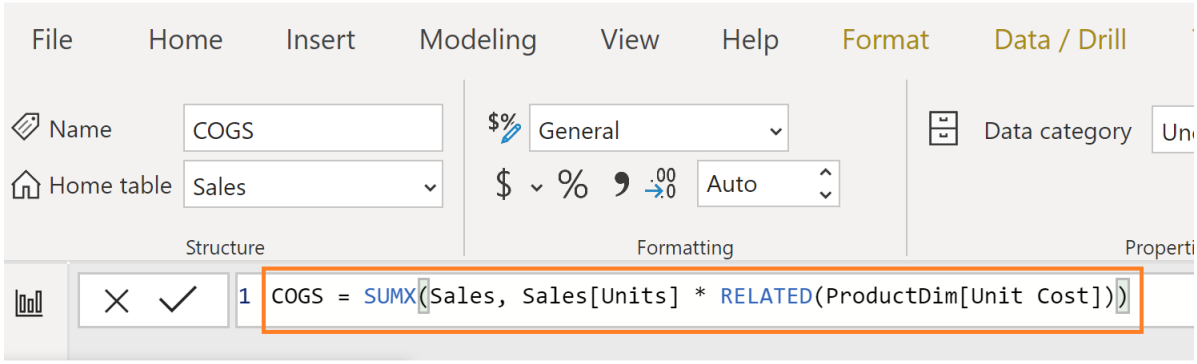


7. Select **Youth Units Sold** and **Accessory Units sold** measures.

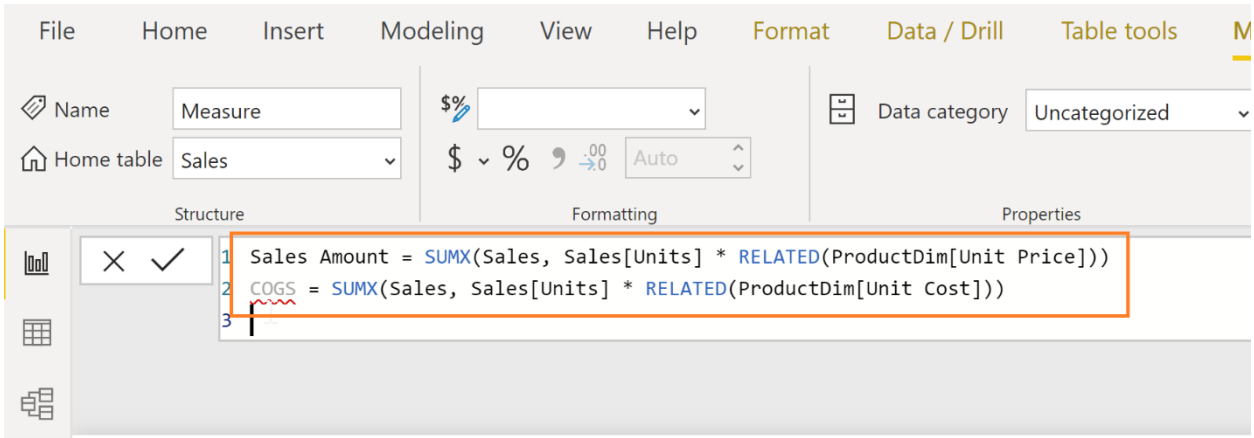


8. Create following measures and use a visual to analyze data.

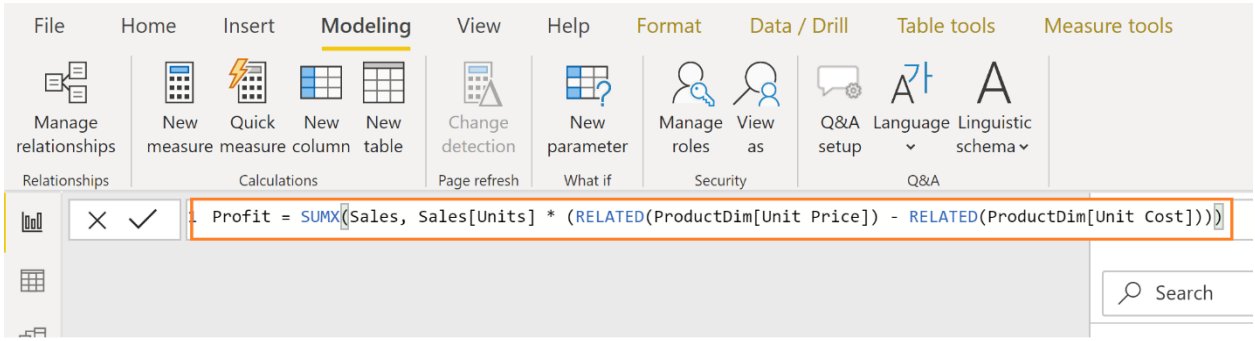
COGS = SUMX(Sales, Sales(Unit) * RELATED(ProductDim(UnitCost))



Sales Amount = SUMX(Sales, Sales[Units] * RELATED(ProductDim[Unit Price]))
COGS = SUMX(Sales, Sales[Units] * RELATED(ProductDim[Unit Cost]))



Profit = SUMX(Sales, Sales[Units] * (RELATED(ProductDim[Unit Price]) - RELATED(ProductDim[Unit Cost])))

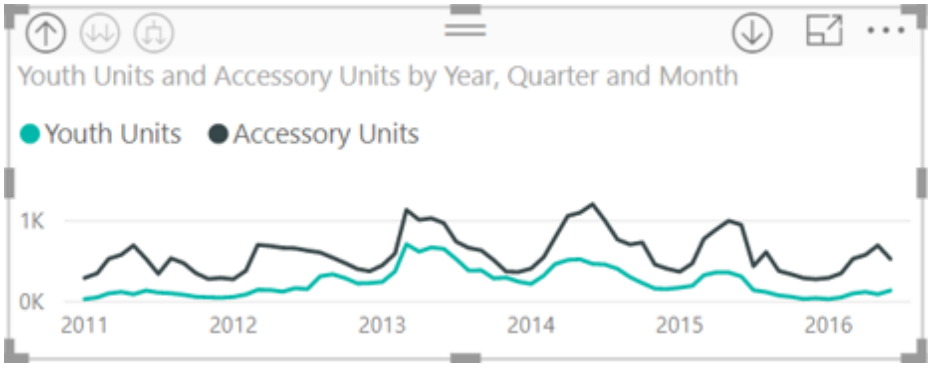


The end result for the 2 tasks above:

1. **Table Visualization:**

Device	Total Units	Youth Units	Accessory Units	Rest of Company Units
Deskop	10806	222	653	9931
Desktop	218680	4933	12412	201335
Mobile	198014	4427	11420	182167
Paper	40524	908	2376	37240
Tablet	207344	5151	12308	189885
Total	**675368**	**15641**	**39169**	**620558**

2. **Line Chart**



Summary

In this lab, you have uploaded data to a model and enhanced the model by adding additional measures and columns. In the end you will have tested the new measures and columns using Power BI data visualizations.

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