

## CN - Lec18 - Practice Session - End To End Project - p1 [Transformation & Data Modelling]

### Practice Session - End To End Project - p1 [Transformation & Data Modelling]

- Find the dataset from Github:

<https://github.com/KrishnaMentor/CN01-PowerBI-Notes>

The screenshot shows the Power BI interface with the 'Date' table selected. The table has 912 distinct and unique dates from 01-01-2020 to 08-01-2020. The 'Column statistics' pane on the right shows the following data:

Statistic	Value
Count	912
Error	0
Empty	0
Distinct	912
Unique	912
Min	01-01-2...
Max	30-06-2...
Average	31-03-2...

The screenshot shows the Power BI 'Queries' pane with the 'Calendar Lookup' query selected. The query adds columns for Quarter, Month Name, Year, Month, and Day. The 'APPLIED STEPS' pane on the right shows the following steps:

- Source
- Promoted Headers
- Changed Type
- Inserted Quarter
- Inserted Month Name
- Inserted Year
- Inserted Month
- Inserted Day** (highlighted)



**Primary Key**

Customer Key

```
= Table.AddColumn(#"Filtered Rows", "Full Name", each Text.Combine({Text.Proper([Prefix]), " ", Text.Proper([FirstName]), " ", Text.Proper([LastName])}), type text)
```

CustomerKey Prefix FirstName LastName BirthDate MaritalStatus Gender

1	11000 M.R.	JON	YANG	08-04-1966	M	M
2	11001 M.R.	EUGENE	HUANG	14-05-1965	S	M
3	11002 M.R.	RUBEN	TORRES	12-08-1965	M	M
4	11003 M.S.	CHRISTY	ZHU	15-02-1968	S	F
5	11004 MRS.	ELIZABETH	JOHNSON	08-08-1968	S	F
6	11005 M.R.	JULIO	RIUZ	05-08-1965	S	M
7	11007 M.R.	MARCO	MEHTA	09-05-1964	M	M
8	11008 M.R.S.	ROBIN	VERHOFF	07-07-1964	S	F
9	11009 M.R.	SHANNON	CARLSON	01-04-1964	S	M
10	11010 M.S.	JACQUELYN	SUAREZ	06-02-1964	S	F
11	11011 M.R.	CURTIS	LU	04-11-1963	M	M
12	11012 M.R.S.	LAUREN	WALKER	18-01-1968	M	F
13	11013 M.R.	IAN	JENKINS	06-08-1968	M	M
14	11014 M.R.S.	SYDNEY	BENNETT	09-05-1968	S	F
15	11015 M.S.	CHLOE	YOUNG	27-02-1979	S	F

Query Settings  
Properties  
Applied Steps

**Primary Key**

ProductCategoryKey CategoryName

```
= Table.TransformColumnTypes(#"Promoted Headers",{{"ProductCategoryKey", Int64.Type}})
```

1	Bikes
2	Components
3	Clothing
4	Accessories

Query Settings  
Properties  
Applied Steps

**Primary Key**

ProductSubcategoryKey Sub categoryName ProductCategoryKey

```
= Table.TransformColumnTypes(#"Promoted Headers",{{"ProductSubcategoryKey", Int64.Type}, {"Sub categoryName", Text.Type}, {"ProductCategoryKey", Int64.Type}})
```

1	Mountain Bikes	1
2	Road Bikes	1
3	Touring Bikes	1
4	Handlebars	2
5	Bottom Brackets	2
6	Brakes	2
7	Chains	2
8	Cranksets	2
9	Derailleurs	2
10	Forks	2
11	Headsets	2
12	Mountain Frames	2
13	Pedals	2
14	Road Frames	2

**Foreign Key**

ProductSubcategoryKey Sub categoryName ProductCategoryKey

Query Settings  
Properties  
Applied Steps

**Primary Key**      **Foreign Key**

= Table.TransformColumnTypes(#"Promoted Headers", {{"ProductKey", Int64.Type}, {"ProductSubcategoryKey", Int64.Type}, {"ProductCost", Currency.Type}, {"ProductPrice", Currency.Type}})

ProductKey	ProductSubcategoryKey	ProductSKU	ProductName	ModelName	ProductDescription
1	31	IL-US09-R	Sport-100 Helmet, Red	Sport-100	Universal fit, well-vented, lightweight
2	31	IL-US09	Sport-100 Helmet, Black	Sport-100	Universal fit, well-vented, lightweight
3	23	SO-B909-M	Mountain Bike Socks, M	Mountain Bike Socks	Combination of natural and synthetic
4	23	SO-B909-L	Mountain Bike Socks, L	Mountain Bike Socks	Combination of natural and synthetic
5	31	IL-US09-B	Sport-100 Helmet, Blue	Sport-100	Universal fit, well-vented, lightweight
6	19	CA-1098	AWC Logo Cap	Cycling Cap	Traditional style with a flip-up brim; o
7	21	J-0192-S	Long-Sleeve Logo Jersey, S	Long-Sleeve Logo Jersey	Unisex long-sleeve AWC logo microfit
8	21	J-0192-M	Long-Sleeve Logo Jersey, M	Long-Sleeve Logo Jersey	Unisex long-sleeve AWC logo microfit
9	21	J-0192-L	Long-Sleeve Logo Jersey, L	Long-Sleeve Logo Jersey	Unisex long-sleeve AWC logo microfit
10	21	J-0192-X	Long-Sleeve Logo Jersey, XL	Long-Sleeve Logo Jersey	Unisex long-sleeve AWC logo microfit
11	14	FR-R92R-62	HL Road Frame - Red, 62	HL Road Frame	Our lightest and best quality aluminum
12	14	FR-R92R-44	HL Road Frame - Red, 44	HL Road Frame	Our lightest and best quality aluminum

### Appending on Sales

- all tables from 2020 - 2022 should be identical.

India / UK --- dd/mm/yyyy

US - mm/dd/yyyy

03-12-2011 - 3rd Dec 2011

10-23-2012 - 23rd Oct 2012

### Change Type with Locale

Change the data type and select the locale of origin.

Data Type  
Date

Locale  
English (India)

Sample input values:

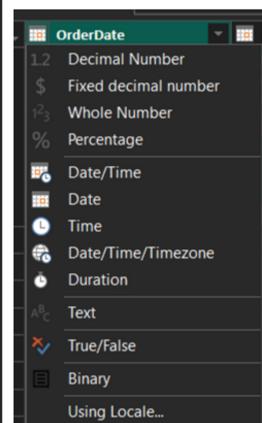
29-03-2016

29 March 2016

29 March

March, 2016

OK Cancel



Queries [6]

Calendar Lookup  
Customer Lookup  
Product Categories Look...  
Product Subcategories L...  
Product Lookup  
**Sales Data 2020**

**Query Settings**  
Name: Sales Data 2020  
All Properties

**APPLIED STEPS**  
Source  
Promoted Headers  
Changed Type

Table.TransformColumnTypes(#"Promoted Headers",{{"OrderDate", type date}, {"StockDate", type date}, {"ProductKey", Int64.Type}, {"CustomerKey", Int64.Type}, {"TerritoryKey", Int64.Type}, {"OrderLineItem", Int64.Type}, {"OrderQuantity", Int64.Type}})

StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem
100% Valid	100% Valid	100% Valid	100% Valid	100% Valid	100% Valid
0% Error	0% Error	0% Error	0% Error	0% Error	0% Error
0% Empty	0% Empty	0% Empty	0% Empty	0% Empty	0% Empty
231 distinct, 33 unique	1000 distinct, 1000 unique	23 distinct, 0 unique	1000 distinct, 1000 unique	7 distinct, 0 unique	1 distinct, 0 unique
1 01-01-2020	21-09-2019 SO45080	332	14657	1	1
2 01-01-2020	05-12-2019 SO45079	312	29255	4	1
3 01-01-2020	29-10-2019 SO45082	350	11455	9	1
4 01-01-2020	16-11-2019 SO45081	338	26782	6	1
5 02-01-2020	15-12-2019 SO45083	312	14947	10	1
6 02-01-2020	12-10-2019 SO45084	310	29143	4	1
7 02-01-2020	18-12-2019 SO45086	314	18747	9	1
8 02-01-2020	09-10-2019 SO45085	312	18746	9	1
9 03-01-2020	03-10-2019 SO45093	312	18906	9	1
10 03-01-2020	29-09-2019 SO45090	310	29170	4	1
11 03-01-2020	11-12-2019 SO45088	345	11398	10	1
12 03-01-2020	24-10-2019 SO45092	313	18899	9	1

Queries [7]

Calendar Lookup  
Customer Lookup  
Product Categories Look...  
Product Subcategories L...  
Product Lookup  
**Sales Data 2020**  
**Sales Data 2021**

**Query Settings**  
Name: Sales Data 2021  
All Properties

**APPLIED STEPS**  
Source  
Promoted Headers  
Changed Type

Table.TransformColumnTypes(#"Promoted Headers",{{"OrderDate", type date}, {"StockDate", type date}, {"ProductKey", Int64.Type}, {"CustomerKey", Int64.Type}, {"TerritoryKey", Int64.Type}, {"OrderLineItem", Int64.Type}, {"OrderQuantity", Int64.Type}})

OrderDate	StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem
100% Valid	100% Valid	100% Valid	100% Valid	100% Valid	100% Valid	100% Valid
0% Error	0% Error	0% Error	0% Error	0% Error	0% Error	0% Error
0% Empty	0% Empty	0% Empty	0% Empty	0% Empty	0% Empty	0% Empty
114 distinct, 0 unique	194 distinct, 27 unique	1000 distinct, 1000 unique	31 distinct, 0 unique	1000 distinct, 1000 unique	8 distinct, 1 unique	1 distinct, 0 unique
1 01-01-2021	01-01-2021 17-10-2020 SO48797	385	14335	1		
2 01-01-2021	30-09-2020 SO48802	383	24923	9		
3 01-01-2021	29-11-2020 SO48801	326	15493	1		
4 01-01-2021	16-11-2020 SO48799	352	26708	4		
5 01-01-2021	16-12-2020 SO48798	369	23332	9		
6 01-01-2021	02-12-2020 SO48800	342	15491	5		
7 01-01-2021	19-10-2020 SO48799	375	16538	8		
8 01-01-2021	23-11-2020 SO48796	375	15094	7		
9 02-01-2021	01-12-2020 SO48804	356	12276	8		
10 02-01-2021	12-09-2020 SO48814	360	13647	9		
11 02-01-2021	30-10-2020 SO48812	356	13630	9		
12 02-01-2021	15-09-2020 SO48803	383	19416	10		
13 02-01-2021	23-11-2020 SO48809	369	23411	9		
14 02-01-2021	27-10-2020 SO48807	324	20892	10		
15 02-01-2021	10-10-2020 SO48805	330	19318	7		

Queries [8]

Calendar Lookup  
Customer Lookup  
Product Categories Look...  
Product Subcategories L...  
Product Lookup  
**Sales Data 2020**  
**Sales Data 2021**  
**Sales Data 2022**

**Query Settings**  
Name: Sales Data 2022  
All Properties

**APPLIED STEPS**  
Source  
Promoted Headers  
Changed Type

Table.TransformColumnTypes(#"Promoted Headers",{{"OrderDate", type date}, {"StockDate", type date}, {"ProductKey", Int64.Type}, {"CustomerKey", Int64.Type}, {"TerritoryKey", Int64.Type}, {"OrderLineItem", Int64.Type}, {"OrderQuantity", Int64.Type}})

OrderDate	StockDate	OrderNumber	ProductKey	CustomerKey	TerritoryKey	OrderLineItem
100% Valid	100% Valid	100% Valid	100% Valid	100% Valid	100% Valid	100% Valid
0% Error	0% Error	0% Error	0% Error	0% Error	0% Error	0% Error
0% Empty	0% Empty	0% Empty	0% Empty	0% Empty	0% Empty	0% Empty
8 distinct, 0 unique	113 distinct, 1 unique	399 distinct, 71 unique	90 distinct, 11 unique	395 distinct, 69 unique	7 distinct, 0 unique	7 distinct, 1 unique
1 01-01-2022	13-12-2021 SO61285	529	23791	1		
2 01-01-2022	24-09-2021 SO61285	214	23791	1		
3 01-01-2022	04-09-2021 SO61285	540	23791	1		
4 01-01-2022	28-09-2021 SO61301	529	16747	1		
5 01-01-2022	21-10-2021 SO61301	377	16747	1		
6 01-01-2022	23-10-2021 SO61301	540	16747	1		
7 01-01-2022	04-09-2021 SO61269	215	11792	4		
8 01-01-2022	21-10-2021 SO61269	229	11792	4		
9 01-01-2022	24-10-2021 SO61286	528	11530	6		
10 01-01-2022	27-09-2021 SO61286	536	11530	6		
11 01-01-2022	23-10-2021 SO61298	530	18155	10		
12 01-01-2022	02-12-2021 SO61298	214	18155	10		
13 01-01-2022	15-12-2021 SO61298	223	18155	10		
14 01-01-2022	01-10-2021 SO61310	538	13541	8		
15 01-01-2022	08-11-2021 SO61310	584	13541	8		

Append Queries as new.

## Append

Concatenate rows from two tables into a single table.

Two tables  Three or more tables

First table

Sales Data 2020

Second table

OK

Cancel

## Append

Concatenate rows from three or more tables into a single table.

Two tables  Three or more tables

Available tables

Calendar Lookup  
Customer Lookup  
Product Categories Lookup  
Product Subcategories Lookup  
Product Lookup  
Sales Data 2020  
Sales Data 2021  
**Sales Data 2022**

Add >>

Tables to append

Sales Data 2020  
Sales Data 2021  
Sales Data 2022

OK

Cancel

56046

Transaction

Queries [9]

= Table.Combine({#"Sales Data 2020", #"Sales Data 2021", #"Sales Data 2022"})

	OrderDate	StockDate	AB <sub>c</sub> OrderNumber	T <sub>3</sub> ProductKey	T <sub>3</sub> CustomerKey	T <sub>3</sub> TerritoryKey	T <sub>3</sub> OrderLineItem
1	01-01-2020	21-09-2019	SO45080	332	14657	1	
2	01-01-2020	05-12-2019	SO45079	312	29255	4	
3	01-01-2020	29-10-2019	SO45082	350	11455	9	
4	01-01-2020	16-11-2019	SO45081	338	26782	6	
5	02-01-2020	15-12-2019	SO45083	312	14947	10	
6	02-01-2020	12-10-2019	SO45084	310	29143	4	
7	02-01-2020	18-12-2019	SO45086	314	18747	9	
8	02-01-2020	09-10-2019	SO45085	312	18746	9	
9	03-01-2020	03-10-2019	SO45093	312	18906	9	
10	03-01-2020	29-09-2019	SO45090	310	29170	4	
11	03-01-2020	11-12-2019	SO45088	345	11398	10	
12	03-01-2020	24-10-2019	SO45092	313	18899	9	
13	03-01-2020	16-12-2019	SO45089	351	25977	4	
14	03-01-2020	26-10-2019	SO45091	314	18909	9	

Query Settings

- PROPERTIES
  - Name: Sales Record [2020-22]
- All Properties

APPLIED STEPS

- Source

**Queries [10]**

Foreign Key

ReturnDate	TerritoryKey	ProductKey
18-01-2020	9	312
18-01-2020	10	310
21-01-2020	8	346
22-01-2020	4	311
02-02-2020	6	312
15-02-2020	1	312
19-02-2020	9	311
24-02-2020	8	314
08-03-2020	8	350
13-03-2020	9	350
14-03-2020	4	346
15-03-2020	9	340
22-03-2020	4	311
26-03-2020	10	312
28-03-2020	7	311

**Query Settings**

- PROPERTIES**
  - Name: Returns Data
- APPLIED STEPS**
  - Source
  - Promoted Headers
  - Changed Type

**Queries [11]**

Primary Key

SalesTerritoryKey	Region	Country	Continent
1	Northwest	United States	North America
2	Northeast	United States	North America
3	Central	United States	North America
4	Southwest	United States	North America
5	Southeast	United States	North America
6	Canada	Canada	North America
7	France	France	Europe
8	Germany	Germany	Europe
9	Australia	Australia	Pacific
10	United Kingdom	United Kingdom	Europe

**Query Settings**

- PROPERTIES**
  - Name: Territory Lookup
- APPLIED STEPS**
  - Source
  - Promoted Headers
  - Changed Type

Make sure to provide a correct category

**Load**

- Calendar Lookup  
Waiting for other queries...
- Customer Lookup  
Evaluating...
- Product Categories Lookup  
Waiting for other queries...
- Product Subcategories Lookup  
Evaluating...
- Product Lookup  
Waiting for other queries...

**Cancel**

**Manage relationships**

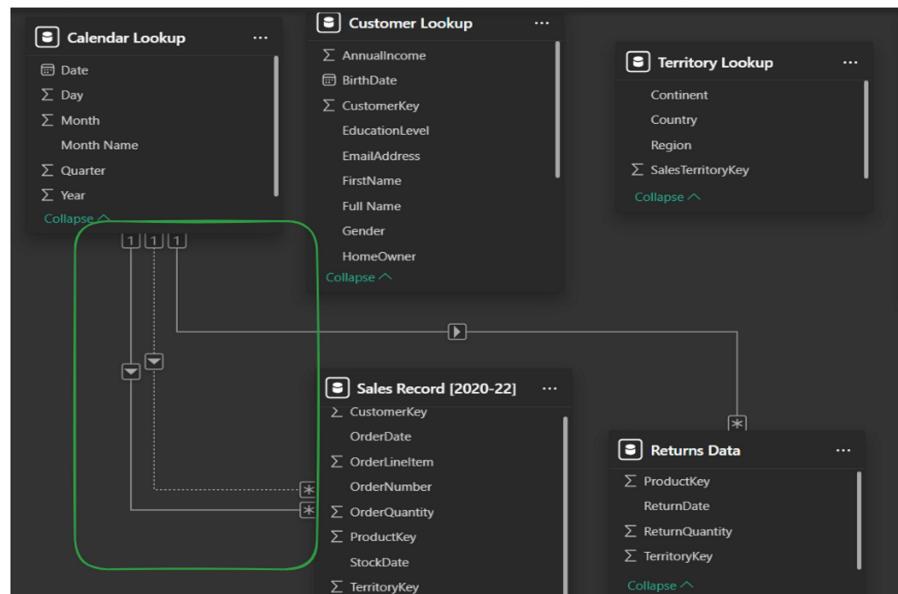
+ New relationship    Autodetect    Edit    Delete    Filter

From: table (column)	Relationship	To: table (column)	Status
Product Lookup (ProductSubc...	*	Product Subcategories Lookup...	Active
Product Subcategories Lookup...	*	Product Categories Lookup (Pr...	Active
Returns Data (ProductKey)	*	Product Lookup (ProductKey)	Active
Sales Data 20...	<b>Delete Relationship</b>		Active
Sales Data 20...			Active
Sales Data 20...			Active
$\sum$ Sales Data 20...			Inactive
Sales Data 2022 (CustomerKey)	*	Customer Lookup (CustomerK...	Active
$\sum$ Sales Data 2022 (ProductKey)	*	Product Lookup (ProductKey)	Inactive
Sales Record [2020-22] (Custo...	*	Customer Lookup (CustomerK...	Active
Sales Record [2020-22] (Order...	*	Sales Data 2020 (OrderNumber)	Inactive

*Create all the relationship manually.*

**Data Modelling**

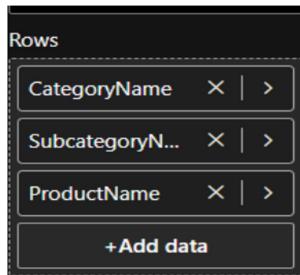
Sales Data 2020  
Sales Data 2021  
CustomerKey  
Sales Data 2022  
CustomerKey  
OrderDate  
OrderLineItem  
OrderNumber  
OrderQuantity  
ProductKey  
StockDate  
TerritoryKey



*Note: Always put dimension table above the fact table because filter flows in downstream direction.*

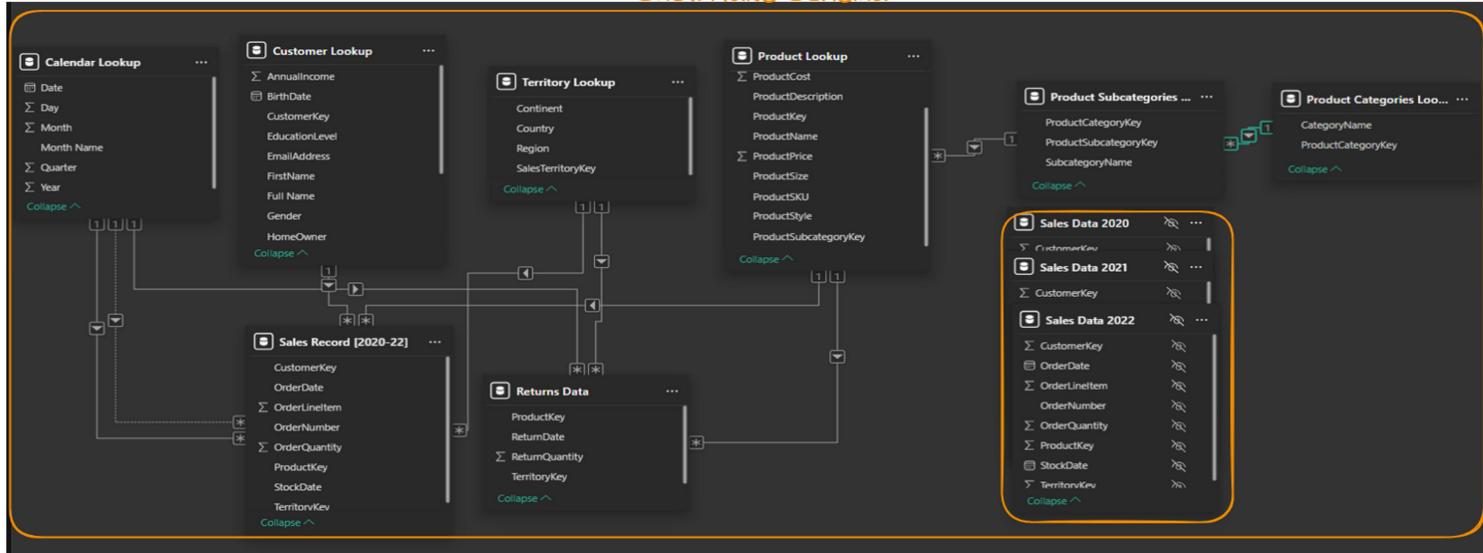
If one key [P.K] from Same Dimension Table connecting the Same Fact Table having F.K. twice, we will find one being active another being inactive.

Another Fact Same Primary Key connect with 2 Fact Table having both being Active relationship.

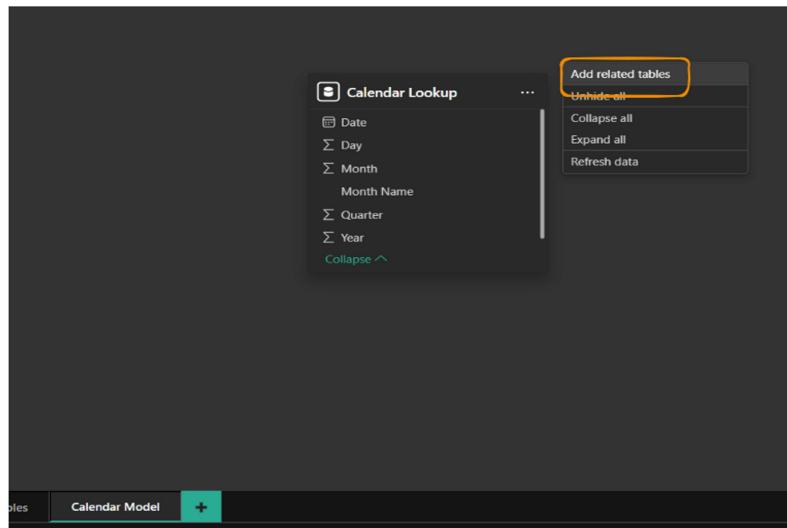


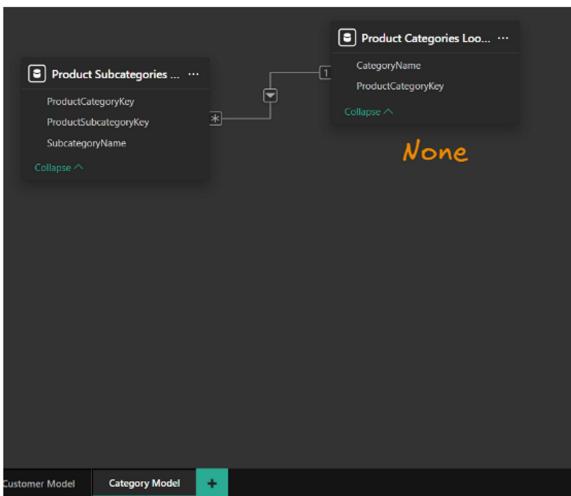
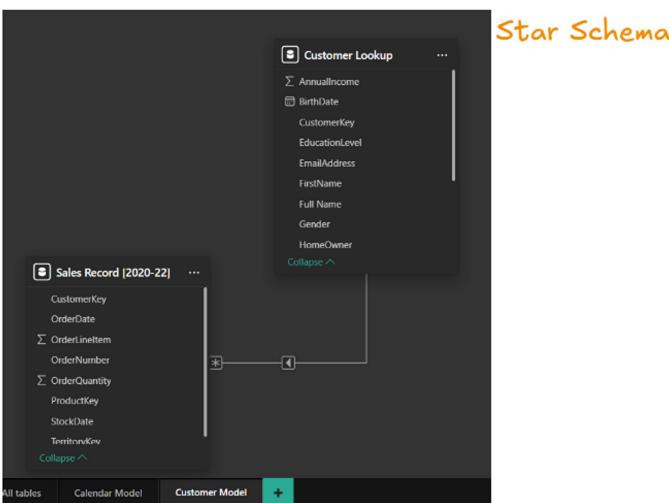
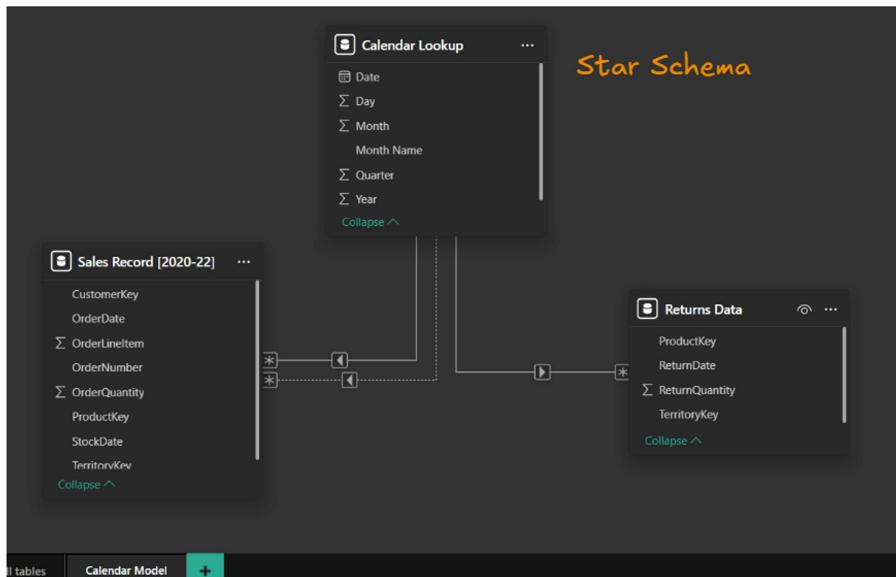
Note: If the column we need to choose it for hierarchy and its not present on the same table, we have to use a matrix visuals and drop the column name as per the hierarchy and it works the same way.

Snowflake Schema

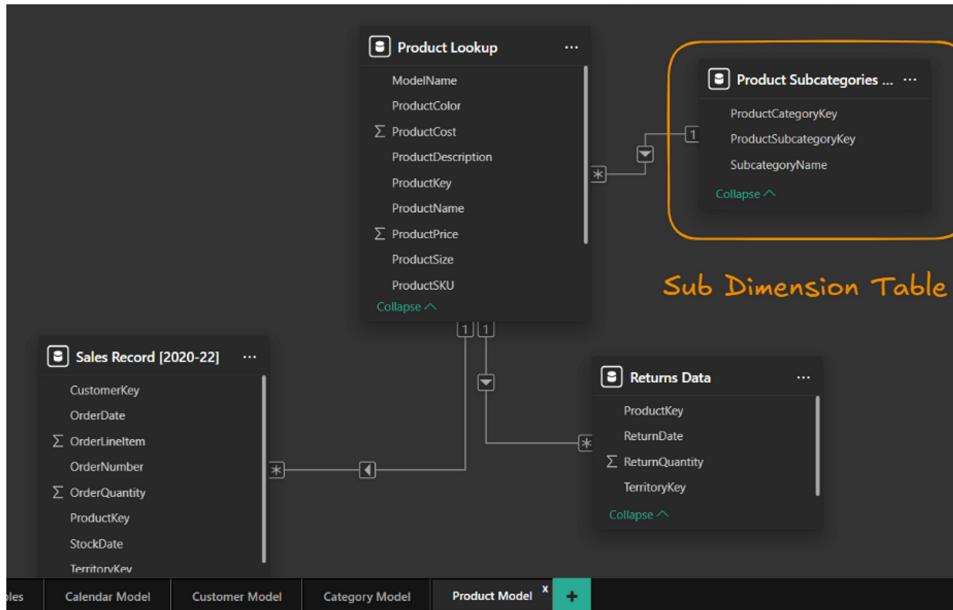


When we hide the table  
it won't show itself on Data Pane.

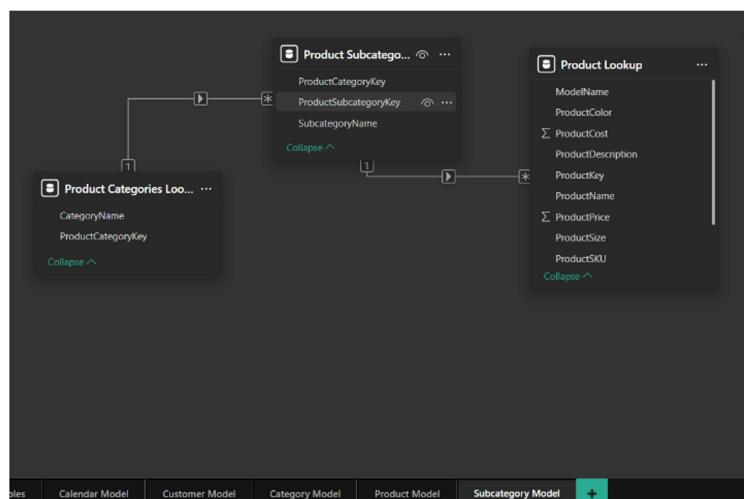




## Snowflake Schema



None



Star Schema

