Sri Lanka Institute of Information Technology

IT3021- Data Warehousing and Business Intelligence

Assignment 2

2022

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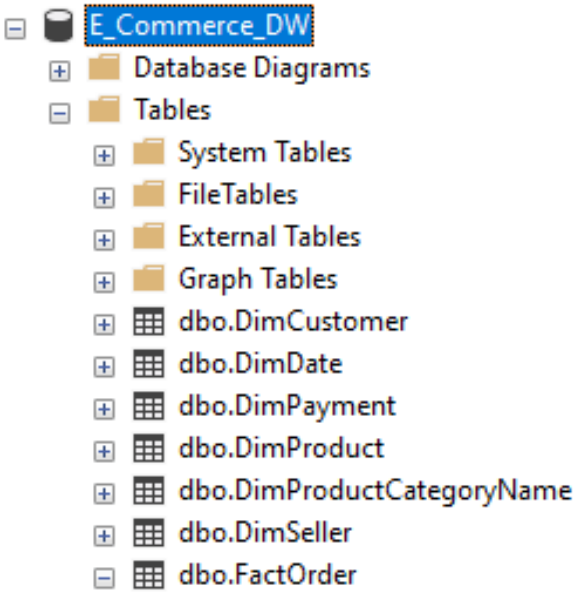
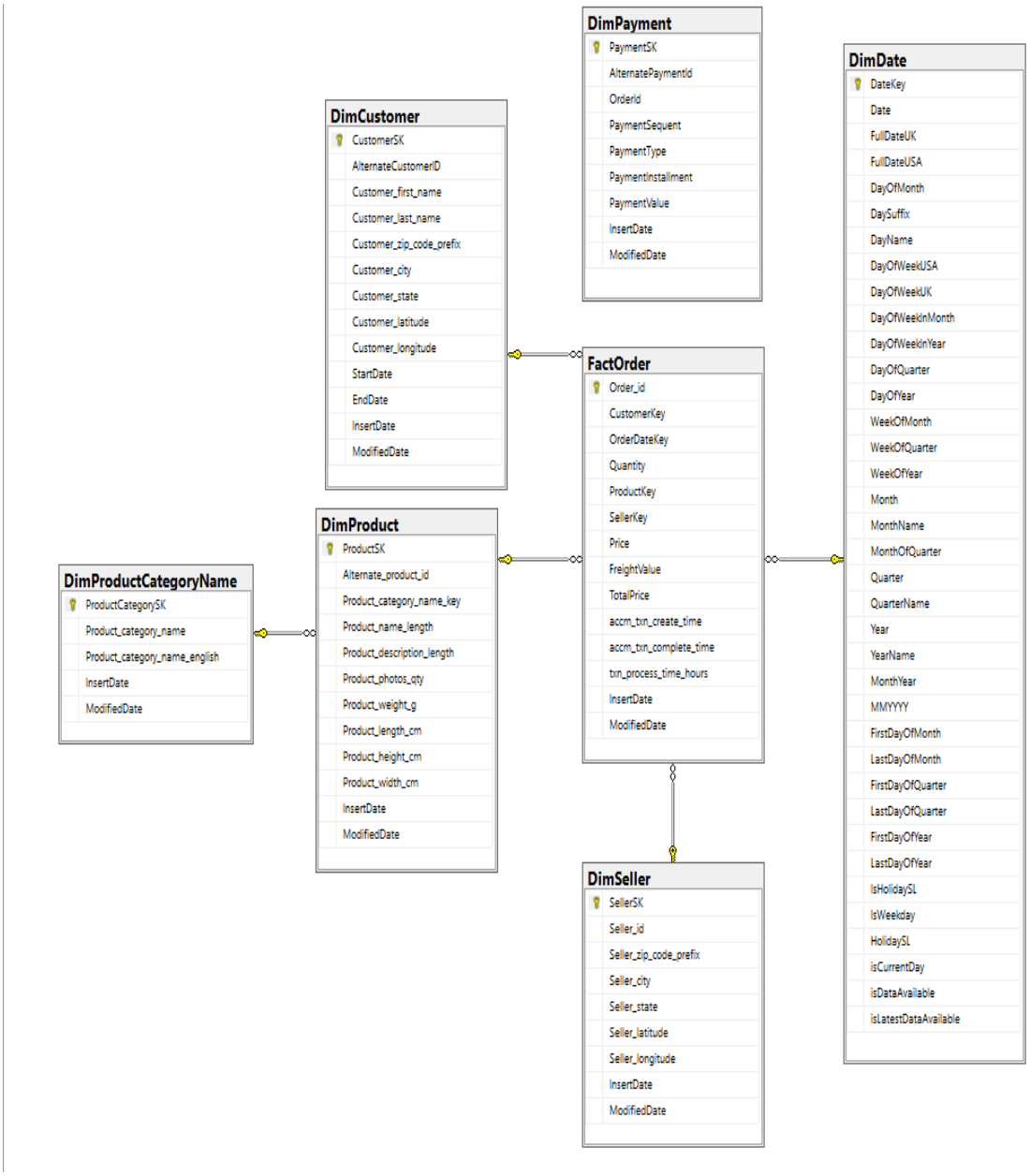
Step 1 :- Data Source Introduction

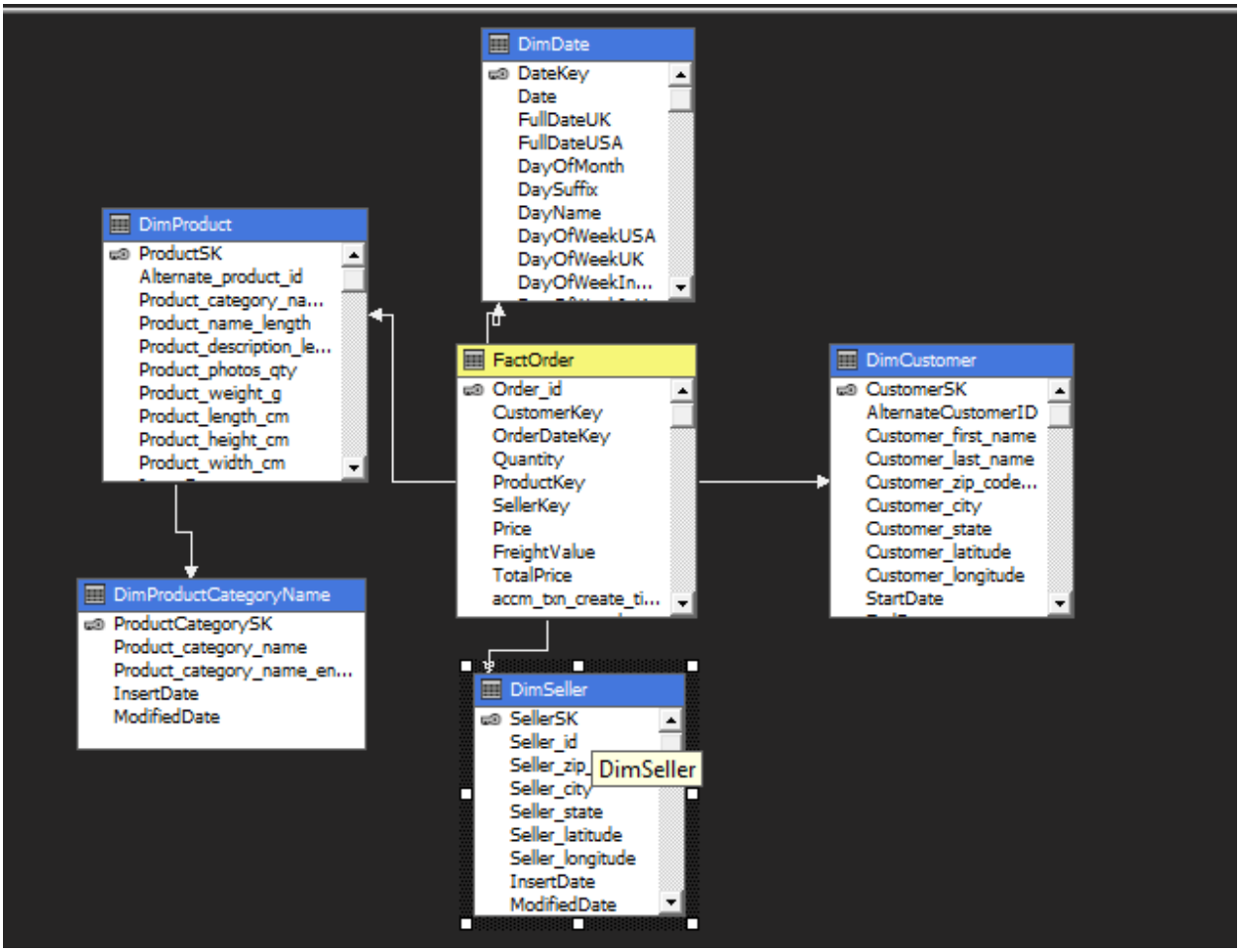
For this assignment I have used the E_Commerce_DW as Data Warehouse which was implemented in the Assignment1.This includes DimDate, DimProductProductCategory, DimProduct, DimSeller, DimCustomer, DimPayment, and FactOrder tables.




DimPayment
PaymentSK
AlternatePaymentId
OrderId
PaymentSequent
PaymentType
PaymentInstallment
PaymentValue
InsertDate
ModifiedDate
DimDate
DateKey
Date
FullDateUK
FullDateUSA
DayOfMonth
DaySuffix
DayName
DayOfWeekUSA
DayOfWeekUK
DayOfWeekInMonth
DayOfWeekInYear
DayOfQuarter
DayOfYear
WeekOfMonth
WeekOfQuarter
WeekOfYear
Month
MonthName
MonthOfQuarter
Quarter
QuarterName
Year
YearName
MonthYear
MMYYYY
FirstDayOfMonth
LastDayOfMonth
FirstDayOfQuarter
LastDayOfQuarter
FirstDayOfYear
LastDayOfYear
IsHolidaySL
IsWeekday
HolidaySL
isCurrentDay
isDataAvailable
isLatestDataAvailable
DimCustomer
CustomerSK
AlternateCustomerID
Customer_first_name
Customer_last_name
Customer_zip_code_prefix
Customer_city
Customer_state
Customer_latitude
Customer_longitude
StartDate
EndDate
InsertDate
ModifiedDate
FactOrder
Order_id
CustomerKey
OrderDateKey
Quantity
ProductKey
SellerKey
Price
FreightValue
TotalPrice
accm_txn_create_time
accm_txn_complete_time
txn_process_time_hours
InsertDate
ModifiedDate
DimProduct
ProductSK
Alternate_product_id
Product_category_name_key
Product_name_length
Product_description_length
Product_photos_qty
Product_weight_g
Product_length_cm
Product_height_cm
Product_width_cm
InsertDate
ModifiedDate
DimProductCategoryName
ProductCategorySK
Product_category_name
Product_category_name_english
InsertDate
ModifiedDate
DimSeller
SellerSK
Seller_id
Seller_zip_code_prefix
Seller_city
Seller_state
Seller_latitude
Seller_longitude
InsertDate
ModifiedDate

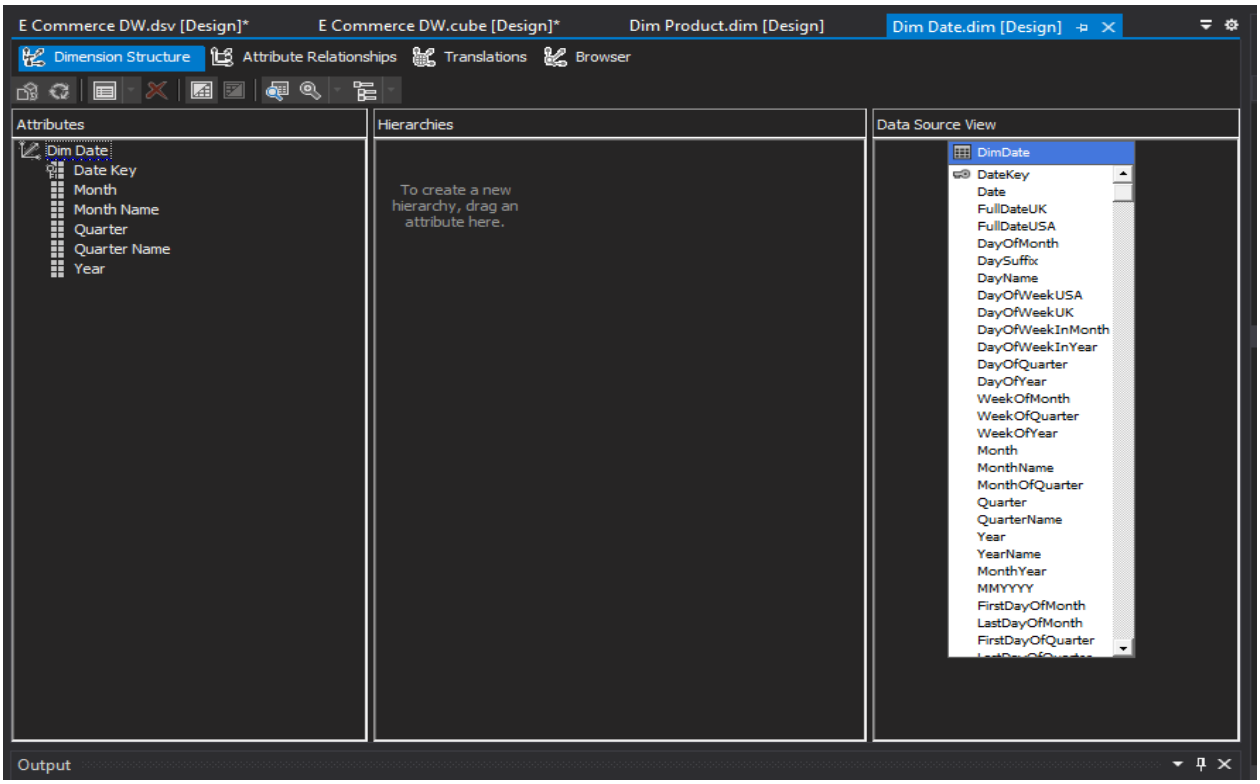
Step 2 :- SSAS Cube Implementation

Here we choose the FactOrder a the measure group and , DimDate , DimProduct , DimProductCategoryName ,DimSeller, and DimCustomer as Dimensions.

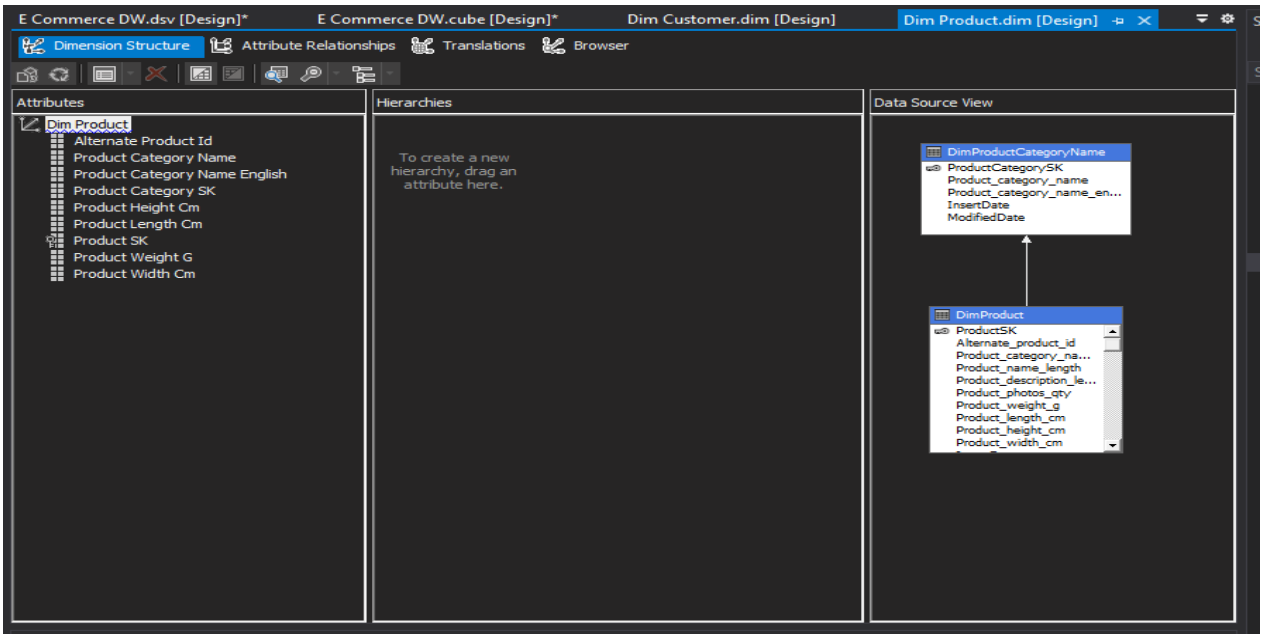


After that configure all the dimensions in a proper way

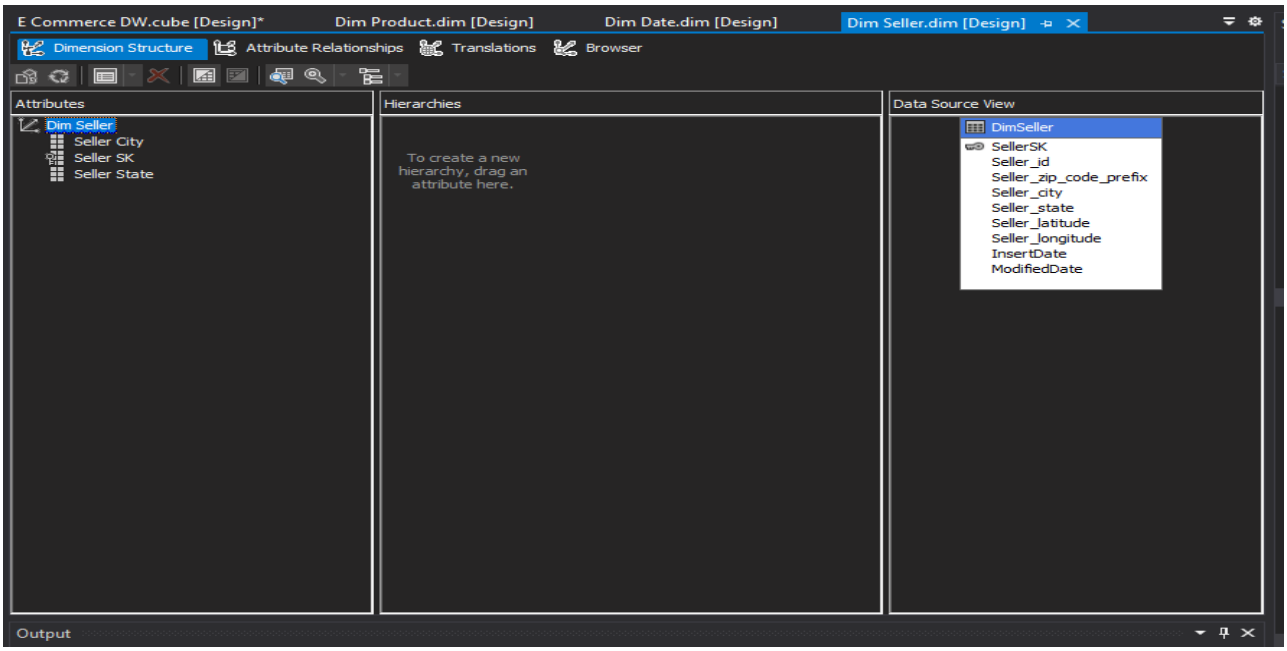
- DimDate



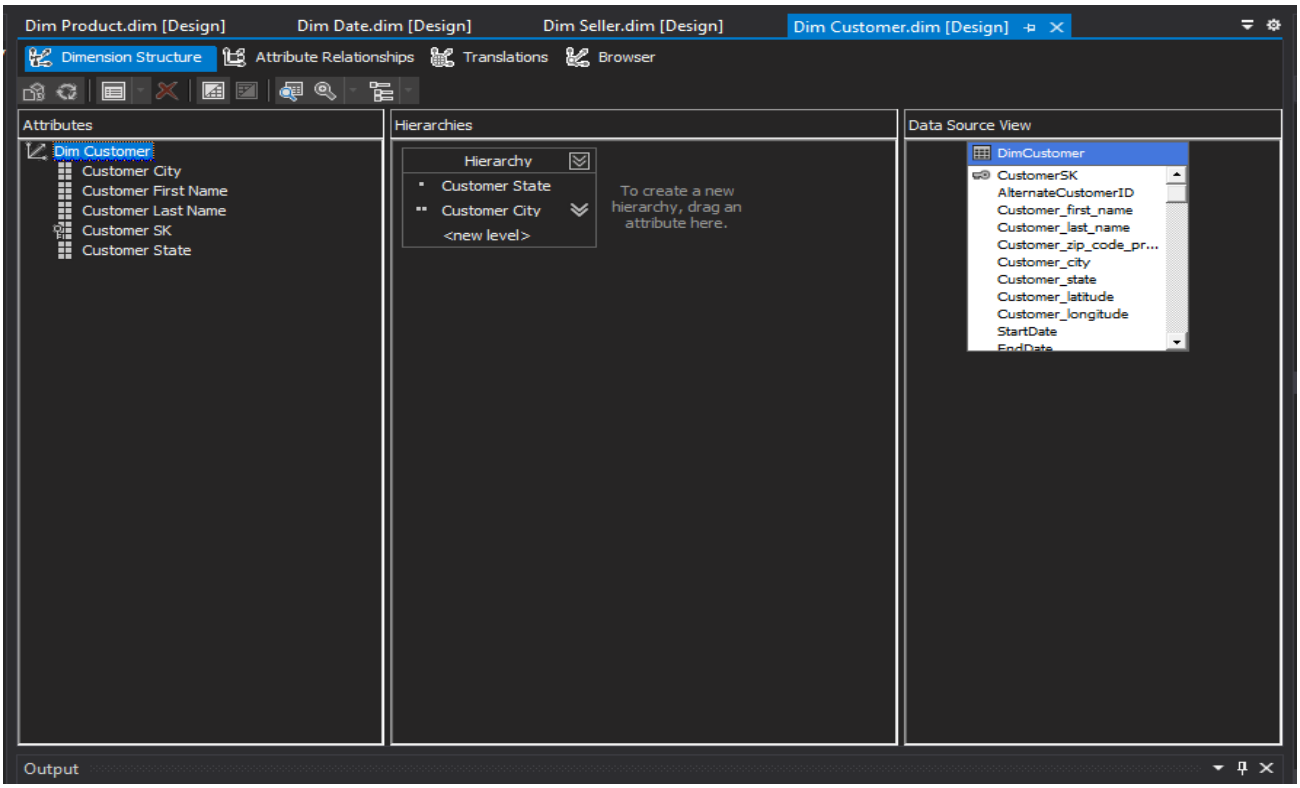
- DimProduct



- DimSeller

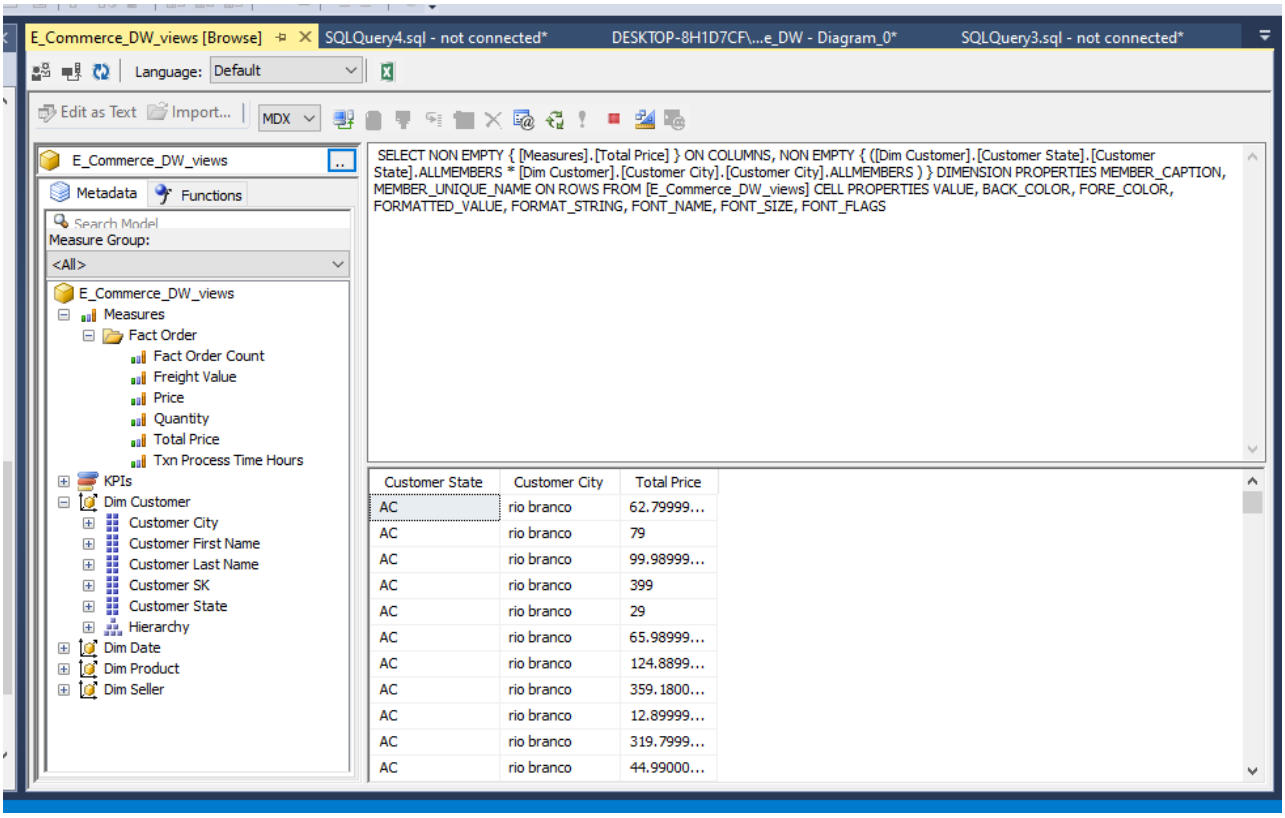


- DimCustomer



Then Deploy the Cube.

After deploying of this Cube it looks as follows,

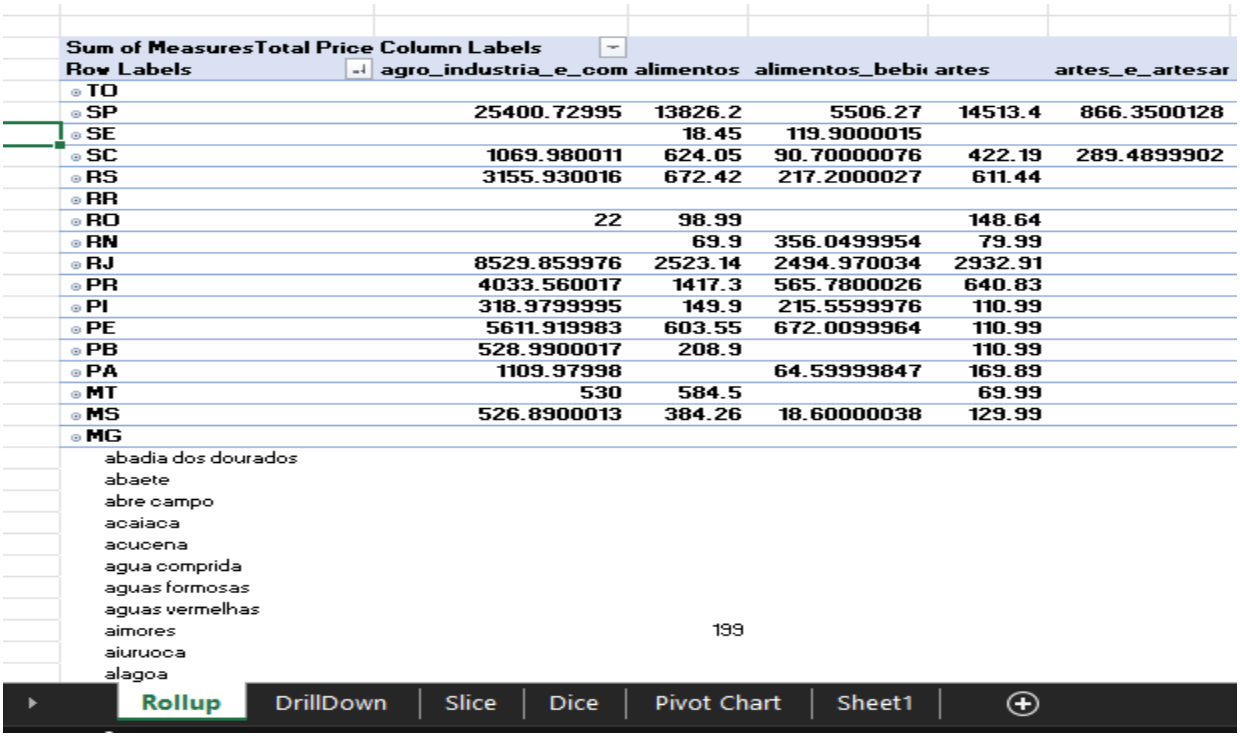


Step 3: - Demonstration of OLAP Operations

- Using Excel Power Pivot we can perform the OLAP Operations.

Roll Up

Rollup Operation performs aggregations on a data cube.



Sum of MeasuresTotal Price Column Labels					
Row Labels	agro_industria_e_com	alimentos	alimentos_bebi	artes	artes_e_artesar
TO					
SP	25400.72995	13826.2	5506.27	14513.4	866.3500128
SE		18.45	119.9000015		
SC	1069.980011	624.05	90.70000076	422.19	289.4899902
RS	3155.930016	672.42	217.2000027	611.44	
RR					
RO	22	98.99		148.64	
RN		69.9	356.0499954	79.99	
RJ	8529.859976	2523.14	2494.970034	2932.91	
PR	4033.560017	1417.3	565.7800026	640.83	
PI	318.9799995	149.9	215.5599976	110.99	
PE	5611.919983	603.55	672.0099964	110.99	
PB	528.9900017	208.9		110.99	
PA	1109.97998		64.59999847	169.89	
MT	530	584.5		69.99	
MS	526.8900013	384.26	18.60000038	129.99	
MG					
abadia dos dourados					
abaete					
abre campo					
acaiaca					
acucena					
agua comprida					
aguas formosas					
aguas vermelhas					
aimores		199			
aiuruoca					
alagoa					

Rollup | DrillDown | Slice | Dice | Pivot Chart | Sheet1

Drill Down

Sum of MeasuresTotal Price	Column Labels					
Row Labels	agro_industry_and_commerce	air_conditioning	art	arts_and_craftmanship	audio	auto
2016						
4						
October						
November		749.6899719			24.98999977	399.7899952
December		178.8999939			132	738.4699974
2017						
1						
January						499.9899902
February	21.98999977					2504.559982
March	246.8299999	3729.47995	9		367.7000008	16603.09004
2						
April	81.99000168	4043.329979	104.6500015		772.8700066	11433.63008
May	59.99000168	2255.230011	146.5		1689.090004	13770.20004
June	1459.959961	936.1700001	7153.650009		1577.48999	25108.66999
3						
July	2629.990002	2716.58	410.9499969		1665.799994	23766.19
August		806.5699921	220	129.8999939	690.6900063	13099.47002
September	398	2432.459961	434.6899948		1279.889999	12288.73003
4						
October	1254.98999	1977.149979	88.55000305		1551.299997	13543.56004

Rollup | DrillDown | Slice | Dice | Pivot Chart | Sheet1

Slice

In Slice Operation it performs a selection on one dimension of the given cube and , then results in a sub cube.

Sum of MeasuresFreight Value	Column Labels	
Row Labels	arts_and_craftmanship	Grand Total
DF	22.20999908	22.20999908
MG	130.9000006	130.9000006
SC	24.82999992	24.82999992
SP	171.6499982	171.6499982
Grand Total	**349.5899978**	**349.5899978**

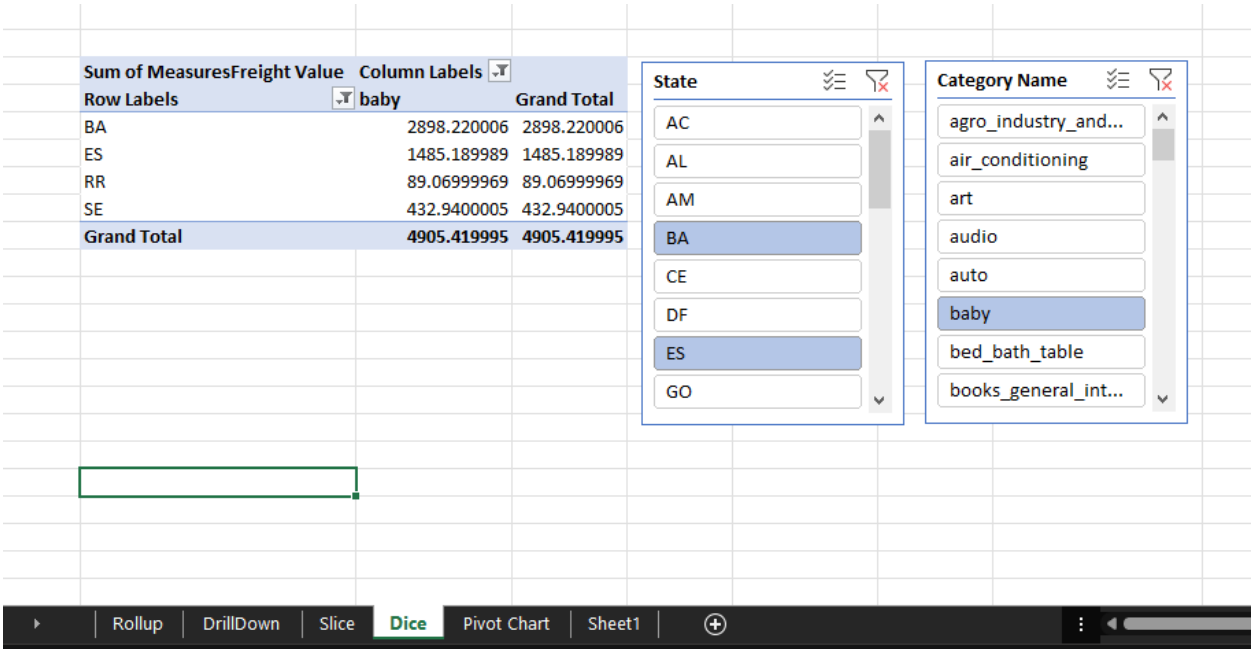
Category Name

- agro_industry_and...
- air_conditioning
- art
- arts_and_craftmans...
- audio
- auto
- baby
- bed_bath_table

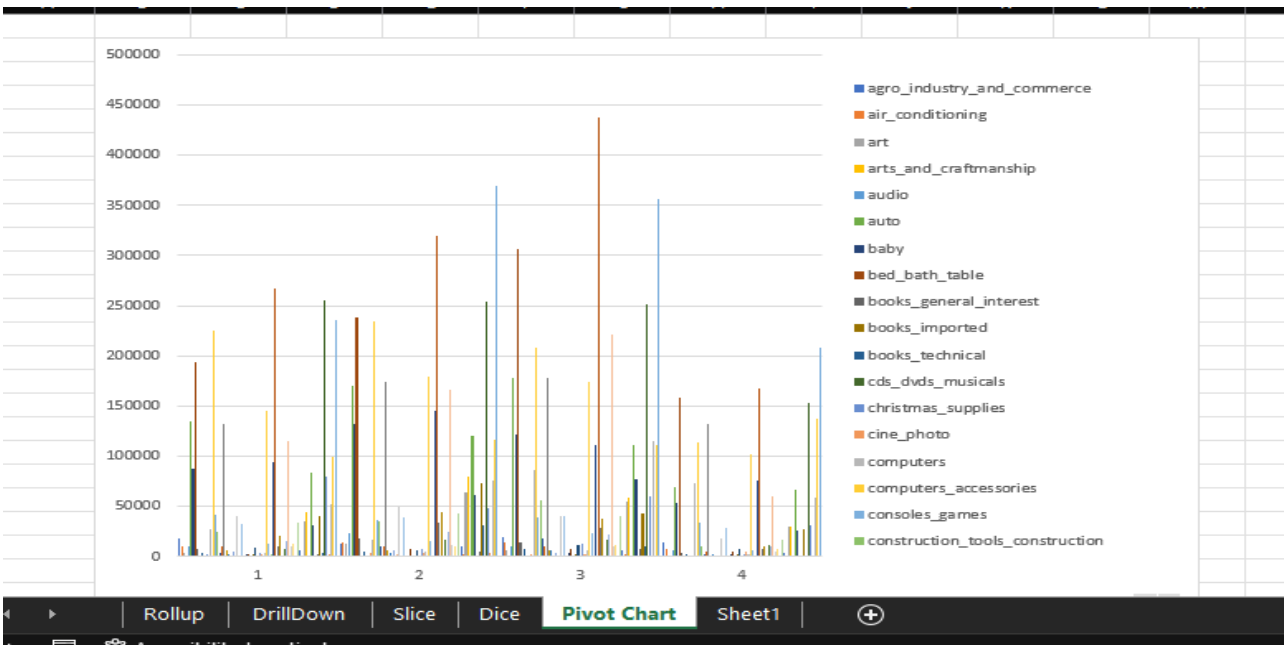
Rollup | DrillDown | Slice | Dice | Pivot Chart | Sheet1

Dice

In Dice Operation it defines a sub cube by performing a selection on two or more dimensions.



Pivot Chart



Step 4 : - SSRS Reports

4.1) Report With A Matrix

Yearwise and Product Category wise Value Total

Product Category Name English	2016	2017	2018	Total
agro_industry_and_commerce		18984.90990448	45050.7700214386	**64035.6799259186**
air_conditioning	928.589965820313	23346.7598495483	21549.1799697876	**45824.5297851563**
art		8952.04000854492	14456.149960041	**23408.189968586**
arts_and_craftmanship		129.899993896484	1622.22000980377	**1752.12000370026**
audio	156.989999771118	14513.8599014282	34783.3297157288	**49454.1796169281**
auto	1138.25999259949	186350.390316486	364068.790381908	**551557.440690994**
baby	1430.37000083923	130284.950148582	264608.0298419	**396323.349991322**
bed_bath_table	359.429996490479	400318.260415077	495304.199500561	**895981.889912128**
books_general_interest	119.5	16264.8999662399	27856.7505521774	**44241.1505184174**
books_imported		688.5	3332.97999572754	**4021.47999572754**
books_technical	267	4875.53000640869	13322.7500953674	**18465.2801017761**
cds_dvds_musicals		510	130	**640**
christmas_supplies		2139.25000619888	5503.53005647659	**7642.78006267548**
cine_photo		695	5966.15996074677	**6661.15996074677**
computers		139461.790039063	65752.3898925781	**205214.179931641**
computers_accessories	1285.32000541687	306798.869562149	471627.228352547	**779711.417920113**
consoles_games	3882.25999069214	78912.0899810791	68743.6104149818	**151537.960386753**
construction_tools_construction		13276.5899887085	113615.379873753	**126891.969862461**

4.2) Report with more than One Parameter

- This report has 2 parameters

- Year
- Month Name

Query

For YearName Parameter

```
SELECT DISTINCT(D.Year)
FROM dbo.DimDate D, dbo.FactOrder F
WHERE F.OrderDateKey = D.DateKey
```

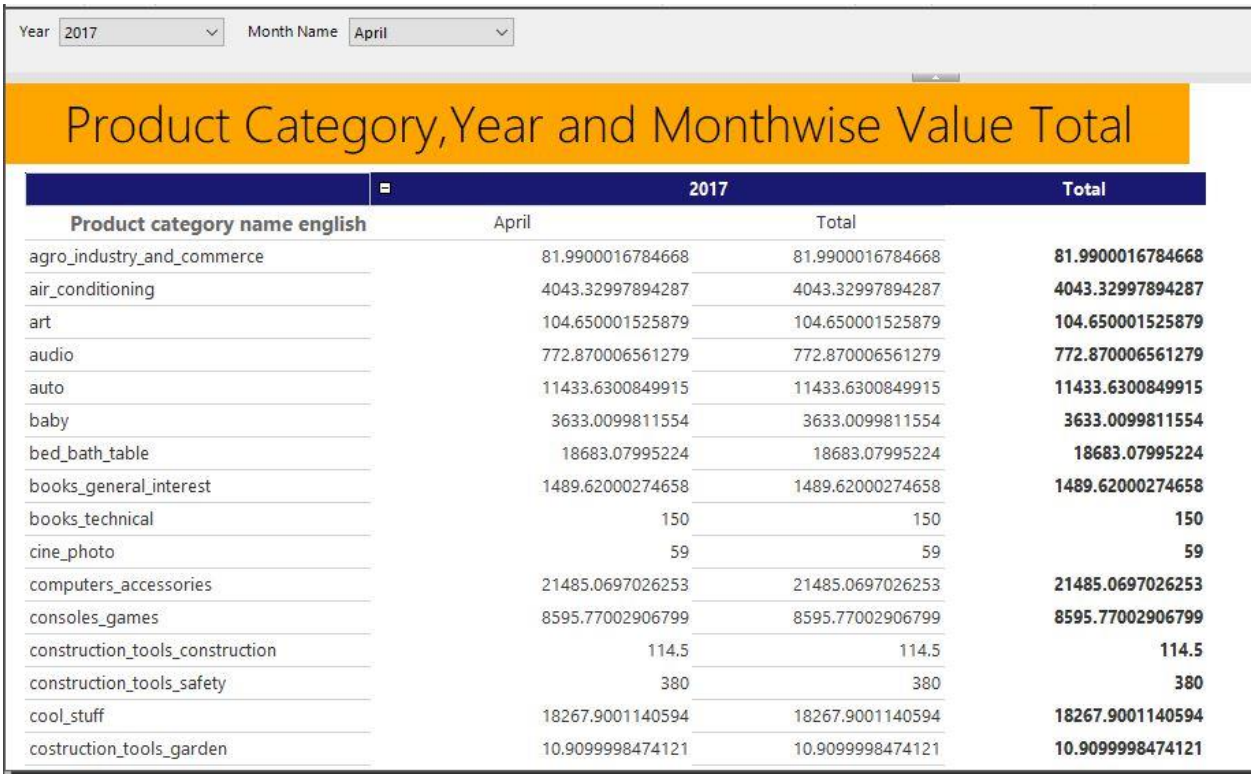
For MonthName Parameter

```
SELECT DISTINCT(MonthName) FROm dbo.DimDate
```

For Main Table

```
SELECT
  DimDate.[Year]
  ,DimDate.MonthName
  ,DimProduct.Product_category_name_key
  ,DimProductCategoryName.Product_category_name_english
  ,FactOrder.TotalPrice
```

```
FROM
  DimProduct
  INNER JOIN DimProductCategoryName
    ON DimProduct.Product_category_name_key = DimProductCategoryName.ProductCategorySK
  INNER JOIN FactOrder
    ON DimProduct.ProductSK = FactOrder.ProductKey
  INNER JOIN DimDate
    ON FactOrder.OrderDateKey = DimDate.DateKey
WHERE DimDate.[Year] = @Year and DimDate.MonthName = @MonthName
```



Year 2017 Month Name April

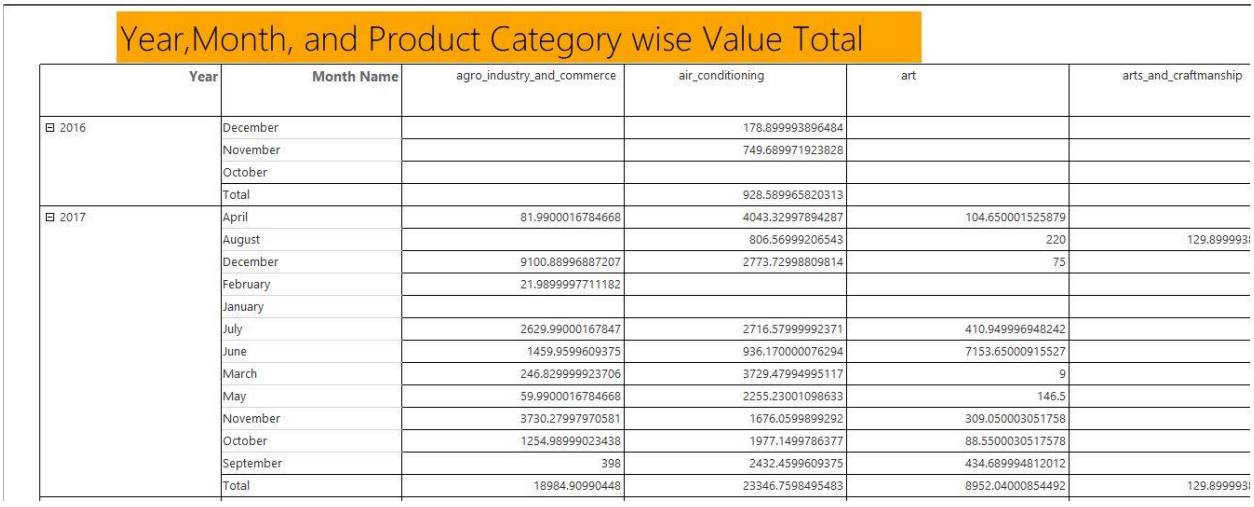
Product Category,Year and Monthwise Value Total

	2017		Total
Product category name english	April	Total	
agro_industry_and_commerce	81.9900016784668	81.9900016784668	**81.9900016784668**
air_conditioning	4043.32997894287	4043.32997894287	**4043.32997894287**
art	104.650001525879	104.650001525879	**104.650001525879**
audio	772.870006561279	772.870006561279	**772.870006561279**
auto	11433.6300849915	11433.6300849915	**11433.6300849915**
baby	3633.0099811554	3633.0099811554	**3633.0099811554**
bed_bath_table	18683.07995224	18683.07995224	**18683.07995224**
books_general_interest	1489.62000274658	1489.62000274658	**1489.62000274658**
books_technical	150	150	**150**
cine_photo	59	59	**59**
computers_accessories	21485.0697026253	21485.0697026253	**21485.0697026253**
consoles_games	8595.77002906799	8595.77002906799	**8595.77002906799**
construction_tools_construction	114.5	114.5	**114.5**
construction_tools_safety	380	380	**380**
cool_stuff	18267.9001140594	18267.9001140594	**18267.9001140594**
costruction_tools_garden	10.9099998474121	10.9099998474121	**10.9099998474121**

4.3) Drill-Down Report

Querys

```
SELECT
  DimDate.[Year]
  ,DimDate.MonthName
  ,FactOrder.TotalPrice
  ,DimProductCategoryName.Product_category_name_english
  ,DimProduct.ProductSK
FROM
  FactOrder
  INNER JOIN DimDate
    ON FactOrder.OrderDateKey = DimDate.DateKey
  INNER JOIN DimProduct
    ON FactOrder.ProductKey = DimProduct.ProductSK
  INNER JOIN DimProductCategoryName
    ON DimProduct.Product_category_name_key =
DimProductCategoryName.ProductCategorySK
```



Year,Month, and Product Category wise Value Total

Year	Month Name	agro_industry_and_commerce	air_conditioning	art	arts_and_craftmanship
⊟ 2016	December		178.899993896484		
	November		749.689971923828		
	October				
	Total		928.589965820313		
⊟ 2017	April	81.9900016784668	4043.32997894287	104.650001525879	
	August		806.56999206543	220	129.899993
	December	9100.88996887207	2773.72998809814	75	
	February	21.9899997711182			
	January				
	July	2629.99000167847	2716.57999992371	410.949996948242	
	June	1459.9599609375	936.170000076294	7153.65000915527	
	March	246.829999923706	3729.47994995117	9	
	May	59.9900016784668	2255.23001098633	146.5	
	November	3730.27997970581	1676.0599899292	309.050003051758	
	October	1254.98999023438	1977.1499786377	88.5500030517578	
	September	398	2432.4599609375	434.689994812012	
	Total	18984.90990448	23346.7598495483	8952.04000854492	129.899993

4.4) Drill-through Report

Main Query

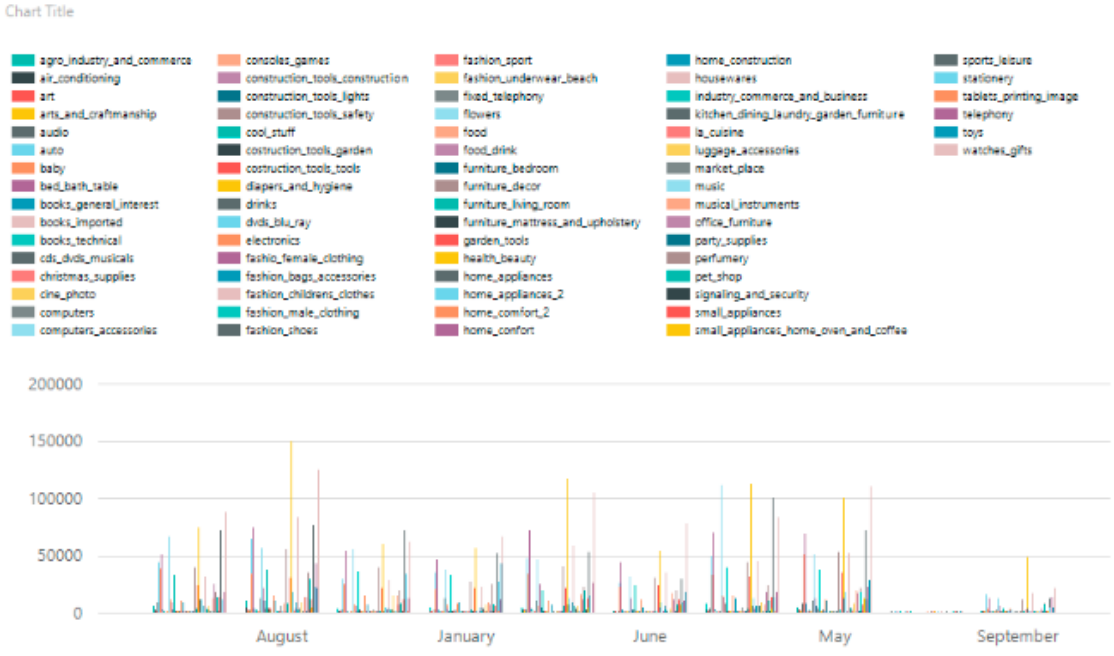
```
SELECT
  DimDate.[Year]
  ,DimProductCategoryName.Product_category_name_english
  ,DimProduct.ProductSK
  ,FactOrder.TotalPrice
FROM
  DimProduct
  INNER JOIN DimProductCategoryName
    ON                    DimProduct.Product_category_name_key                =
DimProductCategoryName.ProductCategorySK
  INNER JOIN FactOrder
    ON DimProduct.ProductSK = FactOrder.ProductKey
  INNER JOIN DimDate
    ON FactOrder.OrderDateKey = DimDate.DateKey
```

Sub Query

```
SELECT
  DimDate.MonthName
  ,DimProduct.ProductSK
  ,DimProductCategoryName.Product_category_name_english
  ,FactOrder.TotalPrice
FROM
  DimProduct
  INNER JOIN DimProductCategoryName
    ON                    DimProduct.Product_category_name_key                =
DimProductCategoryName.ProductCategorySK
  INNER JOIN FactOrder
    ON DimProduct.ProductSK = FactOrder.ProductKey
  INNER JOIN DimDate
    ON FactOrder.OrderDateKey = DimDate.DateKey
WHERE DimDate.Year = @Year
```

Year and Product Category wise Product Value Total

Month & Product Category wise Product Value Total



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