SRI LANKA INSTITUE OF INFORMATION TECHNOLOGY

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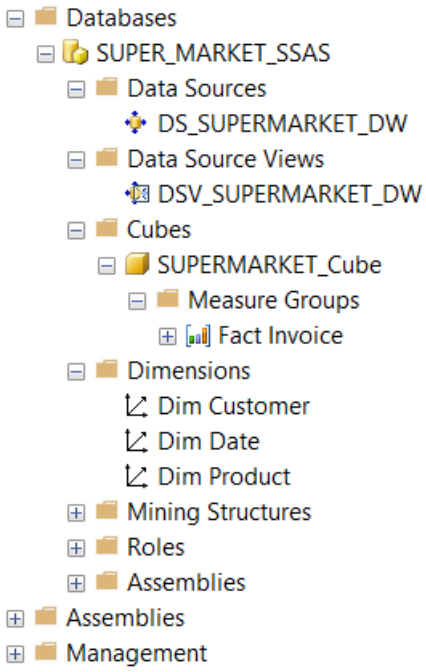
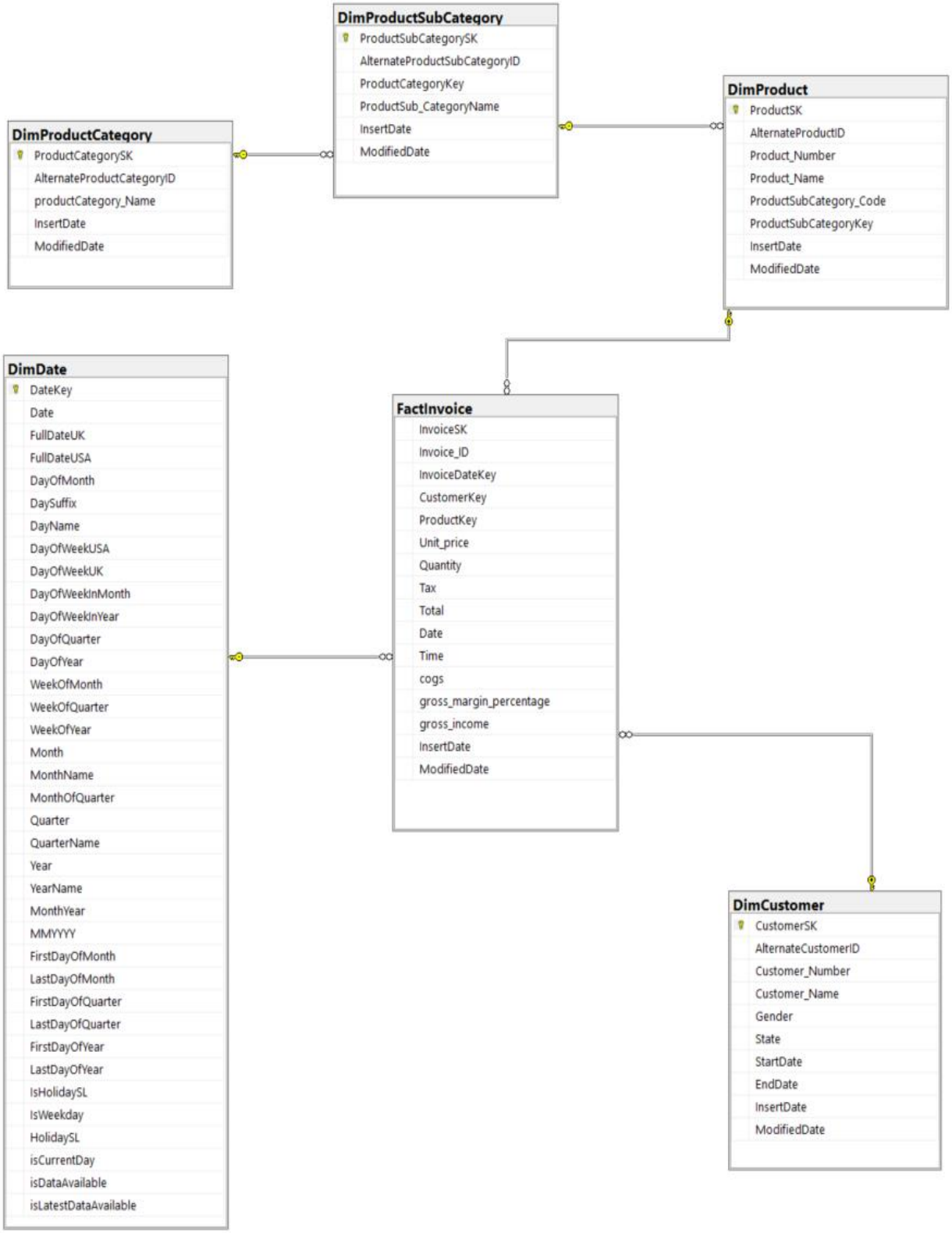
Batch:	**DS weekday**	**Assignment: 02**

Step 1: Data source

Data warehouse designed at the Assignment I is used as the data source for this assignment. Data warehouse consists of 5-dimension tables and one fact tables to represent Super Market data altogether.

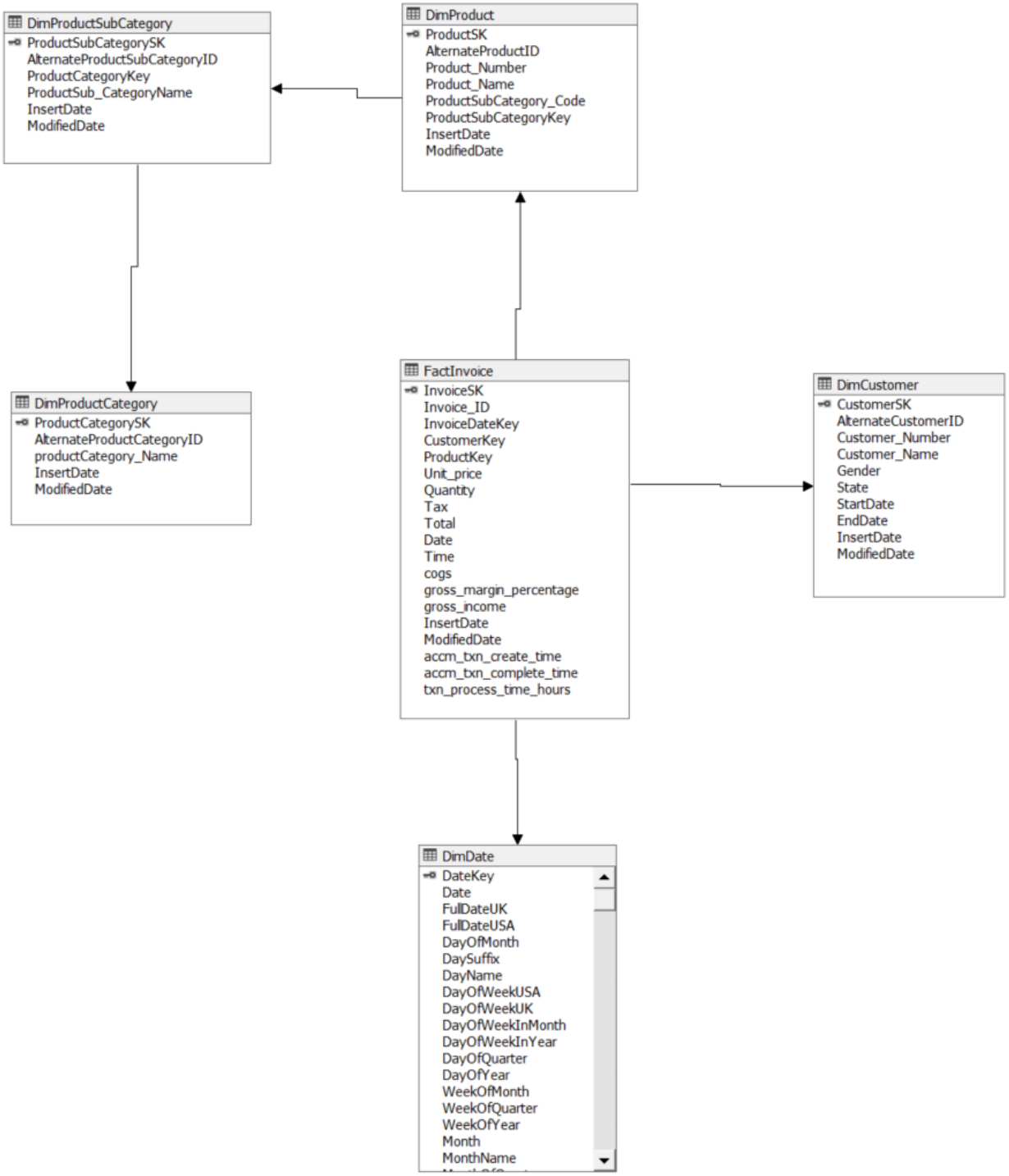


ER Diagram for the source system



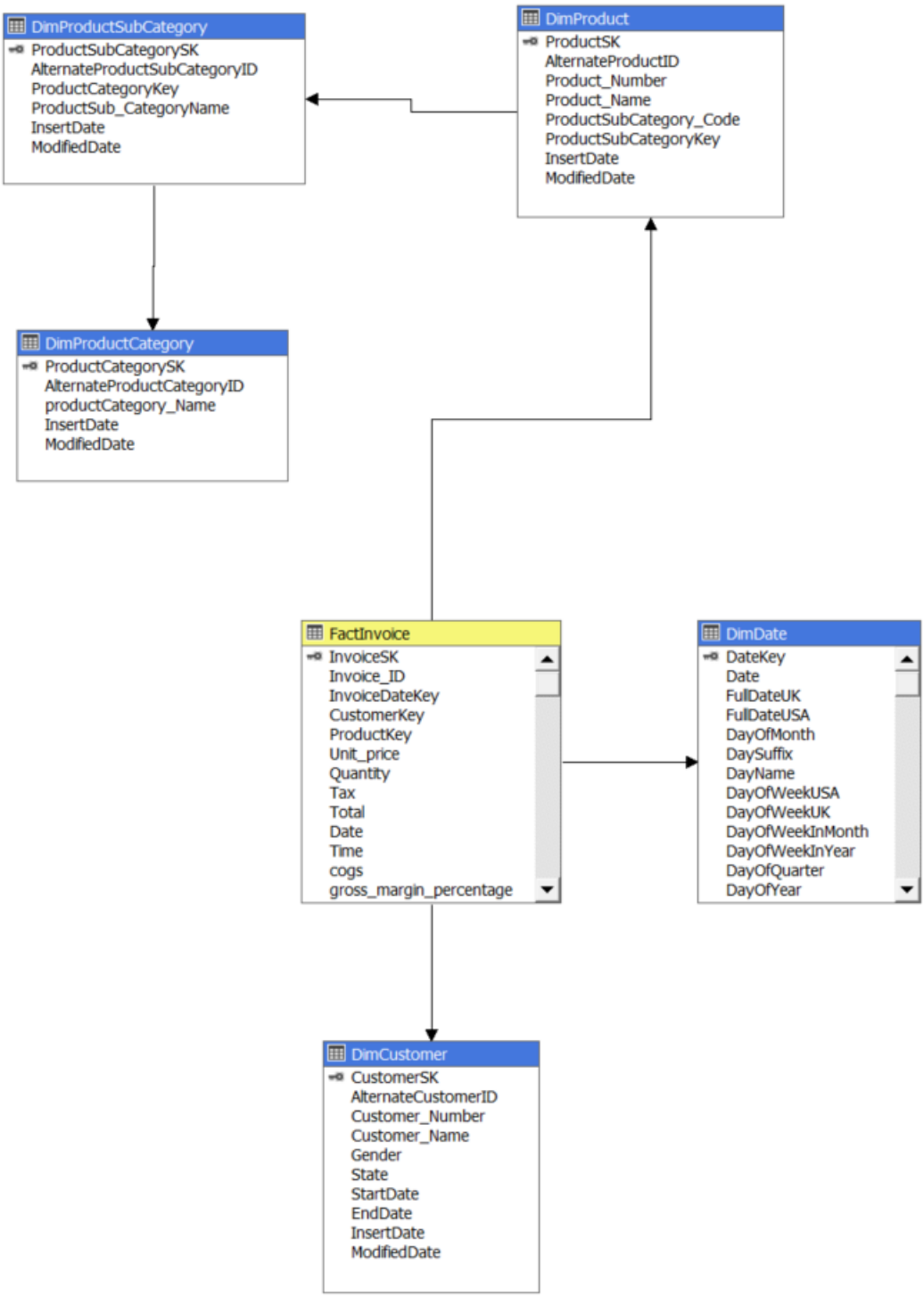
Step 2: SSAS Cube implementation

Data Source View



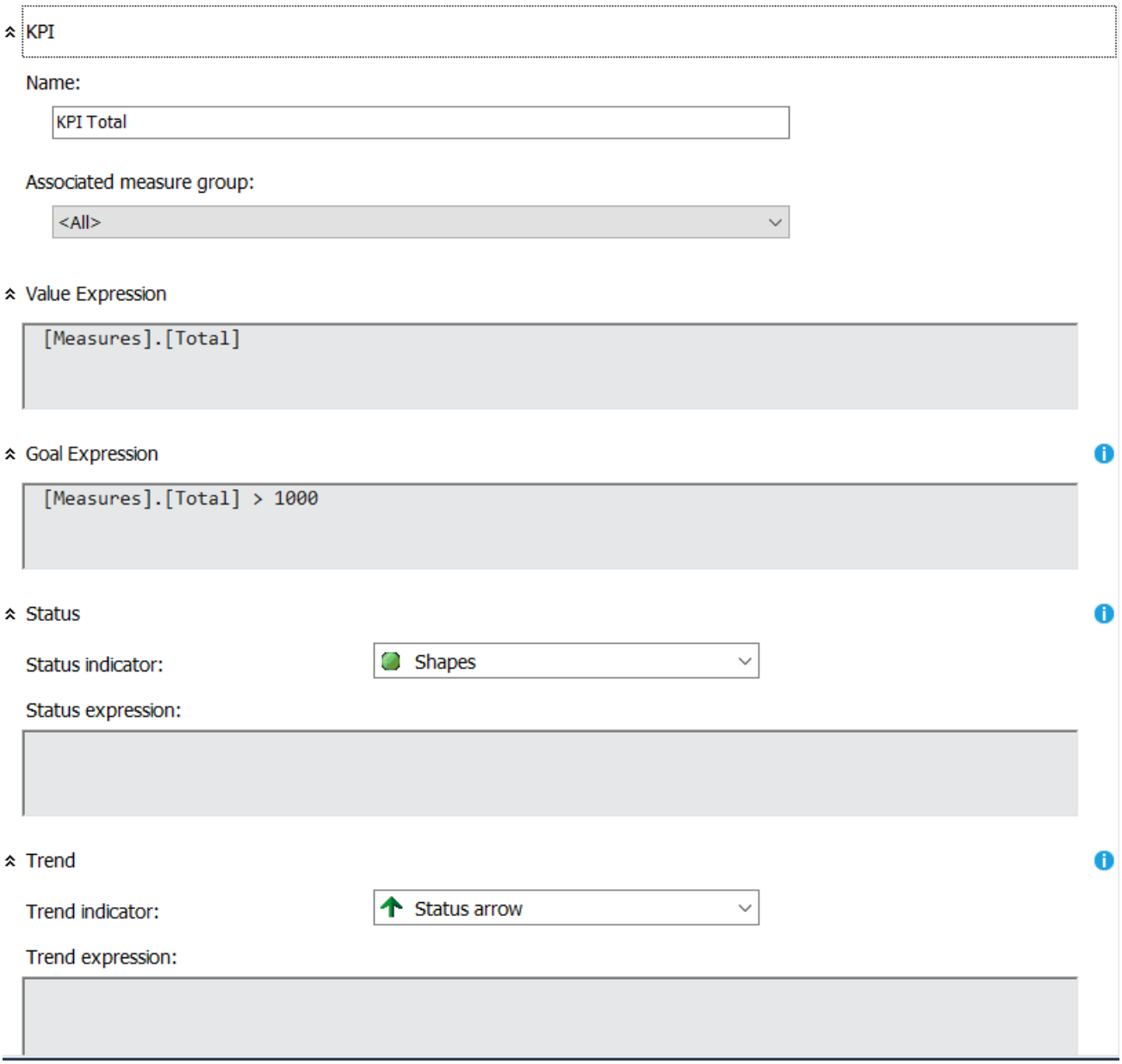
Data source view has been configured with its relevant tables as per the above design.

Cube Design



KPI Creation

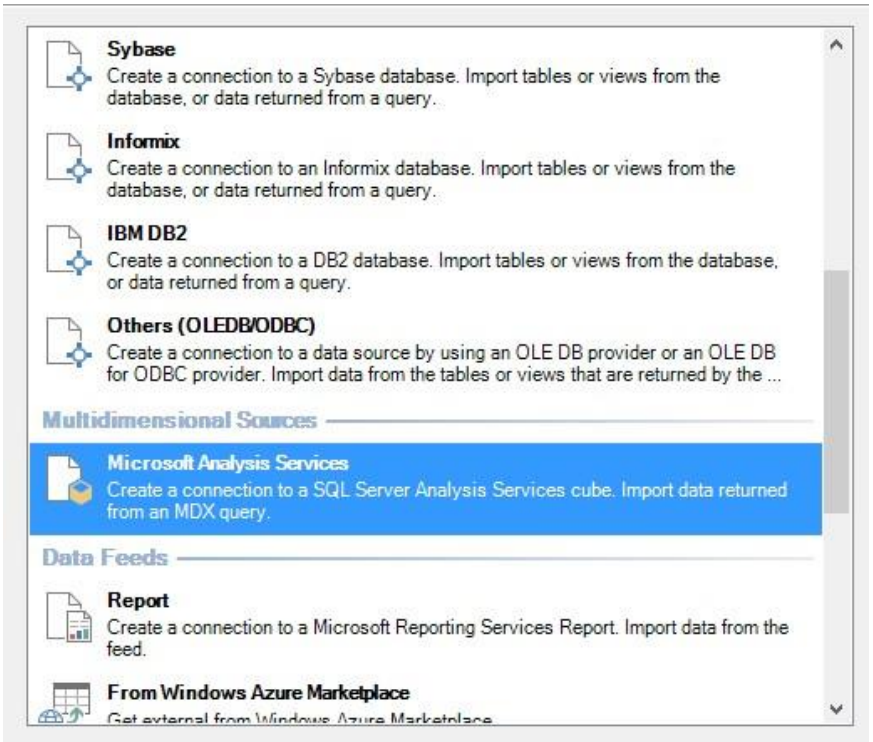
KPI is designed on Total attribute of Measures. It checks if the total is more than $1000.If so value is set to success (True) else set to fail (False).



Product Sub Category Name	Product Category Name	Product Name	KPI Total Value	KPI Total Goal	Unit Price	Quantity	Gross Income	Total
Accessories	Technology	3M Hangers ...	609.3045	False	111.31	29	29.0145	609...
Accessories	Technology	3M Organizer ...	1059.1455	True	229.76	20	50.4355	105...
Accessories	Technology	3M Replacem...	1053.675	True	249.92	15	50.175	105...
Accessories	Technology	Acco 7-Outlet...	2193.534	True	328.52	41	104.454	219...
Accessories	Technology	Acco Hanging...	1580.1345	True	234.83	29	75.2445	158...
Accessories	Technology	Acco Pressbo...	1371.8775	True	333.91	23	65.3275	137...
Accessories	Technology	Acme Value Li...	1273.7865	True	300.57	30	60.6565	127...
Accessories	Technology	Adams Phone...	2809.212	True	366.16	41	133.772	280...
Accessories	Technology	Adams Phone...	2080.869	True	349.06	35	99.089	208...
Accessories	Technology	Adams Teleph...	2653.434	True	358.05	40	126.354	265...
Accessories	Technology	Advantus 10-...	2228.52	True	376.52	31	106.12	222...
Accessories	Technology	Advantus T-Pi...	1454.691	True	236.85	33	69.271	145...
Accessories	Technology	AT&T 841000...	1627.584	True	293.54	28	77.504	162...
Accessories	Technology	Avery 3 1/2" ...	1439.298	True	278.05	27	68.538	143...
Accessories	Technology	Avery 477	1958.6385	True	301.44	31	93.2685	195...
Accessories	Technology	Avery 480	1272.747	True	202.04	30	60.607	127...
Accessories	Technology	Avery 490	2124.647	True	459.1	100.69	102.3745	212...
Accessories	Technology	Avery Binding...	1518.51	True	361.84	28	72.31	151...
Accessories	Technology	Avery Premie...	1628.5185	True	352.59	26	107.392	162...
Accessories	Technology	Belkin 7 Outle...	1896.1005	True	316.51	31	90.2905	189...
Accessories	Technology	Belkin F9S820...	1492.26	True	275.35	20	71.06	149...
Accessories	Technology	Belkin Grip Ca...	1773.177	True	324.33	36	84.437	177...
Accessories	Technology	Bevis 36 x 72...	2409.813	True	280.02	37	114.753	240...
Accessories	Technology	Binding Machi...	1932.6615	True	322.14	26	92.0315	193...
Accessories	Technology	Blackstonian ...	1200.0555	True	232.89	24	57.1455	120...

Step 3: SSAS Cube implementation

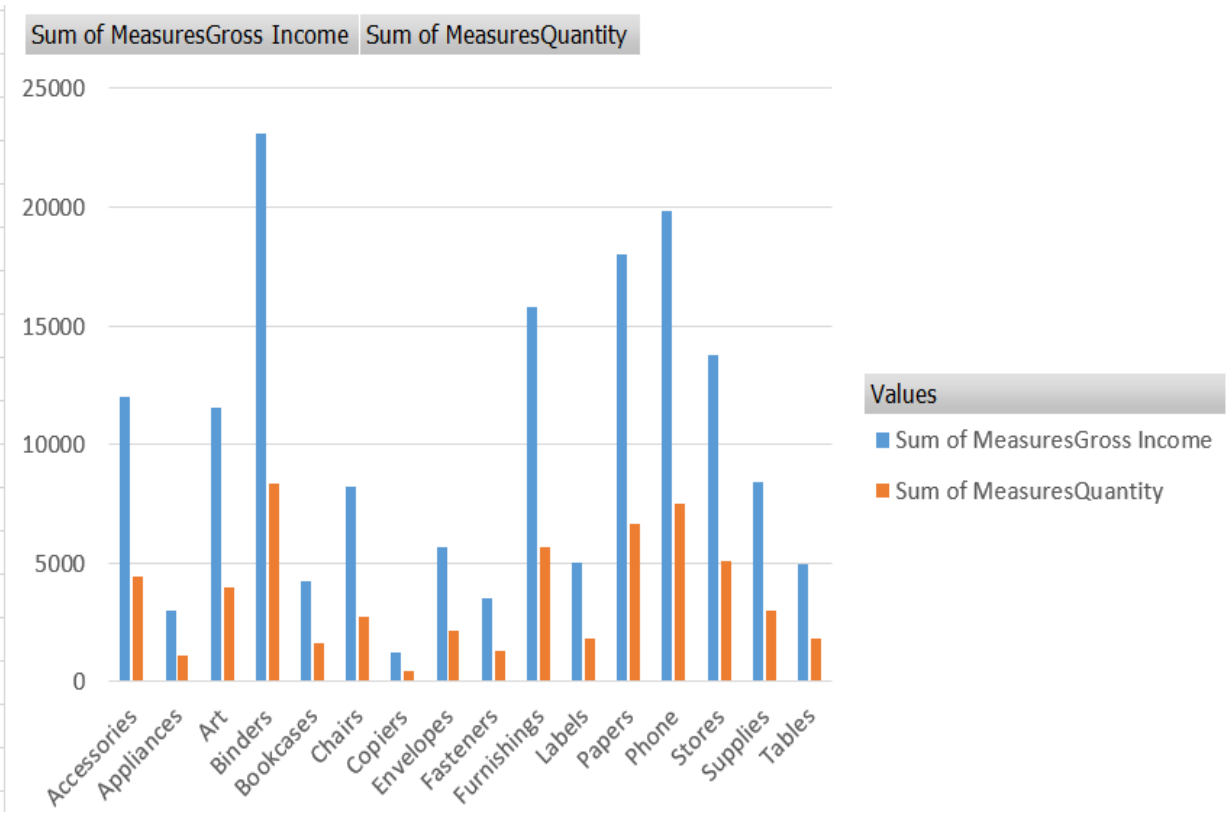
In the data tab of excel Microsoft analysis services are selected from other sources. There is the relevant database to create the pivot table i.e SUPERMARKET_Cube database is selected. Then the data there gets imported as a pivot table report.



I. Roll-Up

It can be seen Gross Income and Quantity displayed for each Product Sub category. High level understanding can be obtained.

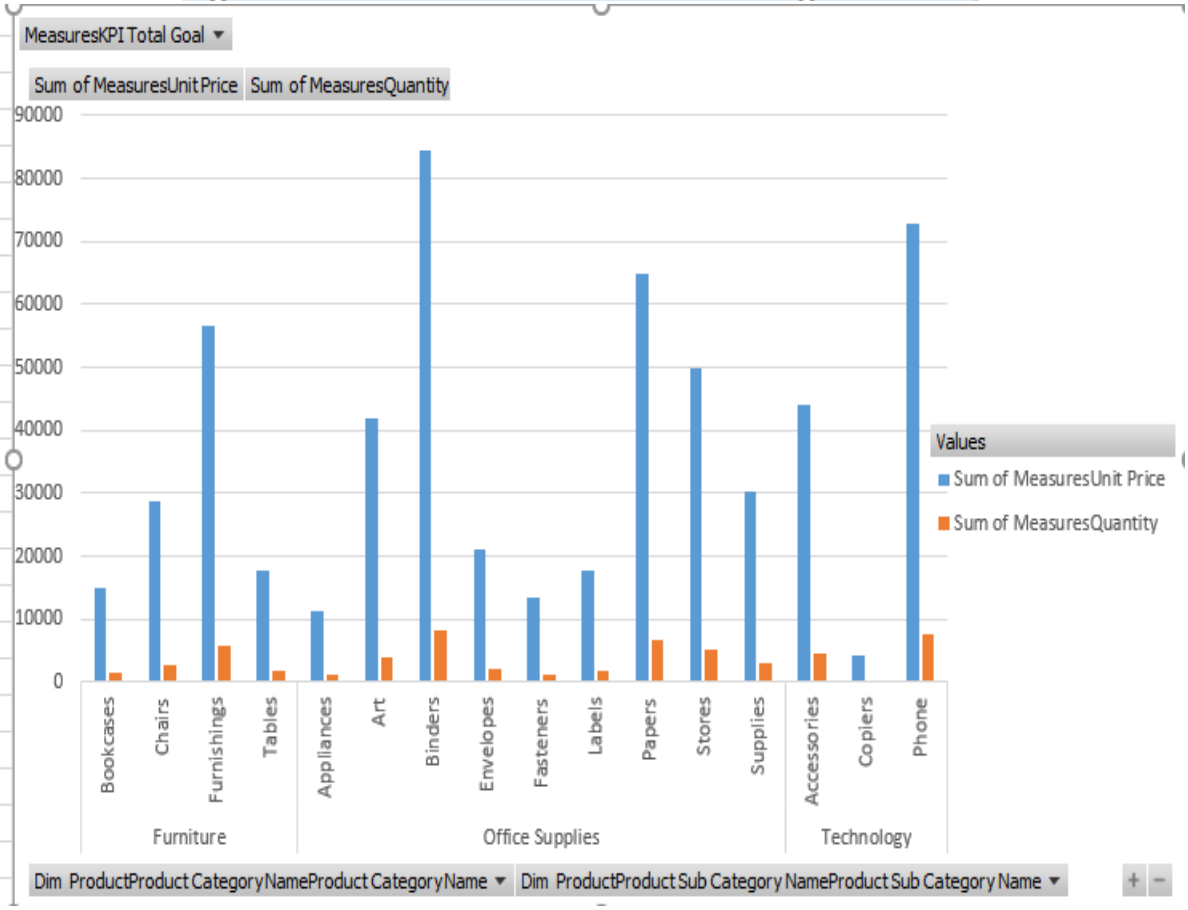
Row Labels	Sum of MeasuresGross Income	Sum of MeasuresQuantity
Accessories	12034.3985	4439.38
Appliances	2997.799	1088
Art	11533.421	3998
Binders	23132.339	8355.69
Bookcases	4254.278	1606.69
Chairs	8189.6335	2760
Copiers	1243.445	432
Envelopes	5670.9705	2128.69
Fasteners	3513.536	1278
Furnishings	15814.8865	5689.69
Labels	4996.3455	1812.69
Papers	17981.671	6626
Phone	19811.6655	7496.07
Stores	13775.3455	5071
Supplies	8439.227	3023
Tables	4926.1885	1840.69
Grand Total	**158315.15**	**57645.59**



II. Drill-Down

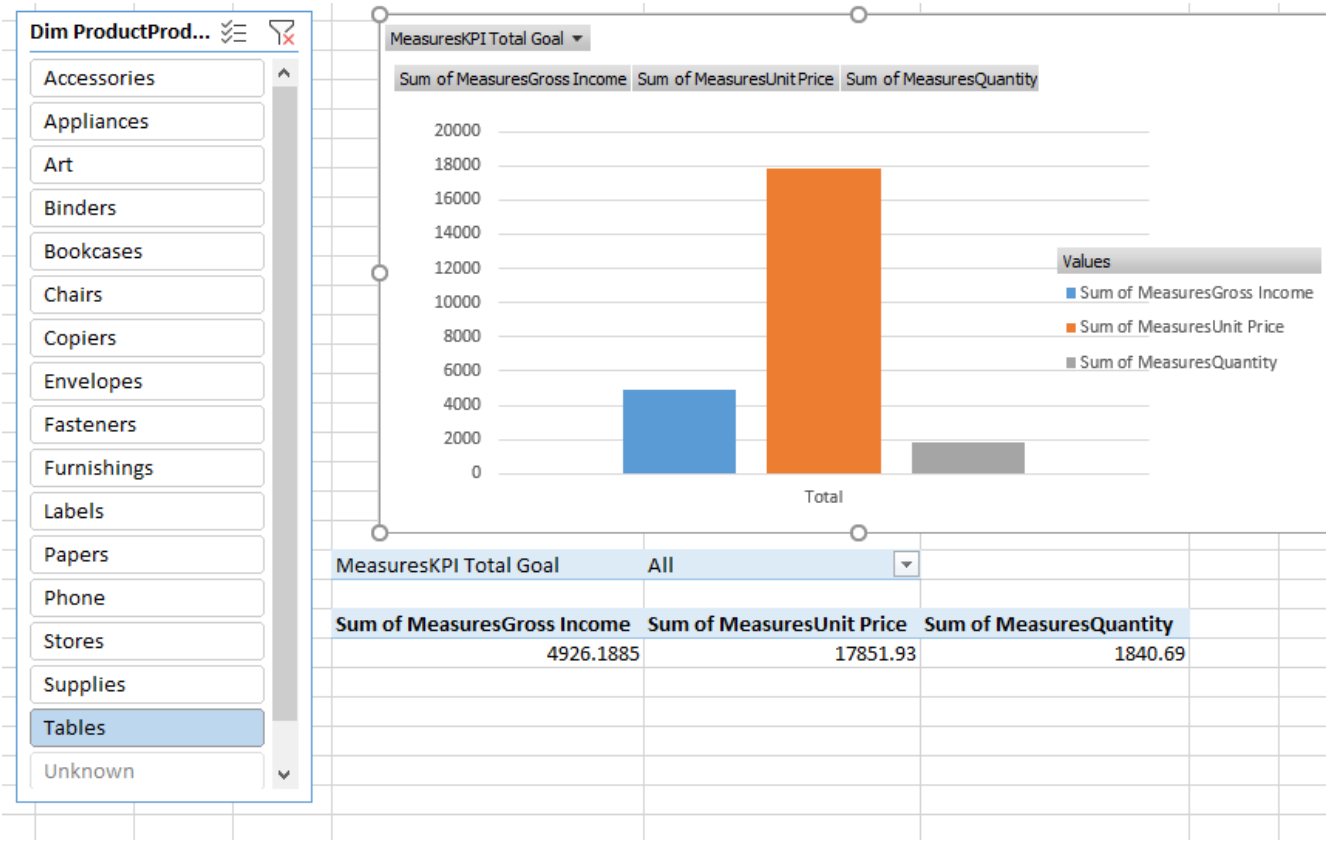
It can be seen about Unit Price and Quantity of each Product Category.

Row Labels	Sum of MeasuresUnit Price	Sum of MeasuresQuantity
Furniture		
Bookcases	14840.34	1606.69
Chairs	28676.17	2760
Furnishings	56576.32	5689.69
Tables	17851.93	1840.69
Office Supplies		
Appliances	11448.54	1088
Art	41950.12	3998
Binders	84527.24	8355.69
Envelopes	21178.71	2128.69
Fasteners	13353.76	1278
Labels	17660.47	1812.69
Papers	64959.78	6626
Stores	49962.12	5071
Supplies	30256.45	3023
Technology		
Accessories	43920.08	4439.38
Copiers	4139.6	432
Phone	72783.97	7496.07
Grand Total	**574085.6**	**57645.59**



III. Slice

Income, Unit Price and Quantity applying the Product Sub Category can be filtered as below.

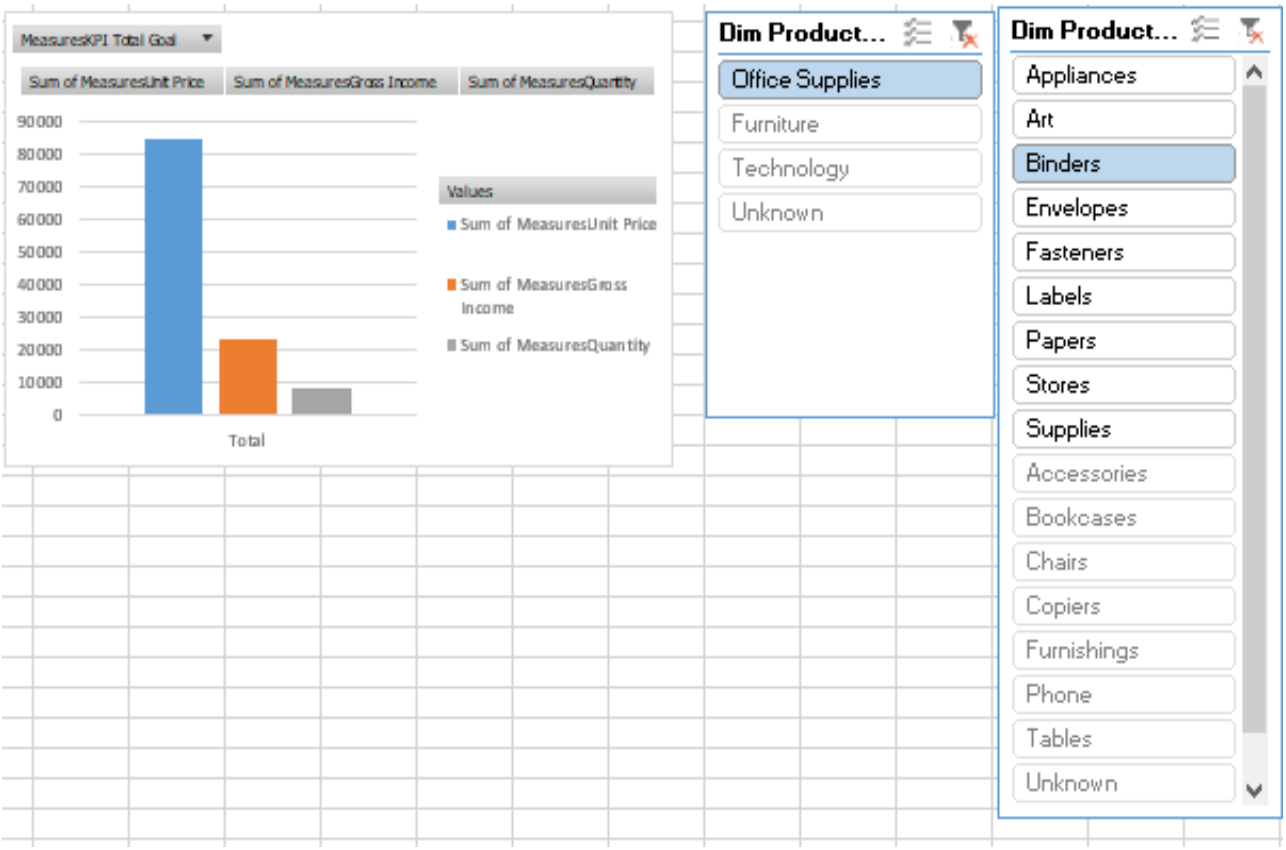


MeasuresKPI Total Goal	All	
Sum of MeasuresGross Income	**Sum of MeasuresUnit Price**	**Sum of MeasuresQuantity**
4926.1885	17851.93	1840.69

IV. Dice

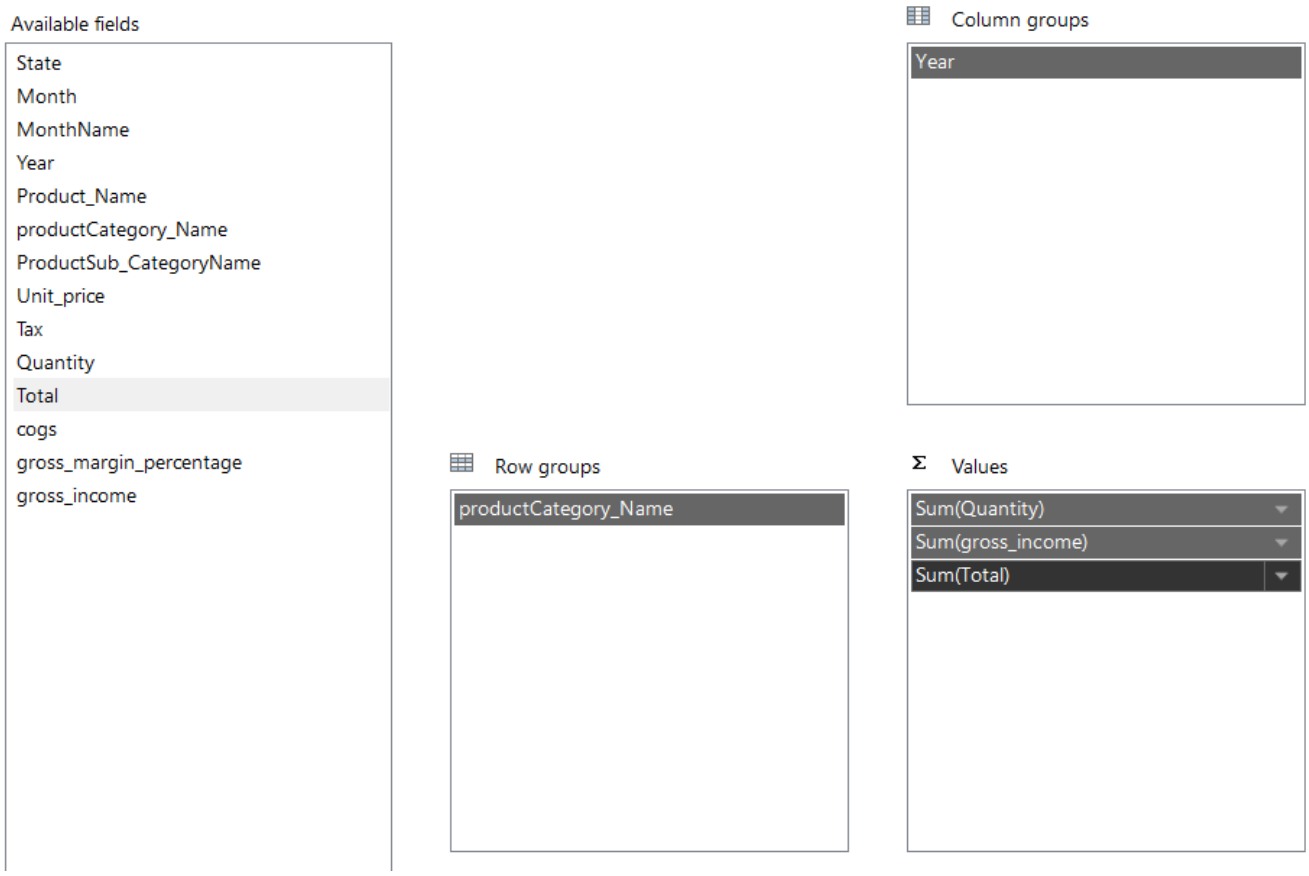
Income, Unit Price and Quantity applying the Product Category of Product Subcategory can be filtered as below

MeasuresKPI Total Goal	All	
Sum of MeasuresUnit Price	**Sum of MeasuresGross Income**	**Sum of MeasuresQuantity**
84527.24	23132.339	8355.69



Step 4: SSRS Reports

I. Report 1: drill-Through Level 01 report



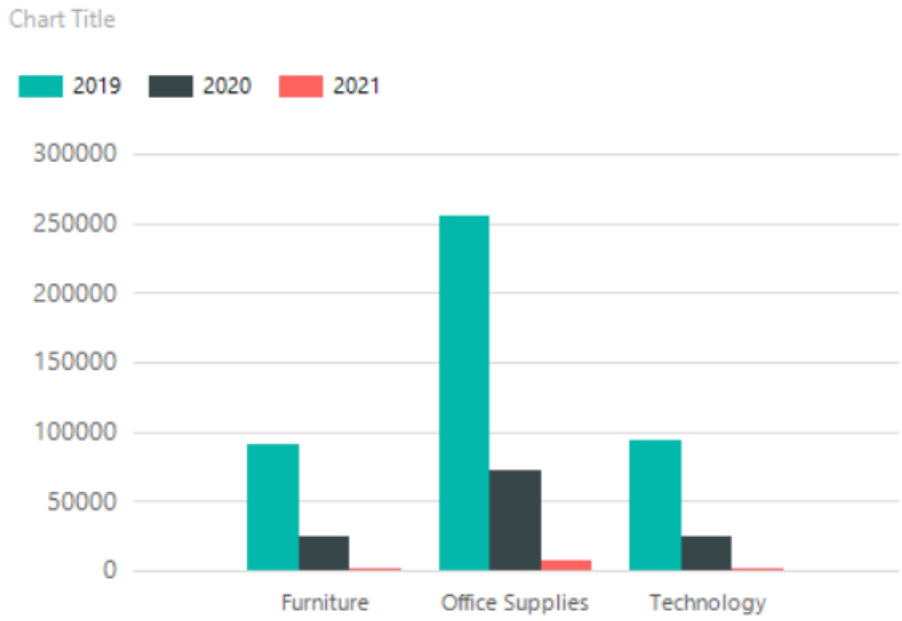
drillThrough_Analysis_Level01

	[Year]		
product Category Name	**Quantity**	**gross income**	**Total**
[productCategory_Na	[Sum(Quantity)]	[Sum(gross_income)]	[Sum(Total)]

[&ExecutionTime]

drillThrough_Analysis_Level01

	2019			2020			2021		
product Category Name	**Quantity**	**gross income**	**Total**	**Quantity**	**gross income**	**Total**	**Quantity**	**gross income**	**Total**
Furniture	9190.07	25534.561	534802.9365	2453	6970.11850000001	148416.324	254	680.307	14156.1315
Office Supplies	25472.38	70543.3404999999	1480461.5875	7136.69	19565.464	414719.8895	772	1931.85	46774.5705
Technology	9414.07	25321.5745	530330.22	2717.38	7119.497	149692.5115	236	648.4375	12663.9135



II. Report 2: Product Income drill-down Report

Product_Income_drillDown_Analysis

product Category Name	Product Sub Category Name	gross income	Total
[productCatego	[ProductSub_CategoryNa	[gross_income]	[Total]

[&ExecutionTime]

Product_Income_drillDown_Analysis

product Category Name	Product Sub Category Name	gross income	Total
⊞ Furniture	Bookcases	26.1415	74.69
⊞ Office Supplies	Envelopes	16.2155	340.5255
⊟ Technology	Phone	36.78	772.38
	Phone	5.102	107.142
	Phone	4.03	84.63
	Accessories	21.036	441.756
	Phone	19.884	417.564
	Phone	12.048	253.008
	Phone	4.336	91.056

III. Report 3: Gross Income Matrix

Gross Income Matrix

Product Sub	[MonthName]	Total
[ProductSub_C	[Sum(gross_inc	[Sum(gross_in
Total	[Sum(gross_in	[Sum(gross_in

Gross_Income_Matrix

Print
Print

Product Sub Category Name	April	August	December	February	January	July	June	March	May	November	October	September	Total
Accessories	372.423	406.566	486.3615	2619.569	2962.4405	516.486	412.1645	2730.044	286.92	482.574	346.6635	412.1865	**12034.3985**
Appliances	50.221	185.046	91.5475	584.6985	614.041	198.886	46.3515	872.8615	58.3705	91.365	146.0665	58.344	**2997.799**
Art	363.034	327.21	380.373	2147.0145	3132.3075	279.783	297.385	2920.659	357.3075	487.8235	479.271	361.253	**11533.421**
Binders	916.534	935.593	638.853	4890.319500000001	5374.9165	1023.457	961.456	5273.9375	740.0295	766.8055	749.73	860.7075	**23132.339**
Bookcases	161.7495	236.1845	181.1275	807.748	853.109	338.541	166.807	1003.832	126.685	131.052	121.4875	125.955	**4254.278**
Chairs	177.3915	261.8705	426.45	1617.2355	1858.9105	292.4255	210.6465	2213.908	289.1745	229.3325	310.686	301.6025	**8189.6335**
Copiers	24.951	23.0725	68.4735	239.2765	243.6865	71.673	11.1855	349.601	90.8345	38.6	65.2335	16.8575	**1243.445**
Envelopes	185.6975	157.9435	224.1645	1253.4785	1460.078	322.6555	85.688	1235.5025	154.9355	176.151	267.1405	147.5355	**5670.9705**
Fasteners	157.9235	147.8795	61.6075	729.822	817.368	89.296	74.7385	925.947	194.025	112.5615	103.9385	98.429	**3513.536**
Furnishings	405.473	868.009	439.9515	3206.056	3990.7995	600.4935	786.9135	3548.053	498.855	461.7965	464.3655	544.1205	**15814.8865**
Labels	145.3675	160.911	201.5015	829.9925	1313.538	242.5465	196.705	1194.5735	116.248	161.6665	214.317	218.9785	**4996.3455**
Papers	638.885	465.5585	949.915	3963.55	4567.7555	374.444	522.469	4317.616	635.862	614.5505	574.3515	356.714	**17981.671**
Phone	514.141	1201.324	451.9255	3658.828	4728.829	700.237	859.483	4790.949	893.2195	667.928	829.218	515.5835	**19811.6655**
Stores	562.5595	383.0045	484.13	2910.1555	3114.8975	575.6875	365.5685	3359.8035	517.339	448.1445	441.724	612.3315	**13775.3455**
Supplies	301.22	210.21	206.258	1739.1485	2187.3105	466.437	293.215	1815.289	414.181	306.661	245.1715	254.1255	**8439.22700000001**
Tables	97.733	79.444	262.912	872.2545	1360.8195	94.2415	163.5235	1267.214	224.624	165.411	126.83	211.1815	**4926.1885**
Total	**5075.304**	**6049.82650000001**	**5555.5515**	**32069.1469999999**	**38580.807**	**6187.29000000001**	**5454.3**	**37819.7905**	**5598.6105**	**5342.423**	**5486.1945**	**5095.9055**	**158315.149999999**

IV. Report 4: drill-Through Level 02 report

	2019			2020			2021		
Product Sub Category Name	Quantity	gross income	Total	Quantity	gross income	Total	Quantity	gross income	Total
Accessories	3329	9269.5735	194661.0435	1042.38	2587.911	53979.0685	68	176.914	3566.3145
Appliances	843	2373.575	49845.075	245	624.224	13108.704			
Art	3076	8992.136	188834.856	832	2251.8645	48235.95	90	289.4205	4980.801
Binders	6428.69	17963.51	376759.4285	1753	4737.1515	100631.7585	174	431.6775	9989.175
Bookcases	1242.69	3184.539	66401.0375	339	1024.233	21418.3095	25	45.506	1527.2355
Chairs	2139	6361.6615	133594.8915	552	1647.6425	34221.915	69	180.3295	4052.37
Copiers	326	927.6195	19480.0095	104	302.435	6351.135	2	13.3905	153.783
Envelopes	1593.69	4128.499	86224.1975	501	1442.2825	31126.41	34	100.189	1570.9575
Fasteners	980	2738.6545	57511.7445	254	701.189	14724.969	44	73.6925	3053.253
Furnishings	4390.69	12240.8685	256583.957	1206	3312.965	71821.4805	93	261.053	4786.5825
Labels	1320	3794.32	79680.72	456.69	1121.3275	22211.357	36	80.698	2257.9515
Papers	4992	13331.766	279967.086	1441	4127.4385	86628.8745	193	522.4665	11637.36

drillThrough_Analysis_Level02

	[Year]		
Product Sub Category Name	**Quantity**	**gross income**	**Total**
[ProductSub_CategoryName]	[Sum(Quantity)]	[Sum(gross_income)]	[Sum(Total)]

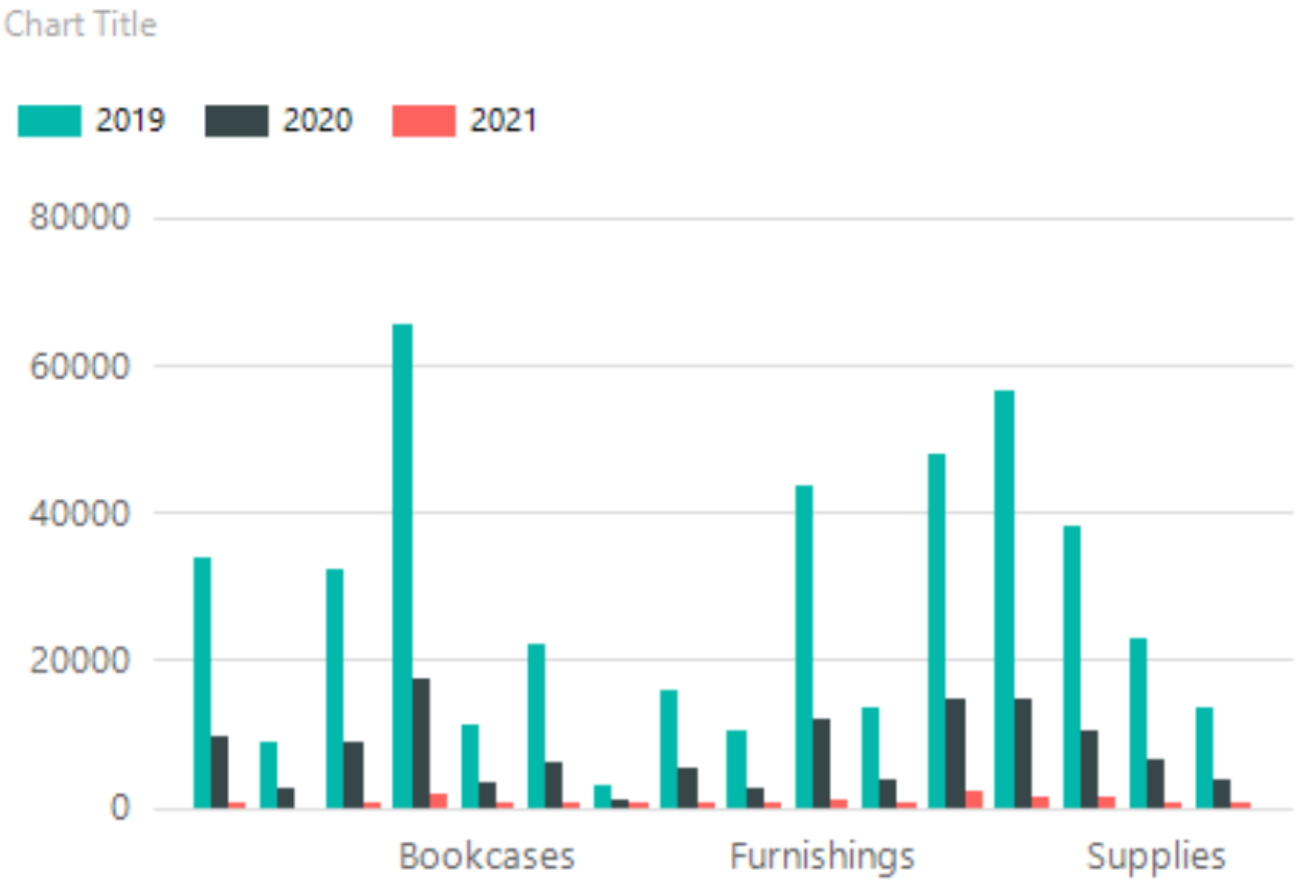


Chart Title
2019
2020
2021
80000
60000
40000
20000
0
Bookcases
Furnishings
Supplies