SSAS Exploration Document

Inventory and Sales Management System

Project business intelligence

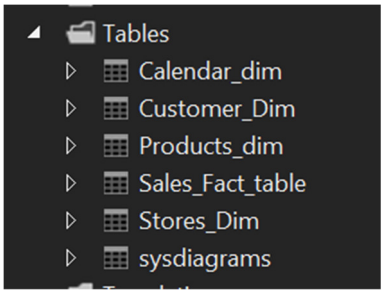
Avishay Aknin

Business Requirements:

The business requirements for the Inventory and Sales Management System include:

- Optimizing inventory levels to minimize stock outs and overstock situations.
- Improving sales performance through targeted marketing strategies and promotions.
- Enhancing customer satisfaction and loyalty by providing personalized shopping experiences.
- Streamlining supply chain management processes to ensure timely delivery of products.

Tables



Relation between Tables –

Active	Table 1	Cardinality	Filter Direction	Table 2
Yes	Sales_Fact_table [CalenderKey]	Many to One (*:1)	<< To Sales_Fact_table	Calendar_dim [CalendarKey]
Yes	Sales_Fact_table [CustomerKey]	Many to One (*:1)	<< To Sales_Fact_table	Customer_Dim [CustomerKey]
Yes	Sales_Fact_table [ProductKey]	Many to One (*:1)	<< To Sales_Fact_table	Products_dim [ProductKey]
Yes	Sales_Fact_table [StoreKey]	Many to One (*:1)	<< To Sales_Fact_table	Stores_Dim [StoreKey]

DAX Variables:

- **TotalRevenue**: Calculation of total revenue generated from sales transactions.

```
TotalRevenue=:
SUMX    ) Sales_Fact_table,
   Sales_Fact_table[Quantity] * RELATED(Products_dim[ProductPrice]))
```

- **AverageOrderValue**: Calculation of the average value of each sales transaction.

```
AverageOrderValue := DIVIDE([TotalRevenue], DISTINCTCOUNT(Sales_Fact_table[TID]))
```

- **CustomerCount**: Count of total number of unique customers.

```
CustomerCount:= DISTINCTCOUNT(Customer_Dim[CustomerID])
```

- **TotalQuantitySold**: Calculation of the total quantity of products sold.

```
TotalQuantitySold := SUM(Sales_Fact_table[Quantity])
```

- **AverageQuantityPerTransaction**: Calculation of the average quantity of products per transaction.

```
AverageQuantityPerTransaction:= DIVIDE([TotalQuantitySold],
DISTINCTCOUNT(Calendar_dim[FullDate]))
```

- **TotalProductsSold**: Count of total number of unique products sold.

```
TotalProductsSold := DISTINCTCOUNT(Products_dim[ProductID])
```

- **RevenueByCategory**: Calculation of revenue by product category.

```
RevenueByCategory :=
   SUMX)
      VALUES(Products_dim[CategoryID]),
      CALCULATE)
]          TotalRevenue,[
         FILTER(Products_dim, Products_dim[CategoryID] =
EARLIER(Products_dim[CategoryID]))
      (
(
```

- **TransactionsByDateAndCustomer**: Estimation of the lifetime value of each customer.

TransactionsByDateAndCustomer=:

COUNTROWS)

ADDCOLUMNS)

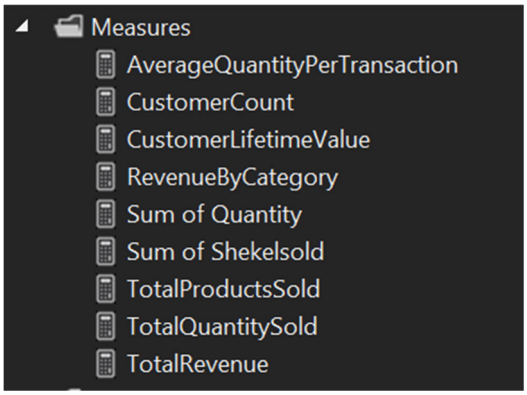
SUMMARIZE(Sales_Fact_table, Calendar_dim[FullDate], Customer_dim[CustomerID]),

" Transactions", CALCULATE(COUNTROWS(Sales_Fact_table,(

ALLEXCEPT(Sales_Fact_table, Calendar_dim[FullDate], Customer_dim[CustomerID])(

(

)Print screen from ssas of measures



AverageQuantity: 3.14285714285	TotalQuantitySold: 44	TotalRevenue: 8083	Sum of Shekelsold: 8083	Sum of Quantity: 44
		CustomerLifet: 621.7692307	RevenueByCate: 8083	TotalProducts: 17

Revenue by Category name

RevenueByCategory	Categoryid
68	dairy food
60	others
150	Automotive
200	Beauty Products
2400	Electronics
40	Clothing
15	Books
2000	Furniture
20	Toys
30	Sporting Goods
3000	Appliances
100	Jewelry
8083	**Grand Total**

QUANTITY AND SUM OF PURCHASE BY TIME QUARTER

Sum of purchaseS(NIS)	Quantity of products purchase	Year by Quarter
128	**20**	**2021**
128	**20**	**1**
60	12	5
28	4	7
40	4	10
2400	**3**	**2022**
2400	**3**	**1**
2400	3	800
5555	**21**	**2023**
5555	**21**	**1**
20	2	10
15	1	15
40	2	20
30	1	30
200	5	40
100	2	50
150	1	150
2000	4	500
3000	3	1000
8083	**44**	**Grand Total**

Total revenue by product div to location and stores

TotalRevenue	products by store name and location
2505	**Chiango**
255	**S1**
15	Book: Harry Potter
40	Milk
200	Perfume
150	**S2**
20	Action Figure
30	Basketball
40	T-shirt
60	water
2100	**S5**
100	Necklace
2000	Sofa
3000	**India**
3000	**S4**
3000	Refrigerator
2578	**Titachana**
2578	**S3**
150	Car Battery
2400	Laptop
28	yogurt

Transaction by date and customer

TransactionsByDateAndCustomer	
1	avi
1	**11/01/2021**
3	dani
3	**23/02/2021**
1	yossi
1	**01/01/2022**
1	John Doe
1	**02/01/2023**
2	Jane Smith
2	**03/01/2023**
1	Michael Johnson
1	**04/01/2023**
1	Emily Brown
1	**05/01/2023**
1	David Wilson
1	**06/01/2023**
4	Jennifer Lee
4	**07/01/2023**

Data Analysis and Insights:

- The data analysis conducted using the defined DAX variables revealed valuable insights into sales performance, customer behavior, and inventory management. Key findings include:
- High revenue-generating categories and products.
- Patterns in customer purchasing behavior across different regions and store locations.
- Opportunities for targeted marketing campaigns and promotions to drive sales growth.

Recommendations:

Based on the insights gained from the data analysis, the following recommendations are proposed:

- Implement dynamic pricing strategies based on demand and competition.
- Enhance inventory forecasting models to optimize stock levels and reduce inventory carrying costs.
- Launch loyalty programs and personalized marketing initiatives to increase customer engagement and retention.
- Strengthen partnerships with top-performing vendors and suppliers to ensure product availability and quality.

Conclusion:

The Inventory and Sales Management System project provides actionable insights and recommendations to support informed decision-making and strategic planning for retail businesses. By leveraging data-driven approaches, businesses can improve operational efficiency, maximize profitability, and deliver superior customer experiences.