Assignment 2

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Swayamsiddha is a food processing company who supplies different traditional food items in Maharashtra. Their presence is in every city of Maharashtra. They prepare many traditional food products such as chakali, karanji, ladu etc. There are many categories of products such as sweets/ snacks/ pickles etc. There are many retailers who sell these products to the customers. Company also has seasonal offers for their customers. You are required to build a data mart for this company and provide OLAP cube operations on the same to analyze the same.

A) Identify Grains [Atleast 6 Grains - 2 Marks]
ANS-The grains for Swayamsiddha could include:

- Product Sale
- Seasonal Offer Utilization
- Production Batch
- Daily Sales
- Retailer Stock
- Customer Order

B) Identify Dimensions and its type [Atleast - 4 Dimension - 1 Mark]
ANS- Product Dimension:

- Type: Conformed Dimension

Retailer Dimension:

- Type: Conformed Dimension

Time Dimension:

- Type: Role-Playing Dimension

Customer Dimension:

- Type: Conformed Dimension

C) Identify Measure and Facts and its types [Atleast 4 Measures - 1 Marks]
ANS- Sales Amount:

- Type: Additive
- Description: The total sales amount for each product sold by retailers.

Quantity Sold:

- Type: Additive
- Description: The total quantity of each product sold.

Offer Redemption Rate:
- Type: Semi-Additive
- Description: The rate at which seasonal offers are redeemed by customers.

Stock Level:
- Type: Non-Additive
- Description: The current stock level of each product at a retailer.

D) Identify schema modelling. and justify your answer [Correct Identification- 1 Marks]
ANS- Schema Type: Snowflake Schema
Justification:

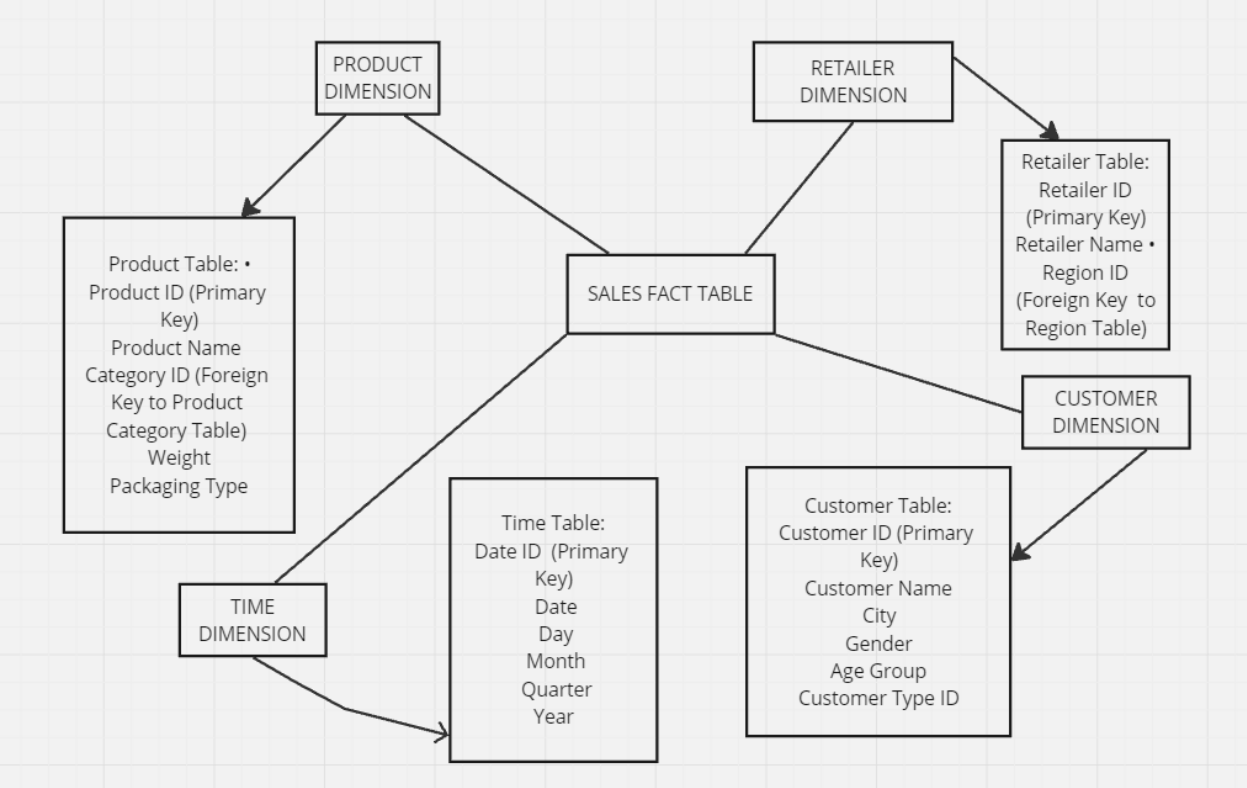
1. **Organized Data:** The snowflake schema organizes data by breaking down dimension tables into smaller, related tables. This helps reduce duplicate information and keeps the data clean and accurate.

2. **Consistent Information:** By storing information like product categories and retailer regions in separate tables, the schema ensures that the data is consistent across the data mart, making it easier to manage.

3. **Good for Large Data:** For a company like Swayamsiddha, which operates in many cities with many products, the snowflake schema helps manage large amounts of data efficiently by avoiding repetition.

4. **Detailed Analysis:** The snowflake schema supports more detailed and complex analysis, which can be useful for understanding sales patterns and customer behavior.

E) Draw identified schema modelling. [Schema Modelling - 3 Marks]



F) Write advantages and dis-advantages. [2 Marks]

ANS- Advantages

1. Minimizes data duplication through normalization.
2. Uses less storage space compared to denormalized schemas.
3. Maintains consistency by separating data into related tables.
4. Easier to adapt and expand with additional dimensions.
5. Handles detailed analytical queries well.

Disadvantages

1. More complex design and navigation due to multiple related tables.
2. Can be slower for simple queries due to the need to join multiple tables.
3. Requires more effort to maintain and update due to its normalized nature.
4. Performance can be affected by the need for frequent joins