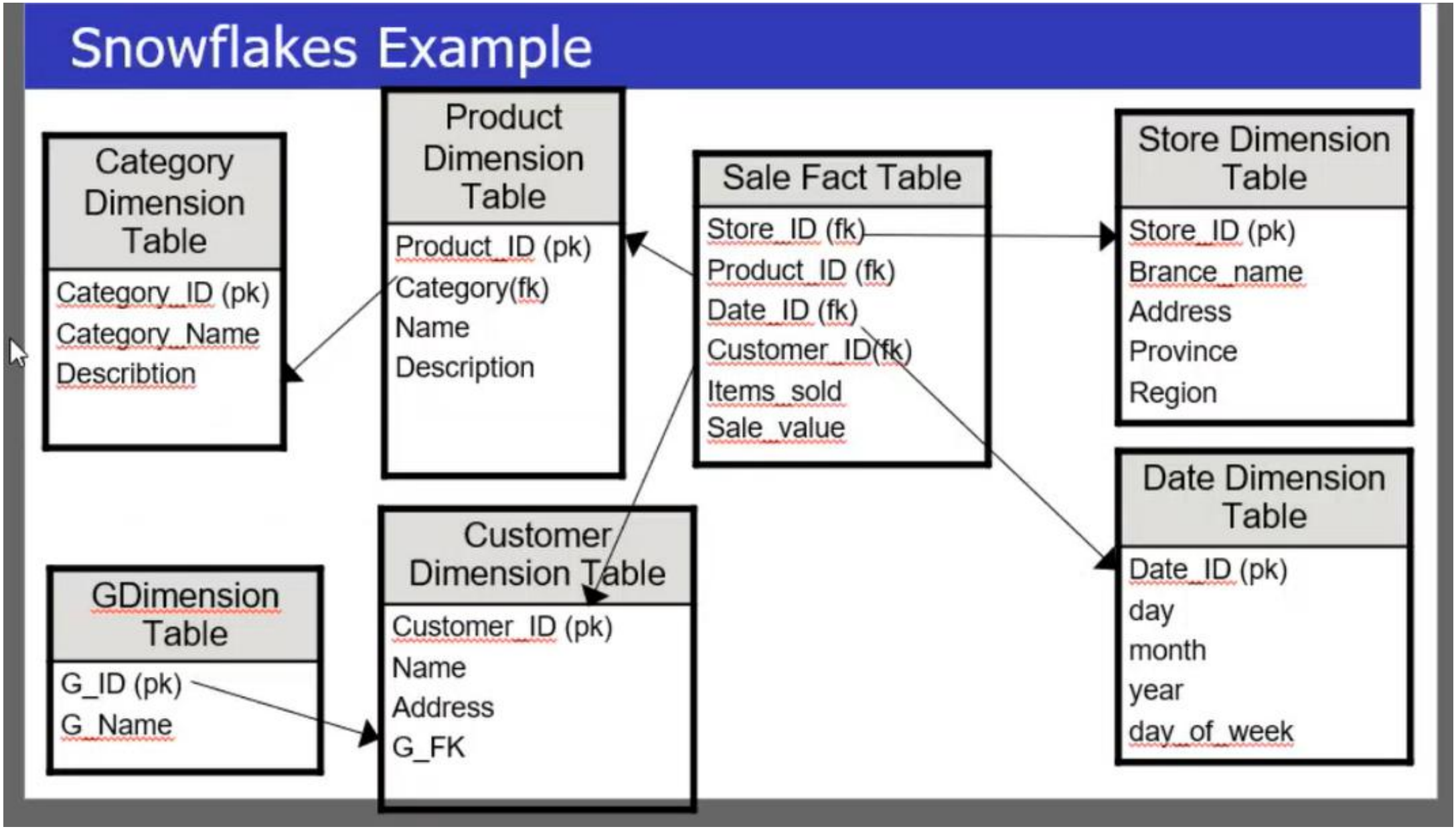
Snowflakes Example
Category Dimension Table
Category_ID (pk)
Category_Name
Describtion
Product Dimension Table
Product_ID (pk)
Category(fk)
Name
Description
Sale Fact Table
Store_ID (fk)
Product_ID (fk)
Date_ID (fk)
Customer_ID(fk)
Items_sold
Sale_value
Store Dimension Table
Store_ID (pk)
Brance_name
Address
Province
Region
Date Dimension Table
Date_ID (pk)
day
month
year
day_of_week
GDimension Table
G_ID (pk)
G_Name
Customer Dimension Table
Customer_ID (pk)
Name
Address
G_FK

snowflake schema normalized or denormalized

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The snowflake schema is a **fully normalized** data structure. Dimensional hierarchies (such as city > country > region) are stored in separate dimensional tables. On the other hand, star schema dimensions are denormalized.

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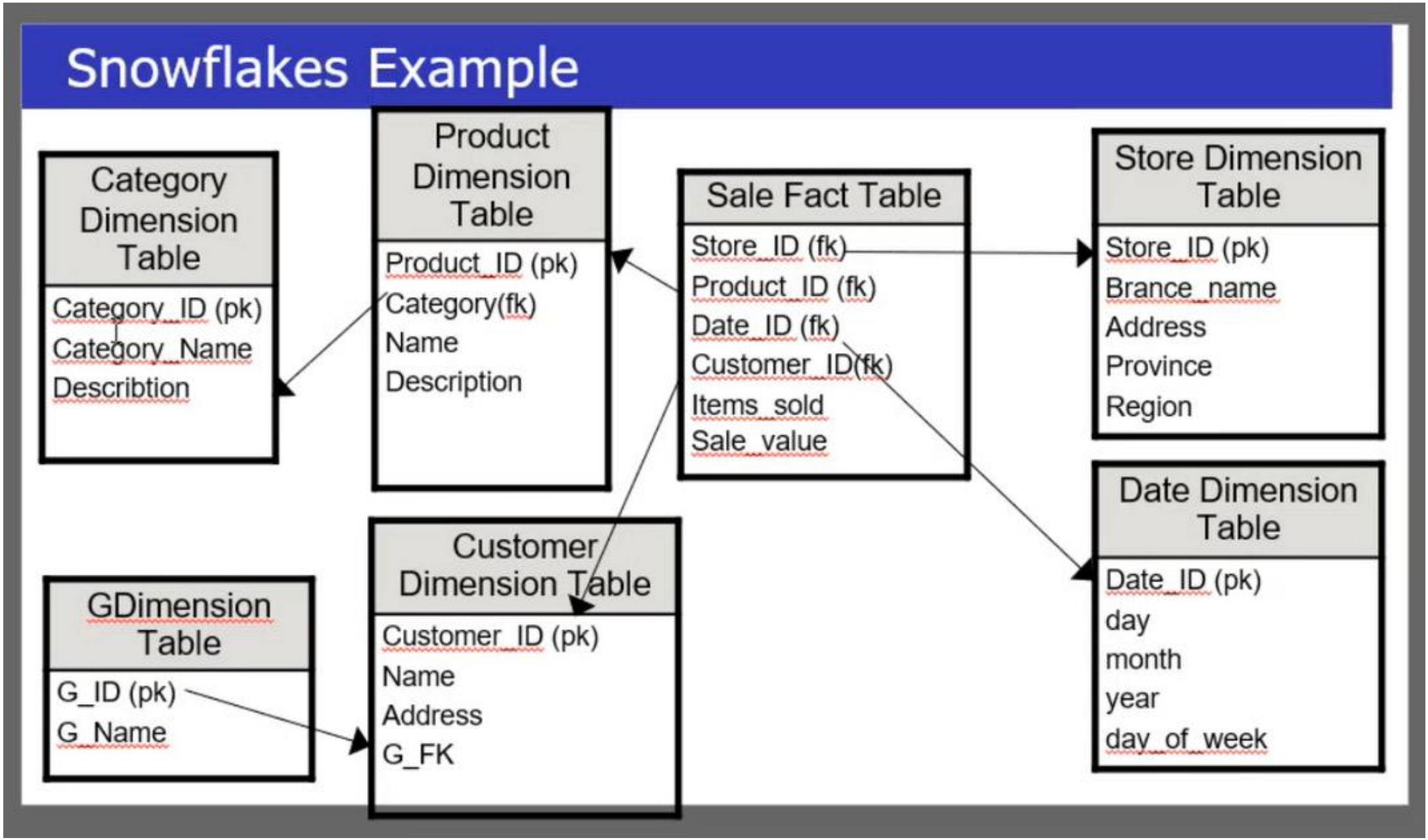
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Store Dimension Table
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Brance_name
Address
Province
Region
Date Dimension Table
Date_ID (pk)
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month
year
day_of_week
GDimension Table
G_ID (pk)
G_Name
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Customer_ID (pk)
Name
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- **Simplicity**: It is the simplest type of DWH schemas.
- **Query effectiveness**: Because of simplicity, It needs less join to query the data (It is optimized to query large dataset).
- **Data Redundancy and Large Table Size**: Due to de-normalization, it has a data redundancy, and the table size is huge.
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Snowflake Schema Characteristics

- **Extension:** Snowflake is an extension of the Star Schema.
- **Normalized:** Dimension tables are normalized; this means every dimension may expand into additional tables.
- **Disk Space Efficiency:** Due to its normalization methodology, it uses less desk space, which enhances the query as we scan less data size.
- **Complicated:** Due to the normalization query needs to join more table in some cases to get the data which reduces the performance.

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Star Vs. Snowflake Schema

Star Schema	Snowflake Schema
Dimension represented by one-table	Dimension tables are expanded into multi-tables
Fact table surrounded by dimension tables	Fact table surrounded by Hierarchy of dimension tables
Less join	Requires many joins
Simple Design	Very Complex Design
De-normalized Data structure	Normalized Data Structure
High level of Data redundancy	Very low-level data redundancy
Maintenance is difficult	Maintenance is easier
Cube processing is faster.	Cube processing might be slow because of the complex join.

A Fact table usually contains two types of columns: Measures and Foreign keys.

A Relationship connects two tables together to allow Filtering and Further Analysis.

Fact Tables store accumulations of Business Events, Like Sales orders or currency exchange rates.Business Measures.

Filter>>Group>>Summarize.

عادةً ما تحتوي جداول الحقائق على نوعين من الأعمدة: المقاييس والمفاتيح الخارجية.

تربط العلاقة بين جدولين للسماح بالتصفية والتحليل الإضافي.

تخزن جداول الحقائق تراكمات الأحداث التجارية، مثل أوامر المبيعات أو أسعار صرف العملات.
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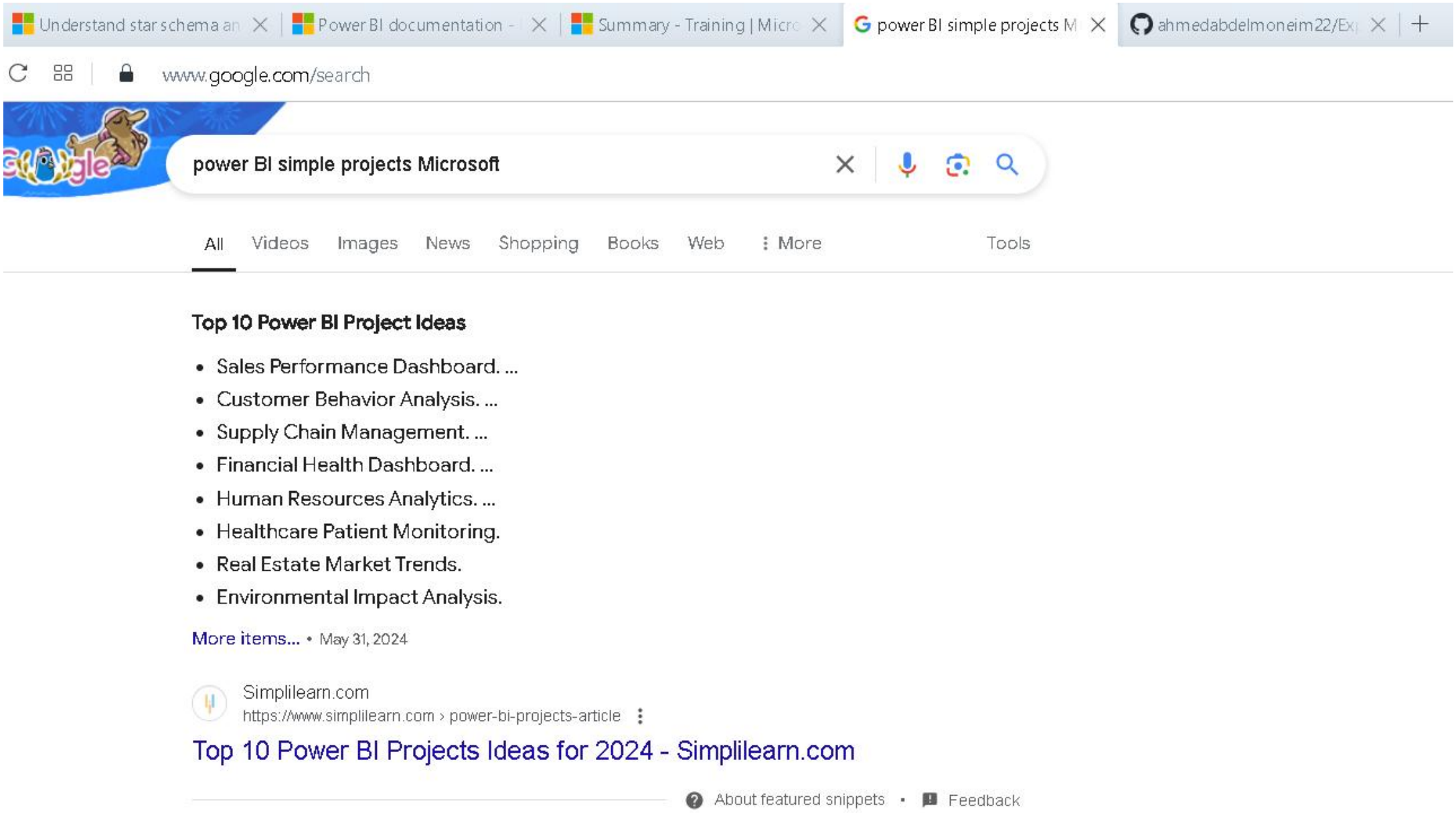
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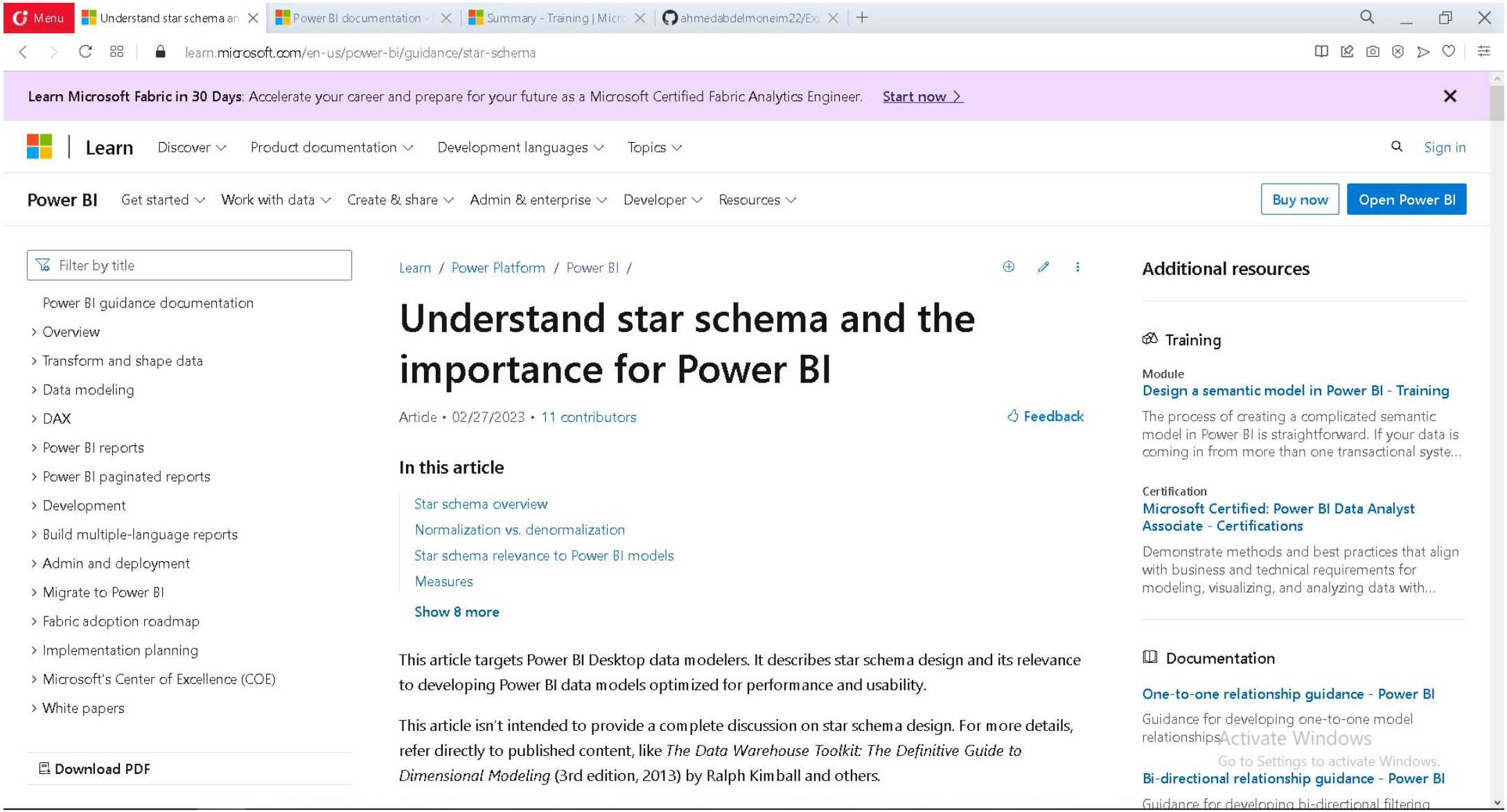
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Understand star schema and the importance for Power BI
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In this article
Star schema overview
Normalization vs. denormalization
Star schema relevance to Power BI models
Measures
Show 8 more
This article targets Power BI Desktop data modelers. It describes star schema design and its relevance to developing Power BI data models optimized for performance and usability.
This article isn't intended to provide a complete discussion on star schema design. For more details, refer directly to published content, like The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling (3rd edition, 2013) by Ralph Kimball and others.
Additional resources
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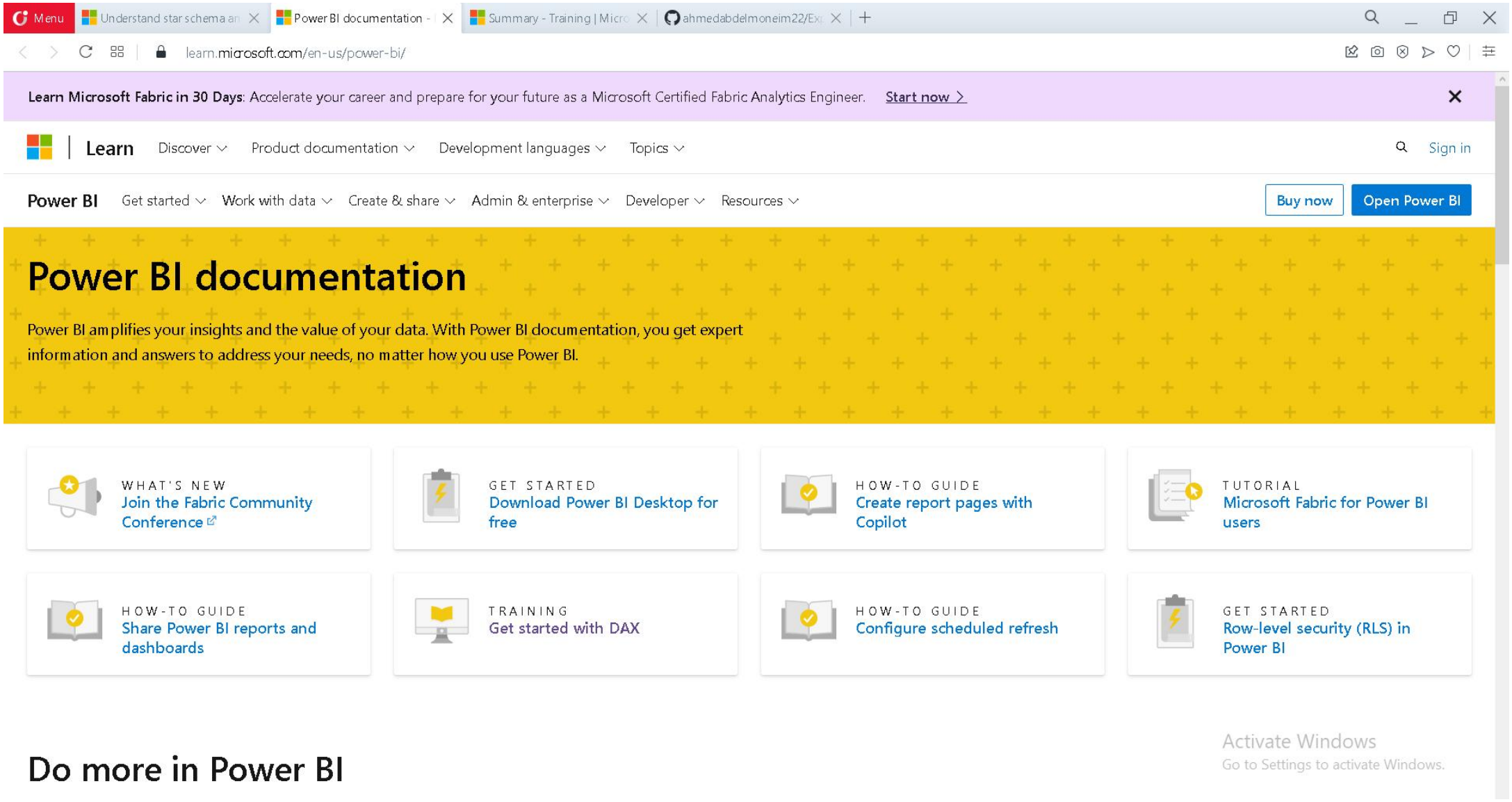
Module
Design a semantic model in Power BI - Training
The process of creating a complicated semantic model in Power BI is straightforward. If your data is coming in from more than one transactional syste...
Certification
Microsoft Certified: Power BI Data Analyst Associate - Certifications
Demonstrate methods and best practices that align with business and technical requirements for modeling, visualizing, and analyzing data with...
Documentation
One-to-one relationship guidance - Power BI
Guidance for developing one-to-one model relationships
Activate Windows
Go to Settings to activate Windows.
Bi-directional relationship guidance - Power BI
Guidance for developing bi-directional filtering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Go to Settings to activate Windows.

Slowly Changing Dimensions

Type-3 Change

- Add new column that stores previous value
- Allow user to view new and previous values at the same time

Inserted new column

Product ID	Name	Brand	Previous Brand	Serial No.
12345	TV20"	Panasonic	National	ABC00-X

Slowly Changing Dimensions

Type-2 Change

- Add new row with the new information
- Surrogate keys required
- Allows tracking history (versioning)
- Used most often in DW

Product ID	Name	Brand	Serial No.
12345	TV 20”	National	ABC00-X
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Inserted new row

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Schema Types

- Star Schema.
- Snowflake Schema.
- Fact constellation(Galaxy Schema)

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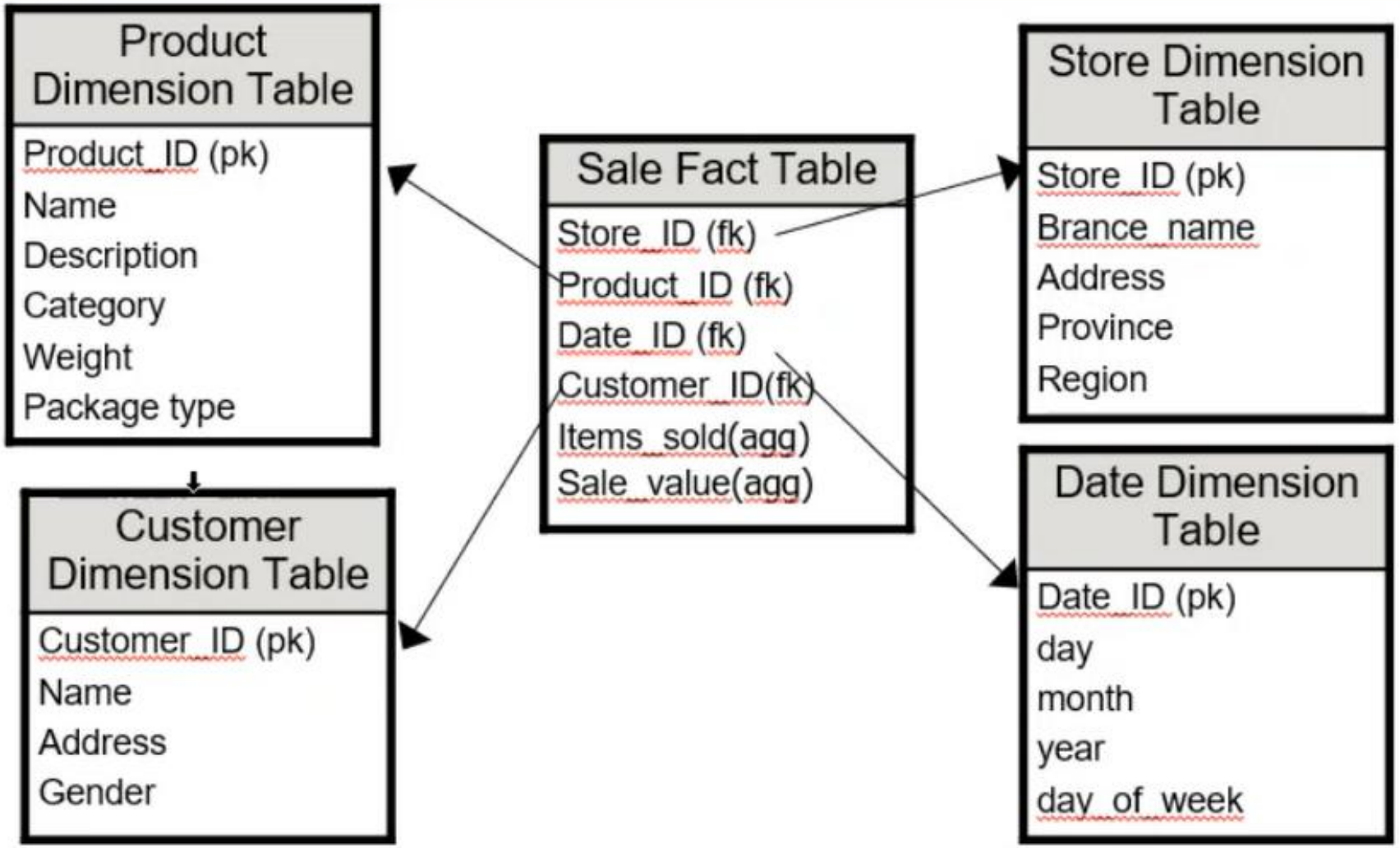
Star Schema Example



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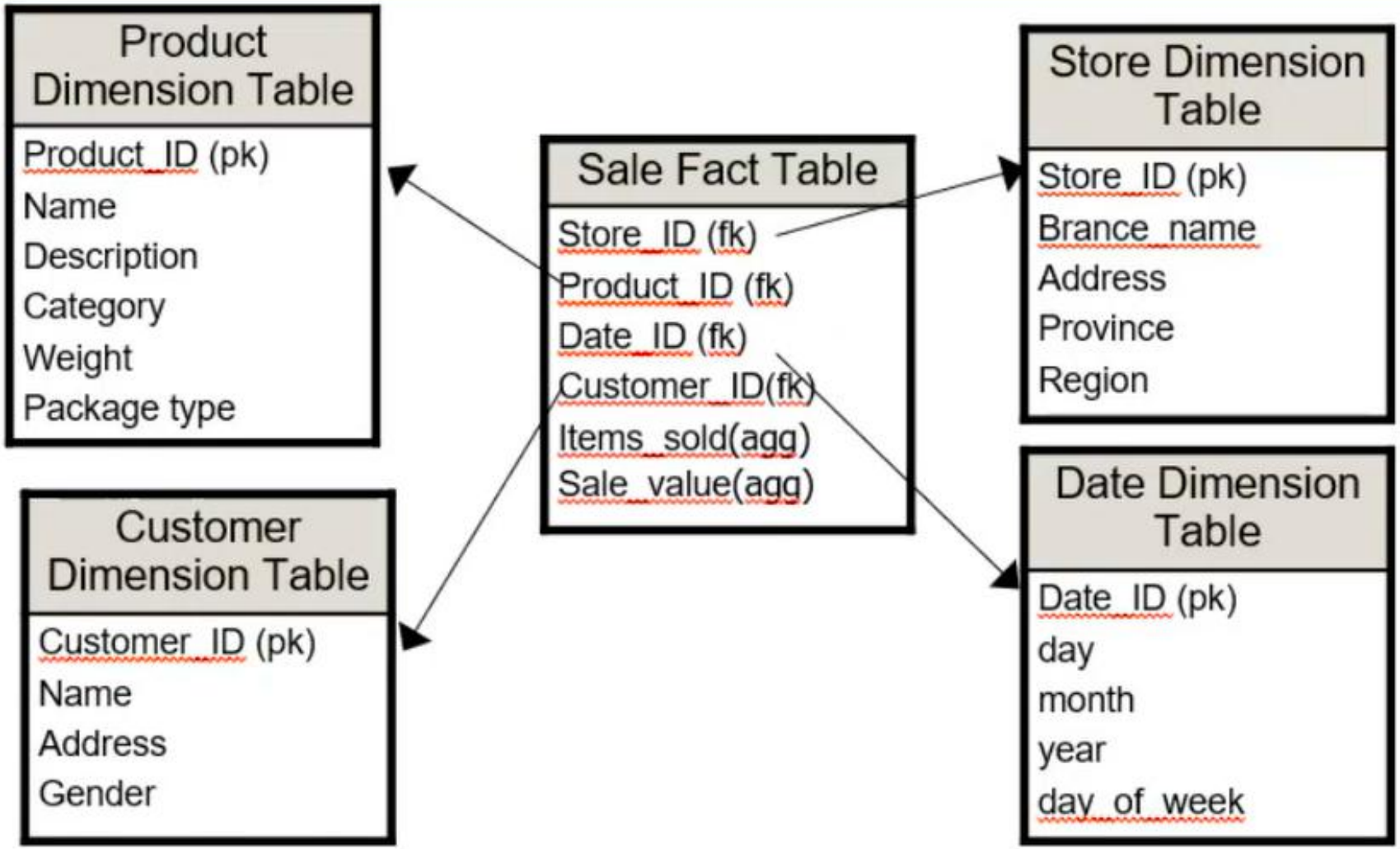

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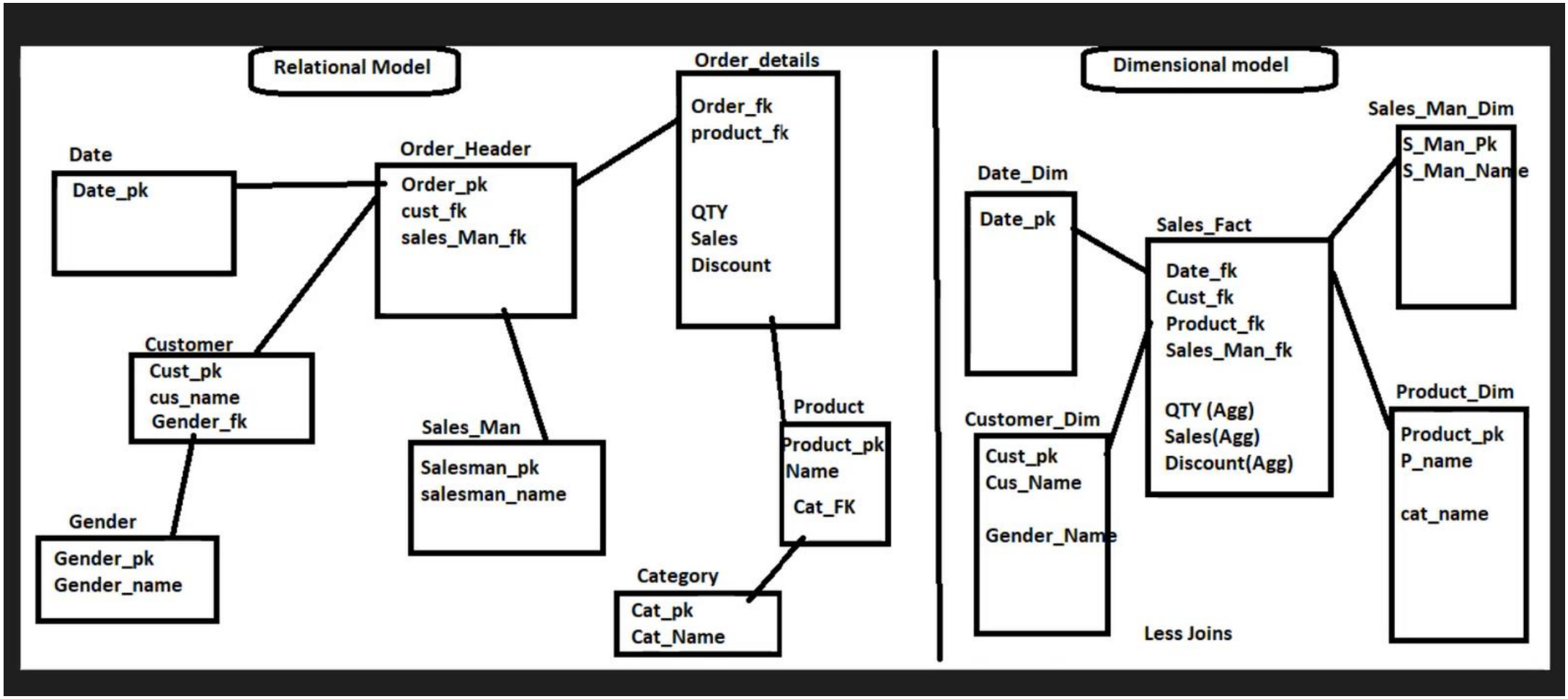
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Date
Date_pk
Order_Header
Order_pk
cust_fk
sales_Man_fk
Order_details
Order_fk
product_fk
QTY
Sales
Discount
Customer
Cust_pk
cus_name
Gender_fk
Sales_Man
Salesman_pk
salesman_name
Product
Product_pk
Name
Cat_FK
Gender
Gender_pk
Gender_name
Category
Cat_pk
Cat_Name
Dimensional model
Sales_Man_Dim
S_Man_Pk
S_Man_Name
Date_Dim
Date_pk
Sales_Fact
Date_fk
Cust_fk
Product_fk
Sales_Man_fk
QTY (Agg)
Sales(Agg)
Discount(Agg)
Product_Dim
Product_pk
P_name
cat_name
Customer_Dim
Cust_pk
Cus_Name
Gender_Name
Less Joins

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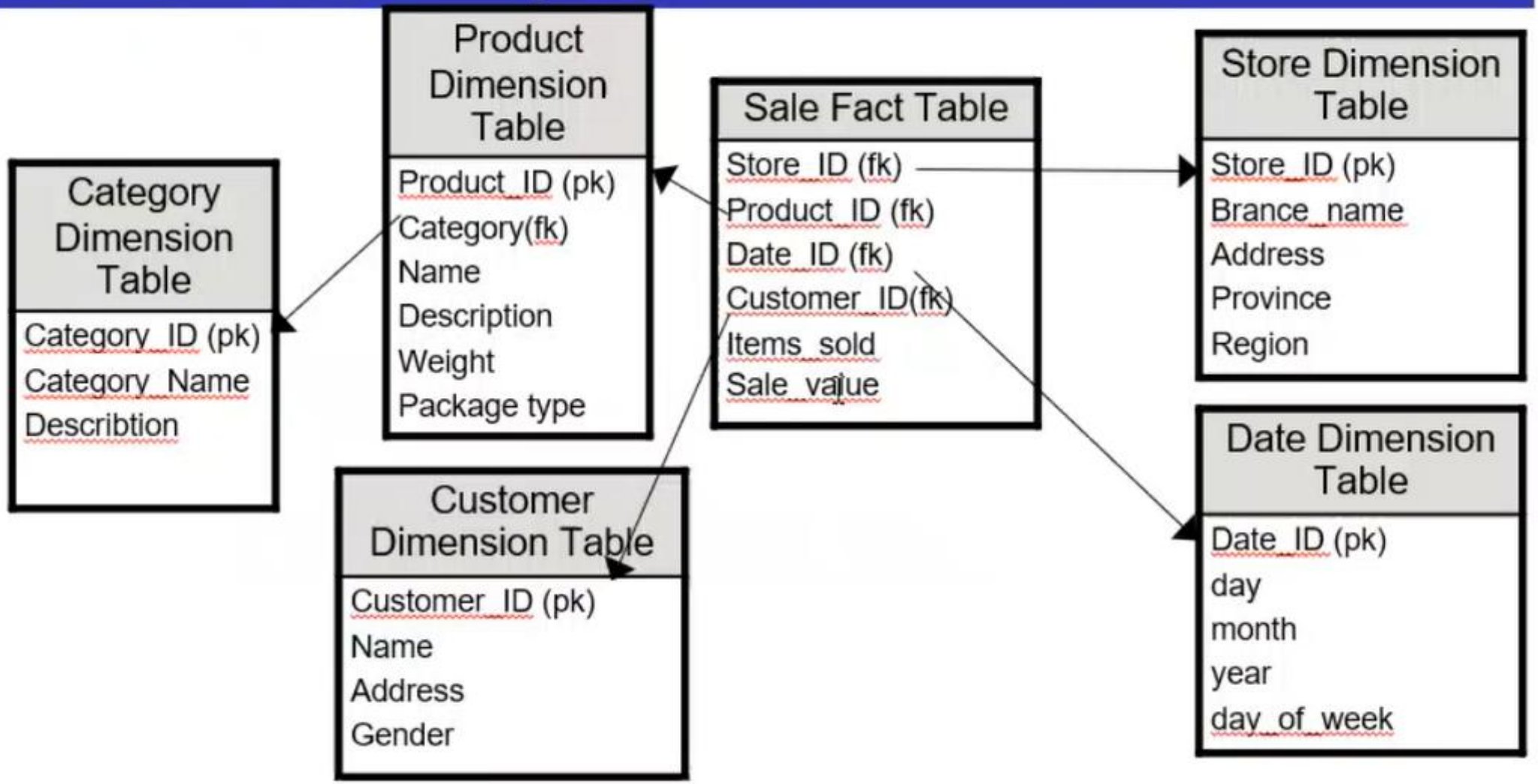
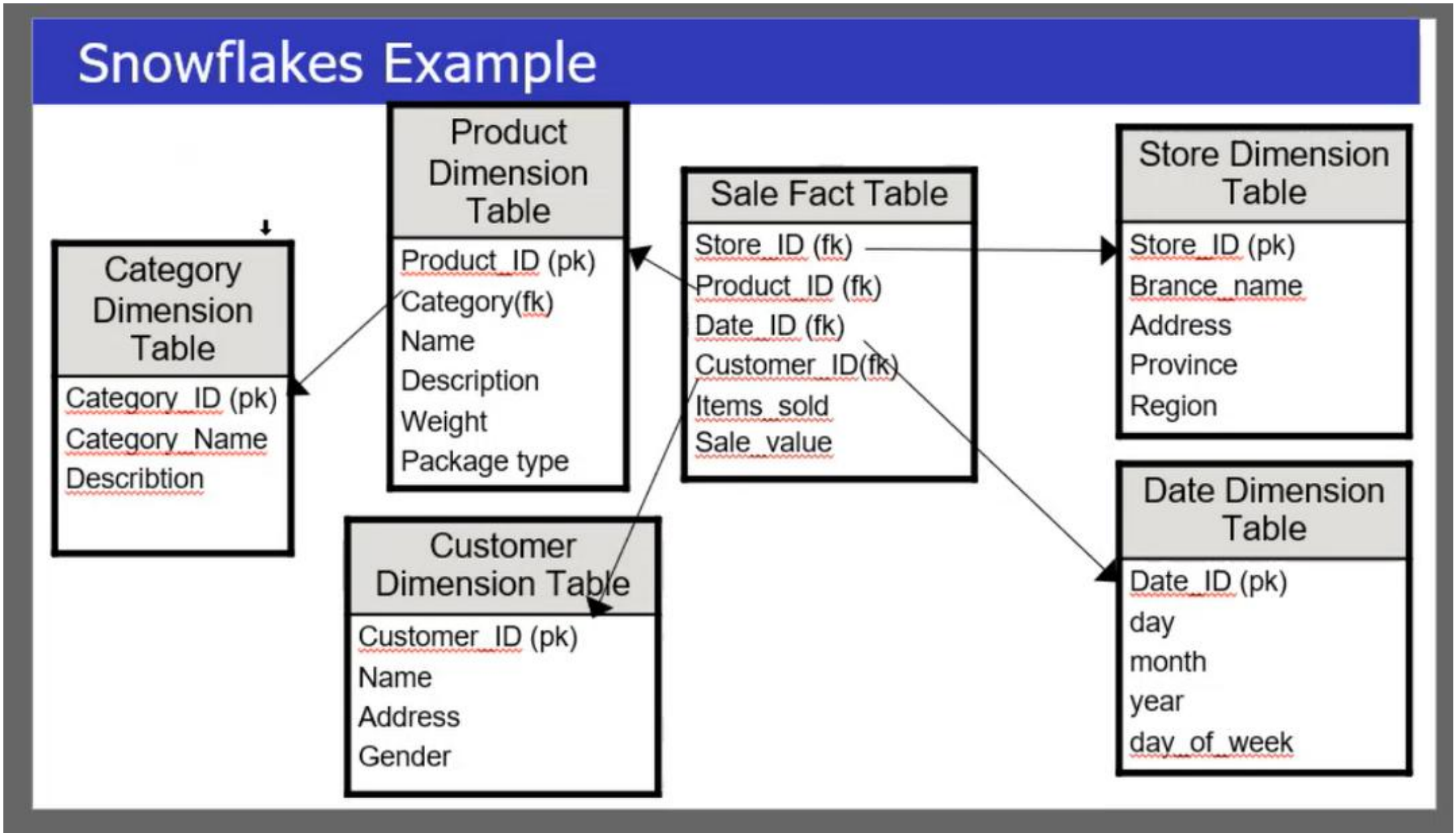
Snowflakes Schema

- **Snowflakes schema :** an extension of star schema where the diagram resembles a snowflake in shape

Snowflakes Example




Snowflakes Example
Product Dimension Table
Product_ID (pk)
Category(fk)
Name
Description
Weight
Package type
Sale Fact Table
Store_ID (fk)
Product_ID (fk)
Date_ID (fk)
Customer_ID(fk)
Items_sold
Sale_value
Store Dimension Table
Store_ID (pk)
Brance_name
Address
Province
Region
Category Dimension Table
Category_ID (pk)
Category_Name
Describtion
Customer Dimension Table
Customer_ID (pk)
Name
Address
Gender
Date Dimension Table
Date_ID (pk)
day
month
year
day_of_week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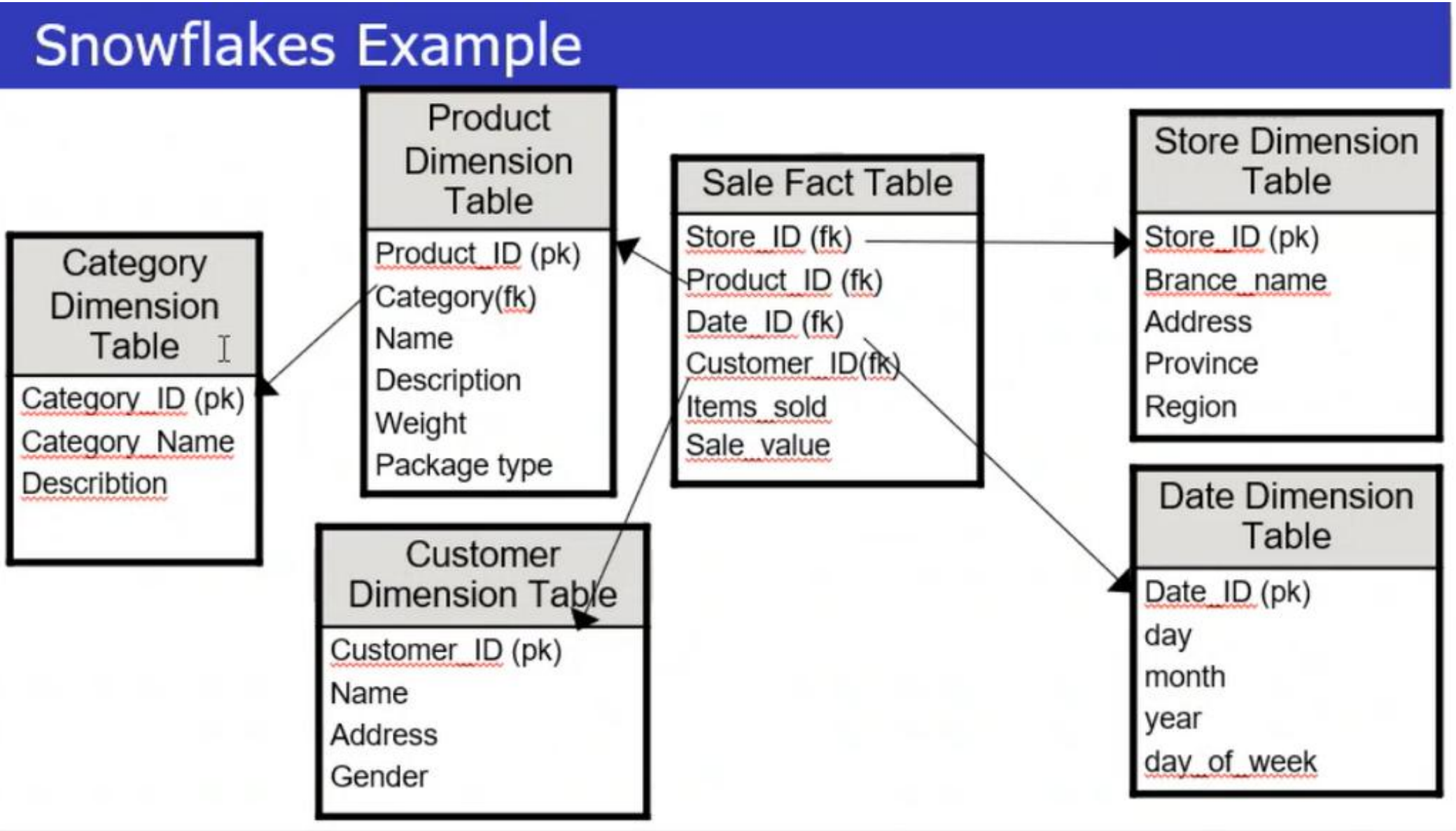
Snowflakes Example



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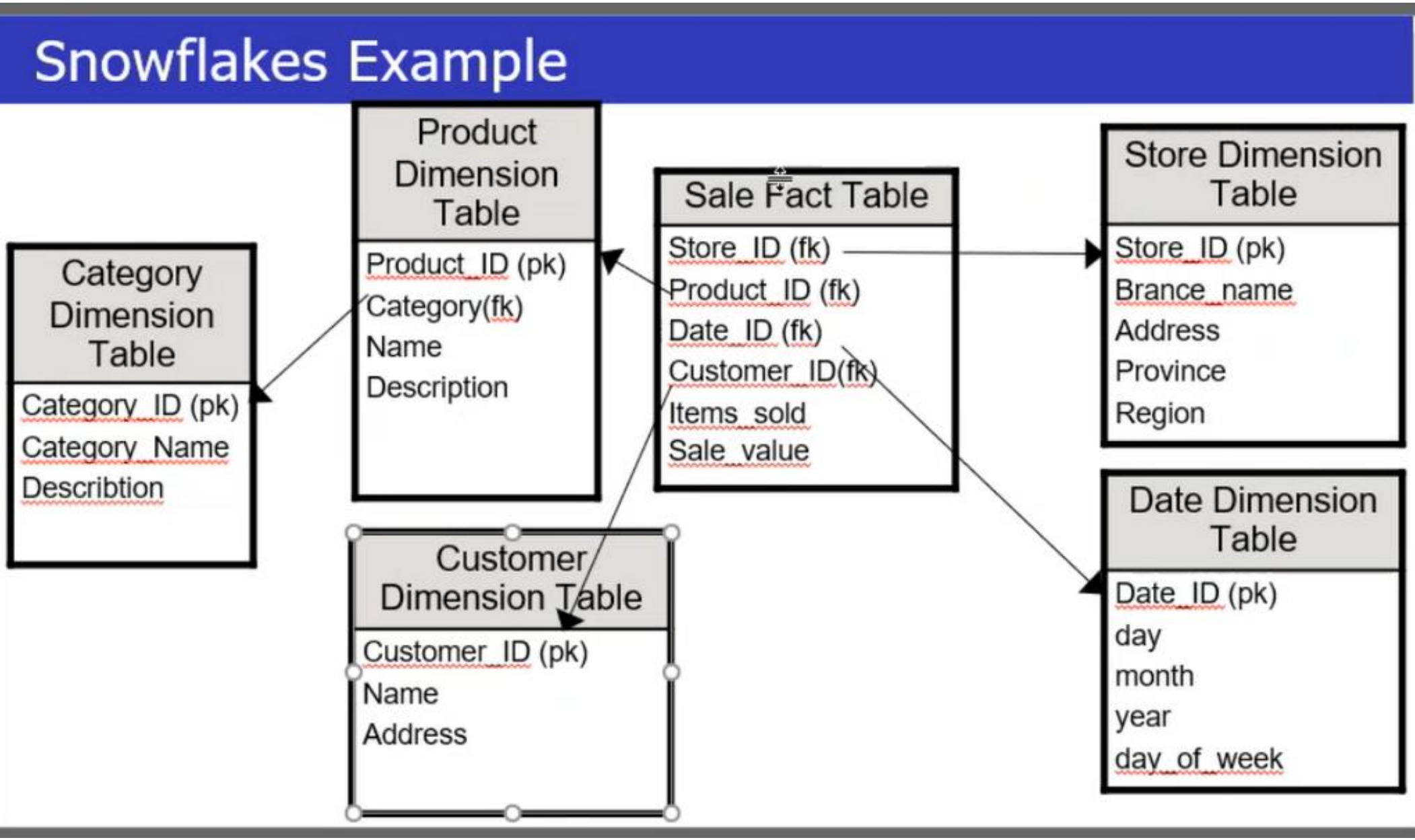

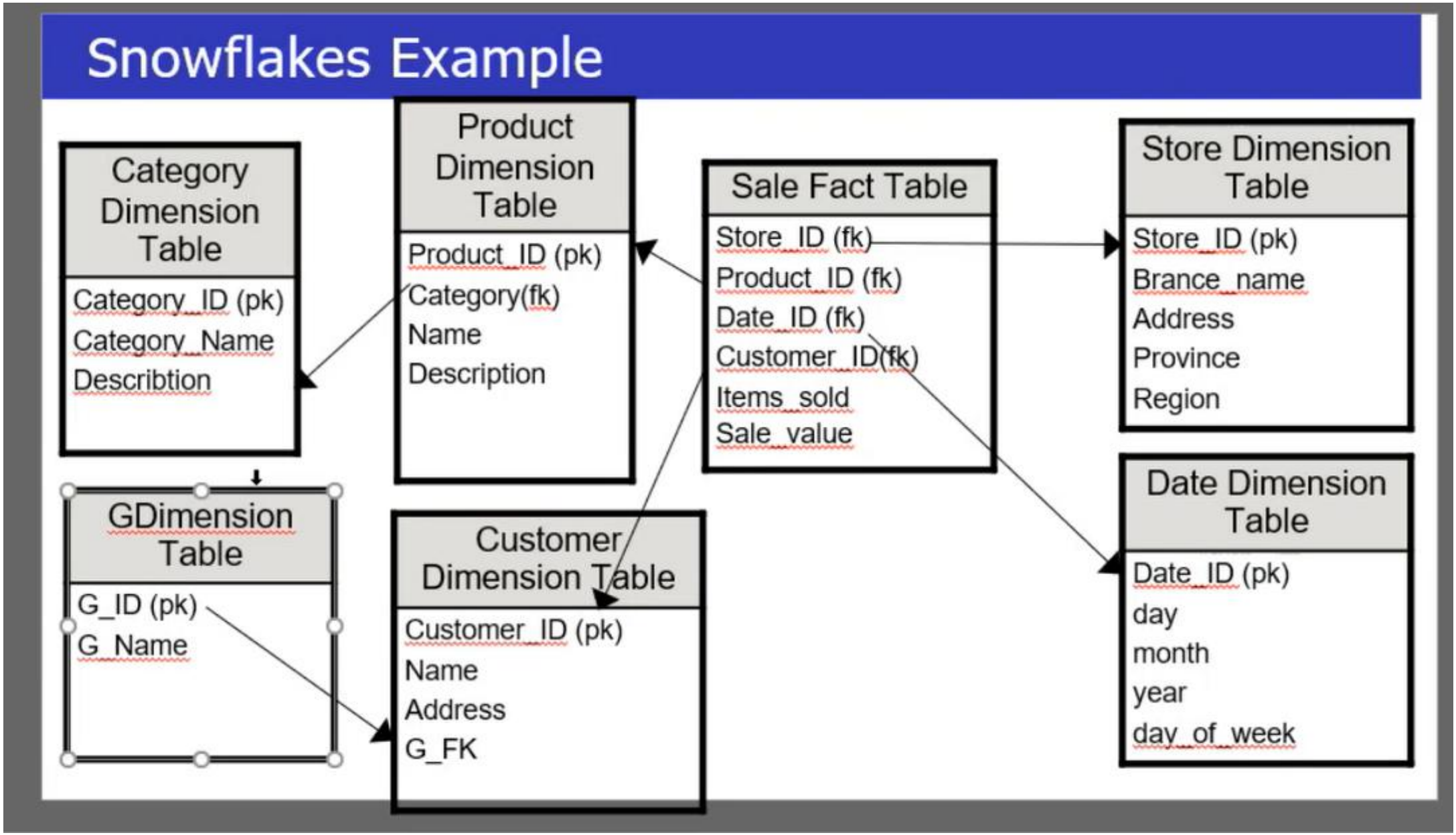
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GDimension Table
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G_Name
Customer Dimension Table
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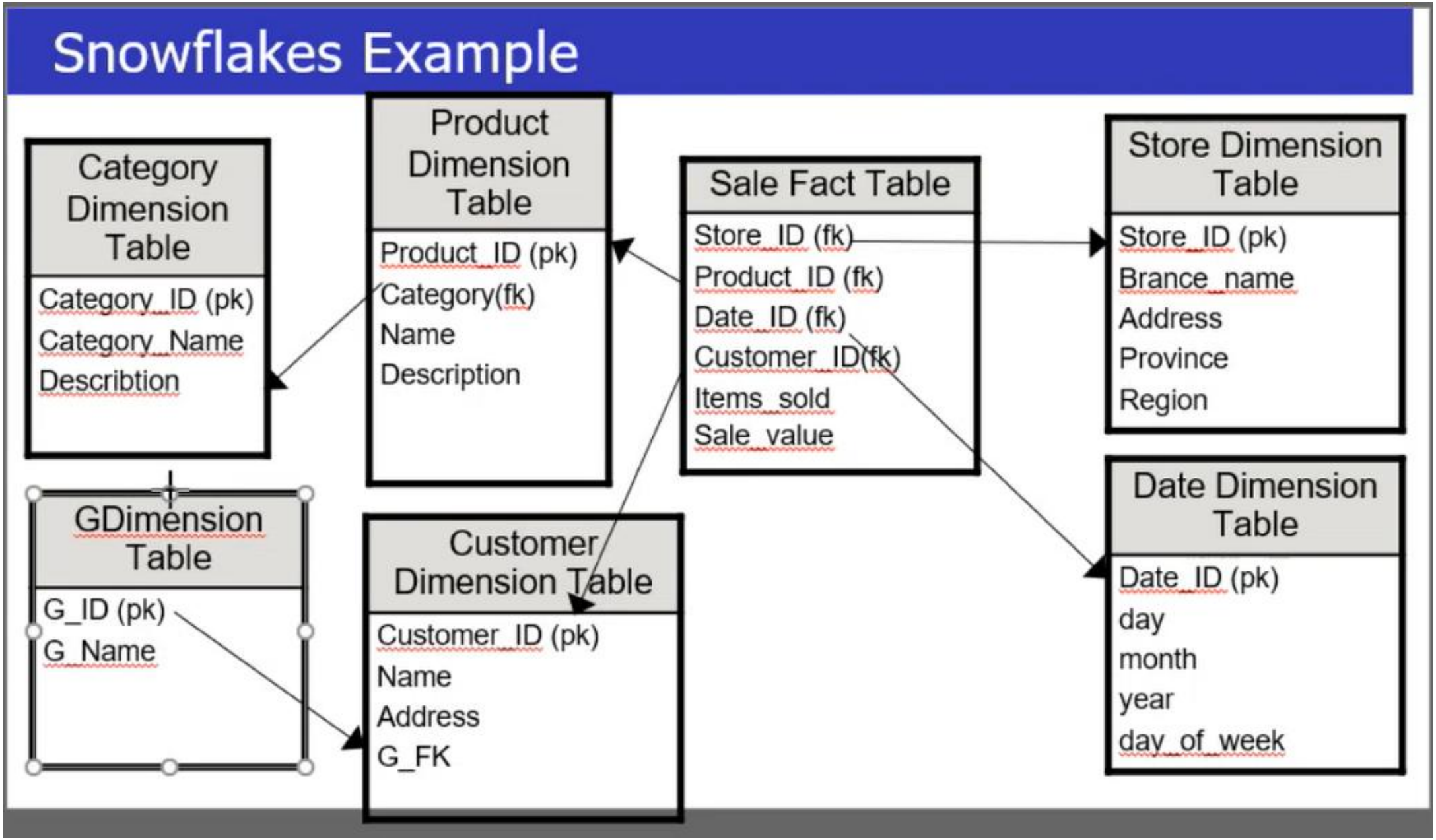
Name
Address
G_FK
Date Dimension Table
Date_ID (pk)
day
month
year
day_of_week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Store Dimension Table
Store_ID (pk)
Brance_name
Address
Province
Region
GDimension Table
G_ID (pk)
G_Name
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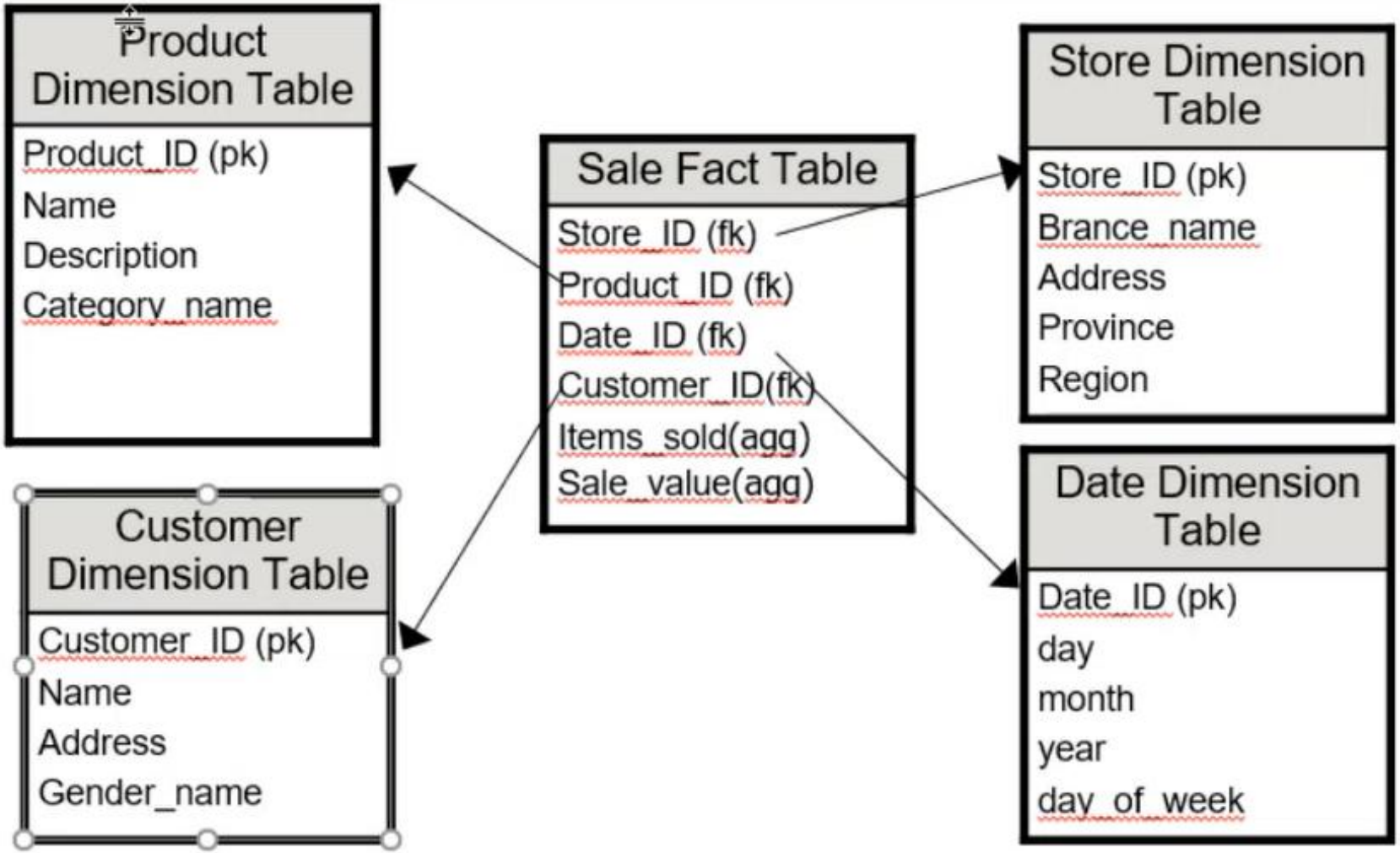
Name
Address
G_FK
Date Dimension Table
Date_ID (pk)
day
month
year
day_of_week

Star Schema Example



Star Schema Example