

**Data Warehousing Project**

**(Car Sales Management project)**

The main of project

Car Sales Management project involves designing a data warehouse to store, manage, and analyze car sales data. The objective is to create a schema that enables efficient querying and reporting on various aspects of car sales, such as total sales, customer demographics, sales trends, and dealer performance. The star schema design is chosen for its simplicity and efficiency in handling analytical queries.

-Car

Function: Stores detailed information about each car available for sale.

-Customer

Function: Stores personal and contact information about customers who purchase cars.

-Time

Function: Stores detailed time-related information for each sale.

Attributes:

-Dealer

Function: Stores information about the dealers who sell the cars.

-Sales

Function: Stores detailed information about each car sale transaction.

“The Database created by us”

Dimensions:

**Car Dimension Table:**

* 1car\_id (Primary Key)
* model
* manufacturer
* category
* price
* year
* color
* Additional columns as needed

**Customer Dimension Table:**

* 1 customer\_id (Primary Key)
* 1first\_name
* last\_name
* gender
* age
* email
* phone
* address
* city
* state
* zip\_code
* Additional columns as needed

**Time Dimension Table:**

* time\_id (Primary Key)
* date
* day
* month
* quarter
* year
* day\_of\_week

**Dealer Dimension Table:**

* dealer\_id (Primary Key)
* dealer\_name
* location
* contact\_number

Fact Table:

**Sales Fact Table:**

* + sale\_id (Primary Key)
  + car\_id (Foreign Key referencing Car)
  + customer\_id (Foreign Key referencing Customer)
  + time\_id (Foreign Key referencing Time)
  + dealer\_id (Foreign Key referencing Dealer)
  + sales\_amount
  + quantity\_sold
  + discount\_appliedBonus
  + Rating

Measures:

**sales\_amount**

**quantity\_sold**

**discount\_applied**

The star schema design you’ve implemented for the Car Sales Management project allows for efficient analysis of various aspects of car sales. By organizing data into dimension tables and a central fact table, the star schema supports complex queries and business intelligence operation

# “star scheme Model”

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# “Snowflake Model”

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--Aggregation Functions

--1. Total Sales Amount by Car Model

SELECT

C.model,

SUM(S.sales\_amount) AS total\_sales\_amount

FROM

sss S

JOIN

Car C ON S.car\_id = C.car\_id

GROUP BY

C.model;

--2. Average Sales Amount by Dealer

SELECT

D.dealer\_name,

AVG(S.sales\_amount) AS average\_sales\_amount

FROM

sss S

JOIN

Dealer D ON S.dealer\_id = D.dealer\_id

GROUP BY

D.dealer\_name;

-- 3. Number of Cars Sold by Category

SELECT

C.category,

COUNT(S.sale\_id) AS total\_cars\_sold

FROM

sss S

JOIN

Car C ON S.car\_id = C.car\_id

GROUP BY

C.category;

--Joins

-- 1. List of Sales with Customer and Dealer Information

SELECT

S.sale\_id,

C.first\_name AS customer\_first\_name,

C.last\_name AS customer\_last\_name,

D.dealer\_name,

S.sales\_amount,

S.quantity\_sold,

S.discount\_applied

FROM

sss S

JOIN

Customer C ON S.customer\_id = C.customer\_id

JOIN

Dealer D ON S.dealer\_id = D.dealer\_id;

--2. Sales Details with Car and Time Information

SELECT

S.sale\_id,

C.model,

T.date,

S.sales\_amount,

S.quantity\_sold,

S.discount\_applied

FROM

Sales S

JOIN

Car C ON S.car\_id = C.car\_id

JOIN

Time T ON S.time\_id = T.time\_id;

--Union

--1. Union of Two Sets of Car Models (e.g., Cars Sold by Two Different Dealers)

SELECT

model

FROM

Car

WHERE

car\_id IN (SELECT car\_id FROM sss WHERE dealer\_id = 1)

UNION

SELECT

model

FROM

Car

WHERE

car\_id IN (SELECT car\_id FROM sss WHERE dealer\_id = 2);

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