

Car Sales Analysis in the United States for 2022 and 2023:

Trends and Market Performance

DEPI_ONL2_DAT1_G7

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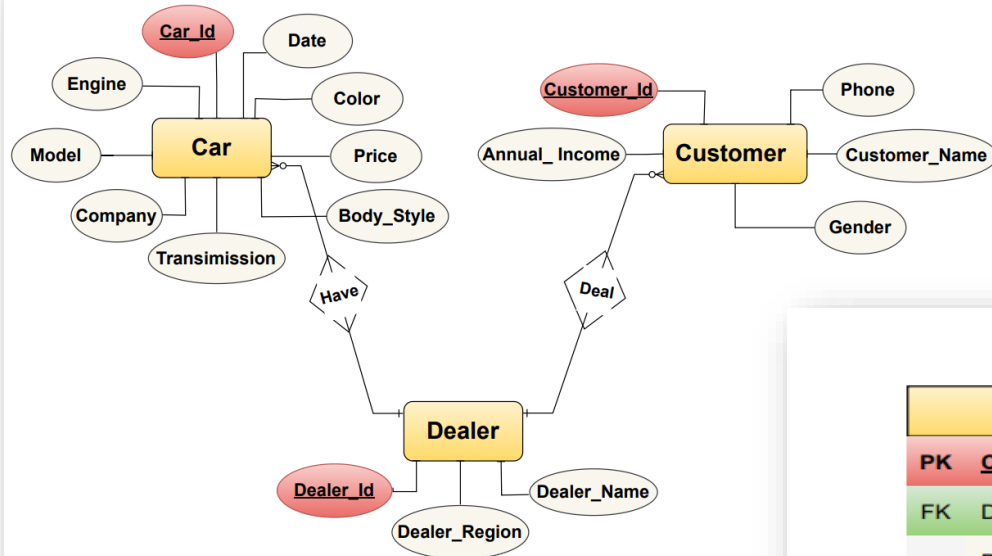
Mahmoud Elwakeel



Agenda:

- 1- Car_Sales Schema & ERD Diagram
- 2- Database Creation
- 3- Data Analysis by SQL
- 4- Data Analysis by Python (Jupyter Notebook).
- 5- Data Visualization by Python (Jupyter Notebook).

Car_Sales Schema & ERD Diagram



Car	
PK	<u>Car_Id</u> char(50) NOT NULL
FK	Dealer_Id char(50) NOT NULL
	Price float
	Engine char(50)
	Transimission char(50)
	Company char(50)
	Body_Style char(50)
	Color char(20)
	Model char(20)
	Date Datetime

Dealer	
PK	<u>Dealer_Id</u> char(50) NOT NULL
FK	Car_Id char(50) NOT NULL
	Dealer_Region char(50)
	Dealer_Name char(50)

Customer	
PK	<u>Customer_Id</u> char(50) NOT NULL
FK	Dealer_Id char(50) NOT NULL
	Annual_Income float
	Customer_Name char(50)
	Phone char (14)
	Gender char(14)

Database Creation

MySQL Workbench

Schema Transfer Wizard x MySQL Model* (Car_Sales_M... x EER Diagram x

File Edit View Arrange Model Database Tools Scripting Help

Description Editor

Customer_Table: MySQL Table

Model Overview

MySQL schema

Tables (3 items)

Add Table Car_Table Customer_Table Dealer_Table

Views (0 items)

Car_Table - Table Car_Sales_database - Schema Customer_Table - Table Dealer_Table - Table

Table Name: Customer_Table Schema: Car_Sales_database

Filter Rows: Edit: Export/Import: Wrap Cell Content: Apply changes:

	Customer_Id	Customer_Name	Gender	Phone_No	Annual_Income
▶	12021	Dina	Male	3010000	8999579
	4202	Rory	Male	780000	8999305
	7225	Kyla	Male	13500	8998913
	3188	Macia	Female	666500	8998867
	20644	Arnaud	Male	1032000	8998864
	1075	Amanda	Male	959000	8998836
	16713	Isabelle	Male	350000	8998761
	4289	Chelsea	Male	805000	8998696
	23526	Zachary	Female	13500	8998568
	14619	Elise	Male	1025000	8998480
	21033	Hugo	Female	421500	8998332
	4486	Eden	Male	13500	8998091
	18847	Jeffrey	Male	13500	8997051

User Types List

Type	Definition	Flags
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User Types History

Columns Indexes Foreign Keys Triggers Partitioning Options Inserts Privileges

DB Browser for SQLite - C:\Users\em\Downloads\Chinook_sql_database.db

File Edit View Tools Help

New Database Open Database Write Changes Revert Changes Undo Open Project Save Project Attach Database

Database Structure Browse Data Edit Pragmas Execute SQL

SQL 1*

```
1 SELECT Model, COUNT(*) AS Total_Sales
2 FROM Car_Sales_database
3 GROUP BY Model
4 ORDER BY Total_Sales DESC
5 LIMIT 10;
```

	Model	Total_Sales
1	Diamante	418
2	Silhouette	411
3	Prizm	411
4	Passat	391
5	Ram Pickup	383
6	Jetta	382
7	RL	372
8	LS400	354
9	LHS	330
10	A6	329

Total Sales by Model

Data Analysis by SQL

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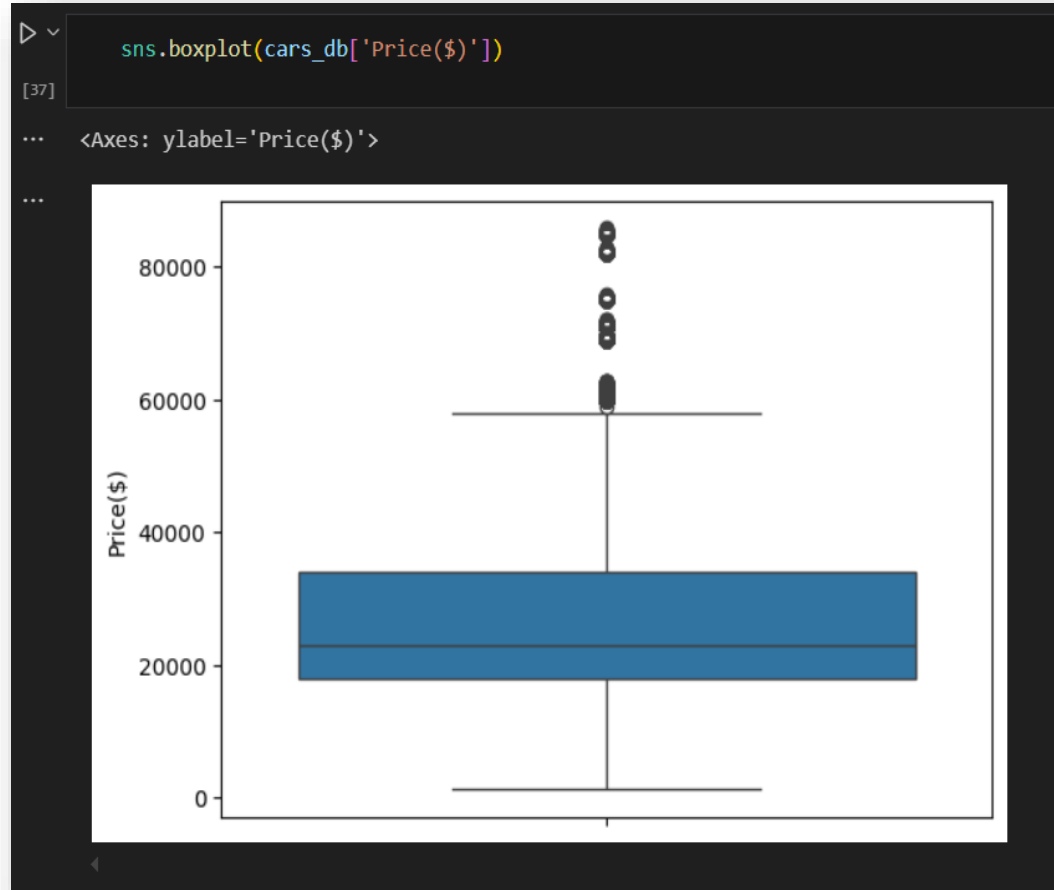
SQL 1* SQL 2* SQL 3*

```
1 SELECT `Dealer_Name`, COUNT(*) AS Cars_Sold
2 FROM Car_Sales_database
3 GROUP BY `Dealer_Name`
4 ORDER BY Cars_Sold DESC
5 LIMIT 12;
```

	Dealer_Name	Cars_Sold
1	Progressive Shippers Cooperative ...	1318
2	Rabun Used Car Sales	1313
3	Race Car Help	1253
4	Saab-Belle Dodge	1251
5	Tri-State Mack Inc	1249
6	Star Enterprises Inc	1249
7	Ryder Truck Rental and Leasing	1248
8	U-Haul CO	1247
9	Scrivener Performance Engineering	1246
10	Suburban Ford	1243
11	Nebo Chevrolet	633
12	Pars Auto Sales	630

Top 12 Dealers who sold the most cars

Data Visualization by Python (Jupyter Notebook).

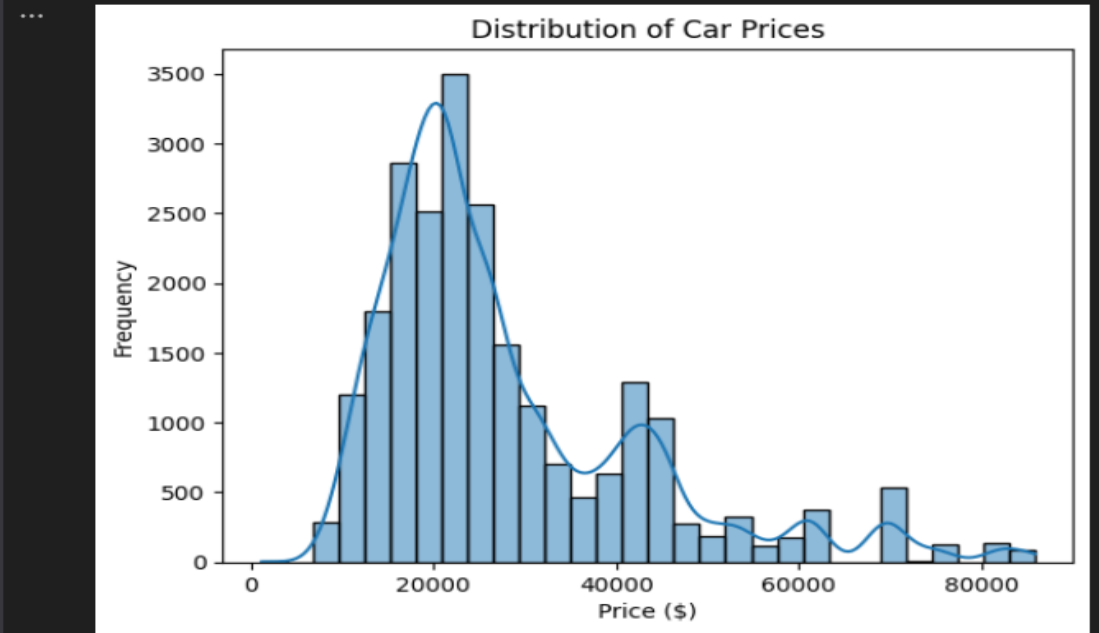


~ Distribution of Car Prices

```
sns.histplot(cars_db['Price($)'], bins=30, kde=True)  
plt.title('Distribution of Car Prices')  
plt.xlabel('Price ($)')  
plt.ylabel('Frequency')
```

[59]

... Text(0, 0.5, 'Frequency')





**THANK
YOU**