Application for Tracking Car Sales at a Car Dealership/Second-Hand Dealer

Description of the Topic:  
The application is designed from the perspective of an employee working with clients. This employee cannot modify the car catalog, but they can view it. They can add, delete, or modify customers and orders. They can also view information about cars, their colleagues, and different statistics.

Final Relationships:

* Dealership - Car: 1:n
* Dealer - Car: 1:n
* Car - File: 1:1
* Customer - Order: 1:n
* Dealership - Dealer: 1:n
* Dealer - Order: n:n
* Dealer - Dealer: 1:1

There will be a linking table: OrderDealer.

Restrictions:

* Primary keys are highlighted in yellow and are implicitly UNIQUE.
* Foreign keys are highlighted in blue and result from the relationships diagram below.
* The linking tables are also described below.
* All fields ending in "ID" are of type int and have auto-increment.

Next, we will treat each table individually and mention the restrictions for each field.

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| **Masina** |
| MasinaID |
| ReprezentantaID |
| ComandaID |
| DealerID |
| Serie sasiu (char 17, UNIQUE, NOT NULL) |
| Model (nvarchar 30-deoarece pot fi stocate caractere speciale,spre exemplu Škoda Fabia, NOT NULL) |
| An (char 4, NOT NULL) |
| Pret (int, NOT NULL) |
| Descriere(nvchar max) |

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| **Client** |
| ClientID |
| Nume (nvarchar 50, NOT NULL) |
| Prenume (nvarchar 50, NOT NULL) |
| CNP (char 13, UNIQUE) |
| Oras (nvarchar 50, NOT NULL) |
| Strada(nvarchar 50, NOT NULL) |
| Numar (char 10, NOT NULL) |
| Bloc (char 10) |
| Apartament (char 10) |
| Telefon (varchar 15, NOT NULL , UNIQUE) |
| Email (nvarchar 35, NOT NULL ,UNIQUE) |
| NumarComenzi (int, DEFAULT 1, clientul introdus in baza de date a facut cel putin o achizitie. Pana este modificat, numarul de achizitii este implicit 1) |
| SerieBuletin (char 2) |
| NrBuletin (char 6) |

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| **Reprezentanta** |
| ReprezentantaID |
| Oras (nvarchar 50, NOT NULL) |
| Strada (nvarchar 50, NOT NULL) |
| Numar (char 10, NOT NULL) |
| NumarAngajati (int) |
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| **Comanda** |
| ComandaID |
| ClientID |
| Valoare (int, NOT NULL) |
| ModalitatePlata (varchar 10, CHECK ‘CARD’ OR ‘CASH’ OR ‘LEASING’, ‘ONLINE ’) |
| NrMasini (int, DEFAULT 1) |

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| **Dealer** |
| DealerID |
| ManagerID |
| ReprezentantaID |
| Nume (nvarchar 50, NOT NULL) |
| Prenume (nvarchar 50, NOT NULL) |
| CNP (char 13, UNIQUE) |
| DataNasterii (datetime) |
| DataAngajarii (datetime) |
| Salariu (int) |
| Sex (char 1, CHECK ‘F’ OR ‘M’) |
| Telefon (varchar 15, NOT NULL , UNIQUE) |
| Email (nvarchar 35, NOT NULL ,UNIQUE) |
| Oras (nvarchar 50, NOT NULL) |
| Strada(nvarchar 50, NOT NULL) |
| Numar (char 10, NOT NULL) |
| Bloc (char 10) |
| Apartament (char 10) |

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| **Dosar** |
| DosarID |
| MasinaID |
| NrFisaInmatriculare (varchar 15, NOT NULL, UNIQUE) |
| NrCarteIdentitateMasina (varchar 15, NOT NULL, UNIQUE) |
| NrCertificatAutentificare (varchar 15, NOT NULL, UNIQUE) |
| NrCarnetService (varchar 15, NOT NULL, UNIQUE) |
| Transmisie (nvchar 30, NOT NULL) |
| Kilometraj (int, DEFAULT 0, NOT NULL) |
| Combustibil (nvarchar 30, NOT NULL) |
| Capacitate\_L (nvarchar 10, NOT NULL) |
| ModelMotor (nvarchar 30, NOT NULL) |
| PutereMaxima\_CP(nvarchar 10, NOT NULL) |
| CapacitatePortbagaj\_L (nvarchar 20, NOT NULL) |
| Jante (nvarchar 30) |
| Sistem climatizare (nvarchar 30) |
| NrLocuri (char 1, DEFAULT 4) |
| Suspensii (nvarchar 30) |
| TipVolan (nvarchar 30) |
| ComputerBord (nvarchar 30) |
| SistemFranare (nvarchar 30) |

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| **ComandaDealer** |
| ComandaID (int) |
| DealerID (int) |

Simple Queries:

1. Client Details:

SELECT Comanda.Valoare, Comanda.ModalitatePlata, Comanda.NrMasini

FROM Comanda, Client

WHERE Comanda.ClientID = Client.ClientID

1. Car Details:

SELECT SerieSasiu, Model, An, Pret, Descriere, NrFisaInmatriculare, NrCarteIdentitateMasina, NrCertificatAutentificare, NrCarnetService, Transmisie, Kilometraj, Combustibil, Capacitate\_L, ModelMotor, PutereMaxima\_CP, CapacitatePortbagaj\_L, Jante, SistemClimatizare, NrLocuri, Suspensii, TipVolan, ComputerBord, SistemFranare

FROM Masina, Dosar

WHERE Masina.MasinaID=@id and Dosar.MasinaID=@id

1. Colleague Details:

SELECT Dealer.Nume, Dealer.Prenume, Reprezentanta.Oras , Reprezentanta.Strada, Dealer.Email, Dealer.Telefon

FROM Dealer, Reprezentanta

WHERE Dealer.ReprezentantaID=Reprezentanta.ReprezentantaID

GROUP BY Reprezentanta.Oras, Dealer.Nume, Dealer.Prenume, Reprezentanta.Strada, Dealer.Email, Dealer.Telefon

1. Best Employee (2023):

SELECT Dealer.Nume ,SUM(Comanda.Valoare)

FROM Dealer, ComandaDealer, Comanda

WHERE Dealer.DealerId=ComandaDealer.DealerID

AND Comanda.ComandaId=ComandaDealer.ComandaID

AND YEAR(Data) = 2023

GROUP BY Dealer.Nume

ORDER BY SUM(Valoare) ASC

1. Representative of the Year (2023):

SELECT Reprezentanta.Oras ,SUM(Comanda.Valoare)

FROM Reprezentanta, Dealer, ComandaDealer, Comanda

WHERE Reprezentanta.ReprezentantaID=Dealer.ReprezentantaID

AND Dealer.DealerId=ComandaDealer.DealerID

AND Comanda.ComandaId=ComandaDealer.ComandaID

AND YEAR(Data) = 2023

GROUP BY Reprezentanta.Oras

ORDER BY SUM(Valoare) ASC

1. Variable Field Query: Sorting Cars by 3 Criteria (ascending/descending):

SELECT Masina.Model, Masina.SerieSasiu, Kilometraj, PutereMaxima\_CP, Pret, Masina.MasinaID

FROM Masina, Dosar

WHERE Dosar.MasinaID=Masina.MasinaID

ORDER BY @variabila @order

Complex Queries:

1. Newest Employees from Each Department:

SELECT nume, prenume, Reprezentanta.Oras

FROM Dealer, Reprezentanta

WHERE (dataangajarii) IN

(SELECT max(d2.dataangajarii) FROM Dealer d2

WHERE d2.ReprezentantaID=Dealer.ReprezentantaID

GROUP BY ReprezentantaID)

AND Dealer.ReprezentantaID=Reprezentanta.ReprezentantaID

ORDER BY dataangajarii

1. Clients with Orders Above Average:

SELECT nume, prenume, SUM(Comanda.Valoare)

FROM Client, Comanda

WHERE Client.ClientID=comanda.ClientID

GROUP BY Nume, prenume

HAVING AVG(Comanda.Valoare) >= (SELECT AVG(c2.Valoare) FROM Comanda c2)

1. Order Value for Each Day of This Month:

String sql = "SELECT\r\n DayOfMonth,\r\n SUM(Subquery.Valoare) AS TotalValoare\r\nFROM (\r\n SELECT\r\n DATEPART(DAY, Comanda.Data) AS DayOfMonth,\r\n Comanda.Valoare\r\n FROM\r\n Comanda\r\n WHERE\r\n MONTH(Comanda.Data) = MONTH(GETDATE())\r\n AND YEAR(Comanda.Data) = YEAR(GETDATE())\r\n) AS Subquery\r\nGROUP BY\r\n DayOfMonth\r\nORDER BY\r\n DayOfMonth;";

1. Variable Field: Number of Orders on This Day?

String sql = "SELECT COUNT(ComandaID) AS CommandsCount

FROM (

SELECT DATEPART(DAY, Comanda.Data) AS DayOfMonth,

Comanda.ComandaID

FROM

Comanda

WHERE

MONTH(Comanda.Data) = @TargetMonth

AND YEAR(Comanda.Data) = @TargetYear

AND DAY(Comanda.Data) = @TargetDay ) AS Subquery

GROUP BY DayOfMonth

ORDER BY DayOfMonth;";