We create the car table with the following queries :

```
CREATE TABLE Cars(
   CarID       INTEGER  NOT NULL PRIMARY KEY
  ,Price    INTEGER  NOT NULL
  ,Brand     VARCHAR(15) NOT NULL
  ,Year     INTEGER  NOT NULL
  ,Mileage INTEGER  NOT NULL
  ,Color    VARCHAR(39) NOT NULL
  ,CarDealershipID  VARCHAR(9) NOT NULL FOREIGN KEY
REFERENCES CarDealer(CarDealershipID)
);
```

The primary key is CarID. The Foreign key is CarDealershipID

For every row, we insert into Cars the following data obtained from the Cars.csv file.

```
INSERT Cars(CarID,Price,Brand,Year,Mileage,Color) VALUES
(ID,VEHICLE PRICE,VEHICLE BRAND,YEAR OF PRODUCTION,MILEAGE
OF VEHICLE,COLOR OF VEHICLE);
```

Obtaining data from Cars using queries:

Query the maximum Mileage and maximum Price of a car for each Brand.

```
SELECT Brand,MAX(Price) AS max_Price, MAX(Mileage) AS
max_Mileage
FROM Cars
GROUP BY Brand;
```

	Brand	max_Price	max_Mileage
1	cadillac	47500	105169
2	maserati	30300	37021
3	honda	17200	217290
4	jeep	21100	226972
5	heartland	6680	1
6	infiniti	18500	71967
7	dodge	67000	239822
8	gmc	48500	235348
9	acura	16900	179389
10	land	46900	32387
11	bmw	61200	216657
12	harley-davidson	54680	9502
13	kia	21500	148463
14	nissan	36300	234792
15	buick	37500	137464
16	chevrolet	63200	507985
17	lincoln	36300	89705
18	toyota	6300	274117
19	mazda	16000	117541
20	mercedes-benz	84900	110907
21	jaguar	2800	20849
22	hyundai	9800	142106
23	peterbilt	1025	1017936
24	chrysler	29100	231240
25	lexus	55600	36596
26	ford	74000	999999
27	ram	11050	30421
28	audi	36400	181896

Delete all cars that have 0 as Prices and 0 as Mileage.

```
DELETE
FROM Cars
WHERE Price = 0
OR Mileage = 0
```

Query the cars with the lowest Mileage and lowest cost.

```
SELECT *
```

```
FROM Cars
WHERE Price = (SELECT MIN(Price) FROM Cars)
INTERSECT
SELECT *
FROM Cars
WHERE Mileage = (SELECT MIN(Mileage) FROM Cars)
```

Query the number of cars that have a Mileage total less than or equal to 50,000

```
SELECT COUNT(CarID)
FROM Cars
WHERE Mileage<= 50000
```

	(No column name)
1	1704

Query the number of paint Colors available on cars.

```
SELECT COUNT(DISTINCT Color) AS "Number of available Colors"
FROM Cars;
```

	Number of available Colors
1	46

Query the most common car Brand.

```
SELECT TOP 1 Brand AS Top_Brand
FROM Cars
GROUP BY Brand
ORDER BY Top_Brand DESC;
```

	Top_Brand
1	toyota

Query the top 3 most common car Colors.

```
SELECT TOP 3 Color, COUNT(Brand) AS Quantity
```

```
FROM Cars
GROUP BY Color
ORDER BY Quantity DESC;
```

	Color	Quantity
1	white	702
2	black	569
3	gray	389

Query the most expensive car Price and Brand.

```
SELECT Price, Brand FROM Cars
WHERE Price = (
SELECT TOP 1 MAX(Price) AS Most_expensive_car
FROM Cars
GROUP BY Price
ORDER BY Most_expensive_car DESC);
```

	Price	Brand
1	84900	mercedes-benz

Query the number of cars made in the Years less than or equal to 2010.

```
SELECT COUNT(*) FROM Cars
WHERE Year<=2010
```

	(No column name)
1	64

Delete all cars with Years less than or equal to 2010 or if Mileage is greater than or equal to 100,000

```
DELETE FROM Cars
WHERE Year<=2010
OR Mileage>= 100000
```

Find the average cost of a car with Mileage below or equal to 1,000.

```
SELECT AVG(Price)
FROM Cars
WHERE Mileage<=1000;
```

	(No column name)
1	22911

Query all the cars with a Price over 10,000 and order by highest to lowest price

```
SELECT *
FROM Cars
WHERE Price>10000
ORDER BY Price DESC
```

	CarID	Price	Brand	Year	Mileage	Color	CarDealershipID
1	502	84900	mercedes-benz	2017	25302	silver	CDID-60a53
2	1340	74000	ford	2019	10536	black	CDID-4a9BC
3	1336	70000	ford	2019	9643	black	CDID-820cb
4	277	67000	dodge	2019	10944	blue	CDID-2md09
5	1215	65500	ford	2019	6500	black	CDID-AB8C8
6	1331	65200	ford	2019	18138	white	CDID-c2C86
7	667	63200	chevrolet	2016	4266	red	CDID-7c35B
8	1334	63000	ford	2019	11640	black	CDID-0A1B6
9	1343	63000	ford	2018	17942	black	CDID-2md09
10	645	62000	chevrolet	2016	19403	white	CDID-4a9BC
11	399	61200	bmw	2020	7509	black	CDID-ca98A
12	1341	60200	ford	2019	31744	white	CDID-ca4ab
13	1342	60000	ford	2018	18062	black	CDID-Ab9C7
14	1896	59975	ford	2019	71	white	CDID-AB8C8
15	1901	59975	ford	2019	174	black	CDID-ba9B9
16	2088	59900	ford	2020	2162	black	CDID-a39A9
17	1368	58500	ford	2019	4970	gray	CDID-2md09
18	414	58500	ford	2019	21527	blue	CDID-ba9B9
19	1339	57700	ford	2019	21101	red	CDID-4a9BC
20	1327	56700	ford	2019	13884	white	CDID-7c35B
21	1398	56500	ford	2017	30629	red	CDID-Ab9C7
22	1564	56500	ford	2017	23223	gold	CDID-Ca7C9
23	1337	56200	ford	2019	33930	gray	CDID-ca4ab
24	2200	56000	ford	2018	25371	black	CDID-820cb
25	426	55600	lexus	2020	8186	silver	CDID-820cb
26	44	55000	ford	2017	15273	black	CDID-7c35B
27	1369	55000	ford	2017	43964	black	CDID-ca98A
28	2198	55000	ford	2018	37245	black	CDID-0A1B6
29	1709	55000	ford	2019	16569	black	CDID-820cb
30	1260	54900	ford	2019	14393	black	CDID-Ab9C7
31	380	54680	harley-davidson	2016	9502	black	CDID-bAc5a
32	1385	54500	ford	2018	19853	blue	CDID-7c35B
33	1112	54500	dodge	2019	3966	red	CDID-ca98A
34	1641	54500	ford	2019	9865	blue	CDID-60a53

We create the Car Dealership table with the following queries :

```
CREATE TABLE CarDealer(
   CarDealershipID   VARCHAR(9) NOT NULL PRIMARY KEY
  ,CarDealershipName VARCHAR(22) NOT NULL
```

```
  ,CarDealershipType VARCHAR(30) NOT NULL
  ,Address           VARCHAR(43) NOT NULL
);
```

The primary key is CarDealershipID.

For every row, we insert into CarDealership the following data obtained from the CarDealer.csv file. Below is an example of the first row, again we do this for all rows.

```
INSERT INTO
CarDealer(CarDealershipID,CarDealershipName,CarDealershipTyp
e,Address) VALUES ('CDI-0A1B6','Auto Trade
Corporation','Wholesale Motor Vehicle Dealer','932 Mount
Street Tempe, AZ 85289');
```

Obtaining data from tables Cars and CarDealer using queries:

Query the number of cars available at Auto Trade Corporation.

```
SELECT COUNT(CarID) FROM Cars
WHERE Cars.CarDealershipID = (SELECT CarDealershipID FROM
[CarDealer ] WHERE [CarDealer ].CarDealershipName = 'Auto
Trade Corporation')
```

	(No column name)
1	123

Query the top three most common car brands at Auto Trade Corporation and the amount of times they appear.

```
SELECT TOP 3 Brand, COUNT(Brand) AS Quantity
FROM Cars
WHERE Cars.CarDealershipID = (SELECT CarDealershipID FROM
[CarDealer ] WHERE [CarDealer ].CarDealershipName = 'Auto
Trade Corporation')
GROUP BY Brand
```

```
ORDER BY Quantity DESC;
```

	Brand	Quantity
1	ford	58
2	dodge	23
3	nissan	16

Query the dealer that has the most expensive car along with the car model, the price, and mileage.

```
DECLARE @CDID nvarchar(50);
SET @CDID = (SELECT CarDealershipID FROM Cars
WHERE Price = (
SELECT TOP 1 MAX(Price)
FROM Cars
GROUP BY Price
ORDER BY Price DESC))

SELECT TOP 1 CD.CarDealershipName AS Dealership, C.Brand,
C.Price, C.Mileage
FROM [CarDealer ] CD, Cars C
WHERE CD.CarDealershipID =@CDID
ORDER BY Price DESC;
```

	Dealership	Brand	Price	Mileage
1	Rockland Used Cars	mercedes-benz	84900	25302

We create the Customer table with the following queries :

```
CREATE TABLE Customer(
   CustomerID      VARCHAR(9) NOT NULL PRIMARY KEY
  ,CustomerName    VARCHAR(18) NOT NULL
  ,Birthdate       DATE  NOT NULL
  ,ColorPreference VARCHAR(9) NOT NULL
  ,Budget          INTEGER  NOT NULL
  ,Address         VARCHAR(44) NOT NULL
);
```

The primary key is CustomerID.

For every row, we insert into Customer the following data obtained from the Customer.csv file. Below is an example of the first row, again we do this for all rows.

```
INSERT INTO
Customer(CustomerID,CustomerName,Birthdate,ColorPreference,B
udget,Address) VALUES ('CID-9w2M1','Peter
Brown','10/09/1971','red',22681,'7032 Farmer Lane Glendale,
AZ 85308');
```

Customer Peter Brown has asked to find all dealerships that sell a car of his preferred color, this car must not exceed his budget, return the names, and addresses of the dealerships, price of the cars, and mileage of such cars.

```
SELECT CD.CarDealershipName AS Dealership, CD.Address,
C.Price, C.Mileage, C.Color
FROM [CarDealer ] CD, Cars C
WHERE C.Color =(SELECT ColorPreference FROM Customer WHERE
CustomerName='Peter Brown')
AND C.Price<=(SELECT Budget FROM Customer WHERE
CustomerName='Peter Brown')
```

	Dealership	Brand	Price	Mileage
1	Rockland Used Cars	mercedes-benz	84900	25302

Customer Clay Serrano wants to know all the dealerships near his address, return the name and address of the dealership(s).

```
DECLARE @temp nvarchar(50)
SET @temp = (SELECT Address FROM Customer WHERE CustomerName
= 'Clay Serrano')
DECLARE @ZIP_Code nvarchar(50)
SET @ZIP_Code =  RIGHT(@temp, 5)
```

```
SELECT CarDealershipName AS Dealership, Address FROM
[CarDealer ]
WHERE Address LIKE '%, AZ '+@ZIP_Code
```

	Dealership	Address
1	Sawmill Motor Sales	37 Branch St. Tucson, AZ 85708

Customer Clay Serrano also wants to know what the least expensive car is in the dealership near his address, return car id, the car brand, the price of the car and mileage; it must also be his new preferred color which is gray, car must also have no more than 10,000 miles, update his color preference from grey to gray.

```
UPDATE Customer
SET ColorPreference = 'gray'
WHERE CustomerName = 'Clay Serrano';

SELECT TOP 1 CarID, Price, Brand, Mileage FROM Cars
WHERE CarDealershipID = @DealershipID
AND Color =(SELECT ColorPreference FROM Customer WHERE
CustomerName = 'Clay Serrano')
AND Mileage<10000
ORDER BY Price
```

Query the average budget of customers.

```
SELECT AVG(Budget) AS AVG_Budget FROM Customer
```

	AVG_Budget
1	71398

Query the customer name with birth years greater than 1980

```
SELECT CustomerName FROM Customer WHERE Birthdate>'19800101'
```

	CustomerName
1	Clay Serrano
2	Marques Volkman
3	Mitchell McKenzie
4	Carroll Werner
5	Kyle Ponce
6	Justina Mills
7	Frankie Stevenson
8	Melvin Schultz
9	Pearl Abshire
10	Lupe Knapp
11	Earl Melton
12	Paul Hess

Query the most common color preference/

```
SELECT TOP 1 ColorPreference AS Most_Common_Color_Pref,
COUNT(ColorPreference) AS Quantity
FROM Customer
GROUP BY ColorPreference
ORDER BY Quantity DESC;
```

	Most_Common_Color_Pref	Quantity
1	blue	4

Customer Marques Volkman wants to purchase a 2015 or newer Dodge brand car from Wide World Inc, find cars that do not exceed his budget and are not over 30,000 miles, return cars id, price and mileage. Order by price ascending.

```
DECLARE @CustomerBudget int
SET @CustomerBudget = (SELECT Budget FROM Customer WHERE
CustomerName = 'Marques Volkman')
SELECT CarID, Price, Mileage,Brand FROM Cars
WHERE CarDealershipID = (SELECT CarDealershipID FROM
[CarDealer ] WHERE CarDealershipName = 'Wide World Inc')
AND Price<=@CustomerBudget
AND Mileage<=30000
```

```
AND Brand = 'dodge'
AND Year>2015
ORDER BY Price
```

	CarID	Price	Mileage	Brand
1	935	16200	22591	dodge
2	1048	16700	18049	dodge
3	1128	16800	27312	dodge
4	849	20200	24722	dodge
5	1081	21000	10170	dodge
6	897	30000	29086	dodge
7	1102	33000	8873	dodge
8	1188	36500	22036	dodge

Customer Carroll Werner wants to know if there is a Ford brand car in any of the dealerships that were produced the same year She was born, the car must also be her preferred color, return the dealership.

```
DECLARE @CYearBirthdate smallint
SET @CYearBirthdate = YEAR((SELECT Birthdate FROM Customer
WHERE CustomerName = 'Carroll Werner'))

DECLARE @CColorPref nvarchar(50)
SET @CColorPref = (SELECT ColorPreference FROM Customer
WHERE CustomerName = 'Carroll Werner')

SELECT CarDealerShipName FROM [CarDealer ]
WHERE CarDealershipID = (SELECT CarDealershipID FROM Cars
WHERE Brand = 'ford' AND Year = @CYearBirthdate AND Color =
@CColorPref )
```