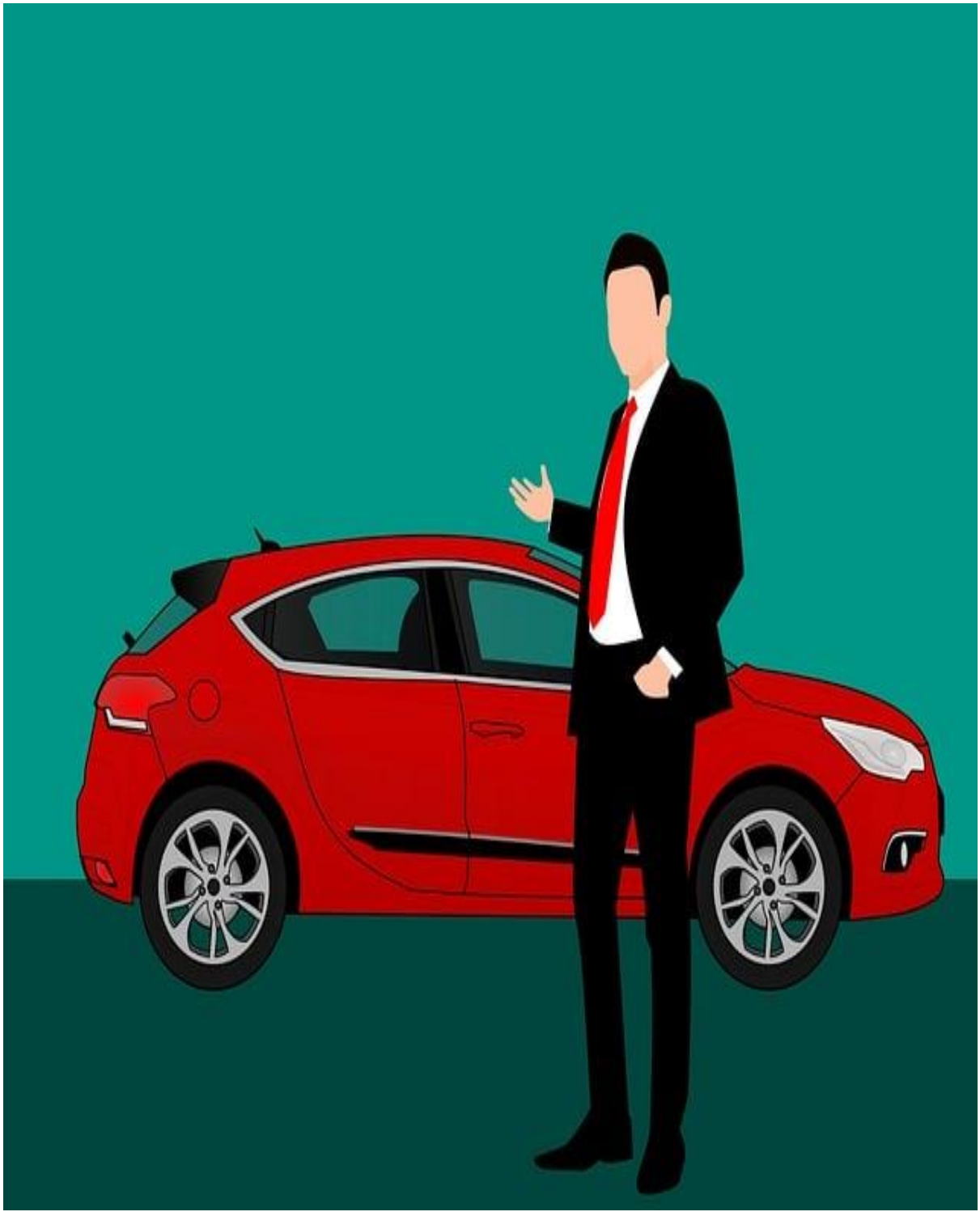
Challenge 1 - Steve's Car Showroom



INTRODUCTION

Steve runs a top-end car showroom but his data analyst has just quit and left him without his crucial insights.

Can you analyse the following data to provide him with all the answers he requires?

TABLES

sales

sale_id	car_id	salesman_id	purchase_date
1	1	1	2021-01-01
2	3	3	2021-02-03
3	2	2	2021-02-10
4	5	4	2021-03-01
5	8	1	2021-04-02
6	2	1	2021-05-05
7	4	2	2021-06-07
8	5	3	2021-07-09
9	2	4	2022-01-01
10	1	3	2022-02-03
11	8	2	2022-02-1-
12	7	2	2022-03-01
13	5	3	2022-04-02
14	3	1	2022-05-05
15	5	4	2022-06-07
16	1	2	2022-07-09
17	2	3	2023-01-01
18	6	3	2023-02-03
19	7	1	2023-02-10
20	4	4	2023-03-01

cars

car_id	make	type	style	cost_$
1	Honda	Civic	Sedan	30000
2	Toyota	Corolla	Hatchback	25000
3	Ford	Explorer	SUV	40000
4	Chevrolet	Camaro	Coupe	36000
5	BMW	X5	SUV	55000
6	Audi	A4	Sedan	48000
7	Mercedes	C-Class	Coupe	60000
8	Nissan	Altima	Sedan	26000

salespersons

salesman_id	name	age	city
1	John Smith	28	New York
2	Emily Wong	35	San Fran
3	Tom Lee	42	Seattle
4	Lucy Chen	31	LA

QUESTIONS

1. What are the details of all cars purchased in the year 2022?
2. What is the total number of cars sold by each salesperson?
3. What is the total revenue generated by each salesperson?
4. What are the details of the cars sold by each salesperson?
5. What is the total revenue generated by each car type?
6. What are the details of the cars sold in the year 2021 by salesperson 'Emily Wong'?
7. What is the total revenue generated by the sales of hatchback cars?
8. What is the total revenue generated by the sales of SUV cars in the year 2022?
9. What is the name and city of the salesperson who sold the most number of cars in the year 2023?
10. What is the name and age of the salesperson who generated the highest revenue in the year 2022?

CASE STUDY SOLUTIONS

```sql
 // 1. What are the details of all cars purchased in the year 2022?

SELECT s.car_id,
       c.make,
       c.type,
       c.style,
       c.cost_$
FROM sales s
JOIN cars c
ON s.car_id=c.car_id
WHERE YEAR(s.purchase_date) = 2022;

// 2. What is the total number of cars sold by each salesperson?

SELECT sp.name,
       COUNT(s.sale_id) AS total_cars_sold
FROM sales s
JOIN salespersons sp
ON s.salesman_id = sp.salesman_id
GROUP BY sp.name;

// 3. What is the total revenue generated by each salesperson?

SELECT sp.name,
       SUM(c.cost_$) AS total_revenue
FROM sales s
JOIN cars c
ON s.car_id=c.car_id
JOIN salespersons sp
ON s.salesman_id = sp.salesman_id
GROUP BY sp.name
ORDER BY total_revenue;

// 4. What are the details of the cars sold by each salesperson?

SELECT sp.name,
       s.car_id,
       c.make,
       c.type,
       c.style,
       c.cost_$
FROM sales s
JOIN cars c
ON s.car_id=c.car_id
JOIN salespersons sp
ON s.salesman_id = sp.salesman_id;
```

```sql
// 5. What is the total revenue generated by each car type?

SELECT c.type,
       SUM(c.cost_$) AS revenue
FROM cars c
JOIN sales s
ON c.car_id = s.car_id
GROUP BY c.type
ORDER BY revenue;

// 6. What are the details of the cars sold in the year 2021 by salesperson 'Emily Wong'?

SELECT c.make,
       c.type,
       c.style,
       c.cost_$
FROM sales s
JOIN cars c
ON s.car_id=c.car_id
JOIN salespersons sp
ON s.salesman_id = sp.salesman_id
WHERE YEAR(s.purchase_date) = 2021 AND sp.name = 'Emily Wong';

// 7. What is the total revenue generated by the sales of hatchback cars?

SELECT SUM(c.cost_$) AS total_revenue
FROM cars c
JOIN sales s
ON c.car_id = s.car_id
WHERE c.style = 'hatchback';

// 8. What is the total revenue generated by the sales of SUV cars in the year 2022?

SELECT SUM(c.cost_$) AS total_revenue
FROM cars c
JOIN sales s
ON c.car_id = s.car_id
WHERE c.style = 'SUV' AND year(s.purchase_date) = 2022;

// 9. What is the name and city of the salesperson who sold the most number of cars in the year 2023?

SELECT sp.name ,
       sp.city ,
       COUNT(s.sale_id) AS total_cars_sold
FROM salespersons sp
JOIN sales s
ON sp.salesman_id = s.salesman_id
WHERE year(s.purchase_date) = 2023
GROUP BY name , city
ORDER BY total_cars_sold DESC
LIMIT 1 ;

// 10. What is the name and age of the salesperson who generated the highest revenue in the year 2022?

SELECT sp.name ,
       sp.city ,
       SUM(c.cost_$) AS total_revenue
FROM salespersons sp
JOIN sales s
ON sp.salesman_id = s.salesman_id
JOIN cars c
ON s.car_id = c.car_id
WHERE year(s.purchase_date) = 2022
GROUP BY name , city
ORDER BY total_revenue DESC
LIMIT 1;
```