Analyzing Operational Challenges at Tesla Motors

1. SALES PERFORMANCE ANALYSIS

1. WHICH VEHICLE MODEL HAS THE HIGHEST SALES VOLUME?

INPUT

```
select top 1  v.vehicleid , v.model ,
sum(o.totalamount) as highest_sales_volume

from orders o

join vehicles v on o.vehicleid = v.vehicleid

group by v.vehicleid , v.model

order by highest_sales_volume desc
```

OUTPUT

	vehicleid	model	highest_sales_volume
1	10	Roadster	200000.00

1. SALES PERFORMANCE ANALYSIS

2. ARE THERE ANY SEASONAL TRENDS IN VEHICLE SALES?

INPUT

```
SELECT

v.Model,YEAR(o.OrderDate) AS SaleYear, MONTH(o.OrderDate) AS
SaleMonth, SUM(o.TotalAmount) AS TotalSales

FROM Orders o

JOIN Vehicles v ON o.VehicleID = v.VehicleID

GROUP BY

YEAR(o.OrderDate), MONTH(o.OrderDate), v.Model

ORDER BY  SaleYear, SaleMonth, TotalSales DESC;
```

OUTPUT

	Model	SaleYear	SaleMonth	TotalSales
1	Roadster	2024	11	200000.00
2	Model X Plaid	2024	11	119999.99
3	Model S Plaid	2024	11	119999.99
4	Model X Long Range	2024	11	99999.99
5	Model X Refresh	2024	11	94999.99
6	Model S Long Range	2024	11	89999.99

2 . CUSTOMER FEEDBACK INSIGHTS

1. WHAT IS THE AVERAGE RATING FOR EACH VEHICLE MODEL?

INPUT

```
select model , avg(rating) as average_rating
from vehicles v
join CustomerFeedback cf on v.vehicleid = cf.vehicleid
group by model
```

OUTPUT

	model	average_rating
1	Cybertruck	2
2	Model 3	4
3	Model 3 Performance	4
4	Model S	5
5	Model S Long Range	3
6	Model S Plaid	5

2 . CUSTOMER FEEDBACK INSIGHTS

2 . ARE THERE ANY COMMON THEMES IN CUSTOMER COMMENTS?

INPUT

select comments

from CustomerFeedback

OUTPUT

	comments
1	Absolutely love my Model S!
2	Great car but could use more features.
3	The performance is amazing!
4	Good but not as expected.
5	Best car I have ever owned!
6	Very comfortable and spacious.

2 . CUSTOMER FEEDBACK INSIGHTS

3 . HOW MANY CUSTOMERS HAVE PROVIDED FEEDBACK ON THEIR VEHICLES?

INPUT

```
select count(*) as number_of_customers

from CustomerFeedback
```

OUTPUT

	number_of_customers
1	15

3 . INVENTORY MANAGEMENT

1 . WHAT IS THE CURRENT INVENTORY LEVEL FOR EACH VEHICLE MODEL?

INPUT

```
select v.model , i.quantityavailable

from vehicles v

join inventory i on v.vehicleid = i.vehicleid
```

OUTPUT

	model	quantityavailable
1	Model S	10
2	Model 3	5
3	Model X	7
4	Model Y	12
5	Model S Plaid	20
6	Model 3 Performance	15

3 . INVENTORY MANAGEMENT

2 . HOW DOES INVENTORY CORRELATE WITH SALES DATA OVER THE PAST YEAR?

INPUT

```
SELECT  v.Model,  SUM(o.TotalAmount) AS
TotalSales,i.QuantityAvailable

FROM  Orders o

JOIN  Vehicles v ON o.VehicleID = v.VehicleID

JOIN  Inventory i ON v.VehicleID = i.VehicleID

WHERE  o.OrderDate >= DATEADD(YEAR, -1, GETDATE())  --
Sales in the last year

GROUP BY  v.Model,  i.QuantityAvailable;
```

OUTPUT

	Model	TotalSales	QuantityAvailable
1	Model 3	39999.99	5
2	Model X	89999.99	7
3	Model S	79999.99	10
4	Model Y	49999.99	12
5	Model Y Long Range	54999.99	14
6	Model 3 Performance	59999.99	15

4. SERVICE RECORD ANALYSIS

1. WHAT ARE THE MOST COMMON TYPES OF SERVICE REQUESTS?

INPUT

```
select description , count(serviceid) as no_of_requests

from ServiceRecords

group by description

order by no_of_requests  desc
```

OUTPUT

	description	no_of_requests
1	General maintenance.	3
2	Software update.	3
3	Battery replacement.	2
4	Brake inspection.	2
5	Tire rotation.	2

4. SERVICE RECORD ANALYSIS

2 . WHICH VEHICLE MODELS HAVE THE HIGHEST SERVICE COSTS?

INPUT

```
select vehicleid , sum(cost) as service_cost

from ServiceRecords

group by vehicleid
```

OUTPUT

	vehicleid	service_cost
1	1	5000.00
2	2	200.00
3	3	150.00
4	4	300.00
5	5	400.00

4. SERVICE RECORD ANALYSIS

3 . IS THERE A CORRELATION BETWEEN SERVICE FREQUENCY AND CUSTOMER SATISFACTION RATINGS?

INPUT

```
select v.vehicleid , count(sr.serviceid) as service_frequency ,
        avg(cf.rating) as average_rating
from vehicles v
left join ServiceRecords sr ON v.VehicleID = sr.VehicleID
left join CustomerFeedback cf ON v.VehicleID = cf.VehicleID
group by v.vehicleid
```

OUTPUT

	vehicleid	service_frequency	average_rating
1	1	1	5
2	2	1	4
3	3	1	5
4	4	1	3
5	5	1	5
6	6	1	4
7	7	1	5
8	8	1	5