

Component 2 – SQL Query Documentation

Used Car Market Analysis

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Component: Data Extraction & Preparation

Query 1

```
SELECT *  
FROM used_cars  
limit 10;
```

Query 2

```
DESCRIBE used_cars;
```

Query 3

```
SELECT  
COUNT(*) AS total_rows,  
COUNT(Manufacturer) AS manufacturer_count,  
COUNT(Model) AS model_count,  
COUNT(`Price(INR)`) AS price_count  
FROM used_cars;
```

Query 4

```
SELECT `India Locations`, COUNT(*) AS total_cars  
FROM used_cars  
GROUP BY `India Locations`  
ORDER BY total_cars DESC;
```

Query 5

```
SELECT  
`India Locations`,  
ROUND(AVG(`Price(INR)`),0) AS avg_price  
FROM used_cars  
GROUP BY `India Locations`  
ORDER BY avg_price DESC;
```

Query 6

```
SELECT
    `India Locations`,
    COUNT(*) AS total_cars,
    ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY `India Locations`
HAVING total_cars > 1000
ORDER BY total_cars DESC;
```

Query 7

```
SELECT
    Manufacturer,
    COUNT(*) AS total_cars,
    ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY Manufacturer
ORDER BY total_cars DESC;
```

Query 8

```
SELECT
    `Fuel Type`,
    COUNT(*) AS total_cars,
    ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY `Fuel Type`
ORDER BY total_cars DESC;
```

Query 9

```
SELECT
    Model AS year,
    COUNT(*) AS total_cars,
    ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY Model
ORDER BY year DESC;
```

Query 10

```
SELECT
CASE
    WHEN `Distance Travelled` < 20000 THEN '0-20k'
    WHEN `Distance Travelled` BETWEEN 20000 AND 50000 THEN '20k-50k'
    WHEN `Distance Travelled` BETWEEN 50001 AND 100000 THEN '50k-100k'
    ELSE '100k+'
END AS mileage_range,
COUNT(*) AS total_cars,
ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY mileage_range
ORDER BY avg_price DESC;
```

Query 11

```
SELECT
    Transmission,
    COUNT(*) AS total_cars,
    ROUND(AVG(`Price(INR)`),0) AS avg_price
FROM used_cars
GROUP BY Transmission
ORDER BY total_cars DESC;
```

Query Explanation

Query 1: Data Preview

Explanation:

Retrieves a small sample of records to understand the dataset structure and observe sample values.

Query 2: Table Structure Inspection

Explanation:

Examines column names, data types, and constraints to verify the schema and ensure proper data formatting.

Query 3: Data Completeness Check

Explanation:

Validates the dataset by confirming that key columns do not contain missing or null values.

Query 4: City-wise Car Listings Distribution

Explanation:

Identifies the number of used car listings available in each city to understand geographic concentration.

Query 5: City-wise Average Price Analysis

Explanation:

Calculates the average price of used cars across different cities to detect pricing variations.

Query 6: High-Volume Market Analysis (Cities with >1000 Listings)

Explanation:

Focuses on major cities with significant listing volumes to analyze stable and meaningful pricing trends.

Query 7: Manufacturer Market Share Analysis

Explanation:

Evaluates brand-wise listing counts and pricing levels to identify dominant manufacturers in the market.

Query 8: Fuel Type Market Segmentation

Explanation:

Analyzes demand and pricing differences across fuel categories such as petrol, diesel, hybrid, and electric.

Query 9: Year-wise Market Trend Analysis

Explanation:

Examines listing volumes and pricing trends across different manufacturing years to understand depreciation patterns.

Query 10: Mileage-Based Price Segmentation

Explanation:

Segments vehicles by distance travelled to evaluate how mileage impacts resale pricing.

Query 11: Transmission Preference Analysis

Explanation:

Compares listing volumes and average prices between manual and automatic transmission vehicles to assess consumer preference trends.