BDS – Assignment_01

Group No: 54

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Questions, MongoDB Shell Queries & Answers:

1. Number of vehicles which are Jeeps

Query: db.vehicles.countDocuments({ make: "Jeep" });

- **Introduction:** The first query we will run calculates the total number of vehicles in our dataset that are manufactured by Jeep.
- **Purpose:** This query helps us understand the inventory size for Jeep vehicles, which can be useful for market analysis and inventory management.
- **Answer:** The result shows that there are 194 Jeep vehicles in our dataset. This indicates that Jeep is a significant part of our inventory, and understanding their popularity and sales trends can help in optimizing our inventory and marketing strategies.

2. Number of vehicles which are SUVs

Query: db.vehicles.countDocuments({ body: "SUV" });

- **Introduction:** Next, we will query the dataset to find out how many of the vehicles are SUVs.
- **Purpose:** Determining the number of SUVs in our inventory helps us gauge the popularity and market demand for this type of vehicle.
- **Answer:** The dataset contains 704 SUVs, indicating that SUVs form a large portion of our inventory. This suggests that SUVs are either highly demanded or a strategic focus for our company, and we can further analyze their sales patterns to enhance our marketing efforts.

3. Number of vehicles which have less than four doors

Query: db.vehicles.countDocuments({ doors: { $lt: 4 } });

- **Introduction:** Now, let's find out how many vehicles in our dataset have less than four doors.
- **Purpose:** This query allows us to identify vehicles that typically include coupes and sports cars, providing insights into the variety of vehicle types in our inventory.
- **Answer:** There are 47 vehicles with less than four doors in the dataset. These vehicles typically include coupes and sports cars. Understanding the demand for these types of vehicles can help us in niche marketing and inventory management.

4. Number of vehicles which have mileage less than 20,000

Query: db.vehicles.countDocuments({ mileage: { $lt: 20000 } });

- **Introduction:** We will now query the dataset to find the number of vehicles that have less than 20,000 miles on them.
- **Purpose:** This information is crucial for identifying nearly new vehicles, which can be marketed as low-mileage options to potential buyers.
- **Answer:** The dataset includes 968 vehicles with mileage less than 20,000. This indicates a predominance of nearly new vehicles in our inventory, which can appeal to customers looking for newer vehicles at a lower price point than brand-new ones.

5. Retrieve the details of make and mileage of the first vehicle

Query: db.vehicles.findOne({}, { make: 1, mileage: 1, _id: 0 });

- **Introduction:** Next, let's retrieve the make and mileage details of the first vehicle in our dataset.
- **Purpose:** This query helps us quickly access basic information about the first entry in our dataset, which can be useful for a quick review or spot check.
- **Answer:** The first vehicle in our dataset is a Jeep with 10 miles on it, indicating it's a new vehicle. Such details help in understanding the range of inventory, from brand new to slightly used vehicles, and can be useful for a quick review or spot check.

6. Number of vehicles bought in the year 2023

Query: db.vehicles.countDocuments({ year: 2023 });

- **Introduction:** Now, we will find out how many vehicles in our dataset were manufactured in the year 2023.
- **Purpose:** Understanding the number of recent models in our inventory can help in planning sales strategies for the latest models.
- **Answer:** There are 90 vehicles from the year 2023 in the dataset. This shows a relatively recent addition to our inventory, which helps in tracking recent acquisitions and planning future purchases based on sales trends.

7. Maximum number of doors that a car can have

Query: db.vehicles.find().sort({ doors: -1 }).limit(1).pretty();

- **Introduction:** Let's determine the maximum number of doors any vehicle in our dataset has.
- **Purpose:** This query helps identify the range of vehicle types, from two-door coupes to larger vehicles like SUVs and vans with more doors.
- **Answer:** The maximum number of doors in a vehicle is 5, typically seen in larger vehicles like SUVs or minivans. This information is useful for inventory categorization and understanding the variety of vehicle types we offer.

8. Average price of SUV cars

Query: db.vehicles.aggregate([

{ $match: { body: "SUV" } },

{ $group: { _id: null, averagePrice: { $avg: "$price" } } }

]);

- **Introduction:** Next, we will calculate the average price of all SUVs in our dataset.
- **Purpose:** Knowing the average price of SUVs helps in setting competitive prices and understanding the market value of these vehicles.
- **Answer:** The average price of SUVs in our dataset is $47,857.93. This pricing information is crucial for setting competitive prices and understanding the market segment we cater to, which can help in making informed pricing and marketing decisions.

9. Number of vehicles with price greater than $40,000 and less than $70,000

Query: db.vehicles.countDocuments({ price: { $gt: 40000, $lt: 70000 } });

- **Introduction:** Now, let's find out how many vehicles are priced between $40,000 and $70,000.
- **Purpose:** This query helps identify the mid-to-high price range vehicles in our inventory, which can be targeted for specific marketing strategies.
- **Answer:** There are 535 vehicles priced between $40,000 and $70,000 in our dataset. This indicates a substantial inventory in the mid-to-high price range, which can be targeted for specific marketing strategies and promotions to attract customers looking for premium vehicles.

10. Number of vehicles with fuel type hybrid

Query: db.vehicles.countDocuments({ fuel: /hybrid/i });

- **Introduction:** We will now determine the number of vehicles in our dataset that are hybrids.
- **Purpose:** This query provides insights into the inventory of environmentally friendly vehicles, which are becoming increasingly popular among consumers.
- **Answer:** The dataset includes 153 hybrid vehicles. This shows our inventory's responsiveness to the increasing demand for environmentally friendly vehicles, and can guide our future inventory and marketing strategies to attract eco-conscious consumers.

11. Number of fuel types

Query: db.vehicles.distinct("fuel").length;

- **Introduction:** Next, let's find out how many distinct fuel types are present in our dataset.
- **Purpose:** Understanding the diversity of fuel types in our inventory helps cater to different consumer preferences and can inform future inventory decisions.
- **Answer:** There are 7 distinct fuel types in our dataset, showcasing a diverse range of vehicles. This diversity can appeal to a broader customer base with varying preferences and needs, helping us cater to different market segments effectively.

12. Details of Jeeps with black exterior and Global black interior color

Query:

```
db.vehicles.find({
make: "Jeep",
exterior_color: /black/i,
interior_color: /Global black/i
}, {
make: 1,
model: 1,
type: 1,
year: 1,
price: 1,
mileage: 1,
_id: 0
}).pretty();
```

- **Introduction:** Finally, we will retrieve the details of Jeep vehicles that have a black exterior and Global black interior.
- **Purpose:** This query helps us identify specific vehicle configurations that may be in high demand, allowing for targeted marketing and inventory management.
- **Answer:** This query finds specific Jeep vehicles with a black exterior and Global black interior. By identifying these vehicles, we can target marketing efforts towards customers looking for this specific colour combination, which can enhance customer satisfaction and potentially increase sales.