

➤ **Total Number of Nodes by Type:**

```
1 MATCH (v:Vehicle) RETURN COUNT(v) AS TotalVehicles
2
```

TotalVehicles	
1	33442

```
1 MATCH (s:Seller) RETURN COUNT(s) AS TotalSellers
2
```

TotalSellers	
1	4877

```
neo4j$ MATCH (st:State) RETURN COUNT(st) AS TotalStates
```

TotalStates	
1	36

➤ **Number of Isolated Nodes by Type:**

```
1 MATCH (v:Vehicle)
2 WHERE NOT (v)--()
3 RETURN COUNT(v) AS IsolatedVehicles
```

Table	IsolatedVehicles	
	1	0
Text		

```
1 MATCH (s:Seller)
2 WHERE NOT (s)--()
3 RETURN COUNT(s) AS IsolatedSellers
```

Table	IsolatedSellers	
	1	0
Text		

```
1 MATCH (st:State)
2 WHERE NOT (st)--()
3 RETURN COUNT(st) AS IsolatedStates
```

Table	Isolated States	
	1	0
Text		

➤ **Number of Total Relationships by Type:**

```
1 MATCH ()-[r:SOLD_BY]→()  
2 RETURN COUNT(r) AS TotalSoldByRelationships
```

Table	TotalSoldByRelationships
1	33442

```
1 MATCH ()-[r:SELLS]→()  
2 RETURN COUNT(r) AS TotalSellsRelationships
```

Table	TotalSellsRelationships
1	33442

```
1 MATCH ()-[r:OPERATES_IN]→()  
2 RETURN COUNT(r) AS TotalOperatesInRelationships
```

Table	TotalOperatesInRelationships
1	6033

```
1 MATCH ()-[r:HAS_SELLER]→()  
2 RETURN COUNT(r) AS TotalHasSellerRelationships
```

Table	TotalHasSellerRelationships
1	6033

```
1 MATCH ()-[r:SOLD_IN]→()  
2 RETURN COUNT(r) AS TotalSoldInRelationships
```

Table	TotalSoldInRelationships
1	33442

```
1 MATCH ()-[r:SELLS_IN]→()  
2 RETURN COUNT(r) AS TotalSellsInRelationships
```

Table	TotalSellsInRelationships
1	33442

➤ **Number of Vehicles Sold by Each Seller:**

```
1 MATCH (s:Seller)-[:SELLS]->(v:Vehicle)
2 RETURN s.name AS SellerName, COUNT(v) AS VehiclesSold
3 ORDER BY VehiclesSold DESC
4 Limit 25
```

	SellerName	Vehicles Sold
1	"ford motor credit company llc"	719
2	"santander consumer"	639
3	"nissan infiniti ll"	587
4	"wells fargo dealer services"	528
5	"jpmorgan chase bank n.a."	506
6	"financial services remarketing (lease)"	464
7	"avis corporation"	463
Started streaming 25 records after 17 ms and completed after 49 ms.		
8	"nissan-infiniti ll"	375
9	"enterprise veh exchange/rental"	362
10	"ge fleet services for itself/servicer"	314
11	"the hertz corporation"	278
12	"ahfc/honda lease trust/hvt inc."	275
13	"enterprise vehicle exchange / tra / rental / tulsa"	254
14	"avis budget group"	244

15	"dt credit corporation"	219
16	"toyota financial services"	213
17	"hyundai motor finance"	209
18	"nissan north america inc."	206
19	"kia motors america inc"	198
20	"tdaf remarketing"	195
21	"ford motor credit company llc pd"	194
22	"high bid trading co inc"	177
23	"mercedes-benz financial services"	162
24	"chrysler capital"	162
25	"aaero sweet company"	154

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➤ Number of Sellers Operating in Each State:

```

1 MATCH (st:State)←[:OPERATES_IN]-(s:Seller)
2 RETURN st.name AS StateName, COUNT(s) AS NumberOfSellers
3 ORDER BY NumberOfSellers DESC

```

	StateName	NumberOfSellers
1	"ca"	945
2	"fl"	611
3	"pa"	433
4	"tx"	422
5	"il"	305
6	"ga"	280
7	"nj"	253
8		

Started streaming 36 records after 1 ms and completed after 6 ms.

8	"va"	238
9	"nv"	229
10	"mn"	225
11	"nc"	205
12	"ny"	202
13	"az"	198
14	"mi"	153
15		



15	"wi"	132
16	"mo"	124
17	"wa"	121
18	"sc"	108
19	"ne"	96
20	"oh"	93
21	"tn"	88

22	"ma"	85
23	"on"	85
24	"in"	81
25	"co"	81
26	"la"	64
27	"ut"	50
28	"pr"	38

29	"md"	25
30	"ab"	19
31	"hi"	17
32	"or"	14
33	"ok"	8
34	"qc"	2
35	"ms"	2
36	"nm"	1

➤ **Average Selling Price of Vehicles:**

```
1 MATCH (v:Vehicle)
2 RETURN AVG(v.selling_price) AS AverageSellingPrice
```

 Table	AverageSellingPrice
 Text	1 10764.667593672511

➤ **Vehicles with Selling Price Above and Below the MMR:**

```
1 MATCH (v:Vehicle)
2 WHERE v.selling_price > v.mmr
3 RETURN COUNT(v) AS AboveMMR
```

Table	AboveMMR
A Text	1 13988

```
1 MATCH (v:Vehicle)
2 WHERE v.selling_price < v.mmr
3 RETURN COUNT(v) AS BelowMMR
```

Table	BelowMMR
A Text	1 18938

➤ **Most Common Vehicle Makes:**

```

1 MATCH (v:Vehicle)
2 RETURN v.make AS Make, COUNT(v) AS Count
3 ORDER BY Count DESC
4 LIMIT 10

```

	Make	Count
1	"Ford"	5247
2	"Chevrolet"	3390
3	"Nissan"	2266
4	"Toyota"	2216
5	"Honda"	1848
6	"Dodge"	1807
7	"BMW"	1529
Started streaming 10 records after 1 ms and completed after 39 ms.		
8	"Hyundai"	1241
9	"Mercedes-Benz"	1081
10	"Chrysler"	1018

➤ Distribution of Vehicle Conditions:

```
1 MATCH (v:Vehicle)
2 RETURN v.condition AS Condition, COUNT(v) AS Count
3 ORDER BY Condition
```



Table



Text



Code

Condition	Count
1	520
2	1379
3	596
4	648
5	459
11	4
12	7
13	1
14	14
15	8
16	6
17	15



Table



Text



Code

18	22
19	2325
21	470
22	290
23	421
24	465
25	666
26	605
27	780
28	900
29	863
31	400

32	368
33	437
34	656
35	1052
36	909
37	964
38	749
39	763
41	854
42	818
43	869
44	879
45	463

46	461
47	408
48	470
49	447
null	10011

➤ **Vehicle Distribution by Year:**

```
1 MATCH (v:Vehicle)
2 RETURN v.year AS Year, COUNT(v) AS Count
3 ORDER BY Year
```



Table



Text



Code

Year	Count
1986	1
1987	1
1989	4
1990	7
1991	9
1992	23
1993	26
1994	48
1995	94
1996	133
1997	190
1998	290

1999	453
2000	694
2001	833
2002	1278
2003	1537
2004	1873
2005	2134
2006	2584
2007	2649
2008	2503
2009	1559
2010	1755
2011	3586

2012	1667
2013	3693
2014	3645
2015	173

➤ **Price Range Analysis:**

```

1 // Define price ranges and count vehicles in each range
2 MATCH (v:Vehicle)
3 WITH v, v.selling_price AS price
4 RETURN
5   count(CASE WHEN price ≤ 10000 THEN v END) AS Under_10000,
6   count(CASE WHEN price > 10000 AND price ≤ 20000 THEN v END) AS From_10001_To_20000,
7   count(CASE WHEN price > 20000 AND price ≤ 30000 THEN v END) AS From_20001_To_30000,
8   count(CASE WHEN price > 30000 THEN v END) AS Above_30000

```

	Under_10000	From_10001_To_20000	From_20001_To_30000	Above_30000
1	18893	9881	3353	1314

➤ Average Selling Price

```

1 MATCH (v:Vehicle)
2 RETURN MIN(v.selling_price) AS MinPrice, MAX(v.selling_price) AS MaxPrice, AVG(v.selling_price) AS AvgPrice

```

	MinPrice	MaxPrice	AvgPrice
1	1	154000	10764.667593672511

➤ Frequency of Vehicle Colors:

```
1 MATCH (v:Vehicle)
2 RETURN v.color AS Color, COUNT(v) AS Count
3 ORDER BY Count DESC
4 LIMIT 10
```

Table

Text

Code

Color	Count
"black"	6491
"white"	5942
"silver"	5153
"gray"	4889
"blue"	3430
"red"	2577
"green"	1001
"gold"	897
"_"	826
"beige"	712

➤ **Seller Performance Over Time:**

```

1 MATCH (s:Seller)-[:SELLS]→(v:Vehicle)
2 RETURN s.name AS SellerName, v.sale_date.year AS Year, COUNT(v) AS VehiclesSold
3 ORDER BY SellerName, Year

```

	Table	Text	Code		SellerName	Year	VehiclesSold	
1					"1 cochran of monroeville"	1900	3	
2					"1995 first avenue station"	1900	2	
3					"1st capital finance"	1900	1	
4					"1st choice automotive corp"	1900	1	
5					"1st commercial"	1900	6	
6					"1st liberty fcu"	1900	1	
7					"1st national bank of scotia"	1900	2	
8								
9								
10								

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Started streaming 4878 records in less than 1 ms and completed after 126 ms, displaying first 1000 rows.

➤ Geographical Distribution of Sales:

```
1 MATCH (v:Vehicle)-[:SOLD_IN]→(st:State)
2 RETURN st.name AS StateName, COUNT(v) AS VehiclesSold
3 ORDER BY VehiclesSold DESC
```



Table



Text



Code

StateName	VehiclesSold
	d
"ca"	8485
"fl"	3316
"tx"	2262
"pa"	2237
"il"	1854
"ga"	1377
"va"	1362
"mi"	1312
"nc"	1071
"az"	1021
"ny"	1014

"nj"	972	
"mn"	910	
"nv"	885	
"oh"	568	
"tn"	553	
"mo"	516	
"ne"	488	
"wi"	428	
"wa"	381	
"sc"	365	
"la"	354	
"in"	303	
"co"	274	

"pr"	271
"ma"	266
"on"	209
"ut"	121
"md"	103
"ab"	68
"or"	32
"hi"	28
"ok"	21
"qc"	12
"ms"	2
"nm"	1

➤ Relationship Density:

```

1 MATCH (n)
2 WITH COUNT(n) AS totalNodes
3 MATCH ()-[r]→()
4 WITH COUNT(r) AS totalRelationships, totalNodes
5 RETURN totalRelationships, totalNodes, toFloat(totalRelationships) / totalNodes AS
   avgRelationshipsPerNode

```

	totalRelationships	totalNodes	avgRelationshipsPerNode
1	145834	38355	3.802216138704211