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# Cars Market Analysis

In Egypt



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DATA ANALYSIS TRACK - DEPI

## 1. BUSINESS UNDERSTANDING



## BEFORE WE BEGIN...

### OBJECTIVES

- Identifying factors that affect the demand for used cars.
- Analyzing pricing trends for different car makes, models, and years.
- Impact of used car prices on the overall automotive industry and economy

### TARGET AUDIENCE

- Car dealerships and resellers.
- Buyers looking for used cars.
- Financial institutions offering auto loans.
- Insurance companies evaluating used car values



## 2. GENERATING QUESTIONS



### 6 MAIN QUESTIONS TO ANSWER

#### 1. Price Analysis

- What factors affect the price?
- How is the price range varying over different locations.

#### 2. Car Kilometers

- How does no. of kilometers changes over brands.
- What is the avg kilometers for each city.

#### 3. Brands and models

- The most popular brands for cities.
- The price range for each brand

#### 4. Car Body Type

- The most preferred color for each body type.
- Avg price for each type.

#### 5. Transmission & Fuel Type

- How transmission type affect price.
- How common are fuel type for each car model

#### 6. Engine Size

- How does engine size vary over car types?
- What is the avg engine size for each manufacture year

### 3. GATHERING & UNDERSTANDING DATA

The used dataset is a combination of 2 datasets, one is scraped from hatla2ee website, and the other is uploaded on Kaggle website.

Brand	Model	Body	Color	Year
BMW	X6 M	SUV	White	2024
BMW	520	Sedan	Black	2023
Chery	Tiggo 3	hatchback	Brown	2023
Chevrolet	N300	Sedan	Black	2023
Chevrolet	Optra	Sedan	Dark blue	2023
Hyundai	Accent RB	Sedan	Silver	2024
Hyundai	Elantra HD	Sedan	Dark grey	2023
Hyundai	Tucson	SUV	Green	2023
Hyundai	IX 35	Hatchback	Petroleum	2023
Kia	Xceed	SUV	Gray	2024
Kia	Sportage	SUV	Black	2024
Kia	Cerato	Sedan	Black	2023
Mercedes	A200	hatchback	Black	2023

kaggle



Fuel	Kilometers	Engine CC	Trasmission	Price	location
gas	300,000	1600	Automatic	1,600,000 -م.ج.	Port Said
gas	25,000	1000	Manual	35,000 -م.ج.	El Haram
gas	64,000	1000	Manual	42,000 -م.ج.	6th of October
Benzine	80,000	1400	Manual	80,500 -م.ج.	Qalyubia
gas	80,000	1600	Manual	110,000 -م.ج.	Madinaty
Benzine	120,000	1324	manual	40,000 -م.ج.	Cairo
Benzine	135,000	1000	manual	17,500 -م.ج.	Helwan
Benzine	135,000	1600	manual	18,000 -م.ج.	Cairo

### UNDERSTANDING DATA COLUMNS

Column	Description	Column	Description
1. Brand	Car Brand (Hyundai, Kia,...)	7. Kilometer	The Distance traveled
2. Model	Car model (Verna, Cerato,...)	8. Engine CC	Engine Capacity (in CC)
3. Body Type	Type of body (Sedan, SUV,...)	9. Transmission	Gear type (Manual or Automatic)
4. Color	Color of the car	10. Price	The price of the vehicle in EGP
5. Year	Manufacturing year	11. Location	The location of the vehicle
6. Fuel	Fuel Type (Gasoline, diesel,...)		

## 4. CLEANING DATA



## HANDLING NULLS

- Type, fuel and engine size missing cols.
- After handling Null Values, the remaining rows is 62.7K

=TEXTJOIN(" ";TRUE;D2;E2)

D	E	F
Brand	model	car name
Hyundai	Accent RB	Hyundai Accent RB
Hyundai	Verna	Hyundai Verna
Daihatsu	Charade	Daihatsu Charade

car name	Body
Hyundai Accent RB	Sedan
Hyundai Verna	Sedan
Daihatsu Charade	Sedan
Suzuki Celerio	hatchback
Suzuki Swift	Sedan
Renault Megane	Sedan

=VLOOKUP(C13701;car\_body;2)

C	D
Chevrolet Lanos	Sedan
Hyundai Verna	Sedan
Chevrolet Lanos	Sedan
Chevrolet Lanos	Sedan

## FEATURE ENGINEERING

- Creating an “Age” column derived from manufacture year.
- Creating an “Governorate” column derived from car location.
- Creating an “Price range” column derived from car price.

## NORMALIZING DATA

- Normalizing data values like price to egp and so on...

## 5. ANALYZING DATA

### DATA OVERVIEW

62,739

- No. of listed cars

2011

- Average manufacture year

626,699 EGP

- Average price

### UPLOADING TO SSMS

SQLQuery1.sql - ZALABIA\SQLEXPRESS.Cars (ZALABIA\Zalabia (52)) - Microsoft SQL Server Management Studio

File Edit View Query Project Tools Window Help

Connect - ZALABIA\SQLEXPRESS (SQL Server 10.0) - ZALABIA\Zalabia (52) - Cars

Object Explorer

- System Databases
- System Tables
- Views
- Synonyms
- Programmability
- Service Broker
- Storage
- Security
- Server Objects
- Replication
- Management

Query: `SELECT * FROM CarsDataset`

Results

	Brand	Model	Body	Color	Year	Fuel	Kilometers	Engine_CC	Transmission	Price	Location	Age_Years	Governorate	Price_Range
1	Chevrolet	Avalanche	Hatchback	Beige	2008	gas	300000	1600	Automatic	1600000	Port Said	17	Port Said Governorate	Mid
2	Fiat	127	Hatchback	Beige	1986	gas	25000	1000	Manual	35000	El Haram	39	Giza Governorate	Eco
3	Fiat	127	Hatchback	Beige	1986	gas	64000	1000	Manual	42000	8th of October	39	Giza Governorate	Eco
4	Fiat	Punto	Hatchback	Beige	2003	Benzine	80000	1400	Manual	80500	Qalyubia	22	Qalyubia Governorate	Eco
5	Fiat	Ritmo	Hatchback	Beige	1983	gas	80000	1600	Manual	110000	Madinet	42	Cairo Governorate	Mid
6	Fiat	Ritmo	Hatchback	Beige	1983	Benzine	120000	1324	manual	40000	Cairo	42	Cairo Governorate	Eco
7	Fiat	127	Hatchback	Beige	1984	Benzine	135000	1000	manual	17500	Helwan	41	Cairo Governorate	Eco
8	Fiat	127	Hatchback	Beige	1984	Benzine	135000	1600	manual	18000	Cairo	41	Cairo Governorate	Eco
9	Fiat	126	Hatchback	Beige	1984	Benzine	135000	1000	manual	20000	El Salam City	41	Cairo Governorate	Eco
10	Fiat	127	Hatchback	Beige	1984	Benzine	135000	1000	manual	25000	Damanhur	41	Beheira Governorate	Eco
11	Fiat	127	Hatchback	Beige	1984	Benzine	135000	1000	manual	25000	Suez	41	Suez Governorate	Eco
12	Fiat	Punto	Hatchback	Beige	2000	Benzine	180000	1000	Manual	70000	Qalyubia	25	Qalyubia Governorate	Eco
13	Hyundai	i10	Hatchback	Beige	2018	Benzine	40000	1000	Manual	172500	Alexandria	7	Alexandria Governor...	Mid
14	Hyundai	i10	Hatchback	Beige	2015	Benzine	40000	1000	Manual	150000	Alexandria	10	Alexandria Governor...	Mid
15	Hyundai	Matrix	Hatchback	Beige	2009	Benzine	160000	1600	Automatic	166800	Cairo	16	Cairo Governorate	Mid
16	Hyundai	Matrix	Hatchback	Beige	2006	Benzine	160000	1400	Automatic	145000	Cairo	19	Cairo Governorate	Mid
17	Kia	Picanto	Hatchback	Beige	2008	Benzine	120000	1200	Automatic	395000	Helipolis	17	Cairo Governorate	Mid
18	Mazda	323	Hatchback	Beige	1997	Benzine	130000	1500	manual	46000	Monufia	28	Monufia Governorate	Eco
19	Mini	Cooper	Hatchback	Beige	2015	gas	36000	2000	Manual	1550000	Alexandria	10	Alexandria Governor...	Mid
20	Mini	Mini Co...	Hatchback	Beige	2013	Benzine	50000	1600	Automatic	450000	Mansoura	12	Dakahlia Governorate	Mid
21	Mini	Mini Co...	Hatchback	Beige	2012	gas	200000	2000	Automatic	560000	Damietta	13	Damietta Governorate	Mid

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (52) Cars 00:00:01 30,351 rows



# APPLYING SQL QUERIES

-- 1. What is the average price and total count of cars for each brand?

```
SELECT Brand,
       AVG(Price) AS Average_Price,
       COUNT(*) AS Total_Count
FROM CarsDataset
GROUP BY Brand
ORDER BY Average_Price DESC;
```

Brand	Average_Price	Total_Count
1. Lexus	7416666	3
2. Porsche	5622142	14
3. Maserati	3620000	2
4. Cadillac	3766666	3
5. Land Rover	3560900	50
6. Mercedes	3332470	1289
7. Bentley	3275000	2
8. Tesla	2703333	9
9. Infiniti	2551325	8
10. Zenvo	2902000	1
11. Cugra	2487000	5

-- 2. How is the price distributed (Avg, Max, Min) across each Governorate?

```
SELECT Governorate,
       AVG(Price) AS Average_Price,
       MAX(Price) AS Max_Price,
       MIN(Price) AS Min_Price
FROM CarsDataset
GROUP BY Governorate
ORDER BY Average_Price DESC;
```

Governorate	Average_Price	Max_Price	Min_Price
1. Qiza Governorate	883121	1260000	10000
2. Cairo Governorate	884567	16250000	10000
3. Behera Governorate	693017	2670000	25000
4. Port Said Governorate	557178	4000000	22000
5. Galyubia Governorate	504138	8550000	13000
6. Gharbia Governorate	492177	4850000	13000
7. Kahr el Sheikh Governorate	476667	3900000	16000
8. Alexandria Governorate	476144	8500000	11000
9. Red Sea Governorate	456829	2500000	25000
10. Damietta Governorate	453907	3200000	15000
11. Dakahlia Governorate	449829	4300000	15000

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 27 rows

-- 3. What are the top 5 most common and popular car models in the market?

```
SELECT TOP 5 Model,
       COUNT(*) AS Model_Count
FROM CarsDataset
GROUP BY Model
ORDER BY Model_Count DESC;
```

Model	Model_Count
Optra	1506
Corolla	1328
Sunny	1301
Verna	1161
Lanos	1061

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 5 rows

-- 4. What is the ranking of Body Types based on their average price?

```
SELECT Body,
       AVG(Price) AS Avg_Price
FROM CarsDataset
GROUP BY Body
ORDER BY Avg(Price) DESC;
```

Body	Avg_Price
1. Coupe	2299534
2. convertable	1816086
3. SUV	1803234
4. Sedan	521930
5. Hatchback	489508
6. Van	465553
7. Pickup	434414

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 7 rows

-- 5. What is the average number of kilometers driven for each brand?

```
SELECT Brand,
       AVG(Kilometers) AS Avg_Kilometers
FROM CarsDataset
GROUP BY Brand
ORDER BY Avg_Kilometers DESC;
```

Brand	Avg_Kilometers
1. Lotus	300000
2. Senova	283333
3. Hafei	265000
4. Smart	195333
5. Sokon	193000
6. Perodua	192000
7. Skoda	191184
8. Brilliance	183905
9. Hummer	180000
10. Haval	180000
11. Great Wall	179117

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 95 rows

-- 6. What is the percentage of each transmission type within each car brand?

```
SELECT Brand,
       Transmission,
       COUNT(*) AS Count
FROM CarsDataset
GROUP BY Brand, Transmission
ORDER BY Brand;
```

Brand	Transmission	Count
1. Alfa Romeo	manual	5
2. Alfa Romeo	Automatic	1
3. Audi	Manual	19
4. Audi	Automatic	93
5. Baic	Automatic	10
6. Bentley	Automatic	2
7. Bestune	Automatic	4
8. Bestune	Manual	1
9. BMW	Manual	150
10. BMW	Automatic	912
11. Buick	Automatic	115

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 161 rows

-- 7. number of car's model for each governorate

```
select Governorate, Model, count(*) as 'No. of cars'
from CarsDataset
Group by Governorate, Model
order by 'No. of cars' desc;
```

Governorate	Model	No. of cars
1. Cairo Governorate	Corolla	681
2. Cairo Governorate	Sunny	665
3. Cairo Governorate	Optra	396
4. Cairo Governorate	Verna	385
5. Cairo Governorate	Spotage	359
6. Alexandria Governorate	Corolla	324
7. Cairo Governorate	110	322
8. Galyubia Governorate	Optra	321
9. Cairo Governorate	X1	310
10. Cairo Governorate	Elantra	304
11. Cairo Governorate	Corolla	268

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 4,044 rows

-- 8. What is the average price for each price range?

```
select Price_Range, AVG(Price) as AVG_Price
from CarsDataset
group by Price_Range
```

Price_Range	AVG_Price
1. Mid	540835
2. Eco	58144
3. Expensive	3256555

Query executed successfully.

ZALABIA\SQLEXPRESS (10.0 SP1) ZALABIA\Zalabia (53) Cars 00:00:00 3 rows

SQLQuery1.sql - ZALABIA\Zalabia (53)

```

-- 9. How is the Transmission Distributed over price ranges
select Price_Range, Transmission, COUNT(Price_Range) as 'No. of Cars'
from CarsDataset
group by Transmission, Price_Range
order by Price_Range, 'No. of Cars' desc

```

SQLQuery1.sql - ZALABIA\Zalabia (53)

```

-- 10. How does the average Engine CC change over the years?
SELECT Year,
AVG(Engine_CC) AS Avg_Engine_CC
FROM CarsDataset
GROUP BY Year
ORDER BY Year DESC;

```

Results
Messages

Price_Range	Transmission	No. of Cars
Eco	Manual	2873
Eco	Automatic	120
Expensive	Automatic	2597
Expensive	Manual	117
Mid	Automatic	16554
Mid	Manual	8087
Mid	CVT	3

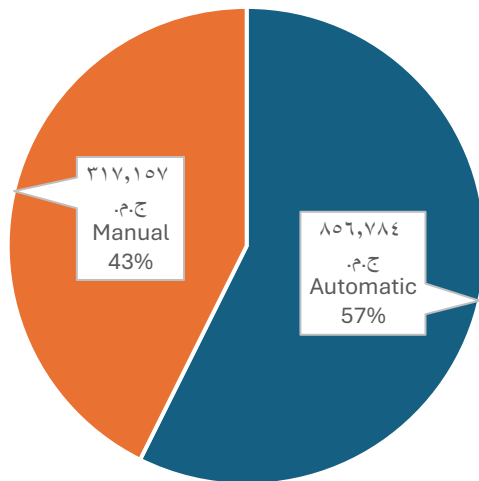
Results
Messages

Year	Avg_Engine_CC
2024	2038
2023	1891
2022	1663
2021	1591
2020	1653
2019	1597
2018	1724
2017	1574
2016	1669
2015	1542

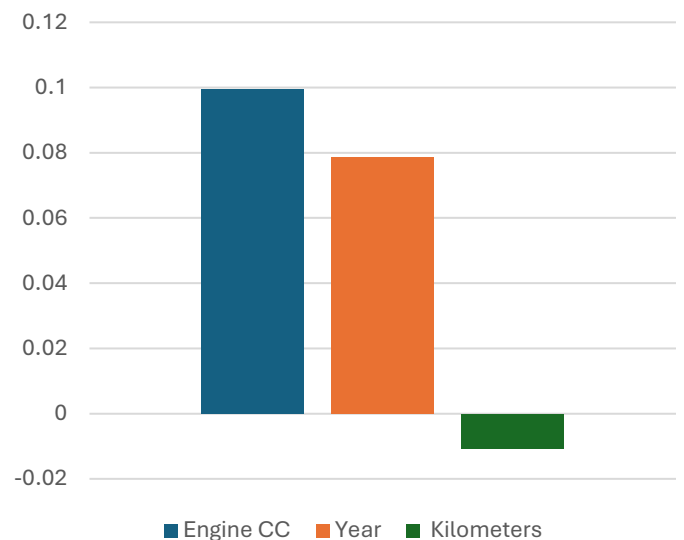
Query executed successfully.
ZALABIA\SQLEXPRESS (10.0 SP1)
ZALABIA\Zalabia (53)
Cars
00:00:00
7 rows
Query executed successfully.
ZALABIA\SQLEXPRESS (10.0 SP1)
ZALABIA\Zalabia (53)
Cars
00:00:00
56 rows

## FACTORS AFFECTING THE PRICE

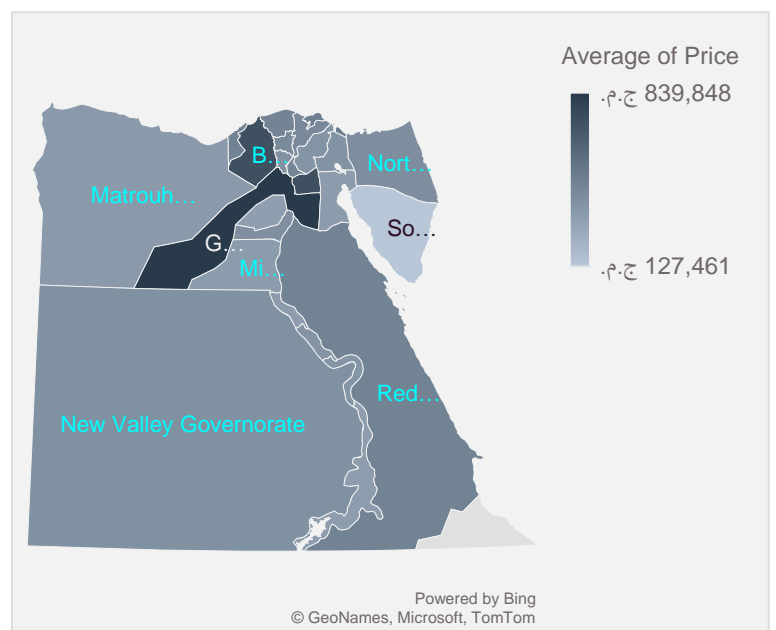
AVG price by car transmission



Other factors affect the price



## Price change over governorates



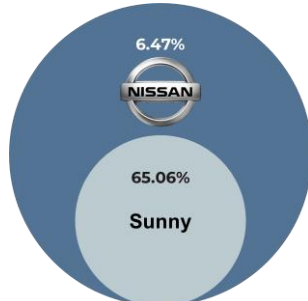


## MOST COMMON BRANDS IN THE MARKET

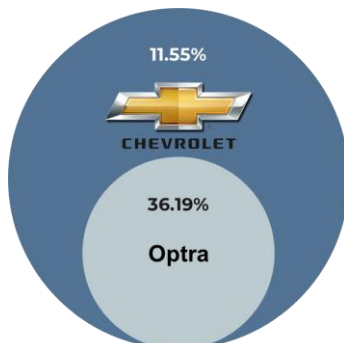
### Popularity

### Car

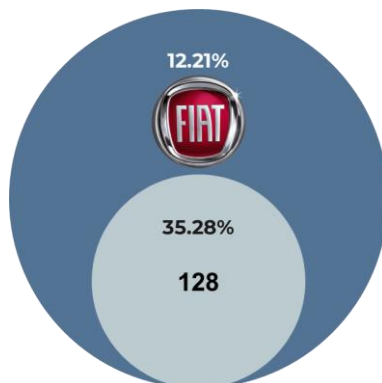
### Average Price/ Average Year



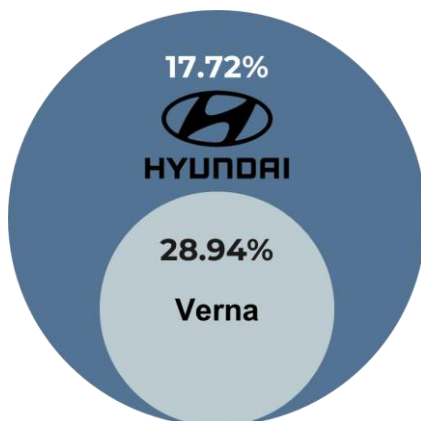
544,260 EGP  
2015



296,148 EGP  
2015

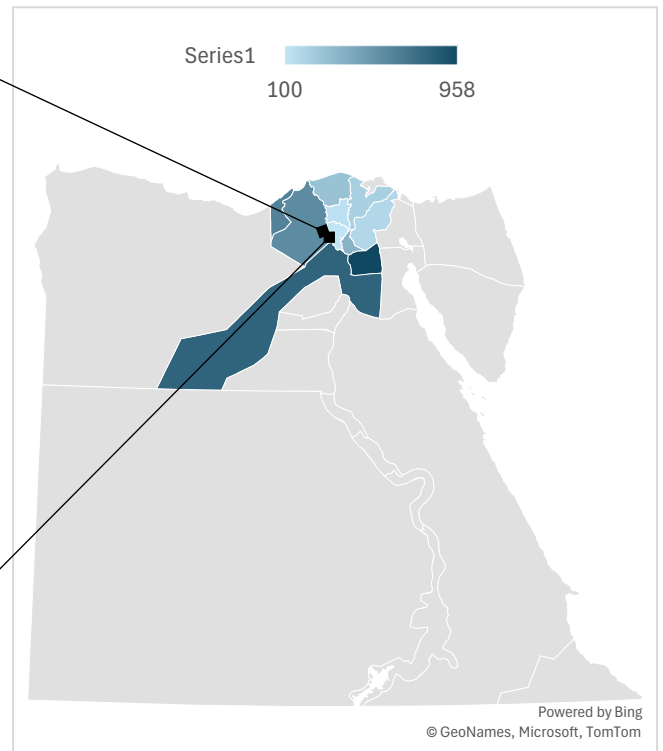
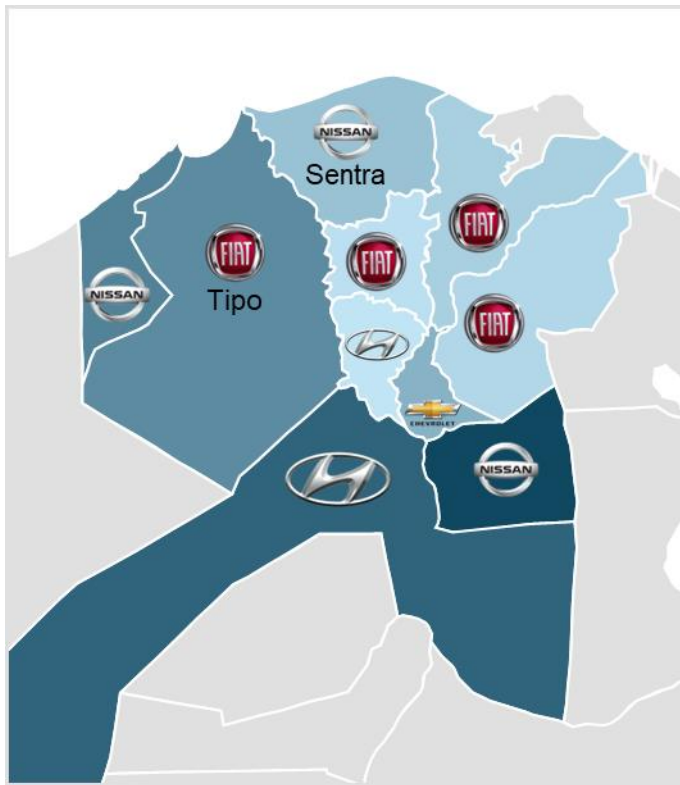


23,725 EGP  
1985



209,743 EGP  
2013

## MOST COMMON CAR FOR GOVERNORATES



## MARKET SHARE BY CLASS

### Medium class

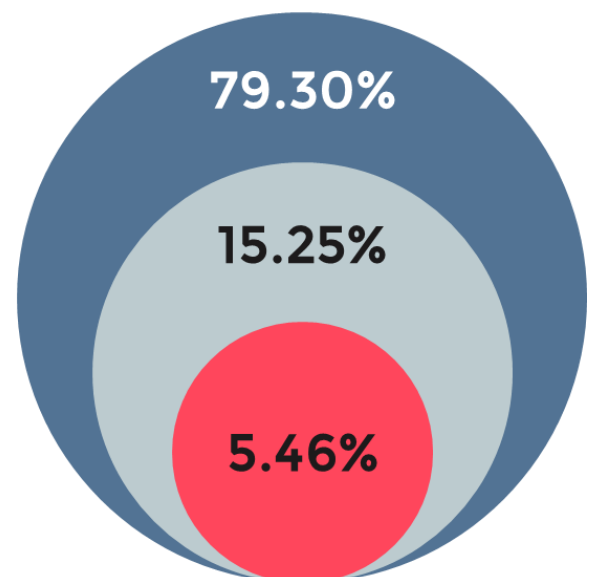
- The medium class started from **1M EGP** to **2M EGP**.
- The most common car brand in this class is **Hyundai** with **18.6%**

### Economic class

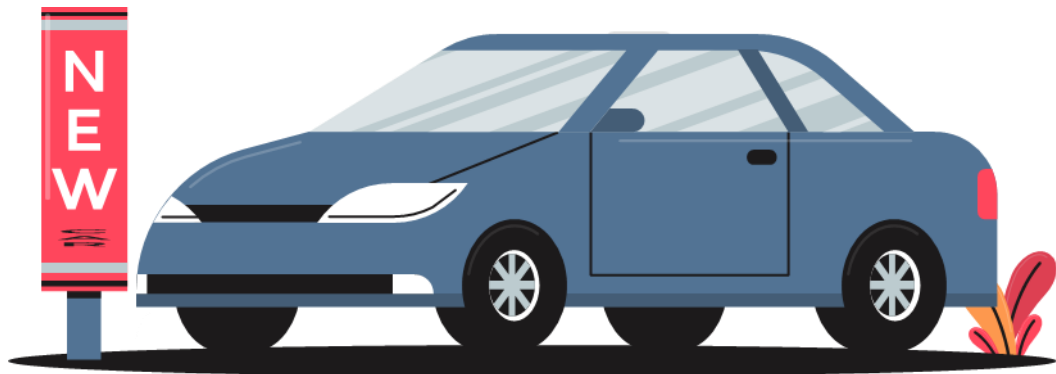
- The economic class is under **1M EGP**.
- The most common car brand in this class is **Fiat** with **58.19%**

### High class

- The high class is above **2M EGP**.
- The most common car brand in this class is **Mercedes** with **26.15%**



## 6. CONCLUSION



### Car Price

For minimum car prices we suggest to buy from **South Sania** or **Faiyum** with low **engine capacity** and appropriate **manufacture year**.

### Transmission

**Automatic** Transmission cause more in price by about **50%**  
However, it's more common in the market than manual with **57%**



### Car brand

**Hyundai Verna** is the most Dependability car in the Medium class and in Egypt.  
However, **Fiat** is the most common brand in the economic class,  
And **Mercedes** is the most common in high class

### Car color

The Expensive cars tend to be Gray colored.



## 7. DASBOARD



# Thank You!

**Made By: Mahmoud Shimy & Selim Mekawy**