

Audi Vs Mercedes: Analytics Report

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ABSTRACT

The main goal of this project is to provide a Visual representation of the performance of Audi and Mercedes used cars. Based on this a buyer can make a better decision in choosing the Brand and Model. We will be visualizing various Uni-variate and Multivariate plots to understand the relationship between the variables. Also, we will draw some Time series-based charts to witness how people's preference for what they want in their cars have changed over time

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- *Introduction*
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INTRODUCTION

My project comprises three parts. It revolves around providing a comparative study: -

1. Among different models of Audi cars in terms of price, miles per gallon, Road Tax, etc.
2. Among different models of Mercedes cars in terms of price, miles per gallon, Road Tax, etc.
3. Lastly overall comparison between Audi and Mercedes cars in terms of miles per gallon for different price ranges i.e. which Brand gives better performance in a given price range.

ABOUT THE DATA SET

The two data set I am working on is:-

1. Audi used cars(2002-2020)
2. Mercedes used cars(1997-2020)

Both the data set contains information on price, transmission, mileage, fuel type, road Tax, miles per gallon(mpg), and engine size corresponding to different used car model.

WORKING VARIABLE

Variable Name	Type	Description
model	Categorical (Nominal)	Name of the Model
year	Numeric(Discrete)	Year of registration
price	Numeric(Continuous)	Price of the car in Euros
transmission	Categorical (Nominal)	Type of gearbox
mileage	Numeric(Continuous)	Distance used
fuelType	Categorical (Nominal)	Engine fuel
tax	Numeric(Continuous)	Road tax
mpg	Numeric(Continuous)	Miles per gallon
engineSize	Numeric(Continuous)	Size of the engine in liters

THE OBJECTIVE OF THE PROJECT

- *Audi Cars*
 1. which Model of the Audi Brand is popular?
 2. Model-wise comparison of price, miles per gallon, engine size
 3. What type of Transmission, Fuel type do people prefers in their Audi cars, Also, how the preference changes over time?
- *Mercedes Cars*
 1. which Model of the Mercedes Brand is popular?
 2. Model-wise comparison of price, miles per gallon, engine size
 3. What type of Transmission, Fuel type do people prefers in their Audi cars, Also how the preference changes over time?
- *Audi vs Mercedes*
 1. On average, which brand's car provides better miles per gallon for a given price range?

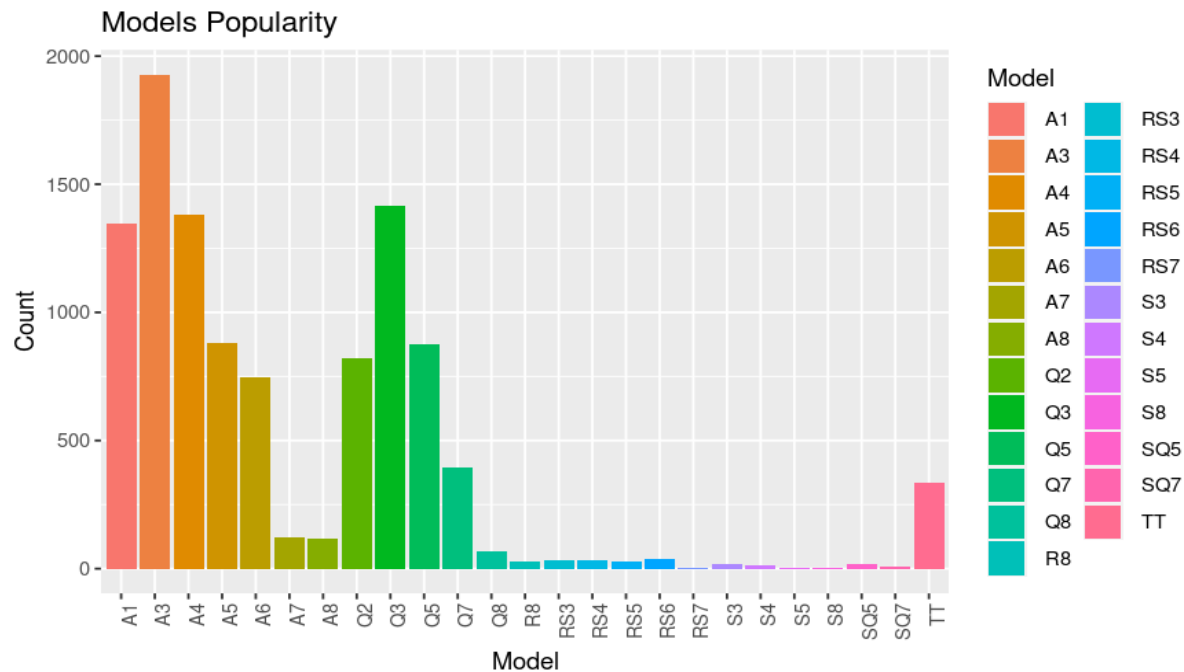
ANALYSIS:

AUDI

Here is a glimpse of my Audi used car data.

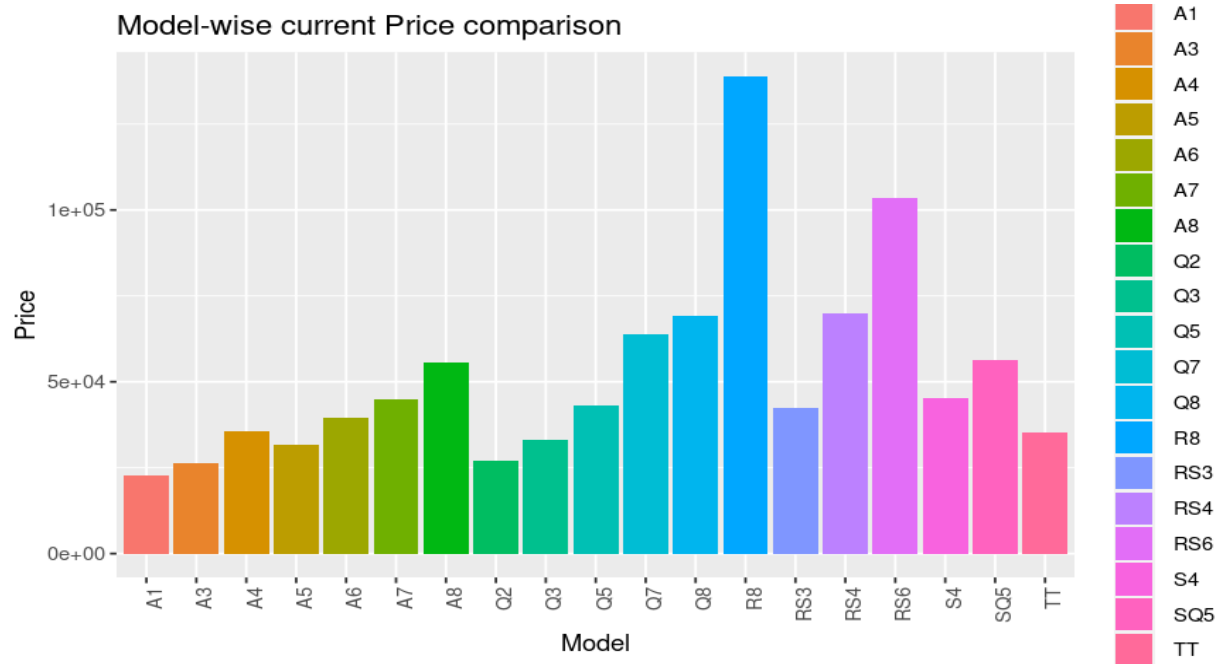
```
##  model year price transmission mileage fuelType tax  mpg engineSize
## 1   A1  2017 12500      Manual   15735   Petrol  150  55.4         1.4
## 2   A6  2016 16500    Automatic  36203   Diesel   20  64.2         2.0
## 3   A1  2016 11000      Manual   29946   Petrol   30  55.4         1.4
## 4   A4  2017 16800    Automatic  25952   Diesel  145  67.3         2.0
## 5   A3  2019 17300      Manual    1998   Petrol  145  49.6         1.0
## 6   A1  2016 13900    Automatic  32260   Petrol   30  58.9         1.4
```

The popularity of the different Models of Audi



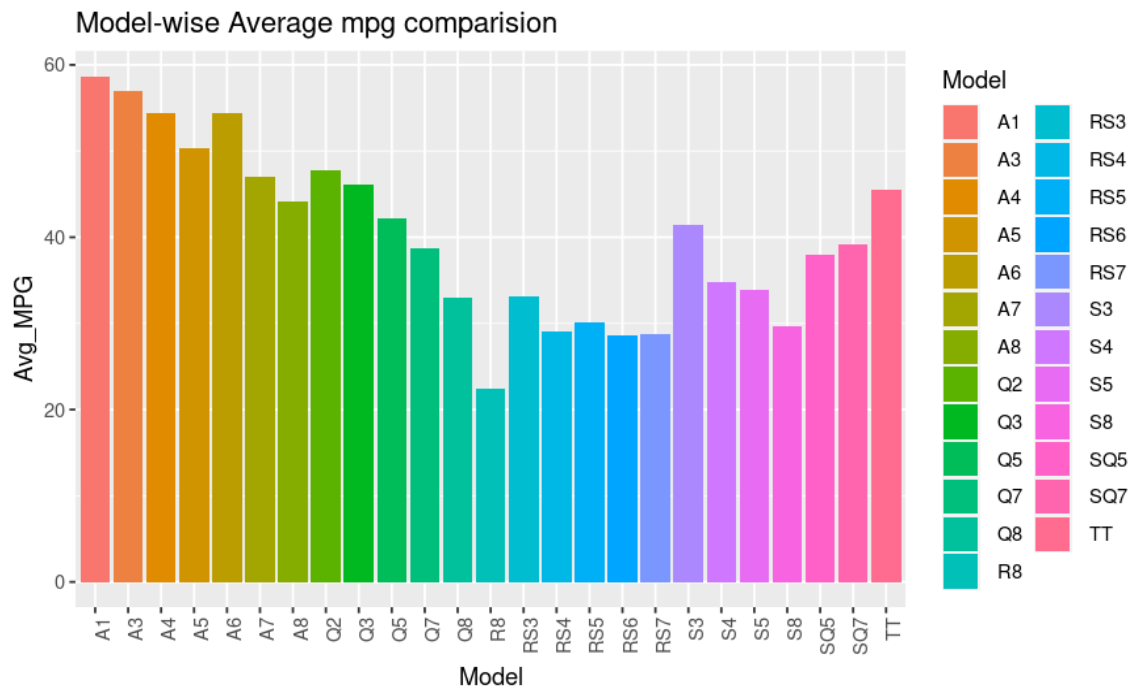
A3 is the most popular Model of the Audi Brand.

Model-wise current price comparison



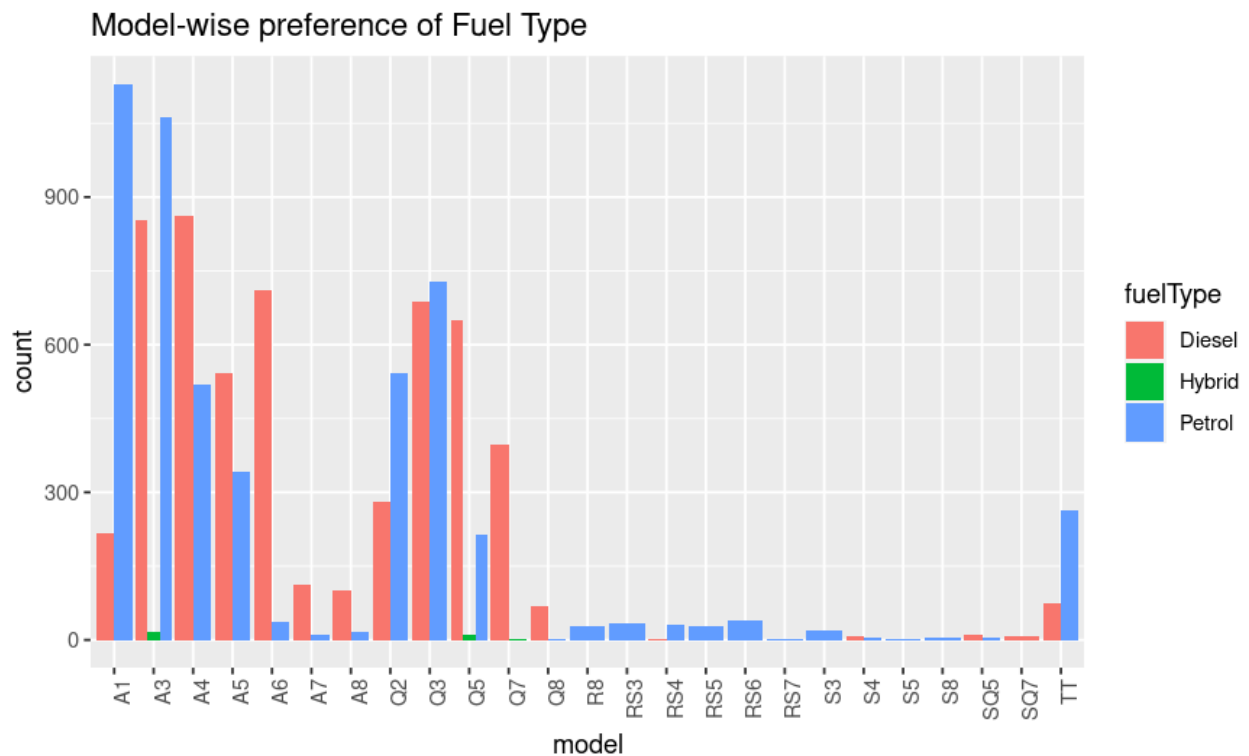
Currently Based on the 2020 Data, A1 model have the lowest price and R8 model has the highest price

Model-wise Average mpg comparison



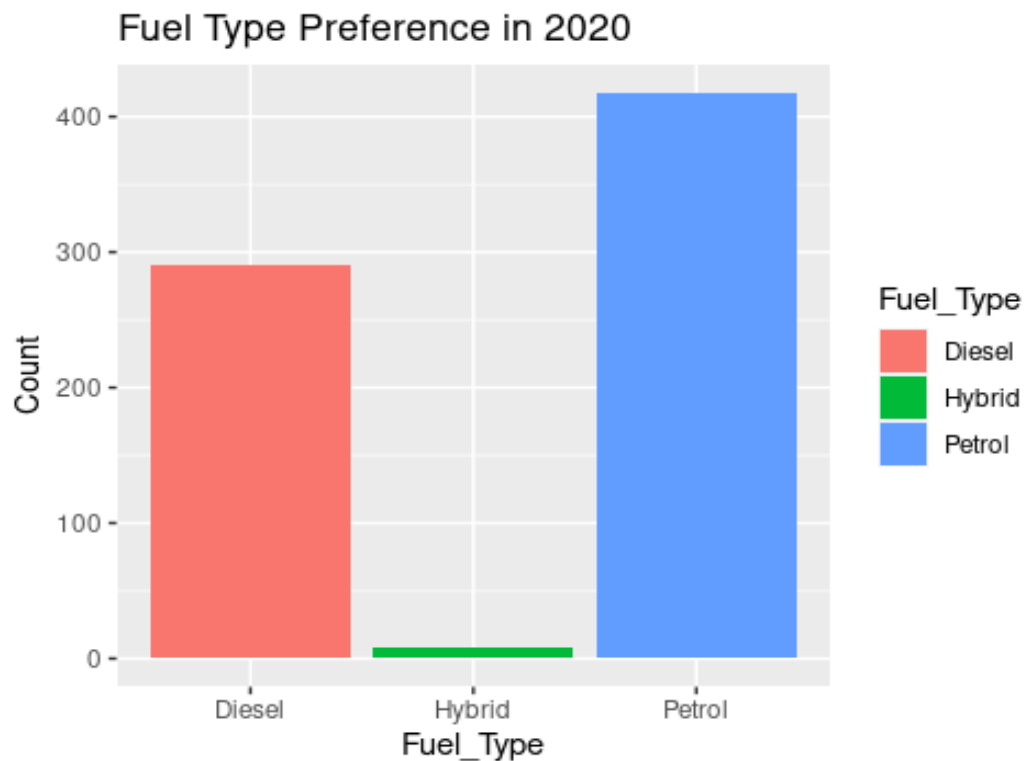
A1 model has the highest MPG, whereas the R8 Model has the lowest MPG and it is obvious since R8 is a racing car

Model-wise preference of Fuel Type



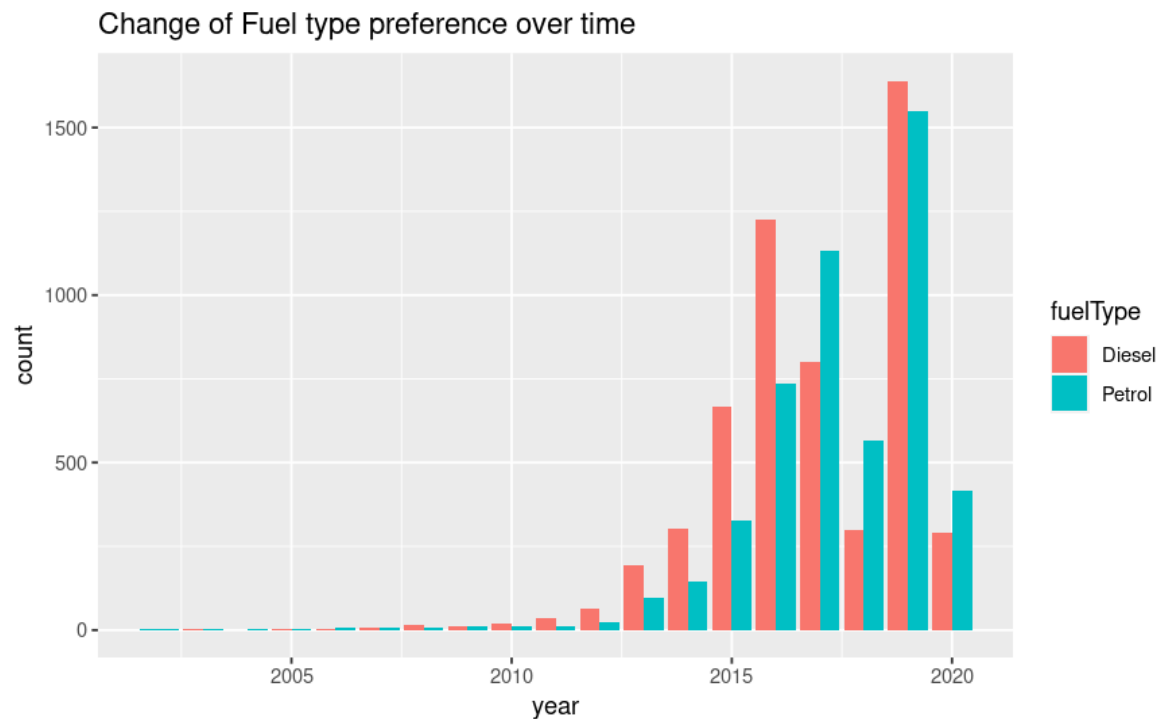
- A1 Model with Petrol fuel type is the most preferred one.
- With Diesel fuel type,A4 Model is more preferable
- People prefer diesel variant of A6 model much more than it's petrol variant
- people likes petrol and diesel variant of Q3 Model equally

Fuel Type Preference in Audi cars in 2020



Nowadays, people want Petrol as a Fuel Type in their Audi cars more than Diesel, But Hybrid is less preferred

How preference has changed over time?



Note: Here, we only consider petrol and diesel fuel type

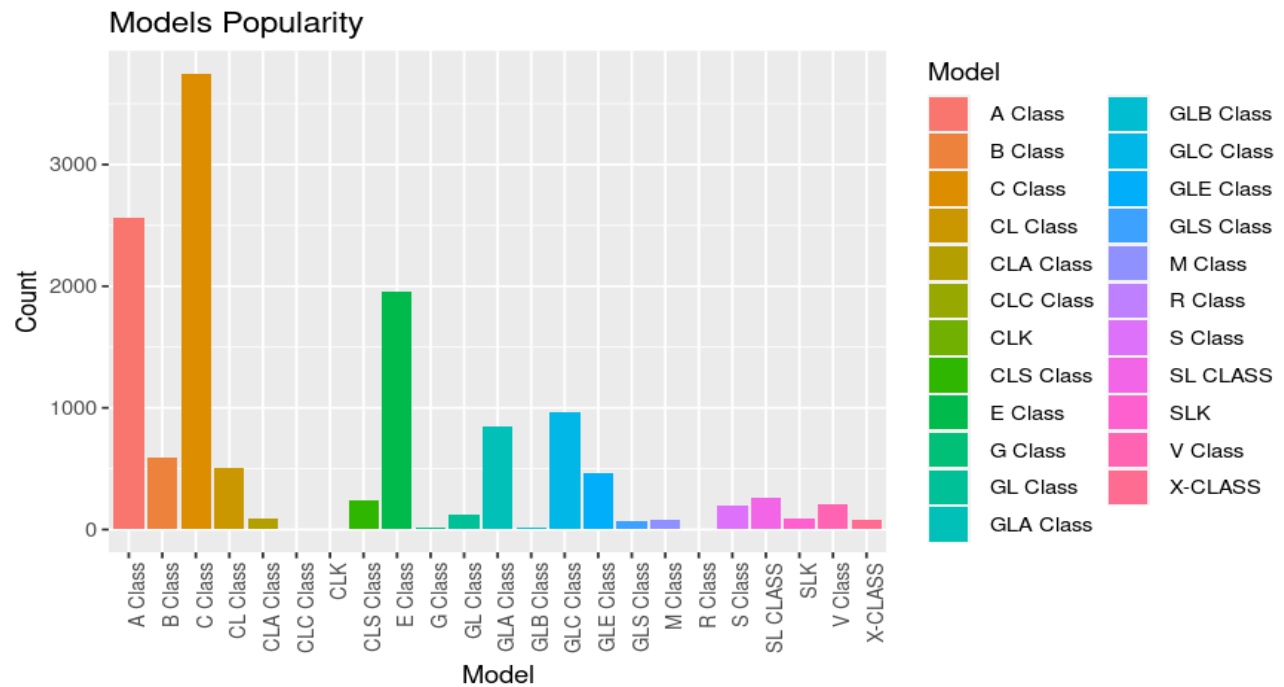
we see that before 2017, people used to prefer diesel Audi cars, But from 2017 onward people started preferring petrol Audi cars more than the diesel one

MERCEDES:

Here is a glimpse of my Mercedes used car data.

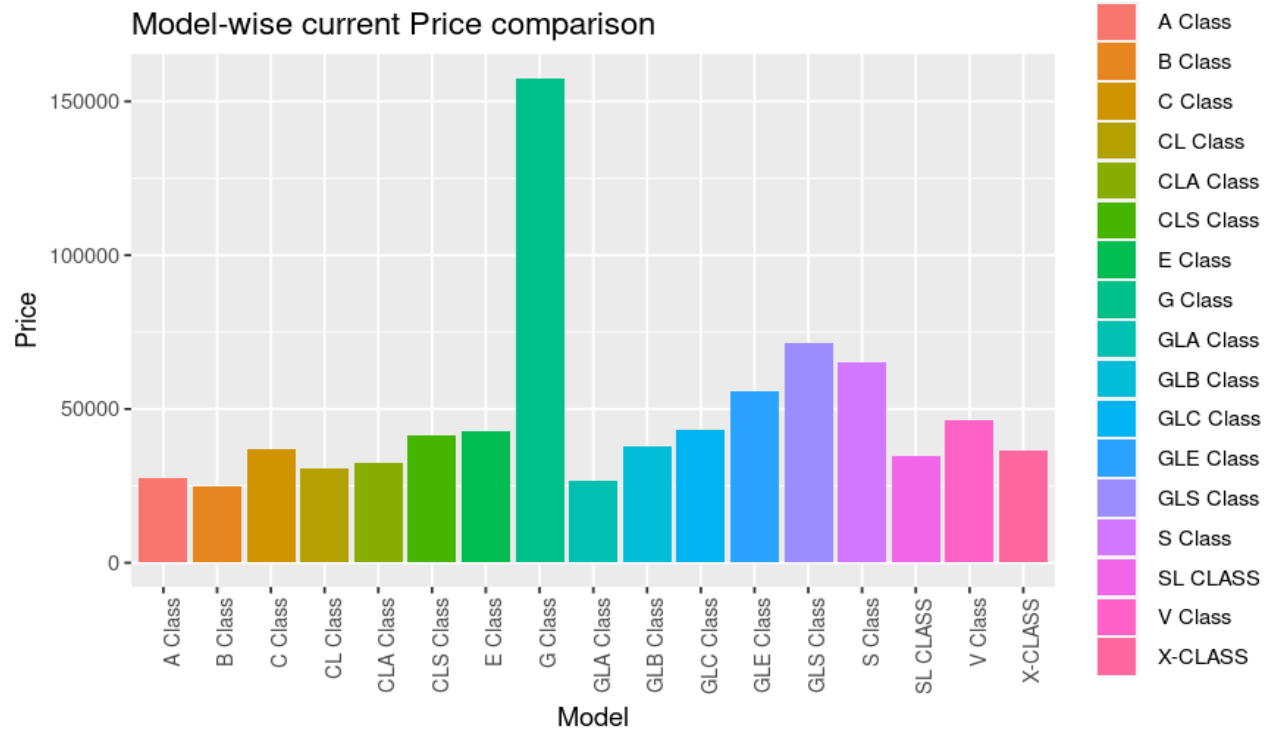
##	model	year	price	transmission	mileage	fuelType	tax	mpg	engineSize
## 1	SLK	2005	5200	Automatic	63000	Petrol	325	32.1	1.8
## 2	S Class	2017	34948	Automatic	27000	Hybrid	20	61.4	2.1
## 3	SL CLASS	2016	49948	Automatic	6200	Petrol	555	28.0	5.5
## 4	G Class	2016	61948	Automatic	16000	Petrol	325	30.4	4.0
## 5	G Class	2016	73948	Automatic	4000	Petrol	325	30.1	4.0
## 6	SL CLASS	2011	149948	Automatic	3000	Petrol	570	21.4	6.2

The popularity of the different Models of Mercedes



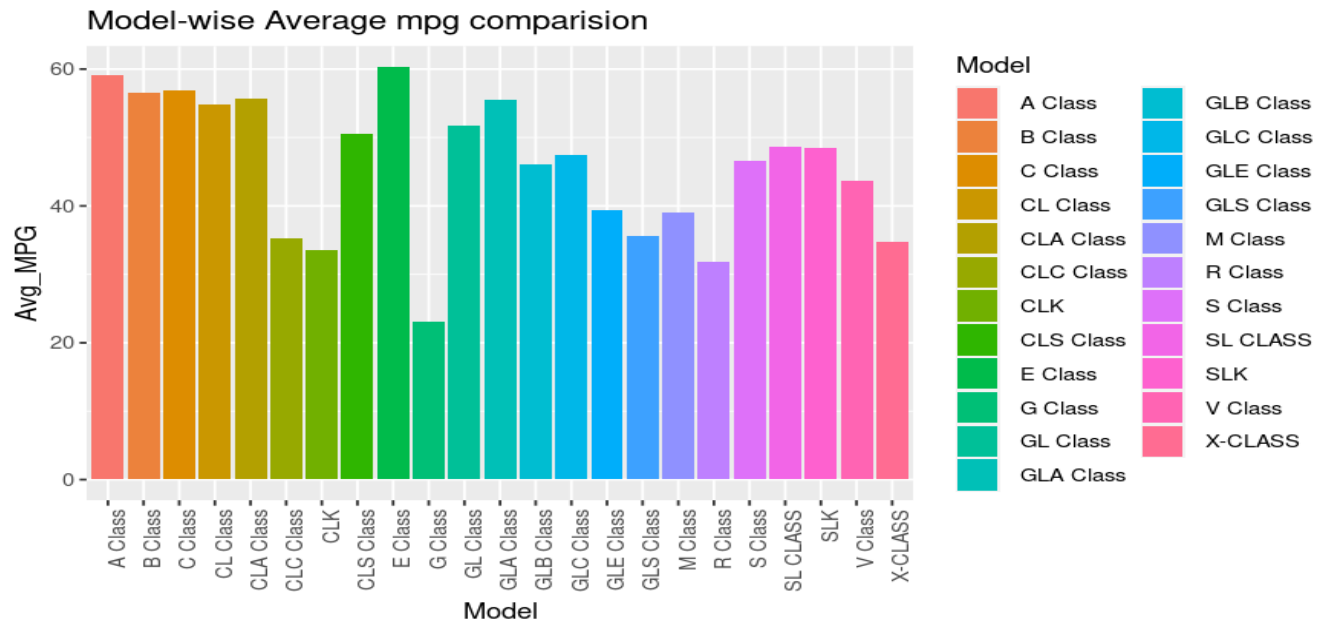
C Class is the most popular Model of the Mercedes Brand.

Model-wise current price comparison



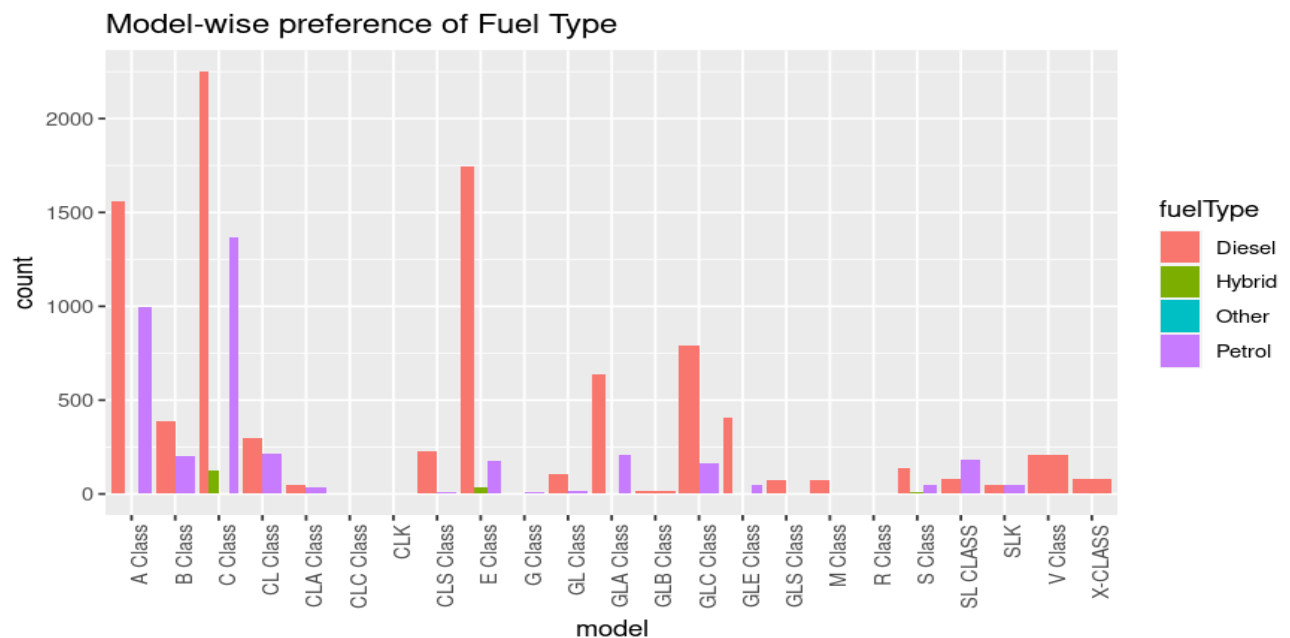
Currently Based on the 2020 Data, B Class have the lowest price and G Class has the highest price

Model-wise Average mpg comparison



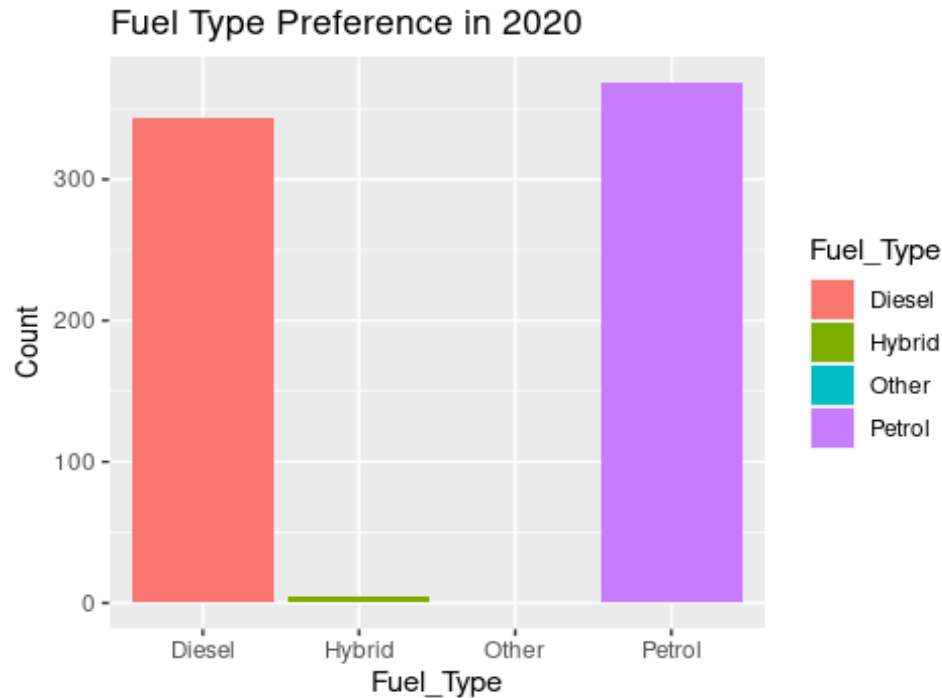
E Class has the highest MPG

Model-wise preference of Fuel Type



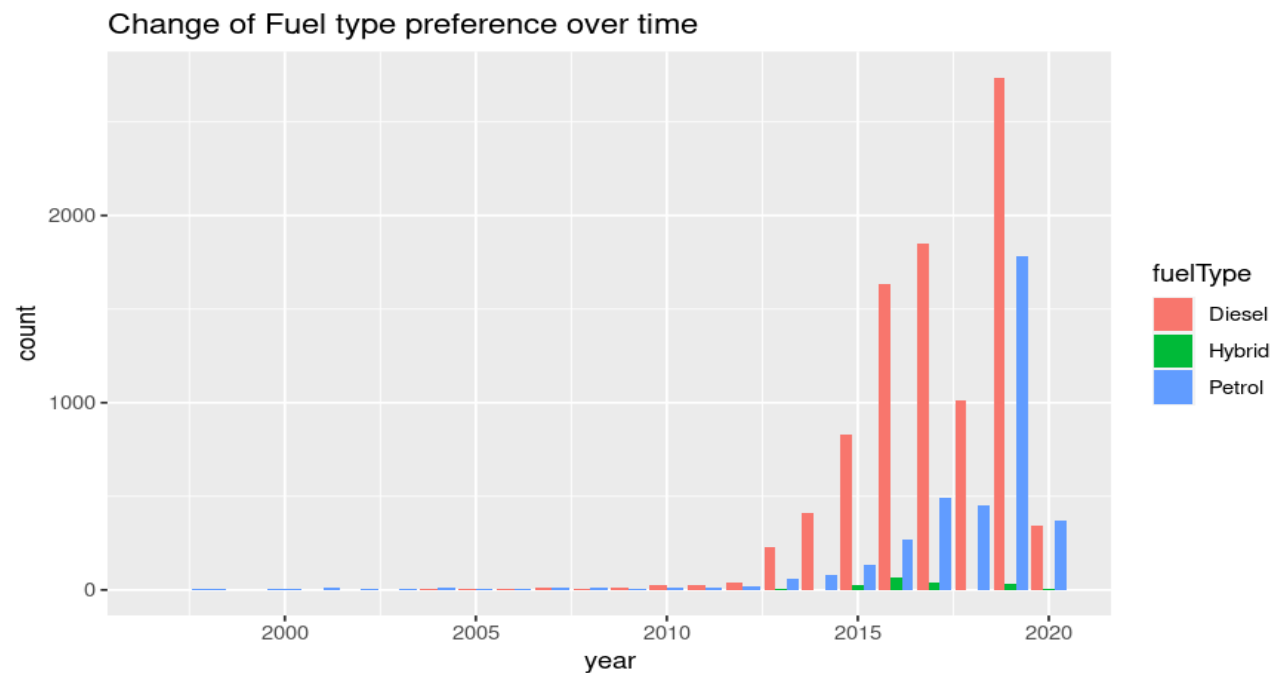
- People prefer the diesel variant of the E Class model much more than its petrol variant
- C Class is preferred, whether its fuel type is petrol or diesel or Hybrid.

Fuel Type Preference in Audi cars in 2020



Nowadays, people equally prefer petrol and diesel as Fuel Types, But Hybrid is less preferred

How preference has changed over time?

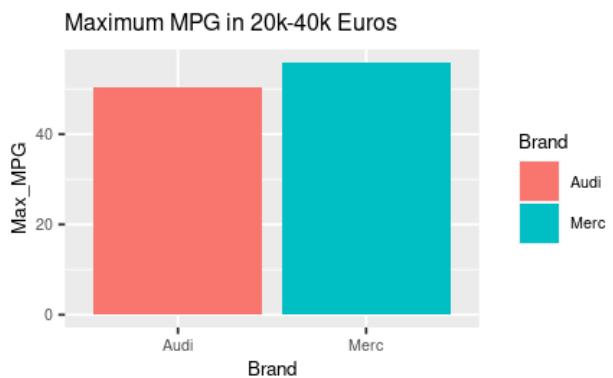
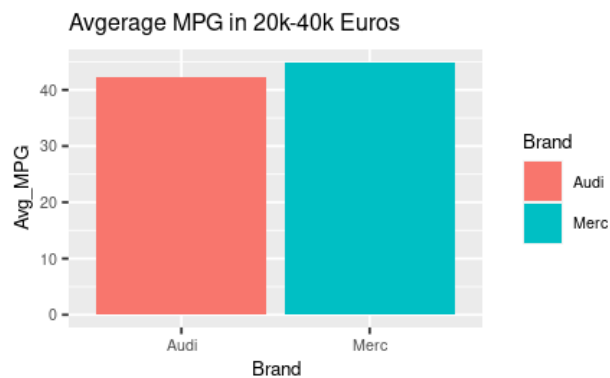
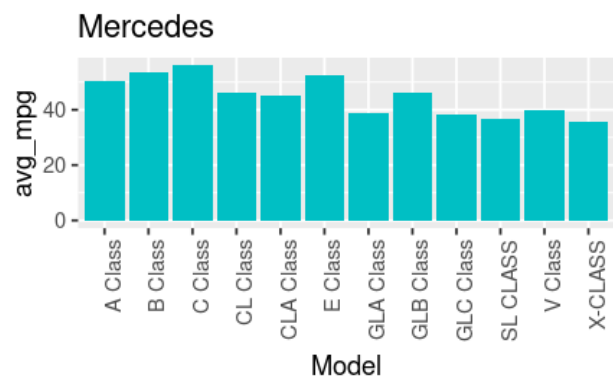
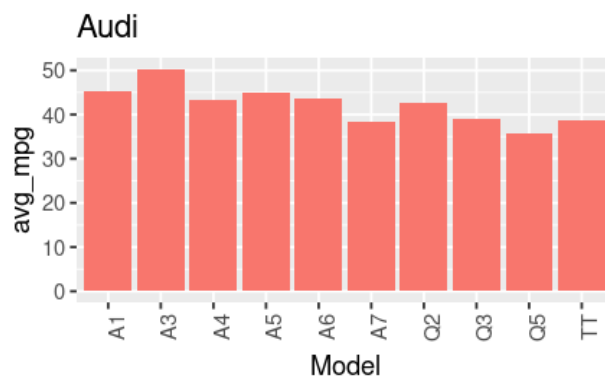


we see that people prefer diesel Mercedes car from the beginning, But from 2019 people started preferring petrol Mercedes as well

AUDI VS MERCEDES

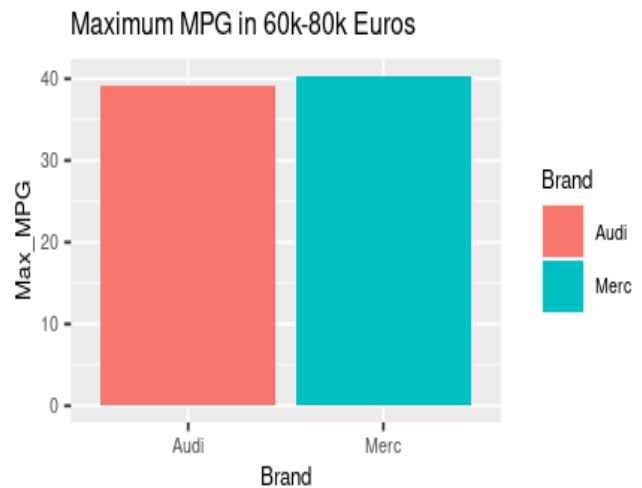
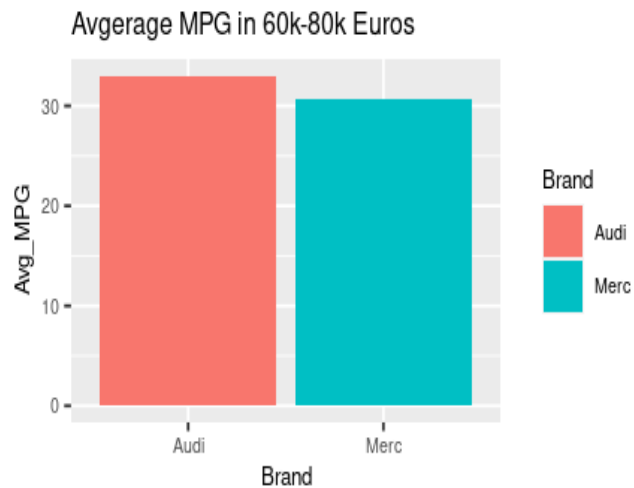
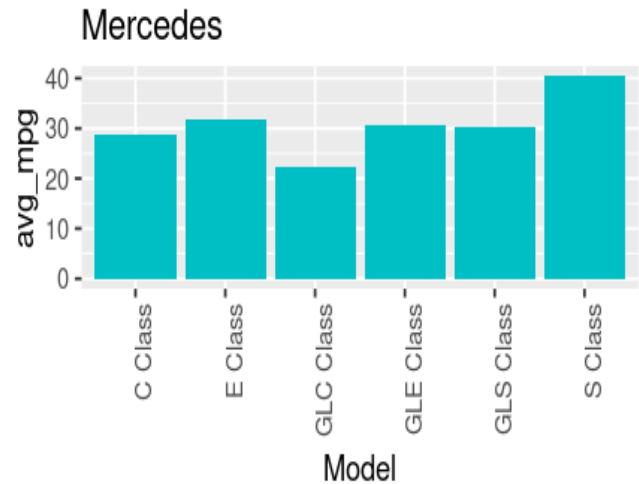
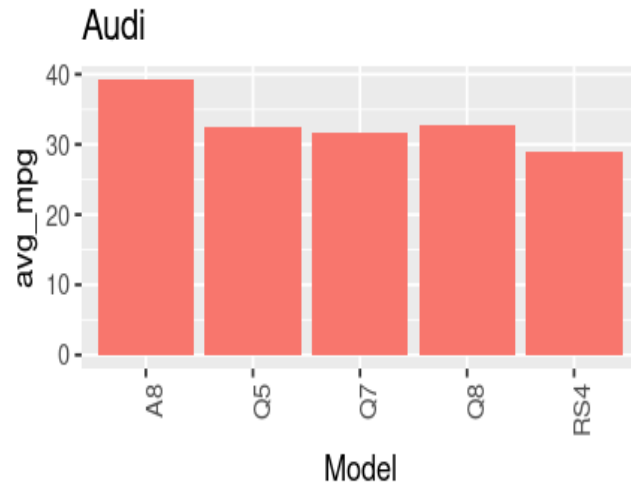
Here is a brief comparison between Audi and Mercedes is given: For the year 2020, in the different Price ranges, which Brand provides a better Average MPG and also a model-wise average mpg comparison for those models which is available in the given price range.

- **Price Range of 20000-40000 Euros**



we see that in the price range of 20000-40000 Euros, the Mercedes Brand provides better average MPG and maximum MPG than Audi. The C class Model of Mercedes gives the maximum MPG which is above 55 miles per gallon whereas the A3 model of Audi gives only 50 mpg. we also see which Models are available for each Brand in the 20000-40000 Euros price range.

- **Price Range of 60000-80000 Euros**



We see that in the price range of 60000-80000 Euros, the Audi Brand provides better average MPG but the S Class of Mercedes gives the maximum MPG

CONCLUSION

From the brief Analysis, we can conclude that

Audi Cars

1. A3 model is the most popular model of the Audi Brand
2. currently, the A1 Model comes with the lowest price and gives the best mpg among all models of Audi.
3. In 2020, people want Petrol as a Fuel Type in their Audi cars more than Diesel, But Hybrid is less preferred.

we also see that before 2017, people used to prefer diesel Audi cars, But from 2017 onward people started preferring petrol Audi cars more than the diesel one

Mercedes Cars

1. C Class is the most popular model of the Mercedes Brand
2. currently, B Class comes with the lowest Price but E Class gives the best mpg among all models of Mercedes.
3. In 2020, people equally prefer petrol and diesel as Fuel Types in their Mercedes cars, But Hybrid is less preferred.

We also see that people prefer diesel Mercedes cars from the beginning, But from 2019 people started preferring petrol Mercedes as well

Audi vs Mercedes

1. In the price range of 20000-40000 Euros, Mercedes Brand provides better average MPG and maximum MPG than Audi. The C class Model of Mercedes gives the maximum MPG which is above 55 miles per gallon whereas the A3 model of Audi gives only 50 mpg.

We see that in the price range of 60000-80000 Euros, the Audi Brand provides better average MPG but the S Class of Mercedes gives the maximum MPG

As we proceed in this project, we will see more such Audi vs Mercedes comparisons for different price ranges like 40k-60k,60k-80k,80k-100k Euros, and also some more comparisons among various models to help the buyer in making a better decision in choosing a good model based on their budget.