

Getting Started with Python

Vehicle Analysis Project

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Resources

1. ##### [Vehicle Dataset](#)
2. ##### [Submission Portal](#)

If you are having problems please refer to this document:

1. ##### [Data Analysis with Python Pandas Notebook](#)

Instructions

Import all the libraries listed in the first cell. Make sure all modules are installed.

Use the provided data set to answer the following:

Use `pandas` to come up with:

1. The titles and prices of **10** Cars with highest price
2. The titles and prices of 5 Buses & Microbuses with highest price
3. The titles and prices of 5 Trucks & Trailers with highest price

Plotting

Use `matplotlib` to come up with a plot indicating the **top 10 brands** that we have in the `vehicle_dataset`

Key performance Metrics:

- Ensure all the plots have a Title
- Ensure all plots have x labels and y labels where applicable
- Your plots should be clearly visible. Change the size of your plot to a comfortable width and height.
- Save all your plots

```
In [74]: import os
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
In [2]: os.listdir()
```

```
Out[2]: ['.ipynb_checkpoints',  
'cleaned_stock.csv',  
'clean_stock_data.csv',  
'clean_stock_prices.csv',  
'desktop.ini',  
'microsoft.microsoftskydrive_8wekyb3d8bbwe!App',  
'new_daily_prices.csv',  
'project-time-series-workbook.ipynb',  
'R-4.1.3-win.exe',  
'receipt.pdf',  
'RStudio-2022.02.0-443.exe',  
'student_copy_pandas_workbook.ipynb',  
'student_workbook_stocks-Copy1.ipynb',  
'student_workbook_stocks.ipynb',  
'student_workbook_stocks.py',  
'Telegram Desktop',  
'Untitled.ipynb',  
'Untitled1.ipynb',  
'vehicle_data (1).csv',  
'vehicle_data (2).csv',  
'vehicle_data (3).csv',  
'vehicle_data (4).csv',  
'vehicle_data (5).csv',  
'vehicle_data (6).csv',  
'vehicle_data (7).csv',  
'vehicle_data.csv',  
'vehicle_dataset_project.ipynb']
```

vehicle_data.csv should be listed in your output from the above cell

```
In [75]: df = pd.read_csv('vehicle_data.csv')  
df.head()
```

```
Out[75]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|---|-----------------------|----------|---------------|-----------------|-------------------------------------|--------|-------|--------------------------|--------|----------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 | 92000.0 |
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | Nissan | Nissan | NaN | Caravan (Urvan) | 2014.0 | 180000.0 |
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 | 75000.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |

As an example I have shown the top 10 most expensive vehicles that are in _parentregion Mombasa

```
In [48]: # filter only rows that have Mombasa as their region
df['parent_region'] == 'Mombasa'
```

```
Out[48]: 0      True
1      False
2      False
3      False
4      True
...
295    True
296    True
297    True
298    False
299    True
Name: parent_region, Length: 300, dtype: bool
```

```
In [49]: mask = df['parent_region'] == 'Mombasa'
```

```
In [50]: df
```

```
Out[50]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom |
|-----|--|--------------------|-----------|---------------|--------------|--|------------|--------|--------------------|--------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 |
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 |
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | Nissan | Nissan | NaN | Caravan (Urvan) | 2014.0 |
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 295 | Toyota Allion 2008 Silver | Cars | Ganjoni | Mombasa | Kenyan Used | No faults | Toyota | Silver | Allion | 2008.0 |
| 296 | Mitsubishi Hd | Trucks & Trailers | Kisauni | Mombasa | Used | Used | Mitsubishi | NaN | NaN | 2006.0 |
| 297 | Mitsubishi Fuso Refrigerated | Trucks & Trailers | Kisauni | Mombasa | Used | Used | Mitsubishi | NaN | Canter | 2014.0 |
| 298 | Toyota Ractis 2009 Black | Cars | Ridgeways | Nairobi | Kenyan Used | First owner, No faults, Original parts | Toyota | Black | Ractis | 2009.0 |

| | | | | | | | | | | |
|-----|---------------------------------|------|-------------|---------|--------------|---|--------|------------|----------|--------|
| 299 | Subaru Forester 2015 Matt Black | Cars | Mombasa CBD | Mombasa | Foreign Used | Unpainted, Original parts, First registration | Subaru | Matt Black | Forester | 2015.0 |
|-----|---------------------------------|------|-------------|---------|--------------|---|--------|------------|----------|--------|

300 rows × 18 columns

```
In [51]: # all the rows in the dataframe that have parent_region Mombasa
mombasa_df = df[mask].copy()
mombasa_df.head()
```

Out[51]:

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|--------------------------------------|----------|---------|---------------|--------------|--|------------|-------|--------------------|--------|---------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |
| 5 | Mitsubishi Delica 2013 White | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults, Unpainted | Mitsubishi | White | Delica | 2013.0 | 88000.0 |
| 6 | New Toyota Premio 2013 Red | Cars | Mvita | Mombasa | Brand New | No faults, First registration | Toyota | Red | Premio | 2013.0 | 45000.0 |
| 7 | Toyota Sienta 2014 1.5 AWD Gray | Cars | Ganjoni | Mombasa | Foreign Used | No faults | Toyota | Gray | Sienta | 2014.0 | 51000.0 |

To get the highest price I will use the `nlargest` function

```
In [52]: # top 10 vehicles with highest price
mombasa_df.nlargest(10, 'price')
```

Out[52]:

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom |
|-----|--------------------------------------|----------|-------------|---------------|--------------|-------------------------------|--------|-------|--------------------|--------|
| 22 | Lexus RX 2016 Black | Cars | Mombasa CBD | Mombasa | Foreign Used | No faults | Lexus | Black | RX | 2016.0 |
| 224 | Toyota Hilux 2016 Black | Cars | Mombasa CBD | Mombasa | Foreign Used | First registration | Toyota | Black | Hilux | 2016.0 |
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 |
| 53 | Toyota Land Cruiser Prado 2015 | Cars | Mvita | Mombasa | Foreign Used | No faults | Toyota | Brown | Land Cruiser Prado | 2015.0 |

| | | | | | | | | | | | |
|-----|---|------|-------------|---------|--------------|---------------------------------|------------|-------|--------------------|--------|--|
| | 2.7 VVT-i Brown | | | | | | | | | | |
| 241 | BMW X5 2015 White | Cars | Mombasa CBD | Mombasa | Foreign Used | First registration | BMW | White | X5 | 2015.0 | |
| 8 | BMW X4 2015 xDrive35i Black | Cars | Mombasa CBD | Mombasa | Foreign Used | No faults | BMW | Black | X4 | 2015.0 | |
| 13 | BMW 520i 2014 Black | Cars | Mombasa CBD | Mombasa | Foreign Used | First registration | BMW | Black | 520i | 2014.0 | |
| 73 | Toyota Land Cruiser Prado 2014 2.7 VVT-i Gold | Cars | Mombasa CBD | Mombasa | Foreign Used | First owner, First registration | Toyota | Gold | Land Cruiser Prado | 2014.0 | |
| 220 | Volkswagen Touareg 2015 TDI Executive AWD 4MOT... | Cars | Tudor | Mombasa | Foreign Used | No faults | Volkswagen | Black | Touareg | 2015.0 | |
| 276 | Lexus NX 2014 Red | Cars | Mombasa CBD | Mombasa | Foreign Used | No faults | Lexus | Red | NX | 2014.0 | |

To get only the titles

```
In [53]: # top 10 vehicles with highest price
mombasa_df.nlargest(10, 'price')[['title', 'category', 'price']]
```

```
Out[53]:
```

| | title | category | price |
|-----|---|----------|----------|
| 22 | Lexus RX 2016 Black | Cars | 14500000 |
| 224 | Toyota Hilux 2016 Black | Cars | 9000000 |
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | 6500000 |
| 53 | Toyota Land Cruiser Prado 2015 2.7 VVT-i Brown | Cars | 6500000 |
| 241 | BMW X5 2015 White | Cars | 6300000 |
| 8 | BMW X4 2015 xDrive35i Black | Cars | 5800000 |
| 13 | BMW 520i 2014 Black | Cars | 5700000 |
| 73 | Toyota Land Cruiser Prado 2014 2.7 VVT-i Gold | Cars | 5600000 |
| 220 | Volkswagen Touareg 2015 TDI Executive AWD 4MOT... | Cars | 5500000 |
| 276 | Lexus NX 2014 Red | Cars | 5400000 |

```
In [97]: mombasa_df
```

```
Out[97]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom |
|---|--------------------------------------|----------|--------|---------------|--------------|-------------------------------|--------|-------|--------------------|--------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 |

| | | | | | | | | | | |
|-----|--|----------------------|----------------|---------|-----------------|--|------------|---------------|----------|--------|
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 |
| 5 | Mitsubishi Delica 2013 White | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults, Unpainted | Mitsubishi | White | Delica | 2013.0 |
| 6 | New Toyota Premio 2013 Red | Cars | Mvita | Mombasa | Brand New | No faults, First registration | Toyota | Red | Premio | 2013.0 |
| 7 | Toyota Sienta 2014 1.5 AWD Gray | Cars | Ganjoni | Mombasa | Foreign Used | No faults | Toyota | Gray | Sienta | 2014.0 |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 294 | Subaru Outback 2014 White | Cars | Mvita | Mombasa | Foreign Used | No faults | Subaru | White | Outback | 2014.0 |
| 295 | Toyota Allion 2008 Silver | Cars | Ganjoni | Mombasa | Kenyan Used | No faults | Toyota | Silver | Allion | 2008.0 |
| 296 | Mitsubishi Hd | Trucks & Trailers | Kisauni | Mombasa | Used | Used | Mitsubishi | NaN | NaN | 2006.0 |
| 297 | Mitsubishi Fuso Refrigerated | Trucks & Trailers | Kisauni | Mombasa | Used | Used | Mitsubishi | NaN | Canter | 2014.0 |
| 299 | Subaru Forester 2015 Matt Black | Cars | Mombasa CBD | Mombasa | Foreign Used | Unpainted, Original parts, First registration | Subaru | Matt Black | Forester | 2015.0 |

147 rows × 18 columns

```
In [79]: df = pd.read_csv('vehicle_data.csv')
df.head()
```

```
Out[79]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|---|-----------------------|----------|---------------|-----------------|-------------------------------------|--------|-------|--------------------------|--------|----------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 | 92000.0 |
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | Nissan | Nissan | NaN | Caravan (Urvan) | 2014.0 | 180000.0 |

| | | | | | | | | | | | |
|---|-------------------------|------|----------|---------|--------------|-----------|--------|-------|-------|--------|---------|
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 | 75000.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |

```
In [80]: df=df[df['category']=='Cars']
df.nlargest(5,'price')[['title','category','price']]
```

Out[80]:

| | title | category | price |
|-----|--|----------|----------|
| 22 | Lexus RX 2016 Black | Cars | 14500000 |
| 265 | New Hyundai Palisade 2021 White | Cars | 9500000 |
| 224 | Toyota Hilux 2016 Black | Cars | 9000000 |
| 156 | Toyota Land Cruiser 2010 4.6 V8 ZX Black | Cars | 8799999 |
| 249 | Toyota Land Cruiser 2014 4.6 V8 ZX Black | Cars | 8199999 |

```
In [86]: df = pd.read_csv('vehicle_data.csv')
df.head()
```

Out[86]:

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|--|--------------------|----------|---------------|--------------|-------------------------------|--------|--------|--------------------|--------|----------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 | 92000.0 |
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | | Nissan | Nissan | Caravan (Urvan) | 2014.0 | 180000.0 |
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 | 75000.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |

```
In [82]: df=df[df['category']=='Buses & Microbuses']
df.nlargest(5,'price')[['title','category','price']]
```

Out[82]:

| | title | category | price |
|-----|-------------|--------------------|----------|
| 148 | Mazda Bongo | Buses & Microbuses | 11200000 |

| | | | |
|-----|-------------------------------|--------------------|---------|
| 221 | Selling Buses In Mombasa Town | Buses & Microbuses | 5200000 |
| 174 | Roller Coaster | Buses & Microbuses | 4900000 |
| 211 | Toyota Coaster 2014 White | Buses & Microbuses | 4300000 |
| 268 | Toyota Hiace 2015 White | Buses & Microbuses | 3800000 |

```
In [84]: df = pd.read_csv('vehicle_data.csv')
df.head()
```

```
Out[84]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|--|--------------------|----------|---------------|--------------|-------------------------------|--------|-------|--------------------|--------|----------|
| 0 | Toyota Land Cruiser Prado 2016 Black | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 | 92000.0 |
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | | Nissan | NaN | Caravan (Urvan) | 2014.0 | 180000.0 |
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 | 75000.0 |
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |

```
In [85]: df=df[df['category']=='Trucks & Trailers']
df.nlargest(5, 'price')[['title', 'category', 'price']]
```

```
Out[85]:
```

| | title | category | price |
|-----|-----------------------------------|-------------------|---------|
| 195 | Mercedes-Benz Actros | Trucks & Trailers | 7500000 |
| 222 | Tata Signa LPK-1618 Tipper 10 Ton | Trucks & Trailers | 6000000 |
| 103 | Shacman F2000 Tipper | Trucks & Trailers | 5100000 |
| 176 | Isuzu Forward 7 Tonne Freezer | Trucks & Trailers | 4300000 |
| 62 | Isuzu Elf,Year 2015 Manual | Trucks & Trailers | 3650000 |

The above output is what the question is asking for. So take a screenshot.

```
In [ ]:
```


Plotting

I will demonstrate how to solve the plotting challenge using the following question:

Use **matplotlib** to come up with a plot indicating the **top 5 regions** that we have in the vehicle_dataset

```
In [10]: # get number of rows with same region
df['region'].value_counts()
```

```
Out[10]: Mombasa CBD          92
Mvita                28
Nairobi Central     27
Kilimani            23
Lavington           16
Ridgeways           15
Tudor               13
Karen               8
Langata             7
Nairobi             6
Kileleshwa          4
Ganjoni             4
Kasarani            3
Nyali               3
Embakasi            3
Thome               3
Kisauni             3
Parklands/Highridge 3
Donholm             3
Mombasa Road        2
Nakuru Town West    2
Westlands           2
Runda               2
Kikuyu              2
Ruiru               2
Mbaraki             2
Nakuru Town East    2
Makadara            1
Ziwa la Ngombe      1
Shanzu              1
Imara Daima         1
Majengo             1
Kiambaa             1
Ngara               1
Ngong               1
Kiambu / Kiambu     1
Machakos Town       1
Woodley/Kenyatta Golf Course 1
Thika               1
Changamwe           1
Kisumu Central      1
Ruai                1
Eldoret CBD         1
Syokimau            1
Kerugoya            1
Municipality        1
Roysambu            1
Name: region, dtype: int64
```

```
In [11]: # grab the top 5
df['region'].value_counts()[:5]
```

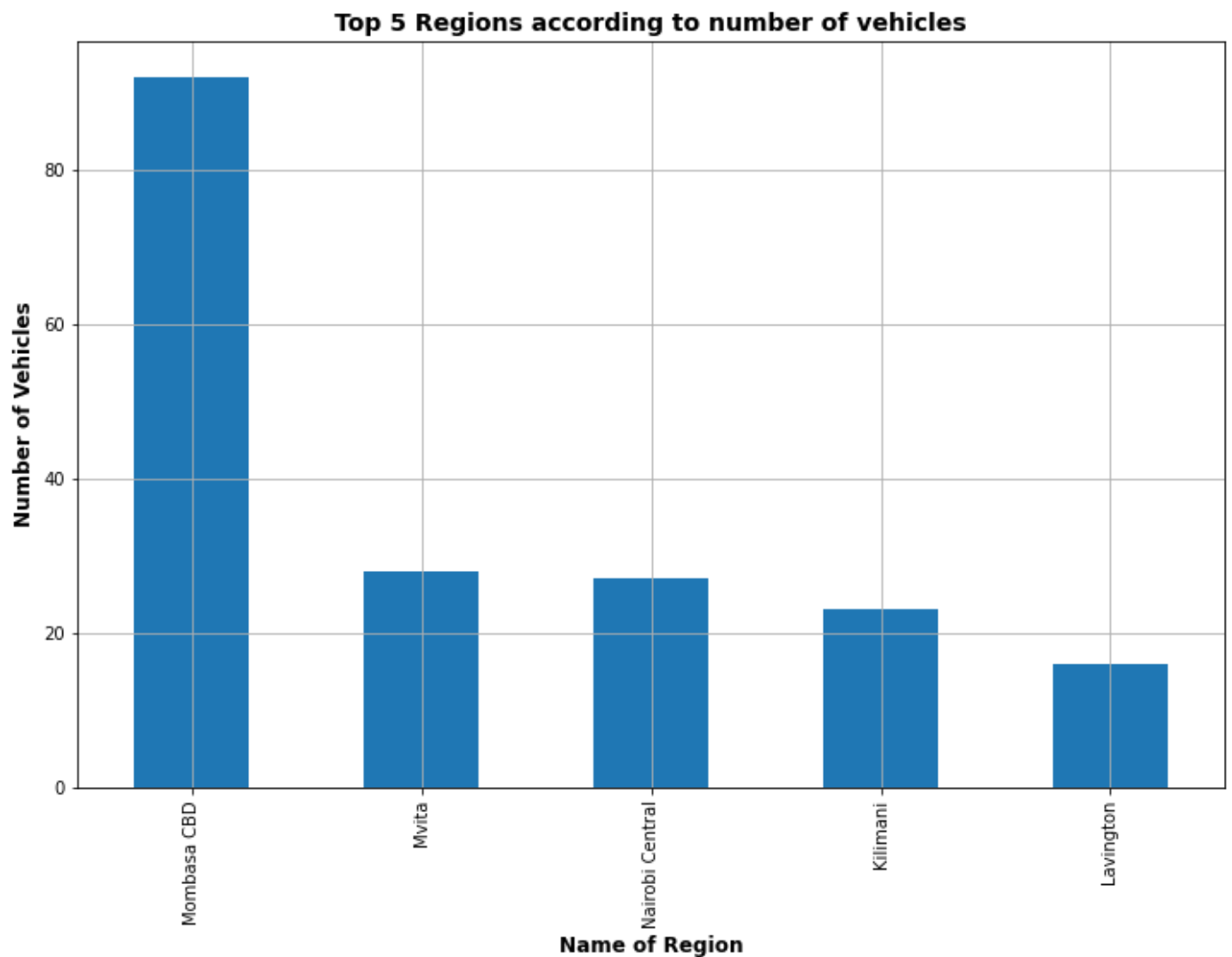
```
Out[11]: Mombasa CBD          92
Mvita                28
Nairobi Central     27
Kilimani            23
```

Lavington 16
Name: region, dtype: int64

```
In [12]: # make it a variable  
top_5 = df['region'].value_counts()[:5]
```

Now to create a bar plot of the top 5 regions

```
In [13]: plt.figure(figsize=(12,8))  
plt.title("Top 5 Regions according to number of vehicles", fontsize=14, fontweight='bold')  
top_5.plot.bar()  
plt.xlabel('Name of Region',fontsize=12, fontweight='bold')  
plt.ylabel('Number of Vehicles',fontsize=12, fontweight='bold')  
plt.grid()  
  
# save the plot to file  
fig = plt.gcf()  
fig.savefig('top-5-regions.png')  
  
plt.show()
```



```
In [87]: df = pd.read_csv('vehicle_data.csv')  
df.head()
```

```
Out[87]:
```

| | title | category | region | parent_region | condition | attrs | brand | color | model | yom | mileage |
|---|---------------------------|----------|--------|---------------|--------------|-------------------------------|--------|-------|--------------------|--------|---------|
| 0 | Toyota Land Cruiser Prado | Cars | Mvita | Mombasa | Foreign Used | First registration, No faults | Toyota | Black | Land Cruiser Prado | 2016.0 | 87000.0 |

2016
Black

| | | | | | | | | | | | |
|---|------------------------|------|---------|---------|--------------|------------------------|-------|-------|-------|--------|---------|
| 1 | Mazda Demio 2014 Brown | Cars | Langata | Nairobi | Foreign Used | First owner, No faults | Mazda | Brown | Demio | 2014.0 | 92000.0 |
|---|------------------------|------|---------|---------|--------------|------------------------|-------|-------|-------|--------|---------|

| | | | | | | | | | | | |
|---|--|--------------------|----------|---------|--------------|--------|--------|-----|-----------------|--------|----------|
| 2 | Clean NV300 Caravan 2014 Model Dielsel 16 Seater | Buses & Microbuses | Kilimani | Nairobi | Foreign Used | Nissan | Nissan | NaN | Caravan (Urvan) | 2014.0 | 180000.0 |
|---|--|--------------------|----------|---------|--------------|--------|--------|-----|-----------------|--------|----------|

| | | | | | | | | | | | |
|---|-------------------------|------|----------|---------|--------------|-----------|--------|-------|-------|--------|---------|
| 3 | Toyota Crown 2014 Pearl | Cars | Kilimani | Nairobi | Foreign Used | No faults | Toyota | Pearl | Crown | 2014.0 | 75000.0 |
|---|-------------------------|------|----------|---------|--------------|-----------|--------|-------|-------|--------|---------|

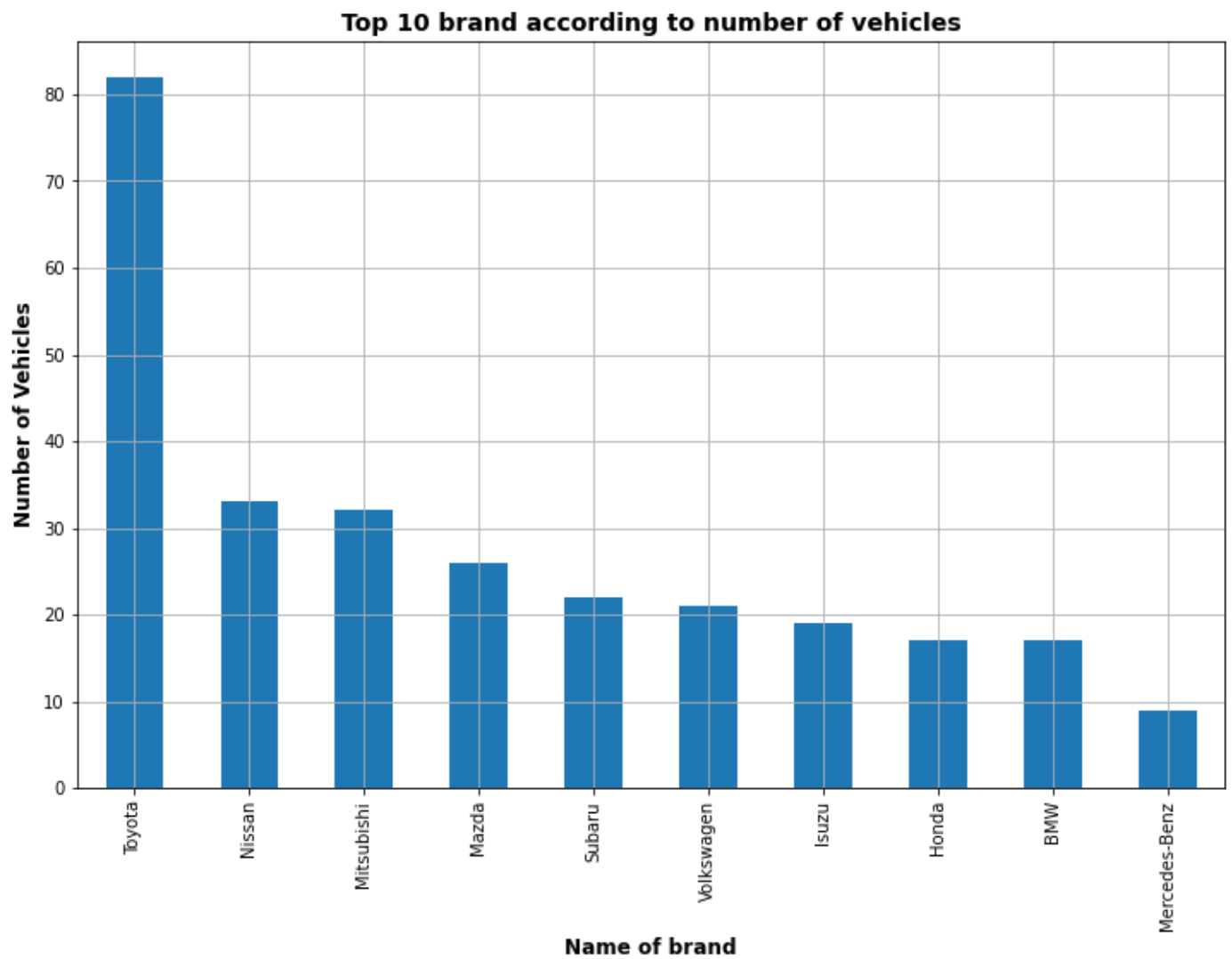
| | | | | | | | | | | | |
|---|----------------------|------|-------|---------|--------------|-----------|-------|-------|-----|--------|---------|
| 4 | Honda Fit 2014 Black | Cars | Mvita | Mombasa | Foreign Used | No faults | Honda | Black | Fit | 2014.0 | 58000.0 |
|---|----------------------|------|-------|---------|--------------|-----------|-------|-------|-----|--------|---------|

```
In [88]: df['brand'].value_counts()[:10]
```

```
Out[88]: Toyota      82  
Nissan      33  
Mitsubishi  32  
Mazda      26  
Subaru     22  
Volkswagen 21  
Isuzu      19  
Honda      17  
BMW        17  
Mercedes-Benz 9  
Name: brand, dtype: int64
```

```
In [89]: top_10 = df['brand'].value_counts()[:10]
```

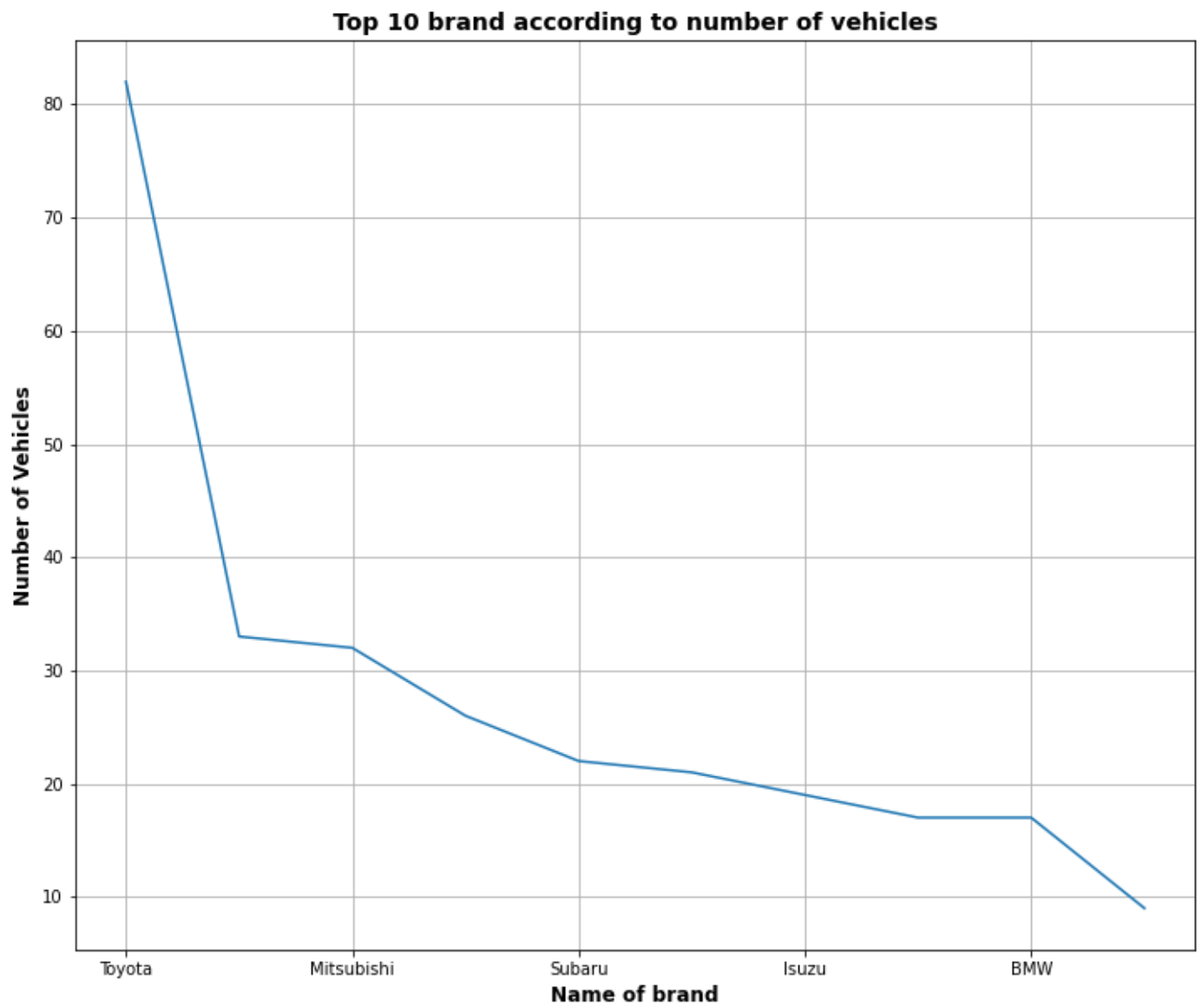
```
In [90]: plt.figure(figsize=(12,8))  
plt.title("Top 10 brand according to number of vehicles", fontsize=14, fontweight='bold')  
top_10.plot.bar()  
plt.xlabel('Name of brand',fontsize=12, fontweight='bold')  
plt.ylabel('Number of Vehicles',fontsize=12, fontweight='bold')  
plt.grid()  
  
# save the plot to file  
fig = plt.gcf()  
fig.savefig('top-10-regions.png')  
  
plt.show()
```



```
In [91]: plt.figure(figsize=(12,10))
plt.title("Top 10 brand according to number of vehicles", fontsize=14, fontweight='bold')
top_10.plot.line()
plt.xlabel('Name of brand',fontsize=12, fontweight='bold')
plt.ylabel('Number of Vehicles',fontsize=12, fontweight='bold')
plt.grid()

# save the plot to file
fig = plt.gcf()
fig.savefig('top-10-regions.png')

plt.show()
```

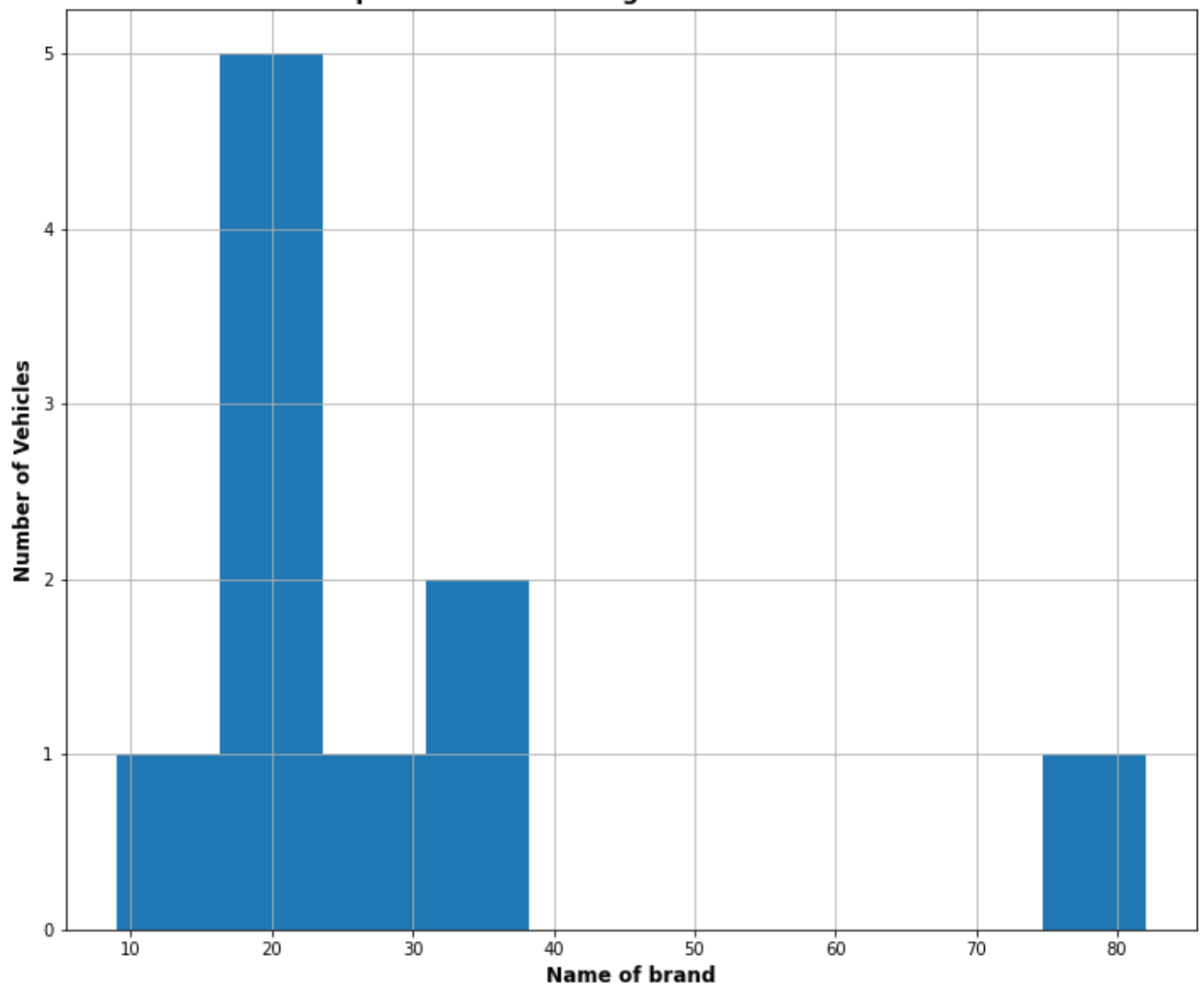


```
In [92]: plt.figure(figsize=(12,10))
plt.title("Top 10 brand according to number of vehicles", fontsize=14, fontweight='bold')
top_10.plot.hist()
plt.xlabel('Name of brand',fontsize=12, fontweight='bold')
plt.ylabel('Number of Vehicles',fontsize=12, fontweight='bold')
plt.grid()

# save the plot to file
fig = plt.gcf()
fig.savefig('top-10-regions.png')

plt.show()
```

Top 10 brand according to number of vehicles



```
In [93]: plt.figure(figsize=(12,10))
plt.title("Top 10 brand according to number of vehicles", fontsize=14, fontweight='bold')
top_10.plot.pie()
plt.xlabel('Name of brand',fontsize=12, fontweight='bold')
plt.ylabel('Number of Vehicles',fontsize=12, fontweight='bold')
plt.grid()

# save the plot to file
fig = plt.gcf()
fig.savefig('top-10-regions.png')

plt.show()
```

Top 10 brand according to number of vehicles

