In [1]:

```
#Import the required liberary
import pandas as pd
import warnings
warnings.filterwarnings('ignore')
import matplotlib.pyplot as plt
```

In [16]:

```
car = pd.read_excel('E:\Aishwarya official\Aishwarya Data Scince\Course 4\DS1_C4_S5_Car_Data_Challenge.xlsx')
car
```

1271	1271	Honda	City	Vx Mt Diesel	1498.0	4.0	4.0	FWD (Front Wheel Drive)	In-line	Front, Transverse	...	Y
1272	1272	Honda	City	Zx Mt Diesel	1498.0	4.0	4.0	FWD (Front Wheel Drive)	In-line	Front, Transverse	...	Y
1273	1273	Honda	City	Zx Cvt Petrol	1497.0	4.0	4.0	FWD (Front Wheel Drive)	In-line	Front, Transverse	...	Y
1274	1274	Honda	City	V Cvt Petrol	1497.0	4.0	4.0	FWD (Front Wheel Drive)	In-line	Front, Transverse	...	Na
1275	1275	Mitsubishi	Montero	3.2 At	3200.0	4.0	4.0	AWD (All Wheel Drive)	In-line	Front, Longitudinal	...	Y

Task 1

In [19]:

```
for item in car.columns:
    print(item," ",car[item].isna().sum())
```

```
Front_Track   667
Rear_Track   676
Front_Tyre_&_Rim   49
Rear_Tyre_&_Rim   48
Power_Steering   57
Power_Windows   97
Power_Seats   893
Keyless_Entry   274
Power   0
Torque   2
Odometer   43
Speedometer   45
Tachometer   13
Tripmeter   60
Seating_Capacity   6
Seats_Material   12
Type   1
Wheelbase   20
Wheels_Size   56
Start_/_Stop_Button   678
```

In [23]:

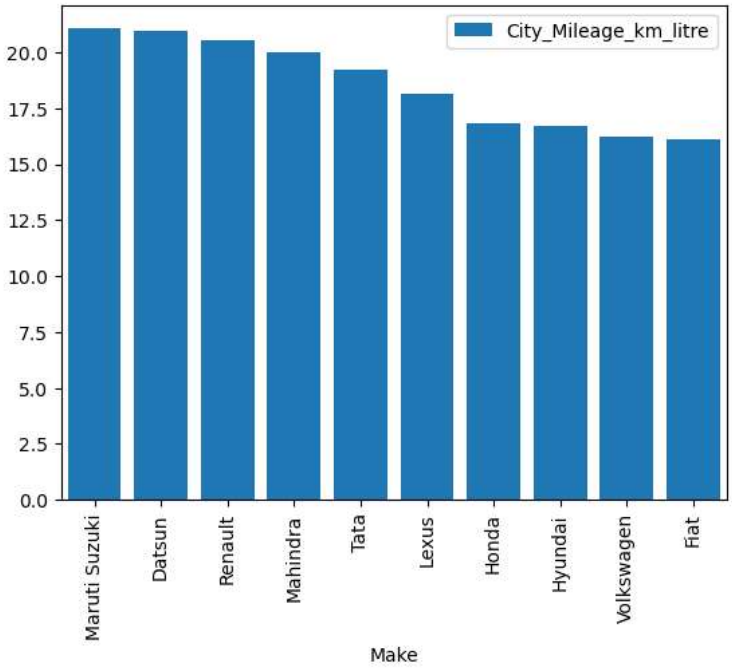
```
pvt = pd.pivot_table(car,index=['Make'],values=['City_Mileage_km_litre'] , aggfunc ='mean').sort_values(['City_Mileage_km_litre'],ascendi
data = pvt[:10]
data
```

Out[23]:

Make	City_Mileage_km_litre
Maruti Suzuki	21.062826
Datsun	20.946667
Renault	20.554286
Mahindra	20.003763
Tata	19.233542
Lexus	18.150000
Honda	16.805714
Hyundai	16.679853
Volkswagen	16.225000
Fiat	16.090909

In [34]:

```
data.plot.bar()
plt.bar(data.index, data['City_Mileage_km_litre'])
plt.show()
```



Task 2

In [9]:

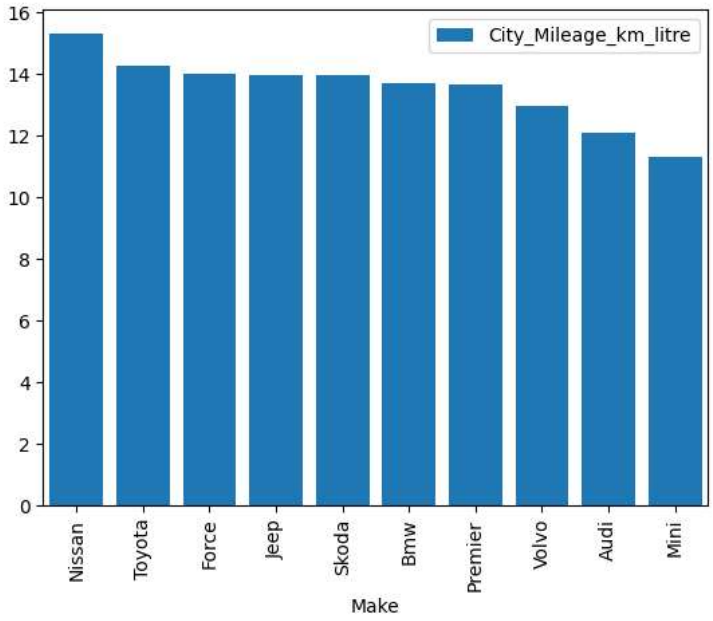
```
data1 = pvt[10:20]
data1
```

Out[9]:

Make	City_Mileage_km_litre
Nissan	15.324375
Toyota	14.293065
Force	14.000000
Jeep	13.975000
Skoda	13.953333
Bmw	13.686875
Premier	13.666667
Volvo	12.953077
Audi	12.081250
Mini	11.300000

In [33]:

```
data1.plot.bar()
plt.bar(data1.index, data1['City_Mileage_km_litre'])
plt.show()
```



Task 3

In [44]:

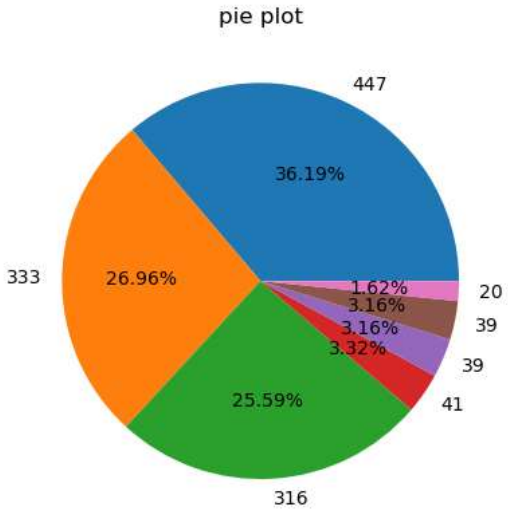
```
grp = car.groupby(['Body_Type'])['Body_Type'].count().sort_values(ascending=False)[:7]
grp
```

Out[44]:

```
Body_Type
SUV          447
Sedan        333
Hatchback    316
Coupe         41
MPV           39
MUV           39
Convertible   20
Name: Body_Type, dtype: int64
```

In [62]:

```
plt.pie(grp, labels = grp, autopct = '%.2f%%')
plt.title("pie plot")
plt.show()
#plt.pie(grp.index, labels = grp['Body_Type']);
#fig = plt.figure(figsize =(10,7))
#plt.pie(grp, labels = grp)
#plt.show()
```



Task 4

In [84]:

```
CR = car[(car.Make   == 'Hyundai')|(car.Make   == 'Mahindra')|(car.Make   == 'Renault')|(car.Make   == 'Skoda')]
```

In [92]:

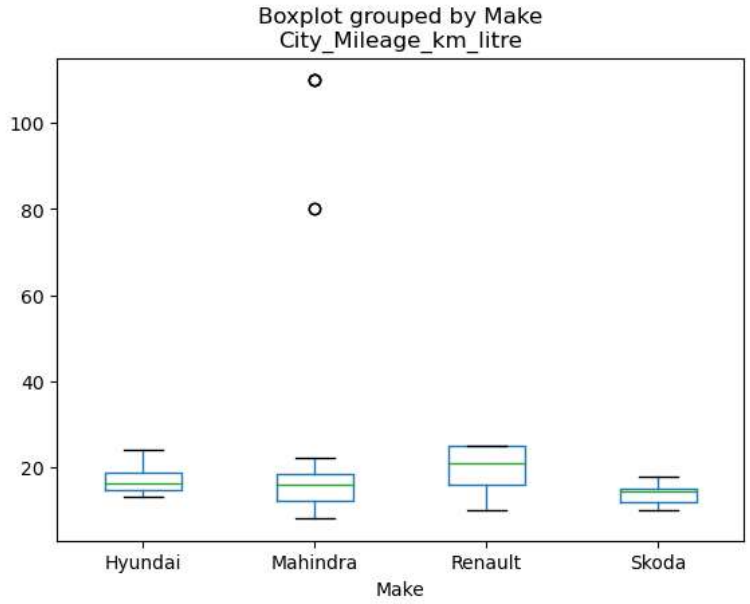
```
#pvt2 = pd.pivot_table(CR,index=['Make'],values=['City_Mileage_km_litre'] , aggfunc =['mean','max','min'])#.sort_values(,ascending=False)
#data3 = pvt2[:10]
#pvt2
```

Out[92]:

	mean	max	min
	City_Mileage_km_litre	City_Mileage_km_litre	City_Mileage_km_litre
Make			
Hyundai	16.679853	24.00	13.1
Mahindra	20.003763	110.00	8.1
Renault	20.554286	25.17	10.0
Skoda	13.953333	18.00	10.1

In [97]:

```
#data.boxplot(by='Department', column =['Annual Salary ($)'], grid = False);
CR.boxplot(by='Make', column =['City_Mileage_km_litre'], grid = False);
```



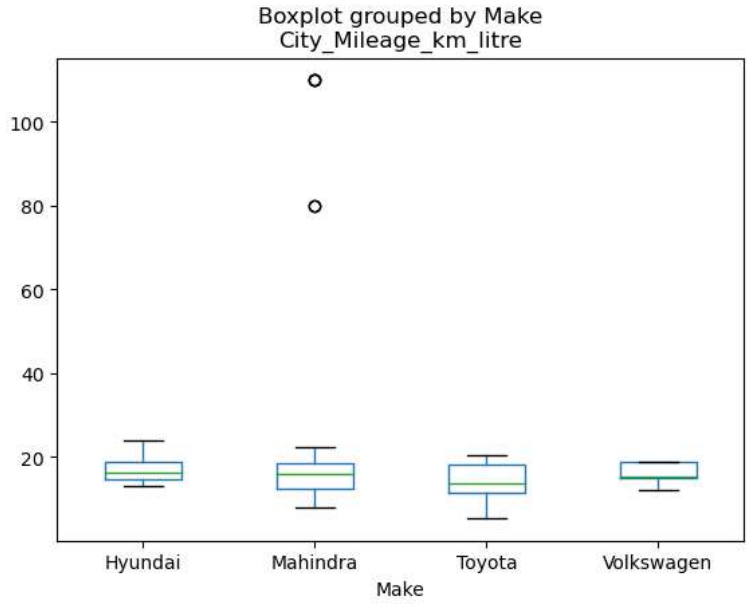
Task 5

In [98]:

```
CR1 = car[(car.Make   == 'Toyota')|(car.Make   == 'Mahindra')|(car.Make   == 'Volkswagen')|(car.Make   == 'Hyundai')]
```

In [99]:

```
CR1.boxplot(by='Make', column =['City_Mileage_km_litre'], grid = False);
```



In [ ]:

```

```