```
import csv
cars = []
with open("C:/Users/ahsan/OneDrive/Desktop/couch_to_coder/session_4/vw.csv",
"r") as csvfile:
 print(csvfile)
 reader = csv.reader(csvfile, skipinitialspace=True)
 for row in reader:
     new_car = {}
     new_car["model"] = row[0]
     new_car["year"] = row[1]
     new_car["price"] = row[2]
     new_car["transmission"] = row[3]
     new_car["mileage"] = row[4]
     new_car["fuelType"] = row[5]
     new_car["tax"] = row[6]
     new_car["mpg"] = row[7]
     new_car["engineSize"] = row[8]
     cars.append(new_car)


# What is the most expensive car?
count =0
expensive_car=cars[1]
for car in cars:
   if(count==0):
    count+=1 # For ignoring the first row with the title
   else:
     if(int(car['price'])>int(expensive_car['price'])):
       expensive_car = car

print(f"The most expensive car is{expensive_car['model']} of price
{expensive_car['price']}")


# Finding all the VW Golf models and calculating the average price

count=0
vw_golf=[]
total_price_vw_golf=0
for car in cars:
  if(count==0):
    count+=1 # For ignoring the first row with the title
  else:
    if("golf" in car['model'].lower()):
      #print(car)
      total_price_vw_golf+=int(car['price'])
      vw_golf.append(car)
```

```
print(f"Average price for VW Golf car is:
{total_price_vw_golf/len(vw_golf):.2f}")

# What is the average mileage for VW Polo models registered in 2020?

count=0
vw_polo_total_mileage=0
no_of_polo_cars=0

for car in cars:
  if(count==0):
     count+=1 # For ignoring the first row with the title
  else:

    if(("polo" in car['model'].lower().strip()) and
(car['year'].strip()=='2020')):
      vw_polo_total_mileage+= int(car['mileage'])
      no_of_polo_cars+=1

print(f"Average mileage for VW Polo car is:
{vw_polo_total_mileage/no_of_polo_cars:.2f}")


# Extensions

# A pie chart showing the distribution between fuel types.
import pandas as pd
import matplotlib.pyplot as plt
data =
pd.read_csv("C:/Users/ahsan/OneDrive/Desktop/couch_to_coder/session_4/vw.csv")
data.head()

number_of_fule_types =
data.groupby('fuelType')[['model']].count().sort_values("model",ascending=Fals
e).head(10).reset_index()
print(number_of_fule_types)

plt.pie(number_of_fule_types.model,labels=number_of_fule_types.fuelType)
plt.show()

#A bar chart showing the average mileage for each model.
group_by_avg_mileage= data.groupby('model').mileage.mean().reset_index()
print(group_by_avg_mileage)

plt.bar(group_by_avg_mileage.model,group_by_avg_mileage.mileage,color='green',
width=0.2)
plt.xlabel("Model")
plt.ylabel("Mileage")
```

```
plt.title("Average mileage by model")
plt.show()
```

```
The most expensive car isCalifornia of price 69994
Average price for VW Golf car is: 16647.45
Average mileage for VW Polo car is: 2199.90
  fuelType  model
0   Petrol   8553
1   Diesel   6372
2   Hybrid    145
3    Other     87
              model       mileage
0            Amarok  21525.990991
1            Arteon   7390.294355
2            Beetle  39577.746988
3                CC  50117.926316
4            Caddy   38715.166667
5        Caddy Life  10943.625000
6        Caddy Maxi  59405.750000
7    Caddy Maxi Life  11874.728814
8        California   7422.266667
9         Caravelle  22458.663366
10              Eos  71641.428571
11              Fox  78701.500000
12             Golf  24434.751388
13          Golf SV  16262.832090
14            Jetta  44340.343750
15           Passat  34345.663388
16             Polo  21077.314268
17         Scirocco  36436.103306
18           Sharan  16352.511538
19          Shuttle  17600.245902
20          T-Cross   3198.250000
21            T-Roc   7345.648022
22           Tiguan  21226.323513
23  Tiguan Allspace   7828.604396
24          Touareg  22863.190083
25           Touran  26844.497159
26               Up  18568.943439
```

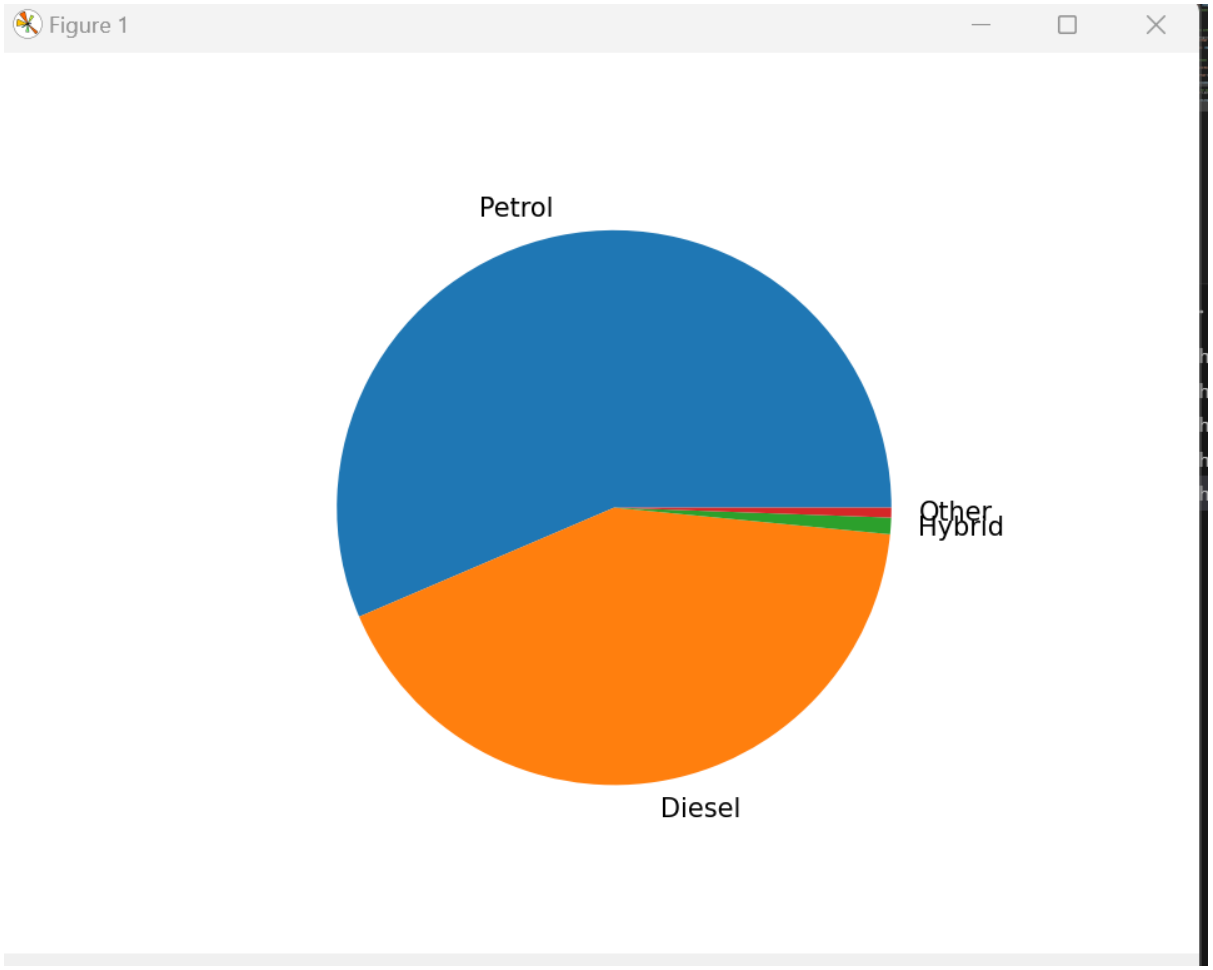
Figure 1
Petrol
Other
Hybrid
Diesel

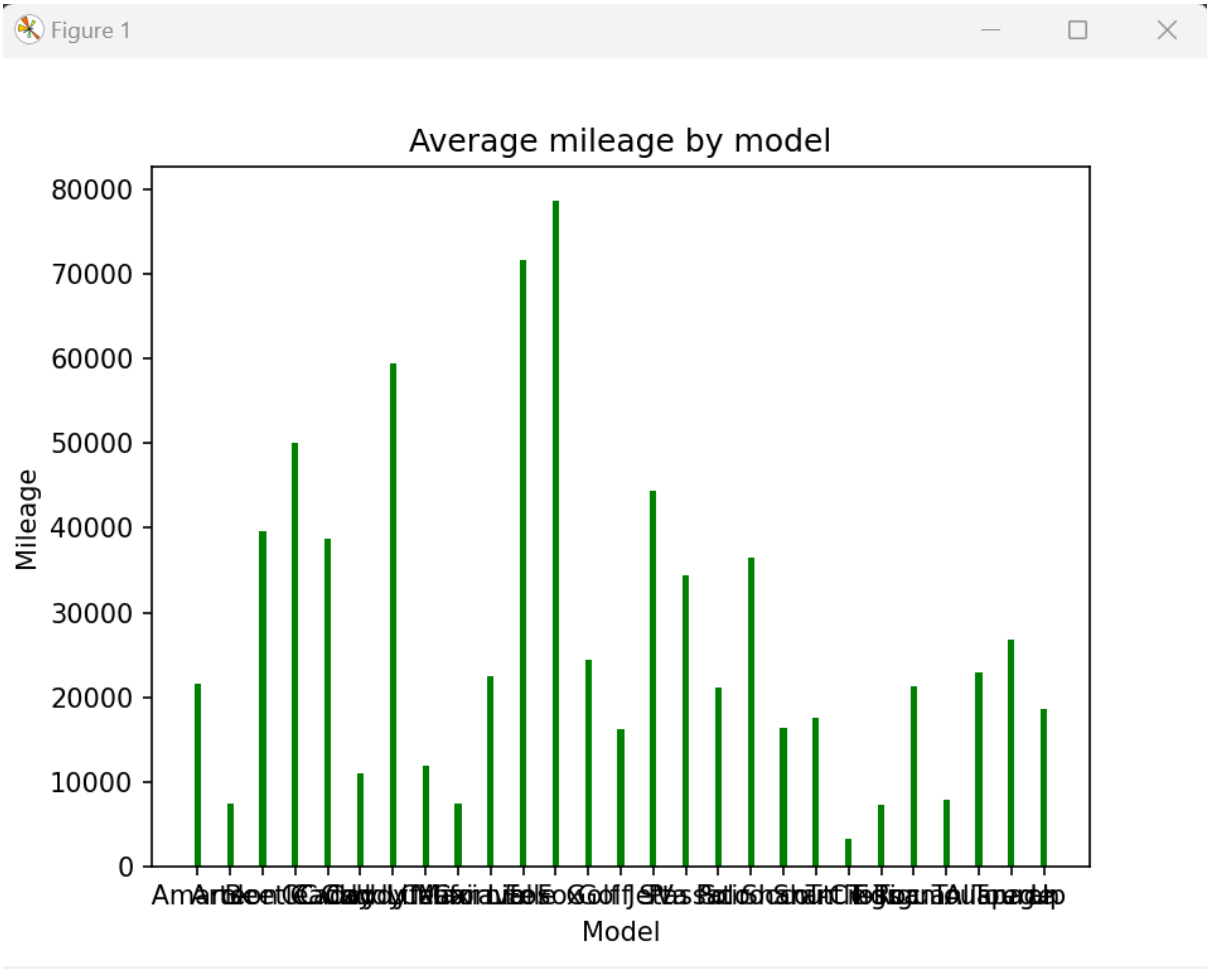
Figure 1
Average mileage by model
Mileage
80000
70000
60000
50000
40000
30000
20000
10000
0
Model