

In [2]:

```
#####Task-1(a)###  
### filter out EVs that meet these criteria i.e. EV with budget of 350,000 PLN and a minimum range of 400 km ###  
  
import numpy as np  
import pandas as pd  
  
#Step-1: Load the dataset  
data=pd.read_excel("FEV-data-Excel.xlsx")  
  
#Step-2: Filter based on criteria  
filtered_data= data[(data["Minimal price (gross) [PLN]"<=350000) & (data["Range (WLTP) [km]">=400)]  
  
#Step-3: View result  
print(filtered_data["Car full name"].to_string(index=False))  
  
Audi e-tron 55 quattro  
BMW iX3  
Hyundai Kona electric 64kWh  
Kia e-Niro 64kWh  
Kia e-Soul 64kWh  
Mercedes-Benz EQC  
Tesla Model 3 Standard Range Plus  
Tesla Model 3 Long Range  
Tesla Model 3 Performance  
Volkswagen ID.3 Pro Performance  
Volkswagen ID.3 Pro S  
Volkswagen ID.4 1st
```

In [3]:

```
#####Task-1(b) Group them by the manufacturer (Make)###  
  
#Step-1: Group the filtered data by 'Make'  
filtered_data[["Car full name", "Make"]]  
grouped=filtered_data.groupby('Make')  
  
# Step 2: Display the results also aligned the result  
for make, group in grouped:  
    print(f"\nManufacturer: {make}")  
    car_names = group['Car full name'].str.ljust(30)  
    for name in car_names:  
        print(name)
```

Manufacturer: Audi
Audi e-tron 55 quattro

Manufacturer: BMW
BMW iX3

Manufacturer: Hyundai
Hyundai Kona electric 64kWh

Manufacturer: Kia
Kia e-Niro 64kWh
Kia e-Soul 64kWh

Manufacturer: Mercedes-Benz
Mercedes-Benz EQC

Manufacturer: Tesla
Tesla Model 3 Standard Range Plus
Tesla Model 3 Long Range
Tesla Model 3 Performance

Manufacturer: Volkswagen
Volkswagen ID.3 Pro Performance
Volkswagen ID.3 Pro S
Volkswagen ID.4 1st

In [4]:

```
###Task-1 (c) Calculate the average battery capacity for each manufacturer ###
```

```
#Step-1: Group by 'Make' and calculate average battery capacity and rename the columns
```

```
avg_battery=filtered_data.groupby("Make")["Battery capacity [kWh]"].mean().reset_index()
```

```
avg_battery.columns=['Manufacturer', 'Average Battery Capacity [kWh]']
```

```
#Step-2: Reduced the decimal value to 2 digits for average battery capacity
```

```
avg_battery["Average Battery Capacity [kWh]"]=avg_battery["Average Battery Capacity [kWh]"].round(2)
```

```
#Step-3: Displaying the result
```

```
print(avg_battery.to_string(index=False))
```

Manufacturer	Average Battery Capacity [kWh]
Audi	95.00
BMW	80.00
Hyundai	64.00
Kia	64.00
Mercedes-Benz	80.00
Tesla	68.00
Volkswagen	70.67