In [2]:
```
import pandas as pd
```

In [37]:
```
cars1 = pd.DataFrame({
    'car_id':[1,2,3,4,5],
    'brand':['Toyota','Honda','Ford','BMW','Audi'],
    'fuel_type':['Petrol','Diesel','Petrol','Diesel','Petrol']
})
```

In [35]:
```
cars2 = pd.DataFrame({
    'car_id':[1,2,3,4,5],
    'model':['Corolla','City','Mustang','X5','A4'],
    'fuel_type':['Petrol','Petrol','Petrol','Diesel','Petrol']
})
```

In [39]:
```
print(cars1)
```

```
   car_id   brand fuel_type
0       1  Toyota    Petrol
1       2   Honda    Diesel
2       3    Ford    Petrol
3       4     BMW    Diesel
4       5    Audi    Petrol
```

In [41]:
```
print(cars2)
```

```
   car_id    model fuel_type
0       1  Corolla    Petrol
1       2     City    Petrol
2       3  Mustang    Petrol
3       4       X5    Diesel
4       5       A4    Petrol
```

In [43]:
```
pd.merge(cars1,cars2, on='car_id')
```

Out[43]:

	car_id	brand	fuel_type_x	model	fuel_type_y
0	1	Toyota	Petrol	Corolla	Petrol
1	2	Honda	Diesel	City	Petrol
2	3	Ford	Petrol	Mustang	Petrol
3	4	BMW	Diesel	X5	Diesel
4	5	Audi	Petrol	A4	Petrol

In [47]:
```
pd.merge(cars1,cars2, on=['fuel_type', 'car_id'])
```

Out[47]:

	car_id	brand	fuel_type	model
0	1	Toyota	Petrol	Corolla
1	3	Ford	Petrol	Mustang
2	4	BMW	Diesel	X5
3	5	Audi	Petrol	A4

In [49]:
```
pd.merge(cars1,cars2, on='fuel_type', how='left')
```

Out[49]:

	car_id_x	brand	fuel_type	car_id_y	model
0	1	Toyota	Petrol	1	Corolla
1	1	Toyota	Petrol	2	City
2	1	Toyota	Petrol	3	Mustang
3	1	Toyota	Petrol	5	A4
4	2	Honda	Diesel	4	X5
5	3	Ford	Petrol	1	Corolla
6	3	Ford	Petrol	2	City
7	3	Ford	Petrol	3	Mustang
8	3	Ford	Petrol	5	A4
9	4	BMW	Diesel	4	X5
10	5	Audi	Petrol	1	Corolla
11	5	Audi	Petrol	2	City
12	5	Audi	Petrol	3	Mustang
13	5	Audi	Petrol	5	A4

In [51]:
```
pd.merge(cars1,cars2, on='fuel_type', how='right')
```

Out[51]:

	car_id_x	brand	fuel_type	car_id_y	model
0	1	Toyota	Petrol	1	Corolla
1	3	Ford	Petrol	1	Corolla
2	5	Audi	Petrol	1	Corolla
3	1	Toyota	Petrol	2	City
4	3	Ford	Petrol	2	City
5	5	Audi	Petrol	2	City
6	1	Toyota	Petrol	3	Mustang
7	3	Ford	Petrol	3	Mustang
8	5	Audi	Petrol	3	Mustang
9	2	Honda	Diesel	4	X5
10	4	BMW	Diesel	4	X5
11	1	Toyota	Petrol	5	A4
12	3	Ford	Petrol	5	A4
13	5	Audi	Petrol	5	A4

In [53]:
```
pd.merge(cars1,cars2, on='fuel_type', how='inner')
```

Out[53]:

	car_id_x	brand	fuel_type	car_id_y	model
0	1	Toyota	Petrol	1	Corolla
1	1	Toyota	Petrol	2	City
2	1	Toyota	Petrol	3	Mustang
3	1	Toyota	Petrol	5	A4
4	2	Honda	Diesel	4	X5
5	3	Ford	Petrol	1	Corolla
6	3	Ford	Petrol	2	City
7	3	Ford	Petrol	3	Mustang
8	3	Ford	Petrol	5	A4
9	4	BMW	Diesel	4	X5
10	5	Audi	Petrol	1	Corolla
11	5	Audi	Petrol	2	City
12	5	Audi	Petrol	3	Mustang
13	5	Audi	Petrol	5	A4

In [55]:
```
pd.merge(cars1,cars2, on='fuel_type', how='outer')
```

Out[55]:

	car_id_x	brand	fuel_type	car_id_y	model
0	2	Honda	Diesel	4	X5
1	4	BMW	Diesel	4	X5
2	1	Toyota	Petrol	1	Corolla
3	1	Toyota	Petrol	2	City
4	1	Toyota	Petrol	3	Mustang
5	1	Toyota	Petrol	5	A4
6	3	Ford	Petrol	1	Corolla
7	3	Ford	Petrol	2	City
8	3	Ford	Petrol	3	Mustang
9	3	Ford	Petrol	5	A4
10	5	Audi	Petrol	1	Corolla
11	5	Audi	Petrol	2	City
12	5	Audi	Petrol	3	Mustang
13	5	Audi	Petrol	5	A4

In [57]:
```
pd.concat([cars1,cars2])
```

Out[57]:

	car_id	brand	fuel_type	model
0	1	Toyota	Petrol	NaN
1	2	Honda	Diesel	NaN
2	3	Ford	Petrol	NaN
3	4	BMW	Diesel	NaN
4	5	Audi	Petrol	NaN
0	1	NaN	Petrol	Corolla
1	2	NaN	Petrol	City
2	3	NaN	Petrol	Mustang
3	4	NaN	Diesel	X5
4	5	NaN	Petrol	A4

In [93]:
```
pd.concat([cars1,cars2], keys=['Dataset1','Dataset2'])
```

Out[93]:

		car_id	brand	fuel_type	model
Dataset1	**0**	1	Toyota	Petrol	NaN
	1	2	Honda	Diesel	NaN
	2	3	Ford	Petrol	NaN
	3	4	BMW	Diesel	NaN
	4	5	Audi	Petrol	NaN
Dataset2	**0**	1	NaN	Petrol	Corolla
	1	2	NaN	Petrol	City
	2	3	NaN	Petrol	Mustang
	3	4	NaN	Diesel	X5
	4	5	NaN	Petrol	A4

In [61]:
```
pd.concat([cars1,cars2], ignore_index=True)
```

Out[61]:

	car_id	brand	fuel_type	model
0	1	Toyota	Petrol	NaN
1	2	Honda	Diesel	NaN
2	3	Ford	Petrol	NaN
3	4	BMW	Diesel	NaN
4	5	Audi	Petrol	NaN
5	1	NaN	Petrol	Corolla
6	2	NaN	Petrol	City
7	3	NaN	Petrol	Mustang
8	4	NaN	Diesel	X5
9	5	NaN	Petrol	A4

In [63]:
```
pd.concat([cars1,cars2], axis=1)
```

Out[63]:

	car_id	brand	fuel_type	car_id	model	fuel_type
0	1	Toyota	Petrol	1	Corolla	Petrol
1	2	Honda	Diesel	2	City	Petrol
2	3	Ford	Petrol	3	Mustang	Petrol
3	4	BMW	Diesel	4	X5	Diesel
4	5	Audi	Petrol	5	A4	Petrol

In [65]:
```
car_prices = pd.DataFrame(
    [[800000, 20, 5],
     [600000, 18, 4],
     [1200000, 10, 6],
     [1500000, 12, 8],
     [700000, 22, 5]],
    columns=['Price', 'Mileage', 'Age'],
    index=['Car1', 'Car2', 'Car3', 'Car4', 'Car5']
)
```

In [67]:
```
print(car_prices)
```

```
       Price  Mileage  Age
Car1   800000       20    5
Car2   600000       18    4
Car3  1200000       10    6
Car4  1500000       12    8
Car5   700000       22    5
```

In [91]:
```
print("\n--------Mean--------\n")
print(car_prices.mean())
```

```
--------Mean--------

Price      960000.0
Mileage        16.4
Age             5.6
dtype: float64
```

In [87]:
```
print("\n-------Median-------\n")
print(car_prices.median())
```

```
-------Median-------

Price      800000.0
Mileage        18.0
Age             5.0
dtype: float64
```

In [85]:
```
print("\n-----------Mode----------\n")
print(car_prices.mode())
```

```
-----------Mode----------

     Price  Mileage  Age
0   600000       10  5.0
1   700000       12  NaN
2   800000       18  NaN
3  1200000       20  NaN
4  1500000       22  NaN
```

In [ ]: