

```
In [1]: import pandas as pd
```

```
In [2]: import numpy as np
```

```
In [8]: data={  
    'Region': ['Asia', 'Asia', 'Europe', 'Europe', 'America', 'America'],  
    'Country': ['China', 'India', 'France', 'Germany', 'Usa', 'Canda'],  
    'Year': [2025, 2023, 2024, 2022, 2021, 2025],  
    'Sales': [130000, 124000, 145000, 345000, 32000, 120000],  
    'Profit': [300, 480, 500, 600, 700, 600]  
}  
df=pd.DataFrame(data)  
print(df)
```

	Region	Country	Year	Sales	Profit
0	Asia	China	2025	130000	300
1	Asia	India	2023	124000	480
2	Europe	France	2024	145000	500
3	Europe	Germany	2022	345000	600
4	America	Usa	2021	32000	700
5	America	Canda	2025	120000	600

```
In [9]: df
```

	Region	Country	Year	Sales	Profit
0	Asia	China	2025	130000	300
1	Asia	India	2023	124000	480
2	Europe	France	2024	145000	500
3	Europe	Germany	2022	345000	600
4	America	Usa	2021	32000	700
5	America	Canda	2025	120000	600

```
In [12]: df.sort_values(by='Sales', ascending=True)
```

	Region	Country	Year	Sales	Profit
4	America	Usa	2021	32000	700
5	America	Canda	2025	120000	600
1	Asia	India	2023	124000	480
0	Asia	China	2025	130000	300
2	Europe	France	2024	145000	500
3	Europe	Germany	2022	345000	600

```
In [16]: df.groupby('Region')[['Sales', 'Profit']].mean()
```

Out[16]:

Sales Profit

Region		
America	760000.0	650.0
Asia	1270000.0	390.0
Europe	2450000.0	550.0

In []:

```
df["Profit Margin %"] = (df["Profit"] / df["Sales"]) * 100
df = pd.DataFrame(data)
```

```
In [27]: df[df['Region']=='Asia']
```

Out[27]:

	Region	Country	Year	Sales	Profit
0	Asia	China	2025	130000	300
1	Asia	India	2023	124000	480

```
In [28]: ice_cream=['strawberry','chocolate','vanilla','butterscotch']
```

```
In [29]: pd.Series(ice_cream)
```

Out[29]:

```
0    strawberry
1    chocolate
2    vanilla
3    butterscotch
dtype: object
```

```
In [30]: lottery_number=[12,45,67,89,9]
pd.Series(lottery_number)
```

Out[30]:

```
0    12
1    45
2    67
3    89
4     9
dtype: int64
```

```
In [32]: sushi={
    'salmon': 'orange',
    'tunna' : 'red',
    'seaweed' : 'green'
}
```

```
In [33]: pd.Series(sushi)
```

Out[33]:

```
salmon    orange
tunna     red
seaweed   green
dtype: object
```

```
In [38]: price=[10.1,20,30,40,50]
```

```
pd.Series(price)
```

```
Out[38]: 0    10.1
         1    20.0
         2    30.0
         3    40.0
         4    50.0
        dtype: float64
```

```
In [44]: price=pd.Series([23.5,45,78,2,5])
```

```
In [45]: price
```

```
Out[45]: 0    23.5
         1    45.0
         2    78.0
         3    2.0
         4    5.0
        dtype: float64
```

```
In [46]: price.sum()
```

```
Out[46]: 153.5
```

```
In [47]: price.mean()
```

```
Out[47]: 30.7
```

```
In [48]: price.product()
```

```
Out[48]: 824850.0
```

```
In [49]: price.std()
```

```
Out[49]: 31.53490129998824
```

```
In [50]: adjectives=pd.Series(['Beautiful','Smart','Intelligent','Handsome','Smart'])
adjectives
```

```
Out[50]: 0      Beautiful
         1          Smart
         2    Intelligent
         3      Handsome
         4          Smart
        dtype: object
```

```
In [54]: adjectives.size
```

```
Out[54]: 5
```

```
In [56]: adjectives.values
```

```
Out[56]: array(['Beautiful', 'Smart', 'Intelligent', 'Handsome', 'Smart'],
              dtype=object)
```

```
In [57]: adjectives.is_unique
```

```
Out[57]: False
```

```
In [58]: type(adjectives.values)
```

```
Out[58]: numpy.ndarray
```

```
In [60]: weekdays=["Monday", "Tuesday", "Wednesday", "Thursday", "Friday", "Saturday", "Sunday"]
fruits=["Apple", "Banana", "Orange", "Gauva", "Lichhi", "Kiwi", "Mangoes"]
```

```
In [61]: pd.Series(weekdays, fruits)
```

```
Out[61]: Apple      Monday
          Banana     Tuesday
          Orange    Wednesday
          Gauva     Thursday
          Lichhi    Friday
          Kiwi      Saturday
          Mangoes   Sunday
          dtype: object
```

```
In [62]: pd.Series(index=fruits, data=weekdays)
```

```
Out[62]: Apple      Monday
          Banana     Tuesday
          Orange    Wednesday
          Gauva     Thursday
          Lichhi    Friday
          Kiwi      Saturday
          Mangoes   Sunday
          dtype: object
```

```
In [5]: import pandas as pd
import numpy as np
pd.read_csv(r"C:\Users\rajkp\Downloads\pokemon.csv")
```

	Name	Type
0	Bulbasaur	Grass, Poison
1	Ivysaur	Grass, Poison
2	Venusaur	Grass, Poison
3	Charmander	Fire
4	Charmeleon	Fire
...
1005	Iron Valiant	Fairy, Fighting
1006	Koraidon	Fighting, Dragon
1007	Miraidon	Electric, Dragon
1008	Walking Wake	Water, Dragon
1009	Iron Leaves	Grass, Psychic

1010 rows × 2 columns

```
In [6]: pokemon=pd.read_csv(r"C:\Users\rajkp\Downloads\pokemon.csv")
```

```
In [7]: pokemon
```

```
Out[7]:
```

	Name	Type
0	Bulbasaur	Grass, Poison
1	Ivysaur	Grass, Poison
2	Venusaur	Grass, Poison
3	Charmander	Fire
4	Charmeleon	Fire
...
1005	Iron Valiant	Fairy, Fighting
1006	Koraidon	Fighting, Dragon
1007	Miraidon	Electric, Dragon
1008	Walking Wake	Water, Dragon
1009	Iron Leaves	Grass, Psychic

1010 rows × 2 columns

```
In [8]: list(pokemon)  
len(pokemon)
```

```
Out[8]: 1010
```

```
In [9]: sorted(pokemon)  
min(pokemon)  
max(pokemon)
```

```
Out[9]: 'Type'
```

```
In [10]: pokemon=pd.read_csv(r"C:\Users\rajkp\Downloads\pokemon.csv")
```

```
In [11]: pokemon
```

Out[11]:

	Name	Type
0	Bulbasaur	Grass, Poison
1	Ivysaur	Grass, Poison
2	Venusaur	Grass, Poison
3	Charmander	Fire
4	Charmeleon	Fire
...
1005	Iron Valiant	Fairy, Fighting
1006	Koraidon	Fighting, Dragon
1007	Miraidon	Electric, Dragon
1008	Walking Wake	Water, Dragon
1009	Iron Leaves	Grass, Psychic

1010 rows × 2 columns

In [12]: `pokemon.sort_values('Name', ascending=False)`

Out[12]:

	Name	Type
717	Zygarde	Dragon, Ground
633	Zweilous	Dark, Dragon
40	Zubat	Poison, Flying
569	Zorua	Dark
570	Zoroark	Dark
...
680	Aegislash	Steel, Ghost
616	Accelgor	Bug
358	Absol	Dark
62	Abra	Psychic
459	Abomasnow	Grass, Ice

1010 rows × 2 columns

In [13]: `pokemon.sort_index(ascending=False)`

Out[13]:

	Name	Type
1009	Iron Leaves	Grass, Psychic
1008	Walking Wake	Water, Dragon
1007	Miraidon	Electric, Dragon
1006	Koraidon	Fighting, Dragon
1005	Iron Valiant	Fairy, Fighting
...
4	Charmeleon	Fire
3	Charmander	Fire
2	Venusaur	Grass, Poison
1	Ivysaur	Grass, Poison
0	Bulbasaur	Grass, Poison

1010 rows × 2 columns

In []: