

# Weekly Assignment 7

## Data Analysis Problem on Data Wrangling and Exploring

### 1. Import the necessary libraries

```
In [ ]: import pandas as pd
import numpy as np
```

### 2. Import the dataset from this address.

```
In [13]: olympic_Data=pd.read_csv("https://raw.githubusercontent.com/svkarthik86/Advance-Python-Numpy/main/olympics_dirty.csv",skiprows=4)
olympic_Data
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
3	Athens	1896	Aquatics	Swimming	MALOKINIS, Ioannis	GRE	Men	100m freestyle for sailors	M	NaN
4	Athens	1896	Aquatics	Swimming	CHASAPIS, Spiridon	NaN	Men	100m freestyle for sailors	M	Silver
...	...	...	...	...	...	...	...	...	...	...
29211	Beijing	2008	Wrestling	Wrestling Gre-R	ENGLISH, Mirko	GER	Men	84 - 96kg	M	Silver
29212	Beijing	2008	Wrestling	Wrestling Gre-R	MIZGAITIS, Mindaugas	LTU	Men	96 - 120kg	M	Bronze
29213	Beijing	2008	Wrestling	Wrestling Gre-R	PATRIKEEV, Yuri	ARM	Men	96 - 120kg	M	Bronze
29214	Beijing	2008	Wrestling	Wrestling Gre-R	LOPEZ, Mijain	CUB	Men	96 - 120kg	M	Gold
29215	Beijing	2008	Wrestling	Wrestling Gre-R	BAROEV, Khasan	RUS	Men	96 - 120kg	M	Silver

29216 rows × 10 columns

### 3. Assign it to a variable called odata.

```
In [14]: odata=olympic_Data
odata
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
3	Athens	1896	Aquatics	Swimming	MALOKINIS, Ioannis	GRE	Men	100m freestyle for sailors	M	NaN
4	Athens	1896	Aquatics	Swimming	CHASAPIS, Spiridon	NaN	Men	100m freestyle for sailors	M	Silver
...	...	...	...	...	...	...	...	...	...	...
29211	Beijing	2008	Wrestling	Wrestling Gre-R	ENGLISH, Mirko	GER	Men	84 - 96kg	M	Silver
29212	Beijing	2008	Wrestling	Wrestling Gre-R	MIZGAITIS, Mindaugas	LTU	Men	96 - 120kg	M	Bronze
29213	Beijing	2008	Wrestling	Wrestling Gre-R	PATRIKEEV, Yuri	ARM	Men	96 - 120kg	M	Bronze
29214	Beijing	2008	Wrestling	Wrestling Gre-R	LOPEZ, Mijain	CUB	Men	96 - 120kg	M	Gold
29215	Beijing	2008	Wrestling	Wrestling Gre-R	BAROEV, Khasan	RUS	Men	96 - 120kg	M	Silver

29216 rows × 10 columns

### 4. show the first 5 entries

```
In [15]: odata.head(5)
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
3	Athens	1896	Aquatics	Swimming	MALOKINIS, Ioannis	GRE	Men	100m freestyle for sailors	M	NaN
4	Athens	1896	Aquatics	Swimming	CHASAPIS, Spiridon	NaN	Men	100m freestyle for sailors	M	Silver

### 5. What is the number of observations in the dataset?

```
In [17]: len(odata)
29216
```

### 6. What is the number of columns in the dataset?

```
In [16]: odata.size
292160
```

### 7. Print the name of all the columns.

```
In [18]: odata.columns
Out[18]: Index(['Available_City', 'Edition_year', 'Sport_name', 'Discipline', 'Athlete', 'NOC', 'Gender', 'Event', 'Event_gender', 'Medal'],
dtype='object')
```

### 8. How is the dataset indexed?

```
In [19]: type(odata)
pandas.core.frame.DataFrame
```

```
In [20]: odata.index
Out[20]: RangeIndex(start=0, stop=29216, step=1)
```

### 9. Rename the column as Available\_City to City, Edition\_year to Edition , Sport\_name to Sport

```
In [21]: import pandas as pd
olympic_Data=pd.read_csv("https://raw.githubusercontent.com/svkarthik86/Advance-Python-Numpy/main/olympics_dirty.csv",skiprows=4)
olympic_Data
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
3	Athens	1896	Aquatics	Swimming	MALOKINIS, Ioannis	GRE	Men	100m freestyle for sailors	M	NaN
4	Athens	1896	Aquatics	Swimming	CHASAPIS, Spiridon	NaN	Men	100m freestyle for sailors	M	Silver
...	...	...	...	...	...	...	...	...	...	...
29211	Beijing	2008	Wrestling	Wrestling Gre-R	ENGLISH, Mirko	GER	Men	84 - 96kg	M	Silver
29212	Beijing	2008	Wrestling	Wrestling Gre-R	MIZGAITIS, Mindaugas	LTU	Men	96 - 120kg	M	Bronze
29213	Beijing	2008	Wrestling	Wrestling Gre-R	PATRIKEEV, Yuri	ARM	Men	96 - 120kg	M	Bronze
29214	Beijing	2008	Wrestling	Wrestling Gre-R	LOPEZ, Mijain	CUB	Men	96 - 120kg	M	Gold
29215	Beijing	2008	Wrestling	Wrestling Gre-R	BAROEV, Khasan	RUS	Men	96 - 120kg	M	Silver

29216 rows × 10 columns

```
In [22]: odata=olympic_Data
odata.rename(columns={' City':'Available_City', ' Edition':'Edition_year', ' Sport':'Sport_name'},inplace=True)
odata
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
3	Athens	1896	Aquatics	Swimming	MALOKINIS, Ioannis	GRE	Men	100m freestyle for sailors	M	NaN
4	Athens	1896	Aquatics	Swimming	CHASAPIS, Spiridon	NaN	Men	100m freestyle for sailors	M	Silver
...	...	...	...	...	...	...	...	...	...	...
29211	Beijing	2008	Wrestling	Wrestling Gre-R	ENGLISH, Mirko	GER	Men	84 - 96kg	M	Silver
29212	Beijing	2008	Wrestling	Wrestling Gre-R	MIZGAITIS, Mindaugas	LTU	Men	96 - 120kg	M	Bronze
29213	Beijing	2008	Wrestling	Wrestling Gre-R	PATRIKEEV, Yuri	ARM	Men	96 - 120kg	M	Bronze
29214	Beijing	2008	Wrestling	Wrestling Gre-R	LOPEZ, Mijain	CUB	Men	96 - 120kg	M	Gold
29215	Beijing	2008	Wrestling	Wrestling Gre-R	BAROEV, Khasan	RUS	Men	96 - 120kg	M	Silver

29216 rows × 10 columns

### 10. How many Athletes own the Gold medal?

```
In [23]: odata[(odata.Medal=='Gold')]['Athlete'].value_counts()
```

PHELPS, Michael	14
LATYNINA, Larisa	9
SPITZ, Mark	9
NURMI, Paavo	9
LEWIS, Carl	9
LISENKO-SHEVTSOVA, Lyudmila	1
THOMPSON, Donald James	1
HALBERG, Murray Gordon	1
YOUNG, Earl Verdellie	1
LOPEZ, Mijain	1
Name: Athlete, Length: 7840, dtype: int64	

### 11. Display the male gold medal winners for the 100m Track?

```
In [24]: od1=odata((odata.Medal=='Gold')&(odata.Gender=='Men')&(odata.Event=='100m')&(odata.Discipline=='Athletics'))
od1
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
13	Athens	1896	Athletics	Athletics	BURKE, Thomas	USA	Men	100m	M	Gold
231	Paris	1900	Athletics	Athletics	JARVIS, Francis	USA	Men	100m	M	Gold
737	St Louis	1904	Athletics	Athletics	HAHN, Archie	USA	Men	100m	M	Gold
1191	London	1908	Athletics	Athletics	WALKER, Reginald	RSA	Men	100m	M	Gold
2922	Stockholm	1912	Athletics	Athletics	CRAIG, Ralph	USA	Men	100m	M	Gold
2996	Antwerp	1920	Athletics	Athletics	PADDOCK, Charles	USA	Men	100m	M	Gold
4236	Paris	1924	Athletics	Athletics	ABRAHAM, Harold	GBR	Men	100m	M	Gold
5095	Amsterdam	1928	Athletics	Athletics	WILLIAMS, Percy	CAN	Men	100m	M	Gold
5806	Los Angeles	1932	Athletics	Athletics	TOLAN, Eddie	USA	Men	100m	M	Gold
6427	Berlin	1936	Athletics	Athletics	OWENS, Jesse	USA	Men	100m	M	Gold
7202	London	1948	Athletics	Athletics	DILLARD, Harrison	USA	Men	100m	M	Gold
8121	Helsinki	1952	Athletics	Athletics	REMIGINO, Lindy	USA	Men	100m	M	Gold
9009	Melbourne / Stockholm	1956	Athletics	Athletics	MORROW, Robert Joseph	USA	Men	100m	M	Gold
9924	Rome	1960	Athletics	Athletics	HARY, Armin	EUA	Men	100m	M	Gold
10823	Tokyo	1964	Athletics	Athletics	HAYES, Robert	USA	Men	100m	M	Gold
11865	Mexico	1968	Athletics	Athletics	HINES, James Ray	USA	Men	100m	M	Gold
12902	Munich	1972	Athletics	Athletics	BORZOV, Valery	URS	Men	100m	M	Gold
14069	Montreal	1976	Athletics	Athletics	CRAWFORD, Hasely	TRI	Men	100m	M	Gold
15374	Moscow	1980	Athletics	Athletics	WELLS, Allan	GBR	Men	100m	M	Gold
16794	Los Angeles	1984	Athletics	Athletics	LEWIS, Carl	USA	Men	100m	M	Gold
18284	Seoul	1988	Athletics	Athletics	LEWIS, Carl	USA	Men	100m	M	Gold
19859	Barcelona	1992	Athletics	Athletics	CHRISTIE, Linford	GBR	Men	100m	M	Gold
21598	Atlanta	1996	Athletics	Athletics	BAILEY, Donovan	CAN	Men	100m	M	Gold
23521	Sydney	2000	Athletics	Athletics	GREENE, Maurice	USA	Men	100m	M	Gold
25539	Athens	2004	Athletics	Athletics	GATLIN, Justin	USA	Men	100m	M	Gold
27552	Beijing	2008	Athletics	Athletics	BOLT, Usain	JAM	Men	100m	M	Gold

### 12. Which three countries have won the most medals in recent years (from 1984 to 2008)?

```
In [25]: odata[(odata.Edition_year>=1984)&(odata.Edition_year<=2008)][["NOC"]].value_counts().head(3)
```

USA	1837
AUS	762
GER	691
Name: NOC, dtype: int64	

### 13. Which country has won the most men's gold medals in singles badminton over the years? Sort the results alphabetically by the

player's names.

```
In [26]: odata[(odata.Medal=='Gold')&(odata.Gender=='Men')&(odata.Event=='singles')&(odata.Discipline=='Badminton')].sort_values(['Athlete'])
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
20045	Barcelona	1992	Badminton	Badminton	BUDI KUSUMA, Alan	INA	Men	singles	M	Gold
25734	Athens	2004	Badminton	Badminton	HIDAYAT, Taufik	INA	Men	singles	M	Gold
21787	Atlanta	1996	Badminton	Badminton	HOYER-LARSEN, Poul Erik	DEN	Men	singles	M	Gold
23717	Sydney	2000	Badminton	Badminton	Ji, Xinpeng	CHN	Men	singles	M	Gold
27741	Beijing	2008	Badminton	Badminton	LIN, Dan	CHN	Men	singles	M	Gold

### 14. Display the women gold medal winners for the 100m Track?

```
In [27]: od1=odata[(odata.Medal=='Gold')&(odata.Gender=='Women')&(odata.Event=='100m')&(odata.Discipline=='Athletics')]
od1
```

	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal
5098	Amsterdam	1928	Athletics	Athletics	ROBINSON, Elizabeth	USA	Women	100m	W	Gold
5809	Los Angeles	1932	Athletics	Athletics	WALASIEWICZ, Stanisława	POL	Women	100m	W	Gold
6430	Berlin	1936	Athletics	Athletics	STEPHENS, Helen Harriss	USA	Women	100m	W	Gold
7305	London	1948	Athletics	Athletics	BLANKERS-KOEN, Fanny	NED	Women	100m	W	Gold
8124	Helsinki	1952	Athletics	Athletics	JACKSON, Marjorie	AUS	Women	100m	W	Gold
9012	Melbourne / Stockholm	1956	Athletics	Athletics	CUTHBERT, Betty	AUS	Women	100m	W	Gold
9927	Rome	1960	Athletics	Athletics	RUDOLPH, Wilma	USA	Women	100m	W	Gold
10826	Tokyo	1964	Athletics	Athletics	TYUS, Wyomia	USA	Women	100m	W	Gold
11868	Mexico	1968	Athletics	Athletics	TYUS, Wyomia	USA	Women	100m	W	Gold
12905	Munich	1972	Athletics	Athletics	STECHER, Renate	GDR	Women	100m	W	Gold
14072	Montreal	1976	Athletics	Athletics	RICHTER-IRRGANG, Annegret	FRG	Women	100m	W	Gold
15377	Moscow	1980	Athletics	Athletics	KONDRATIEVA, Ludmila	URS	Women	100m	W	Gold
16797	Los Angeles	1984	Athletics	Athletics	ASHFORD, Evelyn	USA	Women	100m	W	Gold
18287	Seoul	1988	Athletics	Athletics	GRIFFITH-JOYNER, Florence	USA	Women	100m	W	Gold
19862	Barcelona	1992	Athletics	Athletics	DEVERS, Gail	USA	Women	100m	W	Gold
21601	Atlanta	1996	Athletics	Athletics	DEVERS, Gail	USA	Women	100m	W	Gold
25542	Athens	2004	Athletics	Athletics	NESTERENKO, Yuliya	BLR	Women	100m	W	Gold
27554	Beijing	2008	Athletics	Athletics	FRASER, Shelly-ann	JAM	Women	100m	W	Gold

### 15.list out silver medal winners at 2008

```
In [28]: odata.dropna()
```

[28]:	odata.dropna()										
Out[28]:	Available_City	Edition_year	Sport_name	Discipline	Athlete	NOC	Gender	Event	Event_gender	Medal	
	0	Athens	1896	Aquatics	Swimming	HAJOS, Alfred	HUN	Men	100m freestyle	M	Gold
	1	Athens	1896	Aquatics	Swimming	HERSCHMANN, Otto	AUT	Men	100m freestyle	M	Silver
	2	Athens	1896	Aquatics	Swimming	DRIVAS, Dimitrios	GRE	Men	100m freestyle for sailors	M	Bronze
	7	Athens	1896	Aquatics	Swimming	ANDREOU, Joannis	GRE	Men	1200m freestyle	M	Silver
	9	Athens	1896	Aquatics	Swimming	NEUMANN, Paul	AUT	Men	400m freestyle	M	Gold
	...	...	...	...	...	...	...	...	...	...	
	29211	Beijing	2008	Wrestling	Wrestling Gre-R	ENGLISH, Mikko	GER	Men	84 - 96kg	M	Silver
	29212	Beijing	2008	Wrestling	Wrestling Gre-R	MIZGAITIS, Mindaugas	LTU	Men	96 - 120kg	M	Bronze
	29213	Beijing	2008	Wrestling	Wrestling Gre-R	PATRIKEEV, Yuri	ARM	Men	96 - 120kg	M	Bronze
	29214	Beijing	2008	Wrestling	Wrestling Gre-R	LOPEZ, Mijain	CUB	Men	96 - 120kg	M	Gold
	29215	Beijing	2008	Wrestling	Wrestling Gre-R	BAROEV, Khasan	RUS	Men	96 - 120kg	M	Silver