

```
In [1]: import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
import seaborn as sns
```

```
In [3]: fifa=pd.read_csv("C:\\Users\\SHONIMA S\\Downloads\\fifa_data.csv")  
print(fifa)
```

	Unnamed: 0	ID	Name	Age	\
0	0	158023	L. Messi	31	
1	1	20801	Cristiano Ronaldo	33	
2	2	190871	Neymar Jr	26	
3	3	193080	De Gea	27	
4	4	192985	K. De Bruyne	27	
...	...	...	...	...	
18202	18202	238813	J. Lundstram	19	
18203	18203	243165	N. Christoffersson	19	
18204	18204	241638	B. Worman	16	
18205	18205	246268	D. Walker-Rice	17	
18206	18206	246269	G. Nugent	16	

	Photo	Nationality	\
0	<a href="https://cdn.sofifa.org/players/4/19/158023.png">https://cdn.sofifa.org/players/4/19/158023.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/158023.png">https://cdn.sofifa.org/players/4/19/158023.png</a> )	Arg
entina			
1	<a href="https://cdn.sofifa.org/players/4/19/20801.png">https://cdn.sofifa.org/players/4/19/20801.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/20801.png">https://cdn.sofifa.org/players/4/19/20801.png</a> )	Por
tugal			
2	<a href="https://cdn.sofifa.org/players/4/19/190871.png">https://cdn.sofifa.org/players/4/19/190871.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/190871.png">https://cdn.sofifa.org/players/4/19/190871.png</a> )	
Brazil			
3	<a href="https://cdn.sofifa.org/players/4/19/193080.png">https://cdn.sofifa.org/players/4/19/193080.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/193080.png">https://cdn.sofifa.org/players/4/19/193080.png</a> )	
Spain			
4	<a href="https://cdn.sofifa.org/players/4/19/192985.png">https://cdn.sofifa.org/players/4/19/192985.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/192985.png">https://cdn.sofifa.org/players/4/19/192985.png</a> )	B
elgium			
...	...	...	
18202	<a href="https://cdn.sofifa.org/players/4/19/238813.png">https://cdn.sofifa.org/players/4/19/238813.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/238813.png">https://cdn.sofifa.org/players/4/19/238813.png</a> )	E
ngland			
18203	<a href="https://cdn.sofifa.org/players/4/19/243165.png">https://cdn.sofifa.org/players/4/19/243165.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/243165.png">https://cdn.sofifa.org/players/4/19/243165.png</a> )	
Sweden			
18204	<a href="https://cdn.sofifa.org/players/4/19/241638.png">https://cdn.sofifa.org/players/4/19/241638.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/241638.png">https://cdn.sofifa.org/players/4/19/241638.png</a> )	E
ngland			
18205	<a href="https://cdn.sofifa.org/players/4/19/246268.png">https://cdn.sofifa.org/players/4/19/246268.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/246268.png">https://cdn.sofifa.org/players/4/19/246268.png</a> )	E
ngland			
18206	<a href="https://cdn.sofifa.org/players/4/19/246269.png">https://cdn.sofifa.org/players/4/19/246269.png</a>	( <a href="https://cdn.sofifa.org/players/4/19/246269.png">https://cdn.sofifa.org/players/4/19/246269.png</a> )	E
ngland			

	Flag	Overall	Potential	\
0	<a href="https://cdn.sofifa.org/flags/52.png">https://cdn.sofifa.org/flags/52.png</a>	( <a href="https://cdn.sofifa.org/flags/52.png">https://cdn.sofifa.org/flags/52.png</a> )	94	94
1	<a href="https://cdn.sofifa.org/flags/38.png">https://cdn.sofifa.org/flags/38.png</a>	( <a href="https://cdn.sofifa.org/flags/38.png">https://cdn.sofifa.org/flags/38.png</a> )	94	94
2	<a href="https://cdn.sofifa.org/flags/54.png">https://cdn.sofifa.org/flags/54.png</a>	( <a href="https://cdn.sofifa.org/flags/54.png">https://cdn.sofifa.org/flags/54.png</a> )	92	93
3	<a href="https://cdn.sofifa.org/flags/45.png">https://cdn.sofifa.org/flags/45.png</a>	( <a href="https://cdn.sofifa.org/flags/45.png">https://cdn.sofifa.org/flags/45.png</a> )	91	93
4	<a href="https://cdn.sofifa.org/flags/7.png">https://cdn.sofifa.org/flags/7.png</a>	( <a href="https://cdn.sofifa.org/flags/7.png">https://cdn.sofifa.org/flags/7.png</a> )	91	92
...	...	...	...	

18202	<a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a>	( <a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a> )	47	65
18203	<a href="https://cdn.sofifa.org/flags/46.png">https://cdn.sofifa.org/flags/46.png</a>	( <a href="https://cdn.sofifa.org/flags/46.png">https://cdn.sofifa.org/flags/46.png</a> )	47	63
18204	<a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a>	( <a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a> )	47	67
18205	<a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a>	( <a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a> )	47	66
18206	<a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a>	( <a href="https://cdn.sofifa.org/flags/14.png">https://cdn.sofifa.org/flags/14.png</a> )	46	66

	Club	...	Composure	Marking	StandingTackle	\
0	FC Barcelona	...	96.0	33.0	28.0	
1	Juventus	...	95.0	28.0	31.0	
2	Paris Saint-Germain	...	94.0	27.0	24.0	
3	Manchester United	...	68.0	15.0	21.0	
4	Manchester City	...	88.0	68.0	58.0	
...	...	...	...	...	...	
18202	Crewe Alexandra	...	45.0	40.0	48.0	
18203	Trelleborgs FF	...	42.0	22.0	15.0	
18204	Cambridge United	...	41.0	32.0	13.0	
18205	Tranmere Rovers	...	46.0	20.0	25.0	
18206	Tranmere Rovers	...	43.0	40.0	43.0	

	SlidingTackle	GKDividing	GKHandling	GKKicking	GKPositioning	\
0	26.0	6.0	11.0	15.0	14.0	
1	23.0	7.0	11.0	15.0	14.0	
2	33.0	9.0	9.0	15.0	15.0	
3	13.0	90.0	85.0	87.0	88.0	
4	51.0	15.0	13.0	5.0	10.0	
...	...	...	...	...	...	
18202	47.0	10.0	13.0	7.0	8.0	
18203	19.0	10.0	9.0	9.0	5.0	
18204	11.0	6.0	5.0	10.0	6.0	
18205	27.0	14.0	6.0	14.0	8.0	
18206	50.0	10.0	15.0	9.0	12.0	

	GKReflexes	Release	Clause
0	8.0	€226.5M	
1	11.0	€127.1M	
2	11.0	€228.1M	
3	94.0	€138.6M	
4	13.0	€196.4M	
...	...	...	
18202	9.0	€143K	
18203	12.0	€113K	
18204	13.0	€165K	
18205	9.0	€143K	

18206            9.0            €165K

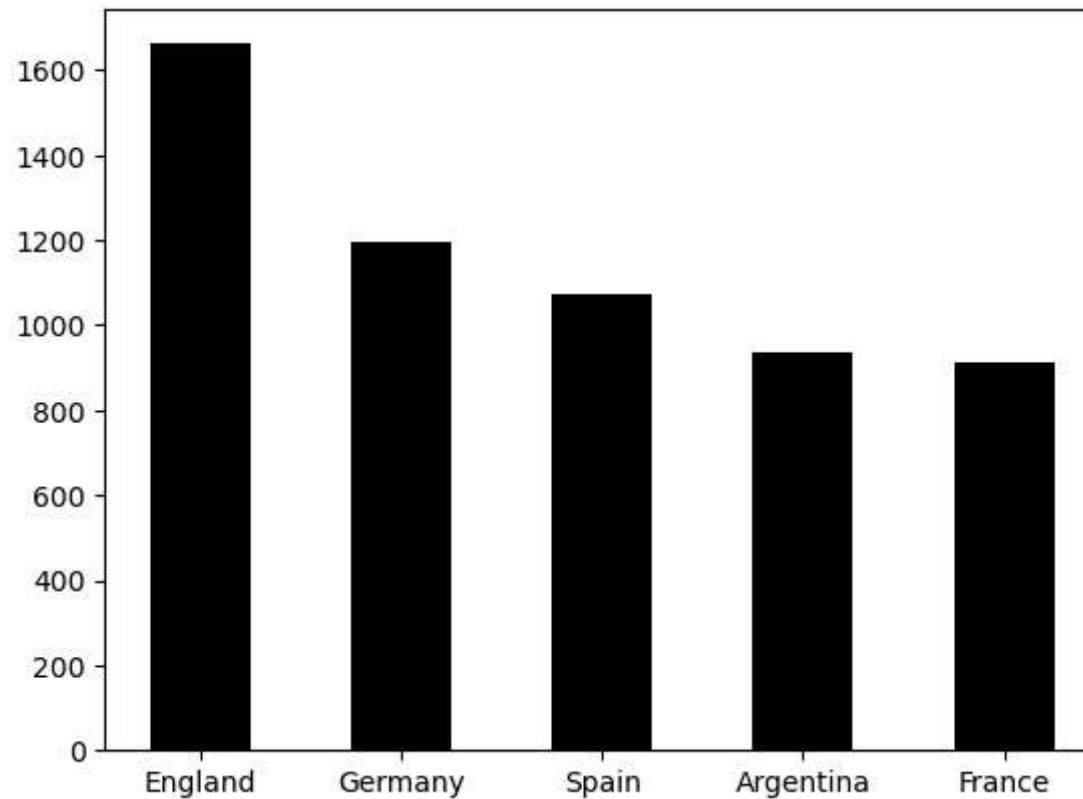
[18207 rows x 89 columns]

```
In [4]: #1.Which country has the most number of players (score :1)
        ""insight:England has the most no. of players with 1662 players""
        nat=fifa["Nationality"].value_counts()
        nat1=nat.head()
        print(nat1)
```

```
England      1662
Germany      1198
Spain        1072
Argentina     937
France        914
Name: Nationality, dtype: int64
```

In [5]: #2. Plot a bar chart of 5 top countries with the most number of players.

```
"""insight:As we can see from the graph England has the most no.of players with 1600 above players,in the sec  
x=["England","Germany","Spain","Argentina","France"]  
y=[1662,1198,1072,937,914]  
plt.bar(x,y,width=0.5,color="black")  
plt.show()
```



```
In [7]: #3.Which player has the highest salary?
        """insight:Argentine player Lionel Messsi has the highest salary with 565000.0$"""
        fifa[fifa.columns[12]]=fifa[fifa.columns[12]].replace('[^.\0-9]','',regex=True).astype(float)
        fifa['Wage']
```

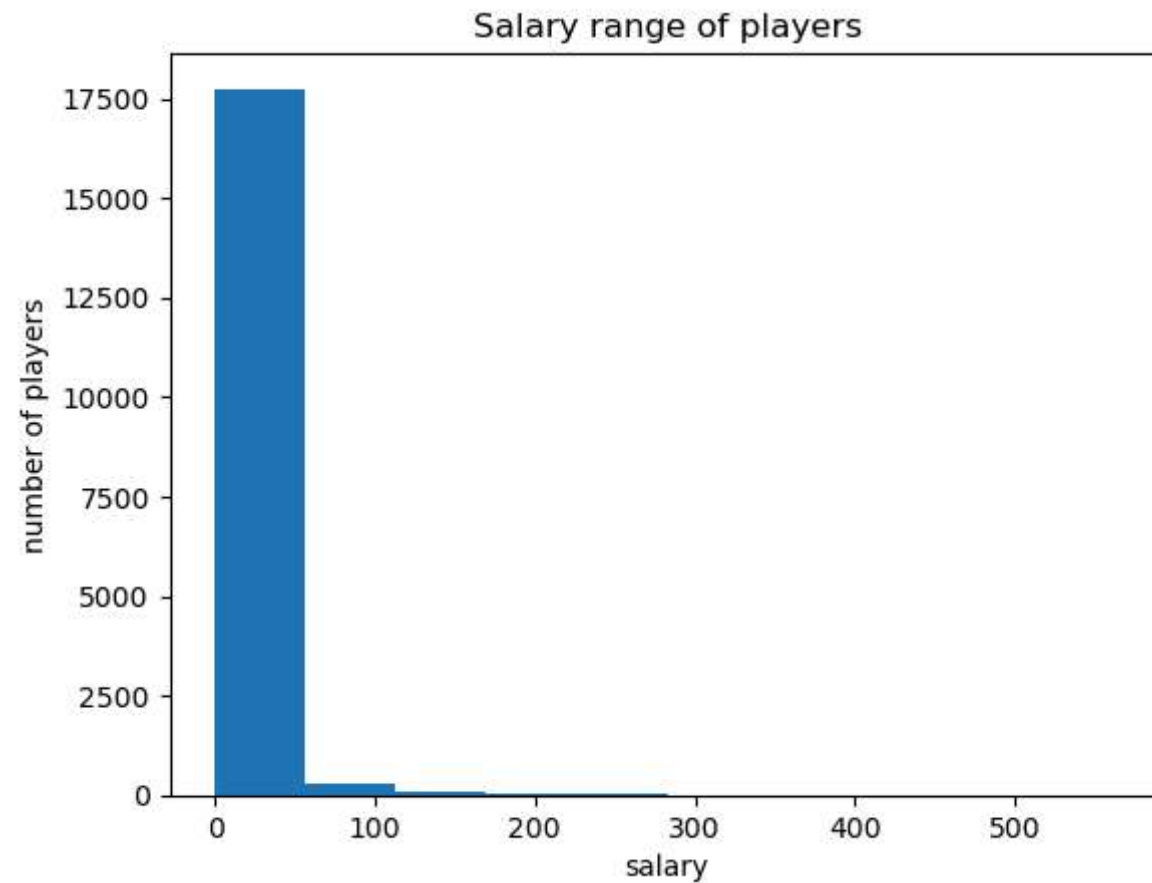
```
Out[7]: 0          565.0
        1          405.0
        2          290.0
        3          260.0
        4          355.0
        ...
        18202         1.0
        18203         1.0
        18204         1.0
        18205         1.0
        18206         1.0
        Name: Wage, Length: 18207, dtype: float64
```

```
In [8]: fifa[['Name','Nationality','Wage']][fifa['Wage']==fifa['Wage'].max()]
```

```
Out[8]:
```

	Name	Nationality	Wage
0	L. Messi	Argentina	565.0

```
In [9]: #4. Plot a histogram to get the salary range of the players.  
        """insight: A majority of the players are having a salary around 50k"""  
        plt.hist('Wage', data=fifa)  
        plt.title("Salary range of players")  
        plt.xlabel("salary")  
        plt.ylabel("number of players")  
        plt.show()
```





```
In [11]: fifa[fifa.columns[12]]=fifa[fifa.columns[12]].replace('[^.0-9]','',regex=True).astype(float)

fifa['Wage']
```

```
Out[11]: 0          565.0
         1          405.0
         2          290.0
         3          260.0
         4          355.0
         ...
        18202          1.0
        18203          1.0
        18204          1.0
        18205          1.0
        18206          1.0
        Name: Wage, Length: 18207, dtype: float64
```

```
In [12]: #5.Who is the tallest player in the fifa?
        """insight:There are two players with the height 6'9,one is T.Holy from Czech Republic and the other player i
ht=fifa.sort_values(by="Height",ascending=False)
ht[["Name","Height","Nationality"]].head()
```

Out[12]:

	Name	Height	Nationality
11614	T. Holý	6'9	Czech Republic
17927	D. Hodzic	6'9	Croatia
11903	K. Scherpen	6'8	Netherlands
17694	M. Casey	6'8	England
4189	V. Milinković-Savić	6'8	Serbia

```
In [13]: #6.Which club has the most number of players?
        """insight:26 clubs have the most no.of players with each club containing 33 players."""
        club=fifa["Club"].value_counts()
        club1=club.head(26)
        print(club1)
```

FC Barcelona	33
Valencia CF	33
Fortuna Düsseldorf	33
Cardiff City	33
Rayo Vallecano	33
CD Leganés	33
Frosinone	33
Newcastle United	33
Southampton	33
Burnley	33
Eintracht Frankfurt	33
Wolverhampton Wanderers	33
TSG 1899 Hoffenheim	33
Everton	33
AS Monaco	33
RC Celta	33
Empoli	33
Manchester City	33
Manchester United	33
Borussia Dortmund	33
Real Madrid	33
Atlético Madrid	33
Tottenham Hotspur	33
Chelsea	33
Liverpool	33
Arsenal	33

Name: Club, dtype: int64

In [14]: #7.Which foot is most preferred by the players?Draw a bar chart for preferred foot

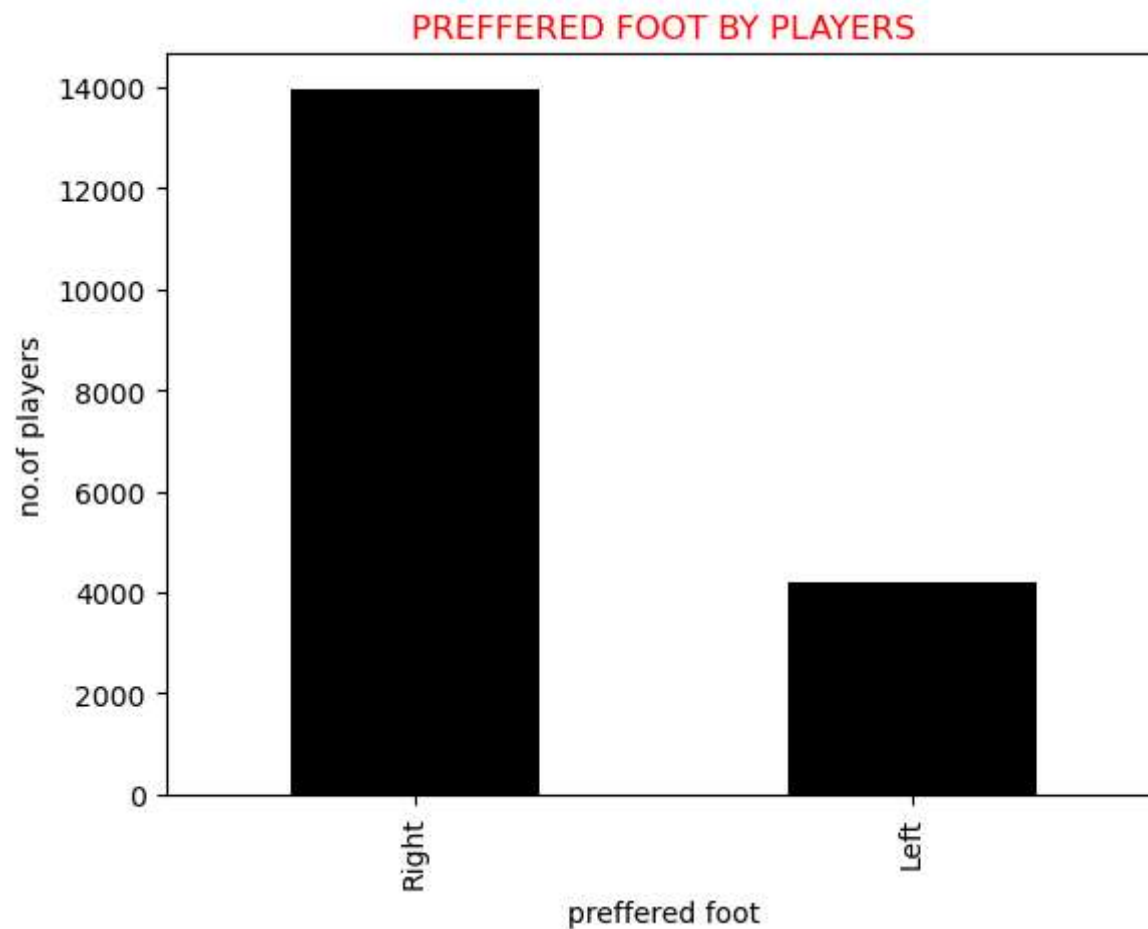
"""

```
foot=fifa["Preferred Foot"].value_counts()
print(foot)
foot.plot(kind="bar",color="k")
plt.title("PREFFERED FOOT BY PLAYERS",color="r")
plt.xlabel("preffered foot")
plt.ylabel("no.of players")
plt.show()
```

Right 13948

Left 4211

Name: Preferred Foot, dtype: int64



In [15]: `fifa.info()`

```
<class 'pandas.core.frame.DataFrame'>
```

```
RangeIndex: 18207 entries, 0 to 18206
```

```
Data columns (total 89 columns):
```

#	Column	Non-Null Count	Dtype
0	Unnamed: 0	18207 non-null	int64
1	ID	18207 non-null	int64
2	Name	18207 non-null	object
3	Age	18207 non-null	int64
4	Photo	18207 non-null	object
5	Nationality	18207 non-null	object
6	Flag	18207 non-null	object
7	Overall	18207 non-null	int64
8	Potential	18207 non-null	int64
9	Club	17966 non-null	object
10	Club Logo	18207 non-null	object
11	Value	18207 non-null	object
12	Wage	18207 non-null	float64
13	Special	18207 non-null	int64
14	Preferred Foot	18159 non-null	object
15	International Reputation	18159 non-null	float64
16	Weak Foot	18159 non-null	float64
17	Skill Moves	18159 non-null	float64
18	Work Rate	18159 non-null	object
19	Body Type	18159 non-null	object
20	Real Face	18159 non-null	object
21	Position	18147 non-null	object
22	Jersey Number	18147 non-null	float64
23	Joined	16654 non-null	object
24	Loaned From	1264 non-null	object
25	Contract Valid Until	17918 non-null	object
26	Height	18159 non-null	object
27	Weight	18159 non-null	object
28	LS	16122 non-null	object
29	ST	16122 non-null	object
30	RS	16122 non-null	object
31	LW	16122 non-null	object
32	LF	16122 non-null	object
33	CF	16122 non-null	object
34	RF	16122 non-null	object
35	RW	16122 non-null	object
36	LAM	16122 non-null	object
37	CAM	16122 non-null	object

38	RAM	16122	non-null	object
39	LM	16122	non-null	object
40	LCM	16122	non-null	object
41	CM	16122	non-null	object
42	RCM	16122	non-null	object
43	RM	16122	non-null	object
44	LWB	16122	non-null	object
45	LDM	16122	non-null	object
46	CDM	16122	non-null	object
47	RDM	16122	non-null	object
48	RWB	16122	non-null	object
49	LB	16122	non-null	object
50	LCB	16122	non-null	object
51	CB	16122	non-null	object
52	RCB	16122	non-null	object
53	RB	16122	non-null	object
54	Crossing	18159	non-null	float64
55	Finishing	18159	non-null	float64
56	HeadingAccuracy	18159	non-null	float64
57	ShortPassing	18159	non-null	float64
58	Volleys	18159	non-null	float64
59	Dribbling	18159	non-null	float64
60	Curve	18159	non-null	float64
61	FKAccuracy	18159	non-null	float64
62	LongPassing	18159	non-null	float64
63	BallControl	18159	non-null	float64
64	Acceleration	18159	non-null	float64
65	SprintSpeed	18159	non-null	float64
66	Agility	18159	non-null	float64
67	Reactions	18159	non-null	float64
68	Balance	18159	non-null	float64
69	ShotPower	18159	non-null	float64
70	Jumping	18159	non-null	float64
71	Stamina	18159	non-null	float64
72	Strength	18159	non-null	float64
73	LongShots	18159	non-null	float64
74	Aggression	18159	non-null	float64
75	Interceptions	18159	non-null	float64
76	Positioning	18159	non-null	float64
77	Vision	18159	non-null	float64
78	Penalties	18159	non-null	float64
79	Composure	18159	non-null	float64
80	Marking	18159	non-null	float64

```
81 StandingTackle      18159 non-null float64
82 SlidingTackle       18159 non-null float64
83 GKDiving            18159 non-null float64
84 GKHandling          18159 non-null float64
85 GKKicking           18159 non-null float64
86 GKPositioning       18159 non-null float64
87 GKReflexes          18159 non-null float64
88 Release Clause      16643 non-null object
dtypes: float64(39), int64(6), object(44)
memory usage: 12.4+ MB
```

```
In [16]: fifa["Nationality"].value_counts()
```

```
Out[16]: England      1662
Germany      1198
Spain       1072
Argentina     937
France       914
...
New Caledonia      1
Fiji                1
São Tomé & Príncipe 1
United Arab Emirates 1
Botswana           1
Name: Nationality, Length: 164, dtype: int64
```

```
In [17]: fifa.duplicated().sum()
```

```
Out[17]: 0
```

```
In [18]: print(fifa.isnull())  
         print(fifa.isnull().sum())
```



	Unnamed: 0	ID	Name	Age	Photo	Nationality	Flag	Overall	\
0	False	False	False	False	False	False	False	False	
1	False	False	False	False	False	False	False	False	
2	False	False	False	False	False	False	False	False	
3	False	False	False	False	False	False	False	False	
4	False	False	False	False	False	False	False	False	
...	...	...	...	...	...	...	...	...	
18202	False	False	False	False	False	False	False	False	
18203	False	False	False	False	False	False	False	False	
18204	False	False	False	False	False	False	False	False	
18205	False	False	False	False	False	False	False	False	
18206	False	False	False	False	False	False	False	False	

	Potential	Club	...	Composure	Marking	StandingTackle	\
0	False	False	...	False	False	False	
1	False	False	...	False	False	False	
2	False	False	...	False	False	False	
3	False	False	...	False	False	False	
4	False	False	...	False	False	False	
...	...	...	...	...	...	...	
18202	False	False	...	False	False	False	
18203	False	False	...	False	False	False	
18204	False	False	...	False	False	False	
18205	False	False	...	False	False	False	
18206	False	False	...	False	False	False	

	SlidingTackle	GK Diving	GK Handling	GK Kicking	GK Positioning	\
0	False	False	False	False	False	
1	False	False	False	False	False	
2	False	False	False	False	False	
3	False	False	False	False	False	
4	False	False	False	False	False	
...	...	...	...	...	...	
18202	False	False	False	False	False	
18203	False	False	False	False	False	
18204	False	False	False	False	False	
18205	False	False	False	False	False	
18206	False	False	False	False	False	

	GK Reflexes	Release Clause
0	False	False
1	False	False
2	False	False

```
3      False      False
4      False      False
...      ...      ...
18202   False      False
18203   False      False
18204   False      False
18205   False      False
18206   False      False
```

```
[18207 rows x 89 columns]
```

```
Unnamed: 0      0
ID              0
Name            0
Age             0
Photo           0
```

```
...
GKHandling      48
GKKicking       48
GKPositioning   48
GKReflexes      48
Release Clause  1564
```

```
Length: 89, dtype: int64
```

In [ ]: