

```
In [13]: #loading the required libraries
import pandas as pd
from matplotlib import pyplot as plt
import seaborn as sns

In [2]: fifa=pd.read_csv('players_20.csv')

In [3]: fifa.head()

Out[3]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
0	158023	https://soffia.com/player/158023/lonel-messi/...	L. Messi	Lionel Andrés Messi Cuccitini	32	1987-06-24	170	72	Argentina	FC Barcelona	...	68+2	66+2	66+2	66+2	68+2	63+2	52+2	52+2	6
1	20801	https://soffia.com/player/20801/cristiano-dos-...	Cristiano Ronaldo	Cristiano Ronaldo dos Santos Aveiro	34	1985-02-05	187	83	Portugal	Juventus	...	65+3	61+3	61+3	61+3	65+3	61+3	53+3	53+3	6
2	190871	https://soffia.com/player/190871/neymar-da-silva-santos-junior	Neymar Jr	Neymar da Silva Santos Junior	27	1992-02-05	175	68	Brazil	Paris Saint-Germain	...	66+3	61+3	61+3	61+3	66+3	61+3	46+3	46+3	6
3	200389	https://soffia.com/player/200389/jan-oblak/20...	J. Oblak	Jan Oblak	26	1993-01-07	188	87	Slovenia	Atlético Madrid	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	183277	https://soffia.com/player/183277/eden-hazard/2...	E. Hazard	Eden Hazard	28	1991-01-07	175	74	Belgium	Real Madrid	...	66+3	63+3	63+3	63+3	66+3	61+3	49+3	49+3	6

5 rows × 104 columns

```
In [4]: for col in fifa.columns:
        print(col)

soffia_id
player_url
short_name
long_name
age
dob
height_cm
weight_kg
nationality
club
overall
potential
value_eur
wage_eur
player_positions
preferred_foot
international_reputation
weak_foot
skill_moves
work_rate
body_type
real_face
release_clause_eur
player_tags
team_position
team_jersey_number
loaned_from
joined
contract_valid_until
nation_position
nation_jersey_number
pace
shooting
passing
dribbling
defending
physic
gk_diving
gk_handling
gk_kicking
gk_reflexes
gk_speed
gk_positioning
player_traits
attacking_crossing
attacking_finishing
attacking_heading_accuracy
attacking_short_passing
attacking_volley
skill_dribbling
skill_curve
skill_fk_accuracy
skill_long_passing
skill_ball_control
movement_acceleration
movement_sprint_speed
movement_agility
movement_reactions
movement_balance
power_shot_power
power_jumping
power_stamina
power_strength
power_long_shots
mentality_aggression
mentality_interceptions
mentality_positioning
mentality_vision
mentality_penalties
mentality_composure
defending_marking
defending_standing_tackle
defending_sliding_tackle
goalkeeping_diving
goalkeeping_handling
goalkeeping_kicking
goalkeeping_positioning
goalkeeping_reflexes
ls
st
rs
lw
lf
cf
rf
rw
lam
cam
ram
lm
lcm
cm
rm
lwb
ldm
cdm
rdm
rwb
lb
lcb
cb
rcb

In [5]: fifa.shape

Out[5]: (18278, 104)

In [ ]: 18278*104

In [ ]: 1667/18278

In [6]: fifa['nationality'].value_counts()

Out[6]:
England      1667
Germany      1216
Spain        1935
France       984
Argentina    886
...
Hong Kong      1
Gibraltar      1
Ethiopia       1
Puerto Rico   1
São Tomé & Príncipe 1
Name: nationality, Length: 162, dtype: int64

In [7]: fifa['nationality'].value_counts()[0:10]

Out[7]:
England      1667
Germany      1216
Spain        1935
France       984
Argentina    886
Brazil       824
Italy        732
Colombia     591
Japan        453
Netherlands 416
Name: nationality, dtype: int64


In [9]: fifa['nationality'].value_counts()[0:5].keys()

Out[9]: Index(['England', 'Germany', 'Spain', 'France', 'Argentina'], dtype='object')

In [8]: fifa['nationality'].value_counts()[0:5]

Out[8]:
England      1667
Germany      1216
Spain        1935
France       984
Argentina    886
Name: nationality, dtype: int64

In [10]: plt.figure(figsize=(8,5))
plt.bar(list(fifa['nationality'].value_counts()[0:5].keys()),list(fifa['nationality'].value_counts()[0:5]),color="g")
plt.show()


```

```
In [11]: player_salary = fifa[['short_name','wage_eur']]

In [12]: player_salary.head()

Out[12]:
```

	short_name	wage_eur
0	L. Messi	565000
1	Cristiano Ronaldo	405000
2	Neymar Jr	290000
3	J. Oblak	125000
4	E. Hazard	470000

```
In [14]: player_salary=player_salary.sort_values(by=['wage_eur'],ascending=False)

In [15]: player_salary.head()

Out[15]:
```

	short_name	wage_eur
0	L. Messi	565000
4	E. Hazard	470000
1	Cristiano Ronaldo	405000
22	A. Griezmann	370000
5	K. De Bruyne	370000

```
In [16]: plt.figure(figsize=(8,5))
plt.bar(list(player_salary['short_name'])[0:5],list(player_salary['wage_eur'])[0:5],color=["blue","green","red","pink","orange"])
plt.show()


```

```
In [17]: fifa['nationality']== 'Germany'

Out[17]:
```

0	False
1	False
2	False
3	False
4	False
...	...
18273	False
18274	False
18275	False
18276	False
18277	False

Name: nationality, Length: 18278, dtype: bool

```
In [18]: #Germany
Germany=fifa[fifa['nationality']=='Germany']
Germany.head(18)
```

```
Out[18]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
6	192448	https://soffia.com/player/192448/marc-andre-te...	M. ter Stegen	Marc-André ter Stegen	27	1992-04-30	187	85	Germany	FC Barcelona	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
31	167495	https://soffia.com/player/167495/manuel-neuer/...	M. Neuer	Manuel Neuer	33	1996-03-27	193	92	Germany	FC Bayern München	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
6	182521	https://soffia.com/player/182521/toni-kroos/20...	T. Kroos	Toni Kroos	29	1990-01-04	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3	75+3	72+3	69+3	69+3	69+3
37	188350	https://soffia.com/player/188350/marco-reus/20...	M. Reus	Marco Reus	30	1989-05-31	180	71	Germany	Borussia Dortmund	...	69+3	65+3	65+3	65+3	69+3	64+3	55+3	55+3	55+3
49	178603	https://soffia.com/player/178603/mats-hummels...	M. Hummels	Mats Hummels	30	1988-12-16	191	94	Germany	Borussia Dortmund	...	77+3	83+3	83+3	83+3	77+3	78+3	84+3	84+3	84+3
55	222492	https://soffia.com/player/222492/leroy-sane/20...	L. Sané	Leroy Sané	23	1996-01-11	183	75	Germany	Manchester City	...	65+2	59+2	59+2	59+2	65+2	61+2	52+2	52+2	52+2
61	212622	https://soffia.com/player/212622/joshua-kimmich...	J. Kimmich	Joshua Kimmich	24	1995-02-08	176	73	Germany	FC Bayern München	...	83+3	82+3	82+3	82+3	83+3	81+3	78+3	78+3	78+3
70	189596	https://soffia.com/player/189596/thomas-muller...	T. Müller	Thomas Müller	29	1989-09-13	186	75	Germany	FC Bayern München	...	69+3	68+3	68+3	68+3	69+3	67+3	62+3	62+3	62+3
77	212190	https://soffia.com/player/212190/niklas-sule/2...	N. Süle	Niklas Süle	23	1995-09-03	195	97	Germany	FC Bayern München	...	71+2	77+2	77+2	77+2	71+2	75+2	83+2	83+2	83+2
109	235790	https://soffia.com/player/235790/kai-havertz/2...	K. Havertz	Kai Havertz	20	1999-06-11	188	83	Germany	Bayern 04 Leverkusen	...	65+2	63+2	63+2	63+2	65+2	62+2	54+2	54+2	54+2

10 rows × 104 columns

```
In [19]: Germany.sort_values(by=['height_cm'],ascending=False).head()

Out[19]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
8016	236831	https://soffia.com/player/236831/aaron-seydell...	A. Seydel	Aaron Seydel	23	1996-02-07	199	90	Germany	1. FSV Mainz 05	...	46+2	43+2	43+2	43+2	46+2	44+2	43+2	43+2	43+2
1217	200212	https://soffia.com/player/173743/rafael-farman...	M. Esser	Michael Esser	31	1987-11-22	198	97	Germany	Hannover 96	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1389	199833	https://soffia.com/player/199833/lars-unnerstall...	L. Unnerstall	Lars Unnerstall	28	1990-07-20	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
11850	167437	https://soffia.com/player/167437/dominik-stroh...	D. Stroh-Engel	Dominik Stroh-Engel	33	1985-11-27	197	94	Germany	SpVgg Unterhaching	...	39+2	45+2	45+2	45+2	39+2	47+2	47+2	47+2	47+2
13576	239746	https://soffia.com/player/239746/lukas-watkowi...	L. Watkowiak	Lukas Watkowiak	23	1996-03-06	197	103	Germany	SV Wehen Wiesbaden	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

5 rows × 104 columns

```
In [20]: Germany.sort_values(by=['weight_kg'],ascending=False).head()

Out[20]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
13576	239746	https://soffia.com/player/239746/lukas-watkowi...	L. Watkowiak	Lukas Watkowiak	23	1996-03-06	197	103	Germany	SV Wehen Wiesbaden	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1389	199833	https://soffia.com/player/199833/lars-unnerstall...	L. Unnerstall	Lars Unnerstall	28	1990-07-20	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
518	179783	https://soffia.com/player/179783/rafael-farman...	R. Fährmann	Ralf Fährmann	30	1989-09-09	197	98	Germany	Norwich City	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1217	200212	https://soffia.com/player/200212/michael-esser...	M. Esser	Michael Esser	31	1987-11-22	198	97	Germany	Hannover 96	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
77	212190	https://soffia.com/player/212190/niklas-sule/2...	N. Süle	Niklas Süle	23	1995-09-03	195	97	Germany	FC Bayern München	...	71+2	77+2	77+2	77+2	71+2	75+2	83+2	83+2	83+2

5 rows × 104 columns

```
In [21]: Germany.sort_values(by=['wage_eur'],ascending=False).head()

Out[21]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
36	182521	https://soffia.com/player/182521/toni-kroos/20...	T. Kroos	Toni Kroos	29	1990-01-04	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3	75+3	72+3	69+3	69+3	69+3
6	192448	https://soffia.com/player/192448/marc-andre-te...	M. ter Stegen	Marc-André ter Stegen	27	1992-04-30	187	85	Germany	FC Barcelona	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
55	222492	https://soffia.com/player/222492/leroy-sane/20...	L. Sané	Leroy Sané	23	1996-01-11	183	75	Germany	Manchester City	...	65+2	59+2	59+2	59+2	65+2	61+2	52+2	52+2	52+2
146	186942	https://soffia.com/player/186942/ilkay-gundogan...	I. Gündoğan	İlkay Gündoğan	28	1990-10-24	180	80	Germany	Manchester City	...	76+3	79+3	79+3	79+3	76+3	74+3	72+3	72+3	72+3
70	189596	https://soffia.com/player/189596/thomas-muller...	T. Müller	Thomas Müller	29	1989-09-13	186	75	Germany	FC Bayern München	...	69+3	68+3	68+3	68+3	69+3	67+3	62+3	62+3	62+3

5 rows × 104 columns

```
In [22]: Germany[['short_name','wage_eur']].sort_values(by=['wage_eur'],ascending=False).head()

Out[22]:
```

	short_name	wage_eur
36	T. Kroos	330000
6	M. ter Stegen	250000
55	L. Sané	195000
146	I. Gündoğan	180000
70	T. Müller	170000

```
In [ ]: #Shooting

In [ ]:

In [23]: player_shooting= fifa[['short_name','shooting']]

In [24]: player_shooting.sort_values(by=['shooting'],ascending=False).head()

Out[24]:
```

	short_name	shooting
1	Cristiano Ronaldo	93.0
0	L. Messi	92.0
12	H. Kane	91.0
17	S. Agüero	90.0
205	F. Quagliarella	89.0

```
In [ ]: #defending

In [25]: player_defending= fifa[['short_name','defending','nationality','club']]

In [26]: player_defending.sort_values(by=['defending'],ascending=False).head()

Out[26]:
```

	short_name	defending	nationality	club
16	G. Chiellini	90.0	Italy	Juventus
7	V. van Dijk	90.0	Netherlands	Liverpool
11	K. Koulibaly	89.0	Senegal	Napoli
35	D. Godin	89.0	Uruguay	Inter
49	M. Hummels	89.0	Germany	Borussia Dortmund

```
In [27]: real_madrid=fifa[fifa['club']=='Real Madrid']

In [28]: real_madrid.sort_values(by=['wage_eur'],ascending=False).head()

Out[28]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb	rb
4	183277	https://soffia.com/player/183277/eden-hazard/2...	E. Hazard	Eden Hazard	28	1991-01-07	175	74	Belgium	Real Madrid	...	66+3	63+3	63+3	63+3	66+3	61+3	49+3	49+3	61+3	79+3
8	177003	https://soffia.com/player/177003/luke-modric/2...	L. Modrić	Luka Modrić	33	1985-09-09	172	66	Croatia	Real Madrid	...	81+3	81+3	81+3	81+3	81+3	79+3	72+3	72+3	69+3	79+3
36	182521	https://soffia.com/player/182521/toni-kroos/20...	T. Kroos	Toni Kroos	29	1990-01-04	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3	75+3	72+3	69+3	69+3	69+3	72+3
18	155862	https://soffia.com/player/155862/sergio-ramos...	Sergio Ramos	Sergio Ramos	33	1986-03-30	184	82	Spain	Real Madrid	...	80+3	84+3	84+3	84+3	80+3	82+3	87+3	87+3	87+3	82+3
46	165153	https://soffia.com/player/165153/karim-benzema...	K. Benzema	Karim Benzema	31	1987-12-19	185	81	France	Real Madrid	...	62+3	62+3	62+3	62+3	62+3	58+3	54+3	54+3	54+3	58+3

5 rows × 104 columns

```
In [29]: real_madrid.sort_values(by=['shooting'],ascending=False).head()

Out[29]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb	rb
100	173731	https://soffia.com/player/173731/gareth-bale/2...	G. Bale	Gareth Bale	29	1989-07-16	185	82	Wales	Real Madrid	...	72+3	69+3	69+3	69+3	72+3	70+3	66+3	66+3	66+3	70+3
106	198710	https://soffia.com/player/198710/rodriguez-rubio...	J. Rodriguez	Eden Hazard	27	1991-01-12	180	75	Colombia	Real Madrid	...	67+3	67+3	67+3	67+3	67+3	62+3	57+3	57+3	57+3	62+3
4	183277	https://soffia.com/player/183277/eden-hazard/2...	E. Hazard	Eden Hazard	28	1991-01-07	175	74	Belgium	Real Madrid	...	66+3	63+3	63+3	63+3	66+3	61+3	49+3	49+3	61+3	79+3
46	165153	https://soffia.com/player/165153/karim-benzema...	K. Benzema	Karim Benzema	31	1987-12-19	185	81	France	Real Madrid	...	62+3	62+3	62+3	62+3	62+3	58+3	54+3	54+3	54+3	58+3
161	232432	https://soffia.com/player/232432/luke-jovic/20...	L. Jović	Luka Jović	21	1997-12-23	182	85	Belgium	Real Madrid	...	55+2	53+2	53+2	53+2	55+2	51+2	47+2	47+2	47+2	51+2

5 rows × 104 columns

```
In [30]: real_madrid.sort_values(by=['defending'],ascending=False).head()

Out[30]:
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	l
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