

Load the required libraries

```
In [82]: import pandas as pd
import numpy as np
from matplotlib import pyplot as plt
import seaborn as sns
```

```
In [83]: fifa=pd.read_csv('FIFA EDA PROJECT.csv')
```

```
In [84]: fifa.head()
```

fifa.head()																						
	sofia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb	rb	
0	158023	https://sofia.com/player/158023/lionel-messi/...	L. Messi	Lionel Andrés Messi Cuccittini	32	24-06-1987	170	72	Argentina	FC Barcelona	...	68+2	66+2	66+2	66+2	68+2	63+2	52+2	52+2	63+2	63+2	
1	20801	https://sofia.com/player/20801/cristiano-ronaldo-dos-...	Cristiano Ronaldo	Cristiano Ronaldo dos Santos Aveiro	34	05-02-1985	187	83	Portugal	Juventus	...	65+3	61+3	61+3	61+3	65+3	61+3	53+3	53+3	53+3	61+3	
2	190871	https://sofia.com/player/190871/neymar-da-sil-...	Neymar Jr	Neymar da Silva Santos Junior	27	05-02-1992	175	68	Brazil	Paris Saint-Germain	...	66+3	61+3	61+3	61+3	66+3	61+3	46+3	46+3	46+3	61+3	
3	200389	https://sofia.com/player/200389/jan-oblak/20/...	J. Oblak	Jan Oblak	26	07-01-1993	188	87	Slovenia	Atlético Madrid	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	
4	183277	https://sofia.com/player/183277/eden-hazard/2...	E. Hazard	Eden Hazard	28	07-01-1991	175	74	Belgium	Real Madrid	...	66+3	63+3	63+3	63+3	66+3	61+3	49+3	49+3	49+3	61+3	
5 rows × 104 columns																						
<pre>for col in fifa.columns: print(col)</pre>																						
<pre>sofia_id player_url</pre>																						

```
In [85]: 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_taps
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_vollleys
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
rs
lw
lf
cf
rf
rw
lam
cam
ram
3m
lcm
cm
rcm
rm
lwb
ldm
cdm
rwb
lb
lcb
cb
rcb
rb

```
In [86]: fifa.shape
```

```
Out[86]: (18278, 184)
```

```
In [87]: 18278*184
```

```
Out[87]: 1990912
```

```
In [88]: fifa['nationality'].value_counts()
```

England	1667
Germany	1216
Spain	1035
France	984
Argentina	886
...	...
Liberia	1
São Tomé & Príncipe	1
Puerto Rico	1
Bahrain	1
Indonesia	1
Name: nationality, Length: 162, dtype: int64	

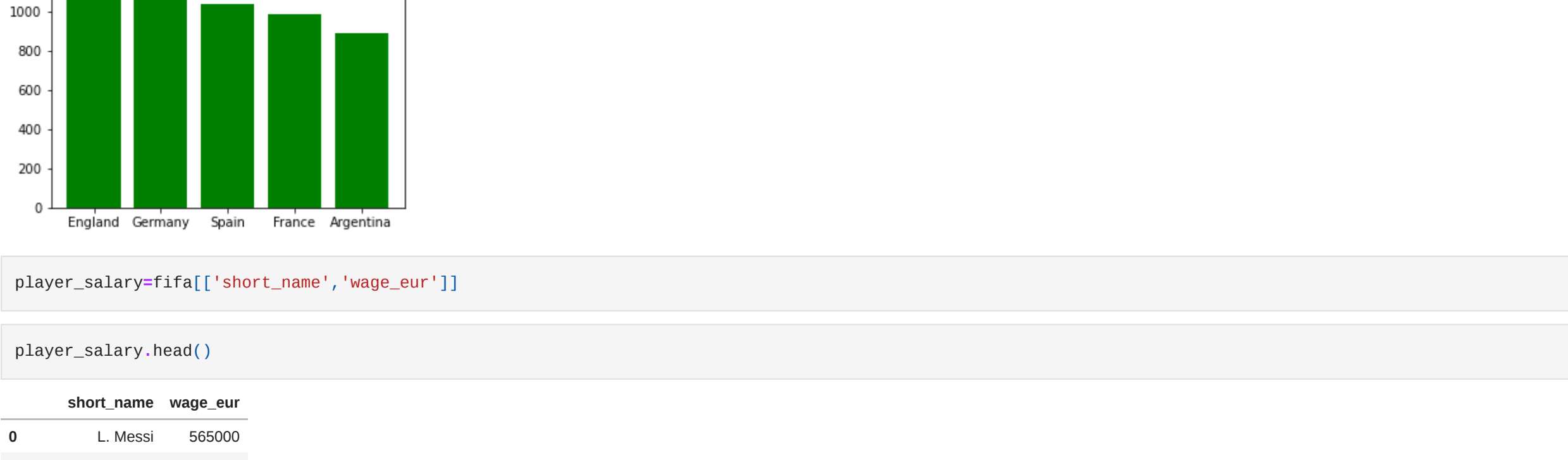
```
In [89]: fifa['nationality'].value_counts()[0:10]
```

England	1667
Germany	1216
Spain	1035
France	984
Argentina	886
Brazil	824
Italy	732
Colombia	591
Japan	453
Netherlands	416
Name: nationality, dtype: int64	

```
In [90]: fifa['nationality'].value_counts()[0:10].keys()
```

```
Out[90]: Index(['England', 'Germany', 'Spain', 'France', 'Argentina', 'Brazil', 'Italy', 'Colombia', 'Japan', 'Netherlands'], dtype='object')
```

```
In [91]: plt.figure(figsize=(5,5))
plt.bar(list(fifa['nationality'].value_counts()[0:5].keys()),list(fifa['nationality'].value_counts()[0:5]),color="g")
plt.show()
```



```
In [92]: player_salary=fifa[['short_name','wage_eur']]
```

```
In [93]: player_salary.head()
```

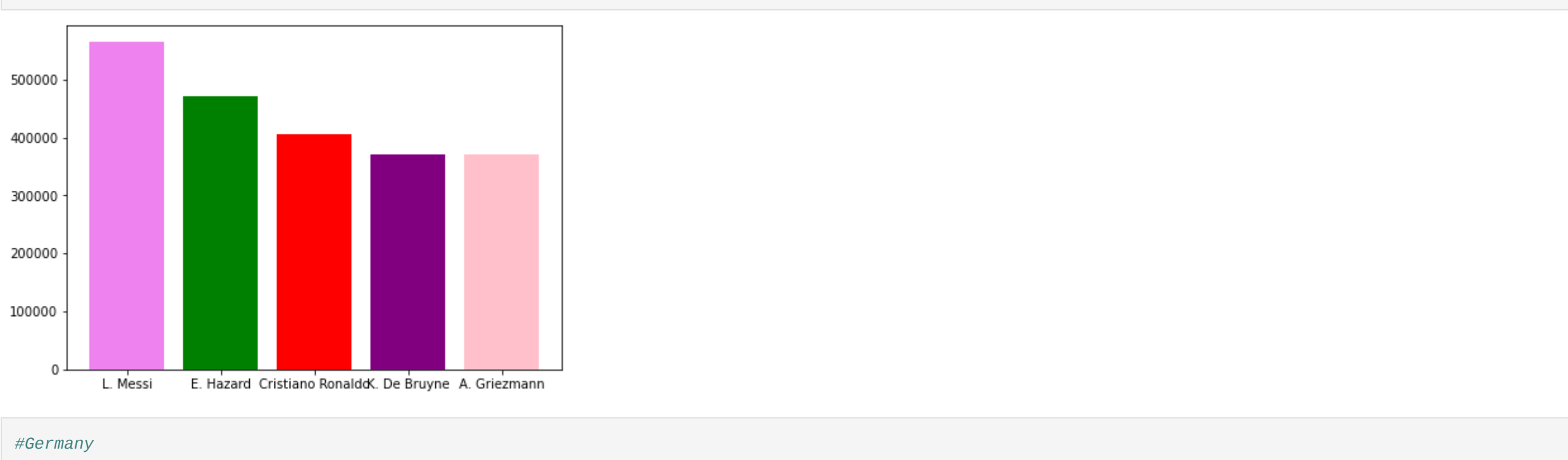
	short_name	wage_eur
0	L. Messi	565000
1	Cristiano Ronaldo	405000
2	Neymar Jr	290000
3	J. Oblak	125000
4	E. Hazard	470000

```
In [94]: player_salary=player_salary.sort_values(by=['wage_eur'],ascending=False)
```

```
In [95]: player_salary.head()
```

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

```
In [96]: plt.figure(figsize=(7,5))
plt.bar(list(player_salary['short_name'][0:5],list(player_salary['wage_eur'])[0:5],color=["violet","green","red","purple","pink"])
plt.show()
```



```
In [97]: #Germany
```

```
In [98]: Germany= fifa[fifa['nationality']=='Germany']
```

```
In [99]: Germany.head(10)
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
6	192448	https://soffia.com/player/192448/marc-andre-ter-stegen	M. ter Stegen	Marc-André ter Stegen	27	30-04-1992	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	27-03-1986	193	92	Germany	FC Bayern München	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
36	182521	https://soffia.com/player/182521/toni-kroos/20...	T. Kroos	Toni Kroos	29	04-01-1990	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3	75+3	72+3	69+3	69+3	7...
37	188350	https://soffia.com/player/188350/marco-reus/20...	M. Reus	Marco Reus	30	31-05-1989	180	71	Germany	Borussia Dortmund	...	69+3	65+3	65+3	65+3	69+3	64+3	55+3	55+3	6...
49	178603	https://soffia.com/player/178603/mats-hummels/...	M. Hummels	Mats Hummels	30	16-12-1988	191	94	Germany	Borussia Dortmund	...	77+3	83+3	83+3	83+3	77+3	78+3	84+3	84+3	7...
55	222492	https://soffia.com/player/222492/leroy-sane/20...	L. Sané	Leroy Sané	23	11-01-1996	183	75	Germany	Manchester City	...	65+2	59+2	59+2	59+2	65+2	61+2	52+2	52+2	6...
61	212622	https://soffia.com/player/212622/joshua-kimmich...	J. Kimmich	Joshua Kimmich	24	08-02-1995	176	73	Germany	FC Bayern München	...	83+3	82+3	82+3	82+3	83+3	81+3	78+3	78+3	8...
70	189596	https://soffia.com/player/189596/thomas-muller...	T. Müller	Thomas Müller	29	13-09-1989	186	75	Germany	FC Bayern München	...	69+3	68+3	68+3	68+3	69+3	67+3	62+3	62+3	6...
77	212190	https://soffia.com/player/212190/niklas-sule/2...	N. Süle	Niklas Süle	23	03-09-1995	195	97	Germany	FC Bayern München	...	71+2	77+2	77+2	77+2	71+2	75+2	83+2	83+2	7...
109	235790	https://soffia.com/player/235790/kai-havertz/2...	K. Havertz	Kai Havertz	20	11-06-1999	188	83	Germany	Bayer 04 Leverkusen	...	65+2	63+2	63+2	63+2	65+2	62+2	54+2	54+2	6...
10 rows × 104 columns																				

```
In [100]: Germany.sort_values(by=['height_cm'],ascending=False).head()
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
8016	236831	https://soffia.com/player/236831/aaron-seydell...	A. Seydell	Aaron Seydell	23	07-02-1996	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/200212/michael-esser...	M. Esser	Michael Esser	31	22-01-1987	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	20-07-1990	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
11859	167437	https://soffia.com/player/167437/dominik-stroh-engel	D. Stroh-Engel	Dominik Stroh-Engel	33	11-11-1985	197	94	Germany	SpVgg Unterhaching	...	39+2	45+2	45+2	45+2	39+2	39+2	47+2	47+2	47+2
13576	239746	https://soffia.com/player/239746/lukas-watkovski...	L. Watkovski	Lukas Watkovski	23	06-03-1996	197	103	Germany	SV Wehen Wiesbaden	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
5 rows × 104 columns																				

```
In [101]: Germany.sort_values(by=['weight_kg'],ascending=False).head()
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
13576	239746	https://soffia.com/player/236831/aaron-seydell...	A. Seydell	Aaron Seydell	23	07-02-1996	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/200212/michael-esser...	M. Esser	Michael Esser	31	22-01-1987	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	20-07-1990	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
518	179783	https://soffia.com/player/179783/ralf-fahrmann...	R. Fahrmann	Ralf Fahrmann	30	27-09-1988	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	22-01-1987	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	03-09-1995	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 [102]: Germany.sort_values(by=['wage_eur'],ascending=False).head()
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb	rcb
36	182521	https://soffia.com/player/182521/toni-kroos/20...	T. Kroos	Toni Kroos	29	04-01-1990	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3	75+3	72+3	69+3	69+3	7...
6	192448	https://soffia.com/player/192448/marc-andre-ter-stegen	M. ter Stegen	Marc-André ter Stegen	27	30-04-1992	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	11-01-1996	183	75	Germany	Manchester City	...	65+2	59+2	59+2	59+2	65+2	61+2	52+2	52+2	6...
146	186942	https://soffia.com/player/186942/ilkay-gundogan...	I. Gündoğan	Ilkay Gündoğan	28	24-10-1990	180	80	Germany	Manchester City	...	76+3	79+3	79+3	79+3	76+3	74+3	72+3	72+3	7...
70	189596	https://soffia.com/player/189596/thomas-muller...	T. Müller	Thomas Müller	29	13-09-1989	186	75	Germany	FC Bayern München	...	69+3	68+3	68+3	68+3	69+3	67+3	62+3	62+3	6...
5 rows × 104 columns																				

```
In [103]: Germany[['short_name','wage_eur']].sort_values(by=['wage_eur'],ascending=False).head()
```

	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 [104]: #Shooting
```

```
In [105]: player_shooting=fifa[['short_name','shooting']]
```

```
In [106]: player_shooting.sort_values(by=['shooting'],ascending=False).head()
```

	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 [107]: #Defending
```

```
In [108]: player_defending=fifa[['short_name','defending','nationality','club']]
```

```
In [109]: player_defending.sort_values(by=['defending'],ascending=False).head()
```

	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 [110]: real_madrid=fifa[fifa['club']=='Real_madrid']
```

```
In [111]: real_madrid.sort_values(by=['wage_eur'],ascending=False).head()
```

	soffia_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	hwb	ldm	cdm	rdm	rwb	lb	lcb	cb
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