

Data analytics Fifa Data Analysis
completed in Lab.
(ASSIGNMENT 4)

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• FIFA DATA ANALYSIS

```
#loading the required libraries
import pandas as pd
from matplotlib import pyplot as plt
fifa=pd.read_csv('players_20.csv')
fifa.head()
```

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	r
0	158023	https://sofifa.com/player/158023/lionel-messi/...	L. Messi	Lionel Andrés Messi Cuccittini	32	1987-06-24	170	72	Argentina	FC Barcelona	...	68+2	66+2	66+2	66+2	68
1	20801	https://sofifa.com/player/20801/cristiano-ronaldo-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
2	190871	https://sofifa.com/player/190871/neymar-da-sil...	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	200389	https://sofifa.com/player/200389/jan-oblak/20/...	J. Oblak	Jan Oblak	26	1993-01-07	188	87	Slovenia	Atlético Madrid	...	NaN	NaN	NaN	NaN	N
4	183277	https://sofifa.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

```
#printing all columns
for col in fifa.columns:
```

```
    print(col)
sofifa_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_volleys
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
ram
lm
lcm
cm
rcm
rm
lwb
ldm
cdm
rdm
rwb
lb
lcb
cb
rcb
rb
```

```
fifa.shape
```

```
(18278, 104)
```

```
18278*104
```

```
1900912
```

```
1667/18278
```

```
0.09120253857095963
```

```
fifa['nationality'].value_counts()
```

England	1667
Germany	1216
Spain	1035
France	984
Argentina	886
...	
Hong Kong	1
Gibraltar	1
Ethiopia	1
Puerto Rico	1
São Tomé & Príncipe	1

```
Name: nationality, Length: 162, dtype: int64
```

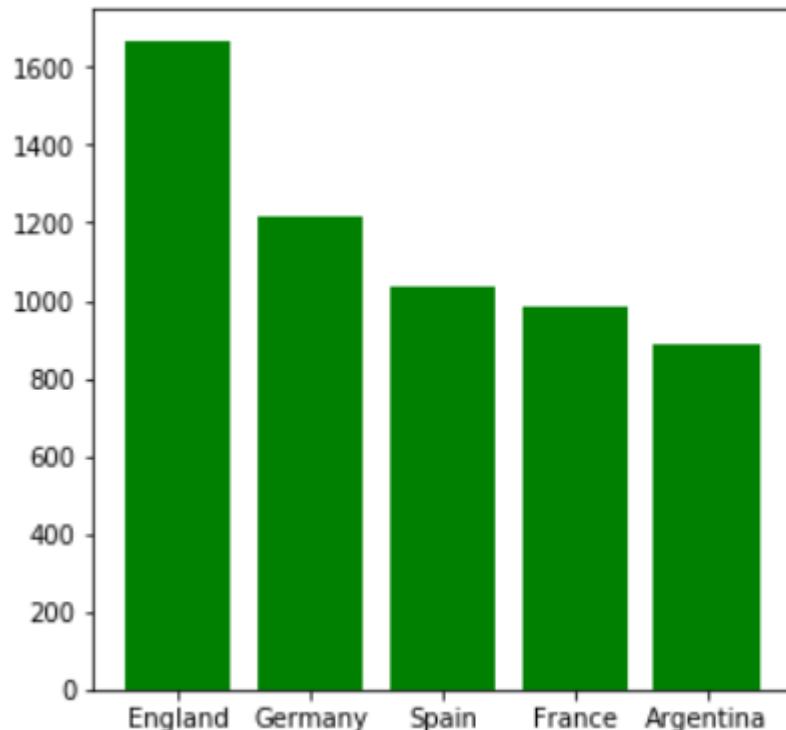
```
fifa['nationality'].value_counts()[0:10]
```

England	1667
Germany	1216
Spain	1035
France	984
Argentina	886
Brazil	824
Italy	732
Colombia	591
Japan	453
Netherlands	416

```
Name: nationality, dtype: int64
```

```
fifa['nationality'].value_counts()[0:5].keys()  
Index(['England', 'Germany', 'Spain', 'France', 'Argentina'], dtype='object')  
  
fifa['nationality'].value_counts()[0:5]  
  
England      1667  
Germany     1216  
Spain        1035  
France       984  
Argentina    886  
Name: nationality, dtype: int64
```

```
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()
```



```
player_salary = fifa[['short_name','wage_eur']]  
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

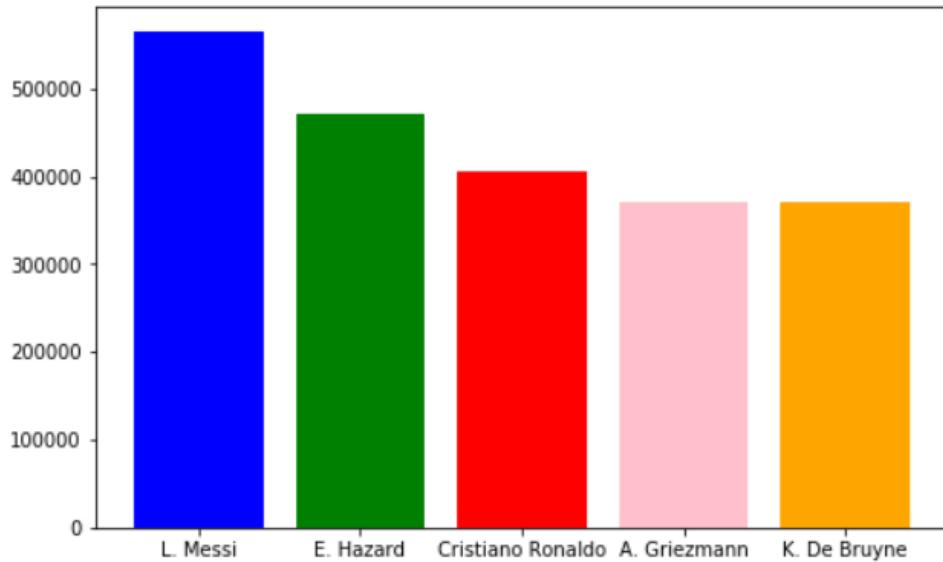
```
player_salary=player_salary.sort_values(by=['wage_eur'],ascending=False)  
player_salary.head()
```

	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

```
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()
```



```
fifa['nationality']=='Germany'
```

```
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
```

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#Germany

Germany=fifa[fifa['nationality']=='Germany']

Germany.head(10)

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm
6	192448	https://sofifa.com/player/192448/marc-andre-ter-...	M. ter Stegen	Marc-André ter Stegen	27	1992-04-30	187	85	Germany	FC Barcelona	...	NaN	NaN	NaN	NaN
31	167495	https://sofifa.com/player/167495/manuel-neuer/...	M. Neuer	Manuel Neuer	33	1986-03-27	193	92	Germany	FC Bayern München	...	NaN	NaN	NaN	NaN
36	182521	https://sofifa.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
37	188350	https://sofifa.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
49	178603	https://sofifa.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
55	222492	https://sofifa.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
61	212622	https://sofifa.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
70	189596	https://sofifa.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
77	212190	https://sofifa.com/player/212190/niklas-süle/...	N. Süle	Niklas Süle	23	1995-09-03	195	97	Germany	FC Bayern München	...	71+2	77+2	77+2	77+2
109	235790	https://sofifa.com/player/235790/kai-havertz/2...	K. Havertz	Kai Havertz	20	1999-06-11	188	83	Germany	Bayer 04 Leverkusen	...	65+2	63+2	63+2	63+2

10 rows × 104 columns

Germany.sort_values(by=['height_cm'], ascending=False).head()

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm
8016	236831	https://sofifa.com/player/236831/aaron-seydel/...	A. Seydel	Aaron Seydel	23	1996-02-07	199	90	Germany	1. FSV Mainz 05	...	46+2	43+2	43+2	4
1217	200212	https://sofifa.com/player/200212/michael-esser/...	M. Esser	Michael Esser	31	1987-11-22	198	97	Germany	Hannover 96	...	NaN	NaN	NaN	NaN
1389	199833	https://sofifa.com/player/199833/lars-unnerstall/...	L. Unnerstall	Lars Unnerstall	28	1990-07-20	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN
11859	167437	https://sofifa.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	4
13576	239746	https://sofifa.com/player/239746/lukas-watkowiak/...	L. Watkowiak	Lukas Watkowiak	23	1996-03-06	197	103	Germany	SV Wehen Wiesbaden	...	NaN	NaN	NaN	NaN

5 rows × 104 columns

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Germany.sort_values(by=['weight_kg'], ascending=False).head()

sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm
13576	239746	Lukas Watkowiak	L. Watkowiak	23	1996-03-06	197	103	Germany	SV Wehen Wiesbaden	...	NaN	NaN	NaN	NaN
1389	199833	Lars Unnerstall	L. Unnerstall	28	1990-07-20	198	103	Germany	PSV	...	NaN	NaN	NaN	NaN
518	179783	Ralf Fährmann	R. Fährmann	30	1988-09-27	197	98	Germany	Norwich City	...	NaN	NaN	NaN	NaN
1217	200212	Michael Esser	M. Esser	31	1987-11-22	198	97	Germany	Hannover 96	...	NaN	NaN	NaN	NaN
77	212190	Niklas Süle	N. Süle	23	1995-09-03	195	97	Germany	FC Bayern München	...	71+2	77+2	77+2	77+

5 rows × 104 columns

Germany.sort_values(by=['wage_eur'], ascending=False).head()

sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm
36	182521	Toni Kroos	T. Kroos	29	1990-01-04	183	76	Germany	Real Madrid	...	75+3	79+3	79+3	79+3
6	192448	Marc André ter Stegen	M. ter Stegen	27	1992-04-30	187	85	Germany	FC Barcelona	...	NaN	NaN	NaN	NaN
55	222492	Leroy Sané	L. Sané	23	1996-01-11	183	75	Germany	Manchester City	...	65+2	59+2	59+2	59+2
146	186942	İlkay Gündoğan	I. Gündoğan	28	1990-10-24	180	80	Germany	Manchester City	...	76+3	79+3	79+3	79+3
70	189596	Thomas Müller	T. Müller	29	1989-09-13	186	75	Germany	FC Bayern München	...	69+3	68+3	68+3	68+3

5 rows × 104 columns

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

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#Shooting

```
player_shooting= fifa[['short_name','shooting']]  
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

#defending

```
player_defending= fifa[['short_name','defending','nationality','club']]  
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. Godín	89.0	Uruguay	Inter
49	M. Hummels	89.0	Germany	Borussia Dortmund

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`real_madrid=fifa[fifa['club']=='Real Madrid']`

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

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rw
4	183277	https://sofifa.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+
8	177003	https://sofifa.com/player/177003/luka-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
36	182521	https://sofifa.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+
18	155862	https://sofifa.com/player/155862/sergio-ramos-...	Sergio Ramos	Sergio Ramos García	33	1986-03-30	184	82	Spain	Real Madrid	...	80+3	84+3	84+3	84+3	80+
46	165153	https://sofifa.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+

5 rows × 104 columns

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

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rw
100	173731	https://sofifa.com/player/173731/gareth-bale/2...	G. Bale	Gareth Frank Bale	29	1989-07-16	185	82	Wales	Real Madrid	...	72+3	69+3	69+3	69+3	72+
106	198710	https://sofifa.com/player/198710/james-rodrigue...	J. Rodríguez	James David Rodríguez Rubio	27	1991-07-12	180	75	Colombia	Real Madrid	...	67+3	67+3	67+3	67+3	67+
4	183277	https://sofifa.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+
46	165153	https://sofifa.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+
161	232432	https://sofifa.com/player/232432/luka-jovic/20...	L. Jović	Luka Jović	21	1997-12-23	182	85	Serbia	Real Madrid	...	55+2	53+2	53+2	53+2	55+2

5 rows × 104 columns

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

	sofifa_id	player_url	short_name	long_name	age	dob	height_cm	weight_kg	nationality	club	...	lwb	ldm	cdm	rdm	rw
18	155862	https://sofifa.com/player/155862/sergio-ramos-...	Sergio Ramos	Sergio Ramos García	33	1986-03-30	184	82	Spain	Real Madrid	...	80+3	84+3	84+3	84+3	80+
42	200145	https://sofifa.com/player/200145/carlos-henrique-venancio-casimiro	Casemiro	Carlos Henrique Venâncio Casimiro	27	1992-02-23	185	84	Brazil	Real Madrid	...	78+3	84+3	84+3	84+3	78+
76	201535	https://sofifa.com/player/201535/raphael-varane	R. Varane	Raphaël Varane	26	1993-04-25	191	81	France	Real Madrid	...	74+3	79+3	79+3	79+3	74+
94	204963	https://sofifa.com/player/204963/daniel-carvajal	Carvajal	Daniel Carvajal Ramos	27	1992-01-11	173	73	Spain	Real Madrid	...	83+3	82+3	82+3	82+3	83+
332	240130	https://sofifa.com/player/240130/eder-gabriel-militao	Éder Militão	Éder Gabriel Militão	21	1998-01-18	186	78	Brazil	Real Madrid	...	78+2	76+2	76+2	76+2	78+

5 rows × 104 columns

```
real_madrid['nationality'].value_counts()
```

```
Spain           13
Brazil          6
France          3
Belgium         2
Dominican Republic  1
Uruguay         1
Croatia         1
Japan            1
Germany          1
Serbia            1
Colombia          1
Costa Rica        1
Wales             1
Name: nationality, dtype: int64
```