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Project Report on Data Visualization using Power BI for FIFA 2018 data

Submitted by

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Business Context

In this project, we will be looking at the player data provided by FIFA which contains information such as personal details, wages, physical attributes, technical skills, potential and their positional strengths. This is primarily data of **FIFA 2018**.Through this project, we will get a glimpse of insights behind the beautiful game and the kind of information and decisions, a football manager goes through.

1. Prepare a rank ordered list of top 10 countries with most players. Which countries are producing the most numbers of footballers that plays at this level?

The bar chart shows the top countries which produce a high number of football players. The **England** produced 1629 players, which is being followed by **Germany and Spain**.

Nationality	Count of Name
England	1629
Germany	1140
Spain	1019
France	978
Argentina	965
Brazil	812
Italy	799
Colombia	592
Japan	469
Netherlands	429

Top 10 countries with most players

| Nationality	Number of Players
England	1629
Germany	1140
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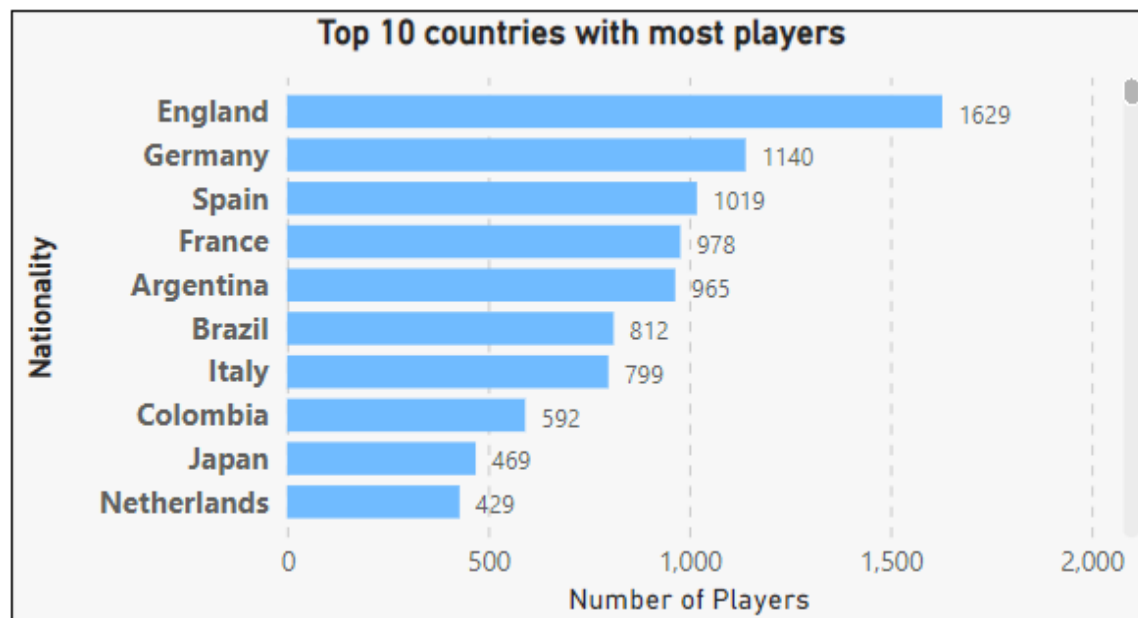
2. Plot the distribution of overall rating vs. age of players. Interpret what is the age after which a player stops.

The general trend among the players shows that the overall rating of a player improves up to the age of **31**, after which the overall rating stops improving and it starts decreasing as the player ages. It seems to stop following the above statement towards the end of the curve. This happens because the number of players still playing and are above 40 is very less.

AFFECT OF AGE ON GROWTH OF OVERALL RATING OF A PLAYER
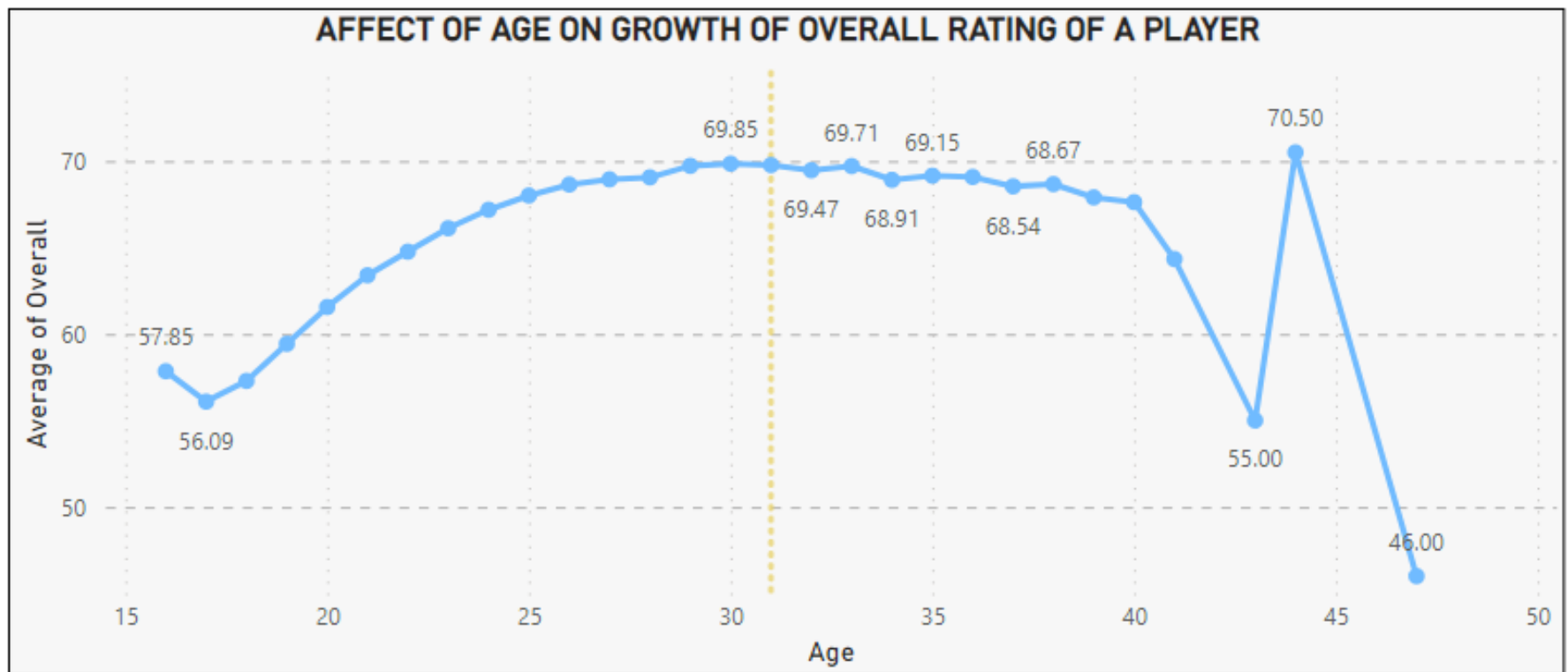
3. Which type of offensive players tends to get paid the most: the striker, the right-winger, or the left-winger?

- Both left-winger **(LW)** and right-winger **(RW)** have similar average wages. **LW** has the highest average wage.
- From the scatter plot below, the striker **(ST)** appears to be the least paid on average.
- In terms of the maximum wage, both **ST** and **RW** have got the same amount, whereas LW has a significantly lower maximum wage.

Average of Wage by Preferred Position

Max of Wage by Preferred Position
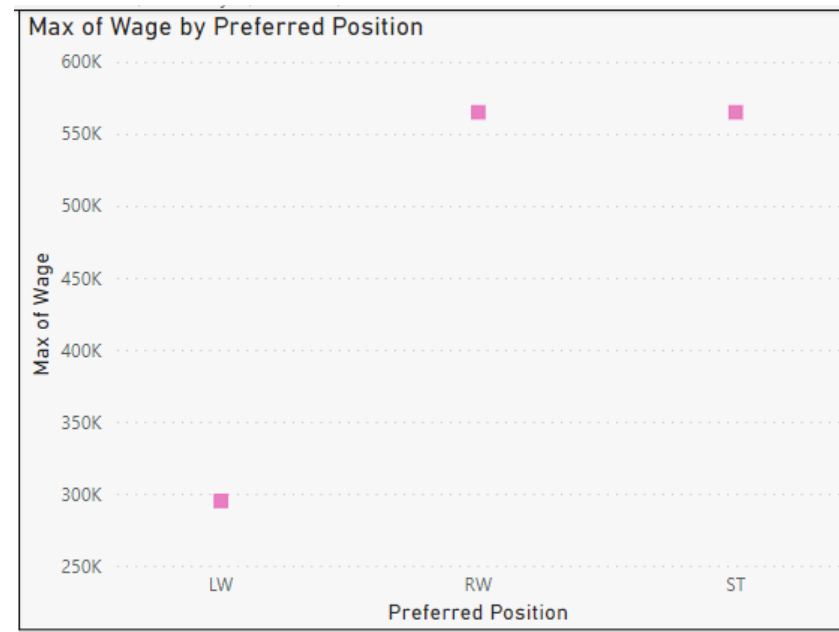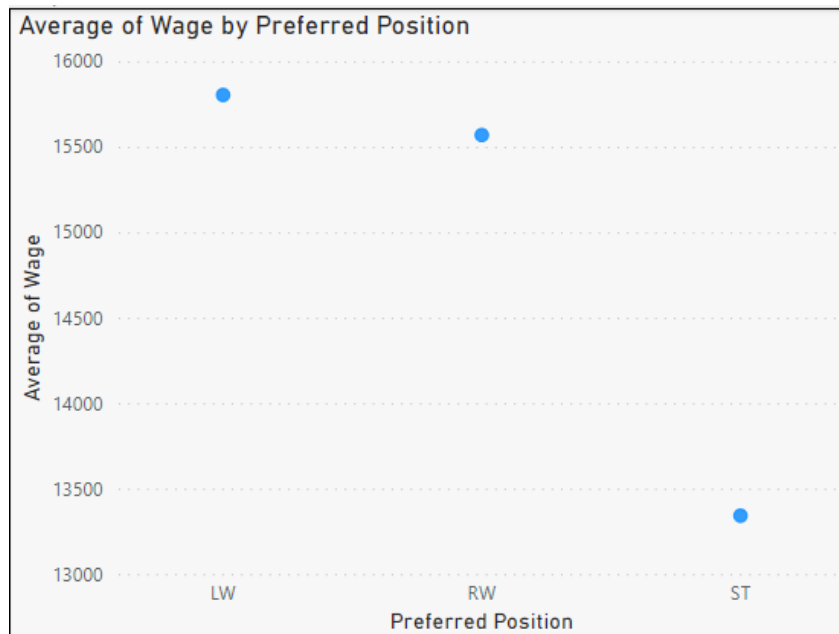
4.Top 5 players for every preferred position in terms of overall as well as potential points. Who were the best?

TOP BEST PLAYERS IN 2018 FOR EVERY POSITION BASED ON RATING

CAM
Cesc Fà b...	86
Coutinho	86
R. Naing...	86
D. Payet	84
I. Perišić	84
Willian	84

Average of Overall

CB
Sergio Ra...	90
G. Chiellini	89
D. Godàn	88
J. Boateng	88
L. Bonucci	88
M. Hum...	88

Average of Overall

CDM
T. Kroos	90
L. Modrić	89
Thiago	88
M. Verratti	87
P. Pogba	87
Javi Mart...	86

Average of Overall

CF
Borja Valero	83
Jonas	83
S. Kagawa	83
F. Vázquez	82
D. Perotti	81
A. Dzagoev	80

Average of Overall

CM
A. Vidal	87
I. Rakitić	87
M. Hamă...	87
N. Kanté	87
D. Alaba	86
Sergio Bu...	86

Average of Overall

LB
Marcelo	87
Azpilicueta	85
Filipe Luăs	85
Jordi Alba	85
L. Baines	82
M. Rojo	82

Average of Overall

LM
C. Eriksen	87
David Silva	87
Iniesta	87
Alex San...	86
Isco	86
H. Mkhita...	85

Average of Overall

LWB
D. Rose	82
B. Davies	78
B. Mendy	78
J. Holebas	78
A. Cressw...	76
Diego Rico	76

Average of Overall

LW
Neymar	92
E. Hazard	90
A. Griezm...	88
F. Ribéry	86
M. Reus	86
A. Di Marăa	85

Average of Overall

GK
M. Neuer	92
De Gea	90
G. Buffon	89
T. Courtois	89
H. Lloris	88
J. Oblak	88

Average of Overall

RB
Carvajal	84
Dani Alves	84
A. Valencia	83
A. Rü¼di...	82
B. Ivanovi...	82
Fernandi...	82

Average of Overall

RM
A. Să¡nch...	89
K. De Bru...	89
J. Rodră¡g...	86
Y. Carrasco	85
Bernardo ...	84
Juan Mata	84

Average of Overall

RW
L. Messi	93
G. Bale	89
A. Robben	88
M. Ã¶zil	88
Iago Aspas	83
J. Pastore	83

Average of Overall

RWB
K. Walker	83
A. Oxlade...	80
M. Antonio	80
K. Trippier	78
D. Janmaat	77
G. Cameron	76

Average of Overall

ST
Cristiano ...	94
L. Suá¡rez	92
R. Lewan...	91
G. Higuaă¡n	90
S. Agü¼e...	89
P. Aubam...	88

Average of Overall

TOP BEST PLAYERS IN 2018 FOR EVERY POSITION BASED ON POTENTIAL

CAM
Player	Average of Potential
O. Dembélé	92
Y. Tielemans	90
Coutinho	89
André Gomes	88
Dani Ceballos	88
J. Brandt	88

CB
Player	Average of Potential
R. Varane	92
Sergio Ramos	90
A. Laporte	89
E. Bailly	89
G. Chiellini	89
M. de Ligt	89

CDM
Player	Average of Potential
P. Pogba	92
M. Verratti	91
T. Kroos	90
Thiago	90
A. Christensen	89
C. Tolisso	89

CF
Player	Average of Potential
K. Havertz	88
F. Chiesa	87
V. Thill	85
A. Zuev	83
Borja Valero	83
Jonas	83

CM
Player	Average of Potential
A. Gomes	90
E. Barco	90
N. Kanté	90
D. Alaba	88
T. Bakayoko	88
A. Diawara	87

LB
Player	Average of Potential
L. Hernández	88
M. Sarr	88
Azpilicueta	87
Grimaldo	87
Marcelo	87
A. Barreca	86

LM
Player	Average of Potential
C. Eriksen	91
L. Sané	91
T. Lemar	91
D. Alli	90
Isco	90
C. Pulisic	89

LWB
Player	Average of Potential
B. Mendy	86
M. Saracchi	85
Marín	84
D. Rose	83
A. Robertson	82
B. Davies	82

LW
Player	Average of Potential
Neymar	94
Marco Asensio	92
A. Griezmann	91
E. Hazard	91
S. Mané	87
Williams	87

GK
Player	Average of Potential
G. Donnarumma	94
J. Oblak	93
De Gea	92
M. Neuer	92
T. Courtois	92
T. Horn	90

RB
Player	Average of Potential
Héctor Belle...	88
T. Fosu-Mensah	88
Carvajal	87
Nélson Sem...	87
A. Rüdiger	86
K. Amian Adou	86

RM
Player	Average of Potential
K. De Bruyne	92
Bernardo Silva	91
Saúl	90
Y. Carrasco	90
A. Sánchez	89
J. Rodríguez	89

RW
Player	Average of Potential
L. Messi	93
Deulofeu	89
G. Bale	89
A. Robben	88
B. Embolo	88
M. Özil	88

RWB
Player	Average of Potential
A. Oxlade-Cha...	85
K. Walker	84
T. Adams	82
E. Fernandes	81
M. Antonio	81
An Hyeon Beom	80

ST
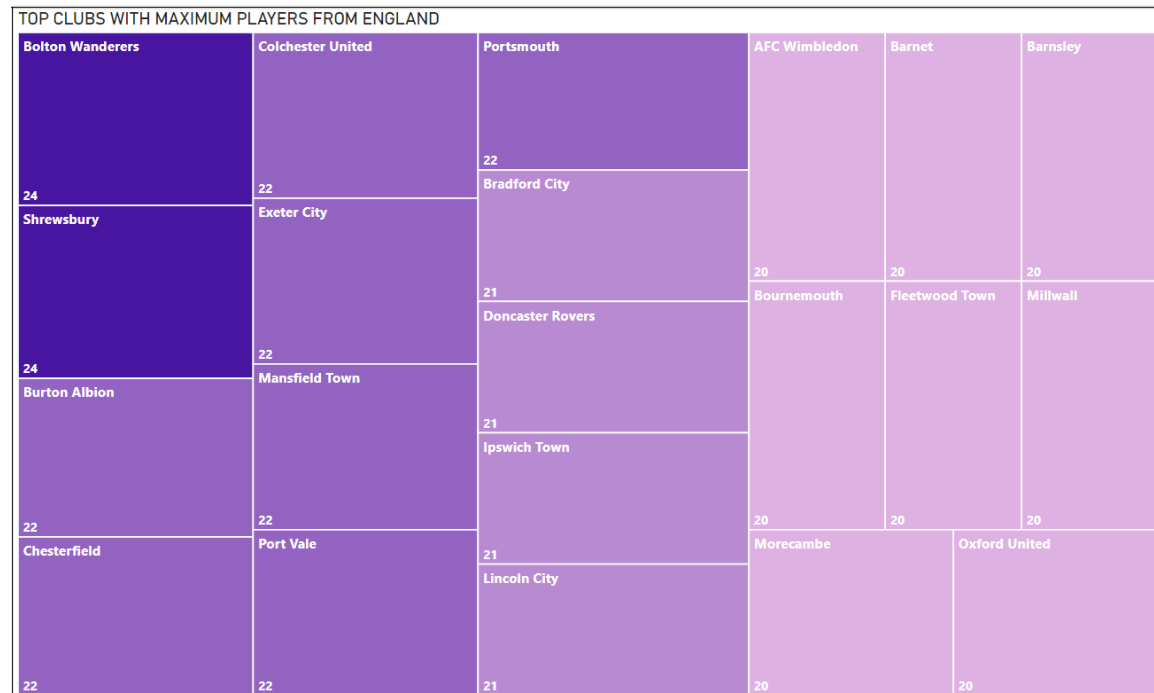| Player	Average of Potential
Cristiano Rona...	94
K. Mbappé	94
P. Dybala	93
Gabriel Jesus	92
L. Suárez	92
R. Lewandowski	91

The players like **Cristiano, Neymar, Marcelo, L. Messi,** etc., have top points overall as well as potential points. These players were destined to be the future superstars of that year.

5. Which club(s) have the maximum share of players from England? Which club(s) have the maximum share of players from Spain? Which club(s) have the maximum share of players from Germany?

The visual below is a Tree Map that shows the clubs in which most shares of the layers are from England.

The clubs such as **Bolton Wanderers, Shrewsbury** contain a maximum share of players from England.

Club	Count of Name
Bolton Wanderers	24
Shrewsbury	24
Burton Albion	22
Chesterfield	22
Colchester United	22
Exeter City	22
Mansfield Town	22
Port Vale	22
Portsmouth	22
Bradford City	21
Doncaster Rovers	21
Ipswich Town	21
Lincoln City	21
AFC Wimbledon	20
Barnet	20
Barnsley	20
Bournemouth	20
Fleetwood Town	20
Millwall	20
Morecambe	20
Oxford United	20

TOP CLUBS WITH MAXIMUM PLAYERS FROM ENGLAND

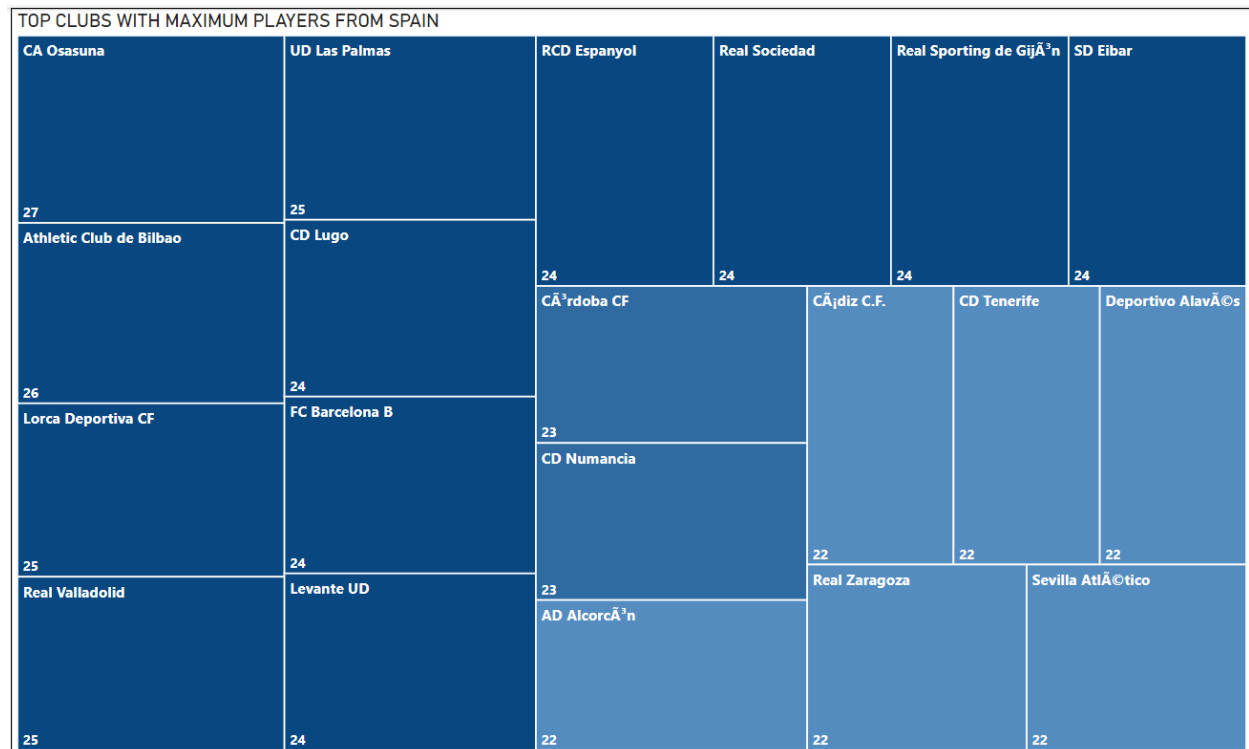The Tree Map below shows the clubs in which most shares of the players are from Germany.

The club **Holstein Kiel** contains maximum share of players from Germany. These are followed by **SSV Jahn Regensburg club and FC Magdeburg**.

Club	Count of Name
Holstein Kiel	26
SSV Jahn Regensburg	23
1. FC Magdeburg	23
Chemnitzer FC	23
FC Carl Zeiss Jena	23
FSV Zwickau	23
Hallescher FC	23
Karlsruher SC	23
SpVgg Unterhaching	23
SV Meppen	23
FC Erzgebirge Aue	22
SC Paderborn 07	22
Sportfreunde Lotte	22
VfL Bochum	22
1. FC Heidenheim	21
Hansa Rostock	21
SC Freiburg	21
SC PreuÃŸen MÃ¼nster	21
SG Dynamo Dresden	21
VfL OsnabrÃ¼ck	21

TOP CLUBS WITH MAXIMUM PLAYERS FROM GERMANY

The Tree Map below shows the clubs in which most shares of the players are from Spain. The club **CA Osasuna** contains a maximum share of players from Spain. These are followed by **Athletic club de Bilbao and Lorca Deportivo CF club**.

Club	Count of Name
CA Osasuna	27
Athletic Club de Bilbao	26
Lorca Deportiva CF	25
Real Valladolid	25
UD Las Palmas	25
CD Lugo	24
FC Barcelona B	24
Levante UD	24
RCD Espanyol	24
Real Sociedad	24
Real Sporting de GijÃ³n	24
SD Eibar	24
CÃ³rdoba CF	23
CD Numancia	23
AD AlcorcÃ³n	22
CÃ¡diz C.F.	22
CD Tenerife	22
Deportivo AlavÃ©s	22
Real Zaragoza	22
Sevilla AtlÃ©tico	22

TOP CLUBS WITH MAXIMUM PLAYERS FROM SPAIN

| CA Osasuna 27	UD Las Palmas 25	RCD Espanyol 24	Real Sociedad 24	Real Sporting de GijÃ³n 24	SD Eibar 24
Athletic Club de Bilbao 26	CD Lugo 24	CÃ³rdoba CF 23	CÃ¡diz C.F. 22	CD Tenerife 22	Deportivo AlavÃ©s 22
Lorca Deportiva CF 25	FC Barcelona B 24	CD Numancia 23	Real Zaragoza 22	Sevilla AtlÃ©tico 22	
Real Valladolid 25	Levante UD 24	AD AlcorcÃ³n 22			

6. Are the wages of a player influenced by the potential of a player? Check it out for players with age between 16 to 28?

The two visuals below show some sort of relationship between the wage (ages 16-28) and that player's potential. The general trend is that a player gets more wage if he has a higher potential. The trend is increasing for the entire distribution except for the right tail. Though the visual on the right shows that there are very few numbers of players who have potential above 85. These may be put in the bucket of exceptional players. One more thing to note here is above the potential value of 70; the wages seem to follow a power distribution.
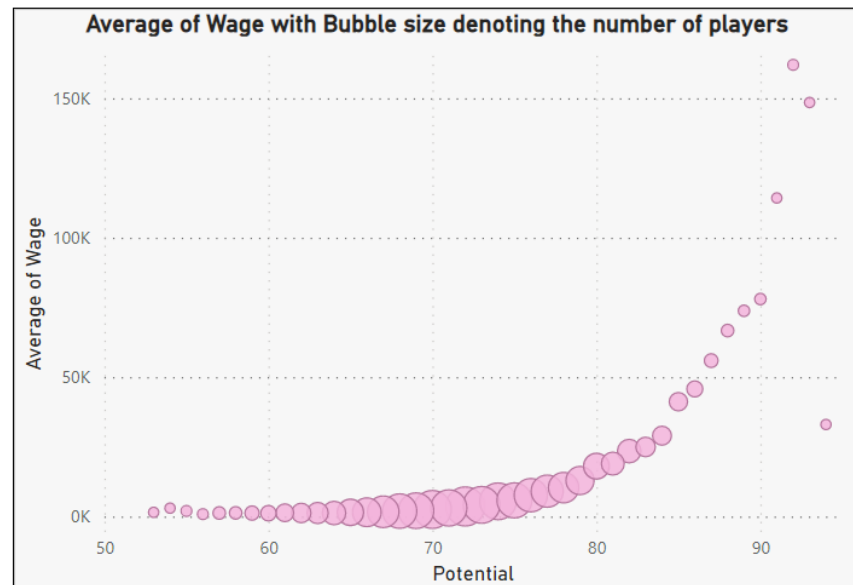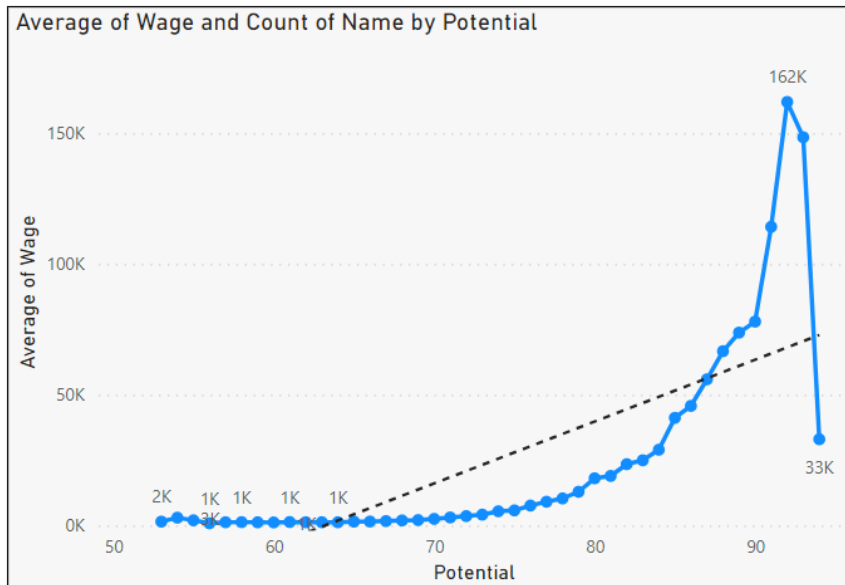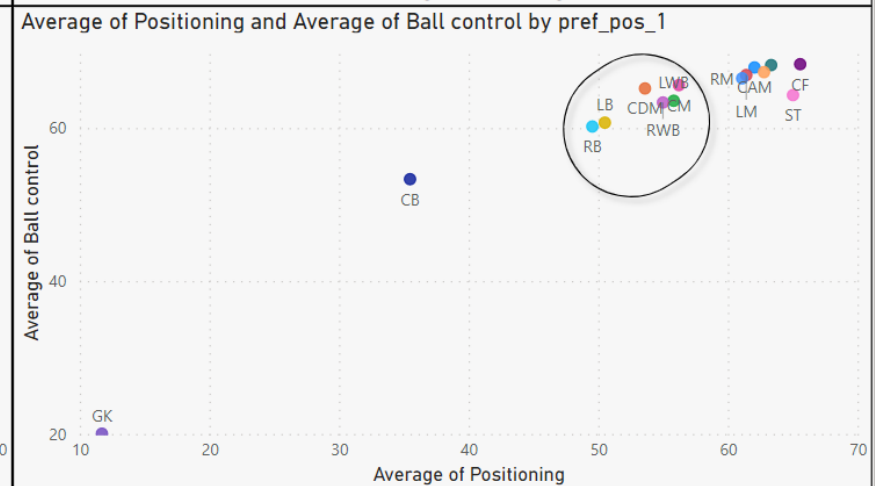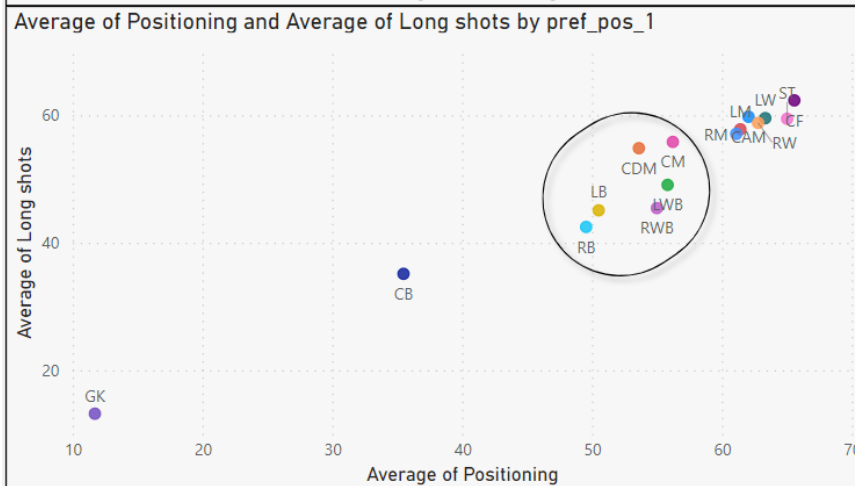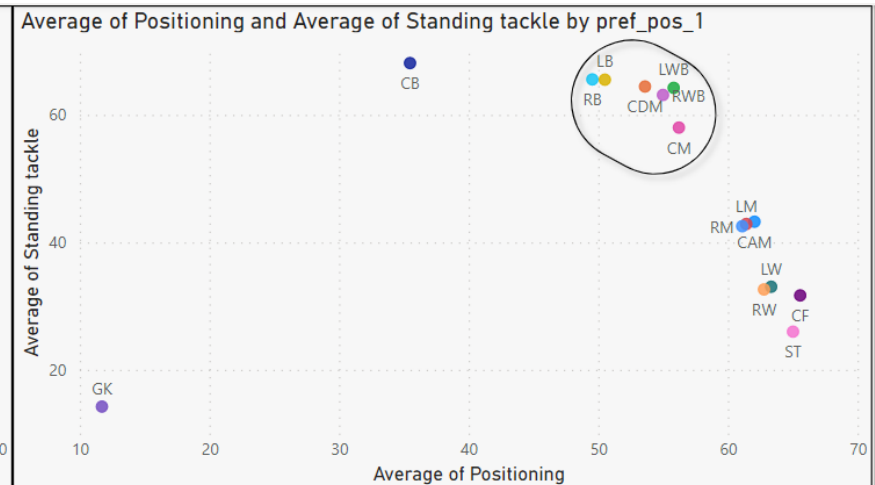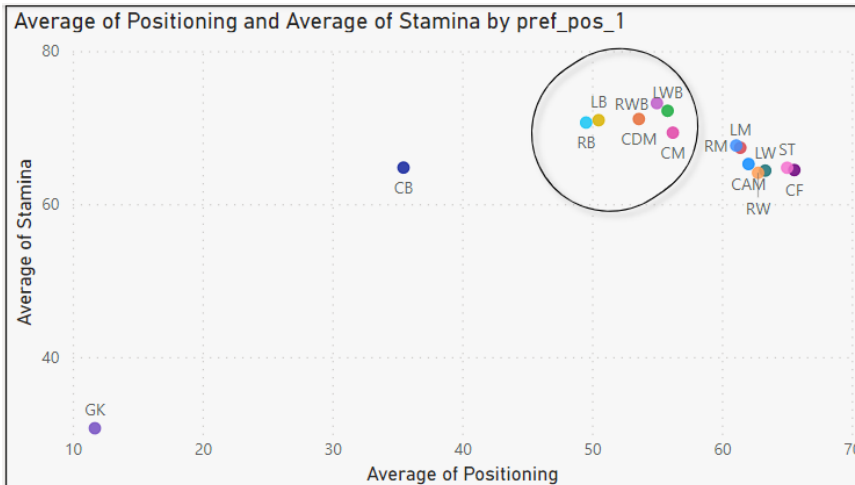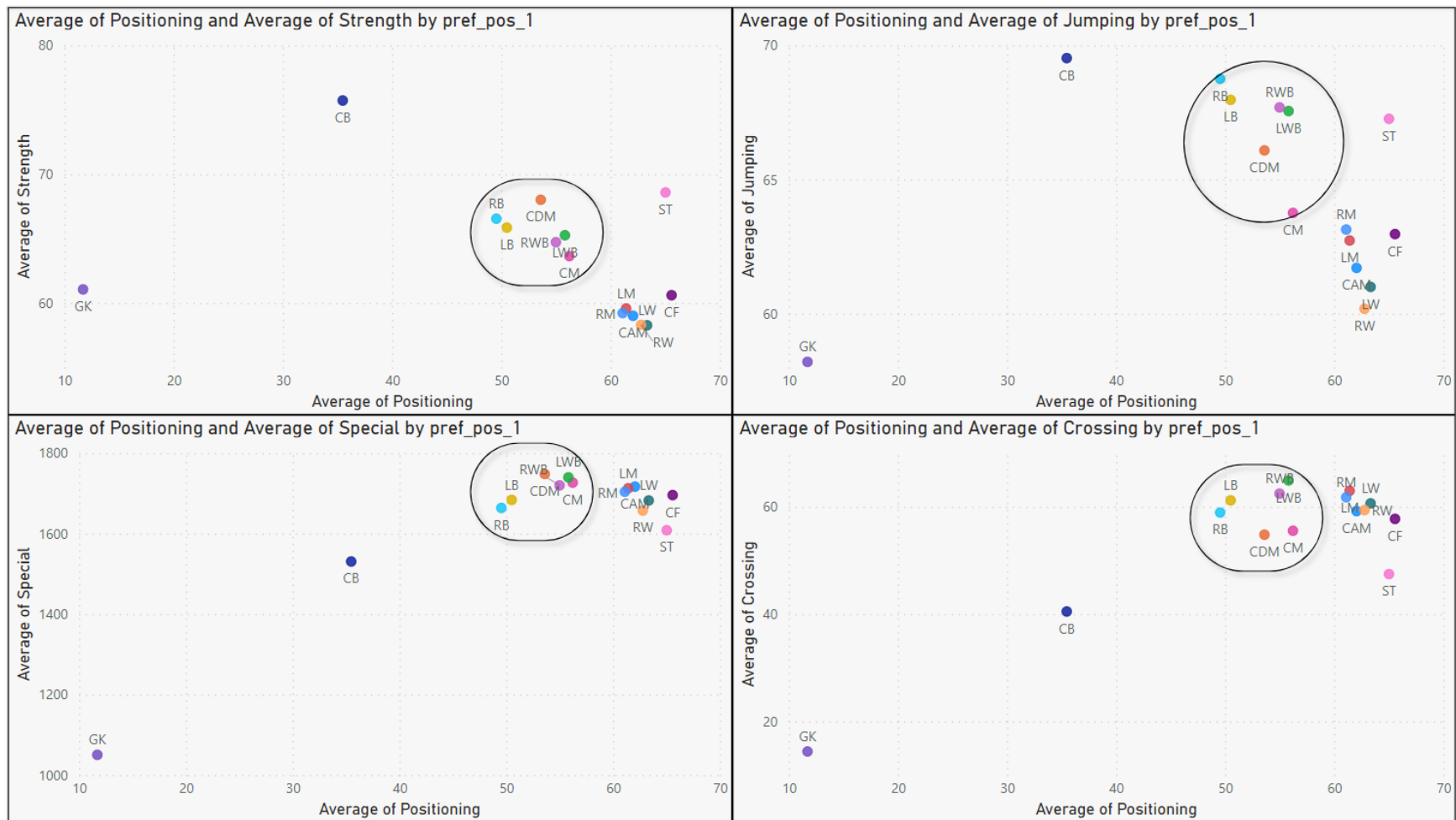
7. Do Strikers score higher on "Aggression" than defenders do? Group both the set of players (from an overall score of 80 to 85) and compare their average aggression levels. Which particular position has the highest aggression as a given (players with overall score of 80 to 90)?

Comparing strikers and defenders (CB, LB, RB, LWB, RWB) with an overall score of 80-85 shows that defenders score much higher on aggression levels than strikers. Looking at all positions a player can play at shows that positions such as LWB, CB, RB, CDM, LB, CM, and RWB show much higher levels of aggression. The common element in all these positions is that the player playing at any of these positions has to perform defensive duties.

Average of Aggression by Overall for Defenders and Strikers

Average of Aggression by Preferred Position
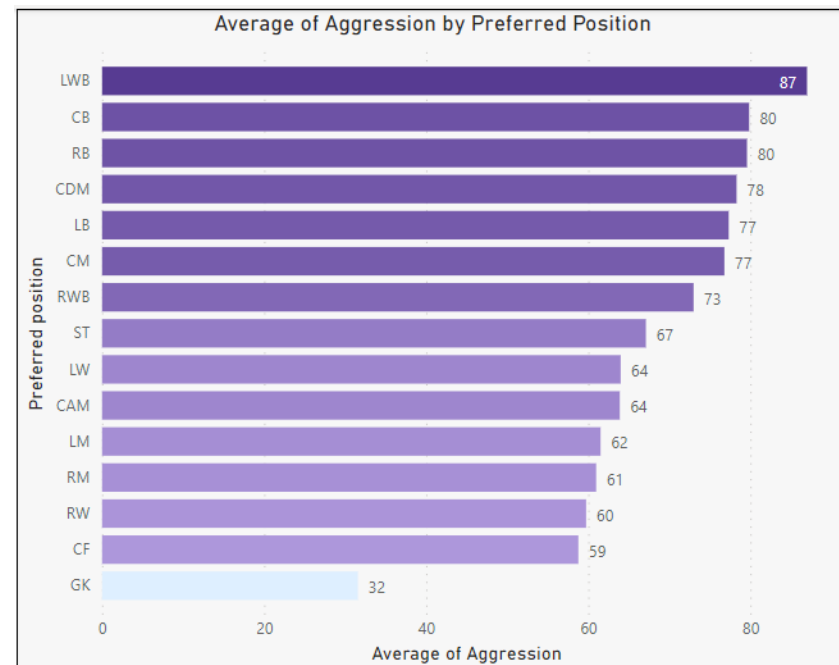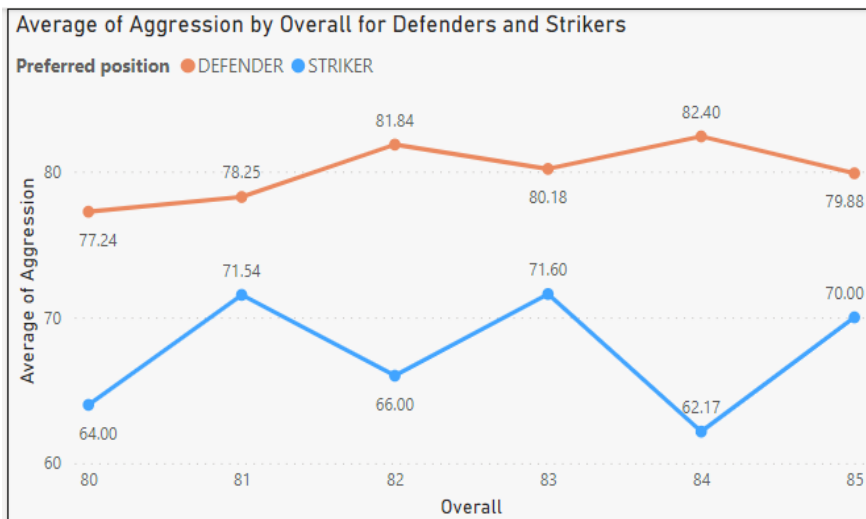
8. How based on the positional data, players are profiled for different roles/classes. Plot Aggression, Acceleration, Agility, Balance and Ball Control for strikers and Goal Keepers in a single line/Bar plot to understand the positional difference.

Average of Positioning and Average of Stamina by pref_pos_1

Average of Positioning and Average of Standing tackle by pref_pos_1

Average of Positioning and Average of Long shots by pref_pos_1

Average of Positioning and Average of Ball control by pref_pos_1

Average of Positioning and Average of Strength by pref_pos_1

Average of Positioning and Average of Jumping by pref_pos_1

Average of Positioning and Average of Special by pref_pos_1

Average of Positioning and Average of Crossing by pref_pos_1

From the above scatter plots, we can observe that the players can be put in 5 buckets based on their attributes:

- Goal Keeper (GK)

- Centre Back (CB)
- Other Defenders (RB, LB, LWB, RWB, CDM, CM)
- Attacking Positions (RM, LM, LW, CAM, CF, CAM)
- Strikers

Although, this can be checked using clustering algorithms such as K-Means Clustering. But for this analysis, we limited ourselves to identifying the patterns only.

The average rating of positional data such as aggression, acceleration, agility, balance, and ball control for a goal-keeper is much lower when compared to a striker.
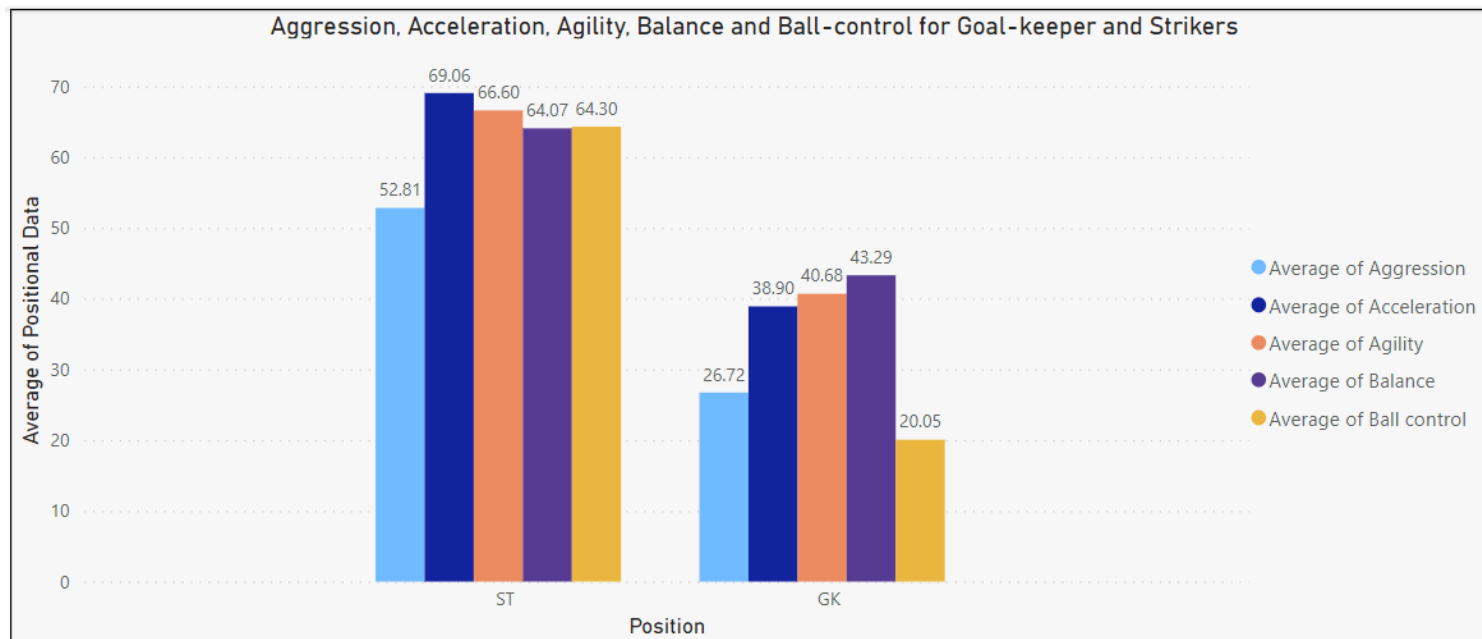
9. Which clubs consists of the best future players? Consider only the players with Overall <86 and Potential >= 86, plot a graph to show which are the top 10 clubs with the greatest number of best future players.

The club with the most players that have the potential to be the best in the future is **FC Barcelona** (9), followed by **Atletico Madrid** (8). Several clubs are tied at best with future player counts of 5, 6, and 7.

TOP 10 CLUBS WITH MOST NUMBER OF BEST FUTURE PLAYERS

Club	Number of Players
FC Barcelona	9
AtlÃ©tico Madrid	8
Borussia Dortmund	7
Manchester City	7
Milan	7
Paris Saint-Germain	7
Real Madrid CF	7
Bayer 04 Leverkusen	6
Napoli	6
AS Monaco	5
Chelsea	5
FC Bayern Munich	5
Manchester United	5
Real Sociedad	5
Tottenham Hotspur	5