Visualization of Explanatory Data Analysis on Hero ISL

Shreyita Roy Mahapatra
Ankit Biswas
Anushka Banerjee
Ambika Ghosh
Diya Ganguly
Computer Science & Engineering *(of AICTE)*
Meghnad Saha Institute of Technology *(of MAKAUT)*
Kolkata , India

Abstract :

A Pioneering Football Journey,The Hero Indian Super League (ISL) stands tall as one of India's premier football leagues, capturing the hearts of millions since its inception. Founded in 2014, this revolutionary sports event has transcended the boundaries of the nation, creating a legacy that echoes far beyond the sport itself. With its intense competition, unwavering fan base, and innovative approach, the ISL has transformed the landscape of Indian football. The ISL brings together a diverse array of talent, comprising seasoned international players, emerging local stars, and seasoned veterans, fostering an inclusive atmosphere that celebrates the spirit of teamwork and sportsmanship. Clubs from different regions participate in a thrilling home-and-away format, sparking intense rivalries and uniting fans nationwide. The league's resounding success lies in its commitment to nurturing grassroots talent, thereby promoting football development at the grassroots level. Through various youth programs and initiatives, the ISL encourages young enthusiasts to pursue their football dreams, paving the way for a brighter future in the sport. The ISL has carved its niche as a source of entertainment beyond the pitch, merging sports and entertainment in a harmonious spectacle. The league showcases vibrant fan engagement, captivating performances, and electrifying stadium experiences that add to the overall allure. In summary, the Hero Indian Super League has emerged as a beacon of hope for Indian football, revolutionizing the sport, fostering young talent, and uniting a diverse nation through the love of the beautiful game. As it continues to soar to new heights, the ISL promises a future that is not just thrilling for football enthusiasts but also transformative for the sport in India.

Keywords :

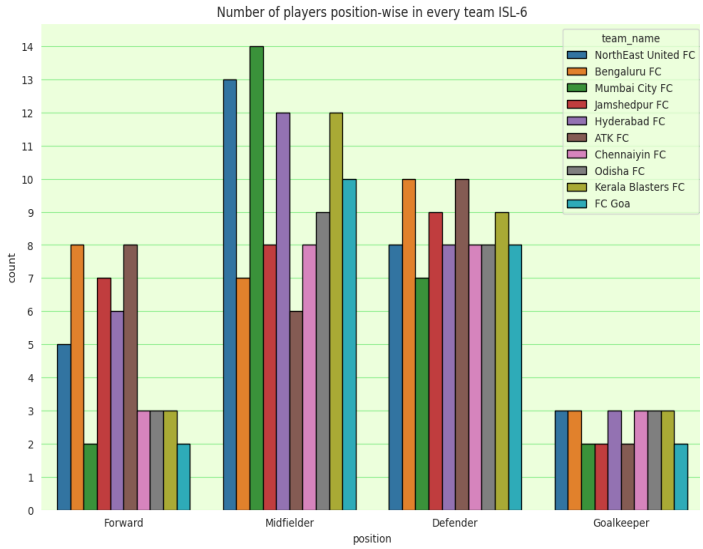
Template, Scribbr, IEEE, format, EDA, dataanalysis, data visualization.

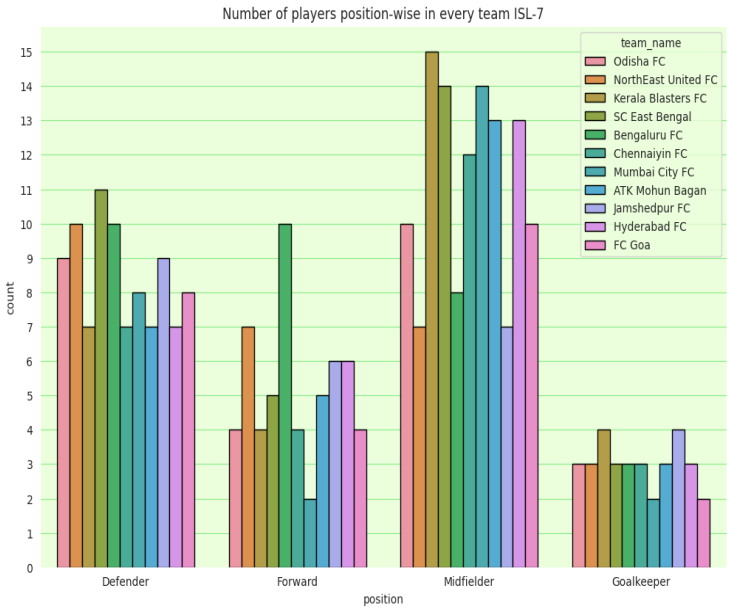
1. Information about The Dataset :

We first wanted to get an overview of the dataset that we were dealing with. We got the dataset from Kaggle and we are going to utilize data that the Kaggle website provides to understand the performance of every players and teams in ISL season 6 and season 7. This dataset consists of 563 entries, 0 to 562 Data columns (total 93 columns). From the code, we could see the column names that the CSV file contains. As the number of coloumns are large we are performing coloumn filter and will utilize the following filtered columns to understand the performance of every player in through the whole tournament . This dataset with filtered columns consists of 563 entries, 0 to 562 Data columns (total 23 columns).

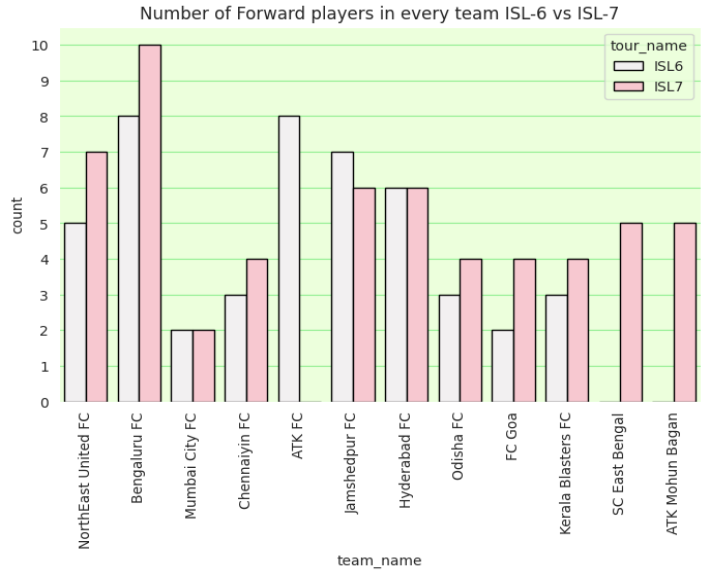
```
 #   Column                   Non-Null Count  Dtype
---  ------                   --------------  -----
 0   tour_name                563 non-null    object
 1   name                     563 non-null    object
 2   position                 563 non-null    object
 3   team_name                563 non-null    object
 4   is_started               563 non-null    int64
 5   is_onbench               563 non-null    int64
 6   minutes_played           563 non-null    int64
 7   events.goals             563 non-null    int64
 8   events.assists           563 non-null    int64
 9   events.free_kicks        563 non-null    int64
 10  events.fouls_committed   563 non-null    int64
 11  events.yellow_cards      563 non-null    int64
 12  events.red_cards         563 non-null    int64
 13  events.crosses           563 non-null    int64
 14  events.corner_kicks      563 non-null    int64
 15  touches.total            563 non-null    int64
 16  touches.total_passes     563 non-null    int64
 17  goaltenders.saves        563 non-null    int64
 18  goaltenders.shots_faced  563 non-null    int64
 19  country_name             563 non-null    object
 20  dob                      399 non-null    object
 21  player_foot              310 non-null    object
 22  height                   379 non-null    float64
dtypes: float64(1), int64(15), object(7)
memory usage: 101.3+ KB
```

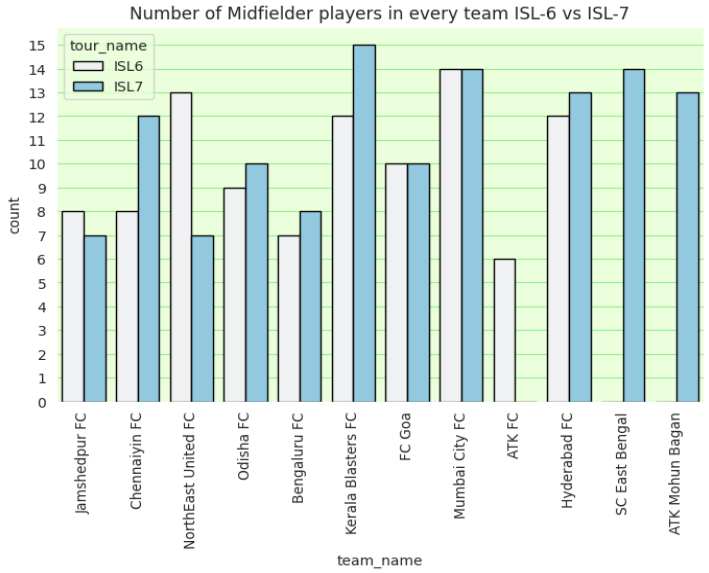
2. *Analysis of position wise total players in ISL6 vs ISL7 :*

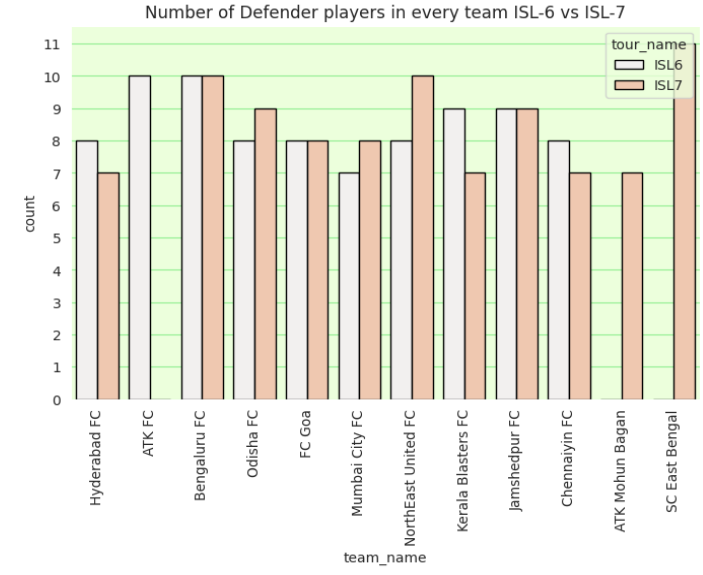


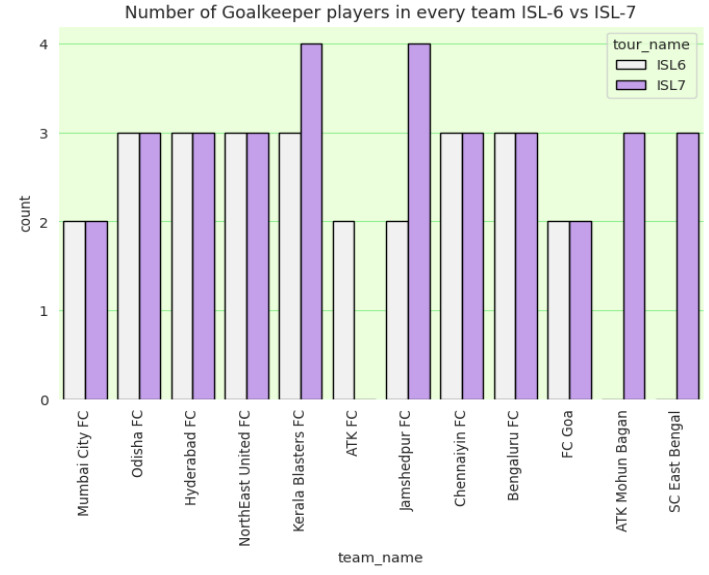


3. *Analysis of number of players in each position for every team ISL6 vs ISL7 :*

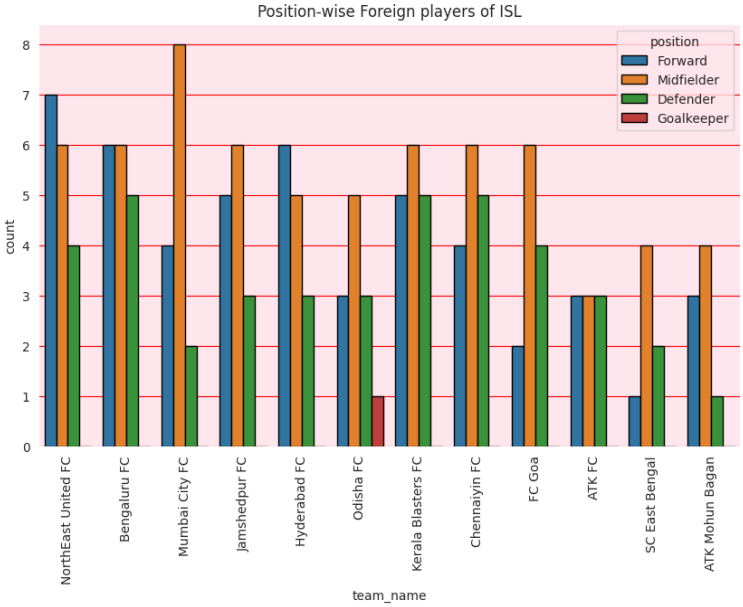


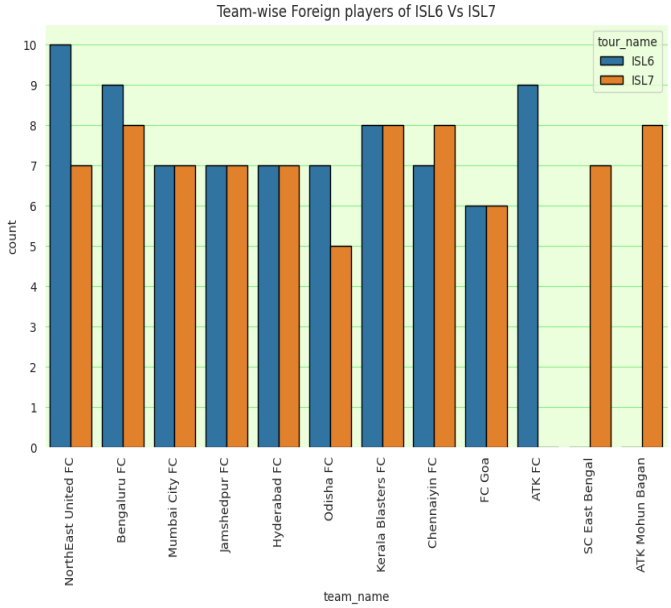


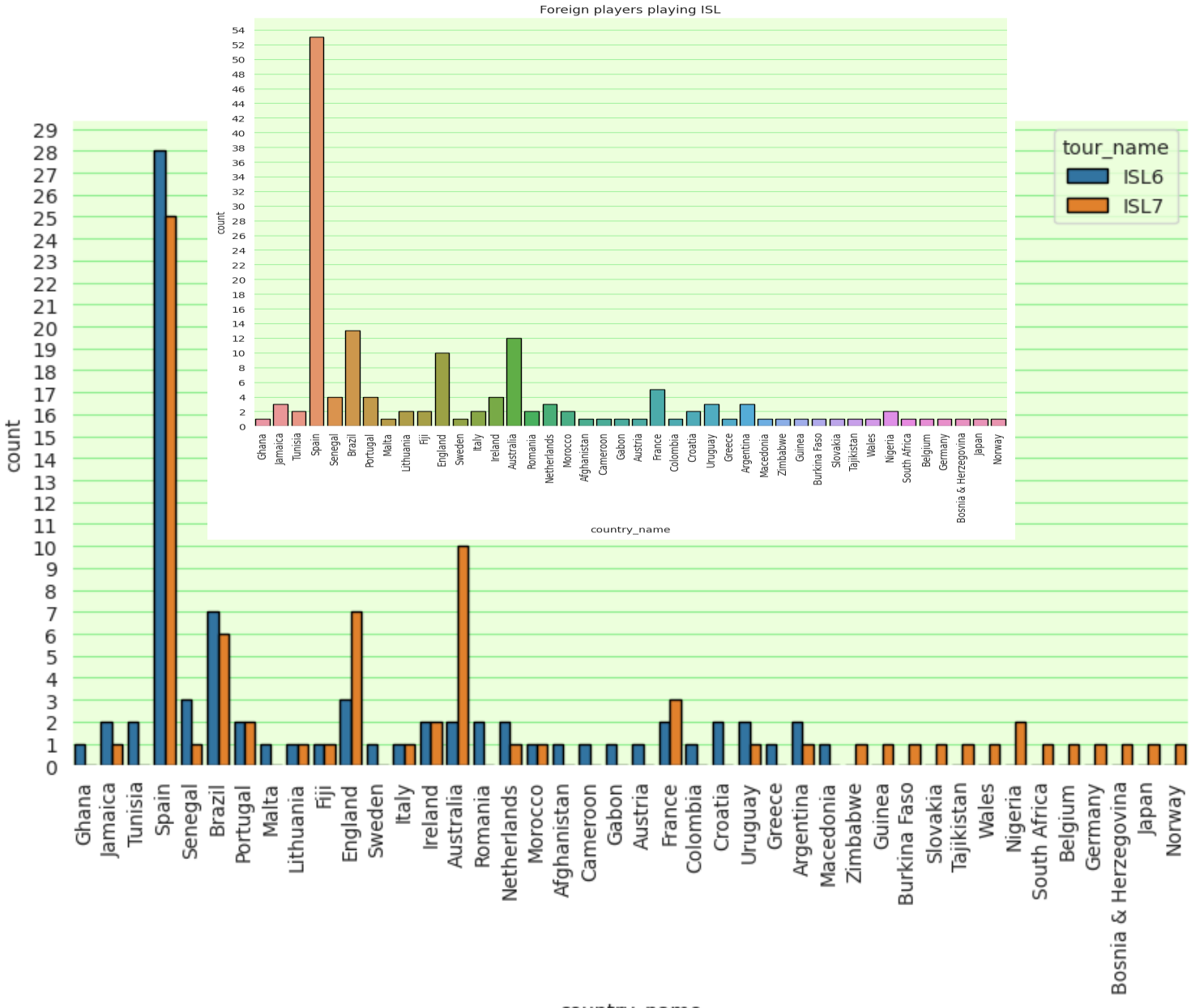




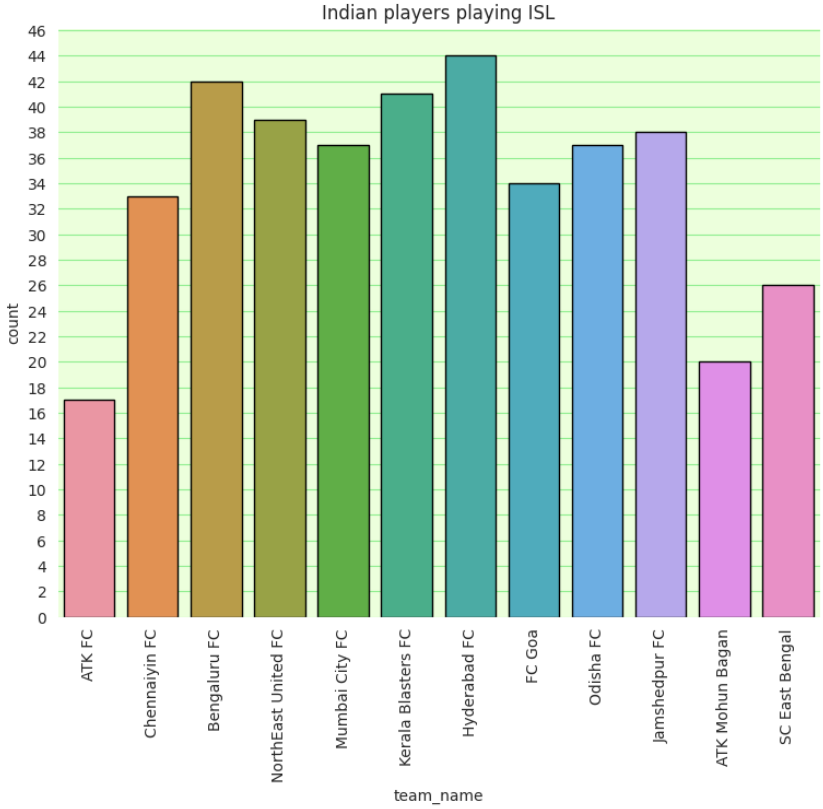
4. *Analysis of Foreign players in ISL6 vs ISL7 :*

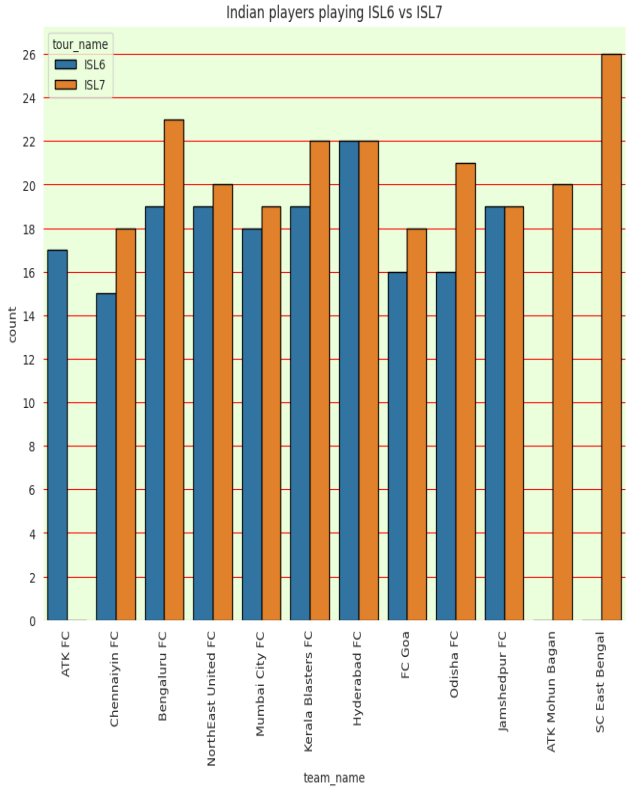


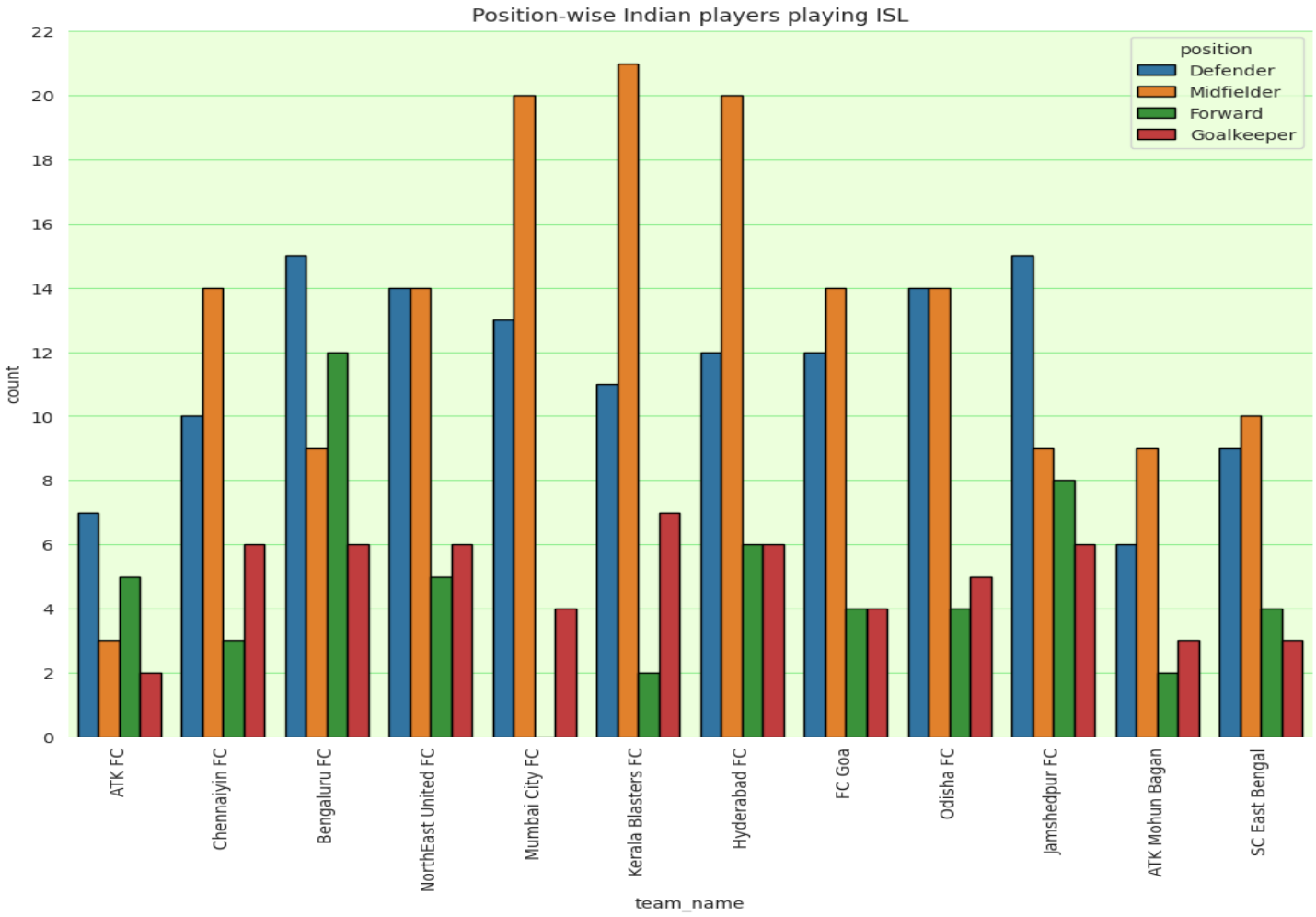




5. *Analysis of Indian players in ISL6 vs ISL7 :*

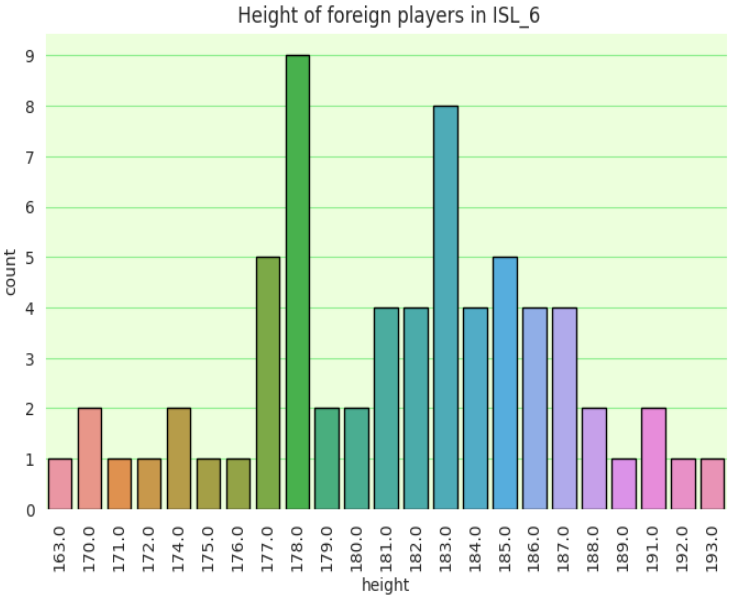


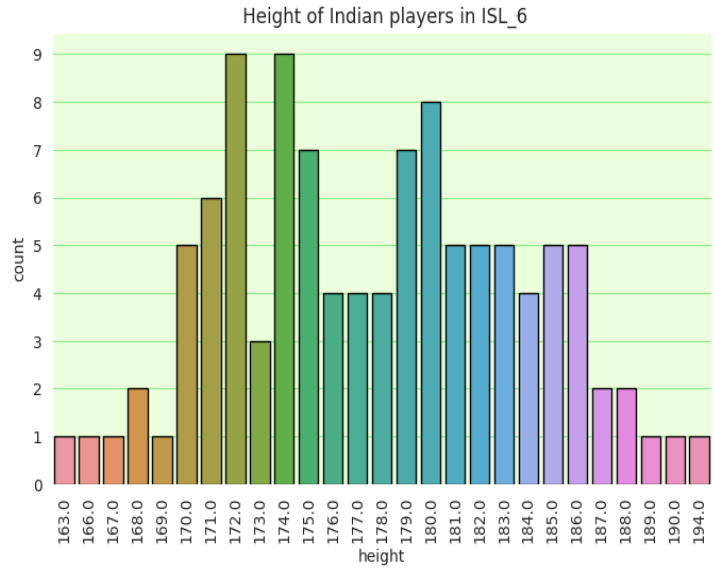




6. *Analysis of Height of players in ISL6 vs ISL7 :*

ISL - 6






```
df_ISL6_sortedheight['height'].mean()
```

```
179.12571428571428
```

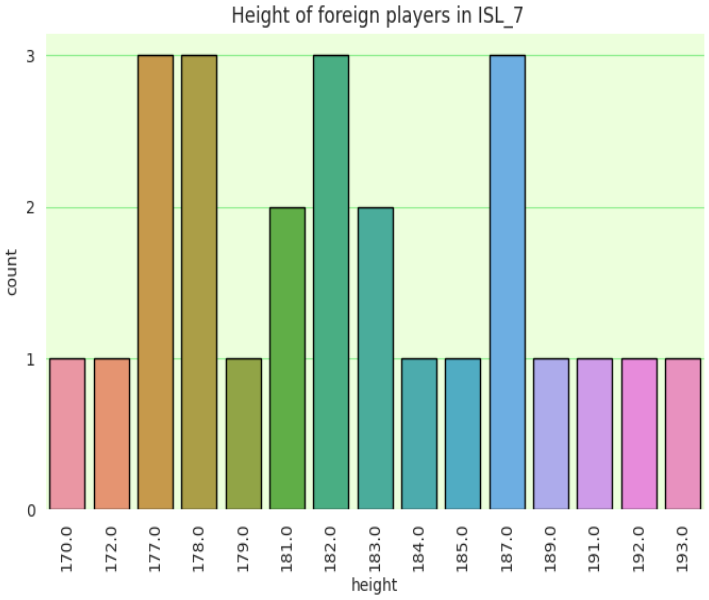
```
df_ISL6_sortedheight['height'].median()
```

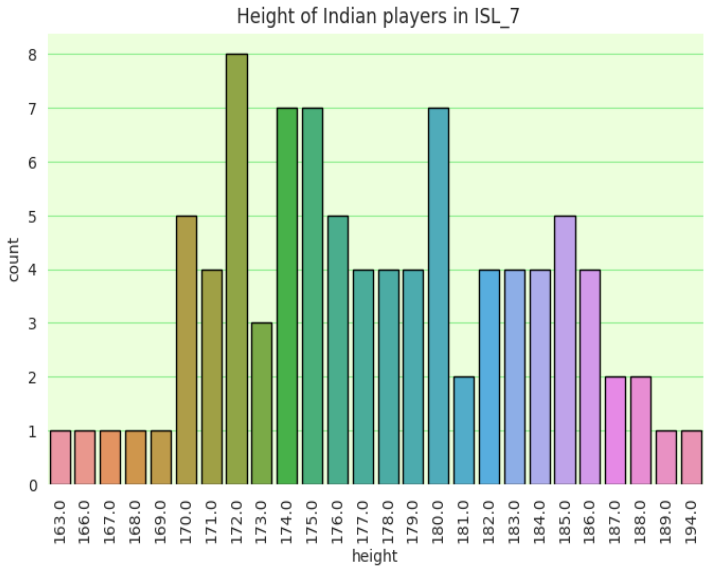
```
179.0
```

```
df_ISL6_sortedheight_min = df_ISL6_sortedheight['height'].min()
df_ISL6_sortedheight_min
```

```
163.0
```

ISL - 7






```
df_ISL7_sortedheight['height'].mean()
```

```
178.5982905982906
```

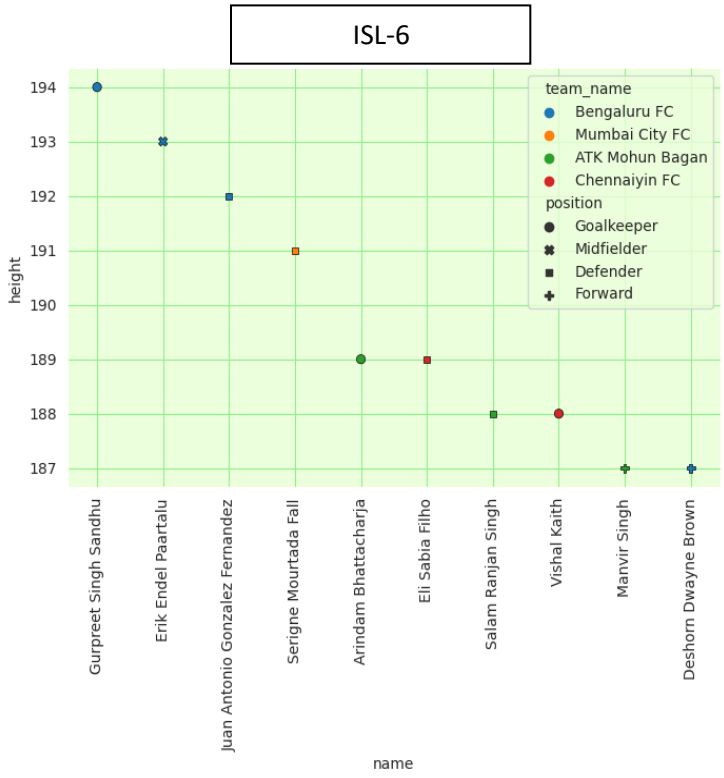
```
df_ISL7_sortedheight['height'].median()
```

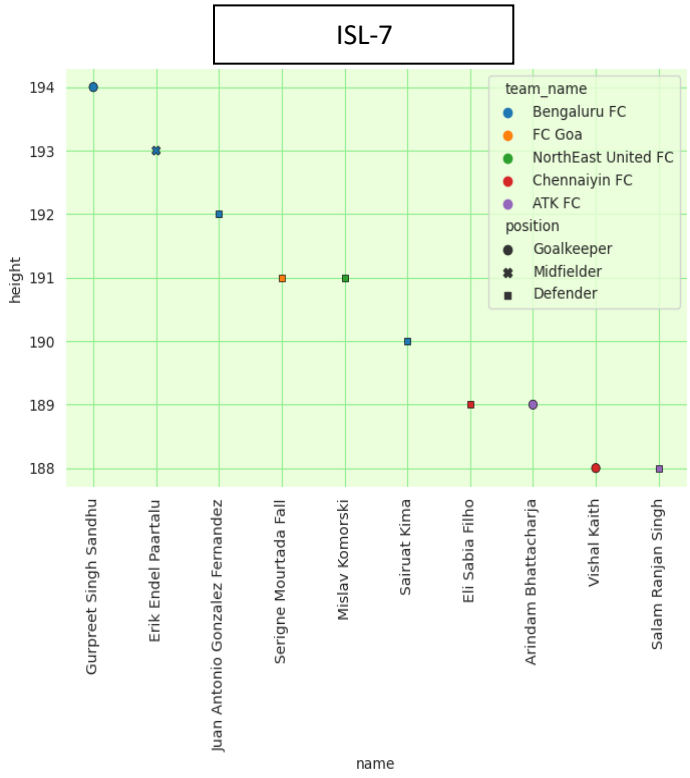
```
178.0
```

```
df_ISL7_sortedheight_min = df_ISL7_sortedheight['height'].min()
df_ISL7_sortedheight_min
```

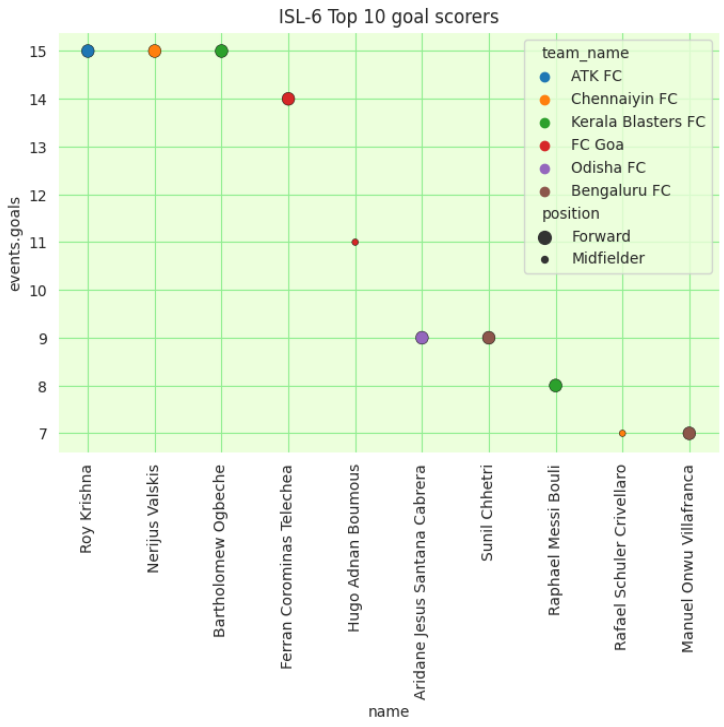
```
163.0
```

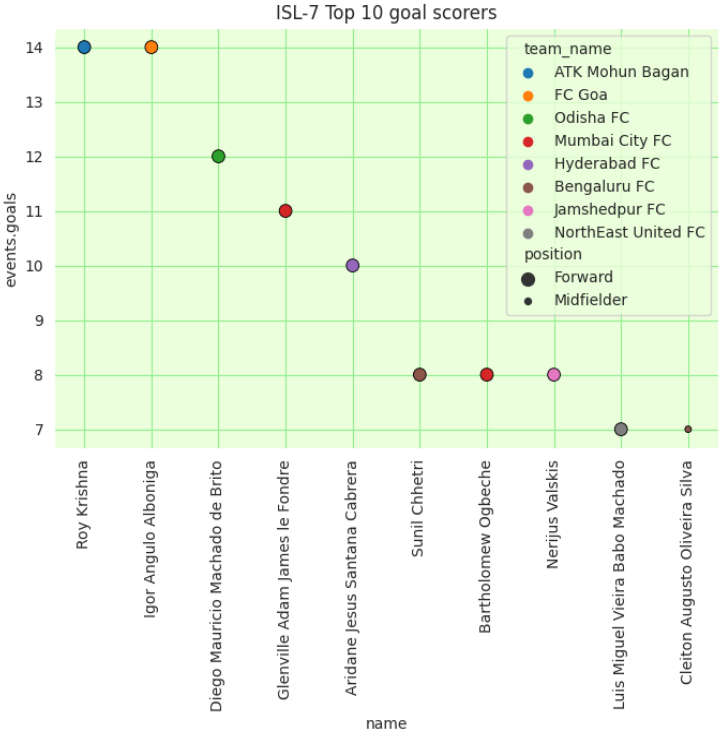
7. *Players with top 10 Heights in ISL6 vs ISL7 :*



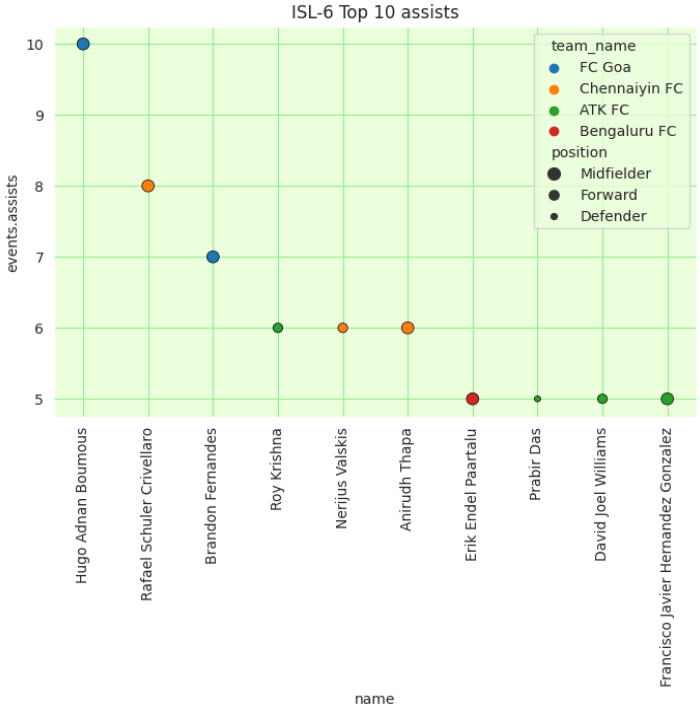


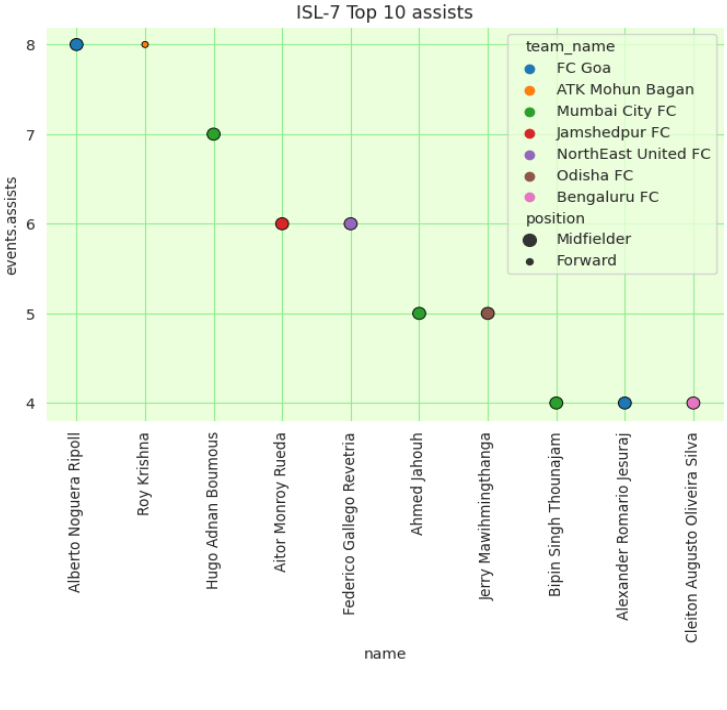
8. *Players with top 10 Goals in ISL6 vs ISL7 :*



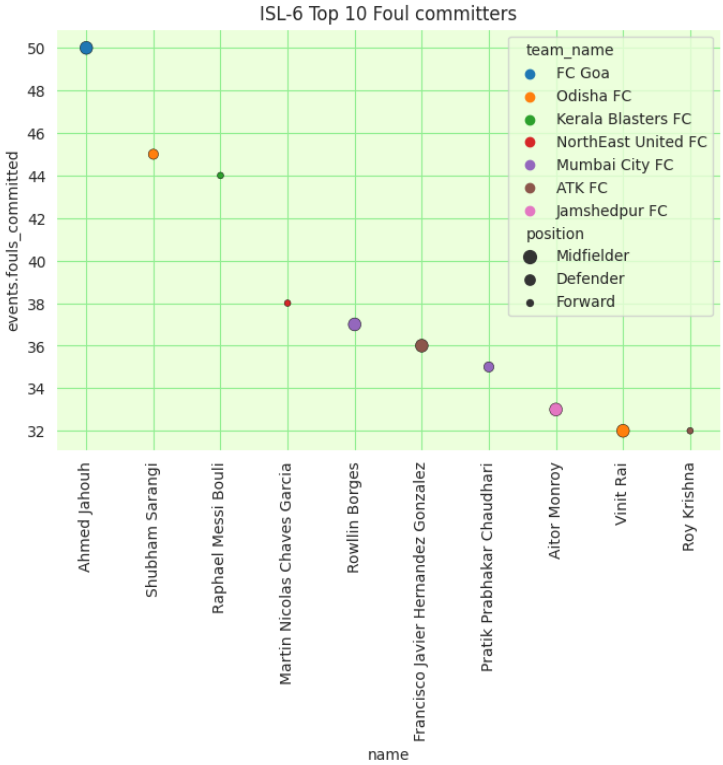


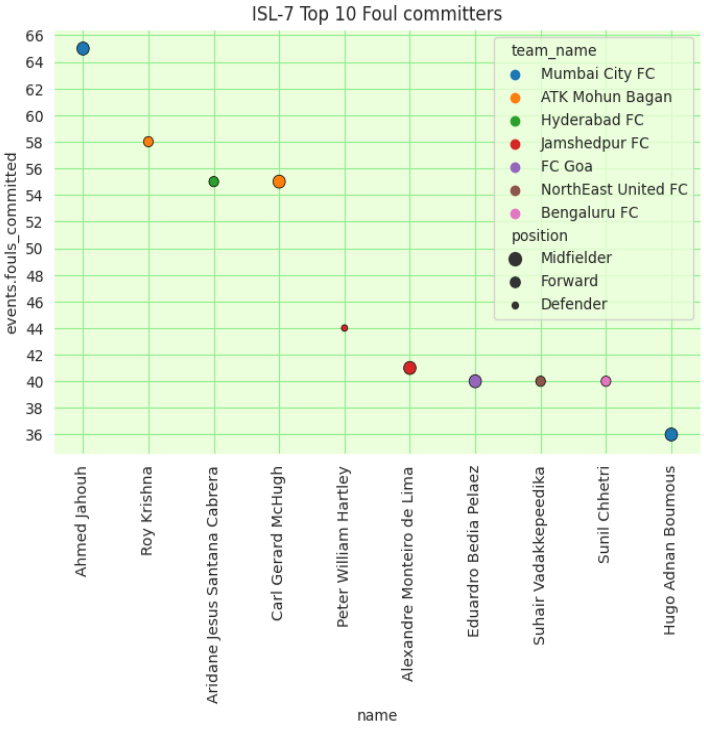
9. *Players with top 10 Assists in ISL6 vs ISL7 :*



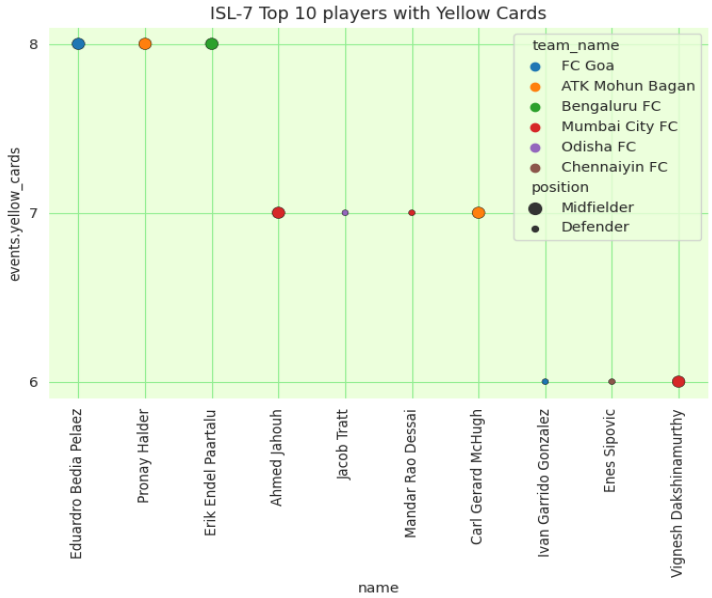


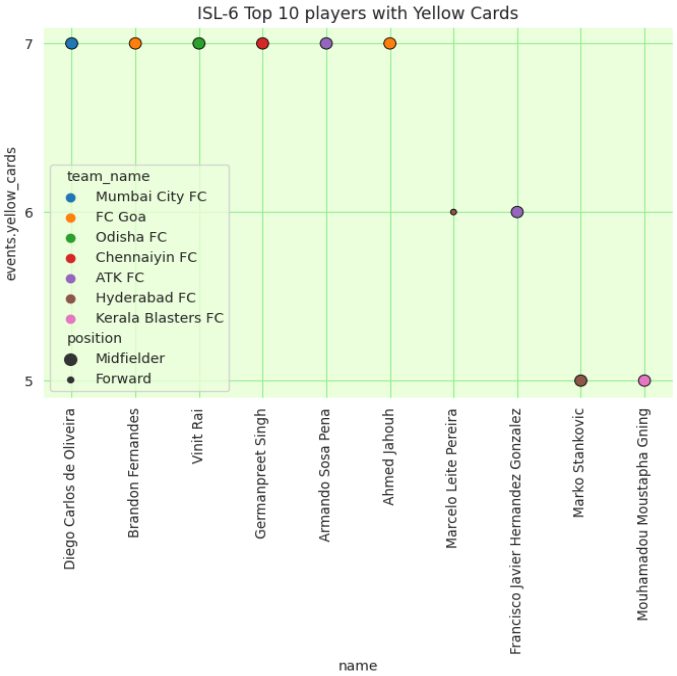
10. *Players with top 10 Fouls in ISL6 vs ISL7 :*





11. *Players with top 10 Yellow cards in ISL6 vs ISL7 :*





12. *Players with top 5 Red cards in ISL6 vs ISL7 :*

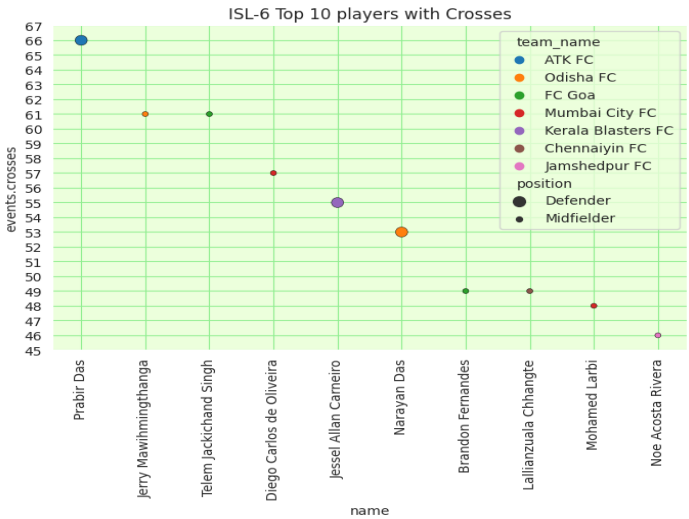
ISL-6

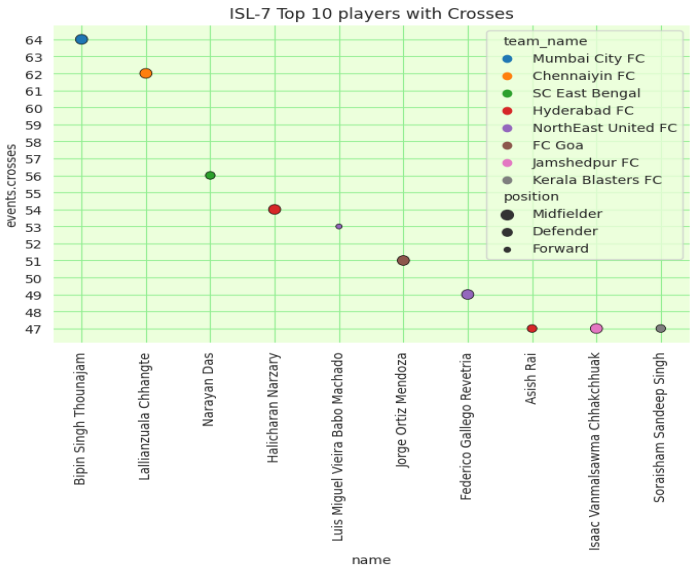
	name	team_name	position	events.red_cards
223	Serigne Mourtada Fall	FC Goa	Defender	1
168	Sarthak Golui	Mumbai City FC	Defender	1
151	Ahmed Jahouh	FC Goa	Midfielder	1
110	Eli Sabia Filho	Chennaiyin FC	Defender	1
156	Jitendra Singh	Jamshedpur FC	Defender	1

ISL-7

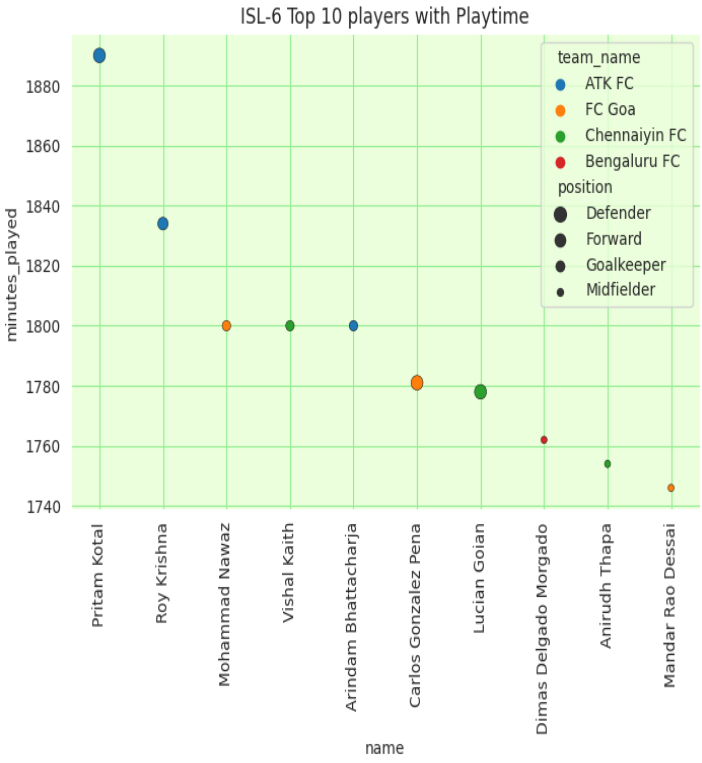
	name	team_name	position	events.red_cards
401	Ahmed Jahouh	Mumbai City FC	Midfielder	2
281	Lluis Sastre	Hyderabad FC	Midfielder	1
366	Lalruatthara	Kerala Blasters FC	Defender	1
473	Hugo Adnan Boumous	Mumbai City FC	Midfielder	1
329	Eugeneson Lyngdoh	SC East Bengal	Midfielder	1

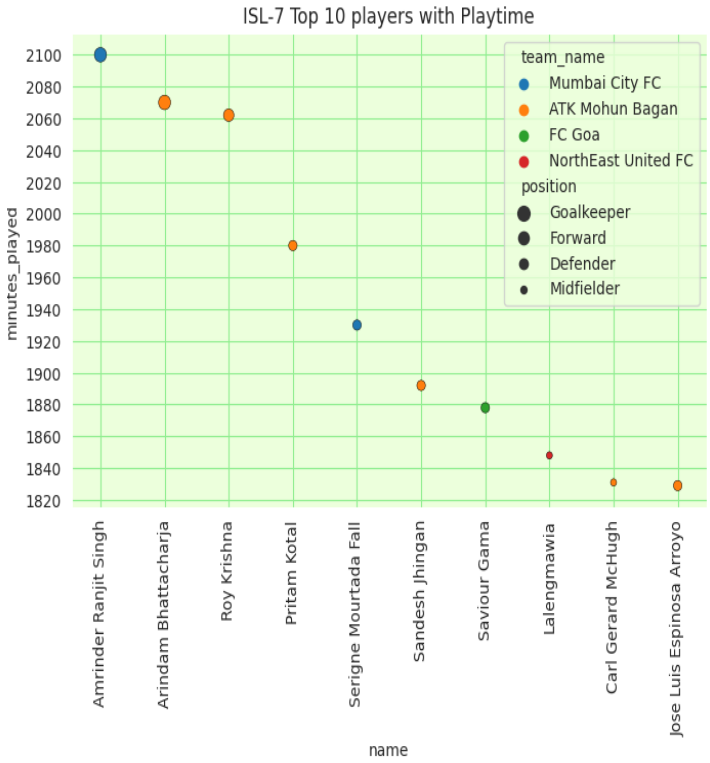
13. *Players with top 10 Crosses cards in ISL6 vs ISL7 :*



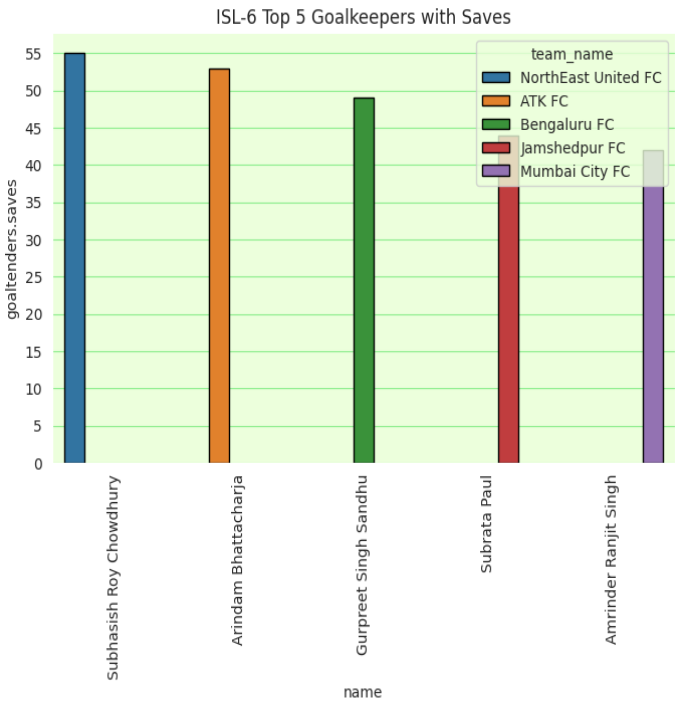


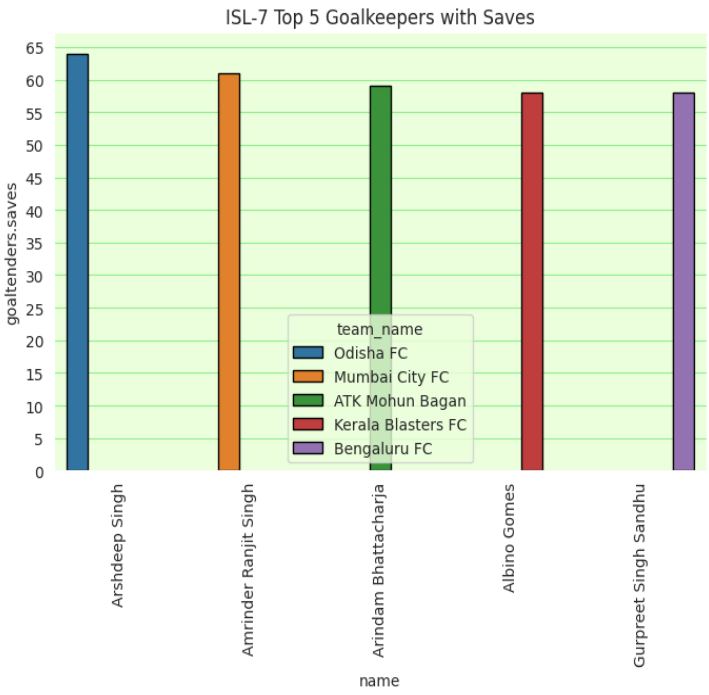
14. *Players with top 10 Playtimes in ISL6 vs ISL7 :*



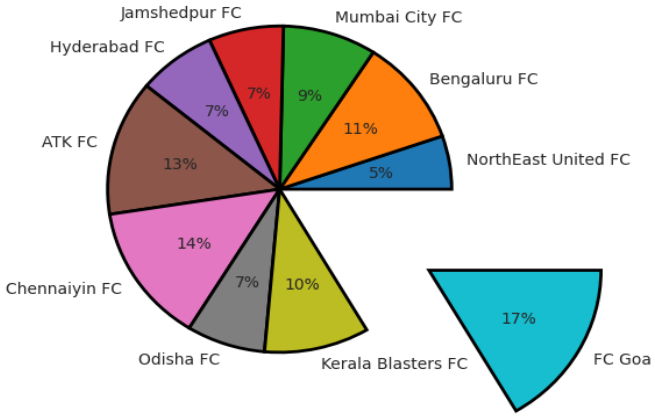


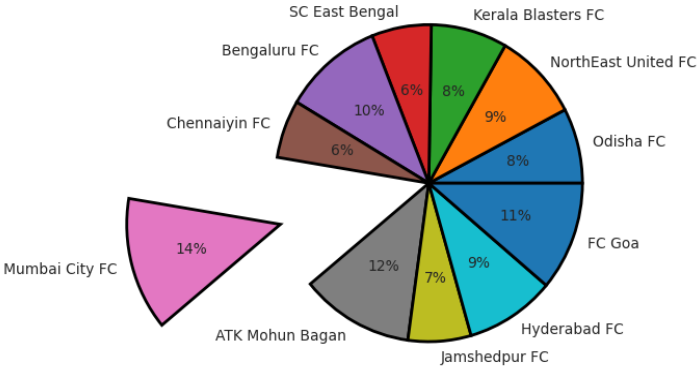
15. *Players with top 5 Goalsaves in ISL6 vs ISL7 :*



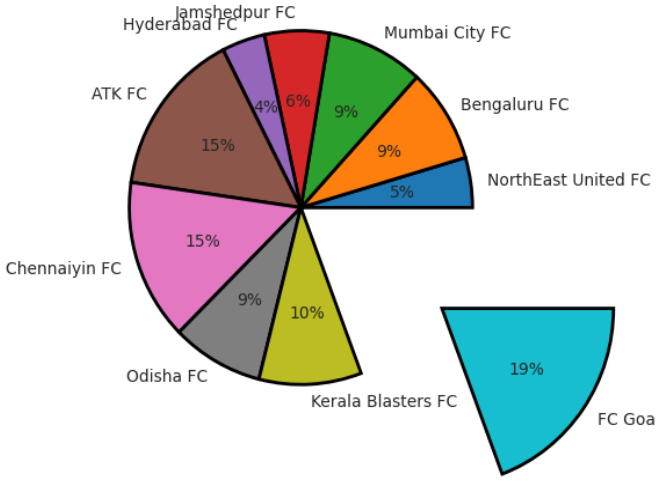


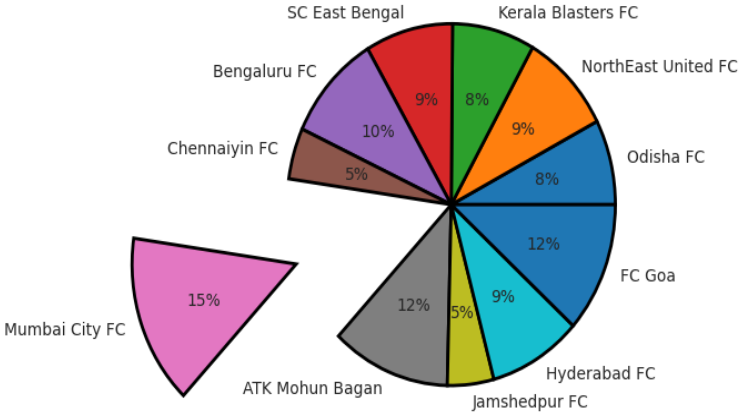
16. *Team-wise Goals ISL-6 vs ISL-7 :*



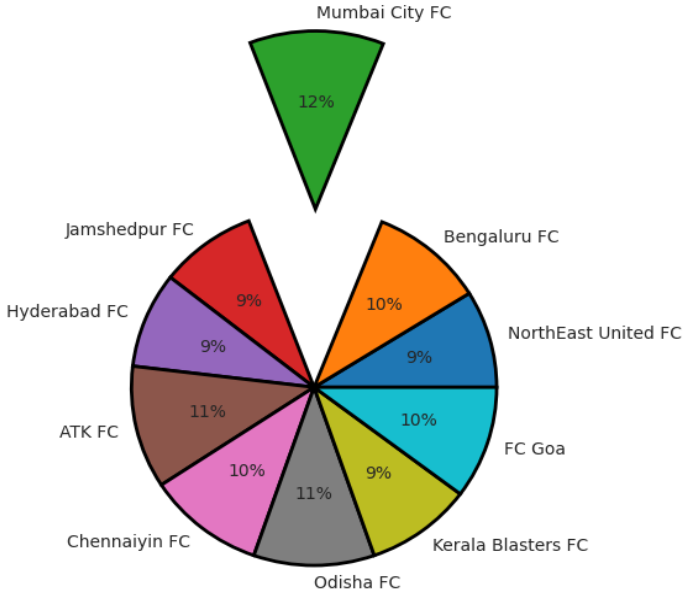


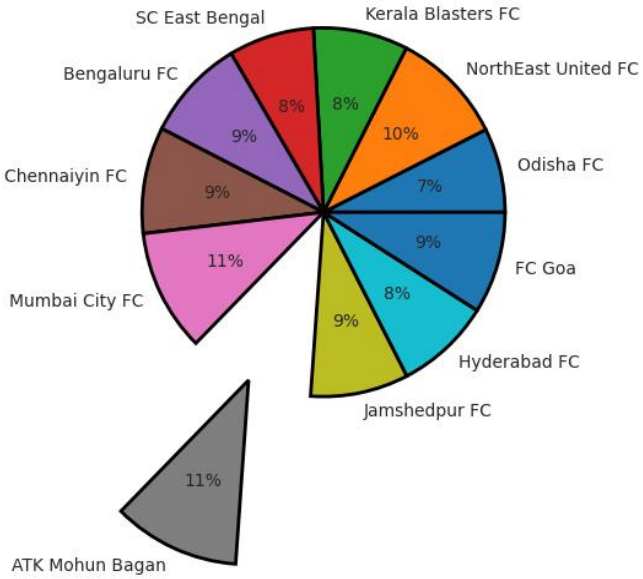
17. *Team-wise Assists ISL-6 vs ISL-7 :*



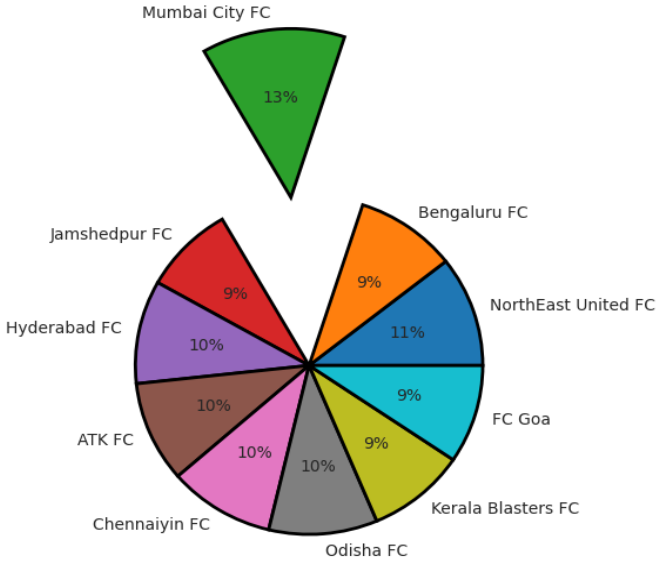


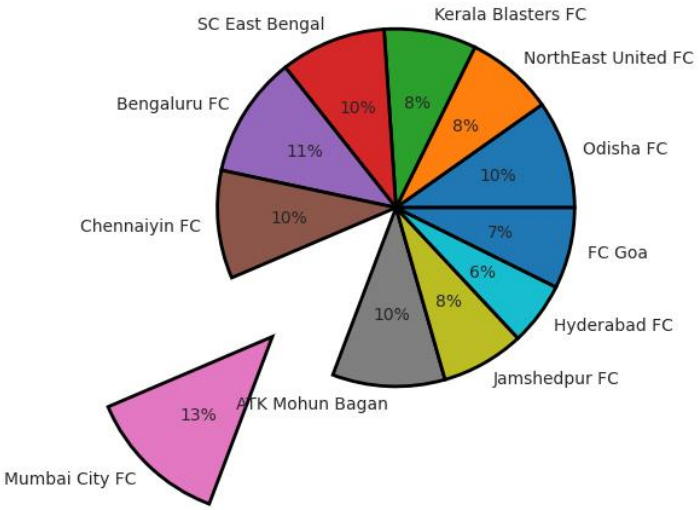
18. *Team-wise Fouls ISL-6 vs ISL-7 :*



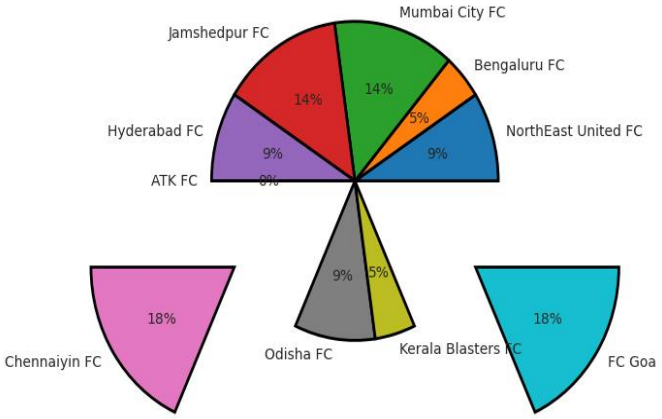


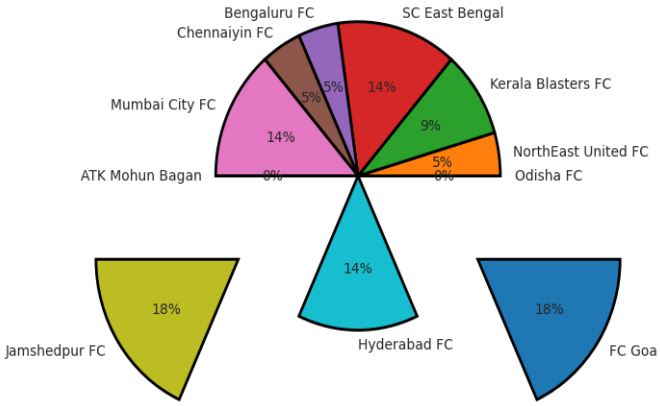
19. *Team-wise Yellow Card ISL-6 vs ISL-7 :*



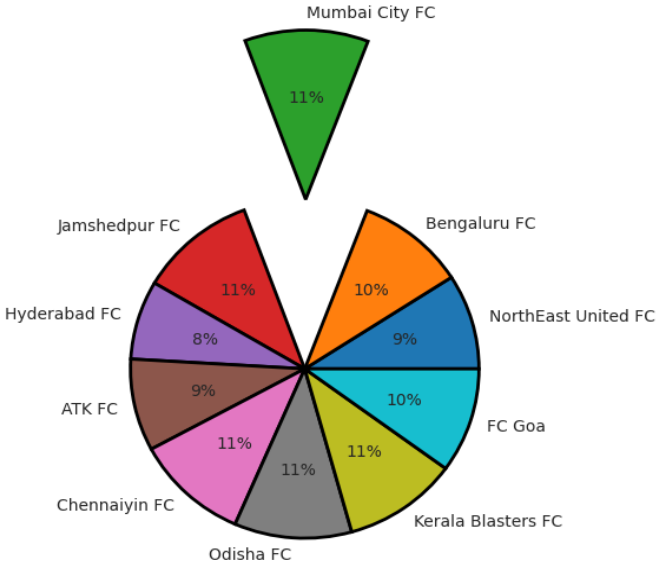


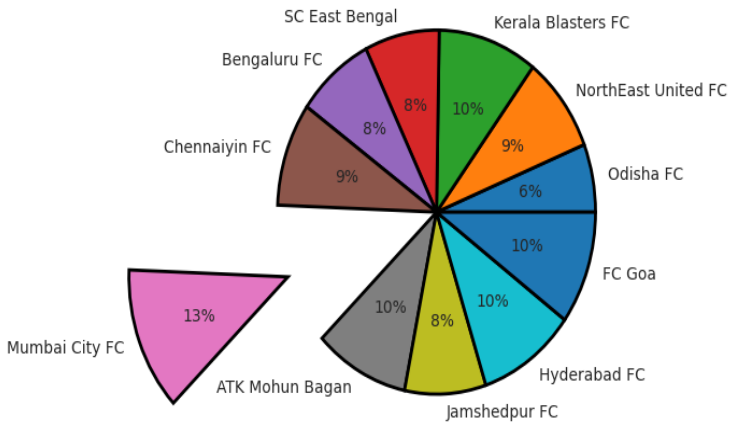
20. *Team-wise Red Card ISL-6 vs ISL-7 :*



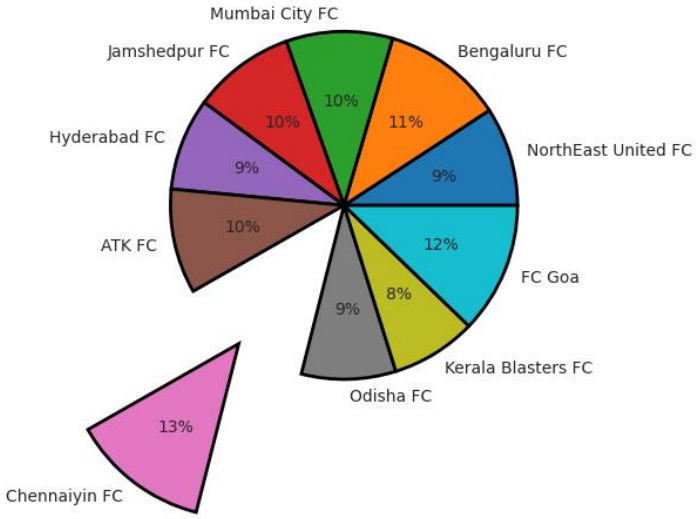


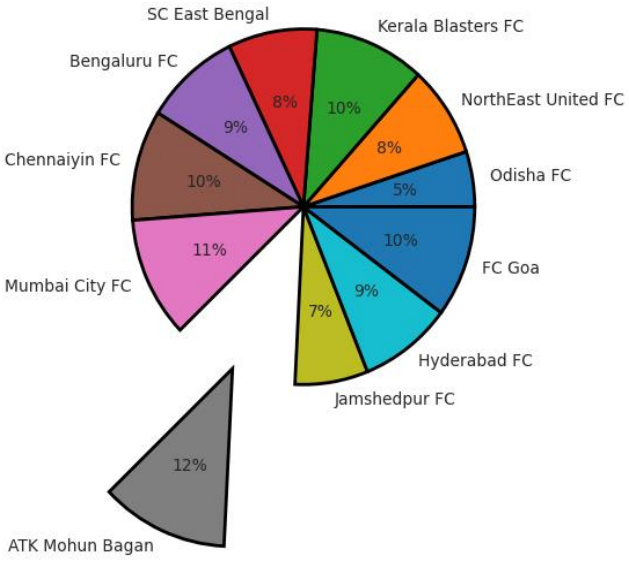
21. *Team-wise Crosses ISL-6 vs ISL-7 :*



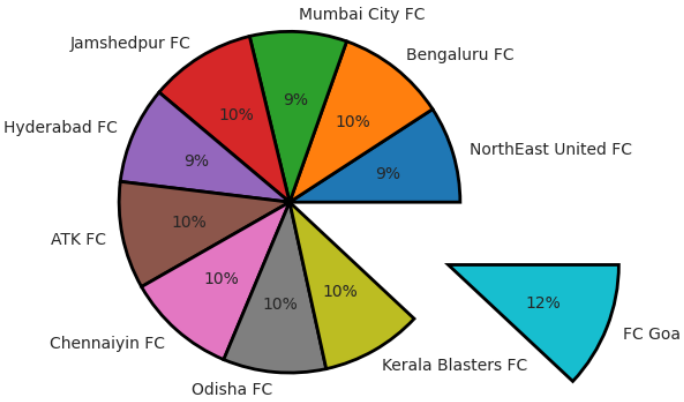


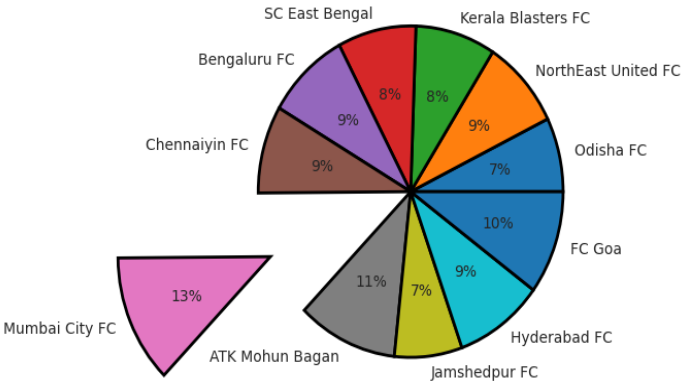
22. *Team-wise Corner Kicks ISL-6 vs ISL-7 :*



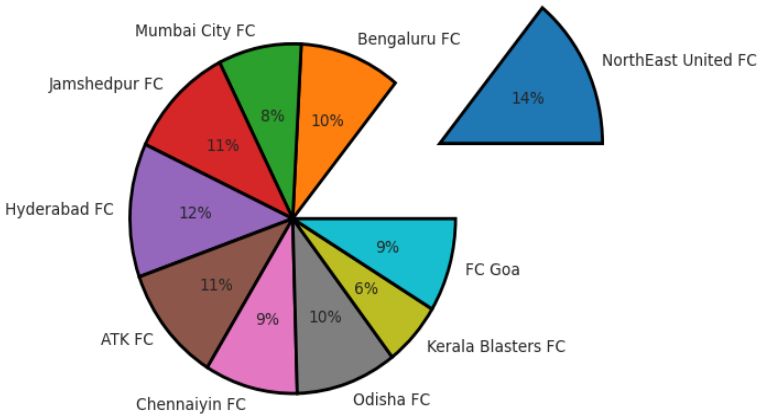


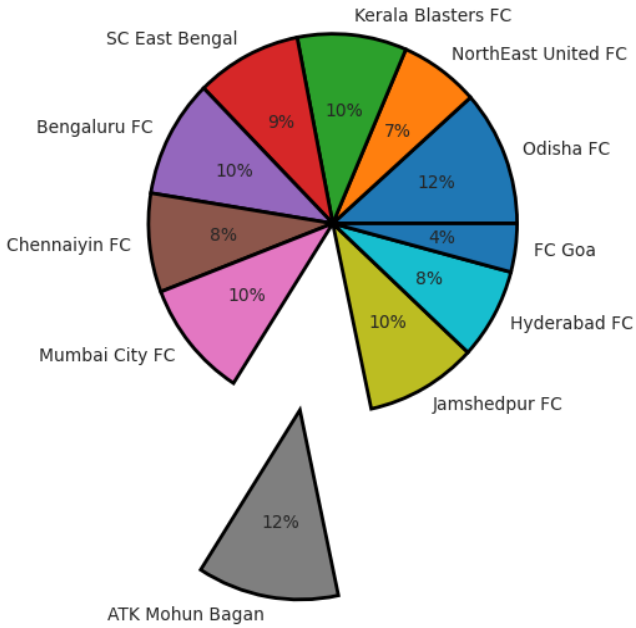
23. *Team-wise Touches ISL-6 vs ISL-7 :*



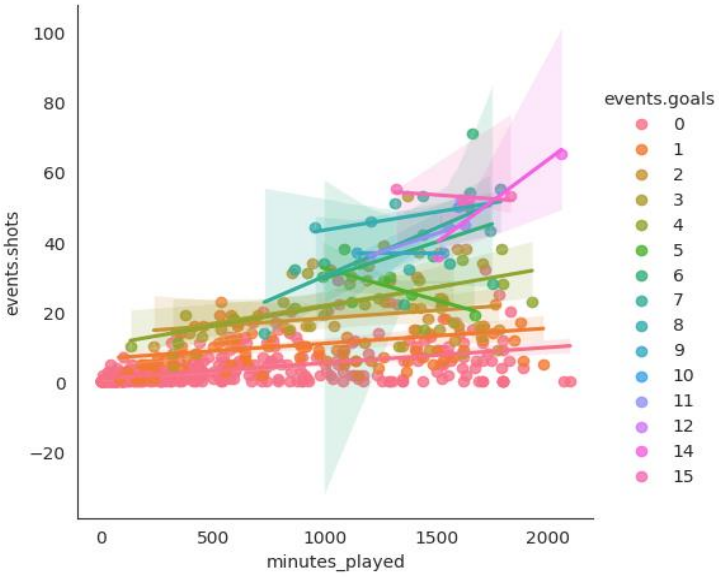


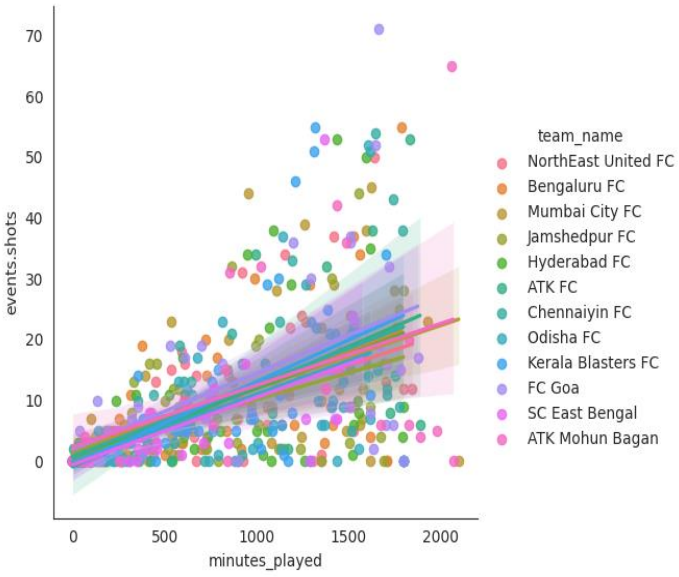
24. *Team-wise Goal Saves ISL-6 vs ISL-7 :*

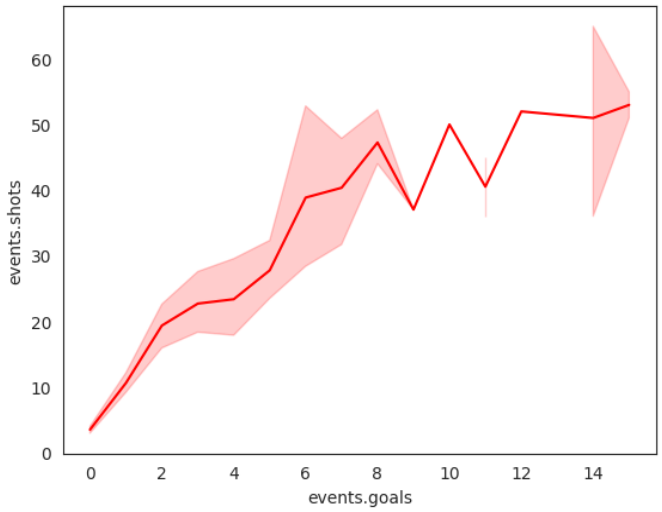


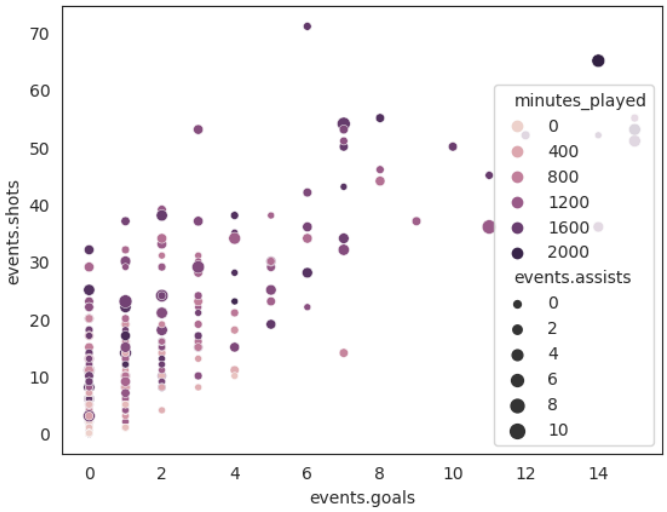


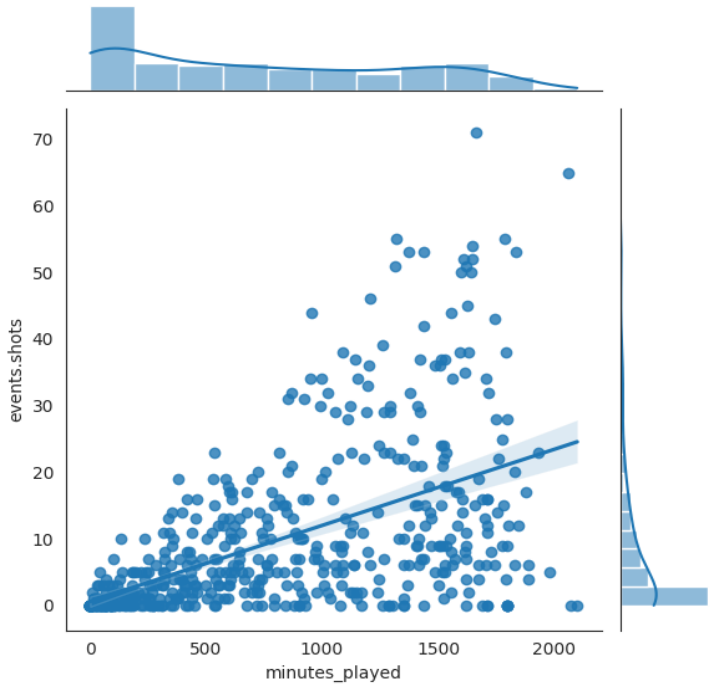
25. *Analysis on Shooting and Goals with playtime and Team name :*

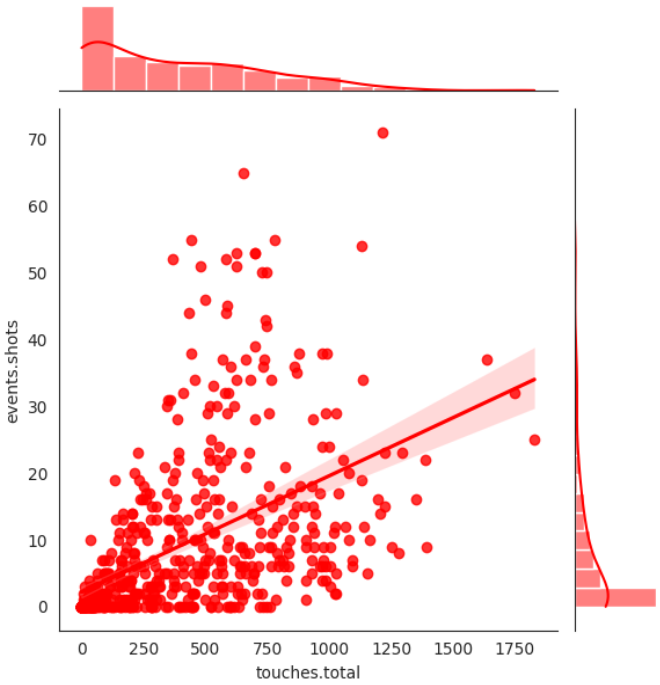


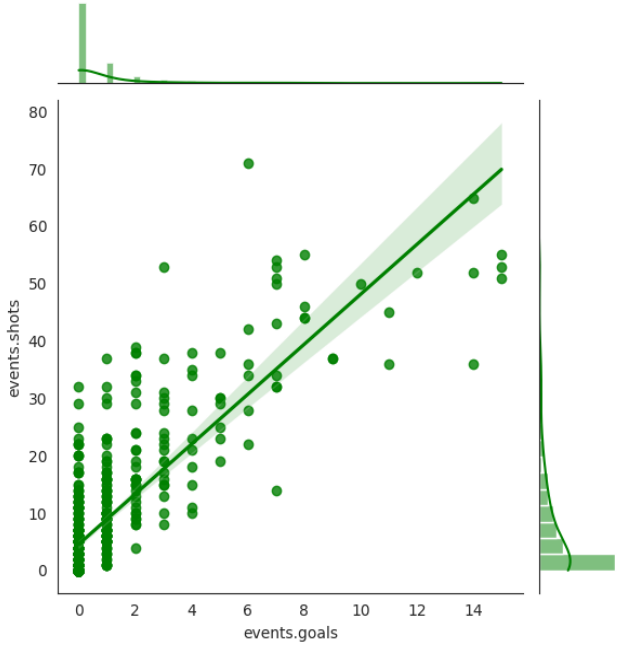


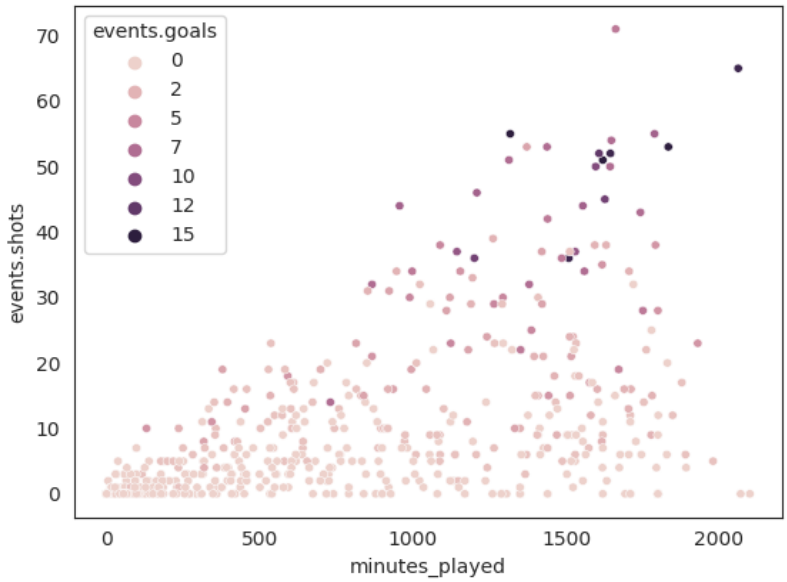


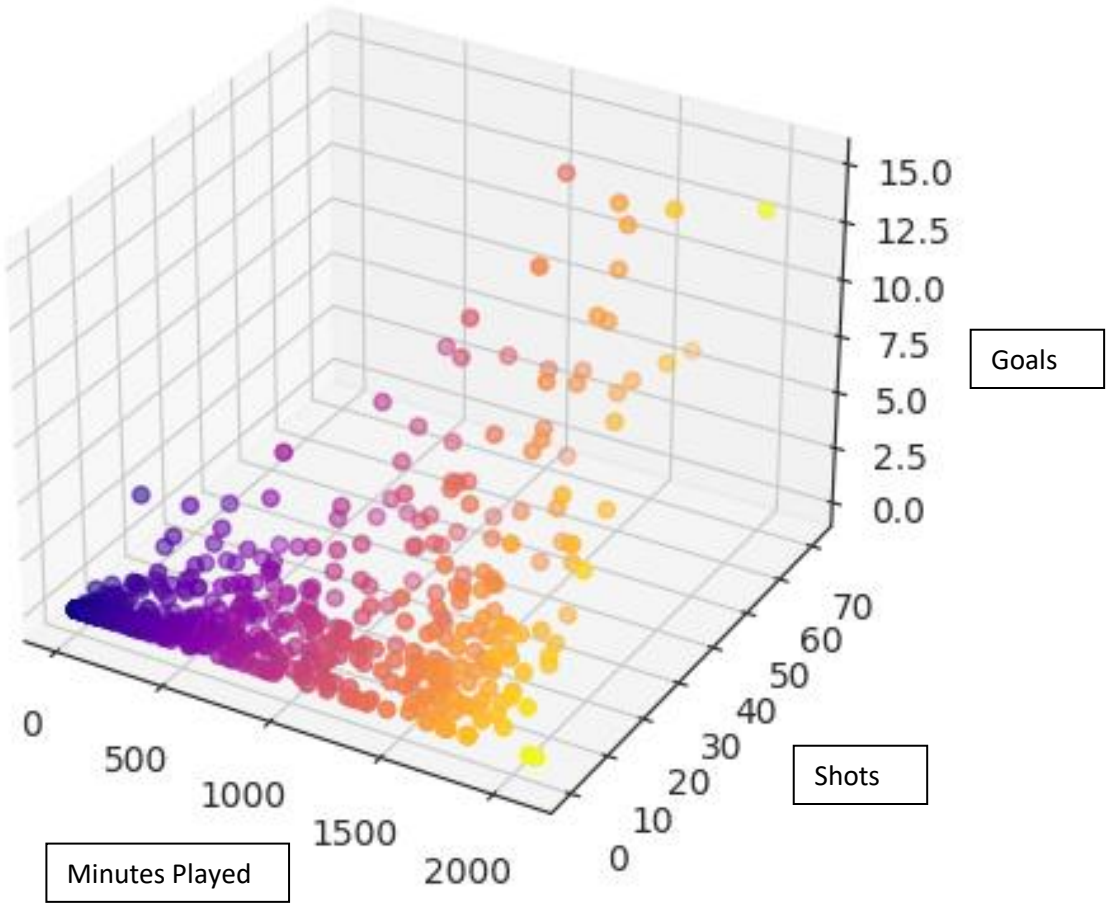




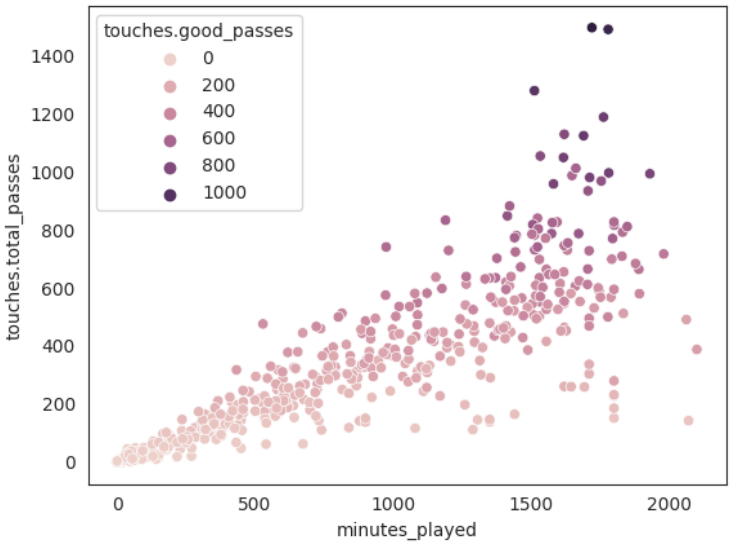


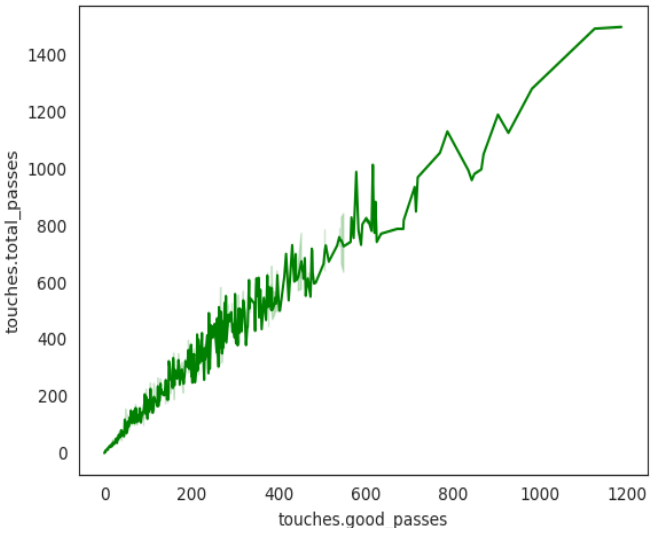

events.shots
events.goals

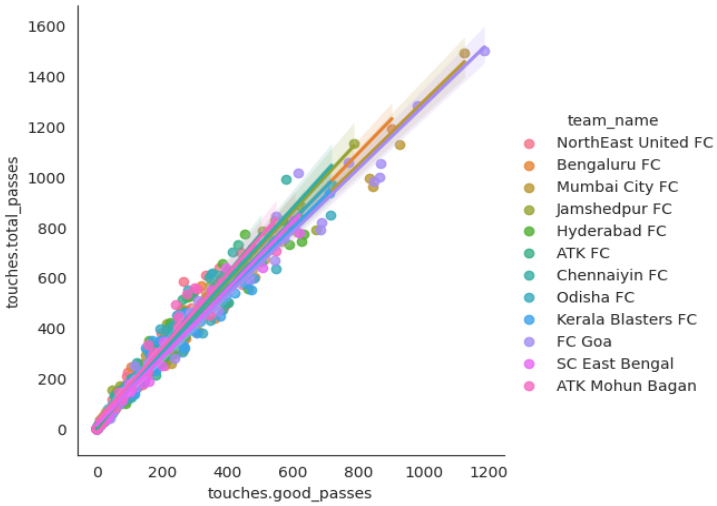

events.goals
0
2
5
7
10
12
15
events.shots
minutes_played

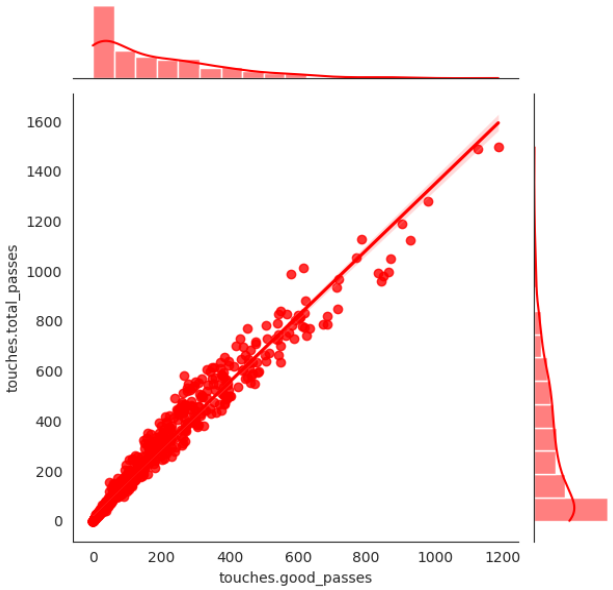

15.0
12.5
10.0
7.5
5.0
2.5
0.0
Goals
0
500
1000
1500
2000
Minutes Played
70
60
50
40
30
20
10
0
Shots

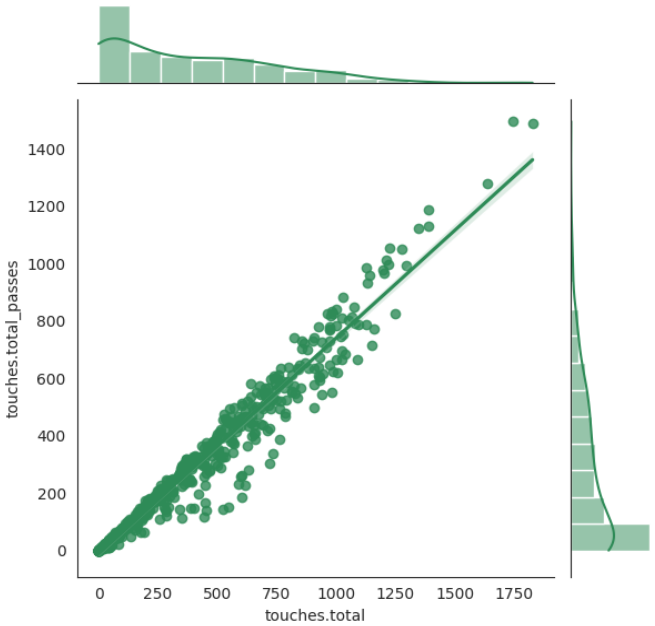
26. *Analysis on Passing, Touches, Assist, Crosses with playtime and Team name :*

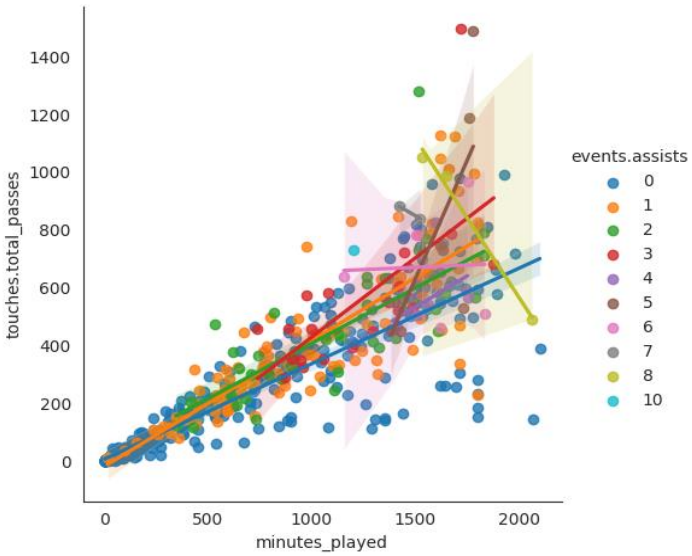


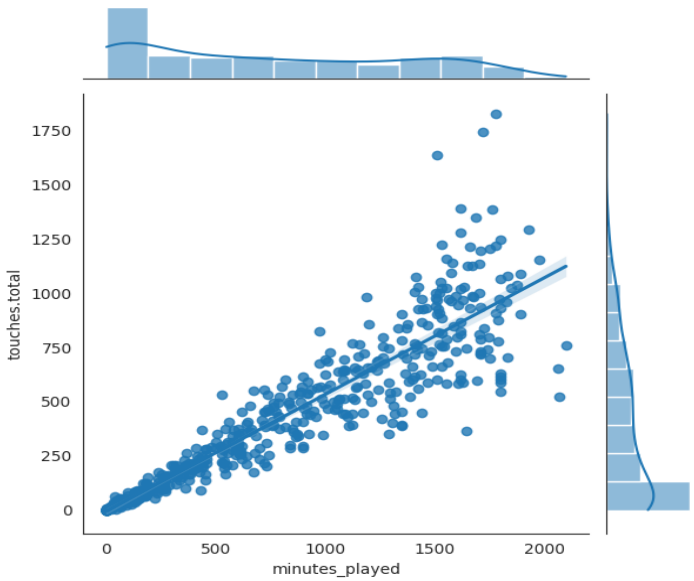


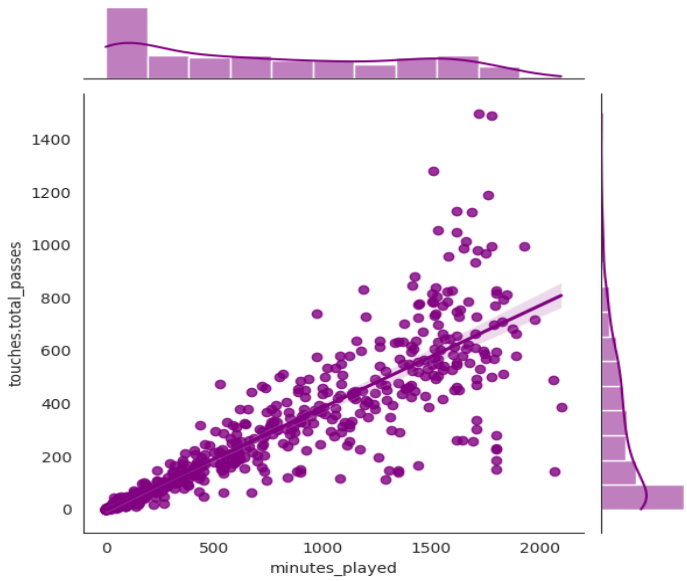


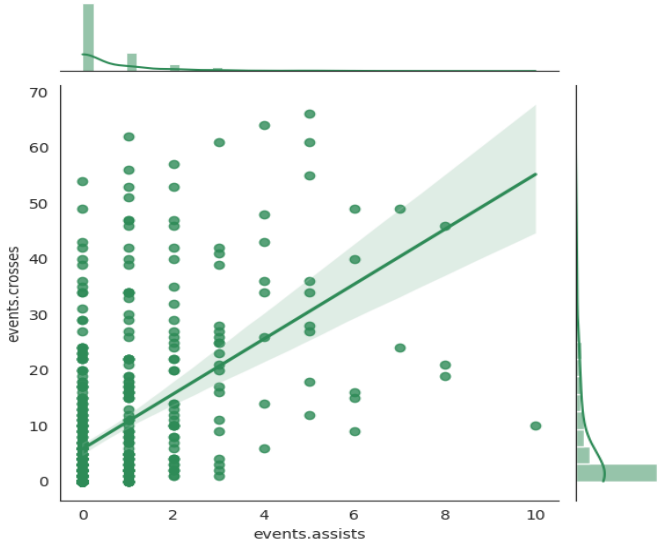


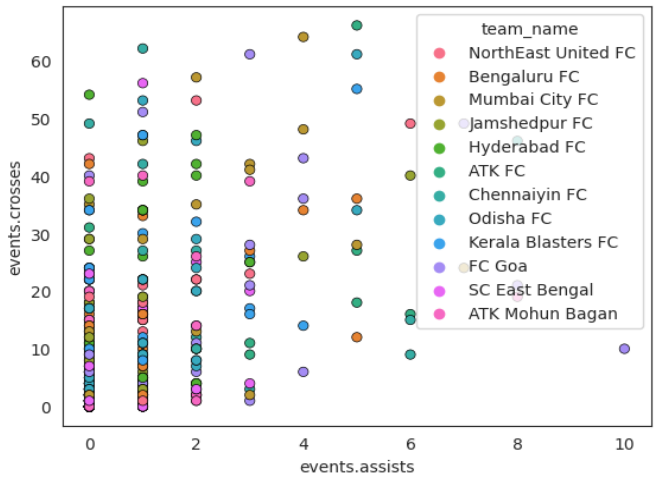


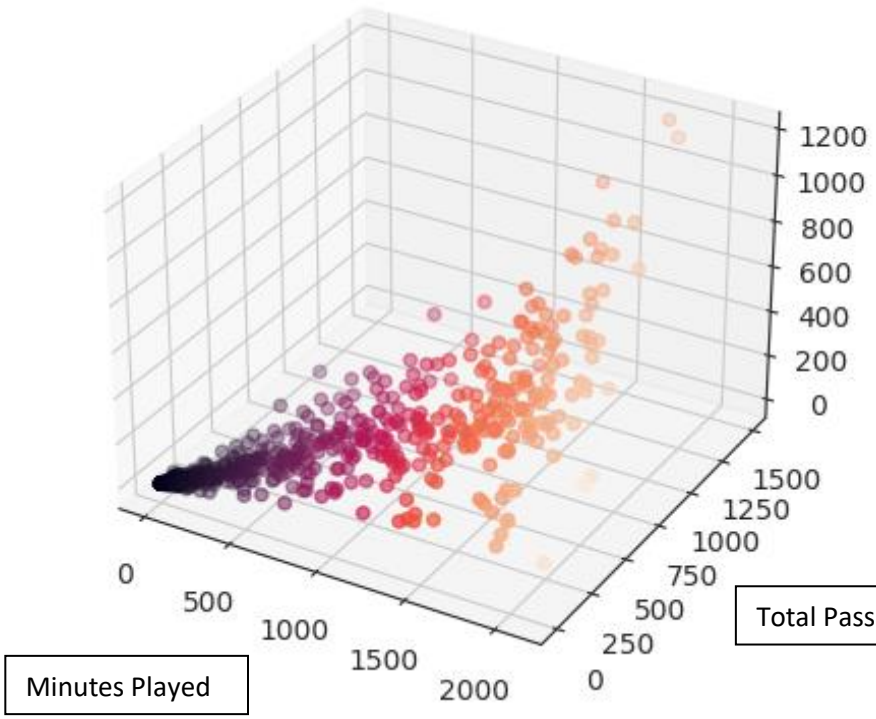



touches.total
minutes_played

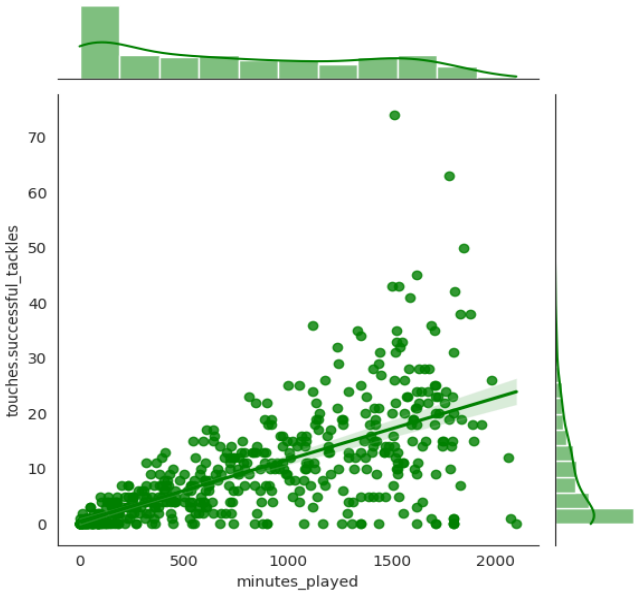

touches.total_passes
minutes_played

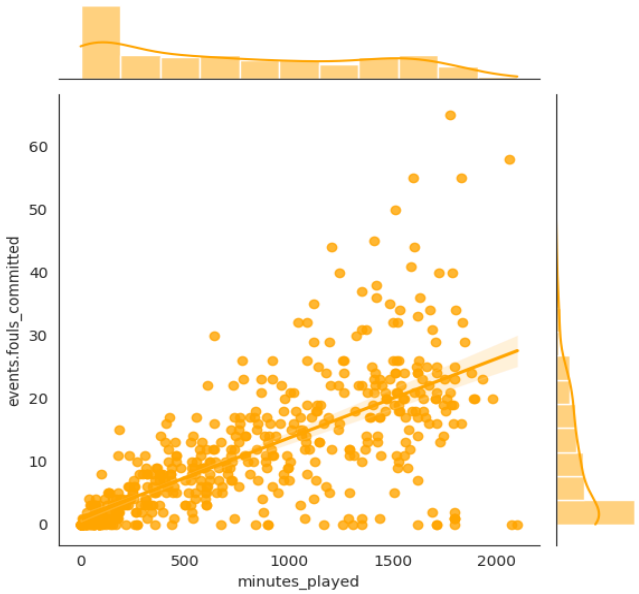

events.crosses
events.assists

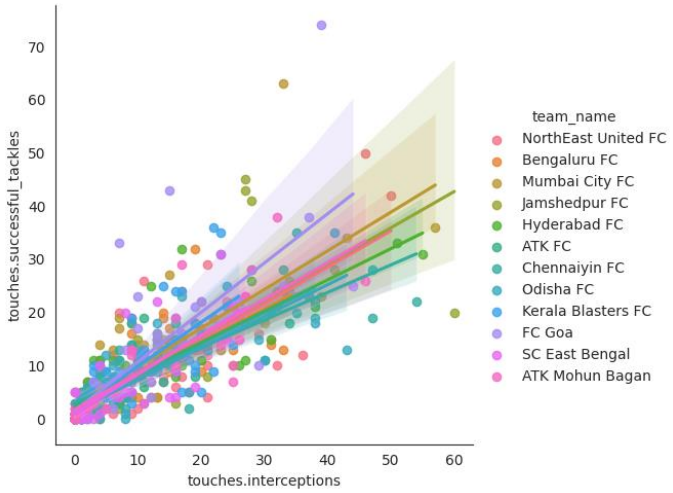

team_name
NorthEast United FC
Bengaluru FC
Mumbai City FC
Jamshedpur FC
Hyderabad FC
ATK FC
Chennaiyin FC
Odisha FC
Kerala Blasters FC
FC Goa
SC East Bengal
ATK Mohun Bagan
events.crosses
events.assists

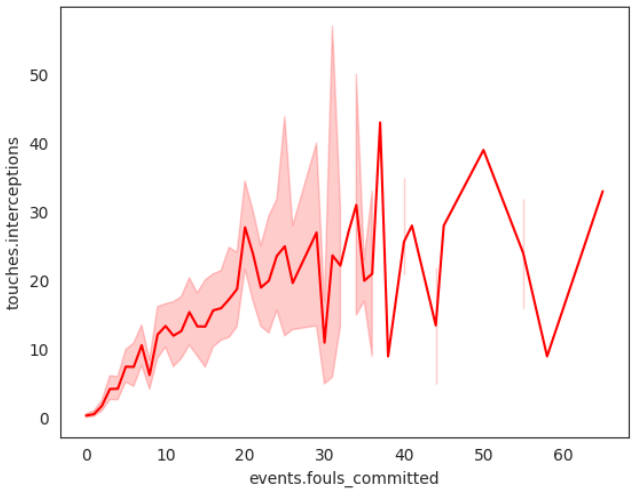

Minutes Played
Total Passes
Good Passes

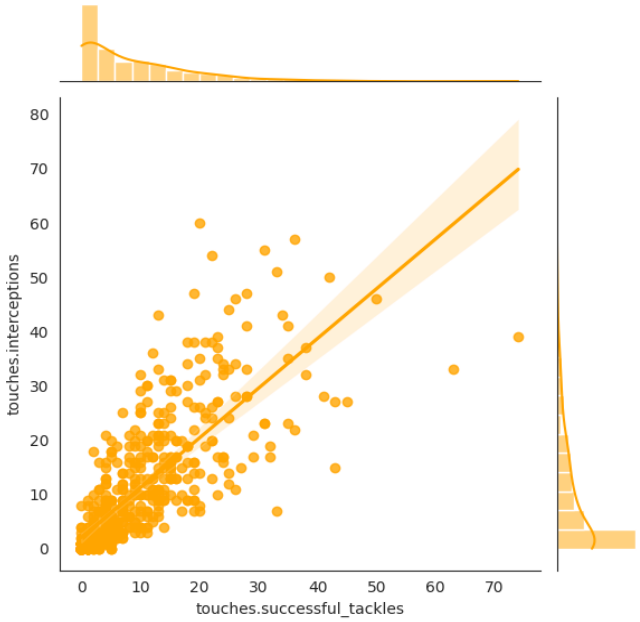
27. *Analysis on Fouls, Interception, Tackels with playtime and Team name :*

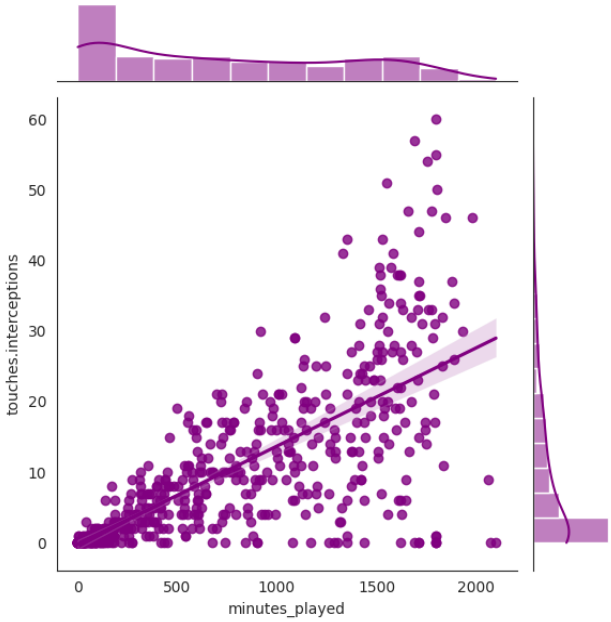


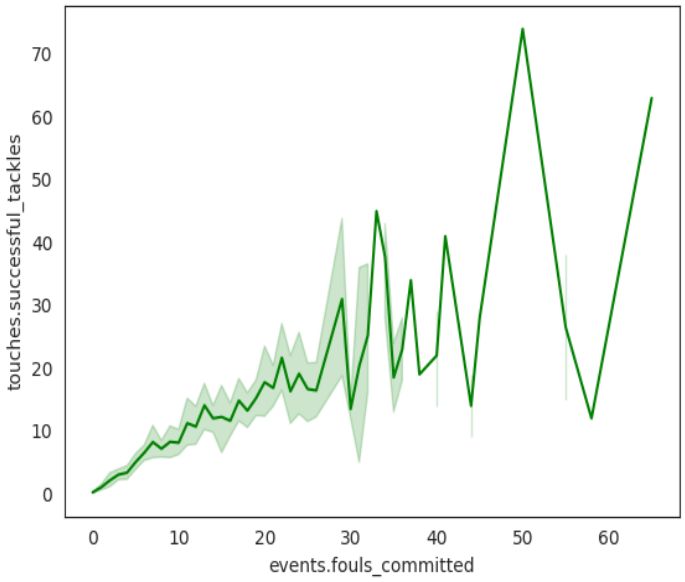


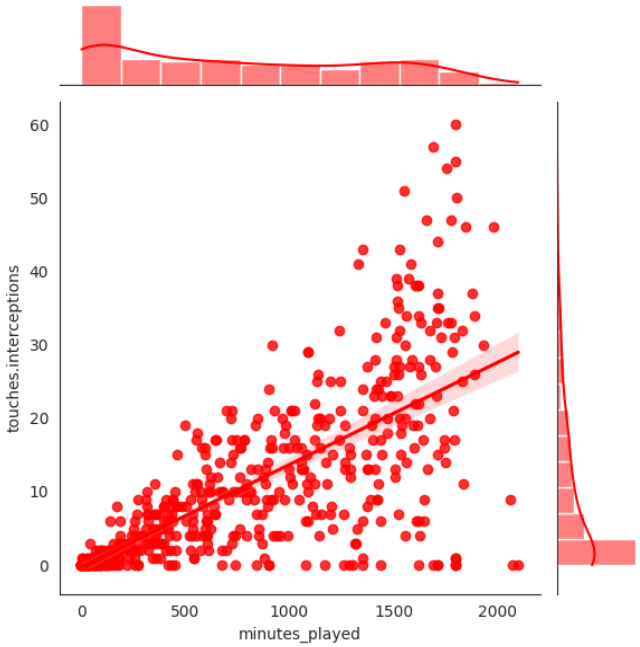


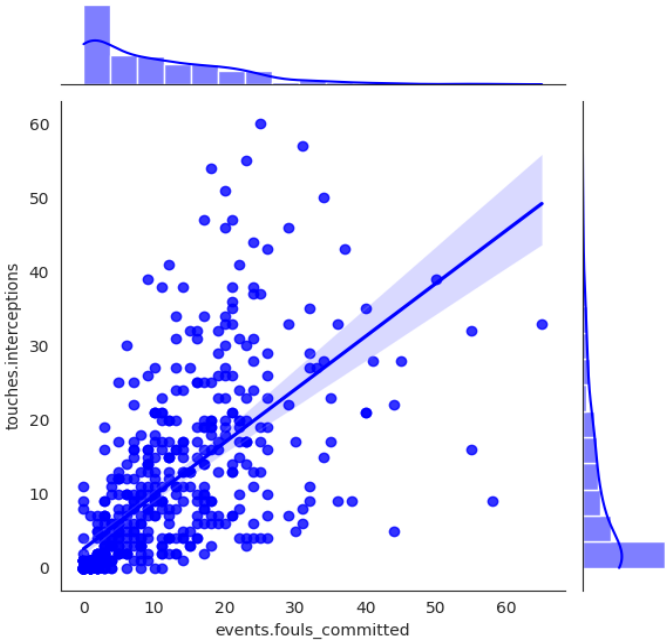


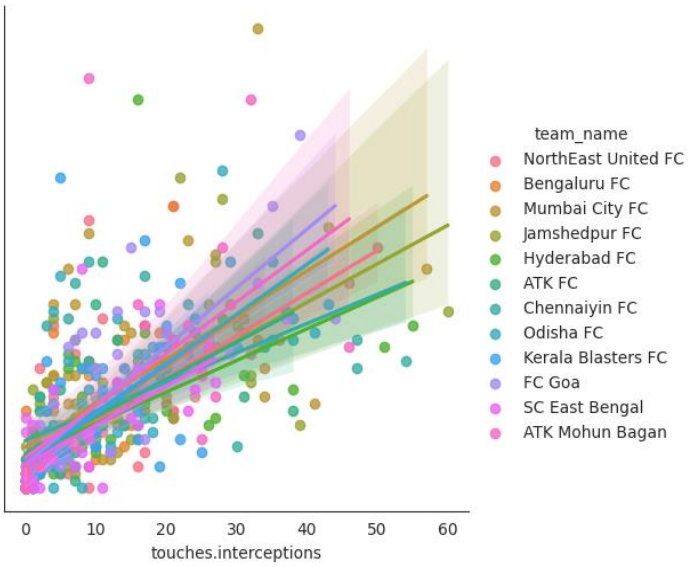


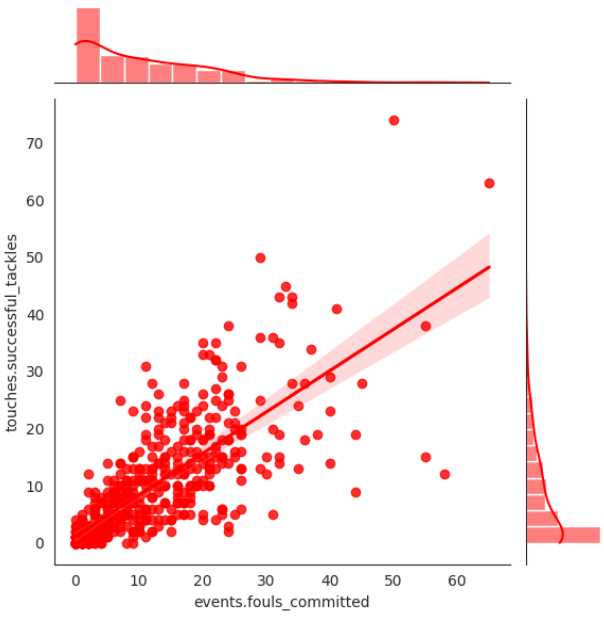


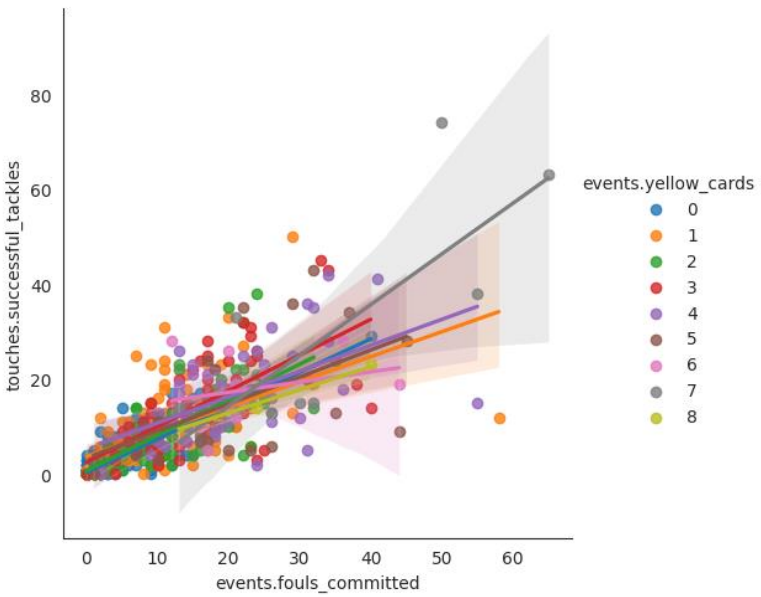

touches.successful_tackles
events.fouls_committed

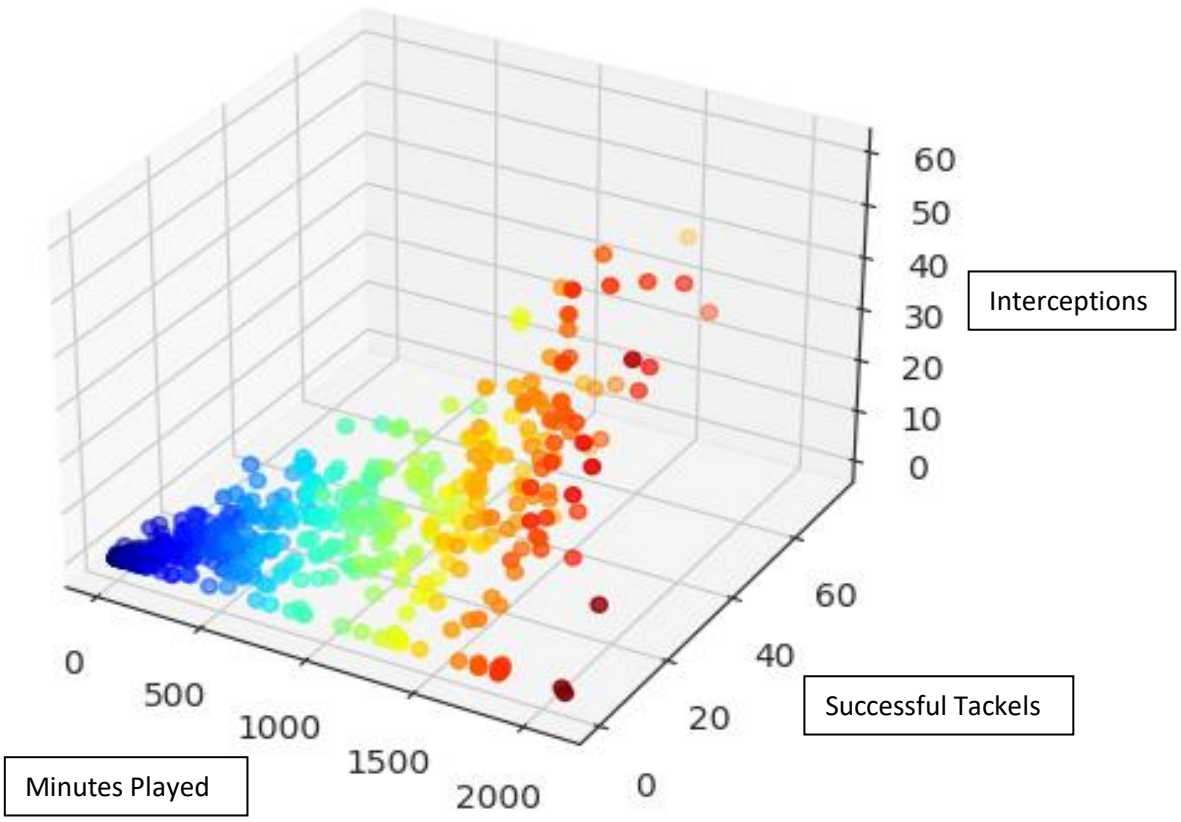

touches.interceptions
minutes_played

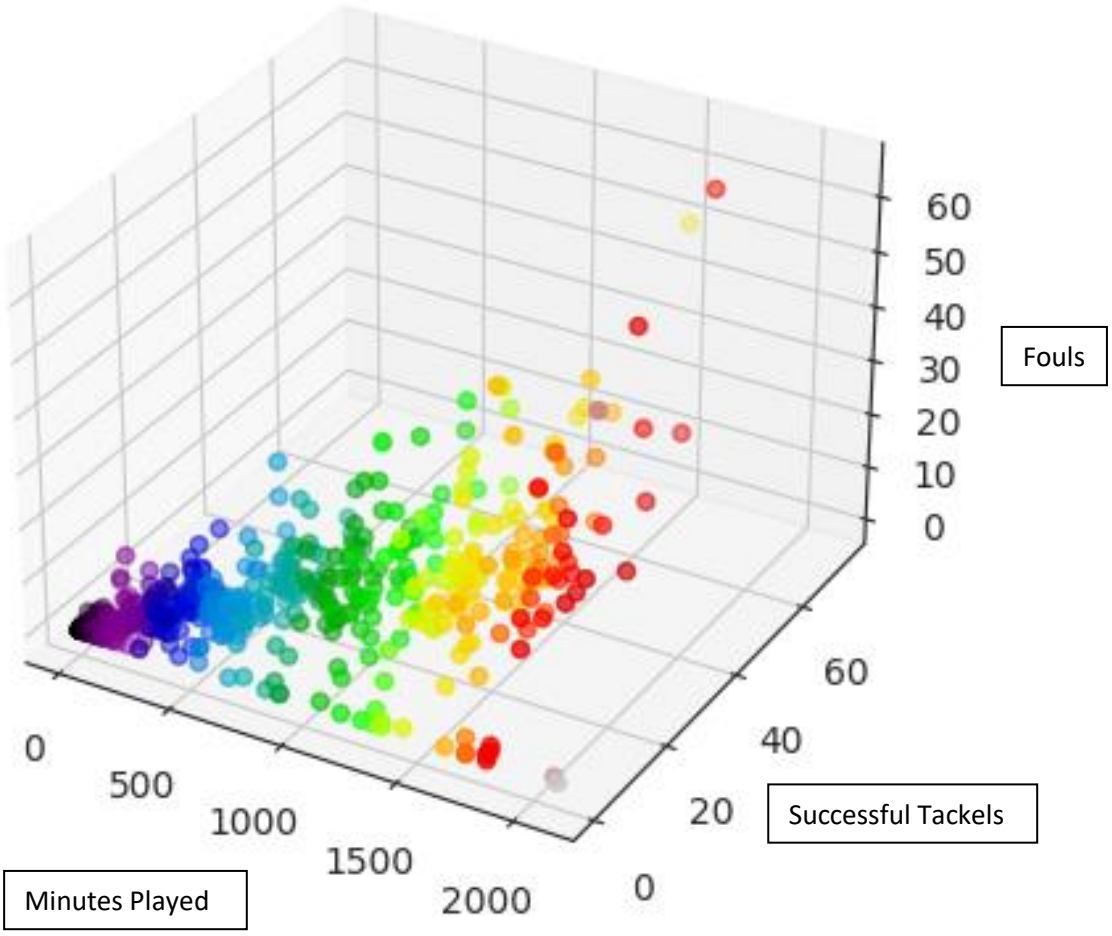

touches.interceptions
events.fouls_committed


team_name
NorthEast United FC
Bengaluru FC
Mumbai City FC
Jamshedpur FC
Hyderabad FC
ATK FC
Chennaiyin FC
Odisha FC
Kerala Blasters FC
FC Goa
SC East Bengal
ATK Mohun Bagan
touches.interceptions

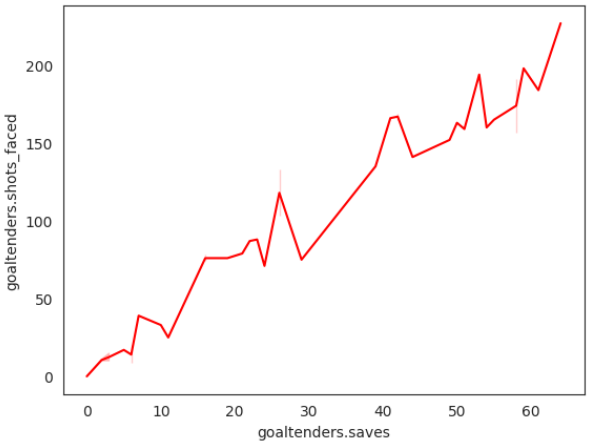

touches.successful_tackles
events.fouls_committed

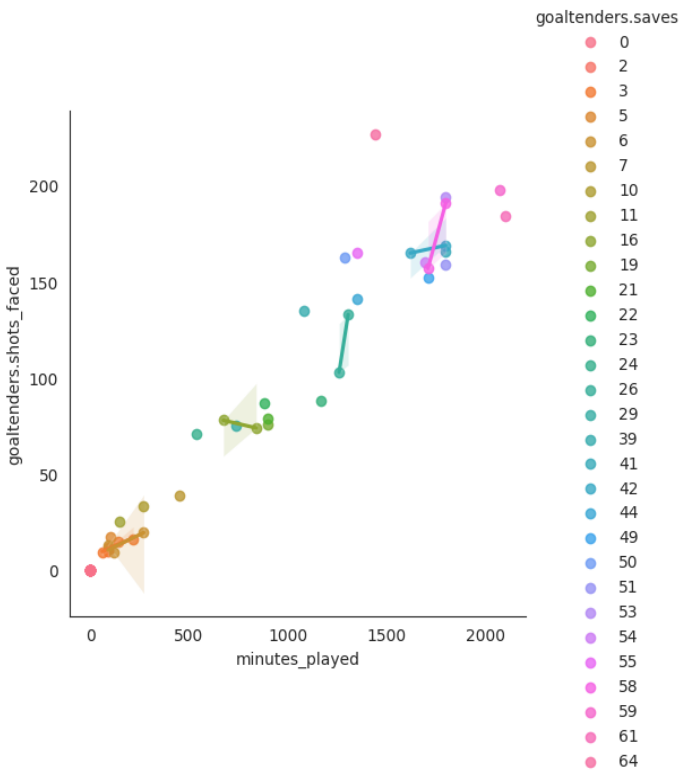

events.yellow_cards
0
1
2
3
4
5
6
7
8
touches.successful_tackles
events.fouls_committed

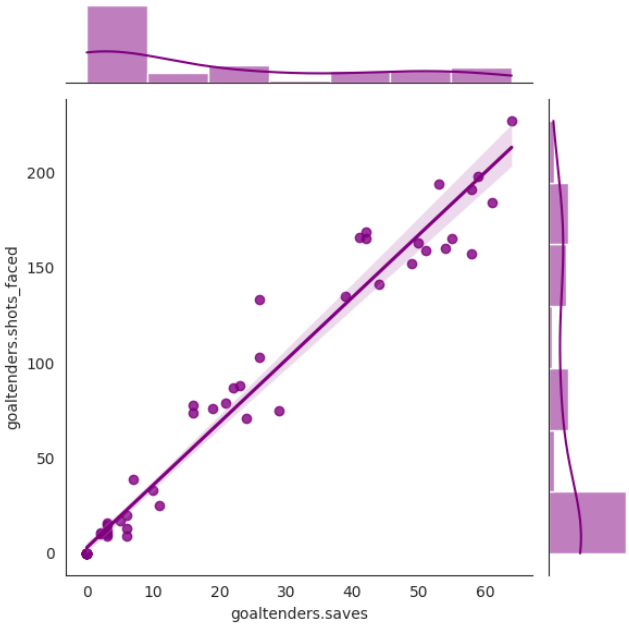

60
50
40
30
20
10
0
Interceptions
0
500
1000
1500
2000
Minutes Played
0
20
40
60
Successful Tackels

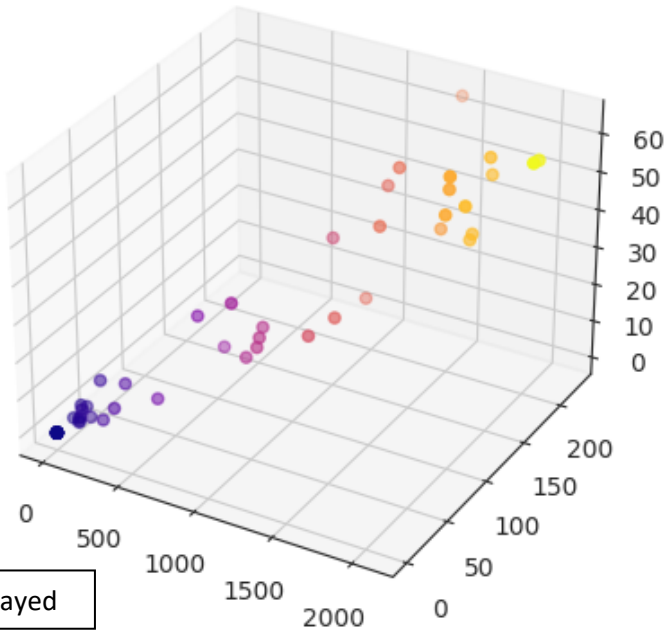

60
50
40
30
20
10
0
Fouls
0
500
1000
1500
2000
Minutes Played
0
20
40
60
Successful Tackels

28. *Analysis on Goalkeeping :*









Goal Saves

Shot Faced

Minutes Played

Acknowledgment :

On this great occasion of accomplishment of our project on Visualization of Explanatory Data Analysis on Hero ISL, we would like to sincerely express our gratitude to our mentors, who have supported us through the completion of this project.

We would also be thankful to our principal sir Prof.(Dr.) Tirthankar Datta and HOD of CSE Department Prof. Subhrapratim Nath Sir of Meghnad Saha Institute Of Technology for providing all the required facilities in completion of this project.

Finally, as one of the team members, I would like to appreciate all my group members for their support and coordination, I hope we will achieve more in our future endeavours.

References :

[1] **B. Rieder, *Engines of Order: A Mechanology of Algorithmic Techniques*. Amsterdam, Netherlands: Amsterdam Univ. Press, 2020.**

[2] **I. Boglaev, "A numerical method for solving nonlinear integro- differential equations of Fredholm type," *J. Comput. Math.*, vol. 34, no. 3, pp. 262–284, May 2016, doi: 10.4208/jcm.1512-m2015-0241.**

[3] **Google.Colab link of our project :**
(https://colab.research.google.com/drive/1W4hoaBuTUodNE8h9ezGATxlc3OpAIRM?usp=sharing)