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*OPTIMIZING FOOTBALL PLAYER PERFORMANCE EVALUATION THROUGH A GAUSSIAN MIXTURE METHOD AND LINEAR REGRESSION APPROACH*

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A report submitted in partial fulfilment of the requirement for the degree of Master of Science

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**ABSTRACT**

Football player performance is vital to several facets of the sports, including player market valuation for both the sale and acquisition of assets, as well as player performance evaluation from a coach’s perspective to adequately assess the in-game performance of players. The increase in complexity and financial scale of the football transfer market coupled with the subjective nature of transfer decisions and player performance evaluation, as well as incomplete data analysis, could potentially lead to financial losses and negative impacts on club performance. The rise of data analytics in football presents an opportunity to apply a more systematic, data-driven approach to player performance evaluation. This research aimed to validate the application of gaussian mixed methods clustering and a linear regression model to effectively categorize and assess football player performance respectively. The scope of the study was limited to outfield players with significant playing time in the 2023/2024 English Premier League season. Despite certain shortcomings in terms of accuracy and potentially overfit models in certain cluster groups, findings suggested that a stepwise regression model applied to the whoscored.com player ratings could potentially optimize player performance scores when applied within separate cluster groups.

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I certify that the work presented in the dissertation is my own unless referenced

Signature..........................................

Date.....................................

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# INTRODUCTION

The football transfer market has grown exponentially in both complexity and financial magnitude over the past few decades. As noted by He, Cachucho and Knobbe (2015), Krishna and Chandran (2021) and Poli, Besson and Ravenel (2022), several clubs now invest up to hundreds of millions of euros in acquiring players, further increasing the stakes. Despite the financial and performance implications, many transfer decisions are still influenced by subjective judgement, media hype, and incomplete data analysis. Poor transfer decisions can lead to substantial financial losses and affect club performance, making cost-efficiency a critical consideration.

The advent of data analytics has revolutionized various industries, and football is no exception. Merzah, Croock and Rashid (2024) points out the use of machine learning algorithms to assess player performance, predict market value and injury risks over the past decade, yet notes the scarcity of research evaluating player performance. Wolf, Schmitt and Schuller (2020) also highlights the deficiencies in rating systems used to assess the strengths of individual players. Franceschi et al. (2024) suggests that there is room for further research on player market valuation via the incorporation of new variables and Romann et al. (2021) highlights the potential use a longitudinal design to analyse the evolution of market values and their interrelationships with relative age effects (RAEs), given its association with market value. While Leifheit and Follert (2023), attempted to address the subjectivity of a player’s value on the financial front, they did not adequately address the on-pitch performances of football players nor how they relate to player valuation. Machine learning and statistical modelling offer robust tools for analysing complex datasets and making predictions based on historical and real-time data.

A more systematic, data-driven approach to player performance evaluation could potentially serve as a stepping stone to bridge the gap between the subjective nature of football players’ market valuations and a more objective assessment of their performance which could potentially aid in designing more cost-effective transfer strategies for professional football teams.

Beyond academic contributions, practical concerns directly or indirectly addressed by the project include football clubs’ navigation of Financial Fair Play regulations, which demands efficient resource allocation due to restrictions on their spending (a process which is significantly tied to performance evaluation). Additionally, a data-driven transfer strategy aids in maximizing the return on investment for clubs by properly assessing the performance level of players who can significantly enhance team performance. Moreover, given how highly competitive the football transfer market is, marginal gains can be the difference between winning and losing, therefore utilizing advanced data analytics can deliver a competitive edge in the transfer market. Finally, beyond the assessment of potential recruits, evaluation of assets within the club can be useful for coaches in terms of assessing player performances and useful for the club in terms of market valuation for player sales.

## Research aim and objectives

The major aim of this dissertation is to develop and validate a comprehensive, data-driven framework that evaluates on field performance of football players.

The objectives are as follows:

* Conduct a literature review to identify critical factors and performance indicators that influence player performance as well as potential data analytics techniques to address the research aim.
* Gather extensive datasets on player performance.
* Separate players appropriately based on key factors affecting performance evaluation.
* Perform statistical analysis to determine the most significant metrics.
* Create predictive models using significant metrics to estimate player performance score.
* Validate these models.
* Document the methodology, findings, and implications of the research as it pertains to the aims above.

## Research approach

This quantitative research utilized several secondary datasets from fbref.com based on the player performance data of outfield players (defenders, midfielders and forwards) who participated in the 2023/2024 English Premier League season. Datasets were integrated within RStudio and cleaned prior to data analysis. Instances/players with minimal playing time in accordance with literature were removed from the dataset along with goalkeepers who were not involved in the analysis. Players were separated by their positions prior to cluster analysis. The corresponding whoscored.com player ratings were integrated into the datasets and utilized as a target variable for supervised machine learning. Finally, resulting models were discussed and validated in accordance with literature.

## Dissertation outline

The following chapters of this study set out to systematically address the research objectives.

First, the literature review discusses the evolution of data-driven performance evaluation methods in football, from historical approaches to modern techniques. This section will also identify key factors and variables that influence player performance and explore the relationship between performance and market valuation, underpinning the justification for this research.

In the methodology chapter, the research methods used to evaluate player performance, as informed by the literature, will be described in detail along with limitations of said methods.

This will be followed by the results chapter, where the findings from the analysis will be presented using graphs and tables.

The discussion chapter will interpret these results, explaining the significance of each principal component and cluster, as well as evaluating the performance and validation of the models developed for player evaluation. Additionally, the limits of these interpretations will also be discussed.

Finally, the conclusion section will summarize the research purpose, methodology, and key findings, address several limitations in the approach and interpretation of results, and offer recommendations for future research.

# LITERATURE REVIEW

This literature review aims to explore the history of data-driven methods for player performance evaluation, examine their relationship with player market valuation, and justify the selection of the research topic. The chapter begins by covering the evolution of player performance evaluation methods, followed by a discussion of more modern approaches. Key performance indicators identified in the literature will then be highlighted within their relevant contexts. The chapter will also address situational factors that influence expectations of these indicators and review the methods used to account for these factors. Finally, the connection between player market value and performance evaluation will be established, before concluding with a justification for the research topic.

## Background and history of data driven player evaluation

While the use of data analytics in football could be traced back to the 1950’s, the introduction of video footage and hiring of performance analysts by high level European football clubs began in the late 1990’s (Sekan, 2023). At the turn of the century, Rösch et al*.* (2000) successfully developed a standardized test battery to evaluate both the physical performance and skills of football players. The paper revealed that physical condition, technical and tactical performance were the most important factors in assessing player performance in football (Rösch *et al.*, 2000).

By the early 2010’s, high level European clubs were no strangers to data driven approaches in player performance evaluation, despite several detractors who were sceptical of the integration of such methods (Richau *et al.*, 2019). In an article by Tiedemann, Francksen and Latacz-Lohmann (2011), a nonconcave meta frontier approach, based on Data Envelopment Analysis (DEA) was used with the purpose of estimating players’ efficiency scores, while accounting for their playing positions. The model was applied to a dataset of Germany Bundesliga players, spanning from the 2002/03 season to the 2008/09 season and the success of the model was validated by revealing a clear positive correlation between a team’s average player efficiency score and it’s rank in the table at the end of the season (Tiedemann, Francksen and Latacz-Lohmann, 2011).

Two crucial papers published in the 2010’s sought to aid researchers by gathering, reviewing and presenting crucial insights on performance analysis research carried out over the decade. While both papers took a qualitative approach, the findings within both would be useful to further research on the topic. First, Carling et al. (2014) pointed out several important factors to consider beyond those already established. The interaction between match score status, opposition quality, and match location were noted as important factors to take into consideration. Another factor worth considering was that most coaches were noted to make team selections based on their personal philosophy (Carling *et al.*, 2014) but given that said philosophy likely varies from one coach to another, it could be concluded that even amongst players within the same position, further classification will likely be needed to properly frame the performance of each player in a context relevant to different coaches.

Asides the factors to be considered when evaluating player performance, certain limitations were discussed in the paper, including the substantial disparities across research papers in classifying movement activities used in time-motion analyses of elite soccer competition (Carling *et al.*, 2014). The inconsistency here was rooted in the fact that each class of movement activity was typically defined by pre-determined arbitrary running speed thresholds, which resulted in problems when comparing data across varying studies using different classifications (Carling *et al.*, 2014). Finally, while the issue ceases to persist, collecting large datasets in elite soccer was challenging, often leading to small scale case studies which might have been less accepted in academic journals (Carling *et al.*, 2014).

The second qualitative study by Sarmento et al. (2018) highlighted the importance of set plays, noting that 30 to 40 percent of goals were scored from set plays. This helped highlight certain important technical attributes to be considered when evaluating player performance as the goal of the game is to score goals and avoid conceding as well (Sarmento *et al.*, 2018). Once again, this paper highlighted the relevance of player position (referred to as role within the paper) when assessing player performance (Sarmento *et al.*, 2018). Other notable factors mentioned included match location, opposition quality and timing as well as nature of substitutions (Sarmento *et al.*, 2018). Amongst the technical performance variable, it was noted that the number of shots, shots on target and ball recoveries were usually a key factor in separating winning and losing sides, with winning teams performing well on each metric, suggesting the relevance of said variables (Sarmento *et al.*, 2018), however it is important to note that both variables are still dictated by factors such as the quality and set up of the team within which these players are representing as well as the level of difficulty of each attempt, a factor which is further defined by other variables. The study also noted a 3.1 percent decrease in total distance covered by teams playing at a higher altitude, however the sample observed was the 2010 FIFA World Cup which featured a relatively smaller number of games in a different context which brings into question the relevance of this factors effect on physical performance (Sarmento *et al.*, 2018).

Within the 2010’s, quantitative research on player performance evaluation continued to highlight the need to note the difference in playing positions prior to evaluation. Liu, Gómez and Lago-Peñas (2015) carried out a position specific player evaluation study of 46 elite goalkeepers who played 744 full matches during the 2012/2013 Spanish First Division Professional Football League season, with consideration of opposition quality, match outcome and location. The paper suggested that goalkeeper quality typically correlated with the quality of the team they represented (Liu, Gómez and Lago-Peñas, 2015). First, the study identified overall goalkeeper performance across three team levels using the means, standard deviations, medians, and quartiles of the performance indicators, then compared these using one-way ANOVA (Liu, Gómez and Lago-Peñas, 2015). Performance indicators were standardized into Z-scores and means of standardized scores were plotted due to limitations of using medians (Liu, Gómez and Lago-Peñas, 2015). Performances under different situational conditions (opposition quality, match outcome and location) were analysed using Independent Sample T-tests, K-means clustering and one-way ANOVA with Scheffé post-hoc tests (Liu, Gómez and Lago-Peñas, 2015). Match location was proven to be a difference maker when performance indicators were analysed (Liu, Gómez and Lago-Peñas, 2015), but the generalizability of the results were limited to the scope and possibly, time of the study.

Towards the end of the 2010’s, another evaluation model known as the Golden index formula was designed by Pereira et al. (2019) to score the players of football club, Atlético de Madrid based on their individual and collective performance during the 2016/2017 Spanish First Division season. The approach applied involved gathering key performance indicators highlighted in previous literature and assigning weights to each one based on expert consultation to generate a formula (the Golden Index) to determine each players performance score (Pereira *et al.*, 2019). Assists, goals, successful dribbles, and positive crosses were seen as significant by experts, passing metrics were moderately important and ball losses as well as running with the ball were rated lower, with ball losses having a negative impact on player and team performance (Pereira *et al.*, 2019). While the performance metrics and sample used were not tailored to a well-defined position or role, they were specifically designed to determine the performances of each player in an offensive context. Hence, this framework lends itself to the established need to properly contextualise performance evaluation research. The relative value of each variable was important to note as they were informed by the insights of several experts but the degree to which these needs are relevant could yet be subject to change as the game constantly evolves.

## Modern player evaluation approaches

The current decade experienced a rise in published articles directly or indirectly addressing player evaluation through various approaches including a paper by Wiȩckowski and Sałabun (2024), where a decision model based on the Multi-Criteria Decision Analysis (MCDA) approach was proposed to assess defensive football players in the 2020/2021 English Premier League season, regarding their overall and defensive skills. With consideration of both traditional and modern demands of defenders in football, 14 criteria were selected for the analysis (Wiȩckowski and Sałabun, 2024).

Equal, entropy, standard deviation and entropy weighing methods were all implemented on the variables, then using the weights obtained from each of the four approaches, several MCDA methods were used to evaluate the players' performance (Wiȩckowski and Sałabun, 2024). The evaluation was applied twice, first with consideration for only the defensive skills, and then again for all skills (Wiȩckowski and Sałabun, 2024). Multiple rankings were obtained, and each one was compared to the Whoscored.com player rating using the Weighted Spearman correlation coefficient and WS rank similarity coefficient to determine the coherence of the results (Wiȩckowski and Sałabun, 2024). The rankings which only applied defensive skills compared poorly to the Whoscored.com ratings (Wiȩckowski and Sałabun, 2024), likely due to the limited number of variables incorporated but the rankings with all variables included performed significantly better (Wiȩckowski and Sałabun, 2024). The use of entropy weights coupled with Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) and Complex Proportional Assessment (COPRAS) MCDA methods showed the most similar rankings (Wiȩckowski and Sałabun, 2024), highlighting the need to include relevant variables.

The Elo algorithm, a flexible rating system used in various individual sports, was repurposed by Wolf, Schmitt and Schuller (2020) to determine the performance levels of 12,400 players across 17,000 matches from several competitions. Unlike previous models discussed, this algorithm factored in key variables on a match-by-match basis rather than utilizing a summation of each variable over many games. The system input was solely based on official match reports, including goals scored by each team, team lineups and substitutions, accompanied with respective minutes of play (Wolf, Schmitt and Schuller, 2020). Player ratings were adjusted based off their performances in each match depending on whether they surpassed or fell short of expectations (Wolf, Schmitt and Schuller, 2020). Expectations were initially defined by the relative difficulty of the opposition and then after the first few games, the previous performances of the player were also factored in (Wolf, Schmitt and Schuller, 2020). The strength of this approach lay in how it accounted for timing of substitutions and opposition quality, offering a more robust means of handling situational factors when compared to other approaches which utilize summated variables over multiple games.

Other recent papers began introducing machine learning models, including one by Jana and Hemalatha (2021) aimed at analysing the statistical data of various football players to establish a correlation between their positional scores and quantifiable attributes. This paper worked with data from FIFA 19 (Jana and Hemalatha, 2021), a video game which assigns quantifiable attributes and position scores to all players. A correlation heat map was established between the quantifiable attributes and player position scores which was then used to build a regression model that estimated the player position score (Jana and Hemalatha, 2021). While real life player statistics differ from the quantifiable attributes in the video game, a similar approach may be adopted to determine player performance score by utilizing overall scores given by detailed football statistics websites such as whoscored.com.

Another machine learning approach by Merzah, Croock and Rashid (2024) looked to categorize player performance rather than assign a numerical score based on active, normal and weak activity features. The dataset used involved both training and match data and the paper aim was achieved using seven different machine learning models (Merzah, Croock and Rashid, 2024). The results suggested that a decision tree classifier was the best model to use for match sessions (Merzah, Croock and Rashid, 2024). Other models involved were random forest, logistic regression, support vector machine, gaussian naïve bayes, multi-layer perceptron and k-nearest neighbour (Merzah, Croock and Rashid, 2024). A major limitation to this approach is that when making comparisons, the fine margins are relevant, hence scoring player performance nominally is likely to offer better insight when comparing performance levels.

## Key performance indicators

Aslan and Inceoglu (2008; quoted in Wolf, Schmitt and Schuller, 2020) highlight the importance of input parameter selection to train a robust model, hence identifying the key performance indicators is key to performance evaluation. Several key performance indicators signifying positive player performance have been identified throughout literature via qualitatively gathering information from football experts or results of other studies. A more indirect means of identifying these key variables was by utilizing supervised machine learning techniques to identify important variables when determining player market value, whose close relationship with player performance has been well established in previous literature (Poli, Ravenel and Besson, 2020), and will be further discussed in a later section. Richau et al. (2019) notes that the degree to which each variable is relevant varies based on player position, but also stresses the need to consider the relevance of non-traditionally relevant variables when addressing each position to account for modern tactical demands.

### Defender variables

The comprehensive qualitative study by Sarmento et al. (2018) noted the significance of ball recoveries, a variable which holds relevance for all positions as winning the ball is a key factor in a continuous game like football. Additionally, while tackles and interceptions are more important for defenders than shooting, modern football demands the consideration of more offensive actions which may not be as crucial for defenders as they are for midfielders and forwards (Richau *et al.*, 2019), suggesting the need to consider certain variables which are more vital for midfielders and forwards without overstating their importance.

In agreement with this recommendation, Wiȩckowski and Sałabun (2024) suggested several key performance indicators for defenders including traditional defensive statistics such as number of interceptions per game, clearances per game, tackles per game, offsides won per game, blocks per game, fouls per game, times dribbled past per game and total number of own goals, with the last three negatively impacting player performance. However more offensive variables were also considered including total number of assists, percentage pass accuracy, successful through balls per game, successful crosses per game, successful long balls per game and successful key passes per game (Wiȩckowski and Sałabun, 2024). The model which included these latter variables as well, more accurately reflected the player ratings given by whoscored.com and while the websites ratings might be subjective to a degree, in terms of algorithm design, they were data-driven and well informed (Wiȩckowski and Sałabun, 2024).

### Midfielder variables

Broadly speaking, midfielders cover a broad range of functions hence there could be a significant overlap between their requirements and those of both defenders and forwards depending on the role they are given. Any offensive quality that might be useful to a defender for example, could easily apply to them. Asides the well documented relevance of ball recovering across the football pitch Sarmento et al. (2018), number of goals was noted as a crucial factor for both midfielders and forwards (Richau *et al.*, 2019), as well as number of assists, successful dribbles and positive crosses (Pereira *et al.*, 2019). These attributes were seen as relevant by both experts within the game and prior literature (Pereira *et al.*, 2019). Experts also noted the negative impact of losing the ball, and while viewed as less significant by experts, several literatures also noted the relevance of running with the ball, specifically referring to performing at least three consecutive touches to progress the ball to continue the attack (Pereira *et al.*, 2019). While the overlap between midfield and the other positions might be notable, García-Aliaga et al. (2021) pointed out several differences between certain midfield roles and other roles purely attached to defenders and forwards.

### Forward variables

He, Cachucho and Knobbe (2015) highlighted minimal number of fouls, number of shots and goals in the penalty area, number of shots on target, number of goals from outside the box, successful dribbles and total number of assists as key indicators of a good forward. While the paper is nearly a decade old and football tactics might have rapidly changed, several papers published afterwards agreed with some of these highlighted variables. Majewski (2016) and Richau et al. (2019) noted the importance of number of goals, Majewski (2016) and Pereira et al. (2019) noted the relevance of number of assists, with the latter once again noting the relevance of successful dribbles and Sarmento et al. (2018) reinforced the relevance of number of shots and shots on target. Similar to the case with midfielders, experts and literature noted the positive impact of successful crosses, the negative impact of losing the ball and the minimal but noteworthy impact of running with the ball (Pereira *et al.*, 2019). Additionally, passing accuracy, as well as its interaction with shot efficiency are noted as important for forwards (Richau *et al.*, 2019), and possibly due to modern football demands, ball recoveries can be seen as slightly important for forwards (Sarmento *et al.*, 2018) despite not being as relevant.

Asides the key performance indicators pertaining to the technical, physical and tactical performance of football players, there were other situational variables, which influenced certain performance metrics that needed to be considered when making evaluations (Wolf, Schmitt and Schuller, 2020). Liu et al. (2016; quoted in Yi et al., 2020) encouraged the introduction of these variables when considering player performance profile.

## Other Situational Factors

### Player position

Perhaps the most important situational variable to be covered in literature when considering player performance is their position, which is where they are deployed on the pitch. While this can be interpreted in different ways, the simplest and most common classification is goalkeeper, defender, midfielder and forward. Rösch et al. (2000) applied the meta frontier analysis to account for playing position, Liu, Gómez and Lago-Peñas (2015) and Wiȩckowski and Sałabun (2024) carried out studies which only focused on goalkeepers and defenders respectively, the qualitative study by Sarmento et al. (2018) also highlighted the need to consider this factor and Richau et al. (2019) points out the difficulty in comparing players across different positions due to the varying requirements each one demands. Additionally, Razali et al. (2017) noted that pundits believe that every player has attributes that make them more suited for one position than the other and Martín-García et al. (2018) revealed the difference in physical performance between midfielders and other positions under certain conditions. While several papers have attempted to determine player position via cluster analysis, modern datasets often indicate a player’s position/positions.

### Player roles

Typically serving as a subset of player position is the player role, a term which has often been interchanged with player position, but more specifically refers to the job a player is expected to do. The difference between the two though often comes down to the specific instructions given by the coach. As Carling et al. (2014) pointed out, most coaches selected their teams based on personal philosophy, adding a layer of subjectivity when assessing what to expect from different players in the same position working under different coaches. Supporting the previous point, Modric, Versic and Sekulic (2020) highlighted the difference in physical performances of players in the same position, across different tactical formations and Liu et al. (2021) revealed that defenders of high possession teams outperformed those from teams who do not possess the ball as much on certain physical performance metrics, but the opposite was true for midfielders and forwards when looking at those same performance metrics. While the context for each of these studies vary, the point to highlight was the relative difference in expectations that existed for players in the same position, functioning in different setups. Unlike positions, the boundaries between different roles are not always properly defined and well-known datasets do not explicitly define them either, hence several papers dedicated to cluster analysis based on player roles will be explored in a later section.

### Playing time

Football is a sport where players can get substituted at any time within the game for various reasons including player fatigue, alteration of tactics, replacement of underperforming or injured players and/or to give playing time to young players or squad members returning from injury (Hills *et al.*, 2018), possibly to build match fitness. Considering the possibilities, determining why each substitution is made can be unclear which is an issue when considering that the rationale behind each one affects the substitutes performance as well as how certain variable scores should be interpreted. As mentioned earlier, Sarmento et al. (2018) highlighted the relevance of timing and nature of substitutions in the qualitative paper. Expanding on this, Pan et al. (2023) notes that substitutes players tend to display higher intensity sprints distances in relation to playing time than replaced players or those who play the full match. Lorenzo-Martínez et al. (2021), Liu et al. (2020) and Hills et al. (2018) echoed similar sentiments by noting greater physical performances from substitutes in terms of distance covered as well. The only contradicting result on this trend was reported by Castillo-Rodríguez et al. (2023), however the relatively small sample size taken from a single team limits the generalizability and robustness of the findings. Reports on other effects of substitutions, including their relative technical performance were not consistent across papers and might be subject to sample specific factors that limit the robustness of the findings.

### Opposition quality and match location

Expectations on player performance, need to be adjusted to account for the quality of the opposition his team is coming up against, relative to the team he is representing. Multiple papers covered in this review have highlighted the individual or interactive effects of opposition quality on match performance (Carling *et al.*, 2014; Liu, Gómez and Lago-Peñas, 2015; Sarmento *et al.*, 2018). Additionally, Liu et al. (2016) concluded that opposition quality held more relevance than match location when assessing the technical performance of players and Yi et al. (2020) highlighted the significant variation in player match performance depending on quality of opposition.

An important consideration noted was that researchers had begun adjusting specific variables to reflect the difficulty of execution over a decade ago. If these adjustments were accurately implemented, they could potentially diminish the importance of opposition quality in certain contexts. In an article by Szczepański (2008), several technical actions were analysed based on their starting location on the field and whether the player was pressed by the opposition, with the goal of estimating the probability of successfully executing the action. Modern player performance datasets often possess expected variables, these are variables which account for the likelihood of success, similar to the article by Szczepański (2008) and their predictive power was validated by Roccetti, Berveglieri and Cappiello (2024).

Finally, match location in terms of home or away, in conjunction with opposition quality has been noted as a relevant factor influencing player performance (Carling *et al.*, 2014), however the relevance of this variable individually was not consistently significant within literature. Although the altitude of football stadiums has drawn attention in historical literature, as it hampered the physical performance of players (Sarmento *et al.*, 2018), ultimately, similar to home or away conditions, stadium altitudes have not been a significant factor in player performance assessment, which was not surprising considering that modern elite teams likely prepared their players for difficult conditions, rendering performance effects negligible.

## Player classification

Several studies have been designed to classify players into various positions based on their in-game performances (García-Aliaga *et al.*, 2021; Roy and Sasmal, 2021; Dağ, Yüksel and Atmaca, 2023; D’Urso, De Giovanni and Vitale, 2023). While these models have been helpful in separating players into their appropriate positions, modern datasets often state each players position explicitly. However, player roles were not explicitly defined by such datasets hence further research has been carried out to make slightly more specific classifications.

### Unsupervised machine learning

Akhanli and Hennig (2023) analysed the performance data of 1501 players from the 2014/2015 season of eight European major leagues. The data was clustered based on a bespoke dissimilarity measure (Akhanli and Hennig, 2023). First, a similar normalization and standardization process to that applied by Aalbers and Van Haaren (2019) was used, before also similarly integrating certain variables for dimensionality reduction. Counts of actions were adjusted to "per 90 minutes" to account for playtime differences, while lower-level counts were expressed as proportions of total counts (Akhanli and Hennig, 2023). Clustering was performed using standard dissimilarity-based methods with partitioning around medoids (PAM), single linkage, average linkage, complete linkage, ward's method and spectral clustering (Akhanli and Hennig, 2023). The clustering attempted to find the best clusters by comparing results using two composite cluster validity indexes (Akhanli and Hennig, 2023).

The first was data-driven and minimized the relevance of separation index to avoid favouring small, isolated clusters, while the other was influenced by expert opinion and solely focused on stability and entropy of the clustering algorithm (Akhanli and Hennig, 2023). This thorough preparation ensured the differences amongst players was properly represented, enhancing the reliability of the outcome (Akhanli and Hennig, 2023). The Ward algorithm, calibrated for 5 clusters performed best based on the data driven index while the PAM clustering, calibrated for 150 clusters was the best method according to the expert driven index (Akhanli and Hennig, 2023). While the Ward clusters were easier to interpret/classify as 5 distinct positions, the results were not significantly insightful (Akhanli and Hennig, 2023). The PAM clustering however, further separated players within each position, yet interpretation of each cluster remained an issue (Akhanli and Hennig, 2023). Finally, looking at clusters 11 and 127 of the PAM clustering (Akhanli and Hennig, 2023), players were seen to be categorized according to their performance level and not necessarily by their specific function within the team.

An issue encountered in the previous paper was the selection of the number of clusters, however Behravan et al. (2019) previously attempted to address this by extracting different kind of roles in football via an automatic particle swarm optimization (APSO) algorithm. The suggested method had two phases (Behravan *et al.*, 2019). First, the algorithm searched the solution space to find the number of clusters (Behravan *et al.*, 2019). Secondly, the positions of the centroids are determined (Behravan *et al.*, 2019). Its performance was then compared to two other conventional clustering methods before being applied to data containing the performance of 93,000 players across roughly 4900 matches in several European leagues (Behravan *et al.*, 2019). APSO algorithm was applied due to the difficulty in determining the appropriate number of clusters for the large dataset, as well as avoiding sub optimal classifications (Behravan *et al.*, 2019). While APSO clustering performed better than k means and X means clusters, the algorithm was tested on synthetic data, and it is yet to be seen if the accuracy will be as high when applied to real world data (Behravan *et al.*, 2019).

Another issue to address is the realistic overlap in both player positions and roles, resulting from players performing in multiple positions and roles over the course of a season, and while D’Urso, De Giovanni and Vitale (2023) utilized a fuzzy clustering algorithm in their player classification to aid in addressing this issue, there was no indication of standardization of the variables before clustering which could have possibly lead to poor clustering, nonetheless fuzzy algorithms might provide a relevant means of clustering players and the same can be said for the gaussian mixture model (GMM) (Soto-Valero, 2017).

### Supervised machine learning

While most player clustering attempts in literature are aimed at position separation, Aalbers and Van Haaren (2019) attempted to determine whether players to be potentially recruited would fit the playing style of interested teams and proposed a set of 21 player roles with the goal of classifying each player to a role based on match event data. The dataset involved player info from the 2017/2018 English Premier League, Spanish LaLiga, German 1. Bundesliga, Italian Serie A, French Ligue Un, Dutch Eredivisie and Belgian Pro League seasons (Aalbers and Van Haaren, 2019). The scope of the study focused on five of the roles defined for central midfielders (Aalbers and Van Haaren, 2019). A supervised learning approach was adopted to effectively utilise the available statistics (Aalbers and Van Haaren, 2019). Player statistics were normalized based on the total number of actions performed by the player, to properly compare players between higher and lower-level teams, then a second normalization based on total number of actions performed by the team, in order to compare effectively within each team (Aalbers and Van Haaren, 2019). The resulting statistics, along with other additional metrics were then standardized in preparation for dimensionality reduction, resulting in 181 key features per observation (player) (Aalbers and Van Haaren, 2019).

Experts from the SciSports Datascouting department were tasked with a binary classification of yes or no, in response to if a player fit each of the roles (Aalbers and Van Haaren, 2019). Each model is trained on all players who fit the role, all players who only fit completely unrelated roles, and 25% of the players who fit slightly similar roles (Aalbers and Van Haaren, 2019). This last set of players were included to ensure that the model focused on crucial differences (Aalbers and Van Haaren, 2019). Finally, before feeding the data into the model, the best value range within each feature is identified and a parameter is set to define the range (Aalbers and Van Haaren, 2019). Amongst players who ranked highly within each role, some were labelled “no” by the SciSports Datascouting department (Aalbers and Van Haaren, 2019), however the subjectivity of the labelling might suggest that these players ranking highly does not necessarily reflect poorly on the model performance.

## Relationship between player performance and market value

While certain decisions in sports are dictated by objective criteria, most resemble educated guesses, and predicting the performance of football players is one of these educated guesses (Richau *et al.*, 2019). According to Lazear (1995; quoted in Richau et al., 2019), decisions pertaining to the future performance of employees tend to result in a risky investment for employers. In the context of football, acquiring a new player might not deliver the intended results and unexpected injuries can stop a player from realising his full potential (Richau *et al.*, 2019). Hence, football managers need to be cautious in their talent selection (Richau *et al.*, 2019). In order to aid in mitigating these effects, performance indicators serve as a useful means for combating subjectivity in the football transfer market (Richau *et al.*, 2019). Historical performance indicators can hint at potential productivity, and while positive statistics on key performance indicators do not always guarantee the same outcome in the future, performance indicators can help reduce uncertainty in the talent selection process (Richau *et al.*, 2019). Several other studies have drawn significant parallels between player performance and market value (Poli, Ravenel and Besson, 2020; Marce Margareta and Malinda, 2022; Tayebi *et al.*, 2022). More specifically, He, Cachucho and Knobbe (2015) noted a positive correlation between both factors.

## Review conclusion

Research papers have highlighted the difficulty and relevance of evaluating the market value of a football player, due to its financial impact on the invested professional clubs. Additionally, data driven approaches have been proven useful in evaluating football player performance, a variable that has been noted to be one of the key driving factors in player market valuation. While previous research has been carried out to evaluate player performance, not many if any have attempted to address the subjectivity in player role classification, via a GMM cluster. Hence, the proposed research topic aims at developing and validating a comprehensive, data-driven framework that evaluates on field performance of football players, potentially serving as a stepping stone in optimizing football club transfer strategies and football coach player valuation.

# METHODOLOGY

The nature of the following study is quantitative due to the use of numerical data to determine the performance evaluation score for each player and statistical techniques to validate them afterwards. First, the aim and objectives of the project will be reiterated in this chapter, the data collection process is detailed in the next section, followed by a section describing the selected variables. Next, the application of the GMM cluster is detailed, before explaining the decision to use a linear regression model, followed by model evaluation processes and finally the limitations are explained.

## Methodology aims and objectives

The aim of this research is to attempt to validate the machine learning model for assessing in game performance of football players in the English Premier League using their whoscored.com “Rating” at the end of the 2023/2024 season. Objectives to be achieved in this process include:

* Data Collection
* Player grouping by playing roles
* Calculating the performance scores
* Evaluating and validating the machine learning model

## Data collection

The data for player clustering and performance evaluation were secondary and gathered from fbref.com. Data from eight separate tables containing English Premier League player statistics from the 2023/2024 season was collected. The tables included possessed information on standard statistics, shooting, passing, pass types, goal and shot creation, defensive actions, possession and miscellaneous statistics. Additionally, whoscored.com ratings for players were collected to be used as a reference for their performance score.

## Variable parameters

Key variables utilized for the clustering and performance evaluation processes were defined in Table 3.3.1 below. Additional variables used for the unsupervised and supervised machine learning phases were detailed in APPENDIX D and APPENDIX E respectively.

|  |  |
| --- | --- |
| Parameter Name | Parameter Description |
| Player | Player Name (String) |
| Pos | Player Position (String) |
| xAG\_per\_90 | Total number of expected goals following the pass that assists a shot, per game (Numeric) |
| npxG\_per\_90 | Non penalty expected goals per game (Numeric) |
| npxG\_xAG\_per\_90 | Non penalty expected goals + expected assists per game (Numeric) |
| Sh\_per\_90 | Number of shots per game (Numeric) |
| Avg\_Shot\_Dist | Average distance in yards, from goal of all shots taken (Numeric) |
| PrgR\_per\_90 | Number of progressive passes (PrgP) received per game (Numeric) |
| PrgC\_per\_90 | Carries that move the ball towards the opponent’s goal line at least 10 yards from the furthest point in the last six passes, or any carry into the penalty area. (Excludes carries which end in the defensive half of the pitch) per game (Numeric) |
| Total\_Pass\_Dist\_per\_90 | Total distance that all completed passes covered in yards per game (Numeric) |
| Short\_Att\_per\_90 | Number of attempted passes between 5 and 15 yards per game (Numeric) |
| Long\_Att\_per\_90 | Number of attempted passes beyond 30 yards per game (Numeric) |
| Live\_Pass\_per\_90 | Non set piece passes attempted per game (Numeric) |
| Crs\_per\_90 | Crosses attempted per game (Numeric) |
| Off\_Pass\_per\_90 | Passes delivered to a player offside per game (Numeric) |
| PassLive\_SCA\_per\_90 | Non set piece passes (specifically the last two) directly leading to a shot attempt per game (Numeric) |
| Take\_ons\_SCA\_per\_90 | Successful take-ons/dribbles that lead to a shot attempt per game (Numeric) |
| Fouled\_SCA\_per\_90 | Fouls drawn that lead to a shot attempt per game (Numeric) |
| Def\_SCA\_per\_90 | Defensive actions that lead to a shot attempt per game (Numeric) |
| Tkl\_per\_90 | Total number of tackles attempted per game (Numeric) |
| Def\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the defensive third of the pitch per game (Numeric) |
| Mid\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the middle third of the pitch per game (Numeric) |
| Att\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the offensive third of the pitch per game (Numeric) |
| Tkl\_drib\_att\_per\_90 | Total number of attempted tackles against dribble attempts per game (Numeric) |
| Tot\_Blocks\_per\_90 | Total number of blocks by standing in the path of the ball per game (Numeric) |
| Sh\_Blocked\_per\_90 | Total number of shots blocked by player per game (Numeric) |
| Int\_per\_90 | Total number of interceptions made by moving into position per game (Numeric) |
| Tkl\_Int\_per\_90 | Total number of tackles and interceptions made per game (Numeric) |
| Clr\_per\_90 | Total number of clearances made per game (Numeric) |
| Live\_Touch\_per\_90 | Total number of non-set piece touches of the ball per game (Numeric) |
| Def\_3rd\_Touch\_per\_90 | Total number of touches in the defensive third of the pitch per game (Numeric) |
| Mid\_3rd\_Touch\_per\_90 | Total number of touches in the middle third of the pitch per game (Numeric) |
| Att\_P\_Touch\_per\_90 | Total number of touches in the offensive/opposition penalty area per game (Numeric) |
| Att\_Take\_ons\_per\_90 | Number of take-ons attempted while dribbling per game (Numeric) |
| Tkld\_per\_90 | Number of times tackled while attempting a take on per game (Numeric) |
| Carries\_per\_90 | Number of times the player controlled the ball with their feet while moving per game (Numeric) |
| Prg\_Car\_Dist\_per\_90 | Total distance (towards the opposition goal) covered by a player while controlling the ball with their feet in yards per game (Numeric) |
| CPA\_per\_90 | Number of carries into the opposition penalty area per game (Numeric) |
| Rec\_per\_90 | Number of times the player received a pass per game (Numeric) |
| Fls\_per\_90 | Number of fouls committed per game (Numeric) |
| Fld\_per\_90 | Number of times fouled per game (Numeric) |
| Off\_per\_90 | Number of times the player has been caught offside per game (Numeric) |
| Recov\_per\_90 | Number of loose balls recovered per game (Numeric) |
| Aerial\_W\_per\_90 | Number of aerial duels won per game (Numeric) |
| G\_PK | Total non-penalty goals |
| G\_SoT | Total goals per shots on target |
| Ast | Number of assists given to a goal |
| Ast\_per\_90 | Number of assists per game |
| xAG | Total number of expected goals following the pass that assists a shot |
| A\_xAG | Assists minus expected assisted goals. (Assesses the extent of assisting players' contributions to goals compared to the actual goal scorers) |
| Succ\_Take\_ons\_Rate | Percentage of successful take ons while dribbling |
| CrdY\_per\_90 | Number of yellow cards received per game |
| xA\_per\_90 | A measure of the quality of passes leading to shots, per game |
| KP\_per\_90 | Number of completed passes that lead to a shot per game |
| Rating | Whoscored.com Player Rating at the end of the season. |

Table 3.3.1 Variable parameters used for clustering and performance evaluation

## Player clustering

To accurately evaluate player performance, understanding each player's role is crucial. Many studies, including those by Aalbers and Van Haaren (2019), García-Aliaga et al. (2021), Akhanli and Hennig (2023) and Dağ, Yüksel and Atmaca (2023) exclude players with limited playing time, as insufficient data can hinder clustering accuracy. While previous studies used cutoffs between 360 and 1500 minutes, this research adopts a 200-minute threshold, similar to D’Urso, De Giovanni and Vitale (2023), due to the comparable scope of single-league datasets. Additionally, players who did not start at least half of the minutes they played were excluded, given the difference in their performance as substitutes (Hills *et al.*, 2018).

54 variables were selected from the data frame based off their descriptions. The selection process ensured to mostly prioritize variables that quantified attempts rather than success rates to avoid clustering based on performance levels like certain clusters produced byAkhanli and Hennig (2023)**.** While previous papers had tackled player clustering, most were not applied with the specific consideration of the player role, except forAalbers and Van Haaren (2019), whose variable selection was taking into consideration when determining relevant variables for the clustering task. Data cleaning involved removing all duplicate instances and converting all missing values to zero as they were all derivative variables whose numerator was zero. All relevant variables were divided by 90 in order to be treated on a per game basis, and allow for comparison across instances, but the normalization by total number of player actions and total number of actions by team applied byAalbers and Van Haaren (2019) was not utilized as the clustering method employed aided in capturing the relevance of the former and the rationale for the latter was slightly flawed as the relative role of a player, to the rest of the team does not necessarily indicate a comprehensive affinity for said role from the broader perspective of the entire sample. Increasing the number of variables would have also been detrimental to the machine learning process.

Due to the overwhelming evidence for relevance of playing positions in performance analysis (Rösch *et al.*, 2000; Liu, Gómez and Lago-Peñas, 2015; Sarmento *et al.*, 2018; Richau *et al.*, 2019; Wiȩckowski and Sałabun, 2024), each player was separated into their position as defined by the dataset.Principal Component Analysis (PCA) was used for dimensionality reduction to create new variables that captured key variance. The selection of variables for each position subset prioritized interpretability for model explainability, following Aalbers and Van Haaren (2019), despite the potential for additional components to capture more variance but also spurious components.Finally, a GMM cluster was applied in order to capture each instance with consideration of the relationship each Principal Component Variable had with each other due to the fact that certain roles demand certain types of actions more than others and alternatives such as k means clustering might not capture such a relationship, and certain players might not perform the same number of a specific actions per match but they might be similar as they perform those actions relative to other actions at a similar rate.Finally, the VVV model was used for flexibility, allowing variation in size, shape and orientation of each cluster.This type of clustering had rarely been carried out previously. The number of distinct roles within positions in football is subjective and not officially defined hence the number of clusters selected was partially informed byAalbers and Van Haaren (2019) due to the similarity in cluster goals. Alternatively, the APSO approach byBehravan et al. (2019) was considered but the computational cost and time required to effectively carry out the process were obstacles**.**

## Player performance evaluation

59 variables relevant to performance evaluation were selected based on reviewed literature, including total tackle success rate which was not included in the initial data but derived via processing on recommendation of the literature. Performance Evaluation scores were derived from whoscored.com ratings and were obtained for all players involved in the analysis and added to the dataset. Whoscored.com statistics have been utilised by multiple papers (Richau *et al.*, 2019; Yi *et al.*, 2020; Lorenzo-Martínez *et al.*, 2021; Akhanli and Hennig, 2023; D’Urso, De Giovanni and Vitale, 2023), and the rating scores are data driven and were utilised by He, Cachucho and Knobbe (2015) and Wiȩckowski and Sałabun (2024) despite the underlying algorithm being subjective. Exploratory data analysis, via correlation was applied to determine which independent variables to involve in the supervised machine learning model. While Principal Component Analysis was not applied to each dataset as most clusters had an insufficient number of instances, certain variables displaying promising levels of correlation with the target variable were eliminated based on their correlations with other higher correlated variables to avoid multicollinearity.

Taking inspiration from Wiȩckowski and Sałabun (2024), the evaluation process emphasized whoscored.com ratings. However, the paper was limited to defenders, failing to address the common challenge of applying the methodology across multiple player clusters. To overcome this, the regression model approach from Jana and Hemalatha (2021) was integrated. Though originally applied in a video game scenario, this approach helps identify relevant variables within each cluster, bypasses the issue of multiple contexts, is suitable for numeric target variables and offers a relatively simple machine learning model which enhances interpretability and is crucial given the minimal instances per cluster. The resulting models were applied to each player cluster in order to repurpose the performance scores to reflect the relevance of variables within each cluster.

Studies by Liu, Gómez and Lago-Peñas (2015) and Richau et al. (2019) were designed to determine relevant variables for player performance and market variables respectively, hence their methods were not considered for direct player evaluation. The Golden Index formula by Pereira et al. (2019) was limited in scope as it only considered offensive contribution, and the overall approach to acquiring a similar formula was not feasible as consultation from experts was not accessible and the existence of multiple clusters would have exacerbated the inherent issues in the subjective valuation process of determining key variables and their weights. The Elo algorithm, which was adopted by Wolf, Schmitt and Schuller (2020) posed several problems including a more time-consuming data collection process, computationally costly implementation as the algorithm works on match-to-match data and a lack of clarity on the key variables which impacted player ratings as well as complications that would have resulted in adjusting the algorithm to each player cluster. Finally, as explained in the literature review, the approach by Merzah, Croock and Rashid (2024) was not used due to the ordinal nature of the target variables, as they do not capture the finer performance level margins which are especially important in the next section.

## Model evaluation and validation

The accuracy, p value and adjusted R squared value of the resulting models were compared and finally, with reference to the article by Tiedemann, Francksen and Latacz-Lohmann (2011), the model was validated by determining the correlation between each team’s average player performance score and their table rank at the end of the season.

## Methodology summary

This chapter detailed the methodology used to evaluate football player performance in the English Premier League using a combination of machine learning and statistical techniques. The data collection process, player clustering using PCA and GMM, and the validation of performance models using regression analysis were covered. Finally, limitations such as the subjectivity of ratings and exclusion of certain variables were explained. Despite these limitations, the chapter justifies the relevance of the approach selected while pointing out the potential problems with alternative routes.

# RESULTS

This section first details the sample of players selected for the analysis, followed by graphical representations of the principal components and cluster scatterplots within them for each respective player position. Finally, the explanatory variables selected for each clusters model was visualized as well as the model performance properties before the validation table was displayed.

## Player Sampling

The data analytics process was conducted using the statistical software R (version 4.3.1) along with several packages including “plyr”, “dplyr”, "stringr", "purrr", "mclust", "GA", "ggplot2", "reshape2", "pheatmap", "tidyr", "stats" and "MASS". Once all datasets were integrated, there were 580 English Premier League players with relevant information within each variable in accordance with fbref.com. Upon eliminating instances with less than 200 total minutes of game time, 463 instances were remaining in the dataset. The number of instances was further reduced to 453 after players who did not start more than half of each total 90 minutes (one game) they had played were eliminated. Goalkeepers however were eliminated from the analysis, leaving a total of 418 instances, and three different datasets were created for the other positions with 190 defenders, 198 midfielders and 152 forwards who were used for each clustering process. Notably, several players fell within multiple datasets as they were given multiple positions.

## Player clustering results

### Defender clusters

Amongst defenders, the first six Principal Components were selected due to interpretability. Figure 4.2.1.1 to Figure 4.2.1.6 are the plots of significant weights for each principal component for the defenders.

A graph with blue and white lines

Description automatically generated

Figure 4.2.1.1: Principal Component Loadings of PC1 for defenders

A graph with a bar graph

Description automatically generated with medium confidence

Figure 4.2.1.2: Principal Component Loadings of PC2 for defenders

A graph with blue and white bars

Description automatically generated

Figure 4.2.1.3: Principal Component Loadings of PC3 for defenders

A graph with a bar graph

Description automatically generated

Figure 4.2.1.4: Principal Component Loadings of PC4 for defenders

A graph with blue and white squares

Description automatically generated

Figure 4.2.1.5: Principal Component Loadings of PC5 for defenders

A graph with blue and white lines

Description automatically generated

Figure 4.2.1.6: Principal Component Loadings of PC6 for defenders

After applying the GMM for seven clusters, they were plotted on scatterplots with the interpreted Principal Components which have been renamed in the discussions section, in Figure 4.2.1.7 to Figure 4.2.1.9.

A graph with colorful dots

Description automatically generated

Figure 4.2.1.7: Defender cluster scatterplot of PC2 against PC1 (datapoints positioned below last letter)

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Figure 4.2.1.8: Defeder cluster scatterplot of PC4 against PC3 (datapoints positioned below last letter)

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Figure 4.2.1.9: Defender cluster scatterplot of PC6 against PC5 (datapoints positioned below last letter)

### Midfielder clusters

Amongst midfielders, the first seven Principal Components were selected due to interpretability. Figure 4.2.2.1 to Figure 4.2.2.7 are the plots of significant weights for each principal component for the midfielders.

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Figure 4.2.2.1: Principal Component Loadings of PC1 for midfielders

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Figure 4.2.2.2: Principal Component Loadings of PC2 for midfielders

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Figure 4.2.2.3: Principal Component Loadings of PC3 for midfielders

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Figure 4.2.2.4: Principal Component Loadings of PC4 for midfielders

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Figure 4.2.2.5: Principal Component Loadings of PC5 for midfielders

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Figure 4.2.2.6: Principal Component Loadings of PC6 for midfielders

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Figure 4.2.2.7: Principal Component Loadings of PC7 for midfielders

After applying the GMM for seven clusters, they were plotted on scatterplots with the interpreted Principal Components which have been renamed in the discussions section, in Figure 4.2.2.8 to Figure 4.2.2.11.

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Figure 4.2.2.8: Midfielder cluster scatterplot of PC2 against PC1 (datapoints positioned below last letter)

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Figure 4.2.2.9: Midfielder cluster scatterplot of PC4 against PC3 (datapoints positioned below last letter)

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Figure 4.2.2.10: Midfielder cluster scatterplot of PC6 against PC5 (datapoints positioned below last letter)

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Figure 4.2.2.11: Midfielder cluster scatterplot of PC7 against PC6 (datapoints positioned below last letter)

### Forward clusters

Amongst forwards, the first six Principal Components were selected due to interpretability. Figure 4.2.3.1 to Figure 4.2.3.6 are the plots of significant weights for each principal component for the forwards.

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Figure 4.2.3.1: Principal Component Loadings of PC1 for forwards

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Figure 4.2.3.2: Principal Component Loadings of PC2 for forwards

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Figure 4.2.3.3: Principal Component Loadings of PC3 for forwards

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Figure 4.2.3.4: Principal Component Loadings of PC4 for forwards

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Figure 4.2.3.5: Principal Component Loadings of PC5 for forwards

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Figure 4.2.3.6: Principal Component Loadings of PC6 for forwards

After applying the GMM for five clusters, they were plotted on scatterplots with the interpreted Principal Components which have been renamed in the discussions section, in Figure 4.2.3.7 to Figure 4.2.3.9.

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Figure 4.2.3.7: Forward cluster scatterplot of PC2 against PC1 (datapoints positioned below last letter)

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Figure 4.2.3.8: Forward cluster scatterplot of PC4 against PC3 (datapoints positioned below last letter)

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Figure 4.2.3.9: Forward cluster scatterplot of PC6 against PC5 (datapoints positioned below last letter)

## Performance evaluation model results

Certain variables were excluded due to multicollinearity or discrepancies between their correlation and established expectations in literature due to minimal instances possibly giving unreliable information.

### Defender variables

Figure 4.3.1.1 to Figure 4.3.1.7 below display the correlation between selected variables for the machine learning process and the whoscored.com Rating target variable.

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Figure 4.3.1.1: Significant correlation of explanatory variables for Defender cluster 1

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.1.2: Significant correlation of explanatory variables for Defender cluster 2

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Figure 4.3.1.3: Significant correlation of explanatory variables for Defender cluster 3

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Figure 4.3.1.4: Significant correlation of explanatory variables for Defender cluster 4

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Figure 4.3.1.5: Significant correlation of explanatory variables for Defender cluster 5

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.1.6: Significant correlation of explanatory variables for Defender cluster 6

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.1.7: Significant correlation of explanatory variables for Defender cluster 7

### Midfielder variables

Figure 4.3.2.1 to Figure 4.3.2.7 below display the correlation between selected variables for the machine learning process and the whoscored.com Rating target variable.

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.2.1: Significant correlation of explanatory variables for Midfielder cluster 1

A red and black graph

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Figure 4.3.2.2: Significant correlation of explanatory variables for Midfielder cluster 2

A graph with different colored bars

Description automatically generated with medium confidence

Figure 4.3.2.3: Significant correlation of explanatory variables for Midfielder cluster 3

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.2.4: Significant correlation of explanatory variables for Midfielder cluster 4

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.2.5: Significant correlation of explanatory variables for Midfielder cluster 5

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.2.6: Significant correlation of explanatory variables for Midfielder cluster 6

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.2.7: Significant correlation of explanatory variables for Midfielder cluster 7

### Forward variables

Figure 4.3.3.1 to Figure 4.3.3.5 below display the correlation between selected variables for the machine learning process and the whoscored.com Rating target variable.

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Figure 4.3.3.1: Significant correlation of explanatory variables for Forward cluster 1

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.3.2: Significant correlation of explanatory variables for Forward cluster 2

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Description automatically generated with medium confidence

Figure 4.3.3.3: Significant correlation of explanatory variables for Forward cluster 3

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.3.4: Significant correlation of explanatory variables for Forward cluster 4

A graph with numbers and lines

Description automatically generated with medium confidence

Figure 4.3.3.5: Significant correlation of explanatory variables for Forward cluster 5

### Model evaluation and validation results

The accuracy, p-values and adjusted R squared values of each regression model, and their stepwise equivalent are displayed in the Figure 4.3.4.1 to Figure 4.3.4.3 below.

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Figure 4.3.4.1: Accuracy comparisons of regression models and stepwise models

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Figure 4.3.4.2: P value comparisons of regression models and stepwise models

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Figure 4.3.4.3: Adjusted R squared value comparisons of regression models and stepwise models

Finally, the model ratings were validated by comparison of the average performance scores within each team to their overall position in the table. The values are negative as first to last place were numbered one to 20. Additionally, the eight points deducted from Everton were accounted for, moving them from 15th position to 12th, consequently moving Bournemouth, Fulham and Wolves down by one position. Mean\_Rating, Mean\_ML\_Rating and Mean\_ML\_Rating\_2 represent the average whoscored.com rating, default regression model rating and the stepwise regression model rating respectively.

|  |  |
| --- | --- |
| Variable | Correlation |
| Mean\_Rating | -0.8765884 |
| Mean\_ML\_Rating | -0.9024386 |
| Mean\_ML\_Rating\_2 | -0.9079983 |

Table 4.3.1: Correlation comparisons of each team’s final position and the average team rating for both models, and the whoscored.com rating

## Results summary

This chapter mostly presented graphical representations of the results obtained from the methods detailed in the previous chapter and implemented in RStudio.

# DISCUSSIONS

In this chapter, the results from the previous chapters were critically discussed beginning with an explanation of the principal component variables used for the cluster analysis across each position. Next, the resulting clusters within each position was explained before the seemingly relevant variables for each model was discussed. Model performances were compared based on their respective accuracies, p values and adjusted R squared values, after which the validation results were discussed. Finally, limitations in the interpretations of the results were discussed.

## Principal component interpretation

### Defender components

Principal Component 1 (PC1) represents a positionally advanced and offensive index, this serves as a measure of players who are often stationed higher up the pitch and heavily contribute to attacking while having minimal deep defending involvement with positive PrgR\_per\_90 and Tkld\_per\_90 loadings but negative Def\_3rd\_Touch\_per\_90 and Sh\_Blocked\_per\_90 in Figure 4.2.1.1.

Principal Component 2 (PC2) represents a safety-first index, this serves as a measure of players who often clear the ball, taking minimal risks while rarely passing or carrying it with positive Clr\_per\_90 loadings but negative Carries\_per\_90 and Live\_Pass\_per\_90 in Figure 4.2.1.2.

Principal Component 3 (PC3) represents a goal finding, non-defensive index, this serves as a measure of players who are often given chances to score while having minimal defensive involvement with positive npxG\_per\_90 and Att\_P\_Touch\_per\_90 loadings but negative Tkl\_Int\_per\_90 and Tkl\_drib\_att\_per\_90 in Figure 4.2.1.3.

Principal Component 4 (PC4) represents a distance shooting, minimal involvement index, this serves as a measure of players who occasionally shoot, but only from distance while rarely getting good scoring chances with positive Avg\_Shot\_Dist loading but negative npxG\_per\_90 and Sh\_per\_90 in Figure 4.2.1.4.

Principal Component 5 (PC5) represents a creative passing, non-carrying index, this serves as a measure of players who often create with passes and crosses while rarely carrying the ball nor partaking in take-ons with positive xAG\_Per\_90, Off\_Pass\_per\_90 and Crs\_per\_90 loadings but negative Prg\_Car\_Dist\_per\_90 and Att\_Take\_ons\_per\_90 in Figure 4.2.1.5.

Principal Component 6 (PC6) represents a wing play from deep index, this serves as a measure of players who progress the ball from deeper positions while displaying minimal influence outside defensive positions with positive Long\_Att\_Pass\_Per\_90 and Off\_Pass\_per\_90 loadings but negative Att\_3rd\_Tkl\_per\_90, Mid\_3rd\_Tkl\_per\_90 and npxG\_per\_90 in Figure 4.2.1.6.

### Midfielder components

Principal Component 1 (PC1) represents a non-defensive, dynamic attacking index, this serves as a measure of players who are often in advanced midfield positions and are significantly involved in creating or scoring but do minimal defensive work with positive PrgR\_per\_90, npxG\_xAG\_per\_90 and Take\_ons\_SCA\_per\_90 loadings but negative Def\_3rd\_Touch\_per\_90 and Tkl\_Int\_per\_90 in Figure 4.2.2.1.

Principal Component 2 (PC2) represents a pure aerial duel index, this serves as a measure of players who are often involved in winning the ball aerially but barely receive or use the ball otherwise with Aerial\_W\_per\_90 being the only positive loading but negative Carries\_per\_90, Rec\_per\_90 and Live\_Touch\_Pass\_per\_90 in Figure 4.2.2.2.

Principal Component 3 (PC3) represents a full pitch defensive index, this serves as a measure of players who are often defending across the pitch while occasionally attempting take-ons with positive Def\_3rd\_Tkl\_per\_90, Mid\_3rd\_Tkl\_per\_90 and Att\_3rd\_Tkl\_per\_90 loadings in Figure 4.2.2.3.

Principal Component 4 (PC4) represents a minimal-creative, carrying index, this serves as a measure of players who often carry the ball forward from deeper positions but do not often create scoring chances unless through take-ons with positive PrgC\_per\_90 and Prg\_Car\_Dist\_per\_90 loadings but negative Off\_Pass\_per\_90 and xAG\_per\_90 in Figure 4.2.2.4.

Principal Component 5 (PC5) represents a solely wide and deep supporting index, this serves as a measure of players who shoot from distance, cross often and recover loose balls but are rarely directly involved with goals or aerial duels with positive Avg\_Shot\_Dist, Crs\_per\_90 and Recov\_per\_90 loadings but negative Aerial\_W\_per\_90 and npxG\_per\_90 in Figure 4.2.2.5.

Principal Component 6 (PC6) represents a midfield duel index, this serves as a measure of players who are heavily involved in midfield battles but are rarely involved with penalty box defending or chance creation with positive Mid\_3rd\_Touch\_per\_90, Mid\_3rd\_Tkl\_per\_90 and Fld\_per\_90 loadings but negative Clr\_per\_90 and xAG\_per\_90 in Figure 4.2.2.6.

Principal Component 7 (PC7) represents a deeper defensive supporting index, this serves as a measure of players who are involved in the defensive parts of the pitch while occasionally having offensive impact but rarely pass it short with positive Def\_3rd\_Touch\_per\_90 and Fouled\_SCA\_per\_90 loadings but negative Short\_Att\_per\_90 in Figure 4.2.2.7.

### Forward components

Principal Component 1 (PC1) represents a Pure Goal Threat index, this serves as a measure of players who are uninvolved in most facets of play but act as an offensive focal point with positive npxG\_per\_90 and Off\_per\_90 loadings but negative Live\_Touch\_per\_90 and Live\_Pass\_per\_90 loadings in Figure 4.2.3.1.

Principal Component 2 (PC2) represents a non-defensive wing play index, this serves as a measure of players who are uninvolved in defensive actions but help to carry the ball forward, create and score chances with positive CPA\_per\_90 and npxG\_xAG\_per\_90 loadings but negative Def\_3rd\_Touch\_per\_90 and Tkl\_per\_90 in Figure 4.2.3.2.

Principal Component 3 (PC3) represents a non-passing balanced wing play index, this serves as a measure of players who do not often distribute the ball but are heavily involved in both defensive and offensive aspects of wing play with positive Tkl\_per\_90 and Att\_Take\_ons\_per\_90 loadings but negative Total\_Pass\_Dist\_per\_90 and Long\_Att\_per\_90. Notably, they also have low Crs\_per\_90, which is associated with wing play but also distribution in Figure 4.2.3.3.

Principal Component 4 (PC4) represents a non-carrying, defensively involved goal threat index, this serves as a measure of players who do not carry the ball but help to defend, create and score chances with positive Def\_SCA\_per\_90 and npxG\_xAG\_per\_90 loadings but negative Att\_3rd\_Carry\_per\_90 and PrgC\_per\_90 in Figure 4.2.3.4.

Principal Component 5 (PC5) represents a pure defensive index, this serves as a measure of players who are very active defensively but do not get involved in the midfield with positive Tot\_Blocks\_per\_90 and Clr\_per\_90 loadings but negative Mid\_3rd\_Touch\_per\_90 and Mid\_3rd\_Tkl\_per\_90 in Figure 4.2.3.5.

Principal Component 6 (PC6) represents a non-carrying/defending, supporting index, this serves as a measure of players who try to create or score from a less advanced position but neither defend nor carry the ball much with positive Avg\_Shot\_Dist and Off\_Pass\_per\_90 loadings but negative Clr\_per\_90 and Carries\_per\_90 in Figure 4.2.3.6.

## Role cluster interpretation

### Defender cluster interpretation

Cluster 1 (Moderate Supporting Wide Defender) players are seen to use the ball minimally in Figure 4.2.1.7, occasionally shoot from distance in Figure 4.2.1.8 and occasionally create from wide without carrying the ball in Figure 4.2.1.9.

Cluster 2 (Balanced Advanced Carrying Defenders) are seen to be positionally advanced and offensive without using the ball too much in Figure 4.2.1.7 but with defensive responsibilities and minimal goal scoring opportunities, while occasionally shooting from distance in Figure 4.2.1.8 and ball carrying responsibilities without necessarily creating in Figure 4.2.1.9.

Cluster 3 (Ball Playing Deep Defenders) tend to use the ball a lot despite not being advanced or directly involved in goals as seen in Figure 4.2.1.7 and might carry the ball forward without creating chances as seen in Figure 4.2.1.9.

Cluster 4 (Dynamic Advanced Defenders) are advanced, offensive and use the ball in a variety of ways in Figure 4.2.1.7.

Cluster 5 (Minimal Support Wide Defender) is very similar to cluster 1 but in Figure 4.2.1.9, they can be seen to partake in less deep wing play.

Cluster 6 (Safe Deep Defenders) are deep defenders who take minimal risks with the ball in Figure 4.2.1.7.

Cluster 7 (Pure Deep Defenders) operate similarly to cluster 6 in Figure 4.2.1.7, but as seen in Figure 4.2.1.8 they receive fewer goal scoring chances and spend more time defending. Figure 4.2.1.9, also suggests that they are more inclined to create from deeper wide positions.

### Midfielder cluster interpretation

Cluster 1 (Defensive Midfielders) players are seen to be involved in aerial duels and defensive work with minimal attacking contributions and ball usage in Figure 4.2.2.8.

Cluster 2 (Pure Attacking Midfielders) are also seen to be aerially involved in Figure 4.2.2.8 but with more offensive inclinations, which can also be seen in Figure 4.2.2.9 although they do not carry the ball too often. It can also be seen in Figure 4.2.2.10 and Figure 4.2.2.11 that they are not involved in midfield duels.

Cluster 3 (Stationed Progressive Midfielders) like cluster 1 are defensively inclined with minimal dynamic attacking but with much less aerial involvement and more ball usage from Figure 4.2.2.8. Most do not defend across the entire pitch as seen in Figure 4.2.2.9 but are heavily involved in midfield duels as seen in Figure 4.2.2.10.

Cluster 4 (Dynamic Attacking Midfielders) are heavily involved with a variety of goal creating actions while possessing minimal defensive responsibility in Figure 4.2.2.8, and often operate from wide and deep in Figure 4.2.2.10.

Cluster 5 (Static Creators) are seen in Figure 4.2.2.9 to be neither carry the ball nor defend across the pitch but are creatively involved nonetheless, and in Figure 4.2.2.10, they can be seen to support from wide and deep without getting involved in midfield duels, but Figure 4.2.2.11 suggests that they partake in a bit of defending.

Cluster 6 (Functional Midfielders) can be seen to defend across the pitch in Figure 4.2.2.9, while mostly operating in deeper positions despite occasional attacking contributions in Figure 4.2.2.11.

Cluster 7 (Box to box ball winning Midfielders) operate similarly to cluster 1 in Figure 4.2.2.8, but as seen in Figure 4.2.2.9 they defend across the pitch and often carry the ball. Figure 4.2.2.11 also suggests that they do not necessarily duel for the ball in midfield and while they operate in deep positions, they might occasionally be involved in chance creation.

### Forwards cluster interpretation

Cluster 1 (Defensive Carriers) players are seen to mostly operate with little direct goal threat while being involved with other aspects of play in Figure 4.2.3.7, while also displaying a tendency to carry the ball forward and aid in defending in Figure 4.2.3.9.

Cluster 2 (Pure Forwards) are seen to be direct goal threats in Figure 4.2.3.7, and often uninvolved in any wing play in Figure 4.2.3.8.

Cluster 3 (Central Supporters) are often not direct goal threats but might be involved in other aspects in Figure 4.2.3.7, favour passing over wing play without necessarily being ball carriers in Figure 4.2.3.8 with a bit of defending and slight goal involvement.

Cluster 4 (Pure Attacking Wingers) are seen to exhibit high levels of wing play with minimal defensive responsibility in Figure 4.2.3.7, and minimal defending in Figure 4.2.3.9.

Cluster 5 (Supporting Carriers) are seen in Figure 4.2.3.8 to be ball carriers who are not necessarily goal threats, but in Figure 4.2.3.9, are defensively involved in certain ways. The difference between cluster 1 and 5 can be seen in Figure 4.2.3.7, where cluster 5 are more likely to be direct goal threats and in Figure 4.2.3.8 where they show more carrying.

## Linear regression explanatory variables

### Defender variable interpretation

Figure 4.3.1.1 shows that key variables determining moderate supporting wide defender ratings include Succ\_Take\_ons\_Rate, xAG and Int\_per\_90. Wiȩckowski and Sałabun (2024) also suggests that assists and interceptions are relevant to defender performance. Figure 4.3.1.2 shows that balanced advanced carrying defender ratings include Ast, Tkl\_Int\_per\_90 and KP\_per\_90, aligning with the same study. Figure 4.3.1.3 shows that variables for ball playing deep defenders show weak correlation, potentially reducing model accuracy. Similarly, Figure 4.3.1.5 suggests low correlation for minimal support wide defenders, likely impacting model accuracy. Figure 4.3.1.4 shows that variables determining dynamic advanced defenders include xAG, G\_PK and CrdY\_per\_90. Wiȩckowski and Sałabun (2024) also suggests that assists and fouls are relevant, with players often receiving yellow cards after committing fouls. Figure 4.3.1.6 shows minor correlation for safe deep defenders, however the higher number of variables included may improve accuracy but risk overfitting. Finally, Figure 4.3.1.7 shows that key variables determining pure deep defender ratings include xAG, xAG\_per\_90 and xA\_per\_90, aligning with the work done by Wiȩckowski and Sałabun (2024).

### Midfielder variable interpretation

Figure 4.3.2.1 shows that key variables determining defensive midfielder ratings include G\_PK, xAG and Int\_per\_90. Figure 4.3.2.2 shows that key variables determining pure attacking midfielder ratings include G\_PK, xAG and G\_SoT, with goals and assists again noted as significant by the same studies. Figure 4.3.2.3 shows that the key variables for assessing stationed progressive midfielders’ ratings include G\_PK, Ast and A\_xAG. Figure 4.3.2.4 and Figure 4.3.2.5 shows that key variables determining dynamic attacking midfielder and static creator ratings include xAG, G\_PK and xA\_per\_90. Figure 4.3.2.6 shows that the key variables for assessing functional midfielder ratings include G\_PK, Ast and Fls\_per\_90. Finally, Figure 4.3.2.7 shows that key variables determining box to box ball winning midfielder ratings include xAG, Int\_per\_90 and Ast. Richau et al. (2019) and Pereira et al. (2019) have highlighted the importance of goals and assists respectively, which can be seen to be consistent with the findings within each cluster.

### Forward variable interpretation

Figure 4.3.3.1 shows that key variables determining defensive carrier ratings include G\_PK, xAG and G\_PK \_per\_90. G\_PK showing higher relevance than G\_PK \_per\_90 suggests that players with good goal per game records were not valued as greatly as players with more overall goals possibly due to the smaller number of games they played which might have allowed them to maintain a better record. Figure 4.3.3.2 shows that key variables determining pure forward ratings include G\_PK, xAG and Ast\_per\_90. Figure 4.3.3.3 shows that the key variables for assessing central supporters’ ratings include G\_PK, xAG\_per\_90 and xAG. Figure 4.3.3.4 shows that key variables determining pure attacking winger ratings include Ast, G\_PK and xA\_per\_90. Figure 4.3.3.5 shows that the key variables for assessing supporting carrier ratings include PrgC\_per\_90, PassLive\_SCA\_per\_90 and G\_PK. Asides the focus on goals and assists within the studies by Richau et al. (2019) and Pereira et al. (2019), the latter also noted the relevance of running with the ball, albeit to a lesser extent. Goals remain a consistent variable across positions, aligning with Sarmento et al. (2018), who noted their importance as the primary objective of the game.

## Assessing Model Performance

In Figure 4.3.4.1, all models derived displayed a good accuracy score with a minimal accuracy above 75 percent, and each regression model generated was seen to be slightly less accurate than the corresponding stepwise model which had dropped certain variables. The stepwise model however was more likely to avoid overfitting. The higher adjusted R squared values of the stepwise regression models seen in Figure 4.3.4.3 suggested that the most relevant variables were included in the model and those dropped did not significantly contribute to determining the target variable score. Adjusted R squared values for forward cluster 5, midfielder cluster 5 and midfielder cluster 6 were suspiciously high, likely due to the smaller number of instances in each cluster. This could have suggested that the model was overfitting in these instances especially when the extremely small p values in Figure 4.3.4.2 were considered. Also, defender cluster 3 having an adjusted R square value below 0.6 was to be expected given the lower correlation of variables involved in the model as seen in Figure 4.3.1.3.

Finally, Table 4.3.4.1 showed that the stepwise regression model did a slightly better job than the regular regression model and whoscored.com ratings when applying the validation method used by Tiedemann, Francksen and Latacz-Lohmann (2011) to determine the reliance of the performance scores. With consideration of the subjective nature of the target variable in this study, the accuracy of models generated had less significance due to the whoscored.com “Rating” not being a universal standard, hence the stepwise model was seen as comparatively preferable, when also accounting for ease of interpretation despite the marginal drop in accuracy. It was therefore concluded that there might be value in using machine learning methods to recontextualize whoscored.com ratings based on the clusters established.

## Result Limitations

Performance evaluation was based on a single season, which creates a degree of uncertainty when considering how likely a player is to replicate such performances. The clusters acquired by the GMM are not universal in nature especially due to the nature of football roles, hence validation of the resulting models is made more complex unless clustering algorithms are applied to much larger datasets. While expected variables aid in addressing the difficulty of certain circumstances, the average difficulty of the teams each player faced was also not accounted for. Certain clusters have a minimal number of instances leading to overfitted models which might not accurately determine player performance for a larger dataset. Others are seen to show a weak correlation between the target variable and all independent variables, suggesting that the appropriate variables, or configuration of variables were not accounted for either. Beyond the subjectivity of the whoscored.com ratings, the approach inherently assumes that the ratings applied, effectively accounted for the emerging cluster contexts established in the study. Also, the exclusion of set play variables also limits the scope of the evaluation models.

The validation method applied for each performance model is slightly hindered by the fact that goalkeepers were not involved in the research, hence the correlation established might be slightly inaccurate despite active goalkeepers being a small percentage of each team’s makeup. Performance ratings from this study cannot be directly compared to those of studies focusing on a separate league due to the difference in level of opposition quality, as the whoscored.com ratings do not account for this change in level. Despite the objective criterium utilised, underlying psychological aspects affecting a player’s performance were not, and perhaps could not be properly accounted for, leaving a gap in evaluating performance. The study does not consider individual player conditions such as injuries, which can significantly influence player performance and positional suitability. Coaching personnel changes during the season and its effects on player role, performance and opposition difficulty were also not accounted for.

## Discussions summary

The principal components and clusters obtained were from the unsupervised machine learning phase were explained, and the relevant variables for each model were mostly backed by literature. Upon comparison of the two models implemented across the clusters, the stepwise regression model was preferred due to the final validation results and reduced relevance of accuracy in this study, despite several shortcomings.

# CONCLUSION

## Dissertation summary

The study sought out to evaluate English Premier League player performances for the 23/24 season while attempting to properly account for situational factors that affect performance. Several factors were identified, and the notable factors addressed included player position, player role, playing time and to a lesser degree, opposition quality. With the use of expected variables amongst other variables, some of which had been previously highlighted in literature and the sampling of players with notable playing time, players were divided into several clusters after being split by position to determine the underlying trends in roles assigned to each player by coaches across the league. Due to the subjective nature of player roles and minimal research done in this specific area, the number of clusters selected was only partially informed by literature and was largely subjective. Performance evaluation was then carried out within each cluster by utilising the whoscored.com player ratings as a reference point and applying a linear regression and corresponding stepwise regression model to each cluster to recontextualise the performance ratings. The accuracy of the model itself was not as important as the recontextualization, and the true validation of the results was made in reference to the strength of the correlation between each team’s average performance score and their position at the end of the season. The results suggested that the stepwise regression model performs best on this metric despite the overfitting or inaccuracy of certain models. Nonetheless, it is important to highlight the shortcomings of these models. The stepwise models for forward clusters 5, as well as midfielder clusters 5 and 6 were prone to overfitting likely due to the minimal number of instances, especially in comparison to the number of variables used and defenders cluster 3 was below 80 percent accurate, likely due to the absence of notable key explanatory variables. Nonetheless, this approach to determining player performance shows some degree of promise and further research could possibly bring more clarity to the degree and contexts within which this, and other machine learning approaches are relevant to the task.

## Future Recommendations

Future studies can build upon the work done in this paper by utilising a larger dataset spanning across multiple years to increase the number of instances in each cluster, hence reducing the possibility of overfitting the models, as well as allowing for the exploration of slightly more complex models to compare their performances. Similar to Aalbers and Van Haaren (2019), normalization of variables in terms of actions performed by team could reframe certain variables in such a way that certain clusters could potentially gain new key variables which improve the model. The approach utilized in this study can be applied to other football leagues as well as the goalkeeping position. A match-by-match method of analysis similar to the Elo algorithm adopted by Wolf, Schmitt and Schuller (2020) can also be considered in order to properly account for opposition difficulty. Building upon the result, further research can begin to explore cost effective transfer solutions based on the direct relationship between performance evaluation and transfer market values. Finally, set piece related variables such as corner kicks, free kicks and penalties scored can be introduced to future models.

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# ETHICAL APPROVAL

College of Engineering, Design and Physical Sciences Research Ethics Committee

Brunel University London

Kingston Lane

Uxbridge

UB8 3PH

United Kingdom

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25 July 2024

**LETTER OF CONFIRMATION**

Applicant (s): Mr Chidubem Nworah

Project Title: Optimizing Football Player Transfer Strategies through Performance Data Analysis and Cost Efficiency Metrics

Reference: 48865-A-Jul/2024- 52204-1

Dear Mr Chidubem Nworah

The Research Ethics Committee has considered the above application recently submitted by you.

This letter is to confirm that, according to the information provided in your BREO application, your project does not require full ethical review. You may proceed with your research as set out in your submitted BREO application, using secondary data sources only. You may not use any data sources for which you have not sought approval.

Please note that:

**You are not permitted to conduct research involving human participants, their tissue and/or their data. If you wish to conduct such research (including surveys, questionnaires, interviews etc.), you must contact the Research Ethics Committee to seek approval prior to engaging with any participants or working with data for which you do not have approval.**

The Research Ethics Committee reserves the right to sample and review documentation relevant to the study.

If during the course of the study, you would like to carry out research activities that concern a human participant, their tissue and/or their data, you must submit a new BREO application and await approval before proceeding. Research activity includes the recruitment of participants, undertaking consent procedures and collection of data. Breach of this requirement constitutes research misconduct and is a disciplinary offence.

Good luck with your research!

Kind regards,



Professor Simon Taylor Chair of the College of Engineering, Design and Physical Sciences Research Ethics Committee Brunel University London

Page 1 of 1

# CODE

CS5500

Henry Nworah

2024-07-27

R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

library(plyr)  
library(dplyr)

## Warning: package 'dplyr' was built under R version 4.3.2

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:plyr':  
##   
## arrange, count, desc, failwith, id, mutate, rename, summarise,  
## summarize

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(stringr)

## Warning: package 'stringr' was built under R version 4.3.2

library(purrr)

##   
## Attaching package: 'purrr'

## The following object is masked from 'package:plyr':  
##   
## compact

library(mclust)

## Warning: package 'mclust' was built under R version 4.3.3

## Package 'mclust' version 6.1.1  
## Type 'citation("mclust")' for citing this R package in publications.

##   
## Attaching package: 'mclust'

## The following object is masked from 'package:purrr':  
##   
## map

library(GA)

## Warning: package 'GA' was built under R version 4.3.3

## Loading required package: foreach

## Warning: package 'foreach' was built under R version 4.3.2

##   
## Attaching package: 'foreach'

## The following objects are masked from 'package:purrr':  
##   
## accumulate, when

## Loading required package: iterators

## Warning: package 'iterators' was built under R version 4.3.2

## Package 'GA' version 3.2.4  
## Type 'citation("GA")' for citing this R package in publications.

##   
## Attaching package: 'GA'

## The following object is masked from 'package:utils':  
##   
## de

library(ggplot2)

## Warning: package 'ggplot2' was built under R version 4.3.2

library(ellipse)

## Warning: package 'ellipse' was built under R version 4.3.3

##   
## Attaching package: 'ellipse'

## The following object is masked from 'package:graphics':  
##   
## pairs

library(reshape2)

## Warning: package 'reshape2' was built under R version 4.3.3

library(pheatmap)

## Warning: package 'pheatmap' was built under R version 4.3.3

library(tidyr)

##   
## Attaching package: 'tidyr'

## The following object is masked from 'package:reshape2':  
##   
## smiths

library(stats)  
library(MASS)

##   
## Attaching package: 'MASS'

## The following object is masked from 'package:dplyr':  
##   
## select

library(plotly)

## Warning: package 'plotly' was built under R version 4.3.2

##   
## Attaching package: 'plotly'

## The following object is masked from 'package:MASS':  
##   
## select

## The following object is masked from 'package:ggplot2':  
##   
## last\_plot

## The following objects are masked from 'package:plyr':  
##   
## arrange, mutate, rename, summarise

## The following object is masked from 'package:stats':  
##   
## filter

## The following object is masked from 'package:graphics':  
##   
## layout

Reading the Player Statistic Files for the 2023-2024 EPL season

setwd("C:/Users/CNHenry/Desktop/Guide Notes/Dissertation/Datasets/23-24")  
DefAc.23.24 <- read.csv("Defensive Actions 23-24.csv")  
GSC.23.24 <- read.csv("Goal and Shot Creation 23-24.csv")  
MiscSt.23.24 <- read.csv("Miscellaneous Stats 23-24.csv")  
PasTy.23.24 <- read.csv("Pass Types 23-24.csv")  
Pas.23.24 <- read.csv("Passing 23-24.csv")  
Poss.23.24 <- read.csv("Possession 23-24.csv")  
Sho.23.24 <- read.csv("Shooting 23-24.csv")  
Sta.23.24 <- read.csv("Standard Stats 23-24.csv")

*DATA PREPARATION*

Standard Statistics variable name adjustment

Sta.23.24 <- Sta.23.24 %>%  
 rename\_with(~ str\_replace(., "\\.1$", " per 90"))  
names(Sta.23.24)[names(Sta.23.24) == "G.A.PK"] <- "G.A.PK per 90"  
names(Sta.23.24)[names(Sta.23.24) == "xG.xAG"] <- "xG.xAG per 90"

Shooting Variable adjustment

names(Sho.23.24)[names(Sho.23.24) == "SoT."] <- "SoT Rate"  
names(Sho.23.24)[names(Sho.23.24) == "FK"] <- "FK Shot attempts"  
names(Sho.23.24)[names(Sho.23.24) == "Dist"] <- "Avg Shot Dist"

Passing Variable adjustment

names(Pas.23.24)[names(Pas.23.24) == "Cmp."] <- "Cmp Rate"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp.1"] <- "Short Cmp"  
names(Pas.23.24)[names(Pas.23.24) == "Att.1"] <- "Short Att"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp..1"] <- "Short Cmp Rate"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp.2"] <- "Medium Cmp"  
names(Pas.23.24)[names(Pas.23.24) == "Att.2"] <- "Medium Att"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp..2"] <- "Medium Cmp Rate"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp.3"] <- "Long Cmp"  
names(Pas.23.24)[names(Pas.23.24) == "Att.3"] <- "Long Att"  
names(Pas.23.24)[names(Pas.23.24) == "Cmp..3"] <- "Long Cmp Rate"  
names(Pas.23.24)[names(Pas.23.24) == "Att"] <- "Passes Att"  
names(Pas.23.24)[names(Pas.23.24) == "TotDist"] <- "Total Pass Dist"  
names(Pas.23.24)[names(Pas.23.24) == "PrgDist"] <- "Prg Pass Dist"  
names(Pas.23.24)[names(Pas.23.24) == "X01.Mar"] <- "Final Third Pass"

Pass Types Variable adjustment

names(PasTy.23.24)[names(PasTy.23.24) == "FK"] <- "FK Pass attempts"  
names(PasTy.23.24)[names(PasTy.23.24) == "Live"] <- "Live Pass"  
names(PasTy.23.24)[names(PasTy.23.24) == "Off"] <- "Off Pass"  
names(PasTy.23.24)[names(PasTy.23.24) == "Blocks"] <- "Blocked Pass"

Goal and Shot Creation Variable adjustment

GSC.23.24 <- GSC.23.24 %>%  
 rename\_with(~ str\_replace(., "\\.1$", " GCA"))  
names(GSC.23.24)[names(GSC.23.24) == "PassLive"] <- "PassLive SCA"  
names(GSC.23.24)[names(GSC.23.24) == "PassDead"] <- "PassDead SCA"  
names(GSC.23.24)[names(GSC.23.24) == "TO"] <- "Take ons SCA"  
names(GSC.23.24)[names(GSC.23.24) == "Sh"] <- "Shot SCA"  
names(GSC.23.24)[names(GSC.23.24) == "Fld"] <- "Fouled SCA"  
names(GSC.23.24)[names(GSC.23.24) == "Def"] <- "Def SCA"

Defensive Actions Variable adjustment

names(DefAc.23.24)[names(DefAc.23.24) == "Tkl.1"] <- "Tkl dribble"  
names(DefAc.23.24)[names(DefAc.23.24) == "Tkl."] <- "Tkl dribble Rate"  
names(DefAc.23.24)[names(DefAc.23.24) == "Blocks"] <- "Total Blocks"  
names(DefAc.23.24)[names(DefAc.23.24) == "Sh"] <- "Shots Blocked"  
names(DefAc.23.24)[names(DefAc.23.24) == "Pass"] <- "Passes Blocked"  
names(DefAc.23.24)[names(DefAc.23.24) == "Att"] <- "Tkl dribble att"  
names(DefAc.23.24)[names(DefAc.23.24) == "Def.3rd"] <- "Def Third Tkl"  
names(DefAc.23.24)[names(DefAc.23.24) == "Mid.3rd"] <- "Mid Third Tkl"  
names(DefAc.23.24)[names(DefAc.23.24) == "Att.3rd"] <- "Att Third Tkl"  
names(DefAc.23.24)[names(DefAc.23.24) == "Lost"] <- "Tkl dribble Fail"

Possession Variable adjustment

names(Poss.23.24)[names(Poss.23.24) == "Succ."] <- "Succ Rate"  
names(Poss.23.24)[names(Poss.23.24) == "Tkld."] <- "Tkld Rate"  
names(Poss.23.24)[names(Poss.23.24) == "Att"] <- "Att Take ons"  
names(Poss.23.24)[names(Poss.23.24) == "Succ"] <- "Succ Take ons"  
names(Poss.23.24)[names(Poss.23.24) == "Succ Rate"] <- "Succ Take ons Rate"  
names(Poss.23.24)[names(Poss.23.24) == "TotDist"] <- "Total Carry Dist"  
names(Poss.23.24)[names(Poss.23.24) == "PrgDist"] <- "Prg Carry Dist"  
names(Poss.23.24)[names(Poss.23.24) == "X01.Mar"] <- "Final Third Carry"  
names(Poss.23.24)[names(Poss.23.24) == "Live"] <- "Live Touch"  
names(Poss.23.24)[names(Poss.23.24) == "Def.3rd"] <- "Def Third Touch"  
names(Poss.23.24)[names(Poss.23.24) == "Mid.3rd"] <- "Mid Third Touch"  
names(Poss.23.24)[names(Poss.23.24) == "Att.3rd"] <- "Att Third Touch"  
names(Poss.23.24)[names(Poss.23.24) == "Def.Pen"] <- "Def Pen Touch"  
names(Poss.23.24)[names(Poss.23.24) == "Att.Pen"] <- "Att Pen Touch"

Miscellaneous Stats Variable adjustment

names(MiscSt.23.24)[names(MiscSt.23.24) == "Won."] <- "Won Rate"  
names(MiscSt.23.24)[names(MiscSt.23.24) == "Won"] <- "Aerial Won"  
names(MiscSt.23.24)[names(MiscSt.23.24) == "Lost"] <- "Aerial Lost"  
names(MiscSt.23.24)[names(MiscSt.23.24) == "Won Rate"] <- "Aerial Won Rate"

Combining stats for ALL players with notable game time

a.23.24 <- merge(Sta.23.24, Sho.23.24)

Poss.23.24 <- Poss.23.24[, !(names(Poss.23.24) %in% "Matches")]  
MiscSt.23.24 <- MiscSt.23.24[, !(names(MiscSt.23.24) %in% "Matches")]

a.23.24 <- a.23.24[1:580, ]  
b.23.24 <- merge(a.23.24, Pas.23.24)  
c.23.24 <- merge(b.23.24, PasTy.23.24)  
d.23.24 <- merge(c.23.24, GSC.23.24)  
e.23.24 <- merge(d.23.24, DefAc.23.24)  
e.23.24 <- e.23.24[, !(names(e.23.24) %in% "Matches")]  
f.23.24 <- merge(e.23.24, Poss.23.24)  
all.23.24 <- merge(f.23.24, MiscSt.23.24)

Minutes played as numeric

all.23.24$Min <- as.numeric(gsub(",", "", all.23.24$Min))

Taking out players with less than 200 minutes of total playtime

clus.23.24 <- all.23.24 %>%  
 filter(Min >= 200)

#Removing the Rk variable, which numbers players  
clus.23.24 <- clus.23.24[, !(names(clus.23.24) %in% "Rk")]

Inspecting variables

summary(clus.23.24)

## Player Nation Pos Squad   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
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## Mode :character Mode :character Mode :character Mode :character   
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##   
##   
## CrdR Crs TklW Int   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
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##   
## PrgC PrgR Cmp Ast   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
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##   
##   
## xAG PrgP Gls PK   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
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##   
##   
## PKatt xG npxG MP   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Starts Min G.A G.PK   
## Length:463 Min. : 201 Length:463 Length:463   
## Class :character 1st Qu.: 828 Class :character Class :character   
## Mode :character Median :1491 Mode :character Mode :character   
## Mean :1608   
## 3rd Qu.:2335   
## Max. :3420   
## npxG.xAG Gls per 90 Ast per 90 G.A per 90   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## G.PK per 90 G.A.PK per 90 xG per 90 xAG per 90   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
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##   
##   
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## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## SoT SoT Rate Sh.90 SoT.90   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## G.Sh G.SoT Avg Shot Dist FK Shot attempts   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## npxG.Sh G.xG np.G.xG Passes Att   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Cmp Rate Total Pass Dist Prg Pass Dist Short Cmp   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Short Att Short Cmp Rate Medium Cmp Medium Att   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Medium Cmp Rate Long Cmp Long Att Long Cmp Rate   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## xA A.xAG KP Final Third Pass   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PPA CrsPA Att Live Pass   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Dead FK Pass attempts TB Sw   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## TI CK In Out   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Str Off Pass Blocked Pass SCA   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## SCA90 PassLive SCA PassDead SCA Take ons SCA   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Shot SCA Fouled SCA Def SCA GCA   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## GCA90 PassLive GCA PassDead GCA TO GCA   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Sh GCA Fld GCA Def GCA Tkl   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Def Third Tkl Mid Third Tkl Att Third Tkl Tkl dribble   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Tkl dribble att Tkl dribble Rate Tkl dribble Fail Total Blocks   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Shots Blocked Passes Blocked Tkl.Int Clr   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Err Touches Def Pen Touch Def Third Touch   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Mid Third Touch Att Third Touch Att Pen Touch Live Touch   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Att Take ons Succ Take ons Succ Take ons Rate Tkld   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Tkld Rate Carries Total Carry Dist Prg Carry Dist   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Final Third Carry CPA Mis Dis   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Rec X2CrdY Fls Fld   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Off PKwon PKcon OG   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## Recov Aerial Won Aerial Lost Aerial Won Rate   
## Length:463 Length:463 Length:463 Length:463   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##

Ensuring all but the 1st 4 variables are numeric

clus.23.24 <- clus.23.24 %>%  
 mutate\_at(vars(-c(1:4)), as.numeric)

Checking the percentage of missing values in each variable

# Initializing empty vectors to store results  
na\_vars <- c()  
na\_percentages <- c()  
  
# Looping through columns to find NA values and calculate percentage  
for (col in names(clus.23.24)) {  
 na\_count <- sum(is.na(clus.23.24[[col]]))  
 if (na\_count > 0) {  
 na\_vars <- c(na\_vars, col)  
 na\_percentage <- (na\_count / nrow(clus.23.24)) \* 100  
 na\_percentages <- c(na\_percentages, na\_percentage)  
 }  
}  
  
# Combining results into a dataframe  
na\_info <- data.frame(  
 Variable = na\_vars,  
 NA\_Percentage = na\_percentages  
)  
  
print(na\_info)

## Variable NA\_Percentage  
## 1 SoT Rate 9.0712743  
## 2 G.Sh 9.0712743  
## 3 G.SoT 18.3585313  
## 4 Avg Shot Dist 9.0712743  
## 5 npxG.Sh 9.0712743  
## 6 Tkl dribble Rate 2.8077754  
## 7 Succ Take ons Rate 6.4794816  
## 8 Tkld Rate 6.4794816  
## 9 Aerial Won Rate 0.4319654

Further investigation to determine cause of missing values

subset\_G\_SoT\_na <- subset(clus.23.24, is.na(G.SoT))

sum(is.na(subset\_G\_SoT\_na$npxG.Sh) & subset\_G\_SoT\_na$npxG == 0)

## [1] 42

names(clus.23.24)[names(clus.23.24) == "Tkl dribble Rate"] <- "Tkl\_dribble\_Rate"  
subset\_tkl\_dr\_R <- subset(clus.23.24, is.na(Tkl\_dribble\_Rate))

names(clus.23.24)[names(clus.23.24) == "Tkld Rate"] <- "Tkld\_Rate"  
subset\_tkld\_R <- subset(clus.23.24, is.na(Tkld\_Rate))

names(clus.23.24)[names(clus.23.24) == "Aerial Won Rate"] <- "Aerial\_Won\_Rate"  
subset\_AW\_R <- subset(clus.23.24, is.na(Aerial\_Won\_Rate))

Appropriate renaming of variables

names(clus.23.24)[names(clus.23.24) == "xAG per 90"] <- "xAG\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "npxG per 90"] <- "npxG\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "npxG.xAG per 90"] <- "npxG\_xAG\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "SoT Rate"] <- "SoT\_Rate"  
names(clus.23.24)[names(clus.23.24) == "SoT.90"] <- "SoT\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "Sh.90"] <- "Sh\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "Avg Shot Dist"] <- "Avg\_Shot\_Dist"  
names(clus.23.24)[names(clus.23.24) == "npxG.Sh"] <- "npxG\_per\_Sh"  
names(clus.23.24)[names(clus.23.24) == "Passes Att"] <- "Passes\_Att"  
names(clus.23.24)[names(clus.23.24) == "Total Pass Dist"] <- "Total\_Pass\_Dist"  
names(clus.23.24)[names(clus.23.24) == "Prg Pass Dist"] <- "Prg\_Pass\_Dist"  
names(clus.23.24)[names(clus.23.24) == "Short Att"] <- "Short\_Att"  
names(clus.23.24)[names(clus.23.24) == "Medium Att"] <- "Medium\_Att"  
names(clus.23.24)[names(clus.23.24) == "Long Att"] <- "Long\_Att"  
names(clus.23.24)[names(clus.23.24) == "Live Pass"] <- "Live\_Pass"  
names(clus.23.24)[names(clus.23.24) == "Off Pass"] <- "Off\_Pass"  
names(clus.23.24)[names(clus.23.24) == "SCA90"] <- "SCA\_per\_90"  
names(clus.23.24)[names(clus.23.24) == "PassLive SCA"] <- "PassLive\_SCA"  
names(clus.23.24)[names(clus.23.24) == "Shot SCA"] <- "Shot\_SCA"  
names(clus.23.24)[names(clus.23.24) == "Take ons SCA"] <- "Take\_ons\_SCA"  
names(clus.23.24)[names(clus.23.24) == "Fouled SCA"] <- "Fouled\_SCA"  
names(clus.23.24)[names(clus.23.24) == "Def SCA"] <- "Def\_SCA"  
names(clus.23.24)[names(clus.23.24) == "Def Third Tkl"] <- "Def\_3rd\_Tkl"  
names(clus.23.24)[names(clus.23.24) == "Mid Third Tkl"] <- "Mid\_3rd\_Tkl"  
names(clus.23.24)[names(clus.23.24) == "Att Third Tkl"] <- "Att\_3rd\_Tkl"  
names(clus.23.24)[names(clus.23.24) == "Tkl dribble att"] <- "Tkl\_drib\_att"  
names(clus.23.24)[names(clus.23.24) == "Total Blocks"] <- "Tot\_Blocks"  
names(clus.23.24)[names(clus.23.24) == "Shots Blocked"] <- "Sh\_Blocked"  
names(clus.23.24)[names(clus.23.24) == "Passes Blocked"] <- "Pass\_Blocked"  
names(clus.23.24)[names(clus.23.24) == "Tkl.Int"] <- "Tkl\_Int"  
names(clus.23.24)[names(clus.23.24) == "Live Touch"] <- "Live\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Def Pen Touch"] <- "Def\_P\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Def Third Touch"] <- "Def\_3rd\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Mid Third Touch"] <- "Mid\_3rd\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Att Third Touch"] <- "Att\_3rd\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Att Pen Touch"] <- "Att\_P\_Touch"  
names(clus.23.24)[names(clus.23.24) == "Att Take ons"] <- "Att\_Take\_ons"  
names(clus.23.24)[names(clus.23.24) == "Total Carry Dist"] <- "Tot\_Car\_Dist"  
names(clus.23.24)[names(clus.23.24) == "Prg Carry Dist"] <- "Prg\_Car\_Dist"  
names(clus.23.24)[names(clus.23.24) == "Final Third Carry"] <- "Att\_3rd\_Car"  
names(clus.23.24)[names(clus.23.24) == "X2CrdY"] <- "CrdY\_2"  
names(clus.23.24)[names(clus.23.24) == "Aerial Won"] <- "Aerial\_W"

Removing unnecessary dataframes and instances

rm(a.23.24,b.23.24,c.23.24,d.23.24,e.23.24,f.23.24,subset\_AW\_R,subset\_tkl\_dr\_R,subset\_tkld\_R, subset\_G\_SoT\_na)  
sub\_clus\_23\_24 <- clus.23.24[clus.23.24$Min / 180 < clus.23.24$Start, ]

*ROLE CLUSTERING PREP* Retaining only the variables relevant to role clustering

sub\_clus\_df <- subset(sub\_clus\_23\_24, select = c(Player, X90s, PrgP, PrgR, PrgC, xAG\_per\_90, npxG\_per\_90, npxG\_xAG\_per\_90, Sh\_per\_90, Avg\_Shot\_Dist, npxG\_per\_Sh, Total\_Pass\_Dist, Prg\_Pass\_Dist, Short\_Att, Medium\_Att, Long\_Att, Live\_Pass, Crs, Off\_Pass, SCA\_per\_90, PassLive\_SCA, Shot\_SCA, Take\_ons\_SCA, Fouled\_SCA, Def\_SCA, Tkl, Def\_3rd\_Tkl, Mid\_3rd\_Tkl, Att\_3rd\_Tkl, Tkl\_drib\_att, Tot\_Blocks, Sh\_Blocked, Pass\_Blocked, Int, Tkl\_Int, Clr, Live\_Touch, Def\_P\_Touch, Def\_3rd\_Touch, Mid\_3rd\_Touch, Att\_3rd\_Touch, Att\_P\_Touch, Att\_Take\_ons, Tkld, Carries, Tot\_Car\_Dist, Prg\_Car\_Dist, Att\_3rd\_Car, CPA, Rec, Fls, Fld, Off, PKwon, PKcon, Recov, Aerial\_W))

Capturing all absolute variables in per 90 format

#variables to be transformed  
variables <- c("PrgP", "PrgR", "PrgC", "Total\_Pass\_Dist", "Prg\_Pass\_Dist",   
 "Short\_Att", "Medium\_Att", "Long\_Att", "Live\_Pass", "Crs",   
 "Off\_Pass", "PassLive\_SCA", "Shot\_SCA", "Take\_ons\_SCA",   
 "Fouled\_SCA", "Def\_SCA", "Tkl", "Def\_3rd\_Tkl", "Mid\_3rd\_Tkl",   
 "Att\_3rd\_Tkl", "Tkl\_drib\_att", "Tot\_Blocks", "Sh\_Blocked",   
 "Pass\_Blocked", "Int", "Tkl\_Int", "Clr", "Live\_Touch",   
 "Def\_P\_Touch", "Def\_3rd\_Touch", "Mid\_3rd\_Touch", "Att\_3rd\_Touch",   
 "Att\_P\_Touch", "Att\_Take\_ons", "Tkld", "Carries", "Tot\_Car\_Dist",   
 "Prg\_Car\_Dist", "Att\_3rd\_Car", "CPA", "Rec", "Fls", "Fld",   
 "Off", "PKwon", "PKcon", "Recov", "Aerial\_W")

Redefining all absolute variables in per 90 format

# Converting variables to numeric if they are not  
#clus\_df$X90s <- as.numeric(clus\_df$X90s)  
  
for (var in variables) {  
 sub\_clus\_df[[var]] <- as.numeric(sub\_clus\_df[[var]])  
}  
  
# Looping over each variable and perform the transformation  
for (var in variables) {  
 new\_var <- paste0(var, "\_per\_90")  
 sub\_clus\_df[[new\_var]] <- round(sub\_clus\_df[[var]] / sub\_clus\_df$X90s, 3)  
}

Removing original absolute variables

sub\_clus\_df <- sub\_clus\_df[, !names(sub\_clus\_df) %in% variables]

Finalizing the cluster dataframe

#Removing the "X90s" variable as it is irrelevant to clustering  
sub\_clus\_df <- sub\_clus\_df[, !names(sub\_clus\_df) %in% "X90s"]  
  
#Removing this variable as certain players have zero shots and taking them out will significantly minimize the number of available observations  
sub\_clus\_df <- sub\_clus\_df[, !names(sub\_clus\_df) %in% "npxG\_per\_Sh"]  
  
#Reintroducing Player Position  
sub\_clus\_df <- merge(sub\_clus\_df, clus.23.24[, c("Player", "Pos")])

Removing repeated instances

sub\_clus\_df <- sub\_clus\_df %>%  
 slice(-c(68, 70, 403, 405))

Removing the NA values

sub\_clus\_df[is.na(sub\_clus\_df)] <- 0

Subsetting the dataframe by player position

# Subset for "DF"  
subset\_DF\_b <- sub\_clus\_df %>%  
 filter(grepl("DF", Pos))  
  
# Subset for "MF"  
subset\_MF\_b <- sub\_clus\_df %>%  
 filter(grepl("MF", Pos))  
  
# Subset for "FW"  
subset\_FW\_b <- sub\_clus\_df %>%  
 filter(grepl("FW", Pos))

Removing the Player and Pos variable for Principal Component Analysis

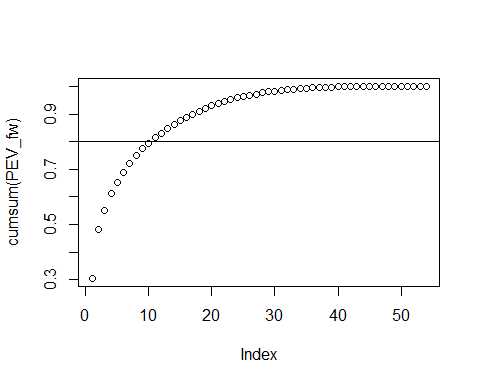
subset\_FW\_num\_b <- subset\_FW\_b[, !names(subset\_FW\_b) %in% c("Player", "Pos")]  
subset\_MF\_num\_b <- subset\_MF\_b[, !names(subset\_MF\_b) %in% c("Player", "Pos")]  
subset\_DF\_num\_b <- subset\_DF\_b[, !names(subset\_DF\_b) %in% c("Player", "Pos")]

*PRINCIPAL COMPONENT ANALYSIS (Forwards)* Applying PCA to potentially reduce the number of variables and possibly simplify the supervised learning methods applied in the next stage

set.seed(4)  
  
pca\_fw <- prcomp(subset\_FW\_num\_b, center = T, scale. = T)  
  
#Variance of each Principal Component Variable  
pc\_var\_fw <- pca\_fw$sdev^2  
  
#Proportion of explained variance  
PEV\_fw <- pc\_var\_fw/sum(pc\_var\_fw)

Plotting the cumulative sum of explained variance proportions. First 11 PC’s are viable

plot(cumsum(PEV\_fw))  
abline(h=0.8)

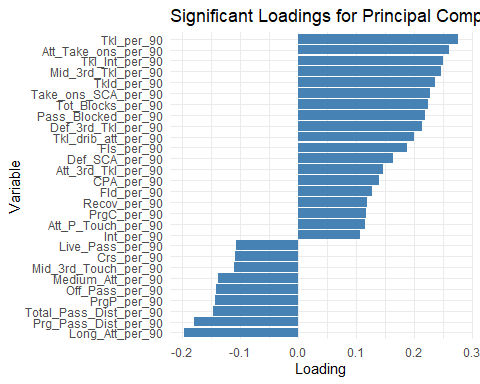
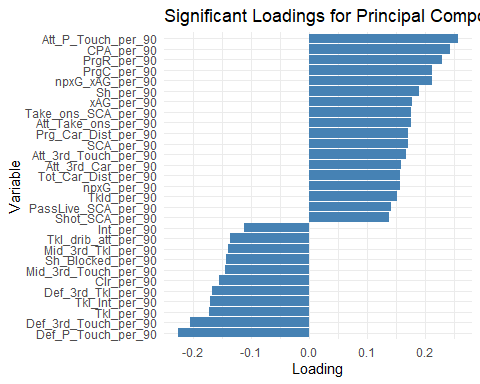
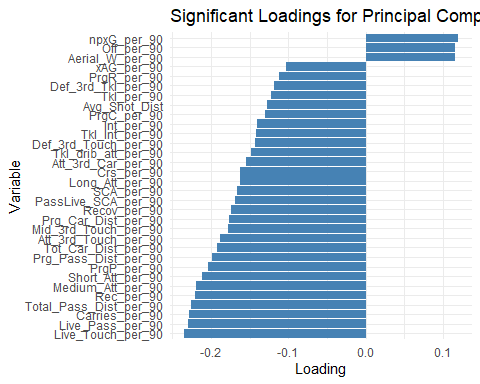


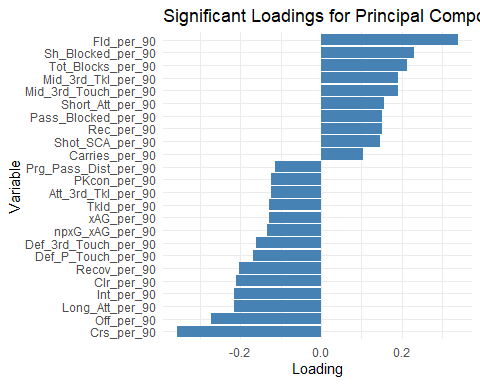
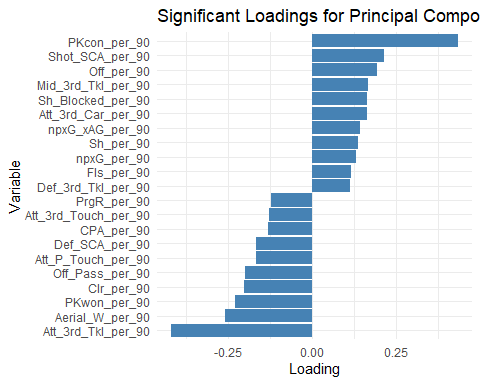
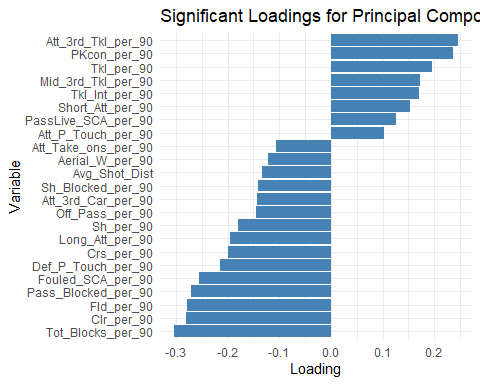
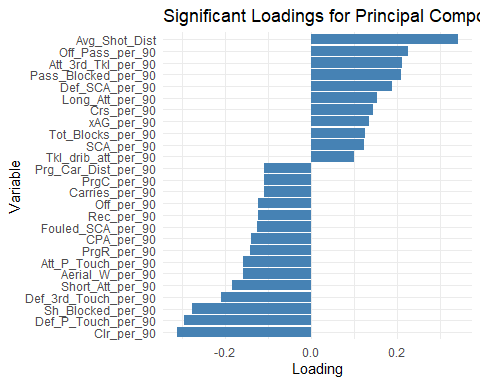
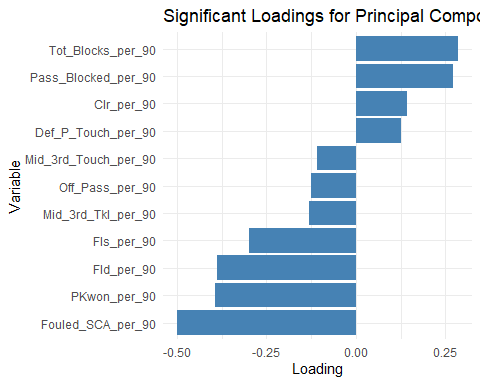
cumsum(PEV\_fw)

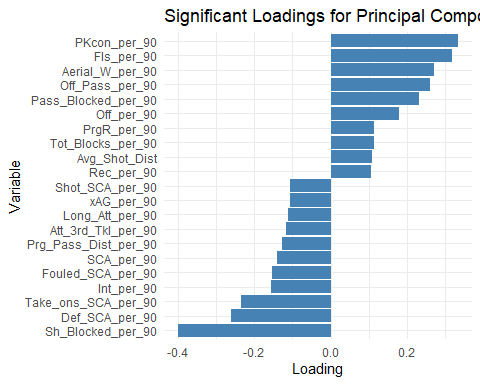
## [1] 0.3055197 0.4818392 0.5529258 0.6127638 0.6521262 0.6882707 0.7222349  
## [8] 0.7497777 0.7739123 0.7947722 0.8145620 0.8314127 0.8474196 0.8622901  
## [15] 0.8760846 0.8882250 0.8997637 0.9106154 0.9204498 0.9299371 0.9382660  
## [22] 0.9454799 0.9521466 0.9582565 0.9632408 0.9681530 0.9724192 0.9764009  
## [29] 0.9799165 0.9831914 0.9860210 0.9884238 0.9904195 0.9919761 0.9933620  
## [36] 0.9946584 0.9957405 0.9966423 0.9973928 0.9980937 0.9985873 0.9989380  
## [43] 0.9992561 0.9994767 0.9996685 0.9998112 0.9998970 0.9999563 0.9999942  
## [50] 0.9999978 1.0000000 1.0000000 1.0000000 1.0000000

pc\_fw <- as.data.frame(pca\_fw$x[,1:11])

# Initializing an empty list to store the plots  
fwplots <- list()  
  
# Looping through the first 11 principal components  
for (i in 1:11) {  
 # Extracting loadings for the current principal component  
 fw\_PC <- pca\_fw$rotation[, i]  
   
 # Filtering loadings with absolute values >= 0.1  
 fws\_PC <- fw\_PC[abs(fw\_PC) >= 0.1]  
   
 # Creating a data frame for plotting  
 dfws\_PC <- data.frame(  
 variable = names(fws\_PC),  
 loading = fws\_PC  
 )  
   
 # Creating the bar plot  
 fwp <- ggplot(dfws\_PC, aes(x = reorder(variable, loading), y = loading)) +  
 geom\_bar(stat = "identity", fill = "steelblue") +  
 coord\_flip() + # Flipped coordinates for better readability  
 theme\_minimal() +  
 labs(title = paste("Significant Loadings for Principal Component", i),  
 x = "Variable",  
 y = "Loading")  
   
 # Storing the plot in the list  
 fwplots[[i]] <- fwp  
}  
  
# Printing plots  
for (i in 1:11) {  
 print(fwplots[[i]])  
}

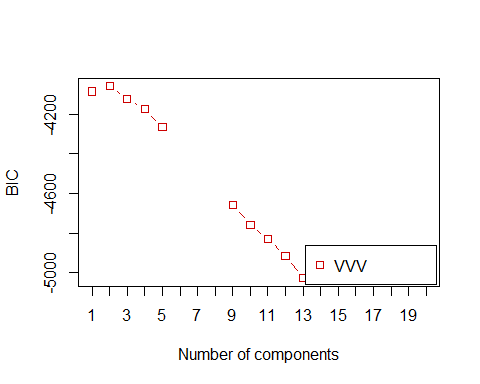
A graph showing a bar graph

Description automatically generatedA graph showing a bar graph

Description automatically generated

# Saving the plots  
for (i in 1:6) {  
 ggsave(paste0("fwplot\_", i, ".png"), plot = fwplots[[i]], width = 8, height = 6)  
}

bic\_values\_fw <- mclustBIC(pc\_fw[,1:6], modelNames = "VVV", G = 1:20)  
plot(bic\_values\_fw)



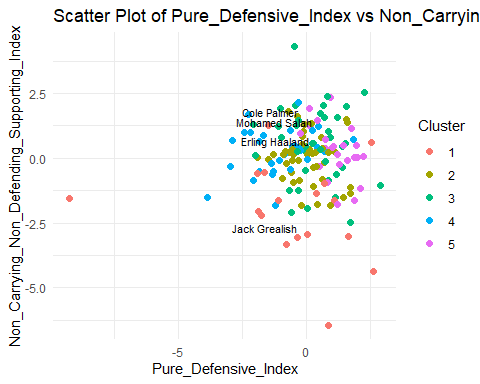
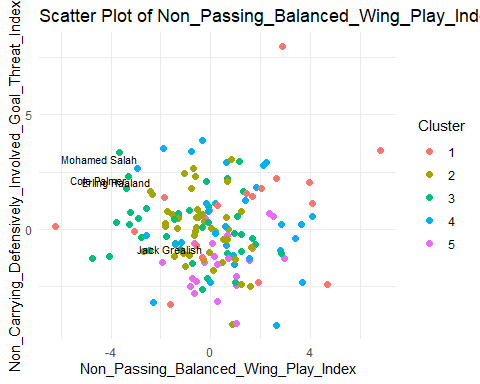
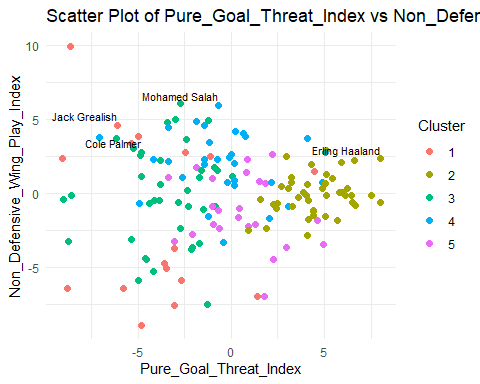
*CLUSTERING (Forwards)*

# Apply Gaussian Mixture Models (GMM) clustering  
gmm\_fw <- Mclust(pc\_fw[,1:6], G = 5, modelNames = "VVV")   
# Extracting cluster assignments  
gmm\_cluster\_id\_fw <- gmm\_fw$classification

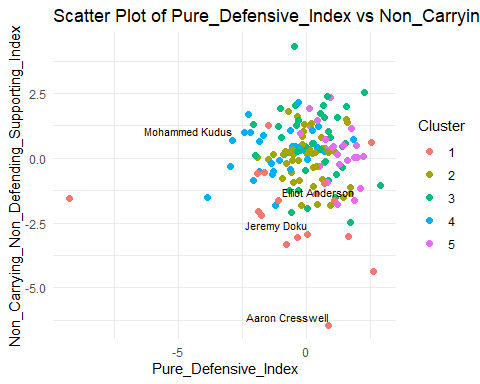
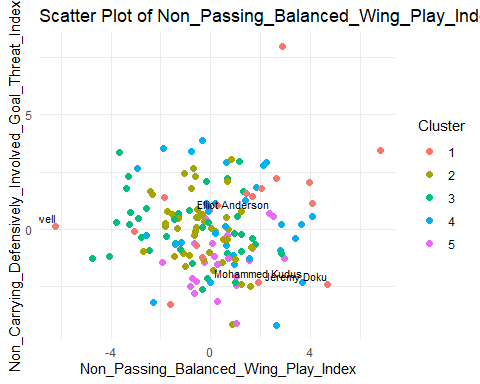
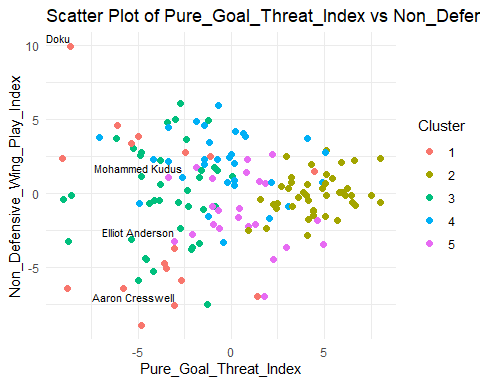
# Renaming the first 6 variables in pc\_fw  
colnames(pc\_fw)[1:6] <- c(  
 "Pure\_Goal\_Threat\_Index",  
 "Non\_Defensive\_Wing\_Play\_Index",  
 "Non\_Passing\_Balanced\_Wing\_Play\_Index",  
 "Non\_Carrying\_Defensively\_Involved\_Goal\_Threat\_Index",  
 "Pure\_Defensive\_Index",  
 "Non\_Carrying\_Non\_Defending\_Supporting\_Index"  
)

# Creating a dataframe for plotting  
plot\_data\_FW <- data.frame(pc\_fw[, 1:6], Cluster = factor(gmm\_fw$classification))  
  
# Adding Player names from subset\_FW\_b to plot\_data\_FW  
plot\_data\_FW$Player <- subset\_FW\_b$Player  
  
# Defining the pairs using the new column names  
pc\_pairs\_FW <- list(  
 c("Pure\_Goal\_Threat\_Index", "Non\_Defensive\_Wing\_Play\_Index"),  
 c("Non\_Passing\_Balanced\_Wing\_Play\_Index", "Non\_Carrying\_Defensively\_Involved\_Goal\_Threat\_Index"),  
 c("Pure\_Defensive\_Index", "Non\_Carrying\_Non\_Defending\_Supporting\_Index")  
)  
  
# Specifying the indices of the players to label  
indices\_to\_label <- c(39, 57, 70, 112)  
#indices\_to\_label <- c(1, 37, 27, 11, 2)  
  
# Looping through the pairs and creating scatter plots  
for (pair in pc\_pairs\_FW) {  
 p <- ggplot(plot\_data\_FW, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 geom\_text(data = plot\_data\_FW[indices\_to\_label, ], aes\_string(label = "Player"),  
 vjust = -0.5, hjust = 1, size = 3, color = "black") +   
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 print(p)  
}

## Warning: `aes\_string()` was deprecated in ggplot2 3.0.0.  
## ℹ Please use tidy evaluation idioms with `aes()`.  
## ℹ See also `vignette("ggplot2-in-packages")` for more information.  
## This warning is displayed once every 8 hours.  
## Call `lifecycle::last\_lifecycle\_warnings()` to see where this warning was  
## generated.



# Specifying the indices of the players to label  
indices\_to\_label <- c(1, 55, 83, 113)  
  
# Looping through pairs and creating scatter plots  
for (i in seq\_along(pc\_pairs\_FW)) {  
 pair <- pc\_pairs\_FW[[i]]  
 p <- ggplot(plot\_data\_FW, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 geom\_text(data = plot\_data\_FW[indices\_to\_label, ], aes\_string(label = "Player"),  
 vjust = -0.5, hjust = 1, size = 3, color = "black") +   
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Saving   
 if (i == 3) {  
 ggsave("fwc\_plot3.png", plot = p, device = "png", width = 8, height = 6)  
 }  
   
 # Printing   
 print(p)  
}



# Looping for scatter plots  
for (pair in pc\_pairs\_FW) {  
 p <- ggplot(plot\_data\_FW, aes\_string(x = pair[1], y = pair[2], color = "Cluster", text = "Player")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Converting to plotly  
 p\_interactive <- ggplotly(p, tooltip = "text")  
   
 # Printing plot  
 print(p\_interactive)  
}

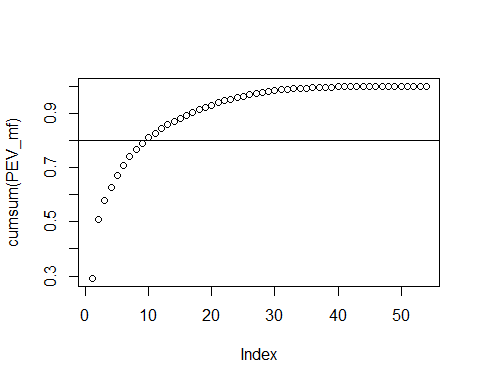
normalize <- function(x) {  
 return ((x - min(x)) / (max(x) - min(x)))  
}

*PRINCIPAL COMPONENT ANALYSIS (Midfielders)* MF PCA Applying PCA to potentially reduce the number of variables and possibly simplify the supervised learning methods applied in the next stage

pca\_mf <- prcomp(subset\_MF\_num\_b, center = T, scale. = T)  
  
#Variance of each Principal Component Variable  
pc\_var\_mf <- pca\_mf$sdev^2  
  
#Proportion of explained variance  
PEV\_mf <- pc\_var\_mf/sum(pc\_var\_mf)

Plotting the cumulative sum of explained variance proportions.

plot(cumsum(PEV\_mf))  
abline(h=0.8)

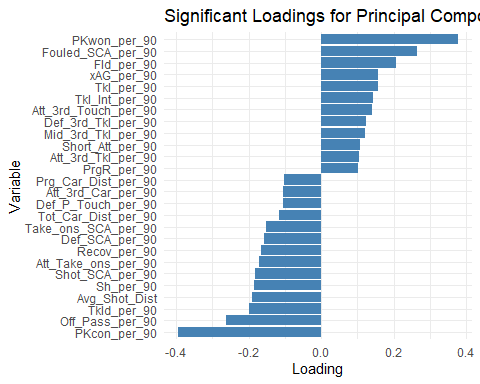
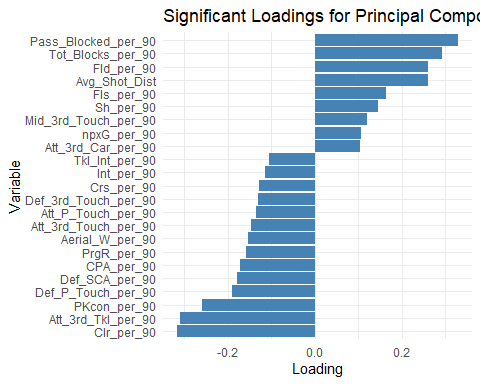
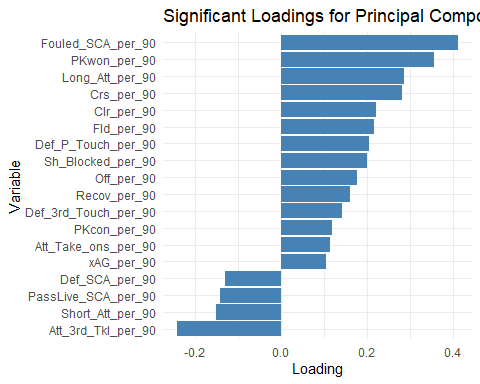
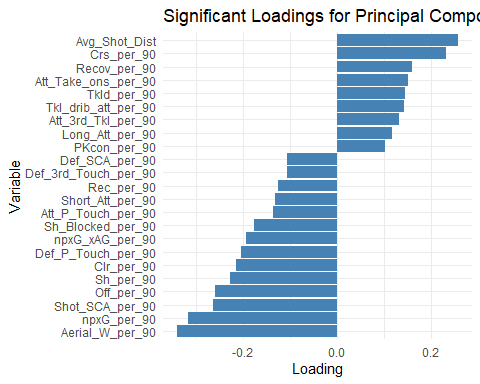
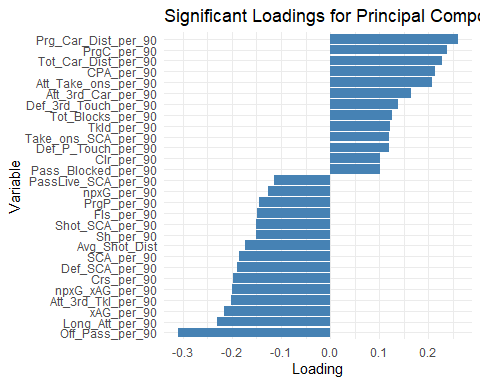
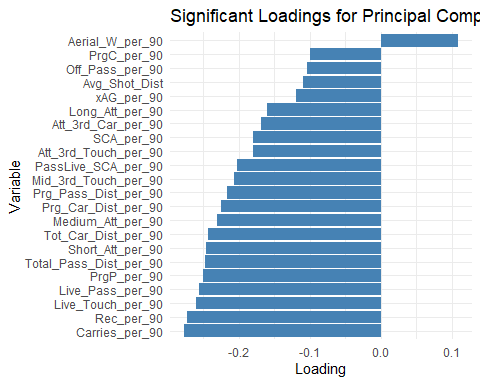
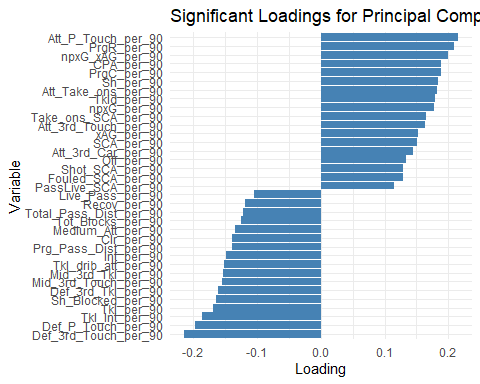


cumsum(PEV\_mf)

## [1] 0.2915101 0.5083806 0.5800550 0.6278147 0.6725494 0.7098532 0.7407518  
## [8] 0.7671021 0.7901580 0.8107221 0.8279148 0.8440284 0.8582305 0.8710688  
## [15] 0.8831413 0.8943138 0.9044042 0.9139171 0.9231247 0.9312405 0.9389517  
## [22] 0.9461398 0.9526397 0.9586424 0.9640244 0.9690121 0.9737324 0.9779168  
## [29] 0.9818120 0.9851857 0.9877004 0.9896803 0.9911721 0.9925303 0.9938369  
## [36] 0.9949968 0.9960047 0.9968508 0.9974940 0.9980539 0.9985711 0.9989870  
## [43] 0.9992987 0.9995488 0.9997130 0.9998299 0.9999118 0.9999591 0.9999945  
## [50] 0.9999984 1.0000000 1.0000000 1.0000000 1.0000000

pc\_mf <- as.data.frame(pca\_mf$x[,1:10])

# Initializing lists  
mfplots <- list()  
  
# Loopeing through  
for (i in 1:10) {  
 # Extracting loadings  
 mf\_PC <- pca\_mf$rotation[, i]  
   
 # Filter loadings with absolute values >= 0.1  
 mfs\_PC <- mf\_PC[abs(mf\_PC) >= 0.1]  
   
 # Creating a data frame for plotting  
 dmfs\_PC <- data.frame(  
 variable = names(mfs\_PC),  
 loading = mfs\_PC  
 )  
   
 # bar plot  
 mfp <- ggplot(dmfs\_PC, aes(x = reorder(variable, loading), y = loading)) +  
 geom\_bar(stat = "identity", fill = "steelblue") +  
 coord\_flip() + # Flipping coordinates  
 theme\_minimal() +  
 labs(title = paste("Significant Loadings for Principal Component", i),  
 x = "Variable",  
 y = "Loading")  
   
 # Storing plot  
 mfplots[[i]] <- mfp  
}  
  
# Printing plots  
for (i in 1:10) {  
 print(mfplots[[i]])  
}



# Saving   
for (i in 1:7) {  
 ggsave(paste0("mfplot\_", i, ".png"), plot = mfplots[[i]], width = 8, height = 6)  
}

bic\_values\_mf <- mclustBIC(pc\_mf[,1:7], modelNames = "VVV", G = 1:20)  
plot(bic\_values\_mf)

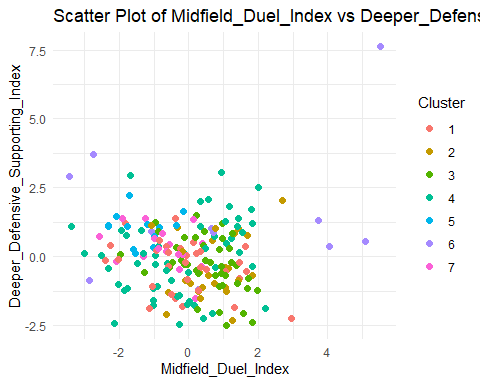
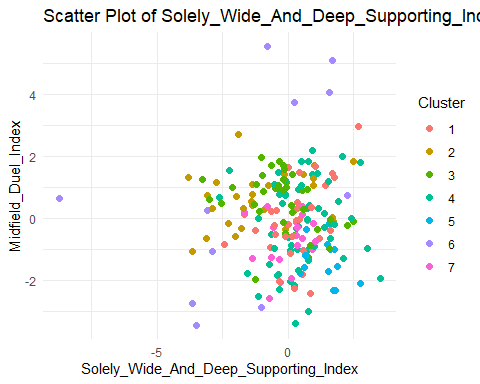
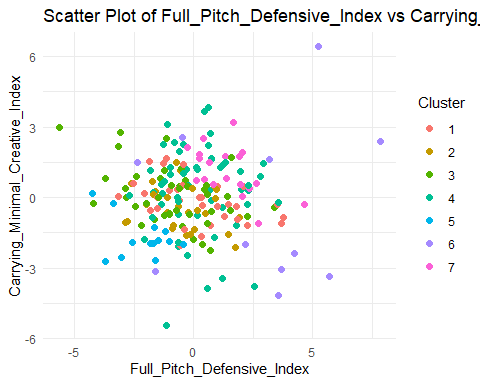
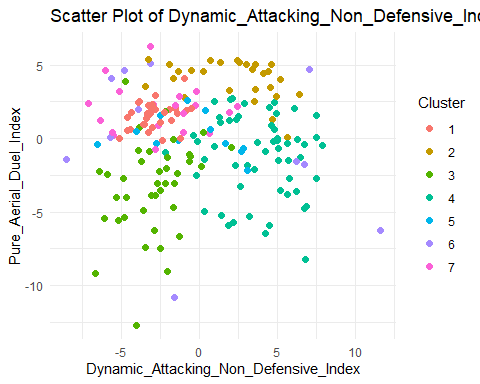


*CLUSTERING (Midfielders)*

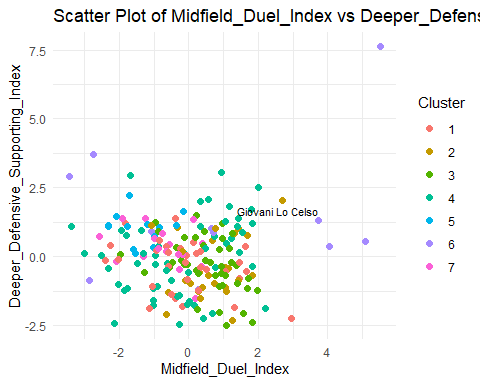
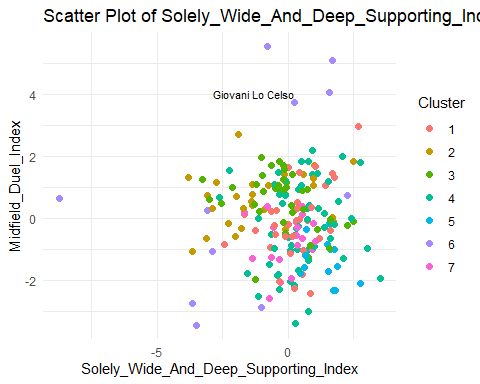
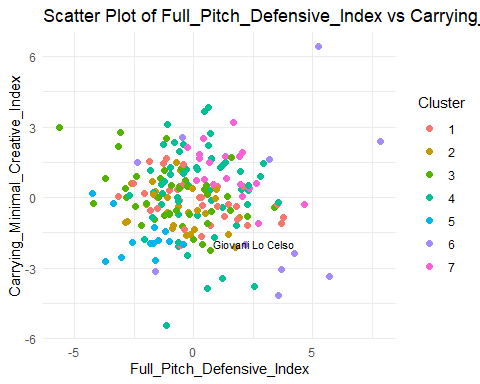
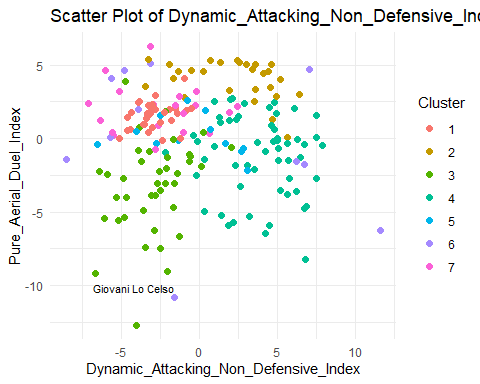
# Apply Gaussian Mixture Models (GMM) clustering  
gmm\_mf <- Mclust(pc\_mf[,1:7], G = 7, modelNames = "VVV")   
# Extracting cluster assignments  
gmm\_cluster\_id\_mf <- gmm\_mf$classification

# Renaming the first 6 variables in pc\_fw  
colnames(pc\_mf)[1:7] <- c(  
 "Dynamic\_Attacking\_Non\_Defensive\_Index",  
 "Pure\_Aerial\_Duel\_Index",  
 "Full\_Pitch\_Defensive\_Index",  
 "Carrying\_Minimal\_Creative\_Index",  
 "Solely\_Wide\_And\_Deep\_Supporting\_Index",  
 "Midfield\_Duel\_Index",  
 "Deeper\_Defensive\_Supporting\_Index"  
)

# dataframe for plotting  
plot\_data\_MF <- data.frame(pc\_mf[, 1:7], Cluster = factor(gmm\_mf$classification))  
  
# Adding player names from subset\_FW\_b to plot\_data\_FW  
plot\_data\_MF$Player <- subset\_MF\_b$Player  
  
# Defining the pairs using the new column names  
pc\_pairs\_MF <- list(  
 c("Dynamic\_Attacking\_Non\_Defensive\_Index", "Pure\_Aerial\_Duel\_Index"),  
 c("Full\_Pitch\_Defensive\_Index", "Carrying\_Minimal\_Creative\_Index"),  
 c("Solely\_Wide\_And\_Deep\_Supporting\_Index", "Midfield\_Duel\_Index"),  
 c("Midfield\_Duel\_Index", "Deeper\_Defensive\_Supporting\_Index")  
)  
  
  
for (pair in pc\_pairs\_MF) {  
 p <- ggplot(plot\_data\_MF, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 theme\_minimal()  
   
 print(p)  
}



# Specifying the indices of players to label  
indices\_to\_label <- c(67)  
  
# Looping and scatter plots  
for (i in seq\_along(pc\_pairs\_MF)) {  
 pair <- pc\_pairs\_MF[[i]]  
 p <- ggplot(plot\_data\_MF, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 geom\_text(data = plot\_data\_MF[indices\_to\_label, ], aes\_string(label = "Player"),  
 vjust = -0.5, hjust = 1, size = 3, color = "black") +   
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Saving  
 if (i == 4) {  
 ggsave("mfc\_plot4.png", plot = p, device = "png", width = 8, height = 6)  
 }  
   
   
 print(p)  
}



# Looping and plotting  
for (pair in pc\_pairs\_MF) {  
 p <- ggplot(plot\_data\_MF, aes\_string(x = pair[1], y = pair[2], color = "Cluster", text = "Player")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Converting to plotly   
 p\_interactive <- ggplotly(p, tooltip = "text")  
   
   
 print(p\_interactive)  
}

*PRINCIPAL COMPONENT ANALYSIS (Defenders)*

pca\_df <- prcomp(subset\_DF\_num\_b, center = T, scale. = T)  
  
#Variance of each Principal Component Variable  
pc\_var\_df <- pca\_df$sdev^2  
  
#Proportion of explained variance  
PEV\_df <- pc\_var\_df/sum(pc\_var\_df)

Plotting the cumulative sum of explained variance proportions.

plot(cumsum(PEV\_df))  
abline(h=0.8)

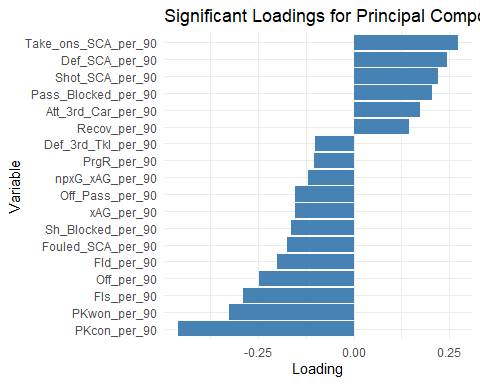
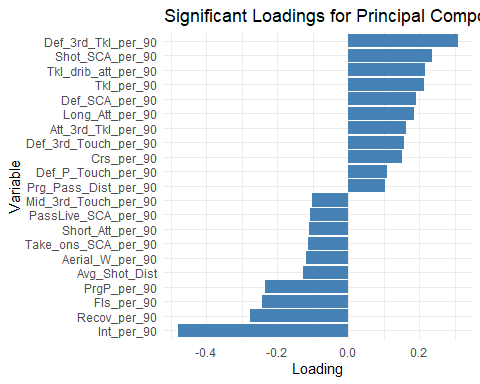
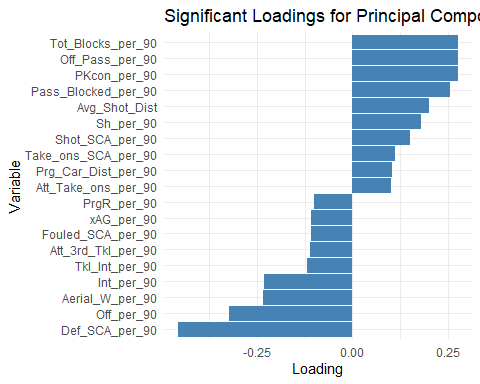
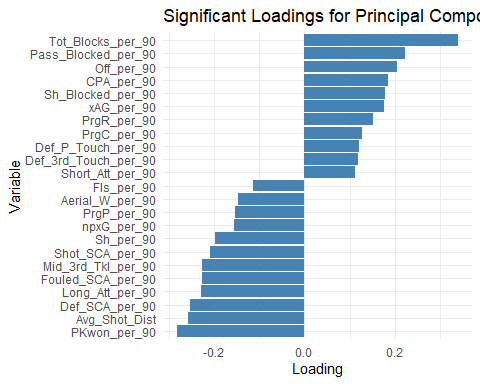
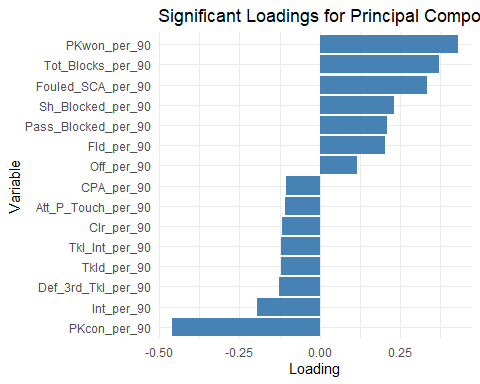
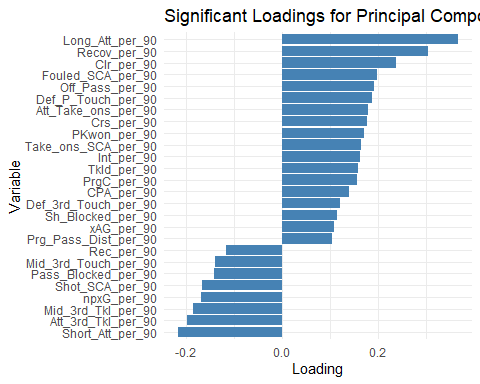
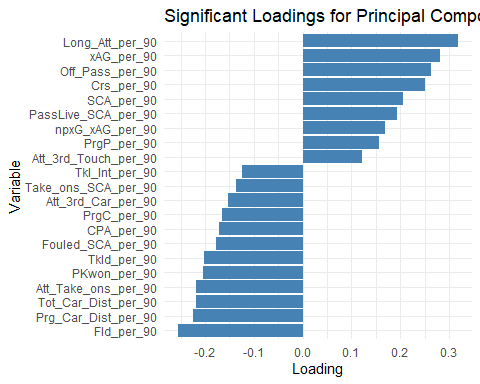
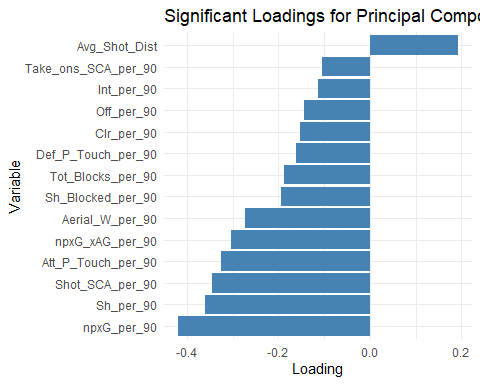
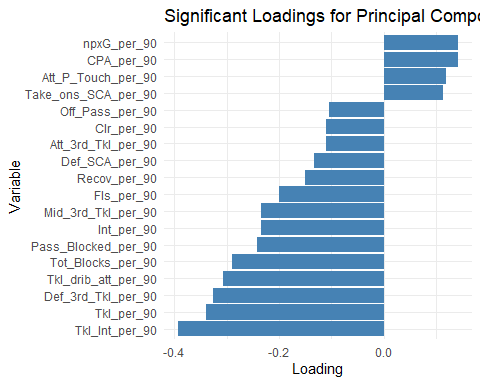
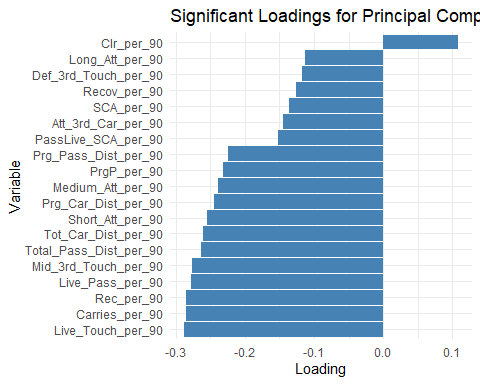
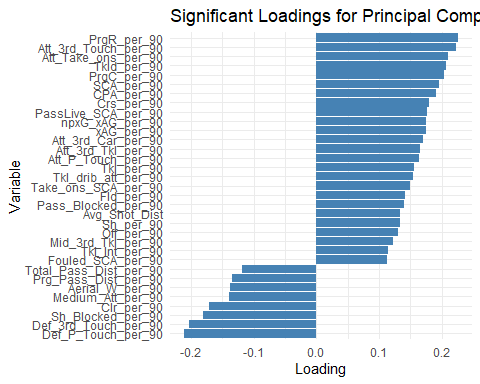


cumsum(PEV\_df)

## [1] 0.2850840 0.4874430 0.5627805 0.6189731 0.6644246 0.6963421 0.7220228  
## [8] 0.7453918 0.7675277 0.7871262 0.8061588 0.8231947 0.8397822 0.8539076  
## [15] 0.8672321 0.8793042 0.8904563 0.9013049 0.9119737 0.9221221 0.9311943  
## [22] 0.9398481 0.9477833 0.9546935 0.9608824 0.9659003 0.9705353 0.9744562  
## [29] 0.9782624 0.9815518 0.9845310 0.9870312 0.9891766 0.9910099 0.9926786  
## [36] 0.9940994 0.9952475 0.9962622 0.9971829 0.9978785 0.9984701 0.9988992  
## [43] 0.9992338 0.9994943 0.9997047 0.9998233 0.9999224 0.9999519 0.9999774  
## [50] 0.9999992 1.0000000 1.0000000 1.0000000 1.0000000

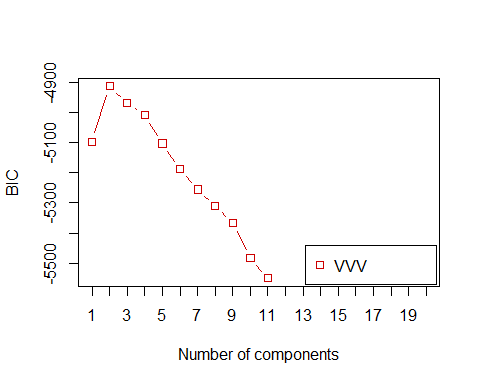
pc\_df <- as.data.frame(pca\_df$x[,1:11])

# storing the plots  
dfplots <- list()  
  
# Looping  
for (i in 1:11) {  
 # Extracting loadings   
 df\_PC <- pca\_df$rotation[, i]  
   
 # Filtering loadings with absolute values >= 0.1  
 dfs\_PC <- df\_PC[abs(df\_PC) >= 0.1]  
   
 # data frame for plotting  
 ddfs\_PC <- data.frame(  
 variable = names(dfs\_PC),  
 loading = dfs\_PC  
 )  
   
 # bar plot  
 dfp <- ggplot(ddfs\_PC, aes(x = reorder(variable, loading), y = loading)) +  
 geom\_bar(stat = "identity", fill = "steelblue") +  
 coord\_flip() + # Flipping coordinates for readability  
 theme\_minimal() +  
 labs(title = paste("Significant Loadings for Principal Component", i),  
 x = "Variable",  
 y = "Loading")  
   
 # Storing the plot   
 dfplots[[i]] <- dfp  
}  
  
# Printing the plots  
for (i in 1:11) {  
 print(dfplots[[i]])  
}



# Saving  
for (i in 1:6) {  
 ggsave(paste0("dfplot\_", i, ".png"), plot = dfplots[[i]], width = 8, height = 6)  
}

bic\_values\_df <- mclustBIC(pc\_df[,1:6], modelNames = "VVV", G = 1:20)  
plot(bic\_values\_df)

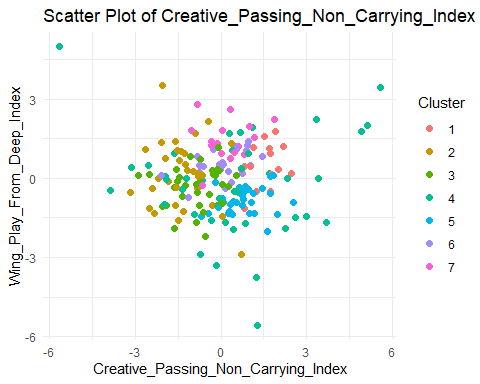
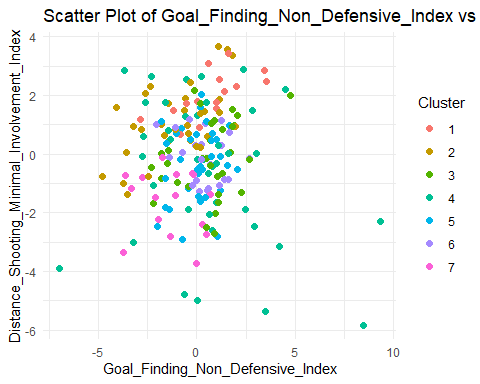
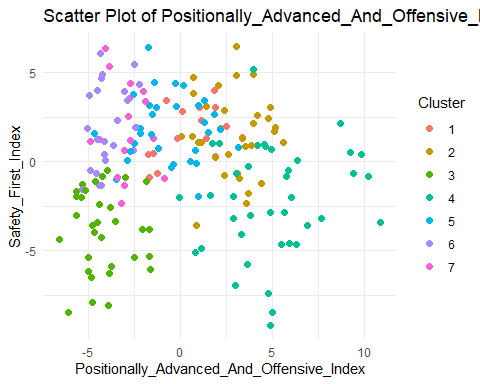


*CLUSTERING (Defenders)*

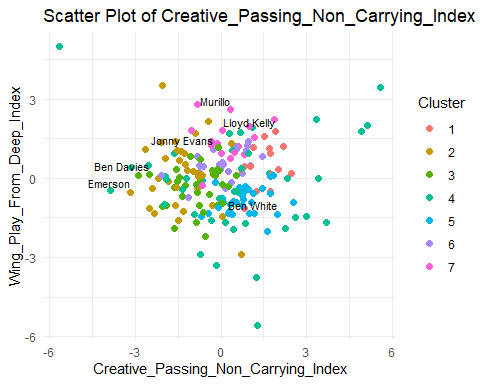
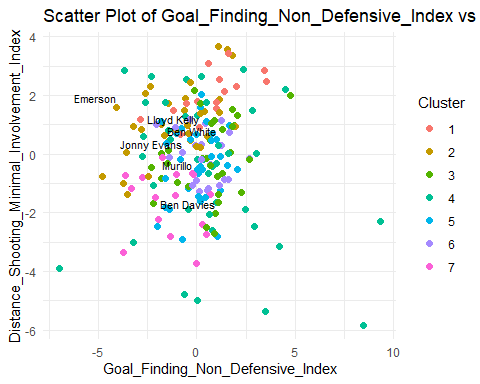
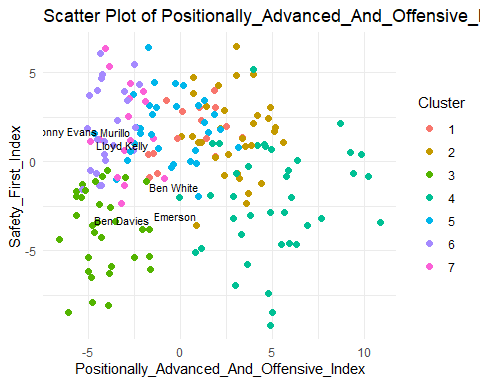
# Apply Gaussian Mixture Models (GMM) clustering  
gmm\_df <- Mclust(pc\_df[,1:6], G = 7, modelNames = "VVV")   
# Extracting cluster assignments  
gmm\_cluster\_id\_df <- gmm\_df$classification

# Renaming the first 6 variables in pc\_fw  
colnames(pc\_df)[1:6] <- c(  
 "Positionally\_Advanced\_And\_Offensive\_Index",  
 "Safety\_First\_Index",  
 "Goal\_Finding\_Non\_Defensive\_Index",  
 "Distance\_Shooting\_Minimal\_Involvement\_Index",  
 "Creative\_Passing\_Non\_Carrying\_Index",  
 "Wing\_Play\_From\_Deep\_Index"  
)

# dataframe for plotting  
plot\_data\_DF <- data.frame(pc\_df[, 1:6], Cluster = factor(gmm\_df$classification))  
  
# Player names from subset\_FW\_b to plot\_data\_FW  
plot\_data\_DF$Player <- subset\_DF\_b$Player  
  
# Defining pairs using new column names  
pc\_pairs\_DF <- list(  
 c("Positionally\_Advanced\_And\_Offensive\_Index", "Safety\_First\_Index"),  
 c("Goal\_Finding\_Non\_Defensive\_Index", "Distance\_Shooting\_Minimal\_Involvement\_Index"),  
 c("Creative\_Passing\_Non\_Carrying\_Index", "Wing\_Play\_From\_Deep\_Index")  
)   
  
for (pair in pc\_pairs\_DF) {  
 p <- ggplot(plot\_data\_DF, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 theme\_minimal()  
   
 print(p)  
}



indices\_to\_label <- c(21, 26, 48, 91, 106, 131)  
  
# Looping and scatter plots  
for (i in seq\_along(pc\_pairs\_DF)) {  
 pair <- pc\_pairs\_DF[[i]]  
 p <- ggplot(plot\_data\_DF, aes\_string(x = pair[1], y = pair[2], color = "Cluster")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 geom\_text(data = plot\_data\_DF[indices\_to\_label, ], aes\_string(label = "Player"),  
 vjust = -0.5, hjust = 1, size = 3, color = "black") +   
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Saving  
 if (i == 3) {  
 ggsave("dfc\_plot3.png", plot = p, device = "png", width = 8, height = 6)  
 }  
   
   
 print(p)  
}



# Looping and plots  
for (pair in pc\_pairs\_DF) {  
 p <- ggplot(plot\_data\_DF, aes\_string(x = pair[1], y = pair[2], color = "Cluster", text = "Player")) +  
 geom\_point(size = 2) +  
 ggtitle(paste("Scatter Plot of", pair[1], "vs", pair[2], "with GMM Clusters")) +  
 theme\_minimal() +  
 xlab(pair[1]) +  
 ylab(pair[2])  
   
 # Converting to an plotly   
 p\_interactive <- ggplotly(p, tooltip = "text")  
   
 # Printing the plot  
 print(p\_interactive)  
}

Viewing Players In The Clusters

cluster\_subsets <- list()  
  
# Looping through each cluster id (1 to 9)  
for (cluster\_id in 1:10) {  
 # Subsetting the original data based on cluster assignments  
 cluster\_subset <- subset\_DF\_b[gmm\_df$classification == cluster\_id, ]  
 #cluster\_subset <- subset\_MF\_b[k\_mf$cluster == cluster\_id, ]  
   
 # Storing the subset dataframe in the list  
 cluster\_subsets[[cluster\_id]] <- cluster\_subset  
}  
  
# Printing the first few rows of each subset dataframe to verify  
for (i in 1:10) {  
 cat("Cluster", i, "subset:\n")  
 print(head(cluster\_subsets[[i]]))  
 cat("\n")  
}

## Cluster 1 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 1 Aaron Cresswell 0.09 0.00 0.09 0.00  
## 4 Adam Smith 0.05 0.00 0.06 0.08  
## 17 Ashley Young 0.06 0.02 0.08 0.51  
## 25 Ben Osborn 0.06 0.01 0.07 0.26  
## 30 Charlie Taylor 0.05 0.01 0.06 0.39  
## 36 Connor Roberts 0.02 0.00 0.02 0.00  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 1 0.0 2.48 5.417 1.250 0.833  
## 4 26.9 1.30 3.724 1.172 1.004  
## 17 21.9 2.29 3.241 2.411 1.581  
## 25 23.5 1.58 3.618 2.895 1.053  
## 30 25.8 1.31 3.166 3.127 1.390  
## 36 0.0 1.97 4.176 1.429 0.659  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 1 870.000 358.750 32.292  
## 4 532.301 218.619 18.536  
## 17 504.032 223.439 15.257  
## 25 460.987 174.342 18.487  
## 30 638.417 204.324 22.780  
## 36 767.802 260.440 20.000  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 1 20.000 10.000 51.042 2.292  
## 4 16.778 5.900 33.180 1.632  
## 17 15.178 8.656 32.846 3.953  
## 25 12.763 5.921 34.605 3.092  
## 30 18.842 6.525 42.432 2.741  
## 36 24.396 7.363 44.615 1.099  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 1 0.000 1.458 0.000 0.00  
## 4 0.126 1.088 0.000 0.00  
## 17 0.356 1.502 0.158 0.04  
## 25 0.329 1.447 0.000 0.00  
## 30 0.270 1.158 0.077 0.00  
## 36 0.220 1.429 0.000 0.00  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 1 0.417 0.000 0.625 0.208  
## 4 0.042 0.000 1.548 0.753  
## 17 0.119 0.079 2.095 1.107  
## 25 0.066 0.000 1.447 0.724  
## 30 0.039 0.039 1.351 0.734  
## 36 0.000 0.000 1.319 0.659  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 1 0.208 0.208 0.625 1.042  
## 4 0.460 0.335 1.632 1.172  
## 17 0.751 0.237 2.134 0.949  
## 25 0.592 0.132 1.118 1.184  
## 30 0.541 0.077 1.351 1.042  
## 36 0.440 0.220 1.868 0.879  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 1 0.625 0.417 0.625 1.250 1.458  
## 4 0.460 0.711 0.879 2.427 2.594  
## 17 0.237 0.711 0.870 2.964 1.976  
## 25 0.132 1.053 0.526 1.974 1.974  
## 30 0.425 0.618 0.734 2.085 3.012  
## 36 0.659 0.220 0.440 1.758 2.747  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 1 67.917 3.750 26.042  
## 4 51.423 3.849 16.904  
## 17 50.751 3.043 14.941  
## 25 48.355 2.434 13.816  
## 30 59.537 4.440 19.421  
## 36 61.209 3.077 20.000  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 1 29.375 12.708 0.208  
## 4 22.469 12.343 0.460  
## 17 21.897 14.427 0.791  
## 25 20.724 14.211 0.592  
## 30 26.216 14.286 0.695  
## 36 28.462 13.187 0.659  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 1 0.208 0.208 35.208 108.750  
## 4 0.628 0.335 21.799 102.720  
## 17 1.067 0.474 24.071 114.980  
## 25 0.921 0.461 24.539 107.895  
## 30 0.656 0.232 27.915 125.830  
## 36 0.220 0.220 33.956 127.802  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 1 45.833 1.042 0.000 43.750 0.417  
## 4 42.762 0.921 0.126 24.268 1.255  
## 17 58.893 0.949 0.198 25.810 1.304  
## 25 49.408 0.724 0.066 27.566 0.526  
## 30 57.799 0.695 0.193 33.243 0.772  
## 36 68.132 1.099 0.000 39.341 0.549  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 1 0.625 0.208 0.00 0.000 3.750 1.250  
## 4 0.921 0.042 0.00 0.084 3.849 0.753  
## 17 0.949 0.040 0.04 0.040 4.743 0.751  
## 25 0.592 0.066 0.00 0.000 5.263 0.395  
## 30 0.618 0.077 0.00 0.000 4.093 1.583  
## 36 0.989 0.330 0.00 0.000 4.396 0.659  
## Pos  
## 1 DF,FW  
## 4 DF  
## 17 DF,MF  
## 25 DF,MF  
## 30 DF  
## 36 DF  
##   
## Cluster 2 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 2 Aaron Hickey 0.01 0.03 0.04 0.88  
## 3 Aaron Wan-Bissaka 0.08 0.01 0.08 0.15  
## 9 Amari'i Bell 0.02 0.01 0.04 0.10  
## 11 Andre Brooks 0.01 0.04 0.05 0.86  
## 16 Antonee Robinson 0.11 0.02 0.13 0.44  
## 23 Ben Johnson 0.00 0.03 0.03 0.99  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 2 25.3 0.88 2.658 1.646 1.139  
## 3 20.2 1.31 3.889 2.727 1.515  
## 9 18.8 1.31 3.979 0.524 1.675  
## 11 19.5 0.86 1.731 2.115 1.154  
## 16 22.9 1.90 3.554 5.344 2.727  
## 23 24.1 1.49 3.667 5.500 2.833  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 2 482.658 113.165 17.722  
## 3 546.667 178.737 30.253  
## 9 559.162 234.031 19.476  
## 11 282.981 49.135 12.596  
## 16 752.176 270.799 21.928  
## 23 636.000 244.167 26.000  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 2 13.418 2.532 32.152 0.633  
## 3 14.394 1.919 42.374 0.707  
## 9 16.492 5.654 40.995 0.681  
## 11 9.327 1.827 24.231 0.769  
## 16 22.397 8.926 47.824 3.636  
## 23 20.167 5.500 48.167 5.167  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 2 0.000 0.759 0.000 0.000  
## 3 0.101 1.212 0.000 0.000  
## 9 0.209 1.152 0.000 0.000  
## 11 0.000 0.577 0.096 0.192  
## 16 0.110 1.736 0.000 0.055  
## 23 0.333 1.167 0.000 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 2 0.127 0.000 2.025 1.139  
## 3 0.051 0.000 2.121 0.909  
## 9 0.105 0.052 2.618 1.571  
## 11 0.000 0.000 2.115 0.673  
## 16 0.028 0.028 2.562 1.653  
## 23 0.333 0.000 1.833 1.167  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 2 0.380 0.506 0.886 0.886  
## 3 1.010 0.202 1.313 1.465  
## 9 0.995 0.052 1.832 1.728  
## 11 1.058 0.385 2.019 1.250  
## 16 0.716 0.193 3.030 1.543  
## 23 0.500 0.167 2.333 0.333  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 2 0.380 0.506 0.380 2.405 1.266  
## 3 0.758 0.707 2.071 4.192 3.434  
## 9 0.785 0.942 1.309 3.927 3.141  
## 11 0.096 1.154 1.346 3.462 1.923  
## 16 0.220 1.322 2.204 4.766 3.223  
## 23 0.167 0.167 0.833 2.667 2.333  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 2 45.063 3.165 16.709  
## 3 61.869 4.293 21.414  
## 9 56.021 5.288 25.131  
## 11 37.981 1.538 7.212  
## 16 69.862 4.545 25.620  
## 23 69.500 3.500 23.167  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 2 19.620 9.620 0.886  
## 3 27.172 14.040 1.212  
## 9 25.445 6.126 0.262  
## 11 20.096 11.346 1.538  
## 16 26.915 18.182 1.736  
## 23 28.167 19.833 0.667  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 2 1.772 0.633 26.835 140.127  
## 3 1.616 0.455 30.000 146.919  
## 9 1.414 0.785 30.576 190.576  
## 11 2.308 1.058 19.904 121.058  
## 16 2.231 0.964 34.904 207.906  
## 23 4.167 2.000 38.667 246.500  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 2 63.924 0.380 0.127 28.481 1.266  
## 3 72.172 1.364 0.202 34.899 0.859  
## 9 105.759 1.309 0.052 31.780 1.152  
## 11 48.173 1.442 0.096 20.962 1.058  
## 16 110.303 1.928 0.248 37.906 0.937  
## 23 105.500 1.833 0.167 40.500 0.500  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 2 2.025 0.000 0 0.000 5.316 0.127  
## 3 0.455 0.000 0 0.051 4.747 1.061  
## 9 0.838 0.000 0 0.000 5.131 1.047  
## 11 0.865 0.000 0 0.000 4.327 1.058  
## 16 0.551 0.083 0 0.000 6.253 1.157  
## 23 1.167 0.167 0 0.000 8.167 1.167  
## Pos  
## 2 DF  
## 3 DF  
## 9 DF  
## 11 MF,DF  
## 16 DF  
## 23 DF,FW  
##   
## Cluster 3 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 5 Adam Webster 0.01 0.03 0.05 0.63  
## 19 Axel Disasi 0.01 0.08 0.09 0.56  
## 21 Ben Davies 0.03 0.19 0.23 0.99  
## 27 Benoît Badiashile 0.10 0.02 0.12 0.40  
## 35 Clément Lenglet 0.06 0.07 0.13 0.62  
## 39 Cristian Romero 0.01 0.11 0.13 0.77  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 5 9.9 1.10 6.299 0.157 1.260  
## 19 10.3 0.45 3.902 0.732 1.045  
## 21 11.8 1.24 5.868 1.653 1.074  
## 27 14.1 1.55 3.087 0.201 0.201  
## 35 10.5 1.17 3.984 0.078 2.031  
## 39 10.5 1.13 5.774 0.258 1.032  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 5 1333.701 459.685 36.378  
## 19 1187.491 399.443 31.812  
## 21 1143.719 434.545 26.777  
## 27 1257.517 475.638 31.074  
## 35 1212.812 404.141 24.922  
## 39 1337.355 522.516 33.387  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 5 41.654 6.220 83.701 0.079  
## 19 39.164 5.854 75.017 0.348  
## 21 34.132 6.694 65.124 0.826  
## 27 39.195 7.114 76.309 0.134  
## 35 35.703 9.922 67.109 0.234  
## 39 43.258 5.097 79.226 0.097  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 5 0.157 1.024 0.079 0  
## 19 0.174 0.453 0.000 0  
## 21 0.083 1.157 0.000 0  
## 27 0.000 1.208 0.134 0  
## 35 0.078 0.859 0.234 0  
## 39 0.097 0.903 0.097 0  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 5 0.000 0.000 1.102 0.630  
## 19 0.000 0.000 1.150 0.697  
## 21 0.083 0.000 1.983 1.074  
## 27 0.067 0.134 1.409 0.805  
## 35 0.000 0.000 1.016 0.547  
## 39 0.000 0.065 2.129 1.129  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 5 0.394 0.079 1.417 1.260  
## 19 0.348 0.105 1.045 0.906  
## 21 0.661 0.248 1.736 1.405  
## 27 0.604 0.000 0.940 1.409  
## 35 0.391 0.078 1.016 1.484  
## 39 0.806 0.194 1.419 1.484  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 5 0.945 0.315 1.260 2.362 3.386  
## 19 0.662 0.244 0.627 1.777 3.554  
## 21 1.240 0.165 0.826 2.810 2.893  
## 27 0.940 0.470 1.208 2.617 4.430  
## 35 0.859 0.625 0.547 1.562 3.672  
## 39 0.710 0.774 1.419 3.548 3.419  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 5 94.567 8.346 38.976  
## 19 86.969 10.139 41.568  
## 21 80.331 8.017 33.554  
## 27 88.658 11.946 44.430  
## 35 79.453 12.891 40.156  
## 39 94.290 11.516 40.452  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 5 49.213 6.772 1.102  
## 19 39.721 6.098 0.836  
## 21 39.091 7.934 1.901  
## 27 41.074 3.490 0.738  
## 35 35.078 4.609 0.938  
## 39 48.194 6.387 1.065  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 5 0.157 0.157 64.094 320.709  
## 19 0.767 0.174 56.202 250.244  
## 21 0.826 0.496 49.008 269.835  
## 27 0.067 0.000 51.342 216.443  
## 35 0.625 0.156 56.797 345.469  
## 39 0.258 0.032 63.129 301.903  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 5 185.591 1.260 0.000 71.102 0.709  
## 19 147.143 0.697 0.105 65.923 0.592  
## 21 168.926 1.074 0.083 56.612 0.661  
## 27 116.376 0.336 0.067 65.503 1.141  
## 35 220.234 1.406 0.000 61.406 0.234  
## 39 194.387 1.355 0.000 66.806 1.000  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 5 0.236 0.000 0.000 0.000 4.961 2.598  
## 19 0.592 0.139 0.000 0.000 5.226 2.509  
## 21 1.570 0.000 0.083 0.000 4.380 2.397  
## 27 0.403 0.067 0.000 0.067 5.503 1.879  
## 35 0.938 0.000 0.000 0.000 2.891 1.172  
## 39 0.774 0.032 0.000 0.065 6.097 2.806  
## Pos  
## 5 DF  
## 19 DF  
## 21 DF  
## 27 DF  
## 35 DF  
## 39 DF  
##   
## Cluster 4 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 6 Álex Moreno 0.10 0.10 0.20 0.70  
## 7 Alfie Doughty 0.19 0.04 0.23 0.80  
## 13 Andrew Robertson 0.29 0.10 0.39 0.64  
## 20 Ben Chilwell 0.26 0.14 0.41 1.43  
## 29 Casemiro 0.05 0.16 0.20 1.77  
## 31 Chiedozie Ogbene 0.14 0.19 0.33 1.58  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 6 12.3 1.92 2.087 7.217 2.783  
## 7 16.3 3.54 3.262 5.046 2.892  
## 13 12.5 5.16 7.447 6.915 3.351  
## 20 16.6 2.62 2.976 7.024 2.619  
## 29 17.1 1.86 5.091 1.636 0.545  
## 31 15.3 3.56 2.387 6.757 5.721  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 6 562.261 139.304 22.957  
## 7 644.800 256.154 17.569  
## 13 1133.298 384.628 34.787  
## 20 622.619 184.762 30.833  
## 29 915.273 348.955 27.091  
## 31 368.063 104.234 18.423  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 6 18.261 2.609 37.826 3.217  
## 7 17.569 13.108 36.615 10.462  
## 13 31.223 12.713 68.989 9.787  
## 20 17.024 5.714 49.524 5.119  
## 29 25.818 8.500 62.955 0.591  
## 31 10.541 2.568 31.396 3.559  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 6 0.087 1.652 0.087 0.174  
## 7 0.215 1.754 0.185 0.123  
## 13 0.532 3.298 0.000 0.053  
## 20 0.714 1.310 0.119 0.000  
## 29 0.273 1.591 0.136 0.000  
## 31 0.090 2.297 0.225 0.541  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 6 0.000 0 1.565 1.565  
## 7 0.031 0 1.938 0.892  
## 13 0.053 0 1.862 1.117  
## 20 0.238 0 1.786 0.595  
## 29 0.045 0 3.773 1.955  
## 31 0.405 0 0.766 0.450  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 6 0.000 0.000 1.652 0.957  
## 7 0.554 0.492 2.523 1.569  
## 13 0.585 0.160 2.287 1.064  
## 20 1.071 0.119 0.952 1.310  
## 29 1.455 0.364 4.818 3.364  
## 31 0.315 0.000 0.991 0.631  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 6 0.174 0.783 1.130 2.696 3.217  
## 7 0.277 1.292 0.954 2.892 1.323  
## 13 0.319 0.745 0.691 2.553 2.128  
## 20 0.357 0.952 0.476 2.262 2.262  
## 29 1.500 1.864 0.818 4.591 3.227  
## 31 0.135 0.495 0.315 1.081 1.532  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 6 60.000 3.478 21.391  
## 7 61.477 3.138 16.646  
## 13 91.117 3.564 20.585  
## 20 72.024 2.500 15.357  
## 29 80.091 7.682 29.364  
## 31 48.018 2.117 9.054  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 6 20.435 18.522 2.522  
## 7 20.462 25.169 2.338  
## 13 41.968 29.149 2.926  
## 20 30.714 26.310 3.333  
## 29 40.182 11.136 2.045  
## 31 17.342 23.063 3.964  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 6 3.043 1.478 31.652 202.783  
## 7 2.062 0.738 27.600 169.908  
## 13 0.904 0.638 52.074 245.904  
## 20 2.262 0.952 39.643 203.929  
## 29 0.818 0.364 44.727 162.545  
## 31 5.450 1.982 29.279 273.423  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 6 96.174 1.739 0.870 33.304 0.957  
## 7 85.969 1.600 0.862 29.785 0.954  
## 13 140.319 2.128 0.319 61.702 0.479  
## 20 100.476 1.667 0.595 46.905 1.310  
## 29 78.591 1.000 0.045 52.864 1.364  
## 31 167.117 3.333 2.027 29.730 0.360  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 6 1.391 0.174 0.00 0.000 3.478 0.348  
## 7 0.277 0.400 0.00 0.000 5.692 0.708  
## 13 0.266 0.160 0.00 0.000 5.532 0.745  
## 20 1.429 0.476 0.00 0.000 3.929 1.429  
## 29 0.455 0.273 0.00 0.045 6.045 1.909  
## 31 2.252 0.360 0.09 0.000 5.631 1.261  
## Pos  
## 6 DF  
## 7 DF  
## 13 DF  
## 20 DF  
## 29 MF,DF  
## 31 MF,DF  
##   
## Cluster 5 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 8 Alfie Gilchrist 0.00 0.14 0.14 2.17  
## 10 Ameen Al-Dakhil 0.01 0.11 0.12 0.68  
## 14 Anel Ahmedhodžić 0.03 0.11 0.14 0.65  
## 22 Ben Godfrey 0.02 0.14 0.16 1.21  
## 24 Ben Mee 0.02 0.10 0.13 0.71  
## 26 Ben White 0.11 0.03 0.15 0.39  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 8 13.5 1.31 3.043 1.739 0.435  
## 10 16.0 0.68 2.991 0.769 0.598  
## 14 11.9 0.88 1.463 0.714 0.510  
## 22 12.0 1.37 3.468 2.097 0.887  
## 24 12.7 0.99 3.475 0.638 0.780  
## 26 13.2 2.59 5.783 4.880 1.325  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 8 823.043 203.478 31.739  
## 10 824.103 251.197 18.803  
## 14 431.327 171.327 13.061  
## 22 461.694 191.371 14.516  
## 24 640.426 259.433 17.660  
## 26 843.434 295.211 33.102  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 8 26.522 2.609 52.609 0.435  
## 10 27.436 6.581 50.427 0.256  
## 14 14.354 4.660 32.313 0.204  
## 22 16.452 5.000 29.274 1.694  
## 24 20.213 7.305 42.128 0.355  
## 26 25.060 5.151 57.892 1.717  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 8 0.435 0.870 0.000 0.000  
## 10 0.171 0.427 0.171 0.085  
## 14 0.068 0.782 0.102 0.000  
## 22 0.242 0.726 0.403 0.000  
## 24 0.071 0.780 0.142 0.000  
## 26 0.120 2.289 0.060 0.030  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 8 0 0.000 1.739 1.739  
## 10 0 0.000 1.026 0.342  
## 14 0 0.000 2.177 1.633  
## 22 0 0.161 2.419 1.371  
## 24 0 0.000 1.844 0.851  
## 26 0 0.060 1.446 0.602  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 8 0.000 0.000 2.174 2.609  
## 10 0.598 0.085 0.855 1.111  
## 14 0.476 0.068 1.667 1.463  
## 22 0.645 0.403 2.258 1.129  
## 24 0.851 0.142 1.560 1.489  
## 26 0.663 0.181 1.747 1.446  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 8 1.304 1.304 1.304 3.043 4.783  
## 10 0.513 0.598 1.026 2.051 3.248  
## 14 0.884 0.578 1.190 3.367 4.660  
## 22 0.645 0.484 1.290 3.710 4.597  
## 24 0.922 0.567 0.922 2.766 4.468  
## 26 0.663 0.783 0.964 2.410 2.319  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 8 76.957 6.087 31.304  
## 10 64.017 7.094 30.342  
## 14 45.272 7.755 24.830  
## 22 52.823 5.403 17.823  
## 24 58.794 7.730 27.518  
## 26 73.976 3.614 19.066  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 8 24.783 21.304 2.174  
## 10 28.974 4.957 0.855  
## 14 17.279 3.537 1.122  
## 22 21.371 13.871 1.532  
## 24 25.816 5.603 1.773  
## 26 35.090 20.361 1.928  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 8 0.435 0.000 33.913 114.348  
## 10 0.427 0.171 41.966 211.197  
## 14 0.714 0.306 20.510 118.946  
## 22 1.129 0.726 18.790 93.387  
## 24 0.426 0.213 27.518 138.865  
## 26 0.663 0.361 39.789 146.596  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 8 56.522 0.435 0.000 41.739 1.739  
## 10 115.470 0.769 0.000 42.308 0.513  
## 14 66.190 0.510 0.102 23.571 1.156  
## 22 46.048 0.968 0.000 22.823 0.645  
## 24 81.560 0.284 0.071 31.702 0.496  
## 26 80.482 1.024 0.271 50.452 0.572  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 8 0.000 0.000 0 0.000 3.913 0.870  
## 10 0.342 0.000 0 0.085 4.274 1.197  
## 14 0.442 0.068 0 0.000 3.639 1.735  
## 22 0.484 0.161 0 0.081 3.629 2.016  
## 24 0.213 0.071 0 0.000 4.752 2.482  
## 26 0.361 0.331 0 0.000 3.614 1.084  
## Pos  
## 8 DF  
## 10 DF  
## 14 DF  
## 22 DF  
## 24 DF  
## 26 DF  
##   
## Cluster 6 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 12 Andrew Omobamidele 0.01 0.02 0.03 0.11  
## 15 Angelo Ogbonna 0.00 0.01 0.01 0.14  
## 18 Auston Trusty 0.04 0.01 0.05 0.28  
## 28 Calvin Bassey 0.00 0.01 0.01 0.20  
## 44 Dara O'Shea 0.06 0.02 0.08 0.59  
## 57 Gabriel Osho 0.01 0.05 0.06 0.49  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 12 5.1 0.69 0.920 0.000 0.115  
## 15 12.5 0.00 0.563 0.000 0.282  
## 18 13.0 0.56 1.399 0.524 0.350  
## 28 10.1 0.59 2.422 0.156 0.586  
## 44 10.6 1.00 3.801 0.312 0.997  
## 57 14.8 0.39 1.805 0.195 0.488  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 12 597.356 166.552 10.460  
## 15 463.521 156.197 9.437  
## 18 431.538 161.818 11.538  
## 28 1065.469 368.008 20.078  
## 44 859.315 318.847 17.165  
## 57 533.220 196.049 10.829  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 12 21.724 2.874 34.943 0.000  
## 15 14.648 5.352 27.324 0.000  
## 18 15.490 3.706 29.441 0.175  
## 28 33.398 9.609 61.797 0.117  
## 44 26.604 9.470 53.115 0.343  
## 57 18.732 4.244 34.000 0.146  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 12 0.000 0.575 0.115 0.000  
## 15 0.000 0.000 0.000 0.000  
## 18 0.070 0.385 0.000 0.035  
## 28 0.039 0.508 0.078 0.000  
## 44 0.218 0.841 0.093 0.000  
## 57 0.049 0.341 0.000 0.049  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 12 0.000 0.000 1.149 1.034  
## 15 0.000 0.000 1.549 1.268  
## 18 0.000 0.070 1.643 1.084  
## 28 0.000 0.000 1.914 1.289  
## 44 0.031 0.031 1.215 0.685  
## 57 0.000 0.000 2.000 1.024  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 12 0.115 0.000 0.920 1.379  
## 15 0.282 0.000 0.986 1.831  
## 18 0.455 0.105 1.503 1.434  
## 28 0.586 0.039 1.133 1.250  
## 44 0.436 0.093 0.810 1.277  
## 57 0.927 0.049 1.317 1.805  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 12 0.920 0.460 1.494 2.644 4.828  
## 15 1.408 0.423 0.423 1.972 4.085  
## 18 0.769 0.664 1.224 2.867 5.350  
## 28 0.430 0.820 1.094 3.008 3.281  
## 44 0.935 0.343 1.090 2.305 4.922  
## 57 0.976 0.829 1.512 3.512 4.488  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 12 45.862 8.736 25.517  
## 15 38.310 8.592 25.915  
## 18 44.196 8.077 24.895  
## 28 74.258 11.914 41.172  
## 44 65.234 9.533 30.187  
## 57 47.220 8.732 26.098  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 12 18.851 1.609 0.575  
## 15 11.549 0.845 0.563  
## 18 15.804 3.671 0.944  
## 28 32.422 1.445 0.352  
## 44 30.903 4.424 1.526  
## 57 18.732 2.927 0.976  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 12 0.000 0.000 24.943 124.368  
## 15 0.141 0.000 19.296 102.535  
## 18 0.420 0.175 17.797 69.685  
## 28 0.547 0.078 46.055 235.820  
## 44 0.062 0.031 34.642 178.349  
## 57 0.585 0.244 22.488 106.634  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 12 49.310 0.000 0.000 28.276 0.690  
## 15 37.042 0.000 0.141 21.408 0.141  
## 18 27.867 0.245 0.070 20.385 0.804  
## 28 118.555 0.430 0.078 50.430 0.586  
## 44 109.813 0.436 0.031 40.685 1.121  
## 57 53.659 0.439 0.049 23.512 1.122  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90 Aerial\_W\_per\_90  
## 12 0.345 0.000 0 0.000 2.414 0.805  
## 15 0.423 0.000 0 0.000 1.408 1.690  
## 18 0.455 0.105 0 0.035 3.112 2.133  
## 28 0.430 0.078 0 0.039 6.680 1.172  
## 44 0.467 0.031 0 0.000 4.361 3.956  
## 57 0.683 0.049 0 0.000 5.024 1.756  
## Pos  
## 12 DF  
## 15 DF  
## 18 DF  
## 28 DF  
## 44 DF  
## 57 DF  
##   
## Cluster 7 subset:  
## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90 Avg\_Shot\_Dist  
## 33 Chris Mepham 0.06 0.01 0.07 0.15 8.8  
## 38 Craig Dawson 0.06 0.06 0.12 0.65 11.2  
## 51 Ethan Pinnock 0.04 0.07 0.11 0.68 9.8  
## 53 Fabian Schär 0.02 0.07 0.10 1.03 18.9  
## 54 Felipe 0.01 0.03 0.04 0.72 16.6  
## 61 Harry Maguire 0.07 0.11 0.18 1.09 11.5  
## SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90 Total\_Pass\_Dist\_per\_90  
## 33 1.60 3.623 0.145 0.580 864.493  
## 38 0.49 2.000 0.163 0.041 955.796  
## 51 0.86 2.179 0.571 0.393 805.214  
## 53 1.39 3.923 0.590 0.826 1068.643  
## 54 0.97 1.429 0.000 0.238 870.000  
## 61 1.31 3.967 0.109 1.087 923.859  
## Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90 Medium\_Att\_per\_90 Long\_Att\_per\_90  
## 33 288.986 16.667 26.667 7.971  
## 38 329.061 13.592 27.714 9.673  
## 51 268.429 16.643 26.393 6.357  
## 53 438.761 19.086 29.056 12.891  
## 54 336.190 16.667 25.000 7.857  
## 61 348.859 22.989 25.652 9.565  
## Live\_Pass\_per\_90 Crs\_per\_90 Off\_Pass\_per\_90 PassLive\_SCA\_per\_90  
## 33 50.725 0.145 0.145 1.159  
## 38 50.449 0.041 0.122 0.327  
## 51 49.071 0.250 0.107 0.571  
## 53 60.295 0.236 0.236 0.973  
## 54 49.048 0.000 0.238 0.476  
## 61 55.326 0.163 0.109 1.033  
## Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Fouled\_SCA\_per\_90 Def\_SCA\_per\_90  
## 33 0.000 0.000 0.000 0.290  
## 38 0.122 0.000 0.000 0.041  
## 51 0.214 0.000 0.000 0.036  
## 53 0.118 0.059 0.147 0.029  
## 54 0.238 0.000 0.000 0.238  
## 61 0.054 0.000 0.054 0.163  
## Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90 Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90  
## 33 1.739 1.304 0.435 0.000  
## 38 1.224 0.939 0.245 0.041  
## 51 1.250 0.786 0.464 0.000  
## 53 1.239 0.796 0.383 0.059  
## 54 2.857 2.143 0.714 0.000  
## 61 1.304 0.761 0.543 0.000  
## Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90  
## 33 2.029 1.884 0.870 1.014  
## 38 1.388 2.082 1.592 0.490  
## 51 0.714 1.429 0.857 0.571  
## 53 1.180 1.475 1.121 0.354  
## 54 2.857 0.952 0.238 0.714  
## 61 1.196 1.793 1.304 0.489  
## Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90  
## 33 1.014 2.754 4.348 62.899 6.957  
## 38 0.653 1.878 4.898 62.408 11.918  
## 51 1.536 2.786 6.071 63.143 10.821  
## 53 1.062 2.301 3.923 73.245 10.590  
## 54 0.952 3.810 2.857 61.190 5.238  
## 61 1.359 2.663 4.511 71.359 10.924  
## Def\_3rd\_Touch\_per\_90 Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90  
## 33 26.377 32.899 3.623  
## 38 36.286 24.163 2.204  
## 51 35.750 23.607 4.036  
## 53 38.466 31.268 4.130  
## 54 31.667 27.619 2.143  
## 61 34.022 32.772 4.837  
## Att\_P\_Touch\_per\_90 Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90  
## 33 0.870 0.000 0.000 34.058  
## 38 1.388 0.122 0.000 36.571  
## 51 1.536 0.357 0.107 32.929  
## 53 1.180 0.649 0.236 43.953  
## 54 0.952 0.476 0.238 35.000  
## 61 1.957 0.109 0.109 38.152  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 33 188.986 106.667 0.580 0.000  
## 38 172.531 78.857 0.286 0.000  
## 51 181.964 112.857 0.179 0.036  
## 53 235.221 146.932 1.239 0.029  
## 54 164.762 85.952 0.238 0.000  
## 61 252.065 150.598 0.707 0.109  
## Rec\_per\_90 Fls\_per\_90 Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90  
## 33 35.072 2.174 0.290 0.000 0.000 0  
## 38 40.694 0.816 0.612 0.163 0.000 0  
## 51 36.607 0.143 0.393 0.000 0.000 0  
## 53 49.469 1.121 0.767 0.000 0.059 0  
## 54 37.143 2.381 0.476 0.000 0.000 0  
## 61 42.500 1.141 0.543 0.326 0.054 0  
## Recov\_per\_90 Aerial\_W\_per\_90 Pos  
## 33 4.493 4.203 DF  
## 38 4.082 2.571 DF  
## 51 4.679 4.036 DF  
## 53 5.133 2.035 DF  
## 54 4.762 3.333 DF  
## 61 4.239 3.750 DF  
##   
## Cluster 8 subset:  
## [1] Player xAG\_per\_90 npxG\_per\_90   
## [4] npxG\_xAG\_per\_90 Sh\_per\_90 Avg\_Shot\_Dist   
## [7] SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90   
## [10] PrgC\_per\_90 Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90   
## [13] Short\_Att\_per\_90 Medium\_Att\_per\_90 Long\_Att\_per\_90   
## [16] Live\_Pass\_per\_90 Crs\_per\_90 Off\_Pass\_per\_90   
## [19] PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90   
## [22] Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90   
## [25] Def\_3rd\_Tkl\_per\_90 Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90   
## [28] Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90   
## [31] Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90   
## [34] Clr\_per\_90 Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90   
## [37] Def\_3rd\_Touch\_per\_90 Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90   
## [40] Att\_P\_Touch\_per\_90 Att\_Take\_ons\_per\_90 Tkld\_per\_90   
## [43] Carries\_per\_90 Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90   
## [46] Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90   
## [49] Fls\_per\_90 Fld\_per\_90 Off\_per\_90   
## [52] PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90   
## [55] Aerial\_W\_per\_90 Pos   
## <0 rows> (or 0-length row.names)  
##   
## Cluster 9 subset:  
## [1] Player xAG\_per\_90 npxG\_per\_90   
## [4] npxG\_xAG\_per\_90 Sh\_per\_90 Avg\_Shot\_Dist   
## [7] SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90   
## [10] PrgC\_per\_90 Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90   
## [13] Short\_Att\_per\_90 Medium\_Att\_per\_90 Long\_Att\_per\_90   
## [16] Live\_Pass\_per\_90 Crs\_per\_90 Off\_Pass\_per\_90   
## [19] PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90   
## [22] Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90   
## [25] Def\_3rd\_Tkl\_per\_90 Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90   
## [28] Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90   
## [31] Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90   
## [34] Clr\_per\_90 Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90   
## [37] Def\_3rd\_Touch\_per\_90 Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90   
## [40] Att\_P\_Touch\_per\_90 Att\_Take\_ons\_per\_90 Tkld\_per\_90   
## [43] Carries\_per\_90 Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90   
## [46] Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90   
## [49] Fls\_per\_90 Fld\_per\_90 Off\_per\_90   
## [52] PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90   
## [55] Aerial\_W\_per\_90 Pos   
## <0 rows> (or 0-length row.names)  
##   
## Cluster 10 subset:  
## [1] Player xAG\_per\_90 npxG\_per\_90   
## [4] npxG\_xAG\_per\_90 Sh\_per\_90 Avg\_Shot\_Dist   
## [7] SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90   
## [10] PrgC\_per\_90 Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90   
## [13] Short\_Att\_per\_90 Medium\_Att\_per\_90 Long\_Att\_per\_90   
## [16] Live\_Pass\_per\_90 Crs\_per\_90 Off\_Pass\_per\_90   
## [19] PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90   
## [22] Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90   
## [25] Def\_3rd\_Tkl\_per\_90 Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90   
## [28] Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90   
## [31] Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90   
## [34] Clr\_per\_90 Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90   
## [37] Def\_3rd\_Touch\_per\_90 Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90   
## [40] Att\_P\_Touch\_per\_90 Att\_Take\_ons\_per\_90 Tkld\_per\_90   
## [43] Carries\_per\_90 Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90   
## [46] Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90   
## [49] Fls\_per\_90 Fld\_per\_90 Off\_per\_90   
## [52] PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90   
## [55] Aerial\_W\_per\_90 Pos   
## <0 rows> (or 0-length row.names)

cluster\_subsets[[2]]

## Player xAG\_per\_90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh\_per\_90  
## 2 Aaron Hickey 0.01 0.03 0.04 0.88  
## 3 Aaron Wan-Bissaka 0.08 0.01 0.08 0.15  
## 9 Amari'i Bell 0.02 0.01 0.04 0.10  
## 11 Andre Brooks 0.01 0.04 0.05 0.86  
## 16 Antonee Robinson 0.11 0.02 0.13 0.44  
## 23 Ben Johnson 0.00 0.03 0.03 0.99  
## 43 Daniel Muñoz 0.15 0.08 0.23 0.50  
## 45 Destiny Udogie 0.08 0.09 0.17 0.34  
## 48 Emerson 0.03 0.02 0.05 0.47  
## 49 Emerson Palmieri 0.07 0.04 0.11 0.55  
## 55 Fred Onyedinma 0.02 0.04 0.06 1.11  
## 58 George Baldock 0.07 0.00 0.08 0.09  
## 64 Hugo Bueno 0.09 0.03 0.13 0.61  
## 69 Issa Kaboré 0.11 0.01 0.12 0.31  
## 81 Jayden Bogle 0.03 0.07 0.11 1.03  
## 87 Joël Veltman 0.03 0.02 0.05 0.28  
## 95 Kenny Tete 0.04 0.09 0.13 0.42  
## 104 Lewis Hall 0.03 0.04 0.07 1.27  
## 107 Lorenz Assignon 0.19 0.03 0.22 0.66  
## 111 Luke Thomas 0.00 0.05 0.06 0.59  
## 116 Marc Cucurella 0.05 0.06 0.11 0.40  
## 123 Max Aarons 0.06 0.00 0.06 0.15  
## 125 Max Lowe 0.13 0.10 0.23 0.36  
## 129 Milos Kerkez 0.04 0.06 0.09 0.73  
## 137 Neco Williams 0.09 0.04 0.13 0.82  
## 138 Nélson Semedo 0.05 0.04 0.09 0.50  
## 140 Ola Aina 0.05 0.01 0.06 0.59  
## 160 Serge Aurier 0.05 0.02 0.07 0.65  
## 162 Sergio Reguilón 0.23 0.06 0.29 1.05  
## 180 Valentino Livramento 0.05 0.03 0.08 0.27  
## 185 Vitinho 0.05 0.06 0.11 0.97  
## 190 Yasser Larouci 0.05 0.04 0.09 1.02  
## Avg\_Shot\_Dist SCA\_per\_90 PrgP\_per\_90 PrgR\_per\_90 PrgC\_per\_90  
## 2 25.3 0.88 2.658 1.646 1.139  
## 3 20.2 1.31 3.889 2.727 1.515  
## 9 18.8 1.31 3.979 0.524 1.675  
## 11 19.5 0.86 1.731 2.115 1.154  
## 16 22.9 1.90 3.554 5.344 2.727  
## 23 24.1 1.49 3.667 5.500 2.833  
## 43 8.5 2.88 2.375 5.000 1.562  
## 45 10.1 2.15 5.827 5.188 3.120  
## 48 22.5 1.63 4.419 2.713 1.628  
## 49 17.3 2.12 3.582 3.553 1.691  
## 55 12.9 1.11 1.333 4.667 2.000  
## 58 22.2 1.49 2.870 2.222 0.833  
## 64 18.4 2.07 0.976 4.878 2.683  
## 69 15.8 1.67 2.812 4.427 3.125  
## 81 16.2 1.07 1.935 2.968 1.226  
## 87 14.2 1.02 4.830 3.068 1.364  
## 95 7.9 1.56 5.625 3.958 2.083  
## 104 20.8 2.30 5.287 3.103 2.184  
## 107 22.1 1.68 2.482 4.161 2.774  
## 111 15.1 0.98 3.235 2.157 0.784  
## 116 14.4 1.77 2.525 3.687 1.566  
## 123 23.9 1.68 3.139 1.898 1.606  
## 125 10.4 1.43 2.143 1.964 0.893  
## 129 19.3 1.46 2.009 4.247 2.100  
## 137 18.9 1.70 2.582 4.725 2.637  
## 138 19.7 1.75 4.023 4.373 3.003  
## 140 26.6 2.02 3.617 2.021 2.819  
## 160 16.0 1.62 5.054 3.118 1.075  
## 162 18.2 2.82 3.065 3.226 2.742  
## 180 12.9 2.47 4.178 5.205 3.014  
## 185 18.0 1.71 2.568 4.280 2.296  
## 190 19.1 1.36 2.373 2.034 3.051  
## Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 Short\_Att\_per\_90  
## 2 482.658 113.165 17.722  
## 3 546.667 178.737 30.253  
## 9 559.162 234.031 19.476  
## 11 282.981 49.135 12.596  
## 16 752.176 270.799 21.928  
## 23 636.000 244.167 26.000  
## 43 472.250 179.062 26.062  
## 45 628.985 193.421 31.729  
## 48 1058.295 287.907 43.256  
## 49 554.613 219.943 28.166  
## 55 318.000 78.222 12.889  
## 58 426.111 167.593 17.685  
## 64 534.146 122.561 28.902  
## 69 437.604 171.302 16.875  
## 81 341.581 126.645 15.226  
## 87 699.830 187.330 23.807  
## 95 668.021 272.292 28.021  
## 104 870.115 354.368 28.506  
## 107 394.964 144.818 16.423  
## 111 379.020 138.039 13.039  
## 116 763.131 222.626 32.576  
## 123 540.292 203.577 18.102  
## 125 221.786 77.857 12.679  
## 129 447.991 154.795 17.123  
## 137 442.912 185.440 18.187  
## 138 634.373 213.003 28.251  
## 140 511.170 213.404 19.894  
## 160 563.226 230.860 24.194  
## 162 488.468 211.774 15.645  
## 180 685.205 201.849 31.301  
## 185 450.895 137.588 17.315  
## 190 333.729 121.017 15.085  
## Medium\_Att\_per\_90 Long\_Att\_per\_90 Live\_Pass\_per\_90 Crs\_per\_90  
## 2 13.418 2.532 32.152 0.633  
## 3 14.394 1.919 42.374 0.707  
## 9 16.492 5.654 40.995 0.681  
## 11 9.327 1.827 24.231 0.769  
## 16 22.397 8.926 47.824 3.636  
## 23 20.167 5.500 48.167 5.167  
## 43 14.250 2.188 35.812 0.688  
## 45 17.293 1.241 45.564 0.827  
## 48 28.062 3.488 70.930 1.085  
## 49 14.613 2.980 41.805 1.404  
## 55 13.556 1.556 21.556 2.889  
## 58 11.481 4.815 31.019 1.667  
## 64 14.268 3.293 43.659 3.537  
## 69 14.948 4.062 31.302 3.438  
## 81 9.710 4.000 25.871 1.290  
## 87 21.364 4.659 44.659 0.625  
## 95 18.854 4.583 45.625 2.396  
## 104 25.287 7.011 54.483 2.644  
## 107 14.161 2.263 27.591 2.117  
## 111 11.863 4.314 28.137 1.275  
## 116 21.717 3.283 52.677 0.808  
## 123 17.153 4.599 33.066 0.949  
## 125 7.500 2.143 20.179 1.429  
## 129 15.205 4.292 30.913 2.511  
## 137 15.824 5.440 35.275 3.736  
## 138 17.959 4.606 45.802 2.332  
## 140 15.106 5.266 34.521 1.489  
## 160 16.774 4.839 43.763 2.366  
## 162 16.210 6.613 34.516 5.806  
## 180 17.603 3.630 47.740 1.781  
## 185 15.486 3.268 31.284 2.179  
## 190 10.000 2.881 28.983 1.017  
## Off\_Pass\_per\_90 PassLive\_SCA\_per\_90 Shot\_SCA\_per\_90 Take\_ons\_SCA\_per\_90  
## 2 0.000 0.759 0.000 0.000  
## 3 0.101 1.212 0.000 0.000  
## 9 0.209 1.152 0.000 0.000  
## 11 0.000 0.577 0.096 0.192  
## 16 0.110 1.736 0.000 0.055  
## 23 0.333 1.167 0.000 0.000  
## 43 0.125 2.375 0.062 0.062  
## 45 0.113 1.917 0.075 0.150  
## 48 0.078 1.163 0.078 0.000  
## 49 0.172 1.404 0.115 0.086  
## 55 0.000 0.889 0.000 0.000  
## 58 0.185 0.926 0.000 0.185  
## 64 0.244 1.707 0.122 0.122  
## 69 0.052 1.302 0.104 0.104  
## 81 0.065 0.839 0.032 0.097  
## 87 0.114 0.682 0.000 0.000  
## 95 0.104 1.146 0.104 0.208  
## 104 0.230 1.609 0.115 0.345  
## 107 0.219 1.314 0.000 0.073  
## 111 0.000 0.784 0.098 0.000  
## 116 0.000 1.414 0.051 0.051  
## 123 0.073 1.168 0.000 0.000  
## 125 0.000 1.250 0.179 0.000  
## 129 0.091 1.142 0.183 0.000  
## 137 0.275 1.264 0.220 0.055  
## 138 0.146 1.341 0.058 0.087  
## 140 0.160 1.330 0.053 0.160  
## 160 0.000 1.290 0.000 0.108  
## 162 0.242 1.613 0.161 0.081  
## 180 0.000 1.918 0.068 0.137  
## 185 0.156 1.284 0.117 0.156  
## 190 0.169 0.847 0.169 0.169  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 Tkl\_per\_90 Def\_3rd\_Tkl\_per\_90  
## 2 0.127 0.000 2.025 1.139  
## 3 0.051 0.000 2.121 0.909  
## 9 0.105 0.052 2.618 1.571  
## 11 0.000 0.000 2.115 0.673  
## 16 0.028 0.028 2.562 1.653  
## 23 0.333 0.000 1.833 1.167  
## 43 0.125 0.125 3.438 1.938  
## 45 0.000 0.000 2.556 1.541  
## 48 0.155 0.078 2.791 1.783  
## 49 0.229 0.115 3.037 1.375  
## 55 0.000 0.000 2.222 1.556  
## 58 0.093 0.000 1.667 0.926  
## 64 0.122 0.000 2.561 1.463  
## 69 0.052 0.104 2.708 1.198  
## 81 0.065 0.000 2.129 1.387  
## 87 0.170 0.057 3.068 1.818  
## 95 0.104 0.000 2.812 1.979  
## 104 0.115 0.000 3.218 1.954  
## 107 0.073 0.000 2.555 1.314  
## 111 0.098 0.000 1.961 1.275  
## 116 0.202 0.000 3.131 1.818  
## 123 0.219 0.000 2.117 1.460  
## 125 0.000 0.000 3.750 2.321  
## 129 0.091 0.046 2.146 1.416  
## 137 0.055 0.055 3.791 2.308  
## 138 0.175 0.087 2.303 1.516  
## 140 0.160 0.053 2.500 1.649  
## 160 0.108 0.000 2.151 0.968  
## 162 0.081 0.000 3.629 2.097  
## 180 0.205 0.137 1.575 1.027  
## 185 0.039 0.039 2.490 1.401  
## 190 0.000 0.000 2.881 1.695  
## Mid\_3rd\_Tkl\_per\_90 Att\_3rd\_Tkl\_per\_90 Tkl\_drib\_att\_per\_90 Tot\_Blocks\_per\_90  
## 2 0.380 0.506 0.886 0.886  
## 3 1.010 0.202 1.313 1.465  
## 9 0.995 0.052 1.832 1.728  
## 11 1.058 0.385 2.019 1.250  
## 16 0.716 0.193 3.030 1.543  
## 23 0.500 0.167 2.333 0.333  
## 43 0.875 0.625 2.375 1.812  
## 45 0.602 0.414 1.842 1.015  
## 48 0.775 0.233 3.333 1.783  
## 49 1.203 0.458 2.579 1.347  
## 55 0.667 0.000 2.667 0.667  
## 58 0.648 0.093 1.389 1.296  
## 64 0.854 0.244 2.317 2.073  
## 69 1.094 0.417 2.344 1.146  
## 81 0.677 0.065 2.258 1.355  
## 87 0.966 0.284 3.295 0.966  
## 95 0.625 0.208 1.979 1.042  
## 104 1.149 0.115 3.218 1.954  
## 107 0.949 0.292 1.971 1.606  
## 111 0.588 0.098 1.373 2.255  
## 116 1.061 0.253 3.232 1.818  
## 123 0.511 0.146 2.482 0.657  
## 125 0.893 0.536 2.679 1.786  
## 129 0.594 0.137 1.918 1.416  
## 137 0.989 0.495 3.077 2.418  
## 138 0.554 0.233 1.866 1.283  
## 140 0.638 0.213 2.181 1.011  
## 160 1.183 0.000 1.183 1.075  
## 162 1.452 0.081 3.226 1.855  
## 180 0.411 0.137 1.438 1.096  
## 185 0.856 0.233 3.346 1.712  
## 190 0.847 0.339 2.373 1.017  
## Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90  
## 2 0.380 0.506 0.380 2.405 1.266  
## 3 0.758 0.707 2.071 4.192 3.434  
## 9 0.785 0.942 1.309 3.927 3.141  
## 11 0.096 1.154 1.346 3.462 1.923  
## 16 0.220 1.322 2.204 4.766 3.223  
## 23 0.167 0.167 0.833 2.667 2.333  
## 43 0.438 1.375 1.500 4.938 2.938  
## 45 0.301 0.714 1.391 3.947 3.008  
## 48 0.775 1.008 1.550 4.341 3.876  
## 49 0.430 0.917 1.232 4.269 2.751  
## 55 0.000 0.667 0.222 2.444 2.889  
## 58 0.741 0.556 0.926 2.593 3.056  
## 64 0.488 1.585 0.732 3.293 2.927  
## 69 0.573 0.573 0.833 3.542 2.917  
## 81 0.355 1.000 1.032 3.161 3.129  
## 87 0.398 0.568 1.023 4.091 3.239  
## 95 0.312 0.729 1.667 4.479 3.646  
## 104 0.230 1.724 1.379 4.598 2.529  
## 107 0.511 1.095 1.387 3.942 3.139  
## 111 0.490 1.765 0.980 2.941 2.647  
## 116 0.657 1.162 1.111 4.242 2.424  
## 123 0.365 0.292 0.584 2.701 1.971  
## 125 0.714 1.071 0.893 4.643 2.679  
## 129 0.502 0.913 0.913 3.059 2.740  
## 137 0.714 1.703 1.209 5.000 2.912  
## 138 0.233 1.050 1.050 3.353 2.478  
## 140 0.160 0.851 0.957 3.457 2.713  
## 160 0.323 0.753 0.968 3.118 3.871  
## 162 0.484 1.371 1.290 4.919 3.306  
## 180 0.479 0.616 1.712 3.288 2.808  
## 185 0.233 1.479 0.467 2.957 1.829  
## 190 0.169 0.847 1.186 4.068 3.390  
## Live\_Touch\_per\_90 Def\_P\_Touch\_per\_90 Def\_3rd\_Touch\_per\_90  
## 2 45.063 3.165 16.709  
## 3 61.869 4.293 21.414  
## 9 56.021 5.288 25.131  
## 11 37.981 1.538 7.212  
## 16 69.862 4.545 25.620  
## 23 69.500 3.500 23.167  
## 43 59.188 3.375 16.375  
## 45 66.729 3.609 18.308  
## 48 94.574 7.984 35.814  
## 49 62.120 4.814 19.456  
## 55 44.000 2.889 12.222  
## 58 46.759 6.111 18.519  
## 64 63.049 4.024 21.951  
## 69 51.302 4.115 17.135  
## 81 44.323 4.677 17.129  
## 87 62.670 5.398 21.477  
## 95 67.396 4.167 22.396  
## 104 76.782 4.023 29.310  
## 107 48.905 3.358 15.328  
## 111 42.157 3.333 15.686  
## 116 72.020 4.596 29.040  
## 123 51.898 3.139 18.394  
## 125 36.250 4.107 13.929  
## 129 50.000 3.699 16.941  
## 137 59.341 3.901 20.769  
## 138 65.073 3.965 21.633  
## 140 54.202 3.298 18.085  
## 160 61.075 4.194 17.742  
## 162 57.097 4.435 19.516  
## 180 65.548 4.315 21.164  
## 185 50.545 3.113 14.125  
## 190 44.407 4.915 17.119  
## Mid\_3rd\_Touch\_per\_90 Att\_3rd\_Touch\_per\_90 Att\_P\_Touch\_per\_90  
## 2 19.620 9.620 0.886  
## 3 27.172 14.040 1.212  
## 9 25.445 6.126 0.262  
## 11 20.096 11.346 1.538  
## 16 26.915 18.182 1.736  
## 23 28.167 19.833 0.667  
## 43 25.688 17.750 2.625  
## 45 30.639 19.023 2.669  
## 48 40.078 19.302 0.930  
## 49 28.309 14.928 1.117  
## 55 15.333 16.889 3.556  
## 58 17.778 10.741 0.833  
## 64 25.366 15.854 1.098  
## 69 20.104 14.740 0.938  
## 81 17.290 10.613 1.774  
## 87 29.375 12.102 0.966  
## 95 28.958 16.771 1.146  
## 104 32.759 15.747 1.379  
## 107 19.708 15.109 2.190  
## 111 18.431 8.627 1.078  
## 116 29.798 13.636 1.364  
## 123 22.117 12.044 0.803  
## 125 11.429 11.250 1.071  
## 129 17.626 16.073 1.416  
## 137 23.187 16.374 1.648  
## 138 28.950 15.394 1.079  
## 140 24.574 12.128 0.691  
## 160 30.108 13.656 1.398  
## 162 20.403 18.387 1.774  
## 180 29.315 15.890 1.849  
## 185 20.973 15.798 1.984  
## 190 18.983 9.492 1.186  
## Att\_Take\_ons\_per\_90 Tkld\_per\_90 Carries\_per\_90 Tot\_Car\_Dist\_per\_90  
## 2 1.772 0.633 26.835 140.127  
## 3 1.616 0.455 30.000 146.919  
## 9 1.414 0.785 30.576 190.576  
## 11 2.308 1.058 19.904 121.058  
## 16 2.231 0.964 34.904 207.906  
## 23 4.167 2.000 38.667 246.500  
## 43 1.750 0.750 24.062 115.062  
## 45 2.180 0.977 36.617 229.624  
## 48 1.628 0.465 53.178 213.876  
## 49 1.834 0.917 30.287 157.364  
## 55 2.444 1.778 18.889 114.222  
## 58 1.019 0.370 22.037 91.481  
## 64 2.805 1.341 32.439 192.073  
## 69 2.188 0.938 23.698 163.229  
## 81 1.903 0.839 19.032 113.258  
## 87 0.625 0.284 34.148 143.864  
## 95 2.083 1.042 31.562 145.833  
## 104 2.069 0.805 39.425 204.943  
## 107 2.336 1.241 20.657 135.912  
## 111 0.980 0.392 18.725 78.725  
## 116 0.657 0.354 33.182 144.495  
## 123 2.482 0.876 26.569 158.686  
## 125 0.893 0.536 11.786 48.393  
## 129 1.233 0.548 23.653 145.753  
## 137 2.418 0.989 27.253 170.385  
## 138 2.624 0.845 36.064 223.032  
## 140 2.394 0.745 26.277 166.968  
## 160 1.505 1.183 26.774 111.720  
## 162 2.097 0.887 25.645 160.323  
## 180 2.055 0.548 35.685 202.192  
## 185 2.257 0.973 24.669 154.008  
## 190 2.881 1.186 23.220 207.627  
## Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90 Rec\_per\_90 Fls\_per\_90  
## 2 63.924 0.380 0.127 28.481 1.266  
## 3 72.172 1.364 0.202 34.899 0.859  
## 9 105.759 1.309 0.052 31.780 1.152  
## 11 48.173 1.442 0.096 20.962 1.058  
## 16 110.303 1.928 0.248 37.906 0.937  
## 23 105.500 1.833 0.167 40.500 0.500  
## 43 54.562 1.062 0.312 29.062 1.875  
## 45 124.812 2.444 0.714 38.647 1.917  
## 48 100.155 1.473 0.155 63.101 1.085  
## 49 79.943 1.347 0.258 35.587 0.917  
## 55 48.667 1.333 0.889 20.000 2.222  
## 58 42.870 0.278 0.370 23.889 1.759  
## 64 95.732 1.098 0.244 37.317 0.854  
## 69 81.146 1.719 0.521 23.385 1.406  
## 81 46.548 1.032 0.355 21.806 1.226  
## 87 61.136 0.966 0.000 37.330 0.966  
## 95 67.708 1.562 0.208 38.125 1.667  
## 104 118.966 1.839 0.575 45.977 0.575  
## 107 77.591 1.168 0.876 22.117 2.409  
## 111 38.333 0.686 0.098 22.549 0.980  
## 116 79.747 0.758 0.152 44.091 1.162  
## 123 81.825 0.876 0.511 27.080 0.876  
## 125 18.750 0.357 0.179 15.714 1.250  
## 129 73.836 1.279 0.365 24.566 1.142  
## 137 89.615 1.319 0.330 28.901 1.264  
## 138 126.064 1.837 0.408 40.117 1.399  
## 140 97.340 1.543 0.585 28.670 0.957  
## 160 57.204 1.613 0.108 37.312 0.860  
## 162 93.548 2.016 0.161 26.774 0.806  
## 180 100.205 1.164 0.548 39.932 0.205  
## 185 79.300 1.479 0.700 26.381 1.051  
## 190 125.593 2.203 0.678 22.712 0.847  
## Fld\_per\_90 Off\_per\_90 PKwon\_per\_90 PKcon\_per\_90 Recov\_per\_90  
## 2 2.025 0.000 0.000 0.000 5.316  
## 3 0.455 0.000 0.000 0.051 4.747  
## 9 0.838 0.000 0.000 0.000 5.131  
## 11 0.865 0.000 0.000 0.000 4.327  
## 16 0.551 0.083 0.000 0.000 6.253  
## 23 1.167 0.167 0.000 0.000 8.167  
## 43 0.500 0.500 0.000 0.000 4.750  
## 45 1.353 0.113 0.000 0.000 6.353  
## 48 2.946 0.000 0.000 0.000 6.357  
## 49 0.946 0.029 0.057 0.029 4.069  
## 55 1.333 0.000 0.000 0.222 2.222  
## 58 1.296 0.093 0.093 0.000 4.074  
## 64 0.732 0.122 0.000 0.000 4.512  
## 69 1.562 0.104 0.000 0.000 5.312  
## 81 0.710 0.129 0.000 0.000 4.484  
## 87 2.386 0.057 0.000 0.000 4.318  
## 95 1.250 0.000 0.000 0.104 4.688  
## 104 0.575 0.000 0.000 0.000 6.437  
## 107 1.168 0.073 0.000 0.146 4.891  
## 111 1.275 0.000 0.000 0.000 3.824  
## 116 1.768 0.051 0.051 0.051 4.848  
## 123 1.898 0.146 0.000 0.073 5.474  
## 125 0.536 0.179 0.000 0.000 1.250  
## 129 0.959 0.046 0.046 0.000 4.247  
## 137 1.648 0.220 0.000 0.000 5.879  
## 138 0.875 0.029 0.000 0.058 5.481  
## 140 1.330 0.106 0.000 0.053 5.160  
## 160 0.968 0.000 0.000 0.000 5.376  
## 162 1.210 0.081 0.000 0.081 6.048  
## 180 1.918 0.068 0.000 0.000 5.822  
## 185 1.089 0.233 0.039 0.078 4.241  
## 190 0.847 0.169 0.000 0.000 5.763  
## Aerial\_W\_per\_90 Pos  
## 2 0.127 DF  
## 3 1.061 DF  
## 9 1.047 DF  
## 11 1.058 MF,DF  
## 16 1.157 DF  
## 23 1.167 DF,FW  
## 43 1.625 DF,MF  
## 45 0.827 DF  
## 48 1.163 DF  
## 49 0.716 DF  
## 55 1.778 DF,MF  
## 58 1.204 DF  
## 64 1.098 DF,MF  
## 69 0.885 DF  
## 81 1.613 DF  
## 87 1.591 DF  
## 95 0.521 DF  
## 104 1.149 DF  
## 107 0.949 DF  
## 111 0.980 DF  
## 116 1.111 DF  
## 123 0.365 DF  
## 125 0.893 DF,MF  
## 129 0.822 DF  
## 137 1.703 DF  
## 138 0.641 DF,MF  
## 140 0.851 DF  
## 160 3.226 DF,MF  
## 162 1.129 DF  
## 180 0.822 DF  
## 185 0.739 DF,MF  
## 190 0.169 DF

*PERFORMANCE EVALUATION (Data Prep)* Returning to the larger dataset, all variables relevant to Performance Evaluation will be named appropriately

names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "G.PK"] <- "G\_PK"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "G.PK per 90"] <- "G\_PK\_per\_90"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "G.Sh"] <- "G\_Sh"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "G.SoT"] <- "G\_SoT"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "np.G.xG"] <- "np\_G\_xG"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "xAG per 90"] <- "xAG\_per\_90"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Ast per 90"] <- "Ast\_per\_90"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "A.xAG"] <- "A\_xAG"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "SoT Rate"] <- "SoT\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "SoT.90"] <- "SoT\_per\_90"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Cmp Rate"] <- "Cmp\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Short Cmp Rate"] <- "Short\_Cmp\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Medium Cmp Rate"] <- "Medium\_Cmp\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Long Cmp Rate"] <- "Long\_Cmp\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Tkl dribble Rate"] <- "Tkl\_dribble\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Succ Take ons Rate"] <- "Succ\_Take\_ons\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Tkld Rate"] <- "Tkld\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Aerial Won Rate"] <- "Aerial\_Won\_Rate"  
names(sub\_clus\_23\_24)[names(sub\_clus\_23\_24) == "Blocked Pass"] <- "Blocked\_Pass"

Selecting Only PE variables

#selecting only PE variables  
PE\_df <- subset(sub\_clus\_23\_24, select = c(Player, X90s, CrdR, CrdY\_2, PKcon, CrdY, Fls, PrgC, Tot\_Car\_Dist, Prg\_Car\_Dist, Att\_3rd\_Car, CPA, G\_PK, G\_PK\_per\_90, G\_Sh, G\_SoT, np\_G\_xG, xAG\_per\_90, Ast, Ast\_per\_90, xAG, A\_xAG, xA, KP, PassLive\_SCA, Take\_ons\_SCA, Shot\_SCA, Fouled\_SCA, Def\_SCA, SoT\_Rate, SoT\_per\_90, PrgP, Total\_Pass\_Dist, Prg\_Pass\_Dist, Cmp\_Rate, Short\_Cmp\_Rate, Medium\_Cmp\_Rate, Long\_Cmp\_Rate, TB, Blocked\_Pass, CrsPA, TklW, Tkl, Tkl\_dribble\_Rate, Recov, Off\_Pass, Err, Mis, Dis, Off, Succ\_Take\_ons\_Rate, Tkld\_Rate, Fld, PKwon, OG, Aerial\_Won\_Rate, Tot\_Blocks, Sh\_Blocked, Pass\_Blocked, Int, Tkl\_Int, Clr))

Normalizing variables per game

# variables to be transformed  
PEvariables <- c("CrdR", "CrdY\_2", "PKcon", "CrdY", "Fls",   
 "PrgC", "Tot\_Car\_Dist", "Prg\_Car\_Dist", "Att\_3rd\_Car", "CPA",   
 "xA", "KP", "PassLive\_SCA", "Take\_ons\_SCA", "Shot\_SCA",  
 "Fouled\_SCA", "Def\_SCA", "PrgP", "Total\_Pass\_Dist",   
 "Prg\_Pass\_Dist", "TB", "Blocked\_Pass", "CrsPA",   
 "Recov", "Off\_Pass", "Err", "Mis", "Dis",   
 "Off", "Fld", "PKwon", "OG", "Tot\_Blocks", "Sh\_Blocked",   
 "Pass\_Blocked", "Int", "Tkl\_Int", "Clr")

#var to num  
#clus\_df$X90s <- as.numeric(clus\_df$X90s)  
  
for (var in PEvariables) {  
 PE\_df[[var]] <- as.numeric(PE\_df[[var]])  
}  
  
# Looping and transformation  
for (var in PEvariables) {  
 new\_var <- paste0(var, "\_per\_90")  
 PE\_df[[new\_var]] <- round(PE\_df[[var]] / PE\_df$X90s, 3)  
}

# Removing variables from dataframe  
PE\_df <- PE\_df[, !names(PE\_df) %in% PEvariables]  
  
#Removing the "X90s" variable as it is irrelevant to PE  
PE\_df <- PE\_df[, !names(PE\_df) %in% "X90s"]

#Calculating Total tackle rate and removing the root variables  
PE\_df$Tkl\_Rate <- (PE\_df$TklW / PE\_df$Tkl)\*100  
PE\_df <- PE\_df[, !names(PE\_df) %in% c("Tkl", "TklW")]

#Replacing NA values  
PE\_df[is.na(PE\_df)] <- 0

Reintroducing Player Positions to split the dataset again

PE\_df$Pos <- sub\_clus\_23\_24$Pos

# Subset for "DF"  
subset\_DF\_PE <- PE\_df %>%  
 filter(grepl("DF", Pos))  
  
# Subset for "MF"  
subset\_MF\_PE <- PE\_df %>%  
 filter(grepl("MF", Pos))  
  
# Subset for "FW"  
subset\_FW\_PE <- PE\_df %>%  
 filter(grepl("FW", Pos))

# Identifying the Player(s) in subset\_MF\_PE that are not in subset\_MF\_num\_b  
missing\_player <- subset\_MF\_PE[!subset\_MF\_PE$Player %in% subset\_MF\_b$Player, ]  
  
# Printing the missing row  
print(missing\_player)

## Player G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast  
## 68 Brennan Johnson 0 0 0 0 -0.3 0.08 0  
## Ast\_per\_90 xAG A\_xAG SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate  
## 68 0 0.2 -0.2 0 0 77 86.2  
## Medium\_Cmp\_Rate Long\_Cmp\_Rate Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate  
## 68 77.3 100 50 28.6 42.9  
## Aerial\_Won\_Rate CrdR\_per\_90 CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90  
## 68 33.3 0 0 0 0  
## Fls\_per\_90 PrgC\_per\_90 Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90  
## 68 0.385 3.077 143.077 78.846  
## Att\_3rd\_Car\_per\_90 CPA\_per\_90 xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90  
## 68 1.538 1.154 0 0.385 1.154  
## Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90 Fouled\_SCA\_per\_90 Def\_SCA\_per\_90  
## 68 0.769 0.385 0.385 0  
## PrgP\_per\_90 Total\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 TB\_per\_90  
## 68 0.385 258.077 55 0  
## Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90 Off\_Pass\_per\_90 Err\_per\_90  
## 68 0.769 0 4.231 0.385 0  
## Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90 PKwon\_per\_90 OG\_per\_90  
## 68 1.538 0.769 0.385 2.692 0 0  
## Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90 Pass\_Blocked\_per\_90 Int\_per\_90  
## 68 1.538 0.385 1.154 0  
## Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate Pos  
## 68 1.538 0 25 FW,MF

Further Cluster Separation

# Adding cluster memberships to original data  
subset\_FW\_num\_b$cluster <- gmm\_fw$classification  
subset\_MF\_num\_b$cluster <- gmm\_mf$classification  
subset\_DF\_num\_b$cluster <- gmm\_df$classification

subset\_FW\_num\_b$cluster <- as.factor(subset\_FW\_num\_b$cluster)  
subset\_MF\_num\_b$cluster <- as.factor(subset\_MF\_num\_b$cluster)  
subset\_DF\_num\_b$cluster <- as.factor(subset\_DF\_num\_b$cluster)

subset\_MF\_PE <- subset\_MF\_PE[-68, ]

Integrating Player Clusters

subset\_DF\_PE <- subset\_DF\_PE[order(subset\_DF\_PE[, 1]), ]  
subset\_DF\_PE$cluster <- subset\_DF\_num\_b$cluster  
  
subset\_MF\_PE <- subset\_MF\_PE[order(subset\_MF\_PE[, 1]), ]  
subset\_MF\_PE$cluster <- subset\_MF\_num\_b$cluster  
  
subset\_FW\_PE <- subset\_FW\_PE[order(subset\_FW\_PE[, 1]), ]  
subset\_FW\_PE$cluster <- subset\_FW\_num\_b$cluster

Separating by Cluster Roles

# Subset for "DF"  
subset\_DF1\_PE <- subset\_DF\_PE %>%  
 filter(grepl(1, cluster))  
subset\_DF2\_PE <- subset\_DF\_PE %>%  
 filter(grepl(2, cluster))  
subset\_DF3\_PE <- subset\_DF\_PE %>%  
 filter(grepl(3, cluster))  
subset\_DF4\_PE <- subset\_DF\_PE %>%  
 filter(grepl(4, cluster))  
subset\_DF5\_PE <- subset\_DF\_PE %>%  
 filter(grepl(5, cluster))  
subset\_DF6\_PE <- subset\_DF\_PE %>%  
 filter(grepl(6, cluster))  
subset\_DF7\_PE <- subset\_DF\_PE %>%  
 filter(grepl(7, cluster))  
  
# Subset for "MF"  
subset\_MF1\_PE <- subset\_MF\_PE %>%  
 filter(grepl(1, cluster))  
subset\_MF2\_PE <- subset\_MF\_PE %>%  
 filter(grepl(2, cluster))  
subset\_MF3\_PE <- subset\_MF\_PE %>%  
 filter(grepl(3, cluster))  
subset\_MF4\_PE <- subset\_MF\_PE %>%  
 filter(grepl(4, cluster))  
subset\_MF5\_PE <- subset\_MF\_PE %>%  
 filter(grepl(5, cluster))  
subset\_MF6\_PE <- subset\_MF\_PE %>%  
 filter(grepl(6, cluster))  
subset\_MF7\_PE <- subset\_MF\_PE %>%  
 filter(grepl(7, cluster))  
  
# Subset for "FW"  
subset\_FW1\_PE <- subset\_FW\_PE %>%  
 filter(grepl(1, cluster))  
subset\_FW2\_PE <- subset\_FW\_PE %>%  
 filter(grepl(2, cluster))  
subset\_FW3\_PE <- subset\_FW\_PE %>%  
 filter(grepl(3, cluster))  
subset\_FW4\_PE <- subset\_FW\_PE %>%  
 filter(grepl(4, cluster))  
subset\_FW5\_PE <- subset\_FW\_PE %>%  
 filter(grepl(5, cluster))

Removing unnecessary variables

# List of datasets to include   
PE\_datasets\_to\_process <- c("subset\_DF1\_PE", "subset\_DF2\_PE", "subset\_DF3\_PE", "subset\_DF4\_PE", "subset\_DF5\_PE",   
 "subset\_DF6\_PE", "subset\_DF7\_PE", "subset\_MF1\_PE", "subset\_MF2\_PE", "subset\_MF3\_PE",   
 "subset\_MF4\_PE", "subset\_MF5\_PE", "subset\_MF6\_PE", "subset\_MF7\_PE", "subset\_FW1\_PE",   
 "subset\_FW2\_PE", "subset\_FW3\_PE", "subset\_FW4\_PE", "subset\_FW5\_PE")  
  
# function to remove specified columns and rename  
remove\_and\_rename <- function(df\_name) {  
 df <- get(df\_name)  
 df\_num <- df %>% select(-Player, -Pos, -cluster)  
 assign(paste0(df\_name, "\_num"), df\_num, envir = .GlobalEnv)  
}  
  
# Applying the function   
lapply(PE\_datasets\_to\_process, remove\_and\_rename)

## [[1]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 0.0 0.09 0 0.00 0.4 -0.4  
## 2 0 0.00 0.00 0.00 -0.1 0.05 2 0.08 1.3 0.7  
## 3 0 0.00 0.00 0.00 -0.6 0.06 0 0.00 1.5 -1.5  
## 4 0 0.00 0.00 0.00 -0.2 0.06 2 0.13 0.9 1.1  
## 5 1 0.04 0.10 1.00 0.8 0.05 1 0.04 1.2 -0.2  
## 6 0 0.00 0.00 0.00 0.0 0.02 1 0.11 0.2 0.8  
## 7 2 0.06 0.07 0.29 0.3 0.08 3 0.09 2.9 0.1  
## 8 0 0.00 0.00 0.00 -0.3 0.07 1 0.06 1.2 -0.2  
## 9 0 0.00 0.00 0.00 0.0 0.09 0 0.00 1.0 -1.0  
## 10 1 0.05 0.14 1.00 0.1 0.08 2 0.09 1.8 0.2  
## 11 0 0.00 0.00 0.00 -0.3 0.15 2 0.18 1.7 0.3  
## 12 0 0.00 0.00 0.00 -0.2 0.01 0 0.00 0.2 -0.2  
## 13 0 0.00 0.00 0.00 -0.1 0.04 0 0.00 0.2 -0.2  
## 14 0 0.00 0.00 0.00 0.0 0.14 0 0.00 1.0 -1.0  
## 15 0 0.00 0.00 0.00 -0.3 0.11 7 0.20 4.0 3.0  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 0.0 0.00 82.5 91.6 83.3 52.1  
## 2 0.0 0.00 76.3 89.6 81.0 36.2  
## 3 15.4 0.08 68.7 87.8 75.5 37.9  
## 4 0.0 0.00 73.7 90.0 74.7 38.9  
## 5 10.0 0.04 75.8 88.1 77.9 45.0  
## 6 0.0 0.00 79.8 89.0 87.4 50.7  
## 7 23.3 0.20 81.2 89.2 81.9 65.3  
## 8 25.0 0.06 74.3 84.5 85.3 47.1  
## 9 0.0 0.00 81.9 89.2 84.8 47.7  
## 10 14.3 0.05 66.8 79.1 68.0 50.5  
## 11 0.0 0.00 71.5 86.9 68.1 44.2  
## 12 0.0 0.00 82.5 92.4 85.3 51.9  
## 13 100.0 0.36 64.2 87.1 65.9 23.1  
## 14 0.0 0.00 67.6 84.1 73.8 31.4  
## 15 25.0 0.06 69.3 89.1 71.5 33.1  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 66.7 0.0 100.0 66.7 0.000  
## 2 48.7 26.7 53.3 45.0 0.000  
## 3 55.6 44.4 44.4 37.3 0.040  
## 4 47.1 50.0 50.0 21.4 0.000  
## 5 48.6 52.9 35.3 51.9 0.000  
## 6 47.1 0.0 100.0 46.2 0.110  
## 7 68.9 59.6 34.6 56.1 0.028  
## 8 56.0 50.0 0.0 60.9 0.000  
## 9 60.0 63.6 36.4 56.5 0.000  
## 10 50.0 39.3 53.6 34.1 0.000  
## 11 37.8 38.9 55.6 41.2 0.000  
## 12 66.7 50.0 37.5 61.9 0.000  
## 13 28.6 50.0 37.5 100.0 0.000  
## 14 68.8 46.2 53.8 20.0 0.000  
## 15 50.7 31.6 50.0 51.9 0.029  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.208 0.417 0.833  
## 2 0.000 0.084 0.251 1.255 1.004  
## 3 0.040 0.040 0.277 1.304 1.581  
## 4 0.000 0.000 0.197 0.526 1.053  
## 5 0.000 0.000 0.309 0.772 1.390  
## 6 0.110 0.000 0.549 0.549 0.659  
## 7 0.028 0.028 0.170 1.275 1.473  
## 8 0.000 0.058 0.116 0.983 0.867  
## 9 0.000 0.000 0.561 1.308 0.935  
## 10 0.000 0.000 0.045 0.452 0.814  
## 11 0.000 0.000 0.357 1.607 1.518  
## 12 0.000 0.000 0.000 0.403 0.671  
## 13 0.000 0.000 0.000 0.357 1.607  
## 14 0.000 0.000 0.000 0.811 0.676  
## 15 0.029 0.029 0.201 0.920 1.954  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 108.750 45.833 1.042 0.000  
## 2 102.720 42.762 0.921 0.126  
## 3 114.980 58.893 0.949 0.198  
## 4 107.895 49.408 0.724 0.066  
## 5 125.830 57.799 0.695 0.193  
## 6 127.802 68.132 1.099 0.000  
## 7 153.343 82.181 1.218 0.283  
## 8 154.913 83.873 0.578 0.116  
## 9 173.271 77.757 1.028 0.093  
## 10 89.819 39.095 0.543 0.271  
## 11 112.768 57.321 1.250 0.357  
## 12 96.309 44.161 0.805 0.067  
## 13 92.321 43.036 0.893 0.357  
## 14 113.108 52.297 0.676 0.135  
## 15 142.414 69.856 1.006 0.115  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.062 1.042 1.458 0.000 0.000  
## 2 0.071 0.711 1.088 0.000 0.000  
## 3 0.055 0.830 1.502 0.040 0.158  
## 4 0.059 0.855 1.447 0.000 0.000  
## 5 0.066 0.579 1.158 0.000 0.077  
## 6 0.044 0.769 1.429 0.000 0.000  
## 7 0.068 1.048 1.898 0.057 0.085  
## 8 0.046 0.520 1.387 0.058 0.000  
## 9 0.084 1.215 1.215 0.093 0.000  
## 10 0.063 0.679 1.312 0.136 0.000  
## 11 0.089 0.714 1.250 0.000 0.089  
## 12 0.013 0.201 0.403 0.000 0.067  
## 13 0.107 0.893 1.429 0.179 0.000  
## 14 0.095 0.405 0.676 0.135 0.000  
## 15 0.086 0.948 1.437 0.086 0.057  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.417 0.000 5.417 870.000  
## 2 0.042 0.000 3.724 532.301  
## 3 0.119 0.079 3.241 504.032  
## 4 0.066 0.000 3.618 460.987  
## 5 0.039 0.039 3.166 638.417  
## 6 0.000 0.000 4.176 767.802  
## 7 0.028 0.028 3.513 706.147  
## 8 0.058 0.058 3.237 781.850  
## 9 0.000 0.000 4.206 770.280  
## 10 0.000 0.045 1.946 382.262  
## 11 0.000 0.179 3.393 552.232  
## 12 0.000 0.067 2.215 507.047  
## 13 0.000 0.000 3.036 409.643  
## 14 0.000 0.000 2.973 456.892  
## 15 0.086 0.029 3.420 539.598  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 358.750 0.000 0.625 0.000 3.750  
## 2 218.619 0.126 1.088 0.711 3.849  
## 3 223.439 0.079 1.146 0.435 4.743  
## 4 174.342 0.066 0.987 0.526 5.263  
## 5 204.324 0.000 1.081 0.541 4.093  
## 6 260.440 0.000 0.989 0.220 4.396  
## 7 228.499 0.028 1.105 0.453 5.524  
## 8 254.740 0.058 1.098 0.231 6.994  
## 9 291.028 0.187 0.935 0.000 5.514  
## 10 134.751 0.045 1.312 0.950 3.710  
## 11 246.518 0.089 1.161 0.536 5.357  
## 12 202.752 0.000 1.074 0.134 3.356  
## 13 169.464 0.000 1.429 1.071 3.750  
## 14 200.135 0.000 1.486 0.270 5.270  
## 15 265.201 0.057 1.609 0.603 4.425  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.000 0.000 0.000 0.417 0.208 0.625  
## 2 0.126 0.000 0.586 0.293 0.042 0.921  
## 3 0.356 0.119 0.632 0.514 0.040 0.949  
## 4 0.329 0.000 0.921 0.658 0.066 0.592  
## 5 0.270 0.000 0.695 0.386 0.077 0.618  
## 6 0.220 0.220 0.330 0.110 0.330 0.989  
## 7 0.198 0.000 0.680 0.312 0.057 0.397  
## 8 0.347 0.000 1.156 0.347 0.000 0.751  
## 9 0.187 0.000 1.308 0.561 0.000 0.280  
## 10 0.181 0.000 1.041 0.679 0.136 0.679  
## 11 0.089 0.000 1.696 0.536 0.089 0.446  
## 12 0.201 0.000 0.872 0.000 0.000 0.201  
## 13 0.000 0.000 1.250 0.179 0.000 0.357  
## 14 0.541 0.135 0.946 0.541 0.000 0.676  
## 15 0.316 0.000 0.805 0.374 0.029 0.747  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.00 0.000 1.042 0.625  
## 2 0.00 0.000 1.172 0.460  
## 3 0.04 0.040 0.949 0.237  
## 4 0.00 0.066 1.184 0.132  
## 5 0.00 0.000 1.042 0.425  
## 6 0.00 0.000 0.879 0.659  
## 7 0.00 0.000 1.246 0.453  
## 8 0.00 0.000 1.272 0.694  
## 9 0.00 0.000 1.682 1.028  
## 10 0.00 0.000 0.679 0.136  
## 11 0.00 0.000 1.250 0.268  
## 12 0.00 0.000 1.208 0.403  
## 13 0.00 0.000 0.357 0.000  
## 14 0.00 0.135 1.622 0.541  
## 15 0.00 0.000 1.408 0.431  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.417 0.625 1.250 1.458 66.66667  
## 2 0.711 0.879 2.427 2.594 62.16216  
## 3 0.711 0.870 2.964 1.976 71.69811  
## 4 1.053 0.526 1.974 1.974 40.90909  
## 5 0.618 0.734 2.085 3.012 57.14286  
## 6 0.220 0.440 1.758 2.747 41.66667  
## 7 0.793 1.048 3.343 3.144 62.96296  
## 8 0.578 0.751 2.139 3.873 79.16667  
## 9 0.654 0.561 1.589 3.645 72.72727  
## 10 0.543 0.860 3.032 3.213 64.58333  
## 11 0.982 0.804 3.839 2.946 70.58824  
## 12 0.805 0.671 2.282 2.215 62.50000  
## 13 0.357 0.714 2.143 3.929 75.00000  
## 14 1.081 0.946 3.243 3.514 82.35294  
## 15 0.977 1.236 3.075 2.787 64.06250  
##   
## [[2]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.2 0.01 0 0.00 0.1 -0.1  
## 2 0 0.00 0.00 0.00 -0.1 0.08 2 0.10 1.5 0.5  
## 3 0 0.00 0.00 0.00 -0.3 0.02 0 0.00 0.5 -0.5  
## 4 0 0.00 0.00 0.00 -0.4 0.01 0 0.00 0.1 -0.1  
## 5 0 0.00 0.00 0.00 -0.7 0.11 6 0.17 4.2 1.8  
## 6 0 0.00 0.00 0.00 -0.2 0.00 0 0.00 0.0 0.0  
## 7 0 0.00 0.00 0.00 -1.2 0.15 4 0.25 2.4 1.6  
## 8 2 0.08 0.22 0.40 -0.4 0.08 3 0.11 2.2 0.8  
## 9 1 0.08 0.17 0.33 0.8 0.03 0 0.00 0.4 -0.4  
## 10 1 0.03 0.05 0.25 -0.5 0.07 2 0.06 2.4 -0.4  
## 11 0 0.00 0.00 0.00 -0.2 0.02 0 0.00 0.1 -0.1  
## 12 0 0.00 0.00 0.00 0.0 0.07 1 0.09 0.8 0.2  
## 13 0 0.00 0.00 0.00 -0.3 0.09 0 0.00 0.8 -0.8  
## 14 0 0.00 0.00 0.00 -0.2 0.11 2 0.10 2.1 -0.1  
## 15 3 0.10 0.09 0.27 0.7 0.03 0 0.00 1.0 -1.0  
## 16 1 0.06 0.20 0.33 0.6 0.03 1 0.06 0.5 0.5  
## 17 1 0.10 0.25 1.00 0.1 0.04 0 0.00 0.4 -0.4  
## 18 1 0.12 0.09 0.25 0.7 0.03 0 0.00 0.3 -0.3  
## 19 1 0.07 0.11 0.25 0.6 0.19 2 0.15 2.6 -0.6  
## 20 0 0.00 0.00 0.00 -0.5 0.00 0 0.00 0.1 -0.1  
## 21 0 0.00 0.00 0.00 -1.1 0.05 2 0.10 1.1 0.9  
## 22 0 0.00 0.00 0.00 0.0 0.06 1 0.07 0.8 0.2  
## 23 0 0.00 0.00 0.00 -0.6 0.13 0 0.00 0.7 -0.7  
## 24 0 0.00 0.00 0.00 -1.2 0.04 1 0.05 0.8 0.2  
## 25 0 0.00 0.00 0.00 -0.8 0.09 1 0.05 1.6 -0.6  
## 26 0 0.00 0.00 0.00 -1.3 0.05 1 0.03 1.7 -0.7  
## 27 1 0.05 0.09 1.00 0.7 0.05 1 0.05 0.9 0.1  
## 28 0 0.00 0.00 0.00 -0.2 0.05 2 0.22 0.5 1.5  
## 29 0 0.00 0.00 0.00 -0.8 0.23 4 0.32 2.8 1.2  
## 30 1 0.07 0.25 0.50 0.6 0.05 0 0.00 0.8 -0.8  
## 31 0 0.00 0.00 0.00 -1.6 0.05 2 0.08 1.3 0.7  
## 32 0 0.00 0.00 0.00 -0.2 0.05 0 0.00 0.3 -0.3  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 14.3 0.13 87.7 95.7 86.8 70.0  
## 2 33.3 0.05 83.5 89.5 85.3 50.0  
## 3 100.0 0.10 77.2 87.1 85.7 40.7  
## 4 22.2 0.19 75.1 83.2 82.5 31.6  
## 5 43.8 0.19 73.7 83.4 79.1 54.3  
## 6 33.3 0.33 73.7 90.4 72.7 42.4  
## 7 0.0 0.00 77.9 87.5 71.9 40.0  
## 8 55.6 0.19 85.8 91.8 87.0 57.6  
## 9 50.0 0.23 90.3 94.8 93.6 71.1  
## 10 21.1 0.11 81.4 90.8 79.6 51.9  
## 11 40.0 0.44 67.4 77.6 68.9 28.6  
## 12 0.0 0.00 73.3 88.5 80.6 34.6  
## 13 0.0 0.00 78.3 89.0 78.6 40.7  
## 14 16.7 0.05 70.2 85.5 70.7 44.9  
## 15 34.4 0.36 70.7 85.8 71.8 41.1  
## 16 60.0 0.17 83.7 89.0 87.8 58.5  
## 17 25.0 0.10 79.9 87.7 80.7 61.4  
## 18 36.4 0.46 81.9 92.3 84.5 54.1  
## 19 44.4 0.29 72.6 80.9 78.4 32.3  
## 20 16.7 0.10 73.4 86.5 79.3 43.2  
## 21 50.0 0.20 86.6 92.2 89.1 49.2  
## 22 0.0 0.00 77.5 88.7 80.0 54.0  
## 23 0.0 0.00 64.6 74.6 59.5 50.0  
## 24 31.3 0.23 72.6 85.9 71.2 45.7  
## 25 26.7 0.22 66.1 86.7 64.2 32.3  
## 26 23.5 0.12 79.7 90.4 80.4 43.7  
## 27 9.1 0.05 75.2 87.7 76.4 45.5  
## 28 16.7 0.11 77.7 84.9 83.3 37.8  
## 29 7.7 0.08 67.2 83.0 73.1 41.5  
## 30 50.0 0.14 85.9 92.1 86.8 50.9  
## 31 16.0 0.16 71.9 83.8 70.9 53.6  
## 32 16.7 0.17 70.8 85.4 76.3 35.3  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 100.0 35.7 35.7 10.0 0.000  
## 2 73.1 53.1 28.1 52.5 0.000  
## 3 62.9 37.0 55.6 47.6 0.000  
## 4 42.9 50.0 45.8 44.0 0.000  
## 5 47.3 45.7 43.2 60.9 0.000  
## 6 64.3 44.0 48.0 36.8 0.000  
## 7 50.0 46.4 42.9 48.1 0.000  
## 8 55.1 41.4 44.8 45.8 0.038  
## 9 48.8 47.6 28.6 41.7 0.000  
## 10 63.3 37.5 50.0 52.1 0.000  
## 11 41.7 18.2 72.7 57.1 0.000  
## 12 40.0 54.5 36.4 50.0 0.000  
## 13 63.2 34.8 47.8 42.9 0.000  
## 14 53.3 42.9 42.9 48.6 0.000  
## 15 50.0 42.4 44.1 64.1 0.000  
## 16 67.2 9.1 45.5 57.1 0.000  
## 17 57.9 45.0 50.0 50.0 0.000  
## 18 60.7 50.0 38.9 47.6 0.000  
## 19 51.9 40.6 53.1 43.3 0.073  
## 20 57.1 50.0 40.0 40.0 0.000  
## 21 53.1 30.8 53.8 56.4 0.000  
## 22 58.8 41.2 35.3 31.3 0.000  
## 23 53.3 40.0 60.0 31.3 0.000  
## 24 71.4 44.4 44.4 36.7 0.046  
## 25 62.5 43.2 40.9 60.8 0.000  
## 26 59.4 56.7 32.2 44.9 0.029  
## 27 70.7 60.0 31.1 57.1 0.000  
## 28 45.5 21.4 78.6 60.0 0.000  
## 29 60.0 50.0 42.3 41.2 0.081  
## 30 47.6 56.7 26.7 60.0 0.000  
## 31 50.0 43.1 43.1 46.3 0.000  
## 32 71.4 58.8 41.2 20.0 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.633 1.266 1.139  
## 2 0.000 0.051 0.202 0.859 1.515  
## 3 0.000 0.000 0.000 1.152 1.675  
## 4 0.000 0.000 0.096 1.058 1.154  
## 5 0.000 0.000 0.165 0.937 2.727  
## 6 0.000 0.000 0.167 0.500 2.833  
## 7 0.000 0.000 0.250 1.875 1.562  
## 8 0.038 0.000 0.263 1.917 3.120  
## 9 0.000 0.000 0.310 1.085 1.628  
## 10 0.000 0.029 0.287 0.917 1.691  
## 11 0.000 0.222 0.222 2.222 2.000  
## 12 0.000 0.000 0.370 1.759 0.833  
## 13 0.000 0.000 0.122 0.854 2.683  
## 14 0.000 0.000 0.365 1.406 3.125  
## 15 0.000 0.000 0.290 1.226 1.226  
## 16 0.000 0.000 0.227 0.966 1.364  
## 17 0.000 0.104 0.208 1.667 2.083  
## 18 0.000 0.000 0.230 0.575 2.184  
## 19 0.073 0.146 0.365 2.409 2.774  
## 20 0.000 0.000 0.294 0.980 0.784  
## 21 0.000 0.051 0.505 1.162 1.566  
## 22 0.000 0.073 0.073 0.876 1.606  
## 23 0.000 0.000 0.179 1.250 0.893  
## 24 0.000 0.000 0.183 1.142 2.100  
## 25 0.000 0.000 0.220 1.264 2.637  
## 26 0.000 0.058 0.292 1.399 3.003  
## 27 0.000 0.053 0.160 0.957 2.819  
## 28 0.000 0.000 0.215 0.860 1.075  
## 29 0.000 0.081 0.323 0.806 2.742  
## 30 0.000 0.000 0.068 0.205 3.014  
## 31 0.000 0.078 0.039 1.051 2.296  
## 32 0.000 0.000 0.169 0.847 3.051  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 140.127 63.924 0.380 0.127  
## 2 146.919 72.172 1.364 0.202  
## 3 190.576 105.759 1.309 0.052  
## 4 121.058 48.173 1.442 0.096  
## 5 207.906 110.303 1.928 0.248  
## 6 246.500 105.500 1.833 0.167  
## 7 115.062 54.562 1.062 0.312  
## 8 229.624 124.812 2.444 0.714  
## 9 213.876 100.155 1.473 0.155  
## 10 157.364 79.943 1.347 0.258  
## 11 114.222 48.667 1.333 0.889  
## 12 91.481 42.870 0.278 0.370  
## 13 192.073 95.732 1.098 0.244  
## 14 163.229 81.146 1.719 0.521  
## 15 113.258 46.548 1.032 0.355  
## 16 143.864 61.136 0.966 0.000  
## 17 145.833 67.708 1.562 0.208  
## 18 204.943 118.966 1.839 0.575  
## 19 135.912 77.591 1.168 0.876  
## 20 78.725 38.333 0.686 0.098  
## 21 144.495 79.747 0.758 0.152  
## 22 158.686 81.825 0.876 0.511  
## 23 48.393 18.750 0.357 0.179  
## 24 145.753 73.836 1.279 0.365  
## 25 170.385 89.615 1.319 0.330  
## 26 223.032 126.064 1.837 0.408  
## 27 166.968 97.340 1.543 0.585  
## 28 111.720 57.204 1.613 0.108  
## 29 160.323 93.548 2.016 0.161  
## 30 202.192 100.205 1.164 0.548  
## 31 154.008 79.300 1.479 0.700  
## 32 207.627 125.593 2.203 0.678  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.013 0.127 0.759 0.000 0.000  
## 2 0.071 0.606 1.212 0.000 0.000  
## 3 0.021 0.419 1.152 0.000 0.000  
## 4 0.029 0.288 0.577 0.192 0.096  
## 5 0.102 0.909 1.736 0.055 0.000  
## 6 0.017 0.000 1.167 0.000 0.000  
## 7 0.081 1.312 2.375 0.062 0.062  
## 8 0.075 0.902 1.917 0.150 0.075  
## 9 0.070 0.233 1.163 0.000 0.078  
## 10 0.060 0.716 1.404 0.086 0.115  
## 11 0.022 0.444 0.889 0.000 0.000  
## 12 0.056 0.648 0.926 0.185 0.000  
## 13 0.085 0.732 1.707 0.122 0.122  
## 14 0.099 0.833 1.302 0.104 0.104  
## 15 0.039 0.323 0.839 0.097 0.032  
## 16 0.034 0.227 0.682 0.000 0.000  
## 17 0.052 0.312 1.146 0.208 0.104  
## 18 0.080 0.345 1.609 0.345 0.115  
## 19 0.117 0.949 1.314 0.073 0.000  
## 20 0.020 0.196 0.784 0.000 0.098  
## 21 0.061 0.960 1.414 0.051 0.051  
## 22 0.066 0.511 1.168 0.000 0.000  
## 23 0.018 0.357 1.250 0.000 0.179  
## 24 0.046 0.548 1.142 0.000 0.183  
## 25 0.093 0.604 1.264 0.055 0.220  
## 26 0.052 0.700 1.341 0.087 0.058  
## 27 0.053 0.585 1.330 0.160 0.053  
## 28 0.054 0.430 1.290 0.108 0.000  
## 29 0.177 1.613 1.613 0.081 0.161  
## 30 0.055 0.822 1.918 0.137 0.068  
## 31 0.047 0.428 1.284 0.156 0.117  
## 32 0.017 0.339 0.847 0.169 0.169  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.127 0.000 2.658 482.658  
## 2 0.051 0.000 3.889 546.667  
## 3 0.105 0.052 3.979 559.162  
## 4 0.000 0.000 1.731 282.981  
## 5 0.028 0.028 3.554 752.176  
## 6 0.333 0.000 3.667 636.000  
## 7 0.125 0.125 2.375 472.250  
## 8 0.000 0.000 5.827 628.985  
## 9 0.155 0.078 4.419 1058.295  
## 10 0.229 0.115 3.582 554.613  
## 11 0.000 0.000 1.333 318.000  
## 12 0.093 0.000 2.870 426.111  
## 13 0.122 0.000 0.976 534.146  
## 14 0.052 0.104 2.812 437.604  
## 15 0.065 0.000 1.935 341.581  
## 16 0.170 0.057 4.830 699.830  
## 17 0.104 0.000 5.625 668.021  
## 18 0.115 0.000 5.287 870.115  
## 19 0.073 0.000 2.482 394.964  
## 20 0.098 0.000 3.235 379.020  
## 21 0.202 0.000 2.525 763.131  
## 22 0.219 0.000 3.139 540.292  
## 23 0.000 0.000 2.143 221.786  
## 24 0.091 0.046 2.009 447.991  
## 25 0.055 0.055 2.582 442.912  
## 26 0.175 0.087 4.023 634.373  
## 27 0.160 0.053 3.617 511.170  
## 28 0.108 0.000 5.054 563.226  
## 29 0.081 0.000 3.065 488.468  
## 30 0.205 0.137 4.178 685.205  
## 31 0.039 0.039 2.568 450.895  
## 32 0.000 0.000 2.373 333.729  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 113.165 0.127 0.886 0.000 5.316  
## 2 178.737 0.000 1.364 0.152 4.747  
## 3 234.031 0.105 1.204 0.000 5.131  
## 4 49.135 0.000 1.154 0.000 4.327  
## 5 270.799 0.028 1.873 0.716 6.253  
## 6 244.167 0.000 2.500 0.000 8.167  
## 7 179.062 0.000 1.062 0.000 4.750  
## 8 193.421 0.000 1.579 0.000 6.353  
## 9 287.907 0.078 1.783 0.155 6.357  
## 10 219.943 0.057 1.633 0.201 4.069  
## 11 78.222 0.000 1.556 0.222 2.222  
## 12 167.593 0.000 1.667 0.370 4.074  
## 13 122.561 0.000 2.195 0.976 4.512  
## 14 171.302 0.052 2.292 0.677 5.312  
## 15 126.645 0.032 1.032 0.161 4.484  
## 16 187.330 0.114 0.909 0.000 4.318  
## 17 272.292 0.104 1.354 0.729 4.688  
## 18 354.368 0.000 1.379 0.115 6.437  
## 19 144.818 0.000 1.387 0.365 4.891  
## 20 138.039 0.000 1.373 0.196 3.824  
## 21 222.626 0.051 1.313 0.202 4.848  
## 22 203.577 0.146 1.679 0.146 5.474  
## 23 77.857 0.000 1.071 0.000 1.250  
## 24 154.795 0.046 0.913 0.411 4.247  
## 25 185.440 0.000 1.868 0.604 5.879  
## 26 213.003 0.058 1.224 0.292 5.481  
## 27 213.404 0.106 0.904 0.319 5.160  
## 28 230.860 0.108 0.860 0.430 5.376  
## 29 211.774 0.081 1.532 1.048 6.048  
## 30 201.849 0.000 0.822 0.205 5.822  
## 31 137.588 0.156 1.089 0.156 4.241  
## 32 121.017 0.000 2.373 0.000 5.763  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.000 0.000 1.772 0.633 0.000 2.025  
## 2 0.101 0.051 1.010 0.455 0.000 0.455  
## 3 0.209 0.052 0.942 0.262 0.000 0.838  
## 4 0.000 0.000 2.115 1.827 0.000 0.865  
## 5 0.110 0.083 1.295 0.441 0.083 0.551  
## 6 0.333 0.000 1.000 1.667 0.167 1.167  
## 7 0.125 0.000 1.312 0.438 0.500 0.500  
## 8 0.113 0.188 1.842 0.977 0.113 1.353  
## 9 0.078 0.078 1.163 0.930 0.000 2.946  
## 10 0.172 0.000 1.032 0.487 0.029 0.946  
## 11 0.000 0.000 2.667 2.222 0.000 1.333  
## 12 0.185 0.000 0.833 0.833 0.093 1.296  
## 13 0.244 0.000 0.854 1.707 0.122 0.732  
## 14 0.052 0.104 1.302 0.417 0.104 1.562  
## 15 0.065 0.000 1.645 0.903 0.129 0.710  
## 16 0.114 0.057 1.193 0.398 0.057 2.386  
## 17 0.104 0.000 1.042 0.312 0.000 1.250  
## 18 0.230 0.115 1.034 1.494 0.000 0.575  
## 19 0.219 0.073 1.971 0.949 0.073 1.168  
## 20 0.000 0.000 1.078 0.490 0.000 1.275  
## 21 0.000 0.000 0.758 0.303 0.051 1.768  
## 22 0.073 0.000 0.949 0.584 0.146 1.898  
## 23 0.000 0.000 1.071 0.000 0.179 0.536  
## 24 0.091 0.091 1.324 0.457 0.046 0.959  
## 25 0.275 0.000 2.088 1.484 0.220 1.648  
## 26 0.146 0.029 1.662 1.050 0.029 0.875  
## 27 0.160 0.053 1.277 0.532 0.106 1.330  
## 28 0.000 0.108 0.968 0.860 0.000 0.968  
## 29 0.242 0.081 1.774 0.403 0.081 1.210  
## 30 0.000 0.068 1.164 1.233 0.068 1.918  
## 31 0.156 0.156 1.323 1.012 0.233 1.089  
## 32 0.169 0.169 0.169 0.847 0.169 0.847  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 0.886 0.380  
## 2 0.000 0.000 1.465 0.758  
## 3 0.000 0.000 1.728 0.785  
## 4 0.000 0.000 1.250 0.096  
## 5 0.000 0.055 1.543 0.220  
## 6 0.000 0.000 0.333 0.167  
## 7 0.000 0.000 1.812 0.438  
## 8 0.000 0.000 1.015 0.301  
## 9 0.000 0.000 1.783 0.775  
## 10 0.057 0.029 1.347 0.430  
## 11 0.000 0.000 0.667 0.000  
## 12 0.093 0.000 1.296 0.741  
## 13 0.000 0.122 2.073 0.488  
## 14 0.000 0.052 1.146 0.573  
## 15 0.000 0.032 1.355 0.355  
## 16 0.000 0.000 0.966 0.398  
## 17 0.000 0.000 1.042 0.312  
## 18 0.000 0.000 1.954 0.230  
## 19 0.000 0.000 1.606 0.511  
## 20 0.000 0.000 2.255 0.490  
## 21 0.051 0.051 1.818 0.657  
## 22 0.000 0.000 0.657 0.365  
## 23 0.000 0.000 1.786 0.714  
## 24 0.046 0.046 1.416 0.502  
## 25 0.000 0.000 2.418 0.714  
## 26 0.000 0.000 1.283 0.233  
## 27 0.000 0.000 1.011 0.160  
## 28 0.000 0.000 1.075 0.323  
## 29 0.000 0.000 1.855 0.484  
## 30 0.000 0.000 1.096 0.479  
## 31 0.039 0.000 1.712 0.233  
## 32 0.000 0.000 1.017 0.169  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.506 0.380 2.405 1.266 56.25000  
## 2 0.707 2.071 4.192 3.434 59.52381  
## 3 0.942 1.309 3.927 3.141 66.00000  
## 4 1.154 1.346 3.462 1.923 59.09091  
## 5 1.322 2.204 4.766 3.223 62.36559  
## 6 0.167 0.833 2.667 2.333 63.63636  
## 7 1.375 1.500 4.938 2.938 63.63636  
## 8 0.714 1.391 3.947 3.008 48.52941  
## 9 1.008 1.550 4.341 3.876 66.66667  
## 10 0.917 1.232 4.269 2.751 64.15094  
## 11 0.667 0.222 2.444 2.889 60.00000  
## 12 0.556 0.926 2.593 3.056 55.55556  
## 13 1.585 0.732 3.293 2.927 66.66667  
## 14 0.573 0.833 3.542 2.917 53.84615  
## 15 1.000 1.032 3.161 3.129 54.54545  
## 16 0.568 1.023 4.091 3.239 75.92593  
## 17 0.729 1.667 4.479 3.646 62.96296  
## 18 1.724 1.379 4.598 2.529 64.28571  
## 19 1.095 1.387 3.942 3.139 48.57143  
## 20 1.765 0.980 2.941 2.647 45.00000  
## 21 1.162 1.111 4.242 2.424 61.29032  
## 22 0.292 0.584 2.701 1.971 65.51724  
## 23 1.071 0.893 4.643 2.679 47.61905  
## 24 0.913 0.913 3.059 2.740 55.31915  
## 25 1.703 1.209 5.000 2.912 57.97101  
## 26 1.050 1.050 3.353 2.478 60.75949  
## 27 0.851 0.957 3.457 2.713 65.95745  
## 28 0.753 0.968 3.118 3.871 70.00000  
## 29 1.371 1.290 4.919 3.306 44.44444  
## 30 0.616 1.712 3.288 2.808 56.52174  
## 31 1.479 0.467 2.957 1.829 53.12500  
## 32 0.847 1.186 4.068 3.390 52.94118  
##   
## [[3]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.4 0.01 0 0.00 0.1 -0.1  
## 2 2 0.07 0.13 0.50 -0.4 0.01 0 0.00 0.3 -0.3  
## 3 1 0.08 0.08 0.50 -1.3 0.03 0 0.00 0.4 -0.4  
## 4 0 0.00 0.00 0.00 -0.3 0.10 1 0.07 1.5 -0.5  
## 5 0 0.00 0.00 0.00 -0.9 0.06 1 0.08 0.8 0.2  
## 6 5 0.16 0.21 0.56 1.5 0.01 0 0.00 0.4 -0.4  
## 7 0 0.00 0.00 0.00 -1.9 0.00 0 0.00 0.1 -0.1  
## 8 1 0.03 0.05 0.20 -1.5 0.02 0 0.00 0.5 -0.5  
## 9 0 0.00 0.00 0.00 -0.7 0.02 0 0.00 0.4 -0.4  
## 10 0 0.00 0.00 0.00 -0.3 0.04 0 0.00 0.7 -0.7  
## 11 0 0.00 0.00 0.00 -0.3 0.00 0 0.00 0.0 0.0  
## 12 1 0.08 0.17 1.00 0.3 0.01 0 0.00 0.1 -0.1  
## 13 0 0.00 0.00 0.00 -1.2 0.03 0 0.00 0.9 -0.9  
## 14 2 0.15 0.33 0.50 1.0 0.01 0 0.00 0.1 -0.1  
## 15 0 0.00 0.00 0.00 -0.5 0.01 0 0.00 0.1 -0.1  
## 16 1 0.08 0.25 0.50 0.0 0.02 0 0.00 0.2 -0.2  
## 17 0 0.00 0.00 0.00 -0.5 0.02 1 0.07 0.3 0.7  
## 18 3 0.09 0.09 0.25 -0.1 0.03 1 0.03 0.9 0.1  
## 19 2 0.07 0.13 0.40 0.1 0.02 0 0.00 0.5 -0.5  
## 20 0 0.00 0.00 0.00 -0.6 0.03 1 0.04 0.6 0.4  
## 21 3 0.12 0.38 1.00 2.4 0.00 0 0.00 0.0 0.0  
## 22 2 0.09 0.10 0.40 -0.5 0.05 2 0.09 1.2 0.8  
## 23 2 0.07 0.17 0.40 1.0 0.02 0 0.00 0.4 -0.4  
## 24 0 0.00 0.00 0.00 -0.1 0.00 0 0.00 0.0 0.0  
## 25 0 0.00 0.00 0.00 -1.4 0.01 0 0.00 0.3 -0.3  
## 26 2 0.13 0.20 1.00 1.4 0.07 2 0.13 1.0 1.0  
## 27 3 0.11 0.21 0.75 2.2 0.04 1 0.04 1.0 0.0  
## 28 2 0.11 0.14 0.40 1.3 0.01 0 0.00 0.1 -0.1  
## 29 1 0.09 0.50 0.50 0.8 0.01 0 0.00 0.1 -0.1  
## 30 1 0.07 0.17 0.25 0.2 0.02 1 0.07 0.3 0.7  
## 31 2 0.06 0.04 0.14 -0.8 0.04 2 0.06 1.6 0.4  
## 32 2 0.05 0.20 0.67 0.4 0.01 1 0.03 0.2 0.8  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 0.0 0.00 91.0 92.6 93.6 70.9  
## 2 25.0 0.14 90.0 96.1 93.4 51.2  
## 3 16.7 0.17 90.1 93.5 93.9 74.1  
## 4 16.7 0.07 90.8 95.5 93.0 67.0  
## 5 25.0 0.16 89.5 94.7 94.3 64.6  
## 6 37.5 0.29 91.7 93.3 95.4 70.3  
## 7 10.0 0.05 88.4 94.4 95.3 53.8  
## 8 26.3 0.15 91.1 94.2 93.2 73.6  
## 9 18.2 0.11 87.9 90.8 93.7 57.9  
## 10 0.0 0.00 93.4 96.2 96.1 72.1  
## 11 20.0 0.06 88.0 93.0 93.4 54.1  
## 12 16.7 0.08 86.4 91.6 91.0 47.5  
## 13 40.0 0.23 92.1 94.8 93.9 73.1  
## 14 66.7 0.30 88.6 93.9 94.0 53.0  
## 15 0.0 0.00 87.6 91.7 89.5 70.2  
## 16 50.0 0.17 93.1 94.4 96.1 75.9  
## 17 0.0 0.00 89.0 90.6 94.4 69.6  
## 18 36.4 0.38 92.1 97.2 94.6 63.5  
## 19 33.3 0.18 93.4 96.0 94.7 77.3  
## 20 0.0 0.00 86.9 90.1 94.5 61.3  
## 21 37.5 0.12 93.8 96.6 95.0 79.8  
## 22 25.0 0.22 92.1 95.8 94.2 50.6  
## 23 41.7 0.18 87.4 92.6 93.2 55.8  
## 24 0.0 0.00 88.1 87.8 93.4 50.0  
## 25 40.0 0.28 93.7 96.6 96.2 71.6  
## 26 20.0 0.13 90.6 93.5 93.9 74.2  
## 27 28.6 0.14 94.7 96.6 96.7 76.9  
## 28 35.7 0.28 84.5 90.2 89.7 65.0  
## 29 100.0 0.19 89.4 92.1 95.0 50.0  
## 30 66.7 0.27 89.1 91.5 92.2 68.6  
## 31 31.1 0.40 91.4 94.2 95.1 73.5  
## 32 30.0 0.08 92.4 94.3 94.5 69.3  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 33.3 0.0 100.0 71.7 0.000  
## 2 76.7 54.5 22.7 69.9 0.000  
## 3 76.2 40.0 60.0 58.0 0.000  
## 4 64.3 0.0 0.0 56.0 0.000  
## 5 53.8 37.5 25.0 57.7 0.000  
## 6 72.7 62.5 12.5 69.0 0.032  
## 7 61.9 50.0 50.0 44.7 0.000  
## 8 85.2 55.9 17.6 68.2 0.000  
## 9 75.0 60.0 10.0 71.3 0.057  
## 10 58.6 72.7 22.7 68.4 0.000  
## 11 75.0 100.0 0.0 59.5 0.063  
## 12 54.5 33.3 33.3 66.2 0.000  
## 13 60.0 55.6 22.2 66.0 0.000  
## 14 70.0 57.1 42.9 67.2 0.000  
## 15 66.7 0.0 100.0 73.7 0.000  
## 16 0.0 16.7 66.7 73.7 0.000  
## 17 58.3 57.1 28.6 51.9 0.000  
## 18 36.1 62.5 25.0 64.0 0.031  
## 19 56.4 50.0 50.0 50.0 0.036  
## 20 58.3 53.8 30.8 50.0 0.000  
## 21 72.7 55.6 33.3 48.1 0.000  
## 22 65.0 50.0 30.0 62.2 0.000  
## 23 46.7 60.7 32.1 51.1 0.000  
## 24 100.0 33.3 33.3 60.0 0.000  
## 25 73.1 0.0 100.0 52.8 0.000  
## 26 61.5 0.0 100.0 66.7 0.000  
## 27 58.8 50.0 0.0 66.2 0.000  
## 28 57.1 33.3 0.0 66.7 0.000  
## 29 66.7 50.0 50.0 46.3 0.000  
## 30 38.5 100.0 0.0 41.5 0.000  
## 31 85.7 40.0 40.0 81.4 0.028  
## 32 74.1 66.7 26.7 59.5 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.157 0.709 1.260  
## 2 0.000 0.000 0.209 0.592 1.045  
## 3 0.000 0.000 0.165 0.661 1.074  
## 4 0.000 0.067 0.201 1.141 0.201  
## 5 0.000 0.000 0.234 0.234 2.031  
## 6 0.000 0.065 0.226 1.000 1.032  
## 7 0.000 0.000 0.198 1.287 0.198  
## 8 0.000 0.029 0.147 0.411 1.085  
## 9 0.057 0.000 0.286 1.429 1.371  
## 10 0.000 0.000 0.220 1.154 1.648  
## 11 0.063 0.190 0.253 1.076 0.696  
## 12 0.000 0.000 0.333 1.417 0.667  
## 13 0.000 0.038 0.152 0.532 0.951  
## 14 0.000 0.076 0.076 0.758 0.985  
## 15 0.000 0.000 0.230 0.805 0.920  
## 16 0.000 0.000 0.169 0.339 1.356  
## 17 0.000 0.000 0.438 0.803 0.657  
## 18 0.000 0.031 0.219 0.721 1.034  
## 19 0.036 0.000 0.143 0.609 1.649  
## 20 0.000 0.000 0.089 0.622 0.667  
## 21 0.000 0.038 0.192 0.500 0.731  
## 22 0.000 0.000 0.000 0.441 1.057  
## 23 0.000 0.000 0.036 0.657 1.533  
## 24 0.000 0.000 0.208 1.250 1.042  
## 25 0.000 0.035 0.000 0.810 1.197  
## 26 0.000 0.065 0.131 0.588 0.000  
## 27 0.000 0.000 0.142 0.356 0.071  
## 28 0.000 0.000 0.111 0.556 0.556  
## 29 0.000 0.000 0.094 0.283 0.472  
## 30 0.000 0.000 0.135 1.014 1.149  
## 31 0.000 0.000 0.085 0.652 0.907  
## 32 0.000 0.026 0.105 0.579 0.421  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 320.709 185.591 1.260 0.000  
## 2 250.244 147.143 0.697 0.105  
## 3 269.835 168.926 1.074 0.083  
## 4 216.443 116.376 0.336 0.067  
## 5 345.469 220.234 1.406 0.000  
## 6 301.903 194.387 1.355 0.000  
## 7 236.931 129.010 0.099 0.050  
## 8 203.226 108.504 0.587 0.088  
## 9 328.400 205.143 0.971 0.000  
## 10 293.077 157.527 1.264 0.000  
## 11 278.228 168.418 0.506 0.000  
## 12 207.750 121.750 0.500 0.000  
## 13 387.757 238.555 1.559 0.076  
## 14 374.470 189.167 0.758 0.000  
## 15 252.299 161.609 1.494 0.000  
## 16 281.271 139.492 2.034 0.085  
## 17 241.898 152.482 0.803 0.000  
## 18 337.053 175.705 0.564 0.063  
## 19 296.846 176.452 1.828 0.108  
## 20 186.222 97.822 0.400 0.044  
## 21 250.654 117.615 0.615 0.077  
## 22 266.035 154.229 1.894 0.044  
## 23 329.891 215.949 1.533 0.000  
## 24 322.917 153.750 0.417 0.208  
## 25 382.465 235.669 2.465 0.035  
## 26 187.320 91.699 0.261 0.000  
## 27 244.199 137.616 0.391 0.000  
## 28 253.333 147.833 0.667 0.056  
## 29 146.415 66.887 0.472 0.189  
## 30 207.905 109.527 0.946 0.000  
## 31 277.025 148.300 0.538 0.000  
## 32 236.895 136.868 0.579 0.026  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.024 0.394 1.024 0.000 0.079  
## 2 0.035 0.105 0.453 0.000 0.000  
## 3 0.050 0.331 1.157 0.000 0.000  
## 4 0.060 0.403 1.208 0.000 0.134  
## 5 0.039 0.156 0.859 0.000 0.234  
## 6 0.048 0.226 0.903 0.000 0.097  
## 7 0.020 0.149 0.446 0.000 0.000  
## 8 0.029 0.235 0.733 0.059 0.059  
## 9 0.029 0.457 1.371 0.000 0.000  
## 10 0.027 0.385 1.154 0.055 0.000  
## 11 0.025 0.000 0.253 0.000 0.000  
## 12 0.008 0.167 0.583 0.000 0.000  
## 13 0.042 0.380 1.331 0.000 0.038  
## 14 0.015 0.227 0.985 0.000 0.000  
## 15 0.011 0.230 0.920 0.000 0.000  
## 16 0.034 0.508 1.780 0.000 0.000  
## 17 0.015 0.219 0.730 0.000 0.000  
## 18 0.069 0.408 1.223 0.000 0.188  
## 19 0.065 0.466 1.613 0.000 0.108  
## 20 0.044 0.311 0.756 0.000 0.089  
## 21 0.012 0.038 0.346 0.038 0.000  
## 22 0.048 0.441 1.233 0.088 0.176  
## 23 0.026 0.292 0.803 0.000 0.000  
## 24 0.000 0.000 0.208 0.000 0.000  
## 25 0.067 0.246 0.986 0.000 0.176  
## 26 0.039 0.327 0.784 0.000 0.131  
## 27 0.021 0.320 0.890 0.000 0.036  
## 28 0.017 0.111 0.333 0.000 0.222  
## 29 0.038 0.189 0.472 0.000 0.000  
## 30 0.027 0.541 1.284 0.000 0.000  
## 31 0.028 0.312 1.530 0.000 0.142  
## 32 0.024 0.158 0.684 0.026 0.053  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 6.299 1333.701  
## 2 0.000 0.000 3.902 1187.491  
## 3 0.083 0.000 5.868 1143.719  
## 4 0.067 0.134 3.087 1257.517  
## 5 0.000 0.000 3.984 1212.812  
## 6 0.000 0.065 5.774 1337.355  
## 7 0.000 0.000 2.921 1154.109  
## 8 0.088 0.029 3.988 936.862  
## 9 0.000 0.000 6.743 1299.029  
## 10 0.000 0.055 5.879 1200.824  
## 11 0.000 0.000 4.177 1116.835  
## 12 0.083 0.000 2.583 968.000  
## 13 0.000 0.038 5.589 1456.274  
## 14 0.000 0.000 5.076 1414.545  
## 15 0.000 0.000 3.908 998.506  
## 16 0.169 0.000 4.831 1048.729  
## 17 0.000 0.000 1.825 1038.832  
## 18 0.000 0.000 4.765 1592.194  
## 19 0.072 0.143 5.305 1279.140  
## 20 0.089 0.044 2.978 1012.000  
## 21 0.038 0.000 4.154 1147.692  
## 22 0.044 0.044 5.110 1153.700  
## 23 0.000 0.000 4.672 1061.898  
## 24 0.000 0.000 1.667 1173.542  
## 25 0.000 0.070 6.092 1505.775  
## 26 0.000 0.000 2.288 1112.876  
## 27 0.000 0.000 3.630 1371.601  
## 28 0.000 0.000 3.444 1167.222  
## 29 0.000 0.000 2.925 1140.377  
## 30 0.000 0.000 2.703 891.554  
## 31 0.000 0.000 5.666 1396.317  
## 32 0.000 0.000 4.132 1147.342  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 459.685 0.079 0.157 0.000 4.961  
## 2 399.443 0.105 0.662 0.035 5.226  
## 3 434.545 0.248 0.826 0.000 4.380  
## 4 475.638 0.067 0.403 0.000 5.503  
## 5 404.141 0.000 0.234 0.000 2.891  
## 6 522.516 0.194 0.774 0.000 6.097  
## 7 461.139 0.000 0.198 0.000 3.861  
## 8 312.962 0.029 0.704 0.059 4.164  
## 9 516.743 0.286 0.457 0.000 5.543  
## 10 392.473 0.110 0.714 0.000 5.769  
## 11 403.228 0.063 0.823 0.000 4.114  
## 12 307.833 0.000 0.417 0.000 4.417  
## 13 559.772 0.114 0.152 0.038 4.943  
## 14 469.621 0.076 0.152 0.000 5.455  
## 15 352.414 0.000 0.460 0.000 6.667  
## 16 243.390 0.000 0.508 0.000 3.898  
## 17 274.380 0.073 0.657 0.000 4.161  
## 18 610.596 0.063 0.157 0.031 5.643  
## 19 350.789 0.143 0.358 0.072 5.090  
## 20 353.867 0.044 0.222 0.000 5.333  
## 21 391.231 0.000 0.192 0.000 5.538  
## 22 384.009 0.044 0.617 0.044 5.242  
## 23 350.949 0.036 0.328 0.036 4.635  
## 24 371.250 0.208 0.625 0.000 4.375  
## 25 477.746 0.070 0.282 0.106 3.803  
## 26 441.830 0.000 0.196 0.000 4.575  
## 27 552.064 0.000 0.214 0.036 4.982  
## 28 442.000 0.056 0.444 0.000 2.389  
## 29 331.887 0.094 0.094 0.000 4.340  
## 30 249.730 0.135 0.473 0.000 5.068  
## 31 536.629 0.000 0.170 0.000 4.816  
## 32 419.684 0.079 0.289 0.026 5.605  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.157 0.079 0.394 0.157 0.000 0.236  
## 2 0.174 0.070 0.557 0.418 0.139 0.592  
## 3 0.083 0.000 0.165 0.248 0.000 1.570  
## 4 0.000 0.134 0.403 0.268 0.067 0.403  
## 5 0.078 0.078 0.234 0.234 0.000 0.938  
## 6 0.097 0.032 0.387 0.129 0.032 0.774  
## 7 0.000 0.149 0.396 0.198 0.050 0.198  
## 8 0.029 0.088 0.762 0.499 0.000 1.877  
## 9 0.114 0.057 0.457 0.286 0.000 0.743  
## 10 0.220 0.055 0.495 0.330 0.000 0.220  
## 11 0.127 0.063 0.190 0.316 0.000 0.253  
## 12 0.167 0.000 0.167 0.333 0.083 0.167  
## 13 0.228 0.152 0.608 0.114 0.000 0.646  
## 14 0.227 0.076 0.227 0.152 0.000 0.152  
## 15 0.115 0.000 0.345 0.460 0.115 0.345  
## 16 0.000 0.000 0.424 0.508 0.000 0.424  
## 17 0.146 0.073 0.365 0.073 0.000 0.438  
## 18 0.282 0.031 0.282 0.063 0.031 0.376  
## 19 0.072 0.108 0.502 0.323 0.000 0.681  
## 20 0.089 0.044 0.400 0.089 0.000 1.156  
## 21 0.115 0.038 0.577 0.462 0.038 0.654  
## 22 0.088 0.000 0.352 0.088 0.000 0.793  
## 23 0.182 0.000 0.328 0.474 0.073 0.365  
## 24 0.000 0.000 0.208 0.208 0.208 0.833  
## 25 0.106 0.000 0.352 0.246 0.000 0.528  
## 26 0.000 0.196 0.327 0.131 0.065 0.131  
## 27 0.036 0.142 0.249 0.036 0.036 0.285  
## 28 0.111 0.000 0.222 0.222 0.000 0.278  
## 29 0.094 0.000 0.943 0.283 0.000 0.283  
## 30 0.000 0.068 0.338 0.203 0.203 0.135  
## 31 0.057 0.000 0.198 0.113 0.028 0.368  
## 32 0.053 0.079 0.579 0.342 0.000 0.421  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.079 1.260 0.945  
## 2 0.000 0.035 0.906 0.662  
## 3 0.083 0.000 1.405 1.240  
## 4 0.000 0.067 1.409 0.940  
## 5 0.000 0.000 1.484 0.859  
## 6 0.000 0.032 1.484 0.710  
## 7 0.000 0.000 1.188 0.941  
## 8 0.029 0.000 1.056 0.587  
## 9 0.000 0.000 1.029 0.686  
## 10 0.000 0.000 1.209 0.495  
## 11 0.000 0.000 1.772 1.203  
## 12 0.000 0.000 1.417 1.000  
## 13 0.000 0.000 1.863 1.027  
## 14 0.000 0.000 1.212 0.606  
## 15 0.000 0.115 1.839 1.379  
## 16 0.000 0.000 0.932 0.593  
## 17 0.000 0.000 1.606 1.095  
## 18 0.000 0.000 1.536 1.160  
## 19 0.000 0.000 1.004 0.430  
## 20 0.000 0.000 0.978 0.756  
## 21 0.000 0.000 0.962 0.577  
## 22 0.000 0.000 0.749 0.088  
## 23 0.000 0.000 1.022 0.438  
## 24 0.000 0.000 1.042 0.833  
## 25 0.000 0.035 1.127 0.599  
## 26 0.000 0.065 1.307 1.046  
## 27 0.000 0.000 1.174 0.854  
## 28 0.000 0.000 0.889 0.611  
## 29 0.000 0.000 0.755 0.660  
## 30 0.000 0.000 1.216 0.608  
## 31 0.000 0.000 1.331 0.963  
## 32 0.000 0.000 0.842 0.447  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.315 1.260 2.362 3.386 85.71429  
## 2 0.244 0.627 1.777 3.554 57.57576  
## 3 0.165 0.826 2.810 2.893 70.83333  
## 4 0.470 1.208 2.617 4.430 71.42857  
## 5 0.625 0.547 1.562 3.672 69.23077  
## 6 0.774 1.419 3.548 3.419 60.60606  
## 7 0.248 0.644 1.980 3.861 59.25926  
## 8 0.469 0.821 2.405 2.141 59.25926  
## 9 0.343 1.143 3.200 2.914 61.11111  
## 10 0.714 0.769 2.143 2.857 72.00000  
## 11 0.570 1.076 2.975 5.063 53.33333  
## 12 0.417 0.417 1.583 3.500 64.28571  
## 13 0.837 1.141 2.928 2.890 55.31915  
## 14 0.606 1.288 3.182 2.955 88.00000  
## 15 0.460 1.034 2.414 4.943 50.00000  
## 16 0.339 0.847 1.017 1.780 50.00000  
## 17 0.511 1.168 3.723 4.964 57.14286  
## 18 0.376 0.972 1.818 2.821 51.85185  
## 19 0.573 0.824 2.330 2.509 66.66667  
## 20 0.222 0.800 2.044 3.956 67.85714  
## 21 0.385 0.692 2.577 3.000 71.42857  
## 22 0.661 0.617 1.762 2.379 61.53846  
## 23 0.584 0.511 1.569 2.737 62.06897  
## 24 0.208 1.667 2.708 3.958 60.00000  
## 25 0.528 1.056 2.430 2.711 51.28205  
## 26 0.261 0.588 1.895 3.987 65.00000  
## 27 0.320 0.925 1.957 5.445 51.72414  
## 28 0.278 1.389 2.556 4.444 52.38095  
## 29 0.094 0.755 2.264 4.811 75.00000  
## 30 0.608 0.811 1.824 2.703 66.66667  
## 31 0.368 1.105 2.238 4.079 57.50000  
## 32 0.395 0.763 1.842 2.132 63.41463  
##   
## [[4]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 2 0.17 0.25 0.50 0.9 0.10 0 0.00 1.1 -1.1  
## 2 2 0.06 0.08 0.25 0.7 0.19 8 0.25 6.3 1.7  
## 3 3 0.16 0.25 0.50 1.1 0.29 2 0.11 5.4 -3.4  
## 4 0 0.00 0.00 0.00 -1.2 0.26 1 0.12 2.2 -1.2  
## 5 1 0.05 0.03 0.11 -2.5 0.05 2 0.09 1.0 1.0  
## 6 4 0.18 0.11 0.29 -0.2 0.14 1 0.05 3.1 -2.1  
## 7 1 0.12 0.08 0.25 0.1 0.17 3 0.36 1.5 1.5  
## 8 1 0.07 0.03 0.14 -1.6 0.11 2 0.15 1.5 0.5  
## 9 3 0.31 0.21 0.38 1.1 0.07 0 0.00 0.7 -0.7  
## 10 3 0.23 0.10 0.30 0.9 0.37 7 0.53 5.0 2.0  
## 11 0 0.00 0.00 0.00 -0.6 0.11 0 0.00 0.8 -0.8  
## 12 0 0.00 0.00 0.00 -0.3 0.21 2 0.23 1.8 0.2  
## 13 0 0.00 0.00 0.00 -0.8 0.07 1 0.05 1.3 -0.3  
## 14 4 0.15 0.13 0.31 0.9 0.06 1 0.04 1.4 -0.4  
## 15 3 0.19 0.07 0.15 -3.3 0.11 1 0.06 1.7 -0.7  
## 16 1 0.04 0.13 0.50 0.3 0.30 10 0.40 7.5 2.5  
## 17 0 0.00 0.00 0.00 -0.1 0.14 3 0.40 1.0 2.0  
## 18 0 0.00 0.00 0.00 -0.4 0.09 4 0.13 2.6 1.4  
## 19 2 0.56 0.25 0.50 1.0 0.07 1 0.28 0.3 0.7  
## 20 0 0.00 0.00 0.00 -0.9 0.22 6 0.31 4.3 1.7  
## 21 2 0.08 0.06 0.15 -2.2 0.10 2 0.08 2.3 -0.3  
## 22 0 0.00 0.00 0.00 -0.2 0.10 0 0.00 0.5 -0.5  
## 23 1 0.05 0.06 0.33 0.4 0.13 2 0.10 2.5 -0.5  
## 24 0 0.00 0.00 0.00 -0.7 0.07 0 0.00 0.6 -0.6  
## 25 3 0.09 0.06 0.17 -2.7 0.24 10 0.29 8.1 1.9  
## 26 3 0.09 0.06 0.25 0.1 0.21 7 0.20 7.2 -0.2  
## 27 2 0.14 0.18 0.33 1.0 0.25 3 0.22 3.5 -0.5  
## 28 2 0.08 0.08 0.25 -1.3 0.09 1 0.04 2.4 -1.4  
## 29 0 0.00 0.00 0.00 -0.3 0.37 2 0.43 1.7 0.3  
## 30 0 0.00 0.00 0.00 -0.1 0.22 1 0.22 1.0 0.0  
## 31 2 0.22 0.40 0.50 1.4 0.12 0 0.00 1.1 -1.1  
## 32 1 0.12 0.11 0.50 0.7 0.13 0 0.00 1.1 -1.1  
## 33 0 0.00 0.00 0.00 -0.2 0.16 0 0.00 0.7 -0.7  
## 34 0 0.00 0.00 0.00 -0.1 0.03 0 0.00 0.3 -0.3  
## 35 3 0.49 0.21 0.50 1.0 0.16 1 0.16 1.0 0.0  
## 36 0 0.00 0.00 0.00 -0.4 0.12 3 0.30 1.2 1.8  
## 37 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.3 -0.3  
## 38 3 0.13 0.06 0.38 0.7 0.30 4 0.17 7.2 -3.2  
## 39 0 0.00 0.00 0.00 -0.2 0.07 0 0.00 0.2 -0.2  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 50.0 0.35 79.0 89.0 81.4 56.7  
## 2 30.8 0.25 66.5 86.9 75.5 39.0  
## 3 50.0 0.32 80.7 93.1 84.3 51.0  
## 4 33.3 0.48 75.4 88.8 78.3 37.5  
## 5 23.1 0.41 81.8 89.9 86.1 56.1  
## 6 40.0 0.63 74.6 89.2 74.8 38.6  
## 7 33.3 0.48 79.1 86.5 78.4 57.1  
## 8 23.3 0.51 66.5 74.5 73.1 43.9  
## 9 57.1 0.83 83.9 87.3 89.1 40.9  
## 10 33.3 0.76 66.1 82.0 66.9 31.1  
## 11 27.3 0.44 79.9 90.9 79.8 35.7  
## 12 20.0 0.12 84.1 90.6 86.2 58.7  
## 13 10.5 0.10 82.8 90.4 85.0 63.4  
## 14 40.6 0.50 87.1 92.2 88.9 72.0  
## 15 46.5 1.25 69.6 82.0 74.8 33.9  
## 16 25.0 0.08 76.2 88.5 83.3 49.0  
## 17 0.0 0.00 76.6 89.8 79.2 49.4  
## 18 18.8 0.10 88.5 93.9 91.4 67.5  
## 19 50.0 1.11 64.6 84.4 56.3 40.0  
## 20 33.3 0.26 86.4 91.8 86.8 65.8  
## 21 39.4 0.55 80.4 89.9 82.8 48.1  
## 22 14.3 0.20 73.4 86.0 71.9 39.3  
## 23 17.6 0.16 87.6 92.5 90.1 70.9  
## 24 25.0 0.13 91.6 94.8 93.9 79.2  
## 25 33.3 0.52 86.1 94.6 88.3 53.8  
## 26 22.6 0.35 76.2 90.3 77.7 40.7  
## 27 54.5 0.43 84.1 91.6 86.3 50.0  
## 28 33.3 0.31 84.5 91.1 86.3 52.8  
## 29 14.3 0.21 80.6 88.3 80.0 55.9  
## 30 0.0 0.00 80.3 87.2 83.6 57.9  
## 31 80.0 0.44 91.2 96.6 93.5 60.0  
## 32 22.2 0.24 72.5 87.7 78.4 34.6  
## 33 0.0 0.00 77.7 87.3 75.7 61.5  
## 34 0.0 0.00 87.0 89.1 89.2 83.6  
## 35 42.9 0.97 77.8 84.9 79.5 63.0  
## 36 0.0 0.00 83.5 89.7 82.8 59.1  
## 37 25.0 0.23 89.6 92.8 92.2 68.5  
## 38 17.0 0.33 75.3 92.1 79.7 49.3  
## 39 50.0 0.59 76.8 91.6 73.4 30.4  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 63.2 42.9 48.6 28.6 0.000  
## 2 45.1 49.3 35.8 65.7 0.000  
## 3 60.5 29.4 70.6 53.8 0.000  
## 4 62.5 36.8 42.1 44.4 0.000  
## 5 48.1 50.0 44.4 65.6 0.000  
## 6 54.5 50.4 36.4 54.9 0.000  
## 7 63.2 43.3 46.7 68.8 0.000  
## 8 55.9 44.7 42.6 52.2 0.000  
## 9 38.5 0.0 80.0 46.7 0.000  
## 10 46.2 48.1 48.1 28.6 0.000  
## 11 50.0 50.0 41.7 37.5 0.000  
## 12 64.3 37.5 50.0 31.6 0.000  
## 13 47.6 46.9 37.5 75.6 0.000  
## 14 55.3 57.8 31.1 56.4 0.000  
## 15 46.7 36.2 56.9 40.5 0.000  
## 16 48.1 72.7 27.3 64.6 0.000  
## 17 60.0 26.7 66.7 18.8 0.000  
## 18 48.7 60.0 31.4 62.5 0.000  
## 19 66.7 66.7 0.0 50.0 0.000  
## 20 67.3 40.5 47.6 29.6 0.051  
## 21 49.2 29.3 48.8 41.7 0.000  
## 22 88.9 66.7 33.3 60.0 0.000  
## 23 67.3 50.0 35.7 62.8 0.000  
## 24 61.1 66.7 33.3 23.1 0.000  
## 25 43.1 53.3 43.3 45.2 0.000  
## 26 51.7 45.6 42.1 51.7 0.000  
## 27 46.7 39.1 39.1 46.2 0.000  
## 28 57.1 53.9 33.9 45.7 0.000  
## 29 80.0 60.0 26.7 61.5 0.426  
## 30 85.7 70.0 10.0 44.4 0.000  
## 31 42.9 44.4 44.4 0.0 0.000  
## 32 54.8 23.1 61.5 25.0 0.000  
## 33 47.1 27.3 36.4 35.7 0.000  
## 34 54.8 60.0 20.0 45.5 0.000  
## 35 57.1 44.4 44.4 60.0 0.000  
## 36 59.1 31.6 42.1 30.8 0.000  
## 37 50.0 69.2 15.4 46.7 0.000  
## 38 31.0 53.8 40.4 57.1 0.000  
## 39 75.0 45.5 36.4 12.5 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.174 0.957 2.783  
## 2 0.000 0.000 0.154 0.954 2.892  
## 3 0.000 0.000 0.106 0.479 3.351  
## 4 0.000 0.000 0.595 1.310 2.619  
## 5 0.000 0.045 0.318 1.364 0.545  
## 6 0.000 0.000 0.045 0.360 5.721  
## 7 0.000 0.000 0.238 0.952 4.167  
## 8 0.000 0.000 0.219 1.095 3.431  
## 9 0.000 0.103 0.103 1.134 1.649  
## 10 0.000 0.000 0.076 0.530 2.500  
## 11 0.000 0.000 0.290 1.159 1.449  
## 12 0.000 0.116 0.349 1.163 1.279  
## 13 0.000 0.000 0.253 1.414 2.222  
## 14 0.000 0.000 0.116 0.772 2.432  
## 15 0.000 0.000 0.000 0.562 3.500  
## 16 0.000 0.000 0.202 1.089 1.371  
## 17 0.000 0.000 0.000 1.467 3.200  
## 18 0.000 0.000 0.065 0.749 2.410  
## 19 0.000 0.000 0.278 1.667 0.278  
## 20 0.000 0.051 0.359 1.128 4.000  
## 21 0.000 0.042 0.336 1.261 2.605  
## 22 0.000 0.000 0.392 1.569 2.745  
## 23 0.000 0.000 0.105 0.366 2.094  
## 24 0.000 0.000 0.380 1.013 1.013  
## 25 0.000 0.029 0.173 0.665 2.399  
## 26 0.000 0.029 0.087 1.079 1.662  
## 27 0.000 0.000 0.290 1.594 3.406  
## 28 0.000 0.039 0.270 0.965 2.587  
## 29 0.213 0.000 0.426 0.851 4.043  
## 30 0.000 0.000 0.222 0.889 2.889  
## 31 0.000 0.000 0.111 0.778 2.333  
## 32 0.000 0.000 0.610 1.585 2.683  
## 33 0.000 0.000 0.652 0.870 2.391  
## 34 0.000 0.000 0.577 2.308 0.577  
## 35 0.000 0.000 0.161 1.935 2.258  
## 36 0.000 0.098 0.294 1.078 3.824  
## 37 0.000 0.000 0.341 1.136 1.705  
## 38 0.000 0.000 0.251 0.377 1.883  
## 39 0.000 0.000 0.294 2.059 2.353  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 202.783 96.174 1.739 0.870  
## 2 169.908 85.969 1.600 0.862  
## 3 245.904 140.319 2.128 0.319  
## 4 203.929 100.476 1.667 0.595  
## 5 162.545 78.591 1.000 0.045  
## 6 273.423 167.117 3.333 2.027  
## 7 255.238 129.167 3.452 1.429  
## 8 189.562 102.847 1.752 1.314  
## 9 164.742 74.845 1.546 0.103  
## 10 165.076 74.318 2.045 1.136  
## 11 142.754 61.304 1.159 0.290  
## 12 143.023 65.349 0.698 0.465  
## 13 236.667 116.818 1.717 0.152  
## 14 235.483 125.444 1.892 0.579  
## 15 176.375 102.000 2.000 1.500  
## 16 171.250 82.621 1.492 0.202  
## 17 225.200 114.800 2.667 0.400  
## 18 244.756 130.782 2.182 0.228  
## 19 39.167 8.333 0.556 0.000  
## 20 275.692 143.128 2.103 0.821  
## 21 204.664 93.824 1.723 0.756  
## 22 184.314 110.588 2.353 0.392  
## 23 250.890 122.199 1.466 0.366  
## 24 105.190 50.506 0.506 0.127  
## 25 290.607 149.971 1.994 0.231  
## 26 159.883 85.277 1.341 0.292  
## 27 220.725 130.870 2.174 0.942  
## 28 189.344 94.015 1.853 0.309  
## 29 225.745 116.596 1.702 0.638  
## 30 155.111 82.667 0.667 0.667  
## 31 195.333 107.111 2.222 0.556  
## 32 169.390 87.439 1.463 0.244  
## 33 184.130 95.870 0.870 0.435  
## 34 227.115 91.058 0.769 0.000  
## 35 157.258 79.194 1.129 0.484  
## 36 205.098 119.412 1.667 1.176  
## 37 253.068 128.295 2.045 0.114  
## 38 238.536 113.975 2.008 0.293  
## 39 205.000 107.941 1.176 0.000  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.087 0.957 1.652 0.174 0.087  
## 2 0.166 2.154 1.754 0.123 0.185  
## 3 0.234 3.298 3.298 0.053 0.000  
## 4 0.214 1.667 1.310 0.000 0.119  
## 5 0.055 0.727 1.591 0.000 0.136  
## 6 0.158 1.126 2.297 0.541 0.225  
## 7 0.143 1.786 2.143 0.357 0.238  
## 8 0.102 1.241 2.482 0.292 0.146  
## 9 0.041 0.825 1.134 0.000 0.309  
## 10 0.258 2.348 3.333 0.152 0.227  
## 11 0.116 0.580 1.594 0.145 0.145  
## 12 0.198 1.860 2.326 0.000 0.000  
## 13 0.056 1.111 2.172 0.051 0.202  
## 14 0.081 0.695 1.544 0.193 0.077  
## 15 0.125 0.812 1.312 0.375 0.250  
## 16 0.286 2.621 2.742 0.040 0.000  
## 17 0.173 2.133 2.667 0.000 0.000  
## 18 0.104 0.814 1.857 0.033 0.033  
## 19 0.028 0.556 0.556 0.278 0.556  
## 20 0.169 1.641 2.410 0.051 0.000  
## 21 0.105 0.546 1.429 0.000 0.252  
## 22 0.078 0.392 1.569 0.196 0.000  
## 23 0.152 1.518 3.351 0.052 0.052  
## 24 0.063 0.886 1.646 0.000 0.127  
## 25 0.266 2.977 3.295 0.145 0.260  
## 26 0.175 1.487 1.924 0.117 0.146  
## 27 0.167 1.884 2.681 0.072 0.072  
## 28 0.066 0.965 1.583 0.232 0.116  
## 29 0.340 2.340 2.766 0.000 0.213  
## 30 0.178 0.889 2.222 0.667 0.000  
## 31 0.133 1.444 1.667 0.000 0.000  
## 32 0.122 1.098 1.220 0.122 0.000  
## 33 0.130 1.739 2.826 0.000 0.217  
## 34 0.038 0.577 1.827 0.000 0.000  
## 35 0.161 1.129 1.290 0.323 0.161  
## 36 0.078 0.980 1.471 0.098 0.098  
## 37 0.068 0.682 2.727 0.000 0.000  
## 38 0.255 2.678 3.347 0.209 0.251  
## 39 0.118 1.176 1.471 0.000 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 2.087 562.261  
## 2 0.031 0.000 3.262 644.800  
## 3 0.053 0.000 7.447 1133.298  
## 4 0.238 0.000 2.976 622.619  
## 5 0.045 0.000 5.091 915.273  
## 6 0.405 0.000 2.387 368.063  
## 7 0.119 0.238 3.452 740.952  
## 8 0.073 0.219 2.555 433.650  
## 9 0.000 0.000 1.959 618.454  
## 10 0.076 0.076 3.939 396.136  
## 11 0.000 0.000 3.333 472.899  
## 12 0.000 0.000 8.023 886.279  
## 13 0.152 0.000 5.051 958.788  
## 14 0.154 0.077 5.251 973.243  
## 15 0.125 0.000 2.000 263.625  
## 16 0.081 0.081 6.331 1201.492  
## 17 0.267 0.133 4.133 878.000  
## 18 0.065 0.000 5.114 1175.603  
## 19 0.000 0.000 2.222 273.333  
## 20 0.000 0.103 4.410 899.179  
## 21 0.084 0.042 3.697 676.218  
## 22 0.000 0.000 4.706 579.216  
## 23 0.000 0.000 11.990 1211.099  
## 24 0.000 0.000 4.684 665.570  
## 25 0.058 0.029 8.728 1240.029  
## 26 0.117 0.000 5.656 800.000  
## 27 0.000 0.000 6.014 850.435  
## 28 0.232 0.000 3.822 538.456  
## 29 0.000 0.000 4.468 943.191  
## 30 0.000 0.000 4.444 509.111  
## 31 0.000 0.000 3.667 788.889  
## 32 0.366 0.122 4.390 678.659  
## 33 0.000 0.000 5.870 797.609  
## 34 0.000 0.000 6.346 991.154  
## 35 0.323 0.161 3.871 507.258  
## 36 0.000 0.000 1.667 537.745  
## 37 0.114 0.000 8.182 1042.841  
## 38 0.000 0.084 8.577 1271.381  
## 39 0.000 0.000 4.118 737.941  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 139.304 0.000 2.870 0.174 3.478  
## 2 256.154 0.000 1.846 0.738 5.692  
## 3 384.628 0.000 1.543 0.638 5.532  
## 4 184.762 0.000 2.262 0.238 3.929  
## 5 348.955 0.182 0.818 0.136 6.045  
## 6 104.234 0.000 2.117 0.225 5.631  
## 7 220.119 0.357 1.905 0.357 5.952  
## 8 141.825 0.146 1.679 0.365 5.036  
## 9 120.825 0.000 0.412 0.103 3.402  
## 10 152.424 0.758 1.742 0.606 5.000  
## 11 131.594 0.145 1.594 0.000 5.797  
## 12 290.233 0.465 1.163 0.698 5.233  
## 13 258.384 0.152 1.465 0.354 5.606  
## 14 238.185 0.116 1.467 0.116 5.792  
## 15 60.562 0.125 0.812 0.250 3.875  
## 16 443.508 0.040 1.694 0.766 6.532  
## 17 228.667 0.000 1.333 0.533 5.733  
## 18 270.554 0.195 1.010 0.423 4.951  
## 19 86.111 0.000 0.833 0.000 2.222  
## 20 260.513 0.103 1.487 0.667 6.462  
## 21 205.378 0.000 1.008 0.336 4.622  
## 22 221.961 0.000 1.373 0.000 6.471  
## 23 362.723 0.576 0.733 0.209 5.445  
## 24 184.051 0.127 0.253 0.000 4.557  
## 25 386.127 0.145 1.185 0.780 4.162  
## 26 306.676 0.408 1.983 0.292 5.802  
## 27 262.101 0.072 1.449 0.797 6.522  
## 28 151.931 0.077 0.927 0.154 5.251  
## 29 294.255 0.851 1.064 0.638 5.957  
## 30 169.556 0.000 0.889 0.444 5.333  
## 31 125.222 0.111 1.222 0.000 4.667  
## 32 213.171 0.000 0.976 0.488 4.756  
## 33 294.783 0.000 1.522 0.435 4.565  
## 34 264.135 0.000 0.962 0.096 5.769  
## 35 145.000 0.161 1.129 0.000 5.806  
## 36 89.804 0.000 0.882 0.588 3.137  
## 37 291.364 0.341 0.341 0.227 6.364  
## 38 520.251 0.921 0.962 0.753 7.364  
## 39 254.118 0.588 1.471 0.000 4.706  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.087 0.000 1.217 0.522 0.174 1.391  
## 2 0.215 0.123 1.569 0.400 0.400 0.277  
## 3 0.532 0.000 0.957 0.319 0.160 0.266  
## 4 0.714 0.119 2.500 0.595 0.476 1.429  
## 5 0.273 0.045 0.682 0.773 0.273 0.455  
## 6 0.090 0.090 2.658 0.946 0.360 2.252  
## 7 0.000 0.000 2.024 1.190 0.238 1.429  
## 8 0.073 0.000 1.679 0.876 0.292 1.241  
## 9 0.000 0.000 0.928 0.206 0.103 0.309  
## 10 0.227 0.000 1.439 1.061 0.076 1.136  
## 11 0.435 0.000 1.594 0.870 0.290 0.725  
## 12 0.349 0.000 1.279 0.698 0.349 0.465  
## 13 0.202 0.101 1.263 0.556 0.000 0.808  
## 14 0.154 0.116 0.888 0.541 0.077 0.849  
## 15 0.062 0.000 1.875 1.125 0.188 1.125  
## 16 0.282 0.121 0.806 0.363 0.121 0.847  
## 17 0.133 0.000 1.200 0.533 0.133 0.933  
## 18 0.033 0.033 0.782 0.423 0.228 0.586  
## 19 0.000 0.000 1.389 1.111 0.000 1.944  
## 20 0.154 0.051 1.641 0.615 0.308 1.538  
## 21 0.042 0.000 0.882 0.630 0.000 0.924  
## 22 0.196 0.000 1.961 0.784 0.000 0.392  
## 23 0.419 0.105 0.524 0.785 0.052 0.471  
## 24 0.127 0.000 1.139 0.759 0.000 1.519  
## 25 0.318 0.087 1.012 0.809 0.087 0.780  
## 26 0.321 0.087 1.079 0.437 0.029 0.787  
## 27 0.290 0.000 1.449 0.435 0.362 1.232  
## 28 0.193 0.000 1.969 2.162 0.309 2.046  
## 29 0.000 0.213 1.277 1.277 0.426 1.064  
## 30 0.222 0.222 1.778 1.556 0.444 1.333  
## 31 0.000 0.000 0.222 1.333 0.000 2.222  
## 32 0.488 0.000 1.220 0.488 0.244 1.098  
## 33 0.435 0.000 1.739 0.217 0.652 2.391  
## 34 0.096 0.192 0.865 1.058 0.000 0.962  
## 35 0.000 0.000 1.290 1.613 1.129 1.290  
## 36 0.294 0.000 2.157 0.196 0.294 1.765  
## 37 0.341 0.000 0.909 0.909 0.000 0.682  
## 38 0.460 0.209 1.130 0.251 0.084 0.377  
## 39 0.294 0.294 1.471 1.176 0.000 2.059  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.087 0.957 0.174  
## 2 0.000 0.000 1.569 0.277  
## 3 0.000 0.000 1.064 0.319  
## 4 0.000 0.000 1.310 0.357  
## 5 0.000 0.000 3.364 1.500  
## 6 0.090 0.000 0.631 0.135  
## 7 0.000 0.119 2.024 0.119  
## 8 0.000 0.000 1.314 0.219  
## 9 0.000 0.000 0.619 0.206  
## 10 0.000 0.000 1.288 0.000  
## 11 0.000 0.000 1.159 0.290  
## 12 0.000 0.000 1.047 0.000  
## 13 0.000 0.000 1.313 0.202  
## 14 0.039 0.000 1.390 0.463  
## 15 0.000 0.000 0.625 0.125  
## 16 0.000 0.000 1.653 0.323  
## 17 0.000 0.000 1.200 0.133  
## 18 0.000 0.000 0.619 0.195  
## 19 0.000 0.000 1.667 0.278  
## 20 0.000 0.000 1.436 0.205  
## 21 0.000 0.042 1.471 0.588  
## 22 0.000 0.000 1.176 0.000  
## 23 0.000 0.000 0.942 0.157  
## 24 0.000 0.000 1.519 0.127  
## 25 0.000 0.000 1.185 0.231  
## 26 0.000 0.000 1.837 0.525  
## 27 0.000 0.072 1.014 0.290  
## 28 0.039 0.000 1.236 0.232  
## 29 0.000 0.000 0.851 0.851  
## 30 0.000 0.000 1.778 0.667  
## 31 0.000 0.000 0.778 0.111  
## 32 0.000 0.000 1.098 0.244  
## 33 0.000 0.000 2.174 0.000  
## 34 0.000 0.000 1.923 0.673  
## 35 0.000 0.000 0.806 0.000  
## 36 0.000 0.000 0.686 0.294  
## 37 0.000 0.000 1.023 0.341  
## 38 0.000 0.000 0.921 0.084  
## 39 0.000 0.000 0.882 0.000  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.783 1.130 2.696 3.217 66.66667  
## 2 1.292 0.954 2.892 1.323 63.49206  
## 3 0.745 0.691 2.553 2.128 68.57143  
## 4 0.952 0.476 2.262 2.262 66.66667  
## 5 1.864 0.818 4.591 3.227 67.46988  
## 6 0.495 0.315 1.081 1.532 58.82353  
## 7 1.905 1.190 5.119 1.667 75.75758  
## 8 1.095 1.606 4.891 2.555 60.00000  
## 9 0.412 1.443 2.887 1.856 35.71429  
## 10 1.288 0.455 1.970 1.212 50.00000  
## 11 0.870 0.290 3.043 1.739 52.63158  
## 12 1.047 0.930 3.256 1.860 70.00000  
## 13 1.111 0.960 3.333 2.525 65.95745  
## 14 0.927 1.042 3.166 1.429 60.00000  
## 15 0.500 0.438 1.500 1.438 41.17647  
## 16 1.331 0.968 3.266 2.298 47.36842  
## 17 1.067 0.800 3.333 1.333 68.42105  
## 18 0.423 0.879 2.117 1.303 63.15789  
## 19 1.389 0.000 1.944 0.833 28.57143  
## 20 1.231 0.872 3.692 2.205 49.09091  
## 21 0.882 0.756 3.025 2.479 57.40741  
## 22 1.176 0.196 2.353 4.118 63.63636  
## 23 0.785 1.047 3.665 1.361 60.00000  
## 24 1.392 0.380 2.658 1.139 66.66667  
## 25 0.954 0.636 2.659 0.925 65.71429  
## 26 1.312 0.991 3.644 2.974 69.23077  
## 27 0.725 1.522 3.406 1.449 50.00000  
## 28 1.004 0.579 3.320 1.467 61.97183  
## 29 0.000 0.638 3.617 1.489 64.28571  
## 30 1.111 1.111 2.667 1.111 71.42857  
## 31 0.667 0.444 1.556 0.667 70.00000  
## 32 0.854 0.610 4.024 1.463 67.85714  
## 33 2.174 1.087 3.913 1.522 61.53846  
## 34 1.250 0.769 3.365 1.827 59.25926  
## 35 0.806 1.774 4.839 1.290 73.68421  
## 36 0.392 0.588 2.647 0.588 66.66667  
## 37 0.682 1.250 2.841 1.023 78.57143  
## 38 0.837 1.297 2.929 2.008 66.66667  
## 39 0.882 1.176 4.412 0.882 45.45455  
##   
## [[5]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 1 0.43 0.20 1.00 0.7 0.00 0 0.00 0.0 0.0  
## 2 1 0.09 0.13 0.33 -0.3 0.01 0 0.00 0.1 -0.1  
## 3 2 0.07 0.11 0.40 -1.1 0.03 0 0.00 0.8 -0.8  
## 4 0 0.00 0.00 0.00 -1.7 0.02 0 0.00 0.3 -0.3  
## 5 2 0.14 0.20 1.00 0.5 0.02 0 0.00 0.3 -0.3  
## 6 4 0.12 0.31 0.67 2.8 0.11 4 0.12 3.8 0.2  
## 7 0 0.00 0.00 0.00 -0.1 0.07 0 0.00 0.3 -0.3  
## 8 1 0.04 0.09 0.33 0.4 0.02 1 0.04 0.4 0.6  
## 9 0 0.00 0.00 0.00 -0.1 0.10 0 0.00 0.7 -0.7  
## 10 2 0.07 0.09 0.40 -1.1 0.04 2 0.07 1.1 0.9  
## 11 0 0.00 0.00 0.00 -0.2 0.10 0 0.00 1.0 -1.0  
## 12 4 0.12 0.13 0.40 -0.3 0.02 0 0.00 0.7 -0.7  
## 13 0 0.00 0.00 0.00 -0.1 0.15 2 0.22 1.4 0.6  
## 14 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.2 -0.2  
## 15 1 0.06 0.13 0.20 -0.6 0.10 3 0.19 1.5 1.5  
## 16 1 0.10 0.17 0.50 0.2 0.09 3 0.29 0.9 2.1  
## 17 1 0.04 0.03 0.11 -1.7 0.08 1 0.04 2.2 -1.2  
## 18 0 0.00 0.00 0.00 -0.9 0.01 1 0.05 0.2 0.8  
## 19 2 0.10 0.17 0.50 0.7 0.11 1 0.05 2.3 -1.3  
## 20 1 0.05 0.09 0.33 -0.3 0.06 1 0.05 1.2 -0.2  
## 21 1 0.04 0.05 0.25 -0.1 0.15 3 0.11 4.1 -1.1  
## 22 0 0.00 0.00 0.00 -0.6 0.05 0 0.00 0.4 -0.4  
## 23 1 0.08 0.13 0.50 0.3 0.08 0 0.00 0.9 -0.9  
## 24 1 0.08 0.11 0.33 0.2 0.10 0 0.00 1.3 -1.3  
## 25 1 0.21 0.17 0.25 0.3 0.00 0 0.00 0.0 0.0  
## 26 0 0.00 0.00 0.00 -1.3 0.07 4 0.22 1.4 2.6  
## 27 0 0.00 0.00 0.00 0.0 0.01 0 0.00 0.1 -0.1  
## 28 2 0.16 0.12 0.67 0.5 0.03 1 0.08 0.4 0.6  
## 29 1 0.03 0.07 0.25 -0.6 0.07 3 0.10 1.9 1.1  
## 30 1 0.03 0.10 0.20 -0.6 0.04 3 0.10 1.2 1.8  
## 31 2 0.06 0.17 0.50 0.4 0.08 3 0.08 2.8 0.2  
## 32 2 0.07 0.08 0.40 0.5 0.03 0 0.00 0.9 -0.9  
## 33 1 0.03 0.05 0.14 -0.8 0.14 3 0.09 4.8 -1.8  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 20.0 0.43 85.8 86.3 90.2 50.0  
## 2 37.5 0.26 84.3 94.5 87.2 54.5  
## 3 26.3 0.17 75.4 87.0 81.8 38.7  
## 4 20.0 0.24 69.4 81.7 77.0 37.1  
## 5 20.0 0.14 76.6 87.6 82.5 47.6  
## 6 46.2 0.18 84.0 90.9 85.7 49.7  
## 7 0.0 0.00 74.6 88.6 68.9 42.9  
## 8 27.3 0.13 82.6 87.7 87.7 58.0  
## 9 0.0 0.00 80.5 93.5 84.9 47.1  
## 10 21.7 0.17 81.0 86.3 85.8 48.6  
## 11 0.0 0.00 84.1 89.5 91.5 38.5  
## 12 32.3 0.30 88.7 95.0 93.0 54.3  
## 13 0.0 0.00 75.6 90.1 72.7 42.1  
## 14 50.0 0.31 85.7 93.5 87.7 51.6  
## 15 62.5 0.31 71.9 84.8 73.6 42.7  
## 16 33.3 0.19 83.7 89.1 85.9 58.6  
## 17 26.5 0.34 81.4 88.6 82.8 57.0  
## 18 0.0 0.00 75.7 90.4 80.9 34.3  
## 19 33.3 0.20 75.3 86.4 79.2 43.7  
## 20 27.3 0.15 83.0 89.7 89.8 43.6  
## 21 20.0 0.15 75.1 88.2 76.7 44.6  
## 22 0.0 0.00 65.4 78.3 66.7 43.2  
## 23 25.0 0.17 75.2 86.6 78.2 43.5  
## 24 33.3 0.23 78.9 85.1 82.1 56.4  
## 25 66.7 0.82 77.4 78.3 86.7 54.8  
## 26 23.1 0.16 76.1 81.0 86.2 47.5  
## 27 0.0 0.00 88.8 92.2 94.1 48.6  
## 28 17.6 0.23 82.4 89.5 85.8 48.2  
## 29 28.6 0.14 81.2 88.8 86.4 56.2  
## 30 50.0 0.16 82.1 91.0 84.4 39.2  
## 31 33.3 0.11 72.3 84.3 74.3 44.4  
## 32 19.2 0.18 74.5 88.9 74.7 47.9  
## 33 33.3 0.21 77.8 86.9 79.4 53.8  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 40.0 100.0 0.0 33.3 0.000  
## 2 10.0 60.0 40.0 37.8 0.000  
## 3 61.2 52.4 42.9 58.0 0.034  
## 4 53.6 35.7 64.3 51.0 0.000  
## 5 77.3 50.0 50.0 52.2 0.071  
## 6 44.8 40.9 54.5 62.1 0.000  
## 7 22.2 75.0 25.0 46.7 0.000  
## 8 66.7 100.0 0.0 58.1 0.000  
## 9 45.5 50.0 50.0 50.0 0.000  
## 10 42.6 66.7 33.3 68.2 0.000  
## 11 48.0 50.0 33.3 46.4 0.000  
## 12 77.3 40.0 40.0 55.4 0.000  
## 13 55.2 100.0 0.0 60.0 0.000  
## 14 75.0 50.0 33.3 47.1 0.000  
## 15 62.5 33.3 66.7 62.5 0.000  
## 16 73.7 66.7 33.3 57.7 0.000  
## 17 47.5 55.0 30.0 67.6 0.000  
## 18 63.8 66.7 33.3 48.9 0.000  
## 19 63.9 83.3 16.7 73.3 0.000  
## 20 76.5 69.2 30.8 68.3 0.000  
## 21 56.8 30.3 48.5 63.6 0.000  
## 22 41.7 50.0 50.0 56.3 0.127  
## 23 57.9 75.0 0.0 53.1 0.000  
## 24 52.2 42.9 50.0 53.5 0.000  
## 25 14.3 66.7 33.3 59.3 0.000  
## 26 46.2 50.0 25.0 59.0 0.000  
## 27 45.5 100.0 0.0 36.6 0.000  
## 28 61.1 33.3 58.3 55.6 0.078  
## 29 59.1 56.7 33.3 52.2 0.000  
## 30 64.9 74.2 16.1 65.1 0.000  
## 31 71.7 48.6 45.9 44.7 0.000  
## 32 62.1 58.1 35.5 52.6 0.000  
## 33 50.0 44.4 38.9 56.7 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.435 1.739 0.435  
## 2 0.000 0.085 0.085 0.513 0.598  
## 3 0.034 0.000 0.374 1.156 0.510  
## 4 0.000 0.081 0.161 0.645 0.887  
## 5 0.000 0.000 0.071 0.496 0.780  
## 6 0.000 0.000 0.241 0.572 1.325  
## 7 0.000 0.000 0.278 0.833 0.278  
## 8 0.000 0.043 0.129 0.515 0.043  
## 9 0.000 0.000 0.000 1.515 0.455  
## 10 0.000 0.033 0.132 1.056 0.462  
## 11 0.000 0.000 0.198 0.990 1.188  
## 12 0.000 0.000 0.118 1.036 0.385  
## 13 0.000 0.112 0.562 0.674 1.124  
## 14 0.000 0.000 0.308 0.923 0.308  
## 15 0.000 0.000 0.185 1.049 0.617  
## 16 0.000 0.000 0.095 0.952 0.381  
## 17 0.000 0.000 0.300 1.610 0.524  
## 18 0.000 0.000 0.182 1.000 0.727  
## 19 0.000 0.000 0.245 1.225 1.078  
## 20 0.000 0.000 0.100 1.250 1.150  
## 21 0.000 0.000 0.261 1.082 1.567  
## 22 0.000 0.127 0.380 1.013 0.000  
## 23 0.000 0.000 0.331 0.909 0.413  
## 24 0.000 0.000 0.156 1.016 0.938  
## 25 0.000 0.204 0.408 1.020 0.816  
## 26 0.000 0.054 0.272 1.087 0.598  
## 27 0.000 0.000 0.110 1.099 0.330  
## 28 0.078 0.000 0.156 1.094 1.328  
## 29 0.000 0.000 0.102 0.751 1.638  
## 30 0.000 0.000 0.227 1.234 0.714  
## 31 0.000 0.000 0.169 0.618 0.899  
## 32 0.000 0.000 0.036 0.839 0.511  
## 33 0.000 0.000 0.236 0.796 0.737  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 114.348 56.522 0.435 0.000  
## 2 211.197 115.470 0.769 0.000  
## 3 118.946 66.190 0.510 0.102  
## 4 93.387 46.048 0.968 0.000  
## 5 138.865 81.560 0.284 0.071  
## 6 146.596 80.482 1.024 0.271  
## 7 88.889 45.278 1.111 0.000  
## 8 99.270 38.197 0.258 0.000  
## 9 121.061 45.909 0.455 0.000  
## 10 129.703 54.917 0.231 0.099  
## 11 157.228 71.287 0.891 0.099  
## 12 177.544 102.219 1.095 0.030  
## 13 104.719 64.831 1.124 0.112  
## 14 130.308 69.385 0.308 0.000  
## 15 59.630 29.321 0.432 0.062  
## 16 120.381 64.857 0.762 0.095  
## 17 113.596 52.809 0.637 0.075  
## 18 91.727 46.136 0.409 0.000  
## 19 116.029 70.343 0.539 0.245  
## 20 180.100 99.250 0.850 0.100  
## 21 135.448 66.642 0.709 0.149  
## 22 45.063 20.127 0.253 0.127  
## 23 100.992 62.645 0.331 0.000  
## 24 101.016 46.641 0.625 0.234  
## 25 121.429 60.408 0.408 0.000  
## 26 113.043 65.761 0.435 0.000  
## 27 189.670 108.571 0.549 0.000  
## 28 168.594 83.125 1.094 0.234  
## 29 129.010 63.311 0.853 0.205  
## 30 143.734 75.487 0.519 0.065  
## 31 91.376 43.933 0.646 0.253  
## 32 91.898 37.518 0.803 0.000  
## 33 104.985 45.959 0.737 0.088  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.000 0.000 0.870 0.000 0.000  
## 2 0.051 0.171 0.427 0.085 0.171  
## 3 0.020 0.238 0.782 0.000 0.102  
## 4 0.040 0.242 0.726 0.000 0.403  
## 5 0.050 0.426 0.780 0.000 0.142  
## 6 0.111 1.145 2.289 0.030 0.060  
## 7 0.028 0.556 0.278 0.000 0.278  
## 8 0.009 0.258 0.472 0.000 0.086  
## 9 0.045 0.455 1.212 0.000 0.000  
## 10 0.036 0.330 0.726 0.033 0.066  
## 11 0.079 0.891 1.287 0.099 0.000  
## 12 0.021 0.089 0.592 0.000 0.030  
## 13 0.101 1.011 1.573 0.000 0.112  
## 14 0.015 0.615 1.077 0.000 0.000  
## 15 0.074 1.111 0.988 0.000 0.123  
## 16 0.057 0.571 0.952 0.000 0.000  
## 17 0.075 0.899 1.835 0.037 0.112  
## 18 0.014 0.136 0.591 0.000 0.045  
## 19 0.132 0.588 1.176 0.049 0.098  
## 20 0.025 0.350 1.050 0.050 0.200  
## 21 0.134 1.381 1.791 0.000 0.112  
## 22 0.025 0.127 0.253 0.000 0.127  
## 23 0.041 0.579 0.909 0.000 0.083  
## 24 0.070 0.938 1.406 0.000 0.000  
## 25 0.020 0.000 0.612 0.000 0.204  
## 26 0.049 0.707 0.815 0.000 0.272  
## 27 0.000 0.220 0.549 0.000 0.000  
## 28 0.062 0.469 1.250 0.000 0.078  
## 29 0.061 0.614 1.331 0.137 0.137  
## 30 0.019 0.195 0.519 0.032 0.097  
## 31 0.067 0.674 1.124 0.028 0.056  
## 32 0.040 0.474 1.168 0.036 0.146  
## 33 0.109 1.091 2.035 0.029 0.088  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 3.043 823.043  
## 2 0.000 0.000 2.991 824.103  
## 3 0.000 0.000 1.463 431.327  
## 4 0.000 0.161 3.468 461.694  
## 5 0.000 0.000 3.475 640.426  
## 6 0.000 0.060 5.783 843.434  
## 7 0.278 0.000 1.944 418.333  
## 8 0.000 0.129 1.845 572.403  
## 9 0.000 0.000 3.182 587.121  
## 10 0.000 0.000 2.475 739.340  
## 11 0.099 0.000 2.871 742.376  
## 12 0.000 0.030 3.462 950.385  
## 13 0.000 0.000 3.146 516.854  
## 14 0.000 0.000 2.769 758.769  
## 15 0.000 0.000 2.593 429.568  
## 16 0.095 0.000 5.238 814.762  
## 17 0.037 0.037 3.970 592.697  
## 18 0.000 0.000 3.000 537.682  
## 19 0.000 0.000 2.990 500.490  
## 20 0.000 0.000 3.650 815.500  
## 21 0.112 0.037 2.873 606.119  
## 22 0.000 0.000 1.646 323.038  
## 23 0.000 0.000 4.132 606.446  
## 24 0.000 0.000 2.422 609.219  
## 25 0.000 0.000 2.857 718.163  
## 26 0.000 0.000 3.641 565.000  
## 27 0.000 0.000 1.209 786.593  
## 28 0.000 0.000 5.625 698.516  
## 29 0.000 0.034 2.628 724.846  
## 30 0.000 0.000 2.565 757.013  
## 31 0.028 0.028 2.640 522.135  
## 32 0.000 0.000 2.007 495.584  
## 33 0.088 0.059 3.628 517.227  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 203.478 0.000 0.000 0.000 3.913  
## 2 251.197 0.171 0.513 0.000 4.274  
## 3 171.327 0.034 0.680 0.034 3.639  
## 4 191.371 0.000 1.613 0.161 3.629  
## 5 259.433 0.000 0.426 0.142 4.752  
## 6 295.211 0.151 0.633 0.301 3.614  
## 7 134.444 0.000 0.556 0.000 4.444  
## 8 186.309 0.043 0.644 0.000 3.777  
## 9 239.394 0.000 1.061 0.455 3.939  
## 10 271.848 0.033 0.825 0.099 4.092  
## 11 294.158 0.000 1.386 0.693 4.356  
## 12 307.337 0.059 0.651 0.030 4.024  
## 13 223.146 0.112 1.011 0.112 4.719  
## 14 256.308 0.000 0.308 0.308 4.462  
## 15 184.136 0.000 0.926 0.617 3.519  
## 16 289.714 0.095 0.190 0.286 3.333  
## 17 190.824 0.300 0.749 0.112 6.517  
## 18 256.091 0.045 0.955 0.136 4.273  
## 19 185.588 0.049 0.539 0.147 2.941  
## 20 296.950 0.200 0.850 0.000 4.800  
## 21 208.769 0.000 1.567 0.560 3.769  
## 22 153.797 0.000 0.253 0.253 3.797  
## 23 291.570 0.083 0.909 0.083 5.537  
## 24 164.453 0.000 1.406 0.078 5.078  
## 25 257.347 0.000 0.000 0.000 5.306  
## 26 226.576 0.000 0.815 0.163 3.370  
## 27 237.143 0.000 0.549 0.000 3.297  
## 28 196.875 0.156 0.859 0.234 4.219  
## 29 251.229 0.068 1.877 0.273 4.061  
## 30 270.649 0.032 0.714 0.032 4.416  
## 31 222.669 0.028 1.966 0.337 5.843  
## 32 209.453 0.073 1.277 0.365 5.182  
## 33 153.717 0.118 0.767 0.442 5.575  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.435 0.000 0.870 0.870 0.000 0.000  
## 2 0.171 0.171 0.684 0.513 0.000 0.342  
## 3 0.068 0.068 0.476 0.374 0.068 0.442  
## 4 0.242 0.000 0.806 0.484 0.161 0.484  
## 5 0.071 0.071 0.638 0.496 0.071 0.213  
## 6 0.120 0.030 0.783 0.271 0.331 0.361  
## 7 0.000 0.000 0.556 0.556 0.556 0.833  
## 8 0.129 0.000 0.300 0.172 0.043 0.300  
## 9 0.000 0.000 1.212 0.909 0.000 0.909  
## 10 0.198 0.033 0.495 0.330 0.132 0.363  
## 11 0.099 0.000 0.792 0.297 0.000 0.693  
## 12 0.148 0.030 0.355 0.089 0.030 1.006  
## 13 0.112 0.112 0.787 0.337 0.225 0.112  
## 14 0.154 0.000 0.769 0.462 0.000 0.000  
## 15 0.000 0.000 0.432 0.309 0.000 0.123  
## 16 0.190 0.095 0.762 0.190 0.000 0.286  
## 17 0.187 0.000 0.974 0.524 0.150 0.936  
## 18 0.045 0.045 0.545 0.136 0.000 0.273  
## 19 0.049 0.049 0.784 0.294 0.049 0.490  
## 20 0.200 0.000 1.100 0.200 0.200 0.700  
## 21 0.112 0.000 0.597 0.560 0.112 1.119  
## 22 0.127 0.000 0.506 0.127 0.000 0.506  
## 23 0.248 0.000 0.331 0.083 0.248 0.496  
## 24 0.000 0.000 1.328 0.469 0.391 0.859  
## 25 0.204 0.204 0.408 0.612 0.000 0.000  
## 26 0.054 0.054 0.978 0.272 0.054 0.652  
## 27 0.000 0.000 0.110 0.220 0.000 0.549  
## 28 0.156 0.000 1.016 0.234 0.078 0.625  
## 29 0.102 0.034 0.853 0.341 0.102 0.341  
## 30 0.130 0.065 0.552 0.195 0.065 0.422  
## 31 0.112 0.000 1.292 0.787 0.028 0.449  
## 32 0.109 0.000 1.423 0.401 0.036 0.328  
## 33 0.118 0.088 0.796 0.295 0.088 0.826  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 2.609 1.304  
## 2 0.000 0.085 1.111 0.513  
## 3 0.000 0.000 1.463 0.884  
## 4 0.000 0.000 1.129 0.645  
## 5 0.000 0.000 1.489 0.922  
## 6 0.000 0.000 1.446 0.663  
## 7 0.000 0.000 2.500 1.111  
## 8 0.000 0.000 1.373 0.515  
## 9 0.000 0.303 1.818 1.061  
## 10 0.000 0.000 1.815 0.825  
## 11 0.000 0.000 0.792 0.297  
## 12 0.000 0.030 1.302 0.976  
## 13 0.000 0.000 0.899 0.337  
## 14 0.000 0.000 1.385 0.462  
## 15 0.000 0.000 2.099 0.802  
## 16 0.000 0.000 1.048 0.286  
## 17 0.000 0.000 1.161 0.449  
## 18 0.000 0.045 0.773 0.455  
## 19 0.000 0.000 1.275 0.539  
## 20 0.000 0.000 1.400 0.500  
## 21 0.000 0.000 0.746 0.075  
## 22 0.000 0.000 1.519 0.633  
## 23 0.000 0.000 0.744 0.413  
## 24 0.000 0.000 1.172 0.391  
## 25 0.000 0.000 1.020 0.816  
## 26 0.000 0.000 1.359 0.978  
## 27 0.000 0.000 2.418 1.319  
## 28 0.000 0.000 0.781 0.312  
## 29 0.000 0.000 1.297 0.341  
## 30 0.000 0.000 1.299 0.617  
## 31 0.000 0.000 1.770 0.281  
## 32 0.000 0.000 1.314 0.401  
## 33 0.029 0.000 1.032 0.265  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.304 1.304 3.043 4.783 0.00000  
## 2 0.598 1.026 2.051 3.248 41.66667  
## 3 0.578 1.190 3.367 4.660 56.25000  
## 4 0.484 1.290 3.710 4.597 66.66667  
## 5 0.567 0.922 2.766 4.468 57.69231  
## 6 0.783 0.964 2.410 2.319 58.33333  
## 7 1.389 1.389 3.333 4.722 28.57143  
## 8 0.858 1.159 3.133 4.678 60.86957  
## 9 0.758 1.212 2.879 3.030 45.45455  
## 10 0.990 1.221 3.234 4.092 54.09836  
## 11 0.495 0.891 2.970 2.079 66.66667  
## 12 0.325 0.917 2.337 2.959 58.33333  
## 13 0.562 1.011 3.483 3.483 86.36364  
## 14 0.923 1.385 2.923 4.000 60.00000  
## 15 1.296 0.864 2.469 3.025 53.84615  
## 16 0.762 0.762 2.667 2.667 60.00000  
## 17 0.712 1.348 2.921 2.697 59.52381  
## 18 0.318 0.636 2.682 4.273 62.22222  
## 19 0.735 1.225 3.088 3.873 55.26316  
## 20 0.900 1.300 3.700 3.300 62.50000  
## 21 0.672 0.970 2.724 2.500 40.42553  
## 22 0.886 1.392 2.911 5.063 58.33333  
## 23 0.331 0.992 2.397 3.306 70.58824  
## 24 0.781 0.547 2.969 3.672 58.06452  
## 25 0.204 1.020 2.449 3.673 42.85714  
## 26 0.380 0.978 2.989 4.239 62.16216  
## 27 1.099 0.659 2.088 3.626 53.84615  
## 28 0.469 1.406 2.969 2.578 45.00000  
## 29 0.956 1.297 2.969 2.355 48.97959  
## 30 0.682 0.844 2.273 3.019 56.81818  
## 31 1.489 0.730 3.680 2.921 57.14286  
## 32 0.912 1.314 3.832 3.358 55.07246  
## 33 0.767 1.062 2.920 1.888 60.31746  
##   
## [[6]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.1 0.01 0 0.00 0.1 -0.1  
## 2 0 0.00 0.00 0.00 0.0 0.00 0 0.00 0.0 0.0  
## 3 0 0.00 0.00 0.00 -0.4 0.04 0 0.00 1.1 -1.1  
## 4 1 0.04 0.20 1.00 0.7 0.00 0 0.00 0.0 0.0  
## 5 3 0.09 0.16 0.60 2.3 0.06 4 0.12 2.0 2.0  
## 6 2 0.10 0.20 1.00 0.9 0.01 0 0.00 0.1 -0.1  
## 7 0 0.00 0.00 0.00 -0.1 0.01 0 0.00 0.1 -0.1  
## 8 1 0.03 0.13 0.50 -0.1 0.01 0 0.00 0.4 -0.4  
## 9 1 0.03 0.07 0.20 -0.2 0.04 1 0.03 1.2 -0.2  
## 10 0 0.00 0.00 0.00 -0.1 0.04 0 0.00 0.2 -0.2  
## 11 0 0.00 0.00 0.00 -0.1 0.08 1 0.06 1.2 -0.2  
## 12 1 0.06 0.08 0.50 -0.2 0.01 0 0.00 0.2 -0.2  
## 13 3 0.10 0.19 0.43 1.2 0.01 0 0.00 0.2 -0.2  
## 14 0 0.00 0.00 0.00 0.0 0.01 1 0.14 0.1 0.9  
## 15 2 0.05 0.14 0.40 0.2 0.04 0 0.00 1.4 -1.4  
## 16 0 0.00 0.00 0.00 -0.3 0.00 0 0.00 0.0 0.0  
## 17 1 0.06 0.20 1.00 -0.1 0.01 0 0.00 0.1 -0.1  
## 18 1 0.03 0.10 0.50 -0.7 0.07 1 0.03 2.2 -1.2  
## 19 1 0.05 0.07 0.33 -0.5 0.01 0 0.00 0.3 -0.3  
## 20 1 0.07 0.13 0.50 -0.3 0.00 0 0.00 0.1 -0.1  
## 21 0 0.00 0.00 0.00 -0.2 0.04 0 0.00 0.2 -0.2  
## 22 1 0.06 1.00 1.00 0.0 0.00 0 0.00 0.0 0.0  
## 23 0 0.00 0.00 0.00 0.0 0.00 0 0.00 0.0 0.0  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 0.0 0.00 87.4 85.7 92.1 64.0  
## 2 0.0 0.00 79.9 89.6 90.4 36.8  
## 3 25.0 0.07 76.2 85.2 80.1 47.2  
## 4 20.0 0.04 86.0 94.0 92.0 57.3  
## 5 26.3 0.16 79.2 83.3 88.1 55.3  
## 6 20.0 0.10 82.2 87.8 89.1 47.1  
## 7 50.0 0.21 88.0 93.0 90.8 70.6  
## 8 25.0 0.05 81.5 85.6 92.4 51.9  
## 9 35.7 0.16 71.3 87.4 81.6 39.5  
## 10 0.0 0.00 84.1 83.3 93.3 51.9  
## 11 0.0 0.00 87.6 92.3 92.0 55.6  
## 12 16.7 0.12 75.9 86.6 87.8 40.5  
## 13 43.8 0.22 83.8 91.8 91.2 56.1  
## 14 0.0 0.00 92.2 96.9 95.0 63.4  
## 15 35.7 0.13 85.7 93.0 92.7 52.9  
## 16 0.0 0.00 84.0 89.8 90.6 45.6  
## 17 20.0 0.06 79.7 94.0 81.3 53.7  
## 18 20.0 0.07 81.3 87.5 87.2 54.2  
## 19 21.4 0.15 80.1 93.1 91.7 48.1  
## 20 25.0 0.13 88.9 93.7 91.9 66.2  
## 21 0.0 0.00 73.7 79.2 75.2 60.7  
## 22 100.0 0.06 89.1 92.5 92.1 76.9  
## 23 0.0 0.00 84.9 94.9 89.5 21.4  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 62.5 0.0 0.0 41.2 0.000  
## 2 85.7 100.0 0.0 63.2 0.000  
## 3 48.8 50.0 41.7 55.5 0.000  
## 4 72.4 78.6 14.3 54.5 0.039  
## 5 42.3 50.0 50.0 65.5 0.031  
## 6 59.3 58.3 41.7 50.0 0.000  
## 7 50.0 66.7 33.3 30.8 0.000  
## 8 46.0 69.2 15.4 55.6 0.000  
## 9 64.1 45.5 27.3 60.5 0.000  
## 10 50.0 0.0 0.0 54.5 0.204  
## 11 57.1 57.1 28.6 66.7 0.000  
## 12 81.0 33.3 33.3 65.7 0.000  
## 13 62.5 66.7 33.3 57.4 0.000  
## 14 41.7 50.0 25.0 44.4 0.000  
## 15 75.0 62.5 18.8 70.5 0.000  
## 16 56.3 33.3 0.0 54.2 0.000  
## 17 80.0 100.0 0.0 75.0 0.062  
## 18 65.5 64.7 11.8 67.6 0.000  
## 19 72.7 60.0 40.0 60.0 0.049  
## 20 71.4 50.0 50.0 80.8 0.000  
## 21 66.7 0.0 0.0 87.0 0.000  
## 22 50.0 85.7 14.3 56.8 0.060  
## 23 33.3 0.0 100.0 75.0 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.230 0.690 0.115  
## 2 0.000 0.000 0.141 0.141 0.282  
## 3 0.000 0.035 0.140 0.804 0.350  
## 4 0.039 0.039 0.234 0.586 0.586  
## 5 0.000 0.000 0.156 1.121 0.997  
## 6 0.000 0.000 0.146 1.122 0.488  
## 7 0.000 0.000 0.408 1.633 1.020  
## 8 0.000 0.000 0.135 0.649 0.649  
## 9 0.000 0.000 0.312 0.592 0.249  
## 10 0.000 0.000 0.000 0.612 0.000  
## 11 0.000 0.000 0.129 1.097 0.452  
## 12 0.000 0.000 0.120 0.898 0.599  
## 13 0.000 0.032 0.095 0.762 0.222  
## 14 0.000 0.000 0.417 0.833 1.111  
## 15 0.000 0.026 0.184 1.000 0.579  
## 16 0.000 0.000 0.414 1.724 1.034  
## 17 0.062 0.000 0.309 0.679 0.802  
## 18 0.000 0.000 0.102 0.407 0.373  
## 19 0.049 0.049 0.146 0.485 0.485  
## 20 0.000 0.000 0.131 0.523 1.046  
## 21 0.000 0.000 0.000 0.652 0.217  
## 22 0.060 0.120 0.240 0.479 0.659  
## 23 0.000 0.000 0.270 1.081 0.541  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 124.368 49.310 0.000 0.000  
## 2 102.535 37.042 0.000 0.141  
## 3 69.685 27.867 0.245 0.070  
## 4 235.820 118.555 0.430 0.078  
## 5 178.349 109.813 0.436 0.031  
## 6 106.634 53.659 0.439 0.049  
## 7 180.612 106.735 0.816 0.000  
## 8 196.757 119.135 0.405 0.000  
## 9 91.682 44.517 0.187 0.031  
## 10 83.673 22.653 0.000 0.000  
## 11 173.097 92.968 0.323 0.000  
## 12 140.000 80.778 0.060 0.060  
## 13 119.079 64.095 0.159 0.032  
## 14 246.528 147.500 0.417 0.000  
## 15 191.474 108.079 0.447 0.026  
## 16 187.310 114.759 1.241 0.138  
## 17 154.938 73.086 0.741 0.062  
## 18 157.898 89.356 0.508 0.000  
## 19 204.417 115.922 0.388 0.000  
## 20 231.438 141.242 0.719 0.000  
## 21 79.348 38.478 0.000 0.000  
## 22 248.922 163.054 0.359 0.120  
## 23 186.216 101.892 0.270 0.000  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.000 0.230 0.575 0.000 0.115  
## 2 0.014 0.000 0.000 0.000 0.000  
## 3 0.028 0.280 0.385 0.035 0.000  
## 4 0.008 0.039 0.508 0.000 0.078  
## 5 0.031 0.405 0.841 0.000 0.093  
## 6 0.010 0.098 0.341 0.049 0.000  
## 7 0.000 0.204 0.408 0.000 0.000  
## 8 0.016 0.189 0.703 0.000 0.027  
## 9 0.031 0.374 0.374 0.000 0.093  
## 10 0.061 0.408 0.408 0.000 0.204  
## 11 0.019 0.387 0.710 0.000 0.000  
## 12 0.006 0.180 0.419 0.000 0.060  
## 13 0.003 0.127 0.349 0.000 0.032  
## 14 0.014 0.417 0.833 0.000 0.000  
## 15 0.029 0.447 0.895 0.053 0.053  
## 16 0.014 0.069 0.414 0.000 0.000  
## 17 0.019 0.185 0.494 0.000 0.000  
## 18 0.037 0.373 0.746 0.000 0.034  
## 19 0.019 0.194 0.583 0.000 0.049  
## 20 0.039 0.065 0.850 0.000 0.131  
## 21 0.043 0.652 0.435 0.000 0.000  
## 22 0.006 0.000 0.539 0.000 0.000  
## 23 0.000 0.000 0.000 0.000 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 0.920 597.356  
## 2 0.000 0.000 0.563 463.521  
## 3 0.000 0.070 1.399 431.538  
## 4 0.000 0.000 2.422 1065.469  
## 5 0.031 0.031 3.801 859.315  
## 6 0.000 0.000 1.805 533.220  
## 7 0.000 0.000 2.245 694.694  
## 8 0.000 0.000 2.946 831.270  
## 9 0.000 0.031 1.963 543.925  
## 10 0.000 0.000 1.633 593.878  
## 11 0.000 0.000 2.387 771.097  
## 12 0.000 0.120 2.275 576.347  
## 13 0.032 0.000 1.683 598.190  
## 14 0.000 0.139 3.889 954.167  
## 15 0.000 0.026 3.079 969.632  
## 16 0.138 0.000 2.759 801.517  
## 17 0.000 0.000 2.407 704.815  
## 18 0.000 0.034 3.288 795.593  
## 19 0.000 0.000 3.301 964.563  
## 20 0.000 0.000 3.856 782.745  
## 21 0.000 0.000 2.174 601.957  
## 22 0.000 0.000 3.892 1131.257  
## 23 0.000 0.000 2.162 747.297  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 166.552 0.000 0.115 0.000 2.414  
## 2 156.197 0.000 0.282 0.000 1.408  
## 3 161.818 0.000 0.385 0.070 3.112  
## 4 368.008 0.000 0.781 0.000 6.680  
## 5 318.847 0.093 0.592 0.093 4.361  
## 6 196.049 0.000 0.146 0.049 5.024  
## 7 191.429 0.000 0.204 0.000 5.306  
## 8 285.027 0.054 0.297 0.000 4.135  
## 9 239.252 0.031 0.654 0.125 4.206  
## 10 217.959 0.000 0.204 0.000 3.673  
## 11 247.935 0.065 0.452 0.000 4.516  
## 12 234.192 0.060 0.419 0.000 4.192  
## 13 215.587 0.032 0.317 0.000 3.016  
## 14 292.083 0.139 0.139 0.000 4.583  
## 15 345.237 0.053 0.342 0.026 4.658  
## 16 206.759 0.069 0.690 0.000 4.276  
## 17 260.679 0.000 0.432 0.062 6.049  
## 18 297.356 0.068 0.542 0.000 4.610  
## 19 427.379 0.049 0.243 0.000 4.951  
## 20 246.209 0.065 0.261 0.000 4.379  
## 21 278.261 0.000 0.435 0.000 5.435  
## 22 416.108 0.000 0.539 0.000 4.731  
## 23 259.459 0.000 0.541 0.000 3.243  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.000 0.115 0.345 0.000 0.000 0.345  
## 2 0.000 0.000 0.000 0.000 0.000 0.423  
## 3 0.070 0.105 0.594 0.140 0.105 0.455  
## 4 0.039 0.156 0.469 0.312 0.078 0.430  
## 5 0.218 0.062 0.343 0.031 0.031 0.467  
## 6 0.049 0.000 0.585 0.488 0.049 0.683  
## 7 0.000 0.000 0.408 0.204 0.000 0.408  
## 8 0.027 0.108 0.405 0.054 0.000 0.649  
## 9 0.156 0.062 0.561 0.156 0.031 0.498  
## 10 0.000 0.204 0.000 0.000 0.000 0.408  
## 11 0.194 0.000 0.323 0.194 0.000 0.839  
## 12 0.120 0.180 0.419 0.000 0.000 0.599  
## 13 0.063 0.000 0.413 0.095 0.000 0.190  
## 14 0.278 0.000 0.139 0.417 0.000 0.417  
## 15 0.237 0.105 0.211 0.263 0.053 0.474  
## 16 0.069 0.000 0.345 0.207 0.000 1.103  
## 17 0.062 0.000 0.247 0.185 0.000 0.247  
## 18 0.203 0.136 0.746 0.441 0.102 0.780  
## 19 0.097 0.097 0.485 0.097 0.000 0.291  
## 20 0.261 0.000 0.392 0.131 0.131 0.196  
## 21 0.000 0.000 0.652 0.000 0.000 0.435  
## 22 0.060 0.120 0.359 0.180 0.060 0.359  
## 23 0.000 0.270 0.811 0.270 0.000 0.541  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0 0.115 1.379 0.920  
## 2 0 0.000 1.831 1.408  
## 3 0 0.000 1.434 0.769  
## 4 0 0.000 1.250 0.430  
## 5 0 0.031 1.277 0.935  
## 6 0 0.000 1.805 0.976  
## 7 0 0.000 2.041 1.020  
## 8 0 0.000 1.432 0.919  
## 9 0 0.062 1.526 1.028  
## 10 0 0.000 1.020 0.816  
## 11 0 0.000 1.613 1.161  
## 12 0 0.120 1.257 0.778  
## 13 0 0.000 1.206 0.889  
## 14 0 0.139 1.389 1.111  
## 15 0 0.000 1.684 0.974  
## 16 0 0.000 1.448 0.690  
## 17 0 0.000 1.173 0.741  
## 18 0 0.000 1.559 1.017  
## 19 0 0.000 1.602 1.165  
## 20 0 0.000 1.503 1.176  
## 21 0 0.000 1.304 0.870  
## 22 0 0.000 1.377 0.898  
## 23 0 0.000 1.622 0.811  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.460 1.494 2.644 4.828 30.00000  
## 2 0.423 0.423 1.972 4.085 45.45455  
## 3 0.664 1.224 2.867 5.350 63.82979  
## 4 0.820 1.094 3.008 3.281 59.18367  
## 5 0.343 1.090 2.305 4.922 51.28205  
## 6 0.829 1.512 3.512 4.488 53.65854  
## 7 1.020 1.224 2.041 4.286 50.00000  
## 8 0.514 0.892 2.486 3.865 54.23729  
## 9 0.498 1.028 2.368 4.112 65.11628  
## 10 0.204 0.612 2.041 6.531 71.42857  
## 11 0.452 1.484 2.903 4.903 63.63636  
## 12 0.479 1.377 3.054 4.731 57.14286  
## 13 0.317 0.921 1.651 5.079 73.91304  
## 14 0.278 0.694 2.361 3.611 66.66667  
## 15 0.711 1.026 2.263 4.789 44.68085  
## 16 0.759 1.862 3.724 3.862 37.03704  
## 17 0.432 0.864 3.457 3.148 59.52381  
## 18 0.542 1.492 2.780 4.780 52.63158  
## 19 0.437 0.825 2.087 4.126 53.84615  
## 20 0.327 0.980 2.157 5.752 61.11111  
## 21 0.435 1.087 1.957 5.870 0.00000  
## 22 0.479 1.497 2.695 3.653 45.00000  
## 23 0.811 1.081 1.892 3.784 33.33333  
##   
## [[7]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.1 0.06 1 0.15 0.4 0.6  
## 2 1 0.04 0.06 0.20 -0.5 0.06 1 0.04 1.4 -0.4  
## 3 2 0.07 0.11 0.50 0.0 0.04 0 0.00 1.0 -1.0  
## 4 4 0.12 0.11 0.44 1.5 0.02 1 0.03 0.7 0.3  
## 5 0 0.00 0.00 0.00 -0.1 0.01 0 0.00 0.1 -0.1  
## 6 2 0.11 0.10 0.67 0.0 0.07 2 0.11 1.2 0.8  
## 7 1 0.03 0.04 0.25 -1.6 0.06 1 0.03 2.5 -1.5  
## 8 3 0.09 0.21 0.75 1.3 0.03 0 0.00 1.0 -1.0  
## 9 2 0.05 0.10 0.25 0.3 0.07 3 0.08 2.8 0.2  
## 10 0 0.00 0.00 0.00 -0.2 0.00 0 0.00 0.0 0.0  
## 11 1 0.23 0.33 1.00 0.7 0.00 0 0.00 0.0 0.0  
## 12 4 0.16 0.31 1.00 2.0 0.07 5 0.20 1.7 3.3  
## 13 0 0.00 0.00 0.00 -1.8 0.04 2 0.06 1.2 0.8  
## 14 1 0.04 0.09 0.25 0.4 0.01 0 0.00 0.3 -0.3  
## 15 1 0.08 0.14 1.00 -0.1 0.05 1 0.08 0.6 0.4  
## 16 2 0.13 0.14 0.33 0.5 0.08 1 0.06 1.3 -0.3  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 100.0 0.15 82.5 83.5 88.6 63.6  
## 2 31.3 0.20 86.5 88.9 94.3 66.7  
## 3 21.1 0.14 83.2 85.6 90.9 55.1  
## 4 25.7 0.27 82.8 90.9 90.8 59.7  
## 5 0.0 0.00 85.1 87.1 92.4 63.6  
## 6 15.0 0.16 83.1 90.3 87.3 58.0  
## 7 16.0 0.11 77.1 83.5 86.1 58.5  
## 8 28.6 0.12 79.8 86.8 86.8 54.2  
## 9 38.1 0.21 78.4 87.3 91.3 51.4  
## 10 33.3 0.19 69.2 77.6 85.9 23.7  
## 11 33.3 0.23 74.4 87.2 77.1 47.4  
## 12 30.8 0.16 77.5 90.3 89.6 52.5  
## 13 35.3 0.19 76.9 88.0 87.1 47.2  
## 14 36.4 0.15 77.6 86.5 87.7 46.3  
## 15 14.3 0.08 71.3 77.9 83.6 50.4  
## 16 42.9 0.38 75.0 87.8 78.6 45.0  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 64.3 0.0 0.0 59.2 0.000  
## 2 64.7 100.0 0.0 66.3 0.000  
## 3 45.0 60.0 30.0 68.9 0.000  
## 4 45.0 59.1 36.4 49.6 0.000  
## 5 75.0 50.0 50.0 70.0 0.000  
## 6 54.5 0.0 100.0 78.4 0.000  
## 7 56.3 80.0 20.0 69.7 0.000  
## 8 72.6 62.5 25.0 68.6 0.000  
## 9 74.4 60.9 26.1 65.9 0.000  
## 10 36.4 0.0 0.0 63.6 0.000  
## 11 100.0 0.0 100.0 68.8 0.000  
## 12 42.9 55.0 40.0 48.1 0.000  
## 13 57.6 57.1 42.9 48.7 0.000  
## 14 63.3 63.6 27.3 58.3 0.000  
## 15 68.2 66.7 33.3 66.0 0.000  
## 16 55.0 42.9 28.6 68.7 0.062  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.290 2.174 0.580  
## 2 0.000 0.000 0.286 0.816 0.041  
## 3 0.000 0.000 0.036 0.143 0.393  
## 4 0.000 0.000 0.147 1.121 0.826  
## 5 0.000 0.000 0.952 2.381 0.238  
## 6 0.000 0.000 0.217 1.141 1.087  
## 7 0.000 0.026 0.289 1.184 0.395  
## 8 0.000 0.029 0.231 0.723 0.058  
## 9 0.000 0.000 0.185 1.135 0.554  
## 10 0.000 0.185 0.370 1.111 0.000  
## 11 0.000 0.000 0.227 1.364 0.000  
## 12 0.000 0.000 0.522 1.647 1.245  
## 13 0.000 0.000 0.161 1.226 0.710  
## 14 0.000 0.036 0.109 1.277 0.547  
## 15 0.000 0.077 0.308 1.154 0.462  
## 16 0.062 0.000 0.188 1.250 0.250  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 188.986 106.667 0.580 0.000  
## 2 172.531 78.857 0.286 0.000  
## 3 181.964 112.857 0.179 0.036  
## 4 235.221 146.932 1.239 0.029  
## 5 164.762 85.952 0.238 0.000  
## 6 252.065 150.598 0.707 0.109  
## 7 131.842 80.868 0.316 0.000  
## 8 91.358 45.000 0.145 0.029  
## 9 191.108 111.003 0.290 0.000  
## 10 89.815 43.148 0.370 0.000  
## 11 68.409 25.455 0.000 0.000  
## 12 192.329 124.418 1.365 0.120  
## 13 176.548 109.677 0.452 0.097  
## 14 117.591 60.584 0.292 0.073  
## 15 115.692 67.923 0.462 0.077  
## 16 107.000 54.000 0.125 0.062  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.072 0.435 1.159 0.000 0.000  
## 2 0.024 0.367 0.327 0.000 0.122  
## 3 0.029 0.143 0.571 0.000 0.214  
## 4 0.041 0.295 0.973 0.059 0.118  
## 5 0.000 0.476 0.476 0.000 0.238  
## 6 0.049 0.326 1.033 0.000 0.054  
## 7 0.071 0.579 1.000 0.026 0.105  
## 8 0.038 0.116 0.578 0.000 0.029  
## 9 0.061 0.528 1.082 0.000 0.079  
## 10 0.000 0.000 0.000 0.000 0.185  
## 11 0.000 0.000 0.000 0.000 0.000  
## 12 0.100 0.884 1.767 0.000 0.080  
## 13 0.019 0.226 0.645 0.161 0.097  
## 14 0.022 0.219 0.401 0.073 0.036  
## 15 0.023 0.231 0.692 0.000 0.000  
## 16 0.050 0.562 0.875 0.000 0.125  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.290 3.623 864.493  
## 2 0.000 0.041 2.000 955.796  
## 3 0.000 0.036 2.179 805.214  
## 4 0.147 0.029 3.923 1068.643  
## 5 0.000 0.238 1.429 870.000  
## 6 0.054 0.163 3.967 923.859  
## 7 0.000 0.026 3.421 663.658  
## 8 0.087 0.029 2.139 594.249  
## 9 0.000 0.053 3.879 999.314  
## 10 0.000 0.000 0.926 453.519  
## 11 0.000 0.000 1.591 356.818  
## 12 0.040 0.080 5.100 874.016  
## 13 0.032 0.000 2.871 741.419  
## 14 0.000 0.000 1.971 521.387  
## 15 0.000 0.077 2.846 509.846  
## 16 0.000 0.000 2.000 585.125  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 288.986 0.000 0.145 0.000 4.493  
## 2 329.061 0.082 0.367 0.000 4.082  
## 3 268.429 0.000 0.464 0.000 4.679  
## 4 438.761 0.177 0.442 0.088 5.133  
## 5 336.190 0.000 0.238 0.000 4.762  
## 6 348.859 0.000 0.163 0.000 4.239  
## 7 277.026 0.026 0.263 0.079 4.895  
## 8 232.601 0.000 0.347 0.000 5.231  
## 9 387.863 0.185 0.580 0.211 5.092  
## 10 182.963 0.000 0.185 0.000 3.889  
## 11 174.091 0.000 0.227 0.000 5.682  
## 12 377.309 0.161 0.683 0.442 6.586  
## 13 341.000 0.194 0.387 0.000 4.710  
## 14 201.642 0.036 0.255 0.000 4.599  
## 15 240.000 0.077 0.538 0.000 6.846  
## 16 253.688 0.062 0.625 0.000 5.375  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.145 0.145 0.290 0.290 0.000 0.290  
## 2 0.122 0.041 0.204 0.082 0.163 0.612  
## 3 0.107 0.107 0.393 0.143 0.000 0.393  
## 4 0.236 0.029 0.501 0.354 0.000 0.767  
## 5 0.238 0.000 0.714 0.238 0.000 0.476  
## 6 0.109 0.054 0.489 0.109 0.326 0.543  
## 7 0.342 0.053 0.421 0.421 0.026 0.658  
## 8 0.173 0.058 0.578 0.058 0.145 0.549  
## 9 0.396 0.026 0.290 0.158 0.026 0.607  
## 10 0.370 0.185 0.370 0.185 0.000 0.185  
## 11 0.000 0.000 1.364 0.000 0.000 0.455  
## 12 0.241 0.040 0.763 0.442 0.000 0.442  
## 13 0.290 0.000 0.645 0.484 0.000 0.226  
## 14 0.146 0.036 0.803 0.182 0.036 0.255  
## 15 0.077 0.000 0.462 0.154 0.000 0.769  
## 16 0.188 0.000 0.250 0.188 0.062 0.125  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 1.884 0.870  
## 2 0.000 0.000 2.082 1.592  
## 3 0.000 0.000 1.429 0.857  
## 4 0.059 0.000 1.475 1.121  
## 5 0.000 0.000 0.952 0.238  
## 6 0.054 0.000 1.793 1.304  
## 7 0.000 0.000 2.158 1.474  
## 8 0.029 0.000 1.474 1.040  
## 9 0.000 0.000 0.871 0.475  
## 10 0.000 0.000 1.852 0.741  
## 11 0.000 0.000 2.045 1.364  
## 12 0.000 0.000 2.008 0.924  
## 13 0.000 0.032 1.323 0.774  
## 14 0.000 0.000 1.423 0.985  
## 15 0.000 0.077 1.769 1.000  
## 16 0.000 0.000 2.000 1.312  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.014 1.014 2.754 4.348 91.66667  
## 2 0.490 0.653 1.878 4.898 66.66667  
## 3 0.571 1.536 2.786 6.071 65.71429  
## 4 0.354 1.062 2.301 3.923 57.14286  
## 5 0.714 0.952 3.810 2.857 75.00000  
## 6 0.489 1.359 2.663 4.511 70.83333  
## 7 0.684 1.474 3.079 5.026 68.85246  
## 8 0.434 1.445 3.353 4.711 48.48485  
## 9 0.396 1.082 2.559 5.462 62.50000  
## 10 1.111 2.407 3.519 7.222 66.66667  
## 11 0.682 1.818 3.182 6.591 83.33333  
## 12 1.084 1.406 3.614 4.378 58.18182  
## 13 0.548 1.194 2.806 6.065 62.00000  
## 14 0.438 2.080 4.051 5.109 40.74074  
## 15 0.769 1.769 3.692 5.231 64.00000  
## 16 0.688 1.562 4.438 5.625 63.04348  
##   
## [[8]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 2 0.09 0.07 0.33 0.0 0.11 0 0.00 2.7 -2.7  
## 2 0 0.00 0.00 0.00 -0.3 0.04 0 0.00 0.4 -0.4  
## 3 0 0.00 0.00 0.00 -0.3 0.07 0 0.00 0.7 -0.7  
## 4 2 0.07 0.06 0.29 -1.5 0.07 1 0.04 1.9 -0.9  
## 5 2 0.10 0.09 0.29 0.2 0.08 2 0.10 1.5 0.5  
## 6 0 0.00 0.00 0.00 -0.3 0.07 2 0.14 1.1 0.9  
## 7 4 0.19 0.15 0.57 2.7 0.05 0 0.00 1.1 -1.1  
## 8 0 0.00 0.00 0.00 0.0 0.00 0 0.00 0.0 0.0  
## 9 0 0.00 0.00 0.00 -0.6 0.11 0 0.00 0.8 -0.8  
## 10 1 0.03 0.02 0.10 -1.7 0.14 2 0.06 4.6 -2.6  
## 11 1 0.04 0.03 0.11 -1.7 0.08 1 0.04 2.2 -1.2  
## 12 2 0.07 0.08 0.29 0.3 0.04 1 0.03 1.1 -0.1  
## 13 4 0.16 0.14 0.36 2.1 0.08 2 0.08 2.1 -0.1  
## 14 1 0.07 0.08 0.33 -0.2 0.13 3 0.22 1.7 1.3  
## 15 4 0.12 0.08 0.22 -0.6 0.05 1 0.03 1.5 -0.5  
## 16 1 0.17 0.20 1.00 0.6 0.06 0 0.00 0.3 -0.3  
## 17 1 0.08 0.11 0.33 0.2 0.10 0 0.00 1.3 -1.3  
## 18 0 0.00 0.00 0.00 -0.9 0.16 2 0.21 1.4 0.6  
## 19 2 0.12 0.09 0.33 0.7 0.06 2 0.12 1.0 1.0  
## 20 0 0.00 0.00 0.00 0.0 0.07 0 0.00 0.7 -0.7  
## 21 0 0.00 0.00 0.00 -0.7 0.07 0 0.00 0.6 -0.6  
## 22 1 0.06 0.10 1.00 0.2 0.01 0 0.00 0.2 -0.2  
## 23 0 0.00 0.00 0.00 -0.3 0.07 0 0.00 0.3 -0.3  
## 24 0 0.00 0.00 0.00 -0.6 0.04 0 0.00 0.4 -0.4  
## 25 2 0.13 0.07 0.25 -0.5 0.21 2 0.13 3.2 -1.2  
## 26 1 0.03 0.04 0.33 -0.9 0.07 2 0.06 2.4 -0.4  
## 27 1 0.08 0.08 0.33 -0.6 0.06 0 0.00 0.8 -0.8  
## 28 6 0.20 0.15 0.40 -0.6 0.07 2 0.07 2.3 -0.3  
## 29 0 0.00 0.00 0.00 -0.2 0.05 2 0.22 0.5 1.5  
## 30 2 0.06 0.17 0.50 0.4 0.08 3 0.08 2.8 0.2  
## 31 1 0.03 0.05 0.14 -0.8 0.14 3 0.09 4.8 -1.8  
## 32 0 0.00 0.00 0.00 -0.3 0.05 1 0.05 1.1 -0.1  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 20.7 0.26 84.1 89.0 87.4 73.9  
## 2 9.1 0.11 84.2 88.5 87.3 67.6  
## 3 33.3 0.20 87.0 90.1 88.5 75.0  
## 4 20.0 0.25 79.9 88.1 81.9 53.4  
## 5 30.4 0.35 77.7 85.9 86.4 56.9  
## 6 22.2 0.14 83.8 89.7 88.3 64.7  
## 7 26.9 0.33 84.4 89.7 87.8 59.1  
## 8 0.0 0.00 77.0 88.1 87.0 38.5  
## 9 27.3 0.44 79.9 90.9 79.8 35.7  
## 10 24.4 0.30 77.0 86.6 85.6 48.6  
## 11 26.5 0.34 81.4 88.6 82.8 57.0  
## 12 26.9 0.24 82.2 89.6 84.7 53.2  
## 13 39.3 0.44 76.9 84.8 79.1 48.2  
## 14 23.1 0.22 82.4 86.1 86.7 60.0  
## 15 37.5 0.55 85.8 91.1 88.2 63.0  
## 16 20.0 0.17 81.7 88.8 79.2 58.8  
## 17 33.3 0.23 78.9 85.1 82.1 56.4  
## 18 44.4 0.43 69.4 77.8 76.8 47.3  
## 19 27.3 0.36 84.7 89.6 85.2 73.8  
## 20 100.0 0.10 79.7 86.5 88.0 52.0  
## 21 25.0 0.13 91.6 94.8 93.9 79.2  
## 22 10.0 0.06 88.2 91.0 91.1 78.7  
## 23 42.9 0.63 77.1 86.5 80.0 60.0  
## 24 9.1 0.08 73.6 87.2 76.9 44.4  
## 25 26.7 0.52 75.2 83.2 79.1 55.4  
## 26 12.0 0.09 88.1 89.2 92.5 81.2  
## 27 23.1 0.24 86.3 89.1 91.9 69.0  
## 28 36.6 0.49 79.9 86.6 81.6 62.6  
## 29 16.7 0.11 77.7 84.9 83.3 37.8  
## 30 33.3 0.11 72.3 84.3 74.3 44.4  
## 31 33.3 0.21 77.8 86.9 79.4 53.8  
## 32 37.5 0.14 83.3 89.2 88.6 43.5  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 50.0 44.4 29.6 74.3 0.000  
## 2 42.9 66.7 26.7 27.3 0.000  
## 3 60.0 76.9 23.1 35.7 0.000  
## 4 36.8 54.5 36.4 46.5 0.000  
## 5 45.7 65.4 34.6 58.3 0.000  
## 6 41.9 50.0 50.0 40.9 0.000  
## 7 63.0 44.0 44.0 59.1 0.000  
## 8 50.0 33.3 66.7 75.0 0.000  
## 9 50.0 50.0 41.7 37.5 0.000  
## 10 42.7 46.3 39.0 48.9 0.000  
## 11 47.5 55.0 30.0 67.6 0.000  
## 12 44.4 47.3 41.8 41.9 0.000  
## 13 73.0 53.8 46.2 50.7 0.040  
## 14 46.9 47.1 47.1 47.8 0.000  
## 15 53.2 54.3 41.3 46.1 0.030  
## 16 37.5 33.3 50.0 40.0 0.000  
## 17 52.2 42.9 50.0 53.5 0.000  
## 18 35.0 45.0 55.0 52.2 0.000  
## 19 47.9 41.2 47.1 52.5 0.000  
## 20 46.7 68.0 24.0 37.5 0.000  
## 21 61.1 66.7 33.3 23.1 0.000  
## 22 48.3 43.3 43.3 75.0 0.000  
## 23 31.3 50.0 41.7 33.3 0.000  
## 24 55.6 56.3 37.5 38.7 0.000  
## 25 33.3 36.4 54.5 60.0 0.065  
## 26 58.6 48.8 39.0 57.1 0.030  
## 27 46.2 62.5 37.5 57.9 0.000  
## 28 38.1 47.8 47.8 45.0 0.000  
## 29 45.5 21.4 78.6 60.0 0.000  
## 30 71.7 48.6 45.9 44.7 0.000  
## 31 50.0 44.4 38.9 56.7 0.000  
## 32 50.0 60.0 20.0 41.4 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.00 0.043 0.216 1.595 0.905  
## 2 0.00 0.000 0.440 2.527 0.989  
## 3 0.00 0.000 0.196 0.980 0.882  
## 4 0.00 0.000 0.288 1.475 0.540  
## 5 0.00 0.050 0.201 0.653 1.106  
## 6 0.00 0.000 0.408 1.769 0.680  
## 7 0.00 0.000 0.383 1.675 1.388  
## 8 0.00 0.000 0.000 1.154 1.154  
## 9 0.00 0.000 0.290 1.159 1.449  
## 10 0.00 0.000 0.210 1.168 1.078  
## 11 0.00 0.000 0.300 1.610 0.524  
## 12 0.00 0.068 0.374 2.245 0.952  
## 13 0.00 0.040 0.160 1.520 0.760  
## 14 0.00 0.000 0.075 0.373 1.045  
## 15 0.03 0.000 0.364 1.303 0.970  
## 16 0.00 0.000 0.351 1.754 1.579  
## 17 0.00 0.000 0.156 1.016 0.938  
## 18 0.00 0.000 0.213 1.489 1.702  
## 19 0.00 0.000 0.241 1.566 0.843  
## 20 0.00 0.000 0.190 0.952 1.238  
## 21 0.00 0.000 0.380 1.013 1.013  
## 22 0.00 0.000 0.345 1.322 0.747  
## 23 0.00 0.000 0.000 0.638 0.851  
## 24 0.00 0.000 0.082 0.738 0.820  
## 25 0.00 0.000 0.194 1.226 1.419  
## 26 0.03 0.000 0.299 1.198 1.916  
## 27 0.00 0.000 0.240 2.160 0.960  
## 28 0.00 0.000 0.230 0.787 0.787  
## 29 0.00 0.000 0.215 0.860 1.075  
## 30 0.00 0.000 0.169 0.618 0.899  
## 31 0.00 0.000 0.236 0.796 0.737  
## 32 0.00 0.000 0.286 1.857 0.667  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 128.664 59.310 1.293 0.216  
## 2 155.714 62.308 1.538 0.110  
## 3 113.039 56.765 0.882 0.098  
## 4 121.115 58.741 0.971 0.108  
## 5 127.990 59.196 1.005 0.151  
## 6 116.667 40.136 0.680 0.068  
## 7 142.392 68.469 1.244 0.096  
## 8 93.462 30.385 0.000 0.769  
## 9 142.754 61.304 1.159 0.290  
## 10 115.449 49.611 1.108 0.150  
## 11 113.596 52.809 0.637 0.075  
## 12 133.639 60.272 0.748 0.204  
## 13 91.120 40.720 0.560 0.120  
## 14 124.179 48.806 0.522 0.448  
## 15 148.576 69.121 0.939 0.091  
## 16 139.825 56.316 0.877 0.351  
## 17 101.016 46.641 0.625 0.234  
## 18 167.872 90.000 1.170 0.319  
## 19 122.289 66.627 0.783 0.120  
## 20 141.810 60.381 1.143 0.286  
## 21 105.190 50.506 0.506 0.127  
## 22 120.517 55.230 0.632 0.057  
## 23 137.234 54.468 1.489 0.426  
## 24 78.770 30.984 0.574 0.410  
## 25 114.323 51.484 1.484 0.387  
## 26 192.186 92.545 1.707 0.269  
## 27 130.720 62.080 0.960 0.080  
## 28 109.213 45.705 0.787 0.230  
## 29 111.720 57.204 1.613 0.108  
## 30 91.376 43.933 0.646 0.253  
## 31 104.985 45.959 0.737 0.088  
## 32 91.952 42.857 0.667 0.000  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.060 0.776 2.026 0.043 0.129  
## 2 0.033 0.659 1.319 0.110 0.000  
## 3 0.078 0.980 1.863 0.098 0.196  
## 4 0.086 0.863 1.727 0.000 0.108  
## 5 0.035 1.005 1.709 0.201 0.201  
## 6 0.102 0.952 1.701 0.000 0.000  
## 7 0.038 0.718 1.770 0.000 0.239  
## 8 0.038 0.000 0.385 0.000 0.000  
## 9 0.116 0.580 1.594 0.145 0.145  
## 10 0.111 1.317 1.737 0.090 0.180  
## 11 0.075 0.899 1.835 0.037 0.112  
## 12 0.058 0.680 1.633 0.068 0.136  
## 13 0.084 1.360 1.720 0.040 0.120  
## 14 0.104 0.896 1.791 0.149 0.224  
## 15 0.039 0.606 1.273 0.000 0.121  
## 16 0.070 1.053 1.930 0.351 0.000  
## 17 0.070 0.938 1.406 0.000 0.000  
## 18 0.096 1.064 1.915 0.000 0.319  
## 19 0.078 0.602 1.988 0.000 0.120  
## 20 0.086 1.048 1.810 0.000 0.095  
## 21 0.063 0.886 1.646 0.000 0.127  
## 22 0.017 0.345 0.977 0.000 0.000  
## 23 0.064 1.064 2.766 0.000 0.000  
## 24 0.115 0.492 0.984 0.164 0.082  
## 25 0.135 1.484 2.581 0.065 0.129  
## 26 0.048 0.868 1.886 0.090 0.000  
## 27 0.040 0.880 1.520 0.080 0.480  
## 28 0.098 0.656 1.410 0.033 0.098  
## 29 0.054 0.430 1.290 0.108 0.000  
## 30 0.067 0.674 1.124 0.028 0.056  
## 31 0.109 1.091 2.035 0.029 0.088  
## 32 0.086 1.000 1.619 0.048 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.172 0.043 4.612 627.931  
## 2 0.000 0.000 3.187 642.747  
## 3 0.000 0.098 4.804 561.275  
## 4 0.072 0.072 5.791 687.554  
## 5 0.050 0.000 4.171 527.538  
## 6 0.068 0.000 3.810 657.619  
## 7 0.191 0.287 3.971 559.234  
## 8 0.000 0.000 3.846 546.923  
## 9 0.000 0.000 3.333 472.899  
## 10 0.120 0.150 2.994 481.048  
## 11 0.037 0.037 3.970 592.697  
## 12 0.068 0.170 3.435 520.102  
## 13 0.120 0.040 3.600 528.240  
## 14 0.000 0.149 3.955 491.045  
## 15 0.030 0.000 2.303 617.091  
## 16 0.175 0.351 3.684 423.509  
## 17 0.000 0.000 2.422 609.219  
## 18 0.106 0.106 6.489 525.532  
## 19 0.000 0.000 5.482 656.265  
## 20 0.000 0.095 4.095 561.333  
## 21 0.000 0.000 4.684 665.570  
## 22 0.057 0.115 2.586 518.448  
## 23 0.213 0.426 6.170 553.617  
## 24 0.164 0.082 2.787 361.721  
## 25 0.065 0.000 3.419 389.484  
## 26 0.030 0.000 4.910 731.407  
## 27 0.000 0.080 3.440 540.240  
## 28 0.098 0.000 4.754 502.098  
## 29 0.108 0.000 5.054 563.226  
## 30 0.028 0.028 2.640 522.135  
## 31 0.088 0.059 3.628 517.227  
## 32 0.095 0.095 3.619 511.524  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 174.095 0.259 0.431 0.043 6.897  
## 2 149.451 0.000 0.769 0.330 6.813  
## 3 181.275 0.490 0.686 0.000 7.255  
## 4 221.007 0.288 0.576 0.144 7.770  
## 5 162.764 0.201 0.754 0.000 5.930  
## 6 155.034 0.136 1.633 0.136 4.898  
## 7 154.833 0.096 0.670 0.048 8.325  
## 8 127.308 0.000 1.154 0.000 5.385  
## 9 131.594 0.145 1.594 0.000 5.797  
## 10 132.695 0.120 0.838 0.180 5.150  
## 11 190.824 0.300 0.749 0.112 6.517  
## 12 141.973 0.238 1.088 0.170 6.224  
## 13 137.960 0.160 0.720 0.000 4.960  
## 14 120.522 0.299 0.970 0.149 5.821  
## 15 161.848 0.242 0.273 0.091 6.030  
## 16 128.947 0.175 0.702 0.351 6.491  
## 17 164.453 0.000 1.406 0.078 5.078  
## 18 201.809 1.064 2.021 0.106 6.064  
## 19 194.157 0.120 0.783 0.060 6.506  
## 20 170.286 0.000 0.762 0.000 4.952  
## 21 184.051 0.127 0.253 0.000 4.557  
## 22 132.874 0.057 0.345 0.000 4.253  
## 23 151.702 0.000 1.277 0.213 5.532  
## 24 90.328 0.000 1.066 0.164 4.426  
## 25 115.548 0.000 1.097 0.258 4.903  
## 26 154.731 0.210 0.419 0.030 6.048  
## 27 143.680 0.320 0.560 0.000 5.200  
## 28 163.279 0.262 0.984 0.131 3.934  
## 29 230.860 0.108 0.860 0.430 5.376  
## 30 222.669 0.028 1.966 0.337 5.843  
## 31 153.717 0.118 0.767 0.442 5.575  
## 32 148.000 0.095 0.619 0.095 5.762  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.388 0.000 0.862 0.431 0.043 1.940  
## 2 0.110 0.000 1.429 1.868 0.110 0.440  
## 3 0.000 0.000 1.569 0.784 0.000 0.098  
## 4 0.216 0.000 0.755 0.540 0.036 1.151  
## 5 0.302 0.000 1.206 0.653 0.101 0.452  
## 6 0.000 0.000 1.293 0.884 0.000 0.680  
## 7 0.144 0.000 0.813 0.957 0.000 1.483  
## 8 0.769 0.000 1.538 0.769 0.000 0.769  
## 9 0.435 0.000 1.594 0.870 0.290 0.725  
## 10 0.210 0.030 0.988 0.299 0.090 1.317  
## 11 0.187 0.000 0.974 0.524 0.150 0.936  
## 12 0.272 0.068 1.429 1.497 0.034 1.293  
## 13 0.200 0.040 0.680 0.560 0.080 0.960  
## 14 0.000 0.149 1.194 0.746 0.149 0.448  
## 15 0.212 0.000 1.000 0.667 0.242 0.727  
## 16 0.000 0.000 1.930 1.053 0.000 1.579  
## 17 0.000 0.000 1.328 0.469 0.391 0.859  
## 18 0.213 0.106 1.915 0.851 0.319 0.851  
## 19 0.241 0.000 1.265 0.422 0.120 0.964  
## 20 0.286 0.000 1.238 0.762 0.000 1.143  
## 21 0.127 0.000 1.139 0.759 0.000 1.519  
## 22 0.115 0.000 0.977 1.034 0.000 1.207  
## 23 0.000 0.000 1.702 1.702 0.213 1.064  
## 24 0.164 0.246 0.984 1.311 0.000 1.148  
## 25 0.129 0.065 1.742 1.097 0.000 0.774  
## 26 0.060 0.060 0.689 0.689 0.060 0.569  
## 27 0.240 0.080 0.880 0.800 0.000 0.720  
## 28 0.066 0.000 1.115 1.148 0.066 1.115  
## 29 0.000 0.108 0.968 0.860 0.000 0.968  
## 30 0.112 0.000 1.292 0.787 0.028 0.449  
## 31 0.118 0.088 0.796 0.295 0.088 0.826  
## 32 0.048 0.000 1.048 1.286 0.048 1.429  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 1.078 0.259  
## 2 0.000 0.000 1.319 0.220  
## 3 0.000 0.000 1.275 0.196  
## 4 0.000 0.000 1.727 0.216  
## 5 0.000 0.000 1.658 0.402  
## 6 0.000 0.000 1.293 0.612  
## 7 0.000 0.000 1.148 0.335  
## 8 0.000 0.000 0.000 0.000  
## 9 0.000 0.000 1.159 0.290  
## 10 0.000 0.000 1.347 0.419  
## 11 0.000 0.000 1.161 0.449  
## 12 0.000 0.000 1.735 0.272  
## 13 0.000 0.000 1.320 0.320  
## 14 0.000 0.000 1.493 0.224  
## 15 0.000 0.000 1.091 0.273  
## 16 0.000 0.000 1.053 0.175  
## 17 0.000 0.000 1.172 0.391  
## 18 0.000 0.000 2.447 0.106  
## 19 0.000 0.000 1.867 0.301  
## 20 0.000 0.095 1.619 0.667  
## 21 0.000 0.000 1.519 0.127  
## 22 0.000 0.000 0.690 0.345  
## 23 0.000 0.000 1.702 0.213  
## 24 0.000 0.000 1.230 0.574  
## 25 0.000 0.000 2.000 0.323  
## 26 0.000 0.000 1.467 0.599  
## 27 0.000 0.000 1.440 0.400  
## 28 0.000 0.000 1.410 0.230  
## 29 0.000 0.000 1.075 0.323  
## 30 0.000 0.000 1.770 0.281  
## 31 0.029 0.000 1.032 0.265  
## 32 0.000 0.000 1.714 0.667  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.819 0.905 3.966 1.336 53.52113  
## 2 1.099 0.549 4.396 0.769 65.71429  
## 3 1.078 1.961 5.294 1.176 50.00000  
## 4 1.511 1.942 4.856 1.799 61.72840  
## 5 1.256 1.759 3.568 2.111 50.00000  
## 6 0.680 0.748 2.721 1.633 62.06897  
## 7 0.813 1.340 4.833 0.766 60.27397  
## 8 0.000 0.769 4.231 0.769 33.33333  
## 9 0.870 0.290 3.043 1.739 52.63158  
## 10 0.928 1.347 3.832 1.407 53.01205  
## 11 0.712 1.348 2.921 2.697 59.52381  
## 12 1.463 0.612 4.966 0.986 57.81250  
## 13 1.000 1.360 3.800 1.600 57.37705  
## 14 1.269 0.597 3.060 1.343 63.63636  
## 15 0.818 1.242 3.970 1.939 64.44444  
## 16 0.877 1.053 4.912 0.526 63.63636  
## 17 0.781 0.547 2.969 3.672 58.06452  
## 18 2.340 1.170 4.255 1.064 58.62069  
## 19 1.566 1.084 4.880 1.446 53.96825  
## 20 0.952 1.429 3.619 0.857 60.86957  
## 21 1.392 0.380 2.658 1.139 66.66667  
## 22 0.345 1.494 3.046 1.839 48.14815  
## 23 1.489 1.277 3.404 1.489 60.00000  
## 24 0.656 0.738 1.803 1.311 38.46154  
## 25 1.677 1.290 3.419 1.806 48.48485  
## 26 0.868 0.689 2.964 1.796 60.52632  
## 27 1.040 1.280 3.920 1.520 57.57576  
## 28 1.180 0.557 2.328 0.754 55.55556  
## 29 0.753 0.968 3.118 3.871 70.00000  
## 30 1.489 0.730 3.680 2.921 57.14286  
## 31 0.767 1.062 2.920 1.888 60.31746  
## 32 1.048 1.000 3.905 1.190 54.09836  
##   
## [[9]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.3 0.07 0 0.00 0.4 -0.4  
## 2 7 0.24 0.15 0.33 -1.8 0.10 1 0.03 2.9 -1.9  
## 3 0 0.00 0.00 0.00 -0.4 0.01 0 0.00 0.1 -0.1  
## 4 2 0.35 0.08 0.18 -1.4 0.14 0 0.00 0.8 -0.8  
## 5 1 0.15 0.04 0.11 -1.6 0.17 0 0.00 1.1 -1.1  
## 6 5 0.41 0.15 0.31 -0.3 0.12 1 0.08 1.5 -0.5  
## 7 0 0.00 0.00 0.00 -0.3 0.13 0 0.00 0.5 -0.5  
## 8 4 0.20 0.10 0.44 -1.5 0.14 1 0.05 2.8 -1.8  
## 9 6 0.19 0.09 0.23 -1.5 0.09 4 0.13 2.8 1.2  
## 10 8 0.44 0.12 0.33 -1.0 0.16 5 0.27 2.9 2.1  
## 11 5 0.27 0.12 0.31 -0.3 0.09 1 0.05 1.7 -0.7  
## 12 1 0.08 0.05 0.11 -1.2 0.14 2 0.16 1.8 0.2  
## 13 0 0.00 0.00 0.00 -0.2 0.02 0 0.00 0.1 -0.1  
## 14 11 0.47 0.25 0.65 4.1 0.13 3 0.13 3.0 0.0  
## 15 2 0.18 0.08 0.33 -0.8 0.06 0 0.00 0.7 -0.7  
## 16 2 0.13 0.11 0.18 0.2 0.15 2 0.13 2.3 -0.3  
## 17 5 0.95 0.25 0.71 3.0 0.06 0 0.00 0.3 -0.3  
## 18 7 0.33 0.13 0.35 0.8 0.09 1 0.05 1.9 -0.9  
## 19 12 0.41 0.18 0.44 0.4 0.15 7 0.24 4.4 2.6  
## 20 2 0.54 0.25 0.50 0.8 0.19 1 0.27 0.7 0.3  
## 21 2 0.56 0.25 0.50 1.0 0.07 1 0.28 0.3 0.7  
## 22 5 0.24 0.15 0.31 0.5 0.09 3 0.14 1.9 1.1  
## 23 7 0.41 0.14 0.37 0.8 0.07 0 0.00 1.2 -1.2  
## 24 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.1 -0.1  
## 25 1 0.05 0.03 0.14 -1.6 0.04 1 0.05 0.8 0.2  
## 26 7 0.33 0.16 0.37 1.3 0.04 1 0.05 0.8 0.2  
## 27 7 0.22 0.16 0.47 0.3 0.05 2 0.06 1.7 0.3  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 33.3 0.34 78.1 84.5 80.4 90.0  
## 2 44.7 0.72 76.5 84.1 83.0 47.5  
## 3 22.2 0.19 75.1 83.2 82.5 31.6  
## 4 42.3 1.90 84.8 94.4 82.0 90.9  
## 5 36.0 1.36 67.1 82.6 68.5 28.6  
## 6 47.1 1.30 75.5 85.2 76.3 70.6  
## 7 100.0 0.23 77.5 89.5 82.6 100.0  
## 8 21.4 0.44 80.1 82.6 92.8 55.6  
## 9 39.4 0.82 64.4 74.7 63.2 52.9  
## 10 36.4 1.31 77.3 84.4 74.3 75.0  
## 11 39.0 0.85 82.1 87.1 85.8 50.0  
## 12 40.9 0.70 75.5 87.8 75.0 51.4  
## 13 40.0 0.44 67.4 77.6 68.9 28.6  
## 14 38.6 0.72 77.0 82.1 80.9 61.9  
## 15 23.1 0.53 55.1 71.7 62.5 25.0  
## 16 57.9 0.73 74.0 80.2 83.0 28.0  
## 17 35.0 1.33 68.6 73.9 82.8 60.0  
## 18 35.7 0.94 68.4 75.8 75.9 56.3  
## 19 39.7 0.92 80.0 86.2 79.6 46.7  
## 20 50.0 1.08 61.1 73.5 59.4 50.0  
## 21 50.0 1.11 64.6 84.4 56.3 40.0  
## 22 47.1 0.76 67.7 73.5 73.4 70.0  
## 23 37.3 1.10 71.1 79.2 76.3 63.6  
## 24 42.9 0.78 68.4 85.4 45.5 57.1  
## 25 21.9 0.32 79.6 84.0 86.1 55.2  
## 26 43.2 0.90 80.6 86.2 84.5 73.2  
## 27 34.9 0.47 75.1 80.9 78.6 62.8  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 50.0 30.0 60.0 44.4 0.000  
## 2 39.1 52.1 43.8 37.5 0.000  
## 3 42.9 50.0 45.8 44.0 0.000  
## 4 9.1 27.8 50.0 9.1 0.000  
## 5 25.0 38.1 52.4 37.5 0.000  
## 6 40.0 35.7 60.7 23.3 0.000  
## 7 0.0 22.7 68.2 10.0 0.000  
## 8 44.4 49.2 47.5 14.3 0.000  
## 9 60.0 56.4 36.4 44.0 0.000  
## 10 32.0 57.4 31.5 54.2 0.000  
## 11 58.8 29.6 59.3 42.1 0.000  
## 12 55.2 37.9 48.3 30.3 0.000  
## 13 41.7 18.2 72.7 57.1 0.000  
## 14 37.5 52.2 43.5 13.7 0.000  
## 15 38.9 24.0 64.0 44.3 0.000  
## 16 50.0 41.5 48.8 56.4 0.000  
## 17 16.7 40.0 60.0 62.5 0.000  
## 18 26.7 35.8 61.2 35.3 0.000  
## 19 35.9 38.1 45.2 50.2 0.000  
## 20 0.0 14.3 71.4 54.8 0.000  
## 21 66.7 66.7 0.0 50.0 0.000  
## 22 35.3 48.7 46.2 32.1 0.047  
## 23 21.1 38.0 48.0 35.7 0.000  
## 24 0.0 0.0 80.0 17.4 0.263  
## 25 55.9 44.4 44.4 53.2 0.000  
## 26 66.7 38.1 47.6 45.6 0.000  
## 27 44.7 36.4 63.6 58.1 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0 0.169 0.169 1.186 1.356  
## 2 0 0.034 0.240 1.815 1.884  
## 3 0 0.000 0.096 1.058 1.154  
## 4 0 0.000 0.345 1.034 2.759  
## 5 0 0.000 0.000 1.061 3.636  
## 6 0 0.000 0.244 0.894 1.870  
## 7 0 0.000 0.000 2.326 1.628  
## 8 0 0.000 0.049 0.686 1.618  
## 9 0 0.000 0.126 1.541 1.164  
## 10 0 0.000 0.055 1.530 2.350  
## 11 0 0.000 0.213 0.638 1.702  
## 12 0 0.000 0.620 1.860 1.318  
## 13 0 0.222 0.222 2.222 2.000  
## 14 0 0.043 0.255 1.319 1.574  
## 15 0 0.000 0.354 1.681 2.212  
## 16 0 0.000 0.067 1.600 1.333  
## 17 0 0.000 0.943 2.264 1.698  
## 18 0 0.000 0.235 2.441 3.052  
## 19 0 0.000 0.375 1.672 1.877  
## 20 0 0.000 0.000 2.703 2.162  
## 21 0 0.000 0.278 1.667 0.278  
## 22 0 0.000 0.000 1.137 2.607  
## 23 0 0.000 0.231 1.792 1.908  
## 24 0 0.000 0.000 1.316 0.263  
## 25 0 0.000 0.271 2.443 0.814  
## 26 0 0.047 0.095 1.374 1.374  
## 27 0 0.031 0.219 1.285 0.219  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 87.119 28.475 0.847 0.678  
## 2 112.740 57.945 1.267 0.582  
## 3 121.058 48.173 1.442 0.096  
## 4 176.724 77.759 0.862 1.552  
## 5 179.091 90.758 2.273 1.667  
## 6 117.154 53.821 1.220 1.545  
## 7 107.442 40.465 1.163 0.698  
## 8 107.157 48.235 1.422 1.078  
## 9 89.780 36.226 1.006 0.566  
## 10 164.098 80.437 1.694 0.710  
## 11 106.968 46.649 0.851 0.691  
## 12 125.891 45.969 1.163 0.310  
## 13 114.222 48.667 1.333 0.889  
## 14 110.043 42.511 0.894 1.021  
## 15 98.407 44.602 1.239 0.796  
## 16 91.467 41.733 0.667 0.400  
## 17 95.849 38.868 0.943 0.943  
## 18 137.559 77.183 1.737 1.643  
## 19 105.017 52.287 1.229 0.785  
## 20 170.541 76.486 0.811 1.351  
## 21 39.167 8.333 0.556 0.000  
## 22 116.777 60.569 1.469 1.706  
## 23 101.850 50.694 1.040 1.445  
## 24 52.895 19.737 1.053 0.789  
## 25 91.719 42.624 0.679 0.000  
## 26 105.261 48.910 1.043 0.190  
## 27 58.589 18.683 0.408 0.063  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.085 0.169 0.847 0.000 0.000  
## 2 0.051 1.164 2.021 0.000 0.205  
## 3 0.029 0.288 0.577 0.192 0.096  
## 4 0.103 1.034 2.759 0.172 0.862  
## 5 0.061 0.909 1.364 0.152 0.758  
## 6 0.089 0.650 1.707 0.325 0.163  
## 7 0.116 0.930 1.395 0.000 0.000  
## 8 0.069 1.127 1.569 0.441 0.245  
## 9 0.050 0.692 1.541 0.157 0.314  
## 10 0.148 1.366 2.568 0.328 0.656  
## 11 0.074 1.170 2.766 0.160 0.585  
## 12 0.109 0.930 1.705 0.155 0.233  
## 13 0.022 0.444 0.889 0.000 0.000  
## 14 0.123 0.723 1.234 0.340 0.255  
## 15 0.035 0.708 0.885 0.088 0.088  
## 16 0.093 1.267 1.400 0.133 0.067  
## 17 0.038 0.755 1.509 0.189 0.189  
## 18 0.075 0.986 1.737 0.423 0.282  
## 19 0.147 1.570 2.969 0.102 0.273  
## 20 0.189 1.081 2.162 0.270 0.270  
## 21 0.028 0.556 0.556 0.278 0.556  
## 22 0.062 0.900 1.659 0.095 0.142  
## 23 0.064 1.040 1.676 0.405 0.405  
## 24 0.026 0.526 1.579 0.000 0.263  
## 25 0.027 0.317 0.995 0.000 0.226  
## 26 0.024 0.521 0.853 0.047 0.190  
## 27 0.038 0.627 1.066 0.000 0.125  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 1.356 314.576  
## 2 0.034 0.034 3.322 335.856  
## 3 0.000 0.000 1.731 282.981  
## 4 0.000 0.172 4.828 402.069  
## 5 0.303 0.152 1.364 215.152  
## 6 0.244 0.081 3.008 230.325  
## 7 0.000 0.000 2.093 180.233  
## 8 0.049 0.098 0.735 159.069  
## 9 0.189 0.031 1.761 201.384  
## 10 0.273 0.109 4.536 334.973  
## 11 0.266 0.000 2.340 257.819  
## 12 0.310 0.078 2.558 361.395  
## 13 0.000 0.000 1.333 318.000  
## 14 0.170 0.043 1.574 240.894  
## 15 0.265 0.000 1.681 165.044  
## 16 0.133 0.133 2.200 233.200  
## 17 0.189 0.189 1.698 206.604  
## 18 0.188 0.141 2.347 206.244  
## 19 0.205 0.068 3.379 327.065  
## 20 0.541 0.000 2.432 221.351  
## 21 0.000 0.000 2.222 273.333  
## 22 0.047 0.000 1.754 211.896  
## 23 0.058 0.058 2.081 179.538  
## 24 0.000 0.000 0.789 184.737  
## 25 0.136 0.000 3.303 479.186  
## 26 0.047 0.095 3.033 373.318  
## 27 0.000 0.094 2.696 356.364  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 37.966 0.169 1.525 0.000 4.068  
## 2 79.760 0.034 0.993 0.034 4.932  
## 3 49.135 0.000 1.154 0.000 4.327  
## 4 89.310 0.172 1.724 0.000 3.793  
## 5 54.091 0.152 1.212 0.000 3.788  
## 6 58.537 0.000 0.650 0.163 3.171  
## 7 43.023 0.465 0.930 0.233 5.116  
## 8 23.088 0.098 0.735 0.098 3.039  
## 9 37.704 0.000 1.038 0.000 2.233  
## 10 94.973 0.055 0.820 0.273 4.426  
## 11 38.830 0.213 1.170 0.000 2.234  
## 12 87.364 0.155 1.008 0.388 5.659  
## 13 78.222 0.000 1.556 0.222 2.222  
## 14 43.745 0.128 0.979 0.085 3.191  
## 15 55.398 0.000 1.593 0.088 4.956  
## 16 60.200 0.000 0.667 0.133 3.600  
## 17 41.509 0.000 1.887 0.000 2.830  
## 18 56.009 0.000 0.892 0.094 4.131  
## 19 82.082 0.068 0.546 0.034 4.164  
## 20 59.459 0.270 1.081 0.541 6.216  
## 21 86.111 0.000 0.833 0.000 2.222  
## 22 39.573 0.142 0.758 0.000 2.417  
## 23 40.694 0.231 1.156 0.058 2.197  
## 24 46.842 0.000 0.263 0.000 2.368  
## 25 122.941 0.090 1.041 0.000 4.977  
## 26 95.355 0.095 0.900 0.000 4.313  
## 27 112.665 0.063 0.846 0.063 4.734  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.169 0.000 1.864 1.695 0.169 0.508  
## 2 0.034 0.000 2.089 1.438 0.719 0.274  
## 3 0.000 0.000 2.115 1.827 0.000 0.865  
## 4 0.517 0.000 2.586 1.724 0.345 2.241  
## 5 0.000 0.000 1.515 1.061 0.455 0.758  
## 6 0.000 0.000 1.870 1.301 0.894 1.545  
## 7 0.233 0.000 2.326 1.628 0.233 0.930  
## 8 0.000 0.000 2.990 2.206 0.637 0.980  
## 9 0.409 0.000 1.698 1.667 0.283 1.352  
## 10 0.109 0.000 2.404 1.749 0.437 2.077  
## 11 0.213 0.053 2.447 1.117 0.479 1.117  
## 12 0.078 0.000 2.558 0.930 0.310 2.403  
## 13 0.000 0.000 2.667 2.222 0.000 1.333  
## 14 0.000 0.000 2.340 1.319 0.638 1.362  
## 15 0.177 0.000 2.124 2.212 0.531 1.681  
## 16 0.067 0.000 2.733 1.533 0.000 1.000  
## 17 0.000 0.000 3.019 2.642 0.755 1.509  
## 18 0.188 0.000 2.347 1.408 0.235 1.315  
## 19 0.171 0.000 1.843 1.195 0.512 1.502  
## 20 0.541 0.000 3.784 1.622 0.541 1.622  
## 21 0.000 0.000 1.389 1.111 0.000 1.944  
## 22 0.095 0.000 3.270 1.564 0.664 0.521  
## 23 0.173 0.000 3.179 1.503 0.520 1.272  
## 24 0.000 0.000 2.105 2.105 0.263 1.316  
## 25 0.136 0.045 1.086 0.452 0.090 2.579  
## 26 0.142 0.000 1.374 1.090 0.284 0.995  
## 27 0.188 0.000 0.627 0.376 0.313 0.752  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 1.864 0.339  
## 2 0.000 0 0.788 0.103  
## 3 0.000 0 1.250 0.096  
## 4 0.000 0 1.379 0.000  
## 5 0.000 0 0.606 0.000  
## 6 0.081 0 0.732 0.244  
## 7 0.000 0 0.930 0.233  
## 8 0.000 0 1.078 0.147  
## 9 0.000 0 0.755 0.157  
## 10 0.000 0 1.148 0.219  
## 11 0.106 0 0.638 0.000  
## 12 0.000 0 1.163 0.543  
## 13 0.000 0 0.667 0.000  
## 14 0.043 0 0.809 0.043  
## 15 0.000 0 1.770 0.088  
## 16 0.000 0 0.867 0.133  
## 17 0.189 0 1.132 0.000  
## 18 0.000 0 0.751 0.047  
## 19 0.034 0 0.887 0.034  
## 20 0.000 0 0.541 0.000  
## 21 0.000 0 1.667 0.278  
## 22 0.000 0 0.616 0.142  
## 23 0.000 0 0.983 0.058  
## 24 0.000 0 0.526 0.000  
## 25 0.000 0 1.900 0.679  
## 26 0.000 0 1.611 0.569  
## 27 0.000 0 1.724 0.878  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.525 0.169 3.051 1.695 82.35294  
## 2 0.685 0.514 1.986 0.651 62.79070  
## 3 1.154 1.346 3.462 1.923 59.09091  
## 4 1.379 0.517 1.379 0.517 60.00000  
## 5 0.606 0.455 1.364 0.000 66.66667  
## 6 0.488 0.244 0.976 0.976 44.44444  
## 7 0.698 0.233 1.163 0.233 50.00000  
## 8 0.931 0.049 0.931 0.539 72.22222  
## 9 0.597 0.031 0.503 1.667 53.33333  
## 10 0.929 0.765 2.240 0.383 62.96296  
## 11 0.638 0.479 2.340 0.904 48.57143  
## 12 0.620 1.783 4.651 1.318 64.86486  
## 13 0.667 0.222 2.444 2.889 60.00000  
## 14 0.766 0.426 1.277 0.383 50.00000  
## 15 1.681 0.708 2.389 1.947 63.15789  
## 16 0.733 0.533 3.067 1.600 63.15789  
## 17 1.132 0.189 1.321 1.887 83.33333  
## 18 0.704 0.376 1.690 0.516 50.00000  
## 19 0.853 0.683 1.877 0.751 42.85714  
## 20 0.541 0.270 1.081 1.081 33.33333  
## 21 1.389 0.000 1.944 0.833 28.57143  
## 22 0.474 0.142 1.043 1.611 52.63158  
## 23 0.925 0.347 1.734 1.098 50.00000  
## 24 0.526 0.263 1.579 0.526 20.00000  
## 25 1.222 0.950 3.937 1.991 59.09091  
## 26 1.043 0.664 2.986 2.559 51.02041  
## 27 0.846 1.160 2.821 3.417 66.03774  
##   
## [[10]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.8 0.18 1 0.11 1.7 -0.7  
## 2 0 0.00 0.00 0.00 -0.3 0.17 3 0.21 2.4 0.6  
## 3 1 0.07 0.13 0.50 0.4 0.10 3 0.21 1.4 1.6  
## 4 4 0.14 0.09 0.50 1.1 0.12 5 0.17 3.6 1.4  
## 5 1 0.18 0.13 0.25 0.7 0.07 0 0.00 0.4 -0.4  
## 6 0 0.00 0.00 0.00 -1.0 0.09 1 0.04 2.0 -1.0  
## 7 0 0.00 0.00 0.00 -0.1 0.07 1 0.05 1.3 -0.3  
## 8 7 0.19 0.15 0.44 2.2 0.18 8 0.22 6.4 1.6  
## 9 1 0.08 0.08 0.25 0.0 0.18 2 0.16 2.3 -0.3  
## 10 5 0.14 0.10 0.29 0.8 0.15 7 0.20 5.0 2.0  
## 11 7 0.20 0.12 0.35 3.7 0.15 8 0.22 5.3 2.7  
## 12 5 0.15 0.11 0.38 1.2 0.16 5 0.15 5.4 -0.4  
## 13 2 0.08 0.04 0.15 -2.6 0.14 2 0.08 3.4 -1.4  
## 14 0 0.00 0.00 0.00 -0.3 0.21 2 0.23 1.8 0.2  
## 15 6 0.18 0.15 0.43 1.0 0.14 4 0.12 4.6 -0.6  
## 16 1 0.08 0.25 0.50 0.0 0.02 0 0.00 0.2 -0.2  
## 17 0 0.00 0.00 0.00 -0.1 0.13 2 0.20 1.4 0.6  
## 18 2 0.09 0.13 0.40 1.4 0.08 3 0.13 1.8 1.2  
## 19 3 0.14 0.27 0.60 2.1 0.03 1 0.05 0.7 0.3  
## 20 2 0.07 0.05 0.25 -1.8 0.18 6 0.21 5.4 0.6  
## 21 0 0.00 0.00 0.00 -0.2 0.18 1 0.20 0.9 0.1  
## 22 2 0.07 0.13 0.40 0.1 0.02 0 0.00 0.5 -0.5  
## 23 0 0.00 0.00 0.00 -0.2 0.03 0 0.00 0.4 -0.4  
## 24 1 0.06 0.05 0.20 -0.3 0.09 0 0.00 1.6 -1.6  
## 25 1 0.03 0.08 0.25 0.6 0.08 3 0.09 2.6 0.4  
## 26 3 0.13 0.08 0.23 -0.4 0.10 3 0.13 2.2 0.8  
## 27 3 0.09 0.06 0.17 -2.7 0.24 10 0.29 8.1 1.9  
## 28 0 0.00 0.00 0.00 -0.7 0.08 0 0.00 1.2 -1.2  
## 29 2 0.22 0.40 0.50 1.4 0.12 0 0.00 1.1 -1.1  
## 30 8 0.25 0.13 0.36 3.9 0.12 9 0.28 3.9 5.1  
## 31 1 0.09 0.06 0.25 -0.9 0.04 1 0.09 0.5 0.5  
## 32 5 0.17 0.08 0.26 0.9 0.13 4 0.14 3.7 0.3  
## 33 0 0.00 0.00 0.00 -2.3 0.17 5 0.15 5.4 -0.4  
## 34 1 0.21 0.33 0.50 0.3 0.13 0 0.00 0.6 -0.6  
## 35 0 0.00 0.00 0.00 -0.1 0.03 0 0.00 0.3 -0.3  
## 36 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.3 -0.3  
## 37 1 0.06 0.06 0.13 -0.1 0.14 4 0.24 2.3 1.7  
## 38 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.4 -0.4  
## 39 1 0.05 0.10 0.33 0.5 0.09 0 0.00 1.7 -1.7  
## 40 2 0.11 0.14 0.40 0.7 0.14 6 0.33 2.6 3.4  
## 41 0 0.00 0.00 0.00 -1.4 0.02 0 0.00 0.4 -0.4  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 18.2 0.21 88.6 92.6 86.7 87.5  
## 2 10.0 0.07 77.9 85.7 85.0 56.3  
## 3 25.0 0.14 87.3 91.7 88.8 72.4  
## 4 18.6 0.28 86.6 91.1 90.9 62.1  
## 5 50.0 0.71 76.6 84.8 84.2 52.9  
## 6 20.0 0.21 90.9 96.0 92.6 62.4  
## 7 20.0 0.05 89.1 93.0 92.7 68.3  
## 8 33.3 0.44 83.9 90.5 87.5 63.5  
## 9 30.8 0.32 80.5 88.5 82.7 56.1  
## 10 35.4 0.49 89.2 94.4 91.4 65.1  
## 11 34.5 0.56 88.9 92.9 93.3 65.2  
## 12 29.5 0.39 85.7 93.2 89.1 60.5  
## 13 28.9 0.53 84.5 90.8 88.8 71.8  
## 14 20.0 0.12 84.1 90.6 86.2 58.7  
## 15 35.0 0.42 79.5 88.8 85.7 59.9  
## 16 50.0 0.17 93.1 94.4 96.1 75.9  
## 17 0.0 0.00 89.0 94.7 90.3 76.3  
## 18 31.3 0.22 85.4 92.5 89.4 54.3  
## 19 45.5 0.23 86.2 90.3 89.1 60.8  
## 20 20.0 0.27 73.9 83.8 76.8 54.9  
## 21 16.7 0.20 86.6 96.0 84.8 64.0  
## 22 33.3 0.18 93.4 96.0 94.7 77.3  
## 23 0.0 0.00 84.2 90.6 88.1 64.3  
## 24 22.7 0.29 94.0 96.9 94.5 71.9  
## 25 30.8 0.13 90.0 93.4 92.7 76.5  
## 26 36.1 0.57 87.4 92.2 88.7 67.5  
## 27 33.3 0.52 86.1 94.6 88.3 53.8  
## 28 31.6 0.41 87.2 90.8 91.7 70.4  
## 29 80.0 0.44 91.2 96.6 93.5 60.0  
## 30 35.5 0.68 92.0 94.5 93.6 84.8  
## 31 22.2 0.36 84.3 90.1 86.5 70.7  
## 32 28.8 0.65 82.6 90.0 88.7 65.0  
## 33 30.2 0.40 76.0 85.4 83.3 56.5  
## 34 66.7 0.41 86.1 92.2 86.2 57.9  
## 35 0.0 0.00 87.0 89.1 89.2 83.6  
## 36 25.0 0.23 89.6 92.8 92.2 68.5  
## 37 47.1 0.48 88.5 93.6 93.0 62.4  
## 38 21.4 0.22 83.9 93.4 90.5 59.6  
## 39 30.0 0.16 88.0 92.3 90.3 71.4  
## 40 35.7 0.28 83.1 91.5 85.6 63.0  
## 41 20.8 0.22 91.7 94.2 93.2 81.0  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 0.0 23.1 69.2 37.5 0.000  
## 2 50.0 42.9 28.6 36.8 0.000  
## 3 70.8 50.0 31.8 62.5 0.000  
## 4 47.2 52.9 35.3 52.5 0.035  
## 5 23.1 25.0 66.7 11.1 0.000  
## 6 31.4 34.8 56.5 35.5 0.042  
## 7 51.1 46.7 40.0 43.2 0.054  
## 8 51.9 54.5 31.1 43.9 0.000  
## 9 36.4 50.0 50.0 12.5 0.000  
## 10 42.9 58.5 27.7 47.2 0.029  
## 11 56.1 45.7 43.5 47.6 0.000  
## 12 47.2 51.1 34.0 58.1 0.000  
## 13 41.5 52.3 38.6 47.7 0.000  
## 14 64.3 37.5 50.0 31.6 0.000  
## 15 41.6 56.3 28.1 32.1 0.030  
## 16 0.0 16.7 66.7 73.7 0.000  
## 17 47.8 40.0 60.0 50.0 0.000  
## 18 56.5 23.1 38.5 44.2 0.000  
## 19 46.7 53.4 37.9 42.2 0.000  
## 20 48.1 53.2 37.7 50.0 0.000  
## 21 33.3 40.0 60.0 0.0 0.200  
## 22 56.4 50.0 50.0 50.0 0.036  
## 23 57.1 30.0 50.0 36.4 0.000  
## 24 64.3 62.5 21.9 50.0 0.000  
## 25 60.0 46.4 42.9 49.2 0.000  
## 26 41.7 50.0 44.7 47.1 0.000  
## 27 43.1 53.3 43.3 45.2 0.000  
## 28 38.2 52.2 43.5 38.1 0.000  
## 29 42.9 44.4 44.4 0.0 0.000  
## 30 48.3 65.6 21.9 71.1 0.031  
## 31 41.7 52.4 38.1 38.9 0.000  
## 32 22.9 63.5 32.7 55.3 0.000  
## 33 42.4 52.0 41.8 35.6 0.000  
## 34 33.3 50.0 33.3 100.0 0.000  
## 35 54.8 60.0 20.0 45.5 0.000  
## 36 50.0 69.2 15.4 46.7 0.000  
## 37 52.0 78.8 15.2 70.0 0.000  
## 38 60.9 33.3 33.3 0.0 0.000  
## 39 32.8 62.5 31.3 53.4 0.000  
## 40 40.0 51.7 34.5 59.1 0.000  
## 41 67.2 57.4 25.5 48.3 0.087  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.213 0.851 0.957  
## 2 0.000 0.000 0.139 1.250 0.972  
## 3 0.000 0.000 0.276 1.241 2.000  
## 4 0.000 0.000 0.242 1.834 1.522  
## 5 0.000 0.000 0.714 3.036 1.429  
## 6 0.000 0.000 0.339 0.932 1.653  
## 7 0.000 0.000 0.380 1.902 1.033  
## 8 0.000 0.000 0.248 1.377 1.791  
## 9 0.000 0.000 0.079 0.551 1.575  
## 10 0.029 0.000 0.259 2.385 1.782  
## 11 0.000 0.056 0.140 0.950 2.095  
## 12 0.000 0.000 0.360 1.532 1.802  
## 13 0.000 0.041 0.286 1.347 2.122  
## 14 0.000 0.116 0.349 1.163 1.279  
## 15 0.000 0.000 0.270 1.171 1.772  
## 16 0.000 0.000 0.169 0.339 1.356  
## 17 0.000 0.000 0.098 0.882 0.784  
## 18 0.000 0.000 0.393 1.048 0.961  
## 19 0.000 0.000 0.140 0.701 1.168  
## 20 0.000 0.000 0.344 1.615 1.168  
## 21 0.000 0.000 0.200 1.200 0.800  
## 22 0.036 0.000 0.143 0.609 1.649  
## 23 0.000 0.000 0.397 1.905 0.079  
## 24 0.000 0.000 0.233 0.988 2.151  
## 25 0.000 0.031 0.346 1.572 0.849  
## 26 0.000 0.000 0.391 1.391 1.870  
## 27 0.000 0.029 0.173 0.665 2.399  
## 28 0.000 0.000 0.274 1.370 1.164  
## 29 0.000 0.000 0.111 0.778 2.333  
## 30 0.000 0.000 0.245 1.258 2.331  
## 31 0.000 0.000 0.625 1.786 1.429  
## 32 0.000 0.000 0.206 0.859 1.649  
## 33 0.000 0.031 0.186 1.486 1.858  
## 34 0.000 0.000 0.408 1.837 2.245  
## 35 0.000 0.000 0.577 2.308 0.577  
## 36 0.000 0.000 0.341 1.136 1.705  
## 37 0.000 0.000 0.182 0.970 2.121  
## 38 0.000 0.000 0.147 0.809 1.544  
## 39 0.000 0.000 0.524 2.618 0.524  
## 40 0.000 0.000 0.167 1.222 1.278  
## 41 0.043 0.000 0.435 1.522 1.870  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 139.362 51.383 1.277 0.426  
## 2 100.069 50.208 1.597 0.000  
## 3 208.759 117.724 1.310 0.138  
## 4 198.547 104.014 1.557 0.138  
## 5 155.000 59.464 1.250 0.536  
## 6 266.398 132.203 2.246 0.000  
## 7 191.685 90.380 1.196 0.054  
## 8 283.664 116.832 2.011 0.523  
## 9 182.598 94.409 1.654 0.157  
## 10 208.132 85.603 1.552 0.402  
## 11 284.749 143.547 1.955 0.447  
## 12 225.886 106.967 1.441 0.120  
## 13 248.163 126.898 1.878 0.327  
## 14 143.023 65.349 0.698 0.465  
## 15 155.586 71.622 1.351 0.300  
## 16 281.271 139.492 2.034 0.085  
## 17 190.294 92.647 1.078 0.000  
## 18 146.332 73.843 0.917 0.087  
## 19 147.290 67.617 1.028 0.280  
## 20 154.261 60.859 1.375 0.412  
## 21 190.200 81.200 0.600 0.200  
## 22 296.846 176.452 1.828 0.108  
## 23 84.444 27.302 0.635 0.000  
## 24 354.128 158.895 2.965 0.058  
## 25 172.862 77.547 0.975 0.031  
## 26 257.043 98.391 2.522 0.130  
## 27 290.607 149.971 1.994 0.231  
## 28 290.205 124.658 1.712 0.137  
## 29 195.333 107.111 2.222 0.556  
## 30 355.061 196.564 2.699 0.368  
## 31 247.232 102.500 1.964 0.179  
## 32 220.481 96.460 1.684 0.137  
## 33 178.607 83.003 1.796 0.433  
## 34 196.939 83.469 0.816 0.204  
## 35 227.115 91.058 0.769 0.000  
## 36 253.068 128.295 2.045 0.114  
## 37 272.848 137.030 2.545 0.364  
## 38 227.279 103.529 1.250 0.147  
## 39 181.414 79.738 1.099 0.105  
## 40 159.556 75.611 1.500 0.389  
## 41 310.087 130.696 1.826 0.304  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.213 1.596 2.872 0.000 0.000  
## 2 0.104 1.458 2.083 0.000 0.000  
## 3 0.055 0.621 1.517 0.000 0.069  
## 4 0.170 1.626 3.183 0.104 0.035  
## 5 0.089 0.714 2.321 0.179 0.357  
## 6 0.106 0.932 2.500 0.000 0.085  
## 7 0.076 1.087 1.793 0.000 0.109  
## 8 0.174 1.708 3.030 0.275 0.083  
## 9 0.181 2.126 2.835 0.000 0.000  
## 10 0.101 1.494 2.241 0.144 0.115  
## 11 0.134 1.313 1.983 0.084 0.140  
## 12 0.159 1.592 1.832 0.180 0.300  
## 13 0.151 1.306 2.816 0.000 0.122  
## 14 0.198 1.860 2.326 0.000 0.000  
## 15 0.147 1.321 2.643 0.180 0.060  
## 16 0.034 0.508 1.780 0.000 0.000  
## 17 0.206 0.980 2.451 0.000 0.098  
## 18 0.100 1.135 2.445 0.000 0.044  
## 19 0.075 0.701 1.449 0.140 0.140  
## 20 0.175 1.478 2.646 0.241 0.069  
## 21 0.080 2.000 2.600 0.000 0.000  
## 22 0.065 0.466 1.613 0.000 0.108  
## 23 0.040 0.556 1.032 0.000 0.000  
## 24 0.110 1.221 2.733 0.116 0.233  
## 25 0.063 0.723 1.635 0.094 0.031  
## 26 0.091 0.870 1.870 0.000 0.130  
## 27 0.266 2.977 3.295 0.145 0.260  
## 28 0.103 0.616 2.466 0.137 0.068  
## 29 0.133 1.444 1.667 0.000 0.000  
## 30 0.187 1.503 3.988 0.245 0.153  
## 31 0.098 0.714 2.321 0.089 0.179  
## 32 0.093 1.512 2.302 0.481 0.206  
## 33 0.167 1.703 2.724 0.217 0.155  
## 34 0.102 1.429 2.041 0.000 0.000  
## 35 0.038 0.577 1.827 0.000 0.000  
## 36 0.068 0.682 2.727 0.000 0.000  
## 37 0.152 1.576 3.758 0.121 0.121  
## 38 0.066 0.588 1.471 0.000 0.000  
## 39 0.079 0.838 2.251 0.105 0.209  
## 40 0.122 1.000 2.222 0.056 0.167  
## 41 0.074 0.478 1.522 0.130 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.106 0.000 4.149 525.106  
## 2 0.000 0.000 5.486 561.875  
## 3 0.207 0.069 4.966 765.448  
## 4 0.173 0.069 7.232 919.204  
## 5 0.179 0.179 6.429 698.036  
## 6 0.127 0.000 8.178 1245.720  
## 7 0.054 0.109 4.511 762.880  
## 8 0.165 0.165 7.796 918.760  
## 9 0.000 0.157 5.354 827.087  
## 10 0.029 0.172 4.943 768.161  
## 11 0.000 0.140 7.765 956.480  
## 12 0.150 0.030 5.045 936.907  
## 13 0.204 0.000 8.571 1174.531  
## 14 0.000 0.000 8.023 886.279  
## 15 0.030 0.000 5.676 539.129  
## 16 0.169 0.000 4.831 1048.729  
## 17 0.000 0.098 9.902 1116.275  
## 18 0.087 0.044 5.371 821.485  
## 19 0.093 0.047 2.991 491.542  
## 20 0.206 0.069 6.426 569.107  
## 21 0.000 0.000 2.200 802.200  
## 22 0.072 0.143 5.305 1279.140  
## 23 0.000 0.000 2.857 446.190  
## 24 0.058 0.000 5.814 1192.209  
## 25 0.189 0.126 5.440 933.836  
## 26 0.087 0.174 6.522 744.261  
## 27 0.058 0.029 8.728 1240.029  
## 28 0.000 0.000 9.178 1378.904  
## 29 0.000 0.000 3.667 788.889  
## 30 0.184 0.184 11.534 1756.319  
## 31 0.000 0.179 6.429 893.839  
## 32 0.103 0.103 5.601 742.337  
## 33 0.186 0.093 5.170 582.105  
## 34 0.204 0.000 3.878 770.612  
## 35 0.000 0.000 6.346 991.154  
## 36 0.114 0.000 8.182 1042.841  
## 37 0.061 0.121 8.788 1058.364  
## 38 0.000 0.000 5.956 1115.000  
## 39 0.105 0.157 5.288 933.089  
## 40 0.111 0.111 7.111 718.056  
## 41 0.000 0.174 7.348 1090.348  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 115.745 0.319 0.957 0.106 2.340  
## 2 172.639 0.208 0.764 0.208 5.278  
## 3 228.828 0.345 0.207 0.069 4.414  
## 4 265.017 0.484 1.107 0.069 6.747  
## 5 173.393 0.714 1.250 0.179 6.071  
## 6 325.042 0.381 0.636 0.127 5.593  
## 7 216.196 0.326 0.707 0.000 5.272  
## 8 257.190 0.716 0.854 0.138 6.529  
## 9 212.756 0.394 1.024 0.236 6.772  
## 10 171.092 0.144 0.833 0.115 6.351  
## 11 261.955 0.056 0.726 0.056 4.972  
## 12 234.444 0.330 0.631 0.240 5.526  
## 13 343.469 0.857 1.224 0.163 4.980  
## 14 290.233 0.465 1.163 0.698 5.233  
## 15 175.495 0.450 0.751 0.420 4.835  
## 16 243.390 0.000 0.508 0.000 3.898  
## 17 337.157 0.490 0.490 0.098 4.804  
## 18 214.716 0.218 0.830 0.131 6.157  
## 19 124.019 0.374 0.748 0.047 4.486  
## 20 200.756 1.031 1.821 0.275 6.667  
## 21 177.200 0.200 1.600 0.200 5.200  
## 22 350.789 0.143 0.358 0.072 5.090  
## 23 127.381 0.000 0.794 0.079 7.143  
## 24 267.616 0.233 0.581 0.000 4.186  
## 25 257.264 0.377 0.912 0.000 6.289  
## 26 181.609 0.261 1.174 0.174 6.261  
## 27 386.127 0.145 1.185 0.780 4.162  
## 28 499.041 0.137 0.959 0.068 8.288  
## 29 125.222 0.111 1.222 0.000 4.667  
## 30 483.620 0.460 0.675 0.000 7.209  
## 31 233.036 0.357 2.321 0.089 4.821  
## 32 224.880 0.137 1.065 0.034 6.907  
## 33 158.514 0.526 0.805 0.217 7.152  
## 34 177.551 0.000 0.612 0.408 4.082  
## 35 264.135 0.000 0.962 0.096 5.769  
## 36 291.364 0.341 0.341 0.227 6.364  
## 37 230.121 0.121 0.788 0.242 6.364  
## 38 309.412 0.147 0.809 0.147 6.838  
## 39 264.293 0.262 0.995 0.105 5.654  
## 40 223.611 0.944 1.167 0.056 5.389  
## 41 313.652 0.130 0.826 0.000 5.565  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.319 0.000 1.489 1.915 0.213 1.170  
## 2 0.625 0.069 0.833 0.833 0.000 1.458  
## 3 0.345 0.000 0.828 0.759 0.000 1.862  
## 4 0.208 0.035 1.038 1.211 0.000 1.626  
## 5 0.357 0.179 1.429 1.071 0.000 0.893  
## 6 0.297 0.042 1.186 0.381 0.000 1.271  
## 7 0.054 0.000 1.033 0.707 0.000 1.576  
## 8 0.331 0.000 1.680 1.928 0.000 2.975  
## 9 0.394 0.000 0.630 1.102 0.079 0.236  
## 10 0.201 0.000 1.983 1.121 0.029 1.839  
## 11 0.196 0.000 0.866 0.615 0.056 0.363  
## 12 0.210 0.060 0.991 0.931 0.000 1.231  
## 13 0.694 0.000 1.184 0.980 0.163 1.265  
## 14 0.349 0.000 1.279 0.698 0.349 0.465  
## 15 0.120 0.000 1.652 1.832 0.060 2.072  
## 16 0.000 0.000 0.424 0.508 0.000 0.424  
## 17 0.784 0.098 0.490 0.392 0.000 1.471  
## 18 0.218 0.044 0.742 0.437 0.000 2.140  
## 19 0.000 0.047 1.355 1.121 0.000 1.075  
## 20 0.275 0.069 2.474 2.784 0.172 2.268  
## 21 0.000 0.000 1.200 1.000 0.000 0.400  
## 22 0.072 0.108 0.502 0.323 0.000 0.681  
## 23 0.079 0.079 0.794 0.317 0.000 0.714  
## 24 0.116 0.000 0.930 1.395 0.000 0.872  
## 25 0.283 0.126 1.132 0.755 0.000 1.541  
## 26 0.087 0.043 1.609 0.652 0.000 0.739  
## 27 0.318 0.087 1.012 0.809 0.087 0.780  
## 28 0.685 0.205 1.370 0.616 0.000 1.164  
## 29 0.000 0.000 0.222 1.333 0.000 2.222  
## 30 0.153 0.123 0.706 0.982 0.184 1.074  
## 31 0.357 0.089 1.429 1.696 0.000 1.518  
## 32 0.206 0.069 0.928 1.924 0.000 1.375  
## 33 0.155 0.031 1.796 1.455 0.155 1.176  
## 34 0.000 0.000 0.816 0.408 0.000 1.224  
## 35 0.096 0.192 0.865 1.058 0.000 0.962  
## 36 0.341 0.000 0.909 0.909 0.000 0.682  
## 37 0.364 0.000 1.758 1.455 0.000 1.394  
## 38 0.588 0.000 0.515 0.515 0.000 0.294  
## 39 0.209 0.157 1.414 1.152 0.000 1.309  
## 40 0.222 0.000 0.944 1.222 0.000 1.611  
## 41 0.174 0.130 1.435 1.304 0.000 1.348  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 0.213 0.106  
## 2 0.000 0.000 1.181 0.208  
## 3 0.000 0.000 1.586 0.897  
## 4 0.000 0.000 2.249 0.277  
## 5 0.000 0.000 1.786 0.179  
## 6 0.000 0.000 0.975 0.381  
## 7 0.000 0.000 1.141 0.380  
## 8 0.000 0.000 1.433 0.386  
## 9 0.000 0.000 1.339 0.472  
## 10 0.000 0.000 1.437 0.316  
## 11 0.000 0.000 1.034 0.307  
## 12 0.000 0.000 0.961 0.240  
## 13 0.041 0.000 1.469 0.531  
## 14 0.000 0.000 1.047 0.000  
## 15 0.000 0.000 0.991 0.120  
## 16 0.000 0.000 0.932 0.593  
## 17 0.000 0.000 1.667 0.098  
## 18 0.000 0.000 1.354 0.830  
## 19 0.000 0.000 0.935 0.561  
## 20 0.000 0.000 0.962 0.034  
## 21 0.000 0.000 0.800 0.200  
## 22 0.000 0.000 1.004 0.430  
## 23 0.000 0.000 1.825 0.476  
## 24 0.000 0.000 1.337 0.058  
## 25 0.000 0.000 1.855 0.786  
## 26 0.000 0.000 0.913 0.217  
## 27 0.000 0.000 1.185 0.231  
## 28 0.000 0.068 1.438 0.479  
## 29 0.000 0.000 0.778 0.111  
## 30 0.031 0.000 0.982 0.245  
## 31 0.000 0.000 1.339 0.357  
## 32 0.000 0.000 0.859 0.309  
## 33 0.000 0.000 1.610 0.341  
## 34 0.000 0.000 0.612 0.000  
## 35 0.000 0.000 1.923 0.673  
## 36 0.000 0.000 1.023 0.341  
## 37 0.061 0.061 0.970 0.242  
## 38 0.000 0.000 1.618 0.662  
## 39 0.000 0.000 1.257 0.105  
## 40 0.000 0.000 1.278 0.167  
## 41 0.000 0.000 1.217 0.217  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.106 0.319 1.170 0.106 37.50000  
## 2 0.972 1.389 4.722 1.667 66.66667  
## 3 0.690 0.759 2.759 0.966 62.06897  
## 4 1.972 1.211 4.637 0.865 55.55556  
## 5 1.607 0.536 1.786 0.714 57.14286  
## 6 0.593 0.466 1.568 0.593 61.53846  
## 7 0.761 1.141 3.478 0.870 67.44186  
## 8 1.047 0.964 3.388 0.551 60.22727  
## 9 0.866 0.315 1.732 1.024 72.22222  
## 10 1.121 1.236 3.678 0.977 61.17647  
## 11 0.726 1.229 3.547 1.453 61.44578  
## 12 0.721 0.691 2.432 0.541 65.51724  
## 13 0.939 0.694 2.735 1.143 44.00000  
## 14 1.047 0.930 3.256 1.860 70.00000  
## 15 0.871 0.631 2.402 0.631 59.32203  
## 16 0.339 0.847 1.017 1.780 50.00000  
## 17 1.569 1.176 3.529 0.686 41.66667  
## 18 0.524 0.655 2.489 1.135 69.04762  
## 19 0.374 1.028 3.224 1.402 57.44681  
## 20 0.928 0.722 3.162 0.962 67.60563  
## 21 0.600 0.200 2.000 1.000 44.44444  
## 22 0.573 0.824 2.330 2.509 66.66667  
## 23 1.349 0.873 4.048 0.873 60.00000  
## 24 1.279 0.581 2.674 0.581 69.44444  
## 25 1.069 1.164 4.025 1.384 50.54945  
## 26 0.696 1.348 2.826 1.217 70.58824  
## 27 0.954 0.636 2.659 0.925 65.71429  
## 28 0.959 1.301 3.493 2.055 56.25000  
## 29 0.667 0.444 1.556 0.667 70.00000  
## 30 0.736 0.798 2.945 1.258 61.42857  
## 31 0.982 1.518 3.571 1.429 65.21739  
## 32 0.550 0.859 2.474 1.753 40.42553  
## 33 1.269 1.610 4.272 1.641 51.16279  
## 34 0.612 0.408 1.837 0.816 100.00000  
## 35 1.250 0.769 3.365 1.827 59.25926  
## 36 0.682 1.250 2.841 1.023 78.57143  
## 37 0.727 0.788 2.242 0.364 66.66667  
## 38 0.956 0.882 2.794 1.324 50.00000  
## 39 1.152 1.047 3.560 1.623 58.33333  
## 40 1.111 0.833 3.111 0.500 48.78049  
## 41 1.000 1.609 5.087 1.870 65.00000  
##   
## [[11]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 5 0.21 0.10 0.28 -0.3 0.19 2 0.08 4.7 -2.7  
## 2 1 0.09 0.07 0.33 0.3 0.15 1 0.09 1.7 -0.7  
## 3 1 0.23 0.10 0.25 0.5 0.24 1 0.23 1.1 -0.1  
## 4 1 0.07 0.05 0.14 -0.2 0.10 3 0.22 1.3 1.7  
## 5 5 0.18 0.09 0.23 -1.6 0.25 9 0.33 6.7 2.3  
## 6 6 0.21 0.18 0.40 2.3 0.27 9 0.31 7.6 1.4  
## 7 6 0.17 0.07 0.17 -0.1 0.34 8 0.23 11.8 -3.8  
## 8 0 0.00 0.00 0.00 -0.8 0.09 0 0.00 0.2 -0.2  
## 9 8 0.39 0.21 0.40 5.3 0.14 1 0.05 2.8 -1.8  
## 10 1 0.40 0.33 0.50 0.8 0.13 1 0.40 0.3 0.7  
## 11 4 0.18 0.11 0.29 -0.2 0.14 1 0.05 3.1 -2.1  
## 12 13 0.45 0.13 0.35 1.9 0.38 11 0.38 11.1 -0.1  
## 13 1 0.08 0.05 0.20 -1.6 0.05 1 0.08 0.7 0.3  
## 14 1 0.32 0.08 0.20 -1.2 0.33 1 0.32 1.0 0.0  
## 15 8 0.26 0.14 0.35 3.3 0.25 3 0.10 7.7 -4.7  
## 16 3 0.13 0.05 0.20 -0.7 0.25 2 0.09 5.8 -3.8  
## 17 10 0.44 0.12 0.30 1.7 0.23 4 0.18 5.2 -1.2  
## 18 0 0.00 0.00 0.00 -2.0 0.06 1 0.25 0.2 0.8  
## 19 3 0.20 0.14 0.38 0.6 0.12 1 0.07 1.8 -0.8  
## 20 0 0.00 0.00 0.00 -0.3 0.18 1 0.38 0.5 0.5  
## 21 5 0.56 0.19 0.42 1.4 0.36 3 0.34 3.2 -0.2  
## 22 3 0.20 0.06 0.19 0.3 0.23 6 0.40 3.5 2.5  
## 23 3 0.27 0.14 0.60 0.9 0.22 1 0.09 2.5 -1.5  
## 24 3 0.12 0.09 0.33 -0.6 0.14 3 0.12 3.4 -0.4  
## 25 5 0.36 0.12 0.36 0.8 0.10 0 0.00 1.5 -1.5  
## 26 1 0.11 0.05 0.25 -1.2 0.11 1 0.11 1.0 0.0  
## 27 4 0.17 0.07 0.17 -2.4 0.25 9 0.38 5.9 3.1  
## 28 2 0.10 0.08 0.25 -0.3 0.15 3 0.15 2.9 0.1  
## 29 5 0.22 0.07 0.25 -2.9 0.17 3 0.13 3.8 -0.8  
## 30 0 0.00 0.00 0.00 -0.1 0.06 0 0.00 0.2 -0.2  
## 31 1 0.21 0.14 0.33 0.2 0.12 0 0.00 0.6 -0.6  
## 32 4 0.14 0.08 0.21 0.1 0.15 7 0.25 4.2 2.8  
## 33 9 0.31 0.09 0.24 -2.5 0.22 8 0.27 6.4 1.6  
## 34 0 0.00 0.00 0.00 -1.4 0.32 2 0.38 1.7 0.3  
## 35 4 0.29 0.09 0.24 1.6 0.85 10 0.74 11.5 -1.5  
## 36 12 0.65 0.20 0.55 4.1 0.15 1 0.05 2.8 -1.8  
## 37 10 0.44 0.19 0.56 3.7 0.40 9 0.39 9.2 -0.2  
## 38 1 0.09 0.04 0.20 -1.0 0.12 1 0.09 1.3 -0.3  
## 39 6 0.17 0.08 0.29 0.2 0.28 10 0.29 9.6 0.4  
## 40 11 0.41 0.15 0.31 2.3 0.12 7 0.26 3.2 3.8  
## 41 0 0.00 0.00 0.00 -0.8 0.15 2 0.27 1.1 0.9  
## 42 9 0.64 0.16 0.45 4.3 0.41 6 0.42 5.8 0.2  
## 43 0 0.00 0.00 0.00 -0.5 0.08 0 0.00 0.4 -0.4  
## 44 8 0.29 0.12 0.47 2.9 0.13 6 0.22 3.5 2.5  
## 45 6 0.25 0.11 0.27 -1.0 0.27 8 0.33 6.6 1.4  
## 46 2 0.21 0.07 0.20 -0.6 0.11 0 0.00 1.0 -1.0  
## 47 1 0.30 0.25 1.00 -0.4 0.37 1 0.30 1.2 -0.2  
## 48 2 0.12 0.06 0.17 -1.5 0.26 9 0.53 4.4 4.6  
## 49 19 0.60 0.18 0.40 8.7 0.26 8 0.25 8.4 -0.4  
## 50 8 0.36 0.16 0.38 1.5 0.20 4 0.18 4.5 -0.5  
## 51 2 0.08 0.08 0.25 -1.3 0.09 1 0.04 2.4 -1.4  
## 52 1 0.08 0.04 0.13 -1.0 0.07 0 0.00 0.9 -0.9  
## 53 0 0.00 0.00 0.00 -1.0 0.21 1 0.15 1.4 -0.4  
## 54 4 0.18 0.13 0.57 1.3 0.02 0 0.00 0.5 -0.5  
## 55 3 0.13 0.06 0.21 0.2 0.14 2 0.09 3.3 -1.3  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 35.3 0.74 78.1 88.7 80.6 55.9  
## 2 20.0 0.27 76.2 81.9 85.7 41.7  
## 3 40.0 0.92 87.6 91.3 86.5 80.0  
## 4 35.0 0.52 70.4 85.5 75.5 43.2  
## 5 40.7 0.81 69.9 80.1 67.8 53.6  
## 6 44.1 0.52 86.3 94.4 86.1 67.1  
## 7 38.9 1.01 73.0 87.4 76.2 53.0  
## 8 25.0 0.43 80.9 85.2 87.1 50.0  
## 9 52.6 0.97 78.0 90.5 74.5 55.4  
## 10 66.7 0.79 85.8 93.2 83.9 80.0  
## 11 40.0 0.63 74.6 89.2 74.8 38.6  
## 12 37.0 1.28 79.2 90.3 85.0 54.3  
## 13 26.3 0.39 91.1 94.6 92.4 73.3  
## 14 38.5 1.60 72.0 85.5 81.0 43.5  
## 15 40.4 0.75 77.2 87.1 76.9 54.2  
## 16 25.0 0.64 82.6 89.3 87.0 58.0  
## 17 40.2 1.45 77.0 87.2 84.1 45.5  
## 18 33.3 1.27 88.3 89.5 94.7 25.0  
## 19 38.1 0.53 84.5 88.2 87.2 60.0  
## 20 40.0 0.77 84.3 93.2 88.9 53.8  
## 21 44.4 1.35 76.5 87.1 81.0 43.8  
## 22 32.7 1.07 83.7 92.1 86.1 62.9  
## 23 22.7 0.45 86.0 91.8 89.7 71.9  
## 24 26.5 0.37 64.8 83.5 65.1 31.5  
## 25 32.6 1.01 71.9 80.9 74.1 60.9  
## 26 21.1 0.42 79.8 82.7 84.3 75.0  
## 27 39.7 0.97 80.7 92.3 82.0 52.2  
## 28 32.0 0.40 68.3 79.5 67.3 44.6  
## 29 28.6 0.88 80.6 88.0 82.0 55.8  
## 30 0.0 0.00 82.9 95.6 92.6 33.3  
## 31 42.9 0.64 82.9 92.7 76.4 75.0  
## 32 39.6 0.67 74.0 87.2 74.7 32.4  
## 33 38.5 1.26 80.4 90.6 82.9 40.0  
## 34 28.6 1.52 74.2 86.5 70.7 75.0  
## 35 38.6 1.25 75.4 88.6 76.1 49.3  
## 36 36.7 1.20 73.4 86.0 75.1 51.7  
## 37 34.0 0.78 72.5 83.6 76.0 58.5  
## 38 21.7 0.46 70.1 82.4 70.9 22.2  
## 39 28.0 0.61 84.3 91.4 85.3 65.0  
## 40 50.0 1.33 79.2 86.3 79.5 56.1  
## 41 44.4 0.54 84.2 91.4 86.5 47.8  
## 42 35.7 1.41 74.9 88.5 79.0 47.4  
## 43 0.0 0.00 66.7 84.9 61.5 21.1  
## 44 25.4 0.62 77.4 88.1 82.2 64.8  
## 45 40.7 0.91 78.4 85.1 79.1 53.1  
## 46 37.0 1.07 65.8 79.0 71.0 40.0  
## 47 25.0 0.30 87.6 94.4 86.3 100.0  
## 48 33.3 0.71 74.5 87.0 73.3 50.0  
## 49 45.7 1.51 85.5 94.0 86.4 50.4  
## 50 41.2 0.96 73.9 84.8 70.7 54.5  
## 51 33.3 0.31 84.5 91.1 86.3 52.8  
## 52 34.8 0.64 82.3 87.1 87.1 66.7  
## 53 27.8 0.73 75.1 84.1 73.7 53.3  
## 54 22.6 0.32 77.8 88.3 78.8 59.3  
## 55 28.6 0.60 76.4 86.4 77.5 51.6  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 48.0 51.4 44.4 24.0 0.000  
## 2 42.9 35.1 54.1 38.9 0.000  
## 3 42.9 47.8 43.5 40.0 0.000  
## 4 48.1 47.1 41.2 0.0 0.000  
## 5 47.2 36.8 55.3 31.5 0.000  
## 6 43.9 62.3 34.4 18.2 0.000  
## 7 34.1 43.2 47.7 45.7 0.000  
## 8 25.0 72.7 27.3 0.0 0.000  
## 9 25.0 53.8 33.8 22.2 0.000  
## 10 33.3 16.7 83.3 25.0 0.000  
## 11 54.5 50.4 36.4 54.9 0.000  
## 12 42.1 50.0 44.2 20.0 0.000  
## 13 43.5 51.7 34.5 36.8 0.077  
## 14 50.0 40.0 60.0 14.3 0.000  
## 15 37.3 41.9 51.2 31.8 0.000  
## 16 32.0 42.9 48.2 37.5 0.000  
## 17 48.4 49.3 45.7 33.3 0.000  
## 18 50.0 42.9 42.9 37.5 0.000  
## 19 31.8 34.6 53.8 27.3 0.000  
## 20 50.0 42.9 57.1 43.8 0.000  
## 21 50.0 28.0 56.0 33.3 0.000  
## 22 32.3 45.0 50.0 40.9 0.000  
## 23 50.0 43.9 26.8 42.9 0.000  
## 24 34.7 38.7 52.0 34.5 0.000  
## 25 33.3 36.4 56.4 30.0 0.000  
## 26 33.3 40.0 55.0 62.5 0.000  
## 27 51.7 39.5 42.0 33.3 0.000  
## 28 39.4 35.9 56.5 24.4 0.000  
## 29 58.3 40.2 42.1 65.1 0.000  
## 30 25.0 53.8 30.8 0.0 0.000  
## 31 36.4 38.9 61.1 50.0 0.000  
## 32 50.0 40.0 43.8 35.1 0.035  
## 33 25.0 47.6 52.4 14.3 0.000  
## 34 28.6 58.6 24.1 33.3 0.000  
## 35 35.0 30.3 63.6 54.5 0.000  
## 36 36.0 53.2 34.0 33.3 0.000  
## 37 25.0 47.9 42.0 36.8 0.000  
## 38 20.0 42.3 50.0 6.9 0.000  
## 39 29.3 45.7 46.9 25.0 0.000  
## 40 37.1 45.7 43.6 25.4 0.000  
## 41 31.3 39.1 56.5 38.5 0.000  
## 42 33.3 48.2 39.8 31.8 0.000  
## 43 44.4 50.0 50.0 10.0 0.000  
## 44 50.0 56.1 34.8 34.1 0.000  
## 45 18.2 41.4 52.9 11.8 0.000  
## 46 52.9 27.1 62.5 33.3 0.000  
## 47 50.0 61.1 33.3 33.3 0.000  
## 48 33.3 42.0 47.7 18.2 0.000  
## 49 41.9 46.1 45.1 26.1 0.000  
## 50 46.2 34.1 53.0 12.5 0.000  
## 51 57.1 53.9 33.9 45.7 0.000  
## 52 41.4 46.0 44.0 41.7 0.000  
## 53 26.7 36.8 55.3 16.7 0.000  
## 54 45.5 34.7 44.4 29.0 0.000  
## 55 27.3 48.2 44.5 34.8 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.082 0.492 4.467  
## 2 0.000 0.000 0.265 1.770 2.124  
## 3 0.000 0.000 0.233 1.163 2.558  
## 4 0.000 0.000 0.075 0.970 3.507  
## 5 0.000 0.000 0.037 0.333 3.630  
## 6 0.000 0.000 0.280 0.769 4.895  
## 7 0.000 0.000 0.260 1.185 2.486  
## 8 0.000 0.000 0.000 0.870 4.783  
## 9 0.000 0.000 0.000 0.680 5.388  
## 10 0.000 0.000 0.800 1.200 1.600  
## 11 0.000 0.000 0.045 0.360 5.721  
## 12 0.000 0.000 0.241 0.793 4.034  
## 13 0.000 0.000 0.231 1.231 2.385  
## 14 0.000 0.000 0.323 1.935 2.581  
## 15 0.000 0.033 0.228 1.759 4.919  
## 16 0.000 0.000 0.043 1.239 3.205  
## 17 0.000 0.044 0.132 1.184 2.982  
## 18 0.000 0.000 0.000 1.282 2.821  
## 19 0.000 0.000 0.461 2.237 1.513  
## 20 0.000 0.000 0.000 1.154 1.154  
## 21 0.000 0.000 0.225 0.562 5.056  
## 22 0.000 0.000 0.133 0.467 2.933  
## 23 0.000 0.000 0.536 0.536 7.768  
## 24 0.000 0.000 0.041 0.813 2.642  
## 25 0.000 0.000 0.072 0.935 4.388  
## 26 0.000 0.000 0.211 0.737 3.474  
## 27 0.000 0.000 0.211 0.886 2.447  
## 28 0.000 0.000 0.099 0.743 2.723  
## 29 0.000 0.000 0.088 0.837 3.656  
## 30 0.000 0.233 0.000 0.930 1.395  
## 31 0.000 0.000 0.000 0.638 3.404  
## 32 0.035 0.000 0.318 1.625 2.615  
## 33 0.000 0.000 0.068 0.782 2.177  
## 34 0.000 0.000 0.377 1.132 5.283  
## 35 0.000 0.000 0.147 0.809 3.456  
## 36 0.000 0.000 0.109 0.820 3.607  
## 37 0.000 0.000 0.217 1.130 4.435  
## 38 0.000 0.000 0.000 1.667 4.907  
## 39 0.000 0.000 0.058 0.875 2.653  
## 40 0.000 0.000 0.332 1.144 3.948  
## 41 0.000 0.000 0.000 1.096 3.836  
## 42 0.000 0.000 0.000 0.915 4.789  
## 43 0.000 0.000 0.000 0.000 3.191  
## 44 0.000 0.036 0.217 1.413 4.239  
## 45 0.000 0.000 0.041 0.661 3.884  
## 46 0.000 0.000 0.753 2.581 3.763  
## 47 0.000 0.000 0.000 0.588 3.824  
## 48 0.000 0.000 0.238 0.893 5.833  
## 49 0.000 0.032 0.063 0.442 2.934  
## 50 0.000 0.000 0.318 1.545 5.455  
## 51 0.000 0.039 0.270 0.965 2.587  
## 52 0.000 0.000 0.000 1.600 3.120  
## 53 0.000 0.000 0.145 0.725 4.058  
## 54 0.000 0.000 0.182 0.955 2.591  
## 55 0.000 0.000 0.129 0.386 4.378  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 240.000 122.090 3.279 1.107  
## 2 191.681 99.912 1.858 0.885  
## 3 240.698 82.558 2.791 0.930  
## 4 180.970 82.015 2.313 0.522  
## 5 174.222 93.111 2.000 1.556  
## 6 295.455 158.881 2.587 1.294  
## 7 177.890 98.497 1.763 0.665  
## 8 324.348 147.826 2.609 2.174  
## 9 244.854 148.252 2.767 1.893  
## 10 258.400 92.400 2.000 0.800  
## 11 273.423 167.117 3.333 2.027  
## 12 249.517 120.414 2.276 1.586  
## 13 253.615 109.615 1.923 0.538  
## 14 219.355 90.000 2.903 0.323  
## 15 250.163 125.603 1.987 2.671  
## 16 233.974 123.077 2.863 0.940  
## 17 211.491 92.018 2.675 1.886  
## 18 212.051 121.026 2.051 0.256  
## 19 154.079 59.079 1.645 0.526  
## 20 125.769 38.846 0.769 0.769  
## 21 200.225 122.809 2.360 2.584  
## 22 263.067 116.867 3.333 0.600  
## 23 359.375 185.714 4.107 4.464  
## 24 132.114 62.846 1.260 0.569  
## 25 182.662 97.194 1.439 2.374  
## 26 187.053 88.000 2.000 1.158  
## 27 269.831 109.241 2.532 1.308  
## 28 159.802 71.485 1.634 0.891  
## 29 220.396 101.101 1.850 2.070  
## 30 200.465 101.628 0.930 0.000  
## 31 189.574 104.255 1.064 1.064  
## 32 194.664 74.876 1.943 0.707  
## 33 151.667 71.156 2.007 0.952  
## 34 245.094 158.302 3.774 1.321  
## 35 214.412 121.103 2.941 0.882  
## 36 199.508 94.645 2.350 1.475  
## 37 223.826 108.478 2.043 1.783  
## 38 241.019 128.056 3.426 2.685  
## 39 238.776 102.449 2.420 1.079  
## 40 209.705 118.192 2.915 1.402  
## 41 274.110 132.055 3.014 1.370  
## 42 280.211 155.634 3.521 1.901  
## 43 165.319 92.979 1.489 0.638  
## 44 249.058 116.848 2.246 1.449  
## 45 162.231 83.182 1.777 1.612  
## 46 199.355 98.387 1.720 1.613  
## 47 197.353 116.176 1.471 1.471  
## 48 292.560 155.655 3.869 2.500  
## 49 218.328 108.328 2.492 1.767  
## 50 232.409 139.227 2.318 2.955  
## 51 189.344 94.015 1.853 0.309  
## 52 196.640 109.520 2.240 0.800  
## 53 244.493 114.493 2.464 2.174  
## 54 161.773 85.455 2.136 0.409  
## 55 195.794 125.279 2.403 2.060  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.164 2.008 3.566 0.246 0.369  
## 2 0.097 1.947 2.832 0.177 0.177  
## 3 0.116 2.326 3.721 0.698 0.233  
## 4 0.134 1.343 1.791 0.224 0.224  
## 5 0.148 1.185 1.963 0.222 0.222  
## 6 0.280 2.238 4.091 0.210 0.035  
## 7 0.295 3.295 4.133 0.202 0.260  
## 8 0.130 1.739 3.478 0.000 0.435  
## 9 0.121 1.748 3.058 0.388 0.194  
## 10 0.120 1.600 2.800 0.400 0.400  
## 11 0.158 1.126 2.297 0.541 0.225  
## 12 0.300 2.483 4.000 0.483 0.345  
## 13 0.085 0.846 2.154 0.231 0.231  
## 14 0.161 2.581 5.161 0.323 0.323  
## 15 0.218 2.150 3.388 0.293 0.358  
## 16 0.218 2.393 3.590 0.171 0.128  
## 17 0.246 2.368 2.368 0.482 0.307  
## 18 0.103 1.026 2.564 0.000 0.256  
## 19 0.079 1.184 1.711 0.132 0.197  
## 20 0.154 2.692 3.462 0.385 0.000  
## 21 0.213 1.461 2.022 0.562 0.337  
## 22 0.307 2.467 4.067 0.133 0.200  
## 23 0.250 2.321 4.107 0.089 0.179  
## 24 0.134 1.138 1.870 0.122 0.285  
## 25 0.129 1.799 2.302 0.072 0.072  
## 26 0.147 1.053 2.421 0.105 0.211  
## 27 0.266 2.827 4.641 0.422 0.253  
## 28 0.104 1.386 2.228 0.248 0.198  
## 29 0.207 1.630 2.819 0.308 0.441  
## 30 0.047 0.930 1.395 0.233 0.233  
## 31 0.128 1.489 2.340 0.000 0.426  
## 32 0.095 0.883 1.413 0.177 0.247  
## 33 0.214 2.279 2.517 0.136 0.340  
## 34 0.245 1.698 2.830 0.943 0.566  
## 35 0.522 4.338 5.368 0.147 0.368  
## 36 0.175 1.311 2.514 0.383 0.273  
## 37 0.317 2.261 3.043 0.391 0.304  
## 38 0.102 1.019 1.111 1.019 0.185  
## 39 0.327 2.974 5.190 0.233 0.292  
## 40 0.111 1.033 1.697 0.443 0.295  
## 41 0.205 1.233 2.192 0.000 0.137  
## 42 0.352 2.535 3.099 0.775 0.352  
## 43 0.106 1.489 0.851 0.213 0.000  
## 44 0.134 1.014 1.920 0.906 0.290  
## 45 0.186 1.942 2.645 0.248 0.289  
## 46 0.075 1.075 2.151 0.215 0.645  
## 47 0.382 2.647 4.706 1.176 0.294  
## 48 0.220 2.262 2.440 0.476 0.238  
## 49 0.218 2.303 3.502 0.284 0.189  
## 50 0.195 1.364 2.500 0.682 0.182  
## 51 0.066 0.965 1.583 0.232 0.116  
## 52 0.112 1.280 2.880 0.160 0.480  
## 53 0.116 1.594 3.333 0.435 0.000  
## 54 0.064 0.455 1.409 0.136 0.091  
## 55 0.155 1.330 2.361 0.429 0.343  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.041 6.025 555.574  
## 2 0.177 0.088 4.425 507.345  
## 3 0.000 0.000 2.326 449.070  
## 4 0.075 0.000 2.612 385.224  
## 5 0.148 0.037 1.815 246.481  
## 6 0.105 0.000 6.189 878.951  
## 7 0.029 0.058 8.584 820.925  
## 8 0.000 0.000 6.957 786.522  
## 9 0.097 0.049 2.816 438.641  
## 10 0.000 0.000 4.800 590.400  
## 11 0.405 0.000 2.387 368.063  
## 12 0.172 0.172 6.793 642.138  
## 13 0.077 0.077 5.692 797.385  
## 14 0.323 0.000 6.774 498.387  
## 15 0.000 0.065 4.691 440.033  
## 16 0.128 0.000 6.496 870.385  
## 17 0.439 0.044 4.079 489.035  
## 18 0.256 0.000 5.897 627.949  
## 19 0.329 0.066 2.763 331.447  
## 20 0.000 0.385 4.615 680.000  
## 21 0.337 0.000 3.820 334.944  
## 22 0.067 0.133 8.533 872.067  
## 23 0.446 0.000 4.464 627.857  
## 24 0.244 0.081 2.520 236.789  
## 25 0.072 0.000 2.734 446.619  
## 26 0.000 0.105 2.947 394.842  
## 27 0.422 0.127 9.451 823.333  
## 28 0.099 0.000 2.525 263.366  
## 29 0.396 0.044 4.053 383.524  
## 30 0.233 0.000 4.651 740.698  
## 31 0.000 0.000 3.617 445.106  
## 32 0.424 0.106 2.226 344.629  
## 33 0.068 0.000 3.503 475.408  
## 34 0.000 0.000 3.962 347.547  
## 35 0.221 0.000 8.162 849.632  
## 36 0.219 0.000 4.153 418.907  
## 37 0.130 0.043 3.565 391.000  
## 38 0.278 0.000 1.759 232.315  
## 39 0.175 0.029 10.029 751.603  
## 40 0.295 0.111 3.210 327.934  
## 41 0.411 0.000 4.658 692.329  
## 42 0.493 0.000 5.493 602.606  
## 43 0.000 0.000 2.128 343.404  
## 44 0.435 0.036 2.899 408.080  
## 45 0.083 0.000 2.975 287.603  
## 46 0.108 0.108 3.226 230.215  
## 47 0.294 0.000 7.353 604.706  
## 48 0.417 0.000 3.214 492.202  
## 49 0.252 0.032 5.300 641.861  
## 50 0.318 0.182 3.545 322.318  
## 51 0.232 0.000 3.822 538.456  
## 52 0.000 0.000 6.240 441.600  
## 53 0.000 0.000 4.058 374.928  
## 54 0.500 0.091 3.273 303.591  
## 55 0.129 0.000 2.489 267.639  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 174.918 0.246 1.311 0.328 5.943  
## 2 140.088 0.177 0.885 0.177 5.575  
## 3 64.884 0.000 0.698 0.000 3.256  
## 4 91.418 0.075 1.642 0.896 5.075  
## 5 58.111 0.148 1.370 0.185 3.556  
## 6 183.427 0.070 1.294 0.350 3.566  
## 7 296.908 0.867 1.792 0.289 5.780  
## 8 149.565 0.000 3.043 0.435 6.957  
## 9 88.641 0.146 0.825 0.388 4.757  
## 10 106.400 0.800 1.600 0.000 4.400  
## 11 104.234 0.000 2.117 0.225 5.631  
## 12 194.552 0.931 1.276 0.172 3.621  
## 13 164.308 0.308 0.385 0.077 5.538  
## 14 214.839 0.323 1.935 0.968 5.484  
## 15 116.743 0.391 1.792 0.619 4.332  
## 16 210.641 0.128 1.026 0.256 7.308  
## 17 141.491 0.307 0.877 0.307 5.921  
## 18 127.179 0.000 0.513 0.000 3.846  
## 19 67.632 0.066 0.592 0.066 4.342  
## 20 143.846 0.000 1.154 0.000 5.385  
## 21 84.270 0.112 1.461 0.337 4.831  
## 22 206.733 0.200 1.133 0.733 5.200  
## 23 95.446 0.268 1.875 0.000 3.750  
## 24 96.667 0.163 1.301 0.447 5.244  
## 25 101.151 0.072 1.295 0.144 4.604  
## 26 90.842 0.316 0.947 0.000 4.421  
## 27 263.755 0.591 1.266 0.127 2.532  
## 28 72.079 0.297 0.842 0.149 4.752  
## 29 82.643 0.264 1.145 0.176 2.863  
## 30 200.698 0.000 0.698 0.000 7.442  
## 31 140.000 0.213 0.638 0.213 5.532  
## 32 65.583 0.141 1.519 0.353 5.477  
## 33 101.769 0.306 0.918 0.136 3.333  
## 34 106.038 0.377 0.943 0.377 2.453  
## 35 247.353 0.809 1.985 0.882 3.971  
## 36 105.301 0.437 1.639 0.219 4.809  
## 37 111.261 0.478 1.652 0.304 4.652  
## 38 43.981 0.000 1.481 0.185 4.259  
## 39 230.262 1.137 1.108 0.379 4.606  
## 40 85.166 0.295 0.701 0.037 4.207  
## 41 107.260 0.137 1.644 0.274 4.110  
## 42 185.493 0.493 1.620 0.211 4.789  
## 43 98.298 0.000 1.915 0.000 5.957  
## 44 63.913 0.109 1.558 0.580 7.681  
## 45 55.702 0.248 0.620 0.372 2.562  
## 46 59.140 0.000 2.473 0.000 3.871  
## 47 140.588 0.882 1.471 0.294 5.000  
## 48 118.095 0.060 1.012 0.714 4.702  
## 49 118.896 0.473 1.546 0.158 4.006  
## 50 80.682 0.500 1.545 0.318 4.182  
## 51 151.931 0.077 0.927 0.154 5.251  
## 52 137.520 0.320 1.120 0.000 5.920  
## 53 73.043 0.725 1.304 0.290 6.232  
## 54 74.682 0.227 0.955 0.364 4.727  
## 55 66.910 0.129 1.416 0.215 4.034  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.041 0.000 2.049 1.148 0.205 0.205  
## 2 0.177 0.177 1.504 0.973 0.088 2.212  
## 3 0.000 0.000 1.628 3.256 0.000 0.930  
## 4 0.149 0.000 2.612 1.940 0.149 0.896  
## 5 0.148 0.037 2.481 0.815 0.704 0.963  
## 6 0.210 0.035 1.503 1.189 0.105 0.909  
## 7 0.665 0.058 1.387 1.012 0.376 0.809  
## 8 0.000 0.000 3.913 3.043 0.435 1.304  
## 9 0.194 0.049 1.650 1.602 0.437 1.456  
## 10 0.000 0.000 2.000 1.600 0.000 0.800  
## 11 0.090 0.090 2.658 0.946 0.360 2.252  
## 12 0.345 0.069 1.966 1.517 0.207 0.897  
## 13 0.154 0.000 1.154 2.538 0.385 1.077  
## 14 0.000 0.000 2.258 0.323 0.323 0.323  
## 15 0.228 0.033 2.801 2.117 0.326 0.945  
## 16 0.299 0.043 1.154 1.154 0.128 1.239  
## 17 0.263 0.000 3.377 2.105 0.482 2.105  
## 18 0.000 0.000 1.538 1.026 0.000 0.513  
## 19 0.000 0.000 2.763 2.171 0.197 2.697  
## 20 0.769 0.000 3.077 1.538 0.000 0.769  
## 21 0.225 0.000 1.348 1.798 0.225 2.360  
## 22 0.667 0.000 1.000 0.600 0.067 0.867  
## 23 0.089 0.000 1.696 1.964 0.179 3.661  
## 24 0.244 0.000 2.764 1.667 0.041 1.220  
## 25 0.144 0.000 2.014 0.719 0.791 0.504  
## 26 0.000 0.000 1.895 2.211 0.000 1.263  
## 27 0.464 0.042 1.477 1.435 0.084 3.122  
## 28 0.198 0.000 2.426 1.980 0.050 1.436  
## 29 0.220 0.000 3.656 2.775 0.485 2.643  
## 30 0.465 0.000 1.163 0.465 0.000 0.465  
## 31 0.213 0.000 2.979 1.277 0.213 0.638  
## 32 0.071 0.000 3.004 2.827 0.247 3.322  
## 33 0.136 0.034 1.905 1.224 0.068 0.442  
## 34 0.377 0.000 2.830 1.509 0.189 1.887  
## 35 0.515 0.000 0.956 1.471 0.074 0.956  
## 36 0.109 0.000 2.568 2.131 0.492 1.093  
## 37 0.217 0.000 2.217 1.783 0.478 1.130  
## 38 0.093 0.000 2.037 1.296 0.741 1.204  
## 39 0.466 0.000 1.545 1.691 0.087 1.050  
## 40 0.221 0.037 2.952 1.956 0.148 1.845  
## 41 0.000 0.137 2.603 1.644 0.274 2.192  
## 42 0.352 0.000 2.887 2.324 0.141 3.028  
## 43 0.000 0.000 1.915 1.277 0.426 0.638  
## 44 0.145 0.036 2.899 3.370 0.580 2.717  
## 45 0.041 0.000 1.364 1.240 0.248 0.620  
## 46 0.108 0.000 3.333 3.871 0.000 2.258  
## 47 0.000 0.000 1.765 1.765 0.000 0.882  
## 48 0.238 0.000 2.619 1.190 0.119 1.250  
## 49 0.126 0.032 1.956 1.546 0.158 1.893  
## 50 0.227 0.045 2.455 2.000 0.455 1.864  
## 51 0.193 0.000 1.969 2.162 0.309 2.046  
## 52 0.240 0.000 3.680 1.040 0.000 1.200  
## 53 0.290 0.000 2.029 1.159 0.145 0.870  
## 54 0.182 0.045 2.682 1.818 0.182 2.909  
## 55 0.086 0.000 2.060 1.288 0.043 0.815  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 0.656 0.000  
## 2 0.000 0 1.239 0.354  
## 3 0.000 0 0.698 0.233  
## 4 0.000 0 0.896 0.000  
## 5 0.000 0 0.815 0.074  
## 6 0.000 0 1.119 0.140  
## 7 0.000 0 1.416 0.173  
## 8 0.000 0 1.304 0.000  
## 9 0.049 0 0.777 0.049  
## 10 0.000 0 0.400 0.400  
## 11 0.090 0 0.631 0.135  
## 12 0.034 0 0.690 0.069  
## 13 0.000 0 1.692 0.000  
## 14 0.000 0 0.968 0.000  
## 15 0.000 0 0.782 0.033  
## 16 0.085 0 1.581 0.085  
## 17 0.044 0 1.184 0.088  
## 18 0.000 0 0.769 0.256  
## 19 0.000 0 1.447 0.197  
## 20 0.000 0 1.154 0.000  
## 21 0.000 0 0.112 0.000  
## 22 0.067 0 1.800 0.000  
## 23 0.000 0 1.161 0.179  
## 24 0.000 0 1.016 0.203  
## 25 0.000 0 1.151 0.144  
## 26 0.000 0 1.579 0.211  
## 27 0.000 0 0.633 0.127  
## 28 0.000 0 0.990 0.000  
## 29 0.088 0 0.661 0.088  
## 30 0.000 0 0.930 0.465  
## 31 0.000 0 1.489 0.000  
## 32 0.000 0 1.519 0.071  
## 33 0.068 0 1.020 0.000  
## 34 0.000 0 2.075 0.000  
## 35 0.000 0 0.368 0.000  
## 36 0.055 0 1.475 0.055  
## 37 0.000 0 0.783 0.043  
## 38 0.093 0 1.204 0.000  
## 39 0.029 0 0.671 0.029  
## 40 0.037 0 1.033 0.258  
## 41 0.000 0 0.959 0.137  
## 42 0.000 0 1.479 0.000  
## 43 0.000 0 1.064 0.000  
## 44 0.036 0 0.906 0.000  
## 45 0.000 0 0.331 0.041  
## 46 0.000 0 1.398 0.000  
## 47 0.000 0 1.176 0.000  
## 48 0.060 0 0.298 0.060  
## 49 0.000 0 0.946 0.000  
## 50 0.136 0 0.591 0.000  
## 51 0.039 0 1.236 0.232  
## 52 0.000 0 1.600 0.160  
## 53 0.000 0 1.159 0.000  
## 54 0.000 0 1.364 0.273  
## 55 0.000 0 1.116 0.086  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.656 0.574 1.762 0.369 62.06897  
## 2 0.885 1.062 3.186 1.593 62.50000  
## 3 0.465 0.233 2.558 1.395 30.00000  
## 4 0.896 0.373 1.940 0.746 61.90476  
## 5 0.741 0.296 1.519 0.741 57.57576  
## 6 0.979 0.594 2.378 0.524 45.09804  
## 7 1.243 0.780 2.746 1.445 55.88235  
## 8 1.304 1.304 1.739 1.739 0.00000  
## 9 0.728 0.340 1.214 0.583 44.44444  
## 10 0.000 0.000 2.400 0.400 66.66667  
## 11 0.495 0.315 1.081 1.532 58.82353  
## 12 0.621 0.690 1.483 0.448 52.17391  
## 13 1.692 0.538 2.615 0.615 51.85185  
## 14 0.968 0.645 2.258 0.645 80.00000  
## 15 0.749 0.586 2.606 0.065 53.22581  
## 16 1.496 0.641 2.009 0.684 59.37500  
## 17 1.096 0.482 2.018 0.263 48.57143  
## 18 0.513 0.769 1.795 0.256 25.00000  
## 19 1.250 0.526 3.289 0.329 52.38095  
## 20 1.154 0.769 3.462 0.000 42.85714  
## 21 0.112 0.562 1.236 0.337 16.66667  
## 22 1.800 0.400 2.200 0.467 62.96296  
## 23 0.982 0.536 1.696 0.446 61.53846  
## 24 0.813 0.488 1.992 0.976 59.45946  
## 25 1.007 0.504 1.151 1.655 44.44444  
## 26 1.368 0.316 2.000 0.842 50.00000  
## 27 0.506 0.549 1.941 0.422 57.57576  
## 28 0.990 0.545 2.129 0.891 65.62500  
## 29 0.573 0.485 1.850 1.233 45.16129  
## 30 0.465 0.698 2.326 0.465 28.57143  
## 31 1.489 0.213 2.979 0.213 53.84615  
## 32 1.449 0.565 2.862 0.530 55.38462  
## 33 1.020 0.068 0.884 0.476 54.16667  
## 34 2.075 0.000 1.132 0.566 33.33333  
## 35 0.368 0.294 1.324 0.294 64.28571  
## 36 1.421 0.437 1.913 0.328 59.25926  
## 37 0.739 0.391 0.957 0.261 53.84615  
## 38 1.204 0.185 0.833 0.000 57.14286  
## 39 0.641 0.437 1.866 0.146 34.69388  
## 40 0.775 0.480 1.587 0.775 53.33333  
## 41 0.822 0.137 1.507 1.096 40.00000  
## 42 1.479 0.775 2.113 0.634 52.63158  
## 43 1.064 0.213 2.340 0.213 60.00000  
## 44 0.906 0.399 2.754 0.326 72.30769  
## 45 0.289 0.372 0.868 0.248 41.66667  
## 46 1.398 0.108 2.151 1.183 47.36842  
## 47 1.176 1.471 3.529 0.294 42.85714  
## 48 0.238 0.298 0.714 0.119 42.85714  
## 49 0.946 0.410 1.388 0.568 64.51613  
## 50 0.591 0.591 1.545 0.409 47.61905  
## 51 1.004 0.579 3.320 1.467 61.97183  
## 52 1.440 1.120 3.200 0.880 46.15385  
## 53 1.159 0.725 1.884 1.014 50.00000  
## 54 1.091 0.364 2.000 0.500 61.11111  
## 55 1.030 0.258 0.987 0.601 76.47059  
##   
## [[12]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 3 0.10 0.06 0.19 -1.6 0.24 7 0.24 7.1 -0.1  
## 2 0 0.00 0.00 0.00 -0.6 0.06 0 0.00 1.5 -1.5  
## 3 0 0.00 0.00 0.00 -0.2 0.06 2 0.13 0.9 1.1  
## 4 3 0.09 0.05 0.21 -0.4 0.27 6 0.19 8.8 -2.8  
## 5 4 0.12 0.08 0.31 1.0 0.19 6 0.19 6.1 -0.1  
## 6 5 0.15 0.12 0.31 0.6 0.23 7 0.21 7.8 -0.8  
## 7 1 0.08 0.07 0.17 -0.9 0.20 3 0.23 2.7 0.3  
## 8 0 0.00 0.00 0.00 -0.4 0.14 3 0.10 4.3 -1.3  
## 9 3 0.12 0.21 0.43 2.3 0.16 3 0.12 4.0 -1.0  
## 10 4 0.11 0.06 0.31 -2.1 0.24 10 0.29 8.4 1.6  
## 11 0 0.00 0.00 0.00 -0.3 0.04 0 0.00 0.6 -0.6  
## 12 2 0.10 0.05 0.13 -1.9 0.30 7 0.36 5.9 1.1  
## 13 0 0.00 0.00 0.00 -0.1 0.04 0 0.00 0.2 -0.2  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 30.8 0.55 70.4 87.2 77.3 46.0  
## 2 15.4 0.08 68.7 87.8 75.5 37.9  
## 3 0.0 0.00 73.7 90.0 74.7 38.9  
## 4 24.6 0.44 69.0 87.1 70.9 46.0  
## 5 26.5 0.40 68.4 82.6 76.9 36.0  
## 6 38.1 0.48 82.9 92.1 91.2 49.6  
## 7 40.0 0.45 72.8 89.1 78.3 49.2  
## 8 33.3 0.13 76.3 85.0 87.5 43.6  
## 9 50.0 0.29 72.8 85.6 76.8 56.7  
## 10 18.6 0.37 70.6 81.9 77.4 51.2  
## 11 35.7 0.31 69.6 83.1 81.6 41.5  
## 12 36.4 0.83 70.1 85.9 74.1 43.5  
## 13 100.0 0.36 64.2 87.1 65.9 23.1  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 26.8 46.3 53.7 26.5 0.000  
## 2 55.6 44.4 44.4 37.3 0.040  
## 3 47.1 50.0 50.0 21.4 0.000  
## 4 43.6 45.5 47.0 44.4 0.000  
## 5 27.1 48.3 48.3 27.3 0.000  
## 6 40.9 52.4 33.3 44.1 0.000  
## 7 43.8 31.3 43.8 40.0 0.000  
## 8 54.0 58.3 38.9 59.2 0.032  
## 9 27.4 40.9 52.3 31.3 0.000  
## 10 42.4 38.3 47.8 46.9 0.000  
## 11 42.6 33.3 33.3 46.7 0.000  
## 12 33.3 39.5 51.2 25.0 0.000  
## 13 28.6 50.0 37.5 100.0 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.00 0.000 0.207 0.759 1.931  
## 2 0.04 0.040 0.277 1.304 1.581  
## 3 0.00 0.000 0.197 0.526 1.053  
## 4 0.00 0.000 0.062 0.561 2.492  
## 5 0.00 0.031 0.279 1.548 1.115  
## 6 0.00 0.000 0.120 0.721 0.541  
## 7 0.00 0.000 0.152 0.682 0.985  
## 8 0.00 0.000 0.161 1.258 0.710  
## 9 0.00 0.000 0.204 1.143 0.776  
## 10 0.00 0.000 0.256 1.054 2.279  
## 11 0.00 0.062 0.500 0.938 0.188  
## 12 0.00 0.000 0.258 1.082 2.113  
## 13 0.00 0.000 0.000 0.357 1.607  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 153.793 69.517 1.759 0.448  
## 2 114.980 58.893 0.949 0.198  
## 3 107.895 49.408 0.724 0.066  
## 4 182.087 80.467 1.931 0.436  
## 5 102.384 48.545 0.805 0.402  
## 6 118.649 48.228 0.781 0.180  
## 7 139.091 45.833 0.985 0.152  
## 8 128.065 63.581 0.774 0.000  
## 9 120.857 51.633 0.694 0.122  
## 10 160.570 82.308 1.766 0.427  
## 11 105.938 41.625 0.312 0.000  
## 12 170.309 77.371 2.680 0.464  
## 13 92.321 43.036 0.893 0.357  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.197 2.897 2.759 0.103 0.103  
## 2 0.055 0.830 1.502 0.040 0.158  
## 3 0.059 0.855 1.447 0.000 0.000  
## 4 0.255 2.150 2.399 0.156 0.187  
## 5 0.142 2.167 2.260 0.310 0.217  
## 6 0.189 1.922 1.712 0.030 0.120  
## 7 0.189 2.652 2.121 0.000 0.152  
## 8 0.097 1.484 1.548 0.065 0.065  
## 9 0.196 1.673 1.959 0.000 0.000  
## 10 0.194 2.108 2.450 0.256 0.199  
## 11 0.075 1.062 1.188 0.000 0.062  
## 12 0.253 2.629 2.526 0.103 0.206  
## 13 0.107 0.893 1.429 0.179 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.103 0.000 4.759 560.552  
## 2 0.119 0.079 3.241 504.032  
## 3 0.066 0.000 3.618 460.987  
## 4 0.187 0.093 3.551 465.919  
## 5 0.124 0.000 4.180 389.814  
## 6 0.030 0.060 4.324 699.339  
## 7 0.227 0.000 4.470 568.561  
## 8 0.000 0.097 4.581 654.645  
## 9 0.122 0.041 5.020 711.143  
## 10 0.228 0.028 4.843 524.558  
## 11 0.000 0.000 4.562 768.188  
## 12 0.258 0.052 5.619 568.763  
## 13 0.000 0.000 3.036 409.643  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 182.931 0.483 1.517 0.379 3.414  
## 2 223.439 0.079 1.146 0.435 4.743  
## 3 174.342 0.066 0.987 0.526 5.263  
## 4 156.854 0.436 1.931 0.623 5.514  
## 5 150.929 0.155 0.836 0.217 5.015  
## 6 213.363 0.060 0.571 0.240 4.354  
## 7 169.242 0.303 1.061 0.455 4.242  
## 8 221.419 0.065 0.806 0.129 7.355  
## 9 258.694 0.327 0.980 0.449 5.020  
## 10 173.561 0.484 0.855 0.370 5.100  
## 11 290.375 0.125 0.625 0.125 6.125  
## 12 192.320 0.464 2.268 0.309 4.639  
## 13 169.464 0.000 1.429 1.071 3.750  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.172 0.000 1.690 1.414 0.103 0.931  
## 2 0.356 0.119 0.632 0.514 0.040 0.949  
## 3 0.329 0.000 0.921 0.658 0.066 0.592  
## 4 0.312 0.000 2.087 1.869 0.125 1.028  
## 5 0.155 0.000 1.146 0.526 0.186 0.526  
## 6 0.240 0.000 0.450 0.330 0.000 0.601  
## 7 0.152 0.000 1.515 1.136 0.152 1.515  
## 8 0.065 0.032 1.129 0.613 0.065 0.516  
## 9 0.245 0.041 1.265 0.735 0.082 0.776  
## 10 0.313 0.000 2.222 1.254 0.171 1.624  
## 11 0.188 0.000 0.562 0.250 0.000 0.562  
## 12 0.464 0.000 2.113 1.186 0.464 1.289  
## 13 0.000 0.000 1.250 0.179 0.000 0.357  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 0.552 0.069  
## 2 0.040 0.040 0.949 0.237  
## 3 0.000 0.066 1.184 0.132  
## 4 0.000 0.000 1.371 0.218  
## 5 0.000 0.000 1.022 0.279  
## 6 0.000 0.000 0.931 0.270  
## 7 0.000 0.000 1.061 0.000  
## 8 0.000 0.000 1.032 0.355  
## 9 0.041 0.000 1.673 0.245  
## 10 0.000 0.000 0.883 0.228  
## 11 0.000 0.000 1.500 0.562  
## 12 0.000 0.000 0.876 0.052  
## 13 0.000 0.000 0.357 0.000  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.483 0.138 1.000 0.414 48.00000  
## 2 0.711 0.870 2.964 1.976 71.69811  
## 3 1.053 0.526 1.974 1.974 40.90909  
## 4 1.153 0.685 2.056 1.153 61.36364  
## 5 0.743 0.898 2.105 1.084 53.84615  
## 6 0.661 1.141 2.492 1.471 64.44444  
## 7 1.061 1.212 2.197 1.212 30.76923  
## 8 0.677 2.097 4.065 1.484 67.21311  
## 9 1.429 0.939 3.143 1.020 59.25926  
## 10 0.655 0.484 1.510 0.598 66.66667  
## 11 0.938 1.312 3.875 2.438 63.41463  
## 12 0.825 0.515 1.546 0.464 65.00000  
## 13 0.357 0.714 2.143 3.929 75.00000  
##   
## [[13]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 1 0.05 0.03 0.11 -2.5 0.05 2 0.09 1.0 1.0  
## 2 0 0.00 0.00 0.00 -0.3 0.02 0 0.00 0.0 0.0  
## 3 0 0.00 0.00 0.00 -0.1 0.07 0 0.00 0.3 -0.3  
## 4 1 0.04 0.09 0.33 0.4 0.02 1 0.04 0.4 0.6  
## 5 2 0.55 0.09 0.25 -0.9 0.28 2 0.55 1.0 1.0  
## 6 0 0.00 0.00 0.00 -0.5 0.49 2 0.61 1.6 0.4  
## 7 2 0.36 0.15 0.33 1.4 0.34 2 0.36 1.9 0.1  
## 8 3 0.17 0.05 0.16 0.5 0.26 8 0.45 4.6 3.4  
## 9 0 0.00 0.00 0.00 -0.1 0.00 0 0.00 0.0 0.0  
## 10 2 0.26 0.07 0.25 -0.5 0.31 2 0.26 2.4 -0.4  
## 11 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.1 -0.1  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 23.1 0.41 81.8 89.9 86.1 56.1  
## 2 20.0 0.42 63.5 74.4 57.9 50.0  
## 3 0.0 0.00 74.6 88.6 68.9 42.9  
## 4 27.3 0.13 82.6 87.7 87.7 58.0  
## 5 34.8 2.20 73.3 77.8 75.0 80.0  
## 6 16.7 0.30 81.3 89.3 83.0 52.9  
## 7 46.2 1.07 89.3 93.8 92.7 73.3  
## 8 34.5 1.07 81.3 89.2 78.0 78.8  
## 9 66.7 0.58 78.8 83.8 83.1 60.0  
## 10 29.6 1.03 77.4 85.8 86.4 65.0  
## 11 25.0 0.41 68.7 82.0 74.1 28.6  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 48.1 50.0 44.4 65.6 0.000  
## 2 25.0 50.0 50.0 50.0 0.000  
## 3 22.2 75.0 25.0 46.7 0.000  
## 4 66.7 100.0 0.0 58.1 0.000  
## 5 40.0 18.2 72.7 42.1 0.000  
## 6 100.0 22.2 66.7 100.0 0.303  
## 7 64.3 57.1 21.4 16.7 0.000  
## 8 45.0 51.5 37.9 40.0 0.000  
## 9 55.6 20.0 80.0 87.5 0.294  
## 10 56.3 59.2 36.7 44.4 0.000  
## 11 33.3 25.0 62.5 50.0 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.045 0.318 1.364 0.545  
## 2 0.000 0.000 0.833 2.500 0.000  
## 3 0.000 0.000 0.278 0.833 0.278  
## 4 0.000 0.043 0.129 0.515 0.043  
## 5 0.000 0.000 0.278 2.778 1.111  
## 6 0.000 0.000 0.000 2.424 3.636  
## 7 0.000 0.179 0.357 2.143 4.464  
## 8 0.000 0.000 0.169 0.847 12.316  
## 9 0.294 0.294 0.882 4.118 0.882  
## 10 0.000 0.000 0.000 1.410 6.538  
## 11 0.000 0.400 0.800 2.800 1.200  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 162.545 78.591 1.000 0.045  
## 2 46.667 19.167 0.417 0.000  
## 3 88.889 45.278 1.111 0.000  
## 4 99.270 38.197 0.258 0.000  
## 5 90.833 33.333 0.556 0.278  
## 6 170.000 90.303 0.909 1.818  
## 7 337.679 168.929 3.571 0.000  
## 8 425.706 275.932 3.446 8.305  
## 9 172.059 70.588 0.294 0.000  
## 10 268.974 153.205 2.564 4.487  
## 11 152.400 66.800 0.800 0.400  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.055 0.727 1.591 0.000 0.136  
## 2 0.000 0.417 2.083 0.000 0.833  
## 3 0.028 0.556 0.278 0.000 0.278  
## 4 0.009 0.258 0.472 0.000 0.086  
## 5 0.028 1.389 1.111 0.278 1.389  
## 6 0.242 1.515 2.121 0.000 0.303  
## 7 0.339 3.214 3.929 0.179 0.357  
## 8 0.333 2.542 4.633 0.960 0.339  
## 9 0.000 0.000 1.471 0.000 0.000  
## 10 0.141 2.564 3.462 1.154 0.513  
## 11 0.080 0.400 1.600 0.000 0.400  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.045 0.000 5.091 915.273  
## 2 0.000 0.417 2.083 251.667  
## 3 0.278 0.000 1.944 418.333  
## 4 0.000 0.129 1.845 572.403  
## 5 0.278 0.278 1.944 193.889  
## 6 0.909 0.000 4.545 596.667  
## 7 0.179 0.000 12.143 1214.107  
## 8 0.282 0.000 3.220 547.966  
## 9 0.000 0.000 5.588 737.353  
## 10 0.000 0.256 4.872 413.205  
## 11 0.000 0.400 3.200 360.400  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 348.955 0.182 0.818 0.136 6.045  
## 2 66.250 0.000 0.417 0.000 5.833  
## 3 134.444 0.000 0.556 0.000 4.444  
## 4 186.309 0.043 0.644 0.000 3.777  
## 5 59.167 0.000 1.389 0.000 2.778  
## 6 127.576 0.909 0.303 0.303 4.848  
## 7 370.179 0.357 1.429 0.536 8.214  
## 8 86.893 0.113 1.921 0.395 4.237  
## 9 166.765 0.294 0.588 0.000 6.765  
## 10 95.769 0.128 2.051 0.128 6.026  
## 11 124.000 0.400 2.000 0.000 8.400  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.273 0.045 0.682 0.773 0.273 0.455  
## 2 0.417 0.000 1.250 1.250 0.000 0.833  
## 3 0.000 0.000 0.556 0.556 0.556 0.833  
## 4 0.129 0.000 0.300 0.172 0.043 0.300  
## 5 0.000 0.000 4.167 2.778 1.667 2.500  
## 6 0.303 0.000 2.121 1.515 0.606 3.030  
## 7 0.893 0.000 2.143 1.250 0.179 4.643  
## 8 0.000 0.000 2.938 2.090 0.282 1.864  
## 9 0.588 0.294 1.176 0.882 0.000 1.471  
## 10 0.000 0.000 3.077 1.282 0.513 0.769  
## 11 0.800 0.400 1.200 1.600 0.000 0.800  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 3.364 1.500  
## 2 0.000 0 1.667 0.417  
## 3 0.000 0 2.500 1.111  
## 4 0.000 0 1.373 0.515  
## 5 0.000 0 1.111 0.556  
## 6 0.606 0 0.000 0.000  
## 7 0.000 0 0.714 0.179  
## 8 0.113 0 0.791 0.000  
## 9 0.000 0 1.176 0.294  
## 10 0.000 0 2.308 0.000  
## 11 0.000 0 0.800 0.400  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.864 0.818 4.591 3.227 67.46988  
## 2 1.250 0.833 4.167 4.167 62.50000  
## 3 1.389 1.389 3.333 4.722 28.57143  
## 4 0.858 1.159 3.133 4.678 60.86957  
## 5 0.556 0.278 1.944 1.667 66.66667  
## 6 0.000 0.606 1.515 0.606 66.66667  
## 7 0.536 0.893 4.821 0.357 59.09091  
## 8 0.791 0.508 2.712 0.282 56.41026  
## 9 0.882 1.176 4.412 0.588 54.54545  
## 10 2.308 1.026 3.974 0.513 52.17391  
## 11 0.400 1.200 5.200 2.400 50.00000  
##   
## [[14]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.8 0.06 0 0.00 0.3 -0.3  
## 2 0 0.00 0.00 0.00 -0.8 0.02 0 0.00 0.3 -0.3  
## 3 0 0.00 0.00 0.00 -1.2 0.15 4 0.25 2.4 1.6  
## 4 1 0.04 0.06 0.33 -0.3 0.02 1 0.04 0.6 0.4  
## 5 0 0.00 0.00 0.00 -1.5 0.17 2 0.18 1.9 0.1  
## 6 0 0.00 0.00 0.00 -0.3 0.09 0 0.00 0.8 -0.8  
## 7 0 0.00 0.00 0.00 -0.6 0.03 0 0.00 0.4 -0.4  
## 8 2 0.19 0.13 0.40 0.4 0.09 1 0.09 1.0 0.0  
## 9 4 0.13 0.09 0.29 0.7 0.03 1 0.03 0.8 0.2  
## 10 2 0.14 0.11 0.29 -1.1 0.20 1 0.07 2.8 -1.8  
## 11 1 0.07 0.06 0.25 0.0 0.09 1 0.07 1.3 -0.3  
## 12 0 0.00 0.00 0.00 0.0 0.03 0 0.00 0.1 -0.1  
## 13 0 0.00 0.00 0.00 -0.6 0.13 0 0.00 0.7 -0.7  
## 14 3 0.42 0.27 0.60 1.6 0.09 1 0.14 0.6 0.4  
## 15 0 0.00 0.00 0.00 -1.3 0.05 1 0.03 1.7 -0.7  
## 16 1 0.39 0.50 0.50 0.1 0.08 1 0.39 0.2 0.8  
## 17 1 0.03 0.07 0.17 0.4 0.01 0 0.00 0.2 -0.2  
## 18 0 0.00 0.00 0.00 -1.6 0.05 2 0.08 1.3 0.7  
## 19 0 0.00 0.00 0.00 -1.0 0.01 0 0.00 0.1 -0.1  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 37.5 0.64 66.2 67.1 81.4 80.0  
## 2 23.8 0.34 92.0 93.7 96.0 80.0  
## 3 0.0 0.00 77.9 87.5 71.9 40.0  
## 4 17.6 0.11 85.6 90.4 90.1 65.9  
## 5 21.1 0.35 80.4 88.0 83.1 29.6  
## 6 0.0 0.00 78.3 89.0 78.6 40.7  
## 7 0.0 0.00 79.8 87.4 84.6 64.0  
## 8 33.3 0.47 76.8 89.4 77.6 48.3  
## 9 31.1 0.47 82.4 89.1 89.3 62.0  
## 10 36.8 0.49 83.6 89.1 86.9 76.0  
## 11 23.5 0.28 71.9 77.9 78.6 52.4  
## 12 0.0 0.00 84.7 87.8 86.3 90.9  
## 13 0.0 0.00 64.6 74.6 59.5 50.0  
## 14 45.5 0.71 75.4 77.8 83.3 85.7  
## 15 23.5 0.12 79.7 90.4 80.4 43.7  
## 16 100.0 0.79 73.3 84.6 89.3 46.7  
## 17 42.9 0.20 79.5 87.2 84.5 56.2  
## 18 16.0 0.16 71.9 83.8 70.9 53.6  
## 19 45.5 0.65 74.2 83.6 78.4 42.9  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 40.0 11.8 76.5 28.0 0.000  
## 2 50.0 50.0 27.3 72.7 0.000  
## 3 50.0 46.4 42.9 48.1 0.000  
## 4 47.0 64.3 33.3 46.9 0.000  
## 5 51.7 48.8 41.9 61.3 0.000  
## 6 63.2 34.8 47.8 42.9 0.000  
## 7 41.4 50.0 50.0 33.3 0.000  
## 8 46.7 43.6 43.6 23.5 0.094  
## 9 67.8 50.0 40.9 56.3 0.000  
## 10 36.8 48.6 31.4 36.7 0.000  
## 11 28.2 28.6 57.1 54.5 0.000  
## 12 40.0 50.0 16.7 81.8 0.000  
## 13 53.3 40.0 60.0 31.3 0.000  
## 14 18.2 51.5 36.4 46.7 0.000  
## 15 59.4 56.7 32.2 44.9 0.029  
## 16 20.0 54.5 45.5 33.3 0.000  
## 17 55.4 56.7 36.7 62.7 0.000  
## 18 50.0 43.1 43.1 46.3 0.000  
## 19 41.2 63.0 25.9 47.4 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0 0.000 0.426 1.489 0.638  
## 2 0 0.000 0.476 2.721 1.293  
## 3 0 0.000 0.250 1.875 1.562  
## 4 0 0.038 0.417 1.250 0.758  
## 5 0 0.000 0.263 1.842 3.246  
## 6 0 0.000 0.122 0.854 2.683  
## 7 0 0.000 0.522 1.913 0.435  
## 8 0 0.000 0.000 0.943 2.830  
## 9 0 0.033 0.433 1.733 0.267  
## 10 0 0.000 0.423 1.972 2.042  
## 11 0 0.000 0.276 0.966 1.448  
## 12 0 0.000 0.606 1.212 2.424  
## 13 0 0.000 0.179 1.250 0.893  
## 14 0 0.000 0.423 1.690 3.099  
## 15 0 0.058 0.292 1.399 3.003  
## 16 0 0.000 0.400 1.200 1.200  
## 17 0 0.034 0.101 1.622 0.236  
## 18 0 0.078 0.039 1.051 2.296  
## 19 0 0.000 0.263 1.579 1.711  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 96.170 35.745 1.702 0.638  
## 2 197.483 96.803 1.293 0.068  
## 3 115.062 54.562 1.062 0.312  
## 4 194.962 84.356 1.023 0.038  
## 5 199.298 106.404 2.018 0.351  
## 6 192.073 95.732 1.098 0.244  
## 7 106.000 46.261 0.348 0.000  
## 8 174.528 83.019 2.642 0.472  
## 9 94.533 35.133 0.400 0.000  
## 10 150.775 74.718 1.690 0.423  
## 11 146.345 69.241 1.379 0.483  
## 12 187.879 108.485 0.606 0.606  
## 13 48.393 18.750 0.357 0.179  
## 14 152.676 79.296 1.549 0.845  
## 15 223.032 126.064 1.837 0.408  
## 16 128.800 68.000 0.400 0.000  
## 17 90.845 33.074 0.203 0.169  
## 18 154.008 79.300 1.479 0.700  
## 19 166.711 60.658 0.921 0.263  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.021 0.638 1.702 0.213 0.213  
## 2 0.020 0.544 1.088 0.000 0.068  
## 3 0.081 1.312 2.375 0.062 0.062  
## 4 0.030 0.455 0.909 0.076 0.114  
## 5 0.105 1.316 2.456 0.351 0.175  
## 6 0.085 0.732 1.707 0.122 0.122  
## 7 0.035 0.609 1.304 0.000 0.087  
## 8 0.075 1.132 1.887 0.566 0.094  
## 9 0.033 0.433 0.767 0.000 0.133  
## 10 0.077 1.620 2.606 0.423 0.282  
## 11 0.083 0.828 1.586 0.138 0.207  
## 12 0.030 0.909 1.515 0.000 0.000  
## 13 0.018 0.357 1.250 0.000 0.179  
## 14 0.056 1.268 2.535 0.423 0.000  
## 15 0.052 0.700 1.341 0.087 0.058  
## 16 0.160 1.600 1.600 0.400 0.000  
## 17 0.017 0.135 0.743 0.000 0.034  
## 18 0.047 0.428 1.284 0.156 0.117  
## 19 0.079 0.395 1.579 0.132 0.263  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.213 2.553 281.277  
## 2 0.000 0.000 3.401 722.313  
## 3 0.125 0.125 2.375 472.250  
## 4 0.000 0.114 3.447 647.083  
## 5 0.000 0.000 5.000 442.193  
## 6 0.122 0.000 0.976 534.146  
## 7 0.087 0.087 3.826 476.261  
## 8 0.094 0.000 3.679 325.660  
## 9 0.067 0.067 3.233 637.700  
## 10 0.000 0.000 3.944 513.732  
## 11 0.069 0.000 3.517 421.241  
## 12 0.000 0.000 5.152 760.606  
## 13 0.000 0.000 2.143 221.786  
## 14 0.282 0.000 3.944 317.324  
## 15 0.175 0.087 4.023 634.373  
## 16 0.000 0.000 2.000 457.600  
## 17 0.000 0.068 2.230 434.324  
## 18 0.039 0.039 2.568 450.895  
## 19 0.263 0.000 4.605 449.474  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 79.362 0.213 1.489 0.000 7.447  
## 2 148.639 0.000 0.680 0.000 6.463  
## 3 179.062 0.000 1.062 0.000 4.750  
## 4 197.917 0.076 0.530 0.038 6.212  
## 5 115.965 0.351 0.789 0.000 5.263  
## 6 122.561 0.000 2.195 0.976 4.512  
## 7 146.087 0.261 1.391 0.000 6.087  
## 8 74.151 0.094 1.038 0.000 3.868  
## 9 178.267 0.200 0.967 0.033 6.500  
## 10 133.662 0.211 1.268 0.000 5.986  
## 11 112.828 0.069 1.241 0.276 4.069  
## 12 206.970 0.000 0.606 0.000 3.636  
## 13 77.857 0.000 1.071 0.000 1.250  
## 14 119.296 0.282 0.986 0.000 4.366  
## 15 213.003 0.058 1.224 0.292 5.481  
## 16 140.400 0.000 2.000 0.800 6.800  
## 17 116.250 0.000 1.014 0.034 5.169  
## 18 137.588 0.156 1.089 0.156 4.241  
## 19 105.395 0.000 1.447 0.132 6.579  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.638 0.000 1.702 2.553 0.426 1.277  
## 2 0.136 0.204 1.088 1.088 0.000 1.837  
## 3 0.125 0.000 1.312 0.438 0.500 0.500  
## 4 0.189 0.000 1.439 1.136 0.038 0.568  
## 5 0.000 0.000 2.456 1.930 0.088 1.667  
## 6 0.244 0.000 0.854 1.707 0.122 0.732  
## 7 0.261 0.000 0.870 0.696 0.174 0.783  
## 8 0.189 0.000 2.358 1.792 0.189 2.264  
## 9 0.200 0.000 0.967 0.867 0.067 1.867  
## 10 0.141 0.070 1.549 1.972 0.000 1.620  
## 11 0.138 0.069 1.724 1.448 0.345 1.793  
## 12 0.000 0.000 0.909 0.909 0.000 0.606  
## 13 0.000 0.000 1.071 0.000 0.179 0.536  
## 14 0.423 0.000 2.394 1.549 0.000 1.268  
## 15 0.146 0.029 1.662 1.050 0.029 0.875  
## 16 0.000 0.000 3.200 0.000 0.000 0.000  
## 17 0.101 0.034 1.115 0.845 0.068 0.473  
## 18 0.156 0.156 1.323 1.012 0.233 1.089  
## 19 0.000 0.000 2.237 1.316 0.132 0.789  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.213 1.489 0.213  
## 2 0.000 0.000 2.381 0.476  
## 3 0.000 0.000 1.812 0.438  
## 4 0.000 0.000 2.235 0.758  
## 5 0.000 0.000 2.018 0.351  
## 6 0.000 0.122 2.073 0.488  
## 7 0.000 0.000 2.087 0.609  
## 8 0.000 0.000 1.698 0.189  
## 9 0.000 0.000 1.900 0.300  
## 10 0.000 0.000 1.620 0.493  
## 11 0.000 0.000 1.655 0.207  
## 12 0.000 0.000 1.818 0.606  
## 13 0.000 0.000 1.786 0.714  
## 14 0.000 0.000 1.549 0.000  
## 15 0.000 0.000 1.283 0.233  
## 16 0.000 0.000 2.000 0.400  
## 17 0.000 0.000 1.926 0.574  
## 18 0.039 0.000 1.712 0.233  
## 19 0.000 0.000 2.237 0.526  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.277 1.064 3.404 1.489 54.54545  
## 2 1.905 1.224 3.946 2.041 50.00000  
## 3 1.375 1.500 4.938 2.938 63.63636  
## 4 1.477 1.591 4.621 3.068 48.75000  
## 5 1.667 0.702 2.807 2.018 75.00000  
## 6 1.585 0.732 3.293 2.927 66.66667  
## 7 1.478 1.391 5.043 1.826 54.76190  
## 8 1.509 0.755 2.358 1.321 58.82353  
## 9 1.600 1.533 6.600 1.933 49.34211  
## 10 1.127 1.338 4.085 0.775 69.23077  
## 11 1.448 0.759 2.828 1.034 56.66667  
## 12 1.212 0.303 4.545 1.515 71.42857  
## 13 1.071 0.893 4.643 2.679 47.61905  
## 14 1.549 0.423 1.549 1.549 12.50000  
## 15 1.050 1.050 3.353 2.478 60.75949  
## 16 1.600 1.200 2.800 2.400 100.00000  
## 17 1.351 1.081 5.304 2.534 60.80000  
## 18 1.479 0.467 2.957 1.829 53.12500  
## 19 1.711 0.789 3.026 0.658 64.70588  
##   
## [[15]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 0.0 0.09 0 0.00 0.4 -0.4  
## 2 0 0.00 0.00 0.00 -0.2 0.00 0 0.00 0.0 0.0  
## 3 0 0.00 0.00 0.00 -0.8 0.09 0 0.00 0.2 -0.2  
## 4 1 0.07 0.03 0.14 -1.6 0.11 2 0.15 1.5 0.5  
## 5 2 0.55 0.09 0.25 -0.9 0.28 2 0.55 1.0 1.0  
## 6 0 0.00 0.00 0.00 -0.5 0.49 2 0.61 1.6 0.4  
## 7 3 0.27 0.14 0.60 0.9 0.22 1 0.09 2.5 -1.5  
## 8 3 0.17 0.05 0.16 0.5 0.26 8 0.45 4.6 3.4  
## 9 5 0.22 0.07 0.25 -2.9 0.17 3 0.13 3.8 -0.8  
## 10 2 0.14 0.11 0.29 -1.1 0.20 1 0.07 2.8 -1.8  
## 11 2 0.26 0.07 0.25 -0.5 0.31 2 0.26 2.4 -0.4  
## 12 1 0.17 0.20 1.00 0.6 0.06 0 0.00 0.3 -0.3  
## 13 2 0.12 0.09 0.33 0.7 0.06 2 0.12 1.0 1.0  
## 14 4 0.34 0.13 0.33 2.3 0.23 2 0.17 2.6 -0.6  
## 15 7 0.33 0.16 0.37 1.3 0.04 1 0.05 0.8 0.2  
## 16 3 0.49 0.21 0.50 1.0 0.16 1 0.16 1.0 0.0  
## 17 0 0.00 0.00 0.00 -0.2 0.07 0 0.00 0.2 -0.2  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 0.0 0.00 82.5 91.6 83.3 52.1  
## 2 33.3 0.33 73.7 90.4 72.7 42.4  
## 3 25.0 0.43 80.9 85.2 87.1 50.0  
## 4 23.3 0.51 66.5 74.5 73.1 43.9  
## 5 34.8 2.20 73.3 77.8 75.0 80.0  
## 6 16.7 0.30 81.3 89.3 83.0 52.9  
## 7 22.7 0.45 86.0 91.8 89.7 71.9  
## 8 34.5 1.07 81.3 89.2 78.0 78.8  
## 9 28.6 0.88 80.6 88.0 82.0 55.8  
## 10 36.8 0.49 83.6 89.1 86.9 76.0  
## 11 29.6 1.03 77.4 85.8 86.4 65.0  
## 12 20.0 0.17 81.7 88.8 79.2 58.8  
## 13 27.3 0.36 84.7 89.6 85.2 73.8  
## 14 38.7 1.03 84.8 91.2 84.6 65.0  
## 15 43.2 0.90 80.6 86.2 84.5 73.2  
## 16 42.9 0.97 77.8 84.9 79.5 63.0  
## 17 50.0 0.59 76.8 91.6 73.4 30.4  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 66.7 0.0 100.0 66.7 0.000  
## 2 64.3 44.0 48.0 36.8 0.000  
## 3 25.0 72.7 27.3 0.0 0.000  
## 4 55.9 44.7 42.6 52.2 0.000  
## 5 40.0 18.2 72.7 42.1 0.000  
## 6 100.0 22.2 66.7 100.0 0.303  
## 7 50.0 43.9 26.8 42.9 0.000  
## 8 45.0 51.5 37.9 40.0 0.000  
## 9 58.3 40.2 42.1 65.1 0.000  
## 10 36.8 48.6 31.4 36.7 0.000  
## 11 56.3 59.2 36.7 44.4 0.000  
## 12 37.5 33.3 50.0 40.0 0.000  
## 13 47.9 41.2 47.1 52.5 0.000  
## 14 32.4 43.0 43.0 41.2 0.000  
## 15 66.7 38.1 47.6 45.6 0.000  
## 16 57.1 44.4 44.4 60.0 0.000  
## 17 75.0 45.5 36.4 12.5 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0 0.000 0.208 0.417 0.833  
## 2 0 0.000 0.167 0.500 2.833  
## 3 0 0.000 0.000 0.870 4.783  
## 4 0 0.000 0.219 1.095 3.431  
## 5 0 0.000 0.278 2.778 1.111  
## 6 0 0.000 0.000 2.424 3.636  
## 7 0 0.000 0.536 0.536 7.768  
## 8 0 0.000 0.169 0.847 12.316  
## 9 0 0.000 0.088 0.837 3.656  
## 10 0 0.000 0.423 1.972 2.042  
## 11 0 0.000 0.000 1.410 6.538  
## 12 0 0.000 0.351 1.754 1.579  
## 13 0 0.000 0.241 1.566 0.843  
## 14 0 0.000 0.171 0.684 6.496  
## 15 0 0.047 0.095 1.374 1.374  
## 16 0 0.000 0.161 1.935 2.258  
## 17 0 0.000 0.294 2.059 2.353  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 108.750 45.833 1.042 0.000  
## 2 246.500 105.500 1.833 0.167  
## 3 324.348 147.826 2.609 2.174  
## 4 189.562 102.847 1.752 1.314  
## 5 90.833 33.333 0.556 0.278  
## 6 170.000 90.303 0.909 1.818  
## 7 359.375 185.714 4.107 4.464  
## 8 425.706 275.932 3.446 8.305  
## 9 220.396 101.101 1.850 2.070  
## 10 150.775 74.718 1.690 0.423  
## 11 268.974 153.205 2.564 4.487  
## 12 139.825 56.316 0.877 0.351  
## 13 122.289 66.627 0.783 0.120  
## 14 303.932 187.265 3.077 3.248  
## 15 105.261 48.910 1.043 0.190  
## 16 157.258 79.194 1.129 0.484  
## 17 205.000 107.941 1.176 0.000  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.062 1.042 1.458 0.000 0.000  
## 2 0.017 0.000 1.167 0.000 0.000  
## 3 0.130 1.739 3.478 0.000 0.435  
## 4 0.102 1.241 2.482 0.292 0.146  
## 5 0.028 1.389 1.111 0.278 1.389  
## 6 0.242 1.515 2.121 0.000 0.303  
## 7 0.250 2.321 4.107 0.089 0.179  
## 8 0.333 2.542 4.633 0.960 0.339  
## 9 0.207 1.630 2.819 0.308 0.441  
## 10 0.077 1.620 2.606 0.423 0.282  
## 11 0.141 2.564 3.462 1.154 0.513  
## 12 0.070 1.053 1.930 0.351 0.000  
## 13 0.078 0.602 1.988 0.000 0.120  
## 14 0.171 1.709 2.906 0.684 0.171  
## 15 0.024 0.521 0.853 0.047 0.190  
## 16 0.161 1.129 1.290 0.323 0.161  
## 17 0.118 1.176 1.471 0.000 0.000  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.417 0.000 5.417 870.000  
## 2 0.333 0.000 3.667 636.000  
## 3 0.000 0.000 6.957 786.522  
## 4 0.073 0.219 2.555 433.650  
## 5 0.278 0.278 1.944 193.889  
## 6 0.909 0.000 4.545 596.667  
## 7 0.446 0.000 4.464 627.857  
## 8 0.282 0.000 3.220 547.966  
## 9 0.396 0.044 4.053 383.524  
## 10 0.000 0.000 3.944 513.732  
## 11 0.000 0.256 4.872 413.205  
## 12 0.175 0.351 3.684 423.509  
## 13 0.000 0.000 5.482 656.265  
## 14 0.513 0.000 4.444 471.026  
## 15 0.047 0.095 3.033 373.318  
## 16 0.323 0.161 3.871 507.258  
## 17 0.000 0.000 4.118 737.941  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 358.750 0.000 0.625 0.000 3.750  
## 2 244.167 0.000 2.500 0.000 8.167  
## 3 149.565 0.000 3.043 0.435 6.957  
## 4 141.825 0.146 1.679 0.365 5.036  
## 5 59.167 0.000 1.389 0.000 2.778  
## 6 127.576 0.909 0.303 0.303 4.848  
## 7 95.446 0.268 1.875 0.000 3.750  
## 8 86.893 0.113 1.921 0.395 4.237  
## 9 82.643 0.264 1.145 0.176 2.863  
## 10 133.662 0.211 1.268 0.000 5.986  
## 11 95.769 0.128 2.051 0.128 6.026  
## 12 128.947 0.175 0.702 0.351 6.491  
## 13 194.157 0.120 0.783 0.060 6.506  
## 14 109.487 0.171 0.513 0.171 4.615  
## 15 95.355 0.095 0.900 0.000 4.313  
## 16 145.000 0.161 1.129 0.000 5.806  
## 17 254.118 0.588 1.471 0.000 4.706  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.000 0.000 0.000 0.417 0.208 0.625  
## 2 0.333 0.000 1.000 1.667 0.167 1.167  
## 3 0.000 0.000 3.913 3.043 0.435 1.304  
## 4 0.073 0.000 1.679 0.876 0.292 1.241  
## 5 0.000 0.000 4.167 2.778 1.667 2.500  
## 6 0.303 0.000 2.121 1.515 0.606 3.030  
## 7 0.089 0.000 1.696 1.964 0.179 3.661  
## 8 0.000 0.000 2.938 2.090 0.282 1.864  
## 9 0.220 0.000 3.656 2.775 0.485 2.643  
## 10 0.141 0.070 1.549 1.972 0.000 1.620  
## 11 0.000 0.000 3.077 1.282 0.513 0.769  
## 12 0.000 0.000 1.930 1.053 0.000 1.579  
## 13 0.241 0.000 1.265 0.422 0.120 0.964  
## 14 0.342 0.000 2.137 1.197 0.256 1.624  
## 15 0.142 0.000 1.374 1.090 0.284 0.995  
## 16 0.000 0.000 1.290 1.613 1.129 1.290  
## 17 0.294 0.294 1.471 1.176 0.000 2.059  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 1.042 0.625  
## 2 0.000 0 0.333 0.167  
## 3 0.000 0 1.304 0.000  
## 4 0.000 0 1.314 0.219  
## 5 0.000 0 1.111 0.556  
## 6 0.606 0 0.000 0.000  
## 7 0.000 0 1.161 0.179  
## 8 0.113 0 0.791 0.000  
## 9 0.088 0 0.661 0.088  
## 10 0.000 0 1.620 0.493  
## 11 0.000 0 2.308 0.000  
## 12 0.000 0 1.053 0.175  
## 13 0.000 0 1.867 0.301  
## 14 0.171 0 0.940 0.000  
## 15 0.000 0 1.611 0.569  
## 16 0.000 0 0.806 0.000  
## 17 0.000 0 0.882 0.000  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.417 0.625 1.250 1.458 66.66667  
## 2 0.167 0.833 2.667 2.333 63.63636  
## 3 1.304 1.304 1.739 1.739 0.00000  
## 4 1.095 1.606 4.891 2.555 60.00000  
## 5 0.556 0.278 1.944 1.667 66.66667  
## 6 0.000 0.606 1.515 0.606 66.66667  
## 7 0.982 0.536 1.696 0.446 61.53846  
## 8 0.791 0.508 2.712 0.282 56.41026  
## 9 0.573 0.485 1.850 1.233 45.16129  
## 10 1.127 1.338 4.085 0.775 69.23077  
## 11 2.308 1.026 3.974 0.513 52.17391  
## 12 0.877 1.053 4.912 0.526 63.63636  
## 13 1.566 1.084 4.880 1.446 53.96825  
## 14 0.940 0.342 1.709 1.197 62.50000  
## 15 1.043 0.664 2.986 2.559 51.02041  
## 16 0.806 1.774 4.839 1.290 73.68421  
## 17 0.882 1.176 4.412 0.882 45.45455  
##   
## [[16]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 7 0.24 0.15 0.33 -1.8 0.10 1 0.03 2.9 -1.9  
## 2 16 0.64 0.22 0.44 0.4 0.15 2 0.08 3.7 -1.7  
## 3 1 0.20 0.17 0.25 -0.2 0.05 0 0.00 0.2 -0.2  
## 4 1 0.15 0.04 0.11 -1.6 0.17 0 0.00 1.1 -1.1  
## 5 5 0.41 0.15 0.31 -0.3 0.12 1 0.08 1.5 -0.5  
## 6 0 0.00 0.00 0.00 -0.3 0.13 0 0.00 0.5 -0.5  
## 7 0 0.00 0.00 0.00 -0.3 0.08 0 0.00 0.2 -0.2  
## 8 7 0.64 0.21 0.39 -0.2 0.05 1 0.09 0.6 0.4  
## 9 4 0.20 0.10 0.44 -1.5 0.14 1 0.05 2.8 -1.8  
## 10 2 0.57 0.22 0.40 0.4 0.23 0 0.00 0.8 -0.8  
## 11 6 0.19 0.09 0.23 -1.5 0.09 4 0.13 2.8 1.2  
## 12 14 0.70 0.29 0.54 2.1 0.10 1 0.05 2.1 -1.1  
## 13 5 0.27 0.12 0.31 -0.3 0.09 1 0.05 1.7 -0.7  
## 14 4 0.41 0.21 0.40 -0.5 0.19 1 0.10 1.8 -0.8  
## 15 0 0.00 0.00 0.00 -1.4 0.31 1 0.15 2.1 -1.1  
## 16 5 0.21 0.07 0.18 -6.4 0.13 2 0.08 3.1 -1.1  
## 17 17 0.46 0.16 0.49 -0.2 0.08 3 0.08 3.0 0.0  
## 18 5 0.42 0.13 0.42 0.5 0.07 2 0.17 0.8 1.2  
## 19 10 0.63 0.32 0.71 4.1 0.04 0 0.00 0.7 -0.7  
## 20 20 0.71 0.18 0.40 -2.9 0.15 5 0.18 4.3 0.7  
## 21 6 0.40 0.18 0.30 1.4 0.04 0 0.00 0.5 -0.5  
## 22 11 0.47 0.25 0.65 4.1 0.13 3 0.13 3.0 0.0  
## 23 4 0.25 0.08 0.19 -2.0 0.09 2 0.12 1.5 0.5  
## 24 16 0.48 0.19 0.43 4.4 0.16 6 0.18 5.5 0.5  
## 25 14 0.55 0.32 0.56 4.6 0.12 5 0.20 3.1 1.9  
## 26 5 0.95 0.25 0.71 3.0 0.06 0 0.00 0.3 -0.3  
## 27 7 0.33 0.13 0.35 0.8 0.09 1 0.05 1.9 -0.9  
## 28 12 0.41 0.18 0.44 0.4 0.15 7 0.24 4.4 2.6  
## 29 5 0.24 0.15 0.31 0.5 0.09 3 0.14 1.9 1.1  
## 30 6 0.32 0.20 0.43 0.2 0.05 2 0.11 0.9 1.1  
## 31 6 0.41 0.16 0.43 0.3 0.16 3 0.20 2.3 0.7  
## 32 14 0.45 0.18 0.37 -4.6 0.14 5 0.16 4.3 0.7  
## 33 7 0.41 0.14 0.37 0.8 0.07 0 0.00 1.2 -1.2  
## 34 4 0.28 0.13 0.27 -1.3 0.14 3 0.21 2.0 1.0  
## 35 19 0.53 0.18 0.40 2.2 0.21 13 0.36 7.3 5.7  
## 36 10 0.42 0.26 0.50 2.4 0.07 2 0.08 1.6 0.4  
## 37 7 0.45 0.17 0.41 1.8 0.10 0 0.00 1.5 -1.5  
## 38 11 0.66 0.18 0.44 1.4 0.13 4 0.24 2.1 1.9  
## 39 9 0.51 0.12 0.35 0.3 0.12 1 0.06 2.0 -1.0  
## 40 4 0.18 0.13 0.57 1.3 0.02 0 0.00 0.5 -0.5  
## 41 6 0.52 0.27 0.55 1.3 0.15 3 0.26 1.7 1.3  
## 42 0 0.00 0.00 0.00 -1.6 0.01 0 0.00 0.1 -0.1  
## 43 12 0.43 0.18 0.50 1.4 0.14 3 0.11 3.9 -0.9  
## 44 4 0.18 0.08 0.19 -1.0 0.07 1 0.05 1.4 -0.4  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 44.7 0.72 76.5 84.1 83.0 47.5  
## 2 50.0 1.44 78.1 84.6 82.4 68.2  
## 3 66.7 0.80 78.4 87.5 75.8 50.0  
## 4 36.0 1.36 67.1 82.6 68.5 28.6  
## 5 47.1 1.30 75.5 85.2 76.3 70.6  
## 6 100.0 0.23 77.5 89.5 82.6 100.0  
## 7 0.0 0.00 77.0 86.2 77.3 100.0  
## 8 54.5 1.63 64.4 78.3 61.0 42.9  
## 9 21.4 0.44 80.1 82.6 92.8 55.6  
## 10 55.6 1.43 74.2 82.4 66.7 100.0  
## 11 39.4 0.82 64.4 74.7 63.2 52.9  
## 12 54.2 1.29 64.2 68.5 64.8 63.6  
## 13 39.0 0.85 82.1 87.1 85.8 50.0  
## 14 52.6 1.02 67.6 71.3 73.5 83.3  
## 15 14.3 0.30 63.9 72.0 59.4 69.2  
## 16 39.4 1.16 56.4 64.6 49.5 50.0  
## 17 33.0 0.95 73.5 83.2 73.2 61.1  
## 18 31.6 1.00 78.1 83.1 83.3 75.0  
## 19 45.2 0.89 70.6 77.0 68.3 50.0  
## 20 44.2 1.76 76.0 81.4 80.0 62.5  
## 21 60.6 1.32 80.5 86.7 85.7 73.3  
## 22 38.6 0.72 77.0 82.1 80.9 61.9  
## 23 41.2 1.30 53.5 61.6 54.4 48.4  
## 24 44.0 1.10 68.9 83.3 75.0 47.9  
## 25 56.8 0.99 71.4 79.6 67.0 92.9  
## 26 35.0 1.33 68.6 73.9 82.8 60.0  
## 27 35.7 0.94 68.4 75.8 75.9 56.3  
## 28 39.7 0.92 80.0 86.2 79.6 46.7  
## 29 47.1 0.76 67.7 73.5 73.4 70.0  
## 30 46.7 0.74 58.4 72.1 53.3 50.0  
## 31 37.8 0.95 71.9 82.7 68.0 71.9  
## 32 47.5 1.22 77.3 83.7 76.8 74.1  
## 33 37.3 1.10 71.1 79.2 76.3 63.6  
## 34 48.4 1.05 59.3 63.7 58.8 57.1  
## 35 43.9 1.31 75.4 80.7 75.6 47.4  
## 36 52.6 0.83 75.6 80.6 75.3 91.7  
## 37 41.5 1.10 68.6 80.6 60.0 51.5  
## 38 40.3 1.51 68.1 79.3 71.4 66.7  
## 39 35.6 1.47 61.3 65.5 60.9 75.0  
## 40 22.6 0.32 77.8 88.3 78.8 59.3  
## 41 50.0 0.95 72.6 79.3 72.3 60.0  
## 42 38.1 0.92 52.7 58.9 40.0 40.0  
## 43 35.8 0.87 70.8 79.4 67.7 55.2  
## 44 43.8 0.97 79.2 81.5 87.6 68.6  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 39.1 52.1 43.8 37.5 0.000  
## 2 25.0 56.8 37.8 20.4 0.000  
## 3 100.0 33.3 33.3 30.8 0.000  
## 4 25.0 38.1 52.4 37.5 0.000  
## 5 40.0 35.7 60.7 23.3 0.000  
## 6 0.0 22.7 68.2 10.0 0.000  
## 7 50.0 28.6 42.9 33.3 0.000  
## 8 0.0 43.8 46.9 36.0 0.000  
## 9 44.4 49.2 47.5 14.3 0.000  
## 10 0.0 25.0 75.0 26.7 0.000  
## 11 60.0 56.4 36.4 44.0 0.000  
## 12 33.3 35.3 52.9 42.9 0.000  
## 13 58.8 29.6 59.3 42.1 0.000  
## 14 50.0 36.6 53.7 28.3 0.000  
## 15 0.0 37.5 50.0 39.3 0.000  
## 16 13.3 32.6 60.5 48.8 0.000  
## 17 34.5 36.8 56.6 41.8 0.000  
## 18 28.6 26.7 50.0 46.0 0.000  
## 19 8.3 26.9 68.7 50.0 0.000  
## 20 66.7 40.0 53.3 48.1 0.000  
## 21 35.7 43.8 37.5 41.9 0.000  
## 22 37.5 52.2 43.5 13.7 0.000  
## 23 42.9 43.5 43.5 47.0 0.000  
## 24 37.1 35.1 56.7 32.0 0.000  
## 25 60.0 38.5 55.4 42.4 0.000  
## 26 16.7 40.0 60.0 62.5 0.000  
## 27 26.7 35.8 61.2 35.3 0.000  
## 28 35.9 38.1 45.2 50.2 0.000  
## 29 35.3 48.7 46.2 32.1 0.047  
## 30 27.3 46.8 41.9 38.4 0.000  
## 31 23.1 27.3 60.6 25.5 0.000  
## 32 20.8 51.4 34.3 35.7 0.000  
## 33 21.1 38.0 48.0 35.7 0.000  
## 34 41.7 35.3 58.8 49.3 0.141  
## 35 45.5 41.3 49.2 38.0 0.000  
## 36 38.5 47.4 47.4 27.8 0.000  
## 37 35.0 41.7 50.0 42.7 0.065  
## 38 20.0 27.0 62.2 30.5 0.000  
## 39 16.7 25.0 65.0 40.4 0.000  
## 40 45.5 34.7 44.4 29.0 0.000  
## 41 50.0 50.0 43.8 30.4 0.000  
## 42 50.0 17.6 70.6 25.5 0.000  
## 43 25.0 38.5 44.2 44.7 0.000  
## 44 28.0 33.0 53.4 21.1 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.034 0.240 1.815 1.884  
## 2 0.000 0.000 0.040 0.558 2.709  
## 3 0.000 0.000 0.000 0.600 1.200  
## 4 0.000 0.000 0.000 1.061 3.636  
## 5 0.000 0.000 0.244 0.894 1.870  
## 6 0.000 0.000 0.000 2.326 1.628  
## 7 0.000 0.000 0.000 0.385 3.077  
## 8 0.000 0.000 0.273 1.455 1.000  
## 9 0.000 0.000 0.049 0.686 1.618  
## 10 0.000 0.000 0.571 1.143 0.857  
## 11 0.000 0.000 0.126 1.541 1.164  
## 12 0.000 0.050 0.000 1.095 0.796  
## 13 0.000 0.000 0.213 0.638 1.702  
## 14 0.000 0.000 0.102 1.735 2.143  
## 15 0.000 0.000 0.149 2.090 2.836  
## 16 0.000 0.000 0.083 1.286 1.494  
## 17 0.000 0.000 0.081 1.138 1.409  
## 18 0.000 0.000 0.250 2.000 1.833  
## 19 0.000 0.000 0.063 1.709 1.013  
## 20 0.000 0.000 0.035 0.634 1.232  
## 21 0.000 0.000 0.066 1.579 0.855  
## 22 0.000 0.043 0.255 1.319 1.574  
## 23 0.000 0.000 0.311 1.491 1.429  
## 24 0.000 0.000 0.060 0.836 2.687  
## 25 0.000 0.000 0.118 1.378 1.142  
## 26 0.000 0.000 0.943 2.264 1.698  
## 27 0.000 0.000 0.235 2.441 3.052  
## 28 0.000 0.000 0.375 1.672 1.877  
## 29 0.000 0.000 0.000 1.137 2.607  
## 30 0.000 0.000 0.319 1.330 2.553  
## 31 0.000 0.000 0.544 1.293 1.429  
## 32 0.000 0.000 0.322 0.900 2.251  
## 33 0.000 0.000 0.231 1.792 1.908  
## 34 0.141 0.000 0.493 1.338 0.423  
## 35 0.000 0.000 0.112 0.616 1.737  
## 36 0.000 0.042 0.083 0.833 1.500  
## 37 0.000 0.000 0.194 1.097 0.710  
## 38 0.000 0.000 0.181 1.205 1.566  
## 39 0.000 0.000 0.056 1.356 0.452  
## 40 0.000 0.000 0.182 0.955 2.591  
## 41 0.000 0.000 0.172 0.776 0.690  
## 42 0.000 0.000 0.460 1.724 0.805  
## 43 0.000 0.000 0.253 1.372 1.625  
## 44 0.000 0.000 0.092 1.014 2.903  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 112.740 57.945 1.267 0.582  
## 2 121.594 64.263 1.235 1.514  
## 3 88.800 33.600 1.200 0.200  
## 4 179.091 90.758 2.273 1.667  
## 5 117.154 53.821 1.220 1.545  
## 6 107.442 40.465 1.163 0.698  
## 7 143.077 78.846 1.538 1.154  
## 8 92.727 29.273 0.727 1.182  
## 9 107.157 48.235 1.422 1.078  
## 10 92.000 26.000 1.143 0.571  
## 11 89.780 36.226 1.006 0.566  
## 12 47.214 23.731 0.498 0.348  
## 13 106.968 46.649 0.851 0.691  
## 14 125.102 53.776 0.918 1.122  
## 15 136.418 61.045 1.343 1.343  
## 16 85.809 32.946 0.871 0.913  
## 17 106.260 38.482 0.650 0.732  
## 18 99.583 41.417 1.000 0.917  
## 19 95.949 26.899 0.949 0.823  
## 20 57.324 25.634 0.458 0.775  
## 21 85.461 27.237 0.592 0.329  
## 22 110.043 42.511 0.894 1.021  
## 23 101.429 50.248 1.056 0.807  
## 24 145.045 63.910 1.194 1.463  
## 25 82.835 29.134 0.591 0.551  
## 26 95.849 38.868 0.943 0.943  
## 27 137.559 77.183 1.737 1.643  
## 28 105.017 52.287 1.229 0.785  
## 29 116.777 60.569 1.469 1.706  
## 30 123.404 57.660 0.904 1.011  
## 31 96.667 38.844 1.565 0.816  
## 32 147.235 68.232 1.415 1.029  
## 33 101.850 50.694 1.040 1.445  
## 34 65.000 21.479 0.775 0.282  
## 35 86.415 41.036 1.036 1.148  
## 36 87.500 45.875 1.083 0.625  
## 37 90.774 29.226 0.903 0.323  
## 38 99.759 42.892 0.663 1.024  
## 39 44.520 14.576 0.226 0.226  
## 40 161.773 85.455 2.136 0.409  
## 41 64.483 27.586 0.517 0.517  
## 42 69.655 25.747 0.920 0.345  
## 43 96.245 50.072 1.191 0.722  
## 44 148.802 76.221 1.382 0.922  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.051 1.164 2.021 0.000 0.205  
## 2 0.112 1.076 1.793 0.478 0.438  
## 3 0.040 1.200 1.800 0.000 0.200  
## 4 0.061 0.909 1.364 0.152 0.758  
## 5 0.089 0.650 1.707 0.325 0.163  
## 6 0.116 0.930 1.395 0.000 0.000  
## 7 0.000 0.385 1.154 0.769 0.385  
## 8 0.055 0.727 1.091 0.364 0.455  
## 9 0.069 1.127 1.569 0.441 0.245  
## 10 0.029 1.429 2.286 0.286 0.000  
## 11 0.050 0.692 1.541 0.157 0.314  
## 12 0.055 1.095 1.642 0.199 0.348  
## 13 0.074 1.170 2.766 0.160 0.585  
## 14 0.031 0.816 0.816 0.408 0.408  
## 15 0.119 1.045 1.642 0.299 0.149  
## 16 0.066 0.788 1.535 0.166 0.290  
## 17 0.054 1.057 1.653 0.163 0.136  
## 18 0.058 0.750 1.417 0.250 0.417  
## 19 0.025 0.886 1.203 0.316 0.316  
## 20 0.077 1.021 1.373 0.106 0.352  
## 21 0.053 0.395 0.987 0.132 0.066  
## 22 0.123 0.723 1.234 0.340 0.255  
## 23 0.087 0.745 1.366 0.248 0.248  
## 24 0.143 0.925 1.642 0.179 0.149  
## 25 0.051 1.260 1.890 0.197 0.236  
## 26 0.038 0.755 1.509 0.189 0.189  
## 27 0.075 0.986 1.737 0.423 0.282  
## 28 0.147 1.570 2.969 0.102 0.273  
## 29 0.062 0.900 1.659 0.095 0.142  
## 30 0.069 0.426 0.957 0.266 0.160  
## 31 0.150 1.020 2.109 0.136 0.408  
## 32 0.093 1.222 1.929 0.579 0.257  
## 33 0.064 1.040 1.676 0.405 0.405  
## 34 0.141 0.845 1.690 0.000 0.141  
## 35 0.118 1.261 1.961 0.196 0.504  
## 36 0.038 1.167 1.792 0.208 0.167  
## 37 0.065 0.710 0.968 0.258 0.387  
## 38 0.084 0.904 1.386 0.181 0.301  
## 39 0.051 1.017 1.186 0.169 0.508  
## 40 0.064 0.455 1.409 0.136 0.091  
## 41 0.078 0.862 1.897 0.172 0.000  
## 42 0.023 0.115 0.345 0.115 0.575  
## 43 0.072 1.083 1.552 0.144 0.253  
## 44 0.060 0.737 1.382 0.230 0.323  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.034 0.034 3.322 335.856  
## 2 0.159 0.000 2.829 216.972  
## 3 0.200 0.000 2.400 253.400  
## 4 0.303 0.152 1.364 215.152  
## 5 0.244 0.081 3.008 230.325  
## 6 0.000 0.000 2.093 180.233  
## 7 0.385 0.000 0.385 258.077  
## 8 0.091 0.000 0.818 115.091  
## 9 0.049 0.098 0.735 159.069  
## 10 0.000 0.000 0.857 167.714  
## 11 0.189 0.031 1.761 201.384  
## 12 0.000 0.000 1.493 169.900  
## 13 0.266 0.000 2.340 257.819  
## 14 0.102 0.102 1.531 160.612  
## 15 0.149 0.000 2.090 202.537  
## 16 0.166 0.083 1.286 121.037  
## 17 0.108 0.081 1.626 136.206  
## 18 0.250 0.000 1.667 194.333  
## 19 0.127 0.000 1.456 116.899  
## 20 0.211 0.035 0.915 113.873  
## 21 0.197 0.066 0.987 199.211  
## 22 0.170 0.043 1.574 240.894  
## 23 0.248 0.000 2.484 184.596  
## 24 0.179 0.060 1.552 205.940  
## 25 0.157 0.079 0.984 159.173  
## 26 0.189 0.189 1.698 206.604  
## 27 0.188 0.141 2.347 206.244  
## 28 0.205 0.068 3.379 327.065  
## 29 0.047 0.000 1.754 211.896  
## 30 0.213 0.106 1.170 140.160  
## 31 0.000 0.068 2.517 272.245  
## 32 0.193 0.064 2.154 209.904  
## 33 0.058 0.058 2.081 179.538  
## 34 0.211 0.000 2.113 205.423  
## 35 0.112 0.028 1.541 163.305  
## 36 0.125 0.125 1.375 148.000  
## 37 0.065 0.065 1.548 219.871  
## 38 0.120 0.060 2.289 226.566  
## 39 0.226 0.113 1.073 114.011  
## 40 0.500 0.091 3.273 303.591  
## 41 0.345 0.172 1.207 137.414  
## 42 0.345 0.000 0.230 68.046  
## 43 0.253 0.072 1.733 155.126  
## 44 0.230 0.138 2.258 287.051  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 79.760 0.034 0.993 0.034 4.932  
## 2 46.494 0.199 0.837 0.000 1.514  
## 3 52.600 0.000 0.600 0.000 1.800  
## 4 54.091 0.152 1.212 0.000 3.788  
## 5 58.537 0.000 0.650 0.163 3.171  
## 6 43.023 0.465 0.930 0.233 5.116  
## 7 55.000 0.000 0.769 0.000 4.231  
## 8 16.727 0.182 1.545 0.000 1.545  
## 9 23.088 0.098 0.735 0.098 3.039  
## 10 32.857 0.000 0.286 0.000 2.571  
## 11 37.704 0.000 1.038 0.000 2.233  
## 12 39.005 0.050 0.597 0.000 2.289  
## 13 38.830 0.213 1.170 0.000 2.234  
## 14 35.000 0.102 0.816 0.102 2.245  
## 15 48.806 0.448 1.493 0.149 2.388  
## 16 26.846 0.041 0.622 0.000 1.909  
## 17 37.588 0.027 0.813 0.081 2.629  
## 18 22.250 0.250 0.833 0.000 2.000  
## 19 24.367 0.063 0.316 0.000 2.152  
## 20 19.965 0.070 0.599 0.000 1.655  
## 21 22.961 0.066 0.855 0.000 1.645  
## 22 43.745 0.128 0.979 0.085 3.191  
## 23 73.789 0.311 1.366 0.311 3.478  
## 24 54.478 0.149 1.552 0.090 3.522  
## 25 30.906 0.039 0.551 0.157 3.189  
## 26 41.509 0.000 1.887 0.000 2.830  
## 27 56.009 0.000 0.892 0.094 4.131  
## 28 82.082 0.068 0.546 0.034 4.164  
## 29 39.573 0.142 0.758 0.000 2.417  
## 30 33.298 0.160 1.170 0.106 2.926  
## 31 62.109 0.340 1.905 0.136 4.082  
## 32 49.421 0.354 0.804 0.000 3.151  
## 33 40.694 0.231 1.156 0.058 2.197  
## 34 52.535 0.070 0.986 0.070 2.887  
## 35 26.106 0.140 0.476 0.000 1.793  
## 36 36.833 0.042 0.667 0.042 2.500  
## 37 46.258 0.258 0.839 0.129 2.774  
## 38 57.590 0.120 1.506 0.060 2.530  
## 39 30.056 0.056 0.226 0.000 1.921  
## 40 74.682 0.227 0.955 0.364 4.727  
## 41 26.897 0.172 0.259 0.000 2.845  
## 42 10.115 0.000 0.115 0.115 1.379  
## 43 40.975 0.108 0.686 0.144 3.574  
## 44 53.134 0.323 0.876 0.000 3.641  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.034 0.000 2.089 1.438 0.719 0.274  
## 2 0.120 0.000 1.952 0.916 0.677 0.598  
## 3 0.400 0.000 2.800 2.000 0.600 1.200  
## 4 0.000 0.000 1.515 1.061 0.455 0.758  
## 5 0.000 0.000 1.870 1.301 0.894 1.545  
## 6 0.233 0.000 2.326 1.628 0.233 0.930  
## 7 0.385 0.000 1.538 0.769 0.385 2.692  
## 8 0.000 0.000 4.273 3.182 0.364 1.545  
## 9 0.000 0.000 2.990 2.206 0.637 0.980  
## 10 0.000 0.000 3.143 2.000 1.714 0.571  
## 11 0.409 0.000 1.698 1.667 0.283 1.352  
## 12 0.000 0.000 2.488 1.045 0.348 0.647  
## 13 0.213 0.053 2.447 1.117 0.479 1.117  
## 14 0.204 0.000 3.776 2.041 0.918 1.020  
## 15 0.000 0.000 2.388 1.493 0.746 1.194  
## 16 0.083 0.000 2.697 1.037 0.996 1.328  
## 17 0.027 0.000 3.686 2.195 0.434 1.220  
## 18 0.000 0.000 3.167 1.500 0.667 2.333  
## 19 0.063 0.000 3.924 2.152 0.823 1.013  
## 20 0.035 0.000 1.444 0.669 0.211 1.092  
## 21 0.132 0.000 2.632 2.039 0.329 1.645  
## 22 0.000 0.000 2.340 1.319 0.638 1.362  
## 23 0.497 0.000 3.665 1.056 0.435 1.801  
## 24 0.060 0.000 2.358 1.731 0.597 1.254  
## 25 0.000 0.000 3.504 3.071 0.945 0.866  
## 26 0.000 0.000 3.019 2.642 0.755 1.509  
## 27 0.188 0.000 2.347 1.408 0.235 1.315  
## 28 0.171 0.000 1.843 1.195 0.512 1.502  
## 29 0.095 0.000 3.270 1.564 0.664 0.521  
## 30 0.106 0.000 3.670 2.074 0.479 1.489  
## 31 0.136 0.000 1.905 1.633 0.272 1.769  
## 32 0.032 0.000 2.797 2.122 0.900 1.286  
## 33 0.173 0.000 3.179 1.503 0.520 1.272  
## 34 0.352 0.000 1.761 1.268 0.282 1.901  
## 35 0.056 0.000 2.185 1.597 0.448 1.148  
## 36 0.125 0.000 2.083 1.208 0.625 1.250  
## 37 0.065 0.000 2.839 2.065 0.774 1.355  
## 38 0.181 0.000 3.193 2.410 0.723 1.807  
## 39 0.056 0.000 3.051 1.921 0.226 1.921  
## 40 0.182 0.045 2.682 1.818 0.182 2.909  
## 41 0.172 0.000 3.276 0.948 1.121 1.379  
## 42 0.115 0.000 3.678 1.724 0.690 1.379  
## 43 0.036 0.000 2.094 0.722 0.722 1.841  
## 44 0.184 0.000 3.088 1.475 0.092 1.797  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 0.788 0.103  
## 2 0.040 0 0.637 0.040  
## 3 0.200 0 0.800 0.000  
## 4 0.000 0 0.606 0.000  
## 5 0.081 0 0.732 0.244  
## 6 0.000 0 0.930 0.233  
## 7 0.000 0 1.538 0.385  
## 8 0.000 0 0.545 0.000  
## 9 0.000 0 1.078 0.147  
## 10 0.000 0 1.143 0.000  
## 11 0.000 0 0.755 0.157  
## 12 0.000 0 0.547 0.149  
## 13 0.106 0 0.638 0.000  
## 14 0.000 0 0.918 0.306  
## 15 0.000 0 0.896 0.000  
## 16 0.000 0 0.581 0.166  
## 17 0.027 0 0.650 0.136  
## 18 0.167 0 0.917 0.000  
## 19 0.000 0 0.823 0.127  
## 20 0.070 0 0.387 0.035  
## 21 0.066 0 0.658 0.197  
## 22 0.043 0 0.809 0.043  
## 23 0.000 0 0.311 0.062  
## 24 0.000 0 1.104 0.149  
## 25 0.079 0 0.512 0.157  
## 26 0.189 0 1.132 0.000  
## 27 0.000 0 0.751 0.047  
## 28 0.034 0 0.887 0.034  
## 29 0.000 0 0.616 0.142  
## 30 0.000 0 0.851 0.160  
## 31 0.000 0 0.748 0.000  
## 32 0.000 0 0.643 0.161  
## 33 0.000 0 0.983 0.058  
## 34 0.070 0 1.268 0.141  
## 35 0.056 0 0.728 0.112  
## 36 0.000 0 0.375 0.042  
## 37 0.000 0 0.710 0.194  
## 38 0.000 0 1.928 0.361  
## 39 0.000 0 0.508 0.169  
## 40 0.000 0 1.364 0.273  
## 41 0.000 0 0.603 0.172  
## 42 0.000 0 0.345 0.115  
## 43 0.036 0 0.866 0.108  
## 44 0.046 0 1.060 0.461  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.685 0.514 1.986 0.651 62.79070  
## 2 0.598 0.239 0.438 0.518 0.00000  
## 3 0.800 0.000 0.800 0.600 25.00000  
## 4 0.606 0.455 1.364 0.000 66.66667  
## 5 0.488 0.244 0.976 0.976 44.44444  
## 6 0.698 0.233 1.163 0.233 50.00000  
## 7 1.154 0.000 1.538 0.000 25.00000  
## 8 0.545 0.182 0.636 0.364 60.00000  
## 9 0.931 0.049 0.931 0.539 72.22222  
## 10 1.143 0.000 0.857 0.286 66.66667  
## 11 0.597 0.031 0.503 1.667 53.33333  
## 12 0.398 0.050 0.398 1.294 57.14286  
## 13 0.638 0.479 2.340 0.904 48.57143  
## 14 0.612 0.102 1.122 0.204 50.00000  
## 15 0.896 0.299 1.194 0.597 66.66667  
## 16 0.415 0.166 0.705 1.577 46.15385  
## 17 0.515 0.190 0.813 1.165 47.82609  
## 18 0.917 0.333 1.333 0.333 58.33333  
## 19 0.696 0.380 0.633 1.582 25.00000  
## 20 0.352 0.070 0.282 0.563 50.00000  
## 21 0.461 0.132 1.053 0.526 42.85714  
## 22 0.766 0.426 1.277 0.383 50.00000  
## 23 0.248 0.621 1.553 1.118 33.33333  
## 24 0.955 0.567 1.821 0.418 66.66667  
## 25 0.354 0.157 1.024 0.551 68.18182  
## 26 1.132 0.189 1.321 1.887 83.33333  
## 27 0.704 0.376 1.690 0.516 50.00000  
## 28 0.853 0.683 1.877 0.751 42.85714  
## 29 0.474 0.142 1.043 1.611 52.63158  
## 30 0.691 0.213 1.011 0.213 53.33333  
## 31 0.748 0.136 0.816 0.204 70.00000  
## 32 0.482 0.129 0.804 0.547 61.90476  
## 33 0.925 0.347 1.734 1.098 50.00000  
## 34 1.127 0.352 1.549 1.972 41.17647  
## 35 0.616 0.112 0.448 0.560 58.33333  
## 36 0.333 0.042 0.500 0.792 63.63636  
## 37 0.516 0.258 1.419 0.839 66.66667  
## 38 1.566 0.482 1.446 1.386 68.75000  
## 39 0.339 0.339 0.734 1.130 42.85714  
## 40 1.091 0.364 2.000 0.500 61.11111  
## 41 0.431 0.086 0.862 0.776 77.77778  
## 42 0.230 0.230 0.460 1.034 100.00000  
## 43 0.758 0.325 1.336 0.542 57.14286  
## 44 0.599 0.415 1.659 0.461 66.66667  
##   
## [[17]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.8 0.18 1 0.11 1.7 -0.7  
## 2 7 0.25 0.07 0.26 -1.3 0.18 4 0.14 5.1 -1.1  
## 3 5 0.21 0.10 0.28 -0.3 0.19 2 0.08 4.7 -2.7  
## 4 1 0.23 0.10 0.25 0.5 0.24 1 0.23 1.1 -0.1  
## 5 1 0.18 0.13 0.25 0.7 0.07 0 0.00 0.4 -0.4  
## 6 8 0.34 0.11 0.27 3.4 0.14 2 0.09 3.2 -1.2  
## 7 6 0.21 0.18 0.40 2.3 0.27 9 0.31 7.6 1.4  
## 8 6 0.17 0.07 0.17 -0.1 0.34 8 0.23 11.8 -3.8  
## 9 6 0.28 0.12 0.38 -1.4 0.21 6 0.28 4.6 1.4  
## 10 10 0.31 0.10 0.32 -0.8 0.32 9 0.28 10.5 -1.5  
## 11 1 0.40 0.33 0.50 0.8 0.13 1 0.40 0.3 0.7  
## 12 13 0.45 0.13 0.35 1.9 0.38 11 0.38 11.1 -0.1  
## 13 8 0.26 0.14 0.35 3.3 0.25 3 0.10 7.7 -4.7  
## 14 3 0.09 0.05 0.21 -0.4 0.27 6 0.19 8.8 -2.8  
## 15 6 0.27 0.10 0.30 -0.8 0.27 4 0.18 6.1 -2.1  
## 16 0 0.00 0.00 0.00 -0.3 0.18 1 0.38 0.5 0.5  
## 17 4 0.22 0.10 0.31 0.6 0.19 6 0.33 3.5 2.5  
## 18 3 0.20 0.06 0.19 0.3 0.23 6 0.40 3.5 2.5  
## 19 3 0.23 0.10 0.30 0.9 0.37 7 0.53 5.0 2.0  
## 20 0 0.00 0.00 0.00 0.0 0.00 0 0.00 0.0 0.0  
## 21 1 0.08 0.07 0.17 -0.9 0.20 3 0.23 2.7 0.3  
## 22 6 0.18 0.15 0.43 1.0 0.14 4 0.12 4.6 -0.6  
## 23 9 0.31 0.09 0.24 -2.5 0.22 8 0.27 6.4 1.6  
## 24 0 0.00 0.00 0.00 -1.4 0.32 2 0.38 1.7 0.3  
## 25 3 0.18 0.09 0.20 -0.5 0.16 4 0.24 2.7 1.3  
## 26 12 0.65 0.20 0.55 4.1 0.15 1 0.05 2.8 -1.8  
## 27 2 0.07 0.05 0.25 -1.8 0.18 6 0.21 5.4 0.6  
## 28 3 0.13 0.06 0.19 -0.9 0.22 4 0.17 5.2 -1.2  
## 29 4 0.11 0.06 0.31 -2.1 0.24 10 0.29 8.4 1.6  
## 30 1 0.30 0.25 1.00 -0.4 0.37 1 0.30 1.2 -0.2  
## 31 0 0.00 0.00 0.00 -0.3 0.07 0 0.00 0.3 -0.3  
## 32 2 0.10 0.05 0.13 -1.9 0.30 7 0.36 5.9 1.1  
## 33 19 0.60 0.18 0.40 8.7 0.26 8 0.25 8.4 -0.4  
## 34 6 0.24 0.12 0.27 1.7 0.15 1 0.04 3.7 -2.7  
## 35 0 0.00 0.00 0.00 -0.4 0.12 3 0.30 1.2 1.8  
## 36 2 0.22 0.07 0.29 -1.7 0.30 3 0.33 2.7 0.3  
## 37 2 0.09 0.05 0.13 -1.6 0.17 2 0.09 3.9 -1.9  
## 38 2 0.11 0.14 0.40 0.7 0.14 6 0.33 2.6 3.4  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 18.2 0.21 88.6 92.6 86.7 87.5  
## 2 27.0 0.95 74.9 83.4 81.1 54.0  
## 3 35.3 0.74 78.1 88.7 80.6 55.9  
## 4 40.0 0.92 87.6 91.3 86.5 80.0  
## 5 50.0 0.71 76.6 84.8 84.2 52.9  
## 6 42.9 1.28 69.9 78.4 74.8 51.0  
## 7 44.1 0.52 86.3 94.4 86.1 67.1  
## 8 38.9 1.01 73.0 87.4 76.2 53.0  
## 9 32.0 0.73 66.8 80.2 65.5 52.7  
## 10 30.4 0.96 75.6 88.9 77.5 43.7  
## 11 66.7 0.79 85.8 93.2 83.9 80.0  
## 12 37.0 1.28 79.2 90.3 85.0 54.3  
## 13 40.4 0.75 77.2 87.1 76.9 54.2  
## 14 24.6 0.44 69.0 87.1 70.9 46.0  
## 15 34.5 0.89 77.9 86.5 81.2 55.3  
## 16 40.0 0.77 84.3 93.2 88.9 53.8  
## 17 32.5 0.72 75.6 86.4 78.1 57.8  
## 18 32.7 1.07 83.7 92.1 86.1 62.9  
## 19 33.3 0.76 66.1 82.0 66.9 31.1  
## 20 0.0 0.00 77.0 88.1 87.0 38.5  
## 21 40.0 0.45 72.8 89.1 78.3 49.2  
## 22 35.0 0.42 79.5 88.8 85.7 59.9  
## 23 38.5 1.26 80.4 90.6 82.9 40.0  
## 24 28.6 1.52 74.2 86.5 70.7 75.0  
## 25 44.1 0.91 78.3 86.4 71.9 37.5  
## 26 36.7 1.20 73.4 86.0 75.1 51.7  
## 27 20.0 0.27 73.9 83.8 76.8 54.9  
## 28 30.2 0.68 71.5 85.0 78.7 42.3  
## 29 18.6 0.37 70.6 81.9 77.4 51.2  
## 30 25.0 0.30 87.6 94.4 86.3 100.0  
## 31 42.9 0.63 77.1 86.5 80.0 60.0  
## 32 36.4 0.83 70.1 85.9 74.1 43.5  
## 33 45.7 1.51 85.5 94.0 86.4 50.4  
## 34 42.3 0.89 75.5 83.9 75.5 52.6  
## 35 0.0 0.00 83.5 89.7 82.8 59.1  
## 36 24.1 0.78 76.8 86.2 78.3 50.0  
## 37 37.2 0.70 81.4 89.7 82.8 69.4  
## 38 35.7 0.28 83.1 91.5 85.6 63.0  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 0.0 23.1 69.2 37.5 0.00  
## 2 26.7 36.6 48.1 19.4 0.00  
## 3 48.0 51.4 44.4 24.0 0.00  
## 4 42.9 47.8 43.5 40.0 0.00  
## 5 23.1 25.0 66.7 11.1 0.00  
## 6 33.3 43.1 47.4 39.1 0.00  
## 7 43.9 62.3 34.4 18.2 0.00  
## 8 34.1 43.2 47.7 45.7 0.00  
## 9 26.3 33.3 53.8 34.3 0.00  
## 10 44.1 40.2 44.3 39.0 0.00  
## 11 33.3 16.7 83.3 25.0 0.00  
## 12 42.1 50.0 44.2 20.0 0.00  
## 13 37.3 41.9 51.2 31.8 0.00  
## 14 43.6 45.5 47.0 44.4 0.00  
## 15 40.6 35.1 53.5 36.6 0.00  
## 16 50.0 42.9 57.1 43.8 0.00  
## 17 39.3 44.1 47.1 45.5 0.00  
## 18 32.3 45.0 50.0 40.9 0.00  
## 19 46.2 48.1 48.1 28.6 0.00  
## 20 50.0 33.3 66.7 75.0 0.00  
## 21 43.8 31.3 43.8 40.0 0.00  
## 22 41.6 56.3 28.1 32.1 0.03  
## 23 25.0 47.6 52.4 14.3 0.00  
## 24 28.6 58.6 24.1 33.3 0.00  
## 25 26.3 41.5 46.8 50.0 0.00  
## 26 36.0 53.2 34.0 33.3 0.00  
## 27 48.1 53.2 37.7 50.0 0.00  
## 28 54.2 41.5 51.9 29.5 0.00  
## 29 42.4 38.3 47.8 46.9 0.00  
## 30 50.0 61.1 33.3 33.3 0.00  
## 31 31.3 50.0 41.7 33.3 0.00  
## 32 33.3 39.5 51.2 25.0 0.00  
## 33 41.9 46.1 45.1 26.1 0.00  
## 34 45.2 40.7 52.0 40.0 0.00  
## 35 59.1 31.6 42.1 30.8 0.00  
## 36 27.8 40.0 40.0 33.3 0.00  
## 37 14.3 46.0 39.7 37.5 0.00  
## 38 40.0 51.7 34.5 59.1 0.00  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0 0.000 0.213 0.851 0.957  
## 2 0 0.000 0.140 0.702 6.246  
## 3 0 0.000 0.082 0.492 4.467  
## 4 0 0.000 0.233 1.163 2.558  
## 5 0 0.000 0.714 3.036 1.429  
## 6 0 0.000 0.256 1.838 3.803  
## 7 0 0.000 0.280 0.769 4.895  
## 8 0 0.000 0.260 1.185 2.486  
## 9 0 0.000 0.092 1.009 3.394  
## 10 0 0.000 0.123 1.265 4.784  
## 11 0 0.000 0.800 1.200 1.600  
## 12 0 0.000 0.241 0.793 4.034  
## 13 0 0.033 0.228 1.759 4.919  
## 14 0 0.000 0.062 0.561 2.492  
## 15 0 0.000 0.045 1.027 5.670  
## 16 0 0.000 0.000 1.154 1.154  
## 17 0 0.000 0.333 1.167 2.278  
## 18 0 0.000 0.133 0.467 2.933  
## 19 0 0.000 0.076 0.530 2.500  
## 20 0 0.000 0.000 1.154 1.154  
## 21 0 0.000 0.152 0.682 0.985  
## 22 0 0.000 0.270 1.171 1.772  
## 23 0 0.000 0.068 0.782 2.177  
## 24 0 0.000 0.377 1.132 5.283  
## 25 0 0.000 0.242 0.848 7.333  
## 26 0 0.000 0.109 0.820 3.607  
## 27 0 0.000 0.344 1.615 1.168  
## 28 0 0.000 0.128 0.851 3.362  
## 29 0 0.000 0.256 1.054 2.279  
## 30 0 0.000 0.000 0.588 3.824  
## 31 0 0.000 0.000 0.638 0.851  
## 32 0 0.000 0.258 1.082 2.113  
## 33 0 0.032 0.063 0.442 2.934  
## 34 0 0.000 0.121 1.174 4.494  
## 35 0 0.098 0.294 1.078 3.824  
## 36 0 0.000 0.111 0.333 8.778  
## 37 0 0.000 0.044 0.395 4.035  
## 38 0 0.000 0.167 1.222 1.278  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 139.362 51.383 1.277 0.426  
## 2 281.228 147.754 2.912 3.579  
## 3 240.000 122.090 3.279 1.107  
## 4 240.698 82.558 2.791 0.930  
## 5 155.000 59.464 1.250 0.536  
## 6 220.342 105.855 2.179 1.795  
## 7 295.455 158.881 2.587 1.294  
## 8 177.890 98.497 1.763 0.665  
## 9 198.440 97.018 2.385 1.743  
## 10 221.605 115.062 2.099 2.222  
## 11 258.400 92.400 2.000 0.800  
## 12 249.517 120.414 2.276 1.586  
## 13 250.163 125.603 1.987 2.671  
## 14 182.087 80.467 1.931 0.436  
## 15 261.741 133.080 2.188 3.661  
## 16 125.769 38.846 0.769 0.769  
## 17 181.000 84.056 1.389 0.944  
## 18 263.067 116.867 3.333 0.600  
## 19 165.076 74.318 2.045 1.136  
## 20 93.462 30.385 0.000 0.769  
## 21 139.091 45.833 0.985 0.152  
## 22 155.586 71.622 1.351 0.300  
## 23 151.667 71.156 2.007 0.952  
## 24 245.094 158.302 3.774 1.321  
## 25 295.697 190.727 3.273 3.758  
## 26 199.508 94.645 2.350 1.475  
## 27 154.261 60.859 1.375 0.412  
## 28 212.553 102.596 3.489 1.064  
## 29 160.570 82.308 1.766 0.427  
## 30 197.353 116.176 1.471 1.471  
## 31 137.234 54.468 1.489 0.426  
## 32 170.309 77.371 2.680 0.464  
## 33 218.328 108.328 2.492 1.767  
## 34 204.980 121.296 1.943 2.551  
## 35 205.098 119.412 1.667 1.176  
## 36 292.222 172.111 3.000 4.000  
## 37 259.035 129.079 3.114 1.228  
## 38 159.556 75.611 1.500 0.389  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.213 1.596 2.872 0.000 0.000  
## 2 0.102 1.614 2.807 0.456 0.456  
## 3 0.164 2.008 3.566 0.246 0.369  
## 4 0.116 2.326 3.721 0.698 0.233  
## 5 0.089 0.714 2.321 0.179 0.357  
## 6 0.098 1.239 2.137 0.470 0.385  
## 7 0.280 2.238 4.091 0.210 0.035  
## 8 0.295 3.295 4.133 0.202 0.260  
## 9 0.257 1.468 2.064 0.092 0.229  
## 10 0.340 2.809 4.228 0.309 0.278  
## 11 0.120 1.600 2.800 0.400 0.400  
## 12 0.300 2.483 4.000 0.483 0.345  
## 13 0.218 2.150 3.388 0.293 0.358  
## 14 0.255 2.150 2.399 0.156 0.187  
## 15 0.232 2.054 2.812 0.536 0.357  
## 16 0.154 2.692 3.462 0.385 0.000  
## 17 0.150 1.222 2.333 0.278 0.222  
## 18 0.307 2.467 4.067 0.133 0.200  
## 19 0.258 2.348 3.333 0.152 0.227  
## 20 0.038 0.000 0.385 0.000 0.000  
## 21 0.189 2.652 2.121 0.000 0.152  
## 22 0.147 1.321 2.643 0.180 0.060  
## 23 0.214 2.279 2.517 0.136 0.340  
## 24 0.245 1.698 2.830 0.943 0.566  
## 25 0.218 1.515 2.848 0.606 0.182  
## 26 0.175 1.311 2.514 0.383 0.273  
## 27 0.175 1.478 2.646 0.241 0.069  
## 28 0.179 1.872 3.064 0.213 0.213  
## 29 0.194 2.108 2.450 0.256 0.199  
## 30 0.382 2.647 4.706 1.176 0.294  
## 31 0.064 1.064 2.766 0.000 0.000  
## 32 0.253 2.629 2.526 0.103 0.206  
## 33 0.218 2.303 3.502 0.284 0.189  
## 34 0.142 1.336 2.065 0.526 0.283  
## 35 0.078 0.980 1.471 0.098 0.098  
## 36 0.322 1.667 2.778 0.444 0.444  
## 37 0.197 1.930 3.553 0.175 0.395  
## 38 0.122 1.000 2.222 0.056 0.167  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.106 0.000 4.149 525.106  
## 2 0.421 0.035 2.175 325.228  
## 3 0.000 0.041 6.025 555.574  
## 4 0.000 0.000 2.326 449.070  
## 5 0.179 0.179 6.429 698.036  
## 6 0.043 0.043 2.735 296.752  
## 7 0.105 0.000 6.189 878.951  
## 8 0.029 0.058 8.584 820.925  
## 9 0.321 0.000 4.037 360.229  
## 10 0.123 0.062 3.889 521.327  
## 11 0.000 0.000 4.800 590.400  
## 12 0.172 0.172 6.793 642.138  
## 13 0.000 0.065 4.691 440.033  
## 14 0.187 0.093 3.551 465.919  
## 15 0.045 0.089 2.902 491.205  
## 16 0.000 0.385 4.615 680.000  
## 17 0.444 0.111 3.333 418.778  
## 18 0.067 0.133 8.533 872.067  
## 19 0.076 0.076 3.939 396.136  
## 20 0.000 0.000 3.846 546.923  
## 21 0.227 0.000 4.470 568.561  
## 22 0.030 0.000 5.676 539.129  
## 23 0.068 0.000 3.503 475.408  
## 24 0.000 0.000 3.962 347.547  
## 25 0.121 0.000 3.879 376.364  
## 26 0.219 0.000 4.153 418.907  
## 27 0.206 0.069 6.426 569.107  
## 28 0.170 0.043 3.574 455.277  
## 29 0.228 0.028 4.843 524.558  
## 30 0.294 0.000 7.353 604.706  
## 31 0.213 0.426 6.170 553.617  
## 32 0.258 0.052 5.619 568.763  
## 33 0.252 0.032 5.300 641.861  
## 34 0.121 0.081 2.024 357.409  
## 35 0.000 0.000 1.667 537.745  
## 36 0.111 0.000 4.556 449.889  
## 37 0.088 0.000 6.711 707.368  
## 38 0.111 0.111 7.111 718.056  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 115.745 0.319 0.957 0.106 2.340  
## 2 47.895 0.070 1.754 0.140 3.719  
## 3 174.918 0.246 1.311 0.328 5.943  
## 4 64.884 0.000 0.698 0.000 3.256  
## 5 173.393 0.714 1.250 0.179 6.071  
## 6 68.248 0.214 1.111 0.299 4.744  
## 7 183.427 0.070 1.294 0.350 3.566  
## 8 296.908 0.867 1.792 0.289 5.780  
## 9 111.193 0.688 1.330 0.183 4.266  
## 10 135.864 0.123 1.543 0.370 4.784  
## 11 106.400 0.800 1.600 0.000 4.400  
## 12 194.552 0.931 1.276 0.172 3.621  
## 13 116.743 0.391 1.792 0.619 4.332  
## 14 156.854 0.436 1.931 0.623 5.514  
## 15 89.643 0.134 1.295 0.312 4.241  
## 16 143.846 0.000 1.154 0.000 5.385  
## 17 91.333 0.167 1.167 0.389 4.333  
## 18 206.733 0.200 1.133 0.733 5.200  
## 19 152.424 0.758 1.742 0.606 5.000  
## 20 127.308 0.000 1.154 0.000 5.385  
## 21 169.242 0.303 1.061 0.455 4.242  
## 22 175.495 0.450 0.751 0.420 4.835  
## 23 101.769 0.306 0.918 0.136 3.333  
## 24 106.038 0.377 0.943 0.377 2.453  
## 25 90.061 0.182 1.091 0.303 4.121  
## 26 105.301 0.437 1.639 0.219 4.809  
## 27 200.756 1.031 1.821 0.275 6.667  
## 28 144.340 0.128 1.149 0.298 6.043  
## 29 173.561 0.484 0.855 0.370 5.100  
## 30 140.588 0.882 1.471 0.294 5.000  
## 31 151.702 0.000 1.277 0.213 5.532  
## 32 192.320 0.464 2.268 0.309 4.639  
## 33 118.896 0.473 1.546 0.158 4.006  
## 34 69.352 0.283 1.174 0.445 4.777  
## 35 89.804 0.000 0.882 0.588 3.137  
## 36 95.889 0.222 1.778 0.556 3.000  
## 37 168.772 0.351 0.877 0.395 4.342  
## 38 223.611 0.944 1.167 0.056 5.389  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.319 0.000 1.489 1.915 0.213 1.170  
## 2 0.105 0.000 2.421 1.719 0.526 1.895  
## 3 0.041 0.000 2.049 1.148 0.205 0.205  
## 4 0.000 0.000 1.628 3.256 0.000 0.930  
## 5 0.357 0.179 1.429 1.071 0.000 0.893  
## 6 0.171 0.000 2.479 2.265 0.128 1.026  
## 7 0.210 0.035 1.503 1.189 0.105 0.909  
## 8 0.665 0.058 1.387 1.012 0.376 0.809  
## 9 0.367 0.000 3.073 1.789 0.138 1.927  
## 10 0.278 0.031 1.728 1.636 0.247 2.130  
## 11 0.000 0.000 2.000 1.600 0.000 0.800  
## 12 0.345 0.069 1.966 1.517 0.207 0.897  
## 13 0.228 0.033 2.801 2.117 0.326 0.945  
## 14 0.312 0.000 2.087 1.869 0.125 1.028  
## 15 0.089 0.045 2.411 1.830 0.402 1.071  
## 16 0.769 0.000 3.077 1.538 0.000 0.769  
## 17 0.167 0.000 1.778 0.667 0.278 2.222  
## 18 0.667 0.000 1.000 0.600 0.067 0.867  
## 19 0.227 0.000 1.439 1.061 0.076 1.136  
## 20 0.769 0.000 1.538 0.769 0.000 0.769  
## 21 0.152 0.000 1.515 1.136 0.152 1.515  
## 22 0.120 0.000 1.652 1.832 0.060 2.072  
## 23 0.136 0.034 1.905 1.224 0.068 0.442  
## 24 0.377 0.000 2.830 1.509 0.189 1.887  
## 25 0.121 0.000 2.303 0.909 0.424 1.394  
## 26 0.109 0.000 2.568 2.131 0.492 1.093  
## 27 0.275 0.069 2.474 2.784 0.172 2.268  
## 28 0.383 0.000 2.255 1.745 0.128 0.936  
## 29 0.313 0.000 2.222 1.254 0.171 1.624  
## 30 0.000 0.000 1.765 1.765 0.000 0.882  
## 31 0.000 0.000 1.702 1.702 0.213 1.064  
## 32 0.464 0.000 2.113 1.186 0.464 1.289  
## 33 0.126 0.032 1.956 1.546 0.158 1.893  
## 34 0.081 0.000 1.943 1.134 0.688 0.769  
## 35 0.294 0.000 2.157 0.196 0.294 1.765  
## 36 0.111 0.000 1.222 0.556 1.333 0.556  
## 37 0.219 0.044 1.535 1.140 0.044 1.316  
## 38 0.222 0.000 0.944 1.222 0.000 1.611  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 0.213 0.106  
## 2 0.070 0 0.912 0.070  
## 3 0.000 0 0.656 0.000  
## 4 0.000 0 0.698 0.233  
## 5 0.000 0 1.786 0.179  
## 6 0.043 0 1.667 0.085  
## 7 0.000 0 1.119 0.140  
## 8 0.000 0 1.416 0.173  
## 9 0.000 0 1.193 0.092  
## 10 0.031 0 1.327 0.062  
## 11 0.000 0 0.400 0.400  
## 12 0.034 0 0.690 0.069  
## 13 0.000 0 0.782 0.033  
## 14 0.000 0 1.371 0.218  
## 15 0.000 0 1.027 0.045  
## 16 0.000 0 1.154 0.000  
## 17 0.056 0 1.500 0.167  
## 18 0.067 0 1.800 0.000  
## 19 0.000 0 1.288 0.000  
## 20 0.000 0 0.000 0.000  
## 21 0.000 0 1.061 0.000  
## 22 0.000 0 0.991 0.120  
## 23 0.068 0 1.020 0.000  
## 24 0.000 0 2.075 0.000  
## 25 0.000 0 0.909 0.061  
## 26 0.055 0 1.475 0.055  
## 27 0.000 0 0.962 0.034  
## 28 0.000 0 1.319 0.128  
## 29 0.000 0 0.883 0.228  
## 30 0.000 0 1.176 0.000  
## 31 0.000 0 1.702 0.213  
## 32 0.000 0 0.876 0.052  
## 33 0.000 0 0.946 0.000  
## 34 0.040 0 1.255 0.040  
## 35 0.000 0 0.686 0.294  
## 36 0.000 0 1.333 0.000  
## 37 0.000 0 0.570 0.000  
## 38 0.000 0 1.278 0.167  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 0.106 0.319 1.170 0.106 37.50000  
## 2 0.842 0.632 1.404 0.632 68.18182  
## 3 0.656 0.574 1.762 0.369 62.06897  
## 4 0.465 0.233 2.558 1.395 30.00000  
## 5 1.607 0.536 1.786 0.714 57.14286  
## 6 1.581 0.256 1.282 0.897 70.83333  
## 7 0.979 0.594 2.378 0.524 45.09804  
## 8 1.243 0.780 2.746 1.445 55.88235  
## 9 1.101 0.321 1.009 0.596 66.66667  
## 10 1.265 0.463 2.500 0.741 53.03030  
## 11 0.000 0.000 2.400 0.400 66.66667  
## 12 0.621 0.690 1.483 0.448 52.17391  
## 13 0.749 0.586 2.606 0.065 53.22581  
## 14 1.153 0.685 2.056 1.153 61.36364  
## 15 0.982 0.223 1.562 0.402 80.00000  
## 16 1.154 0.769 3.462 0.000 42.85714  
## 17 1.333 0.556 1.722 0.667 66.66667  
## 18 1.800 0.400 2.200 0.467 62.96296  
## 19 1.288 0.455 1.970 1.212 50.00000  
## 20 0.000 0.769 4.231 0.769 33.33333  
## 21 1.061 1.212 2.197 1.212 30.76923  
## 22 0.871 0.631 2.402 0.631 59.32203  
## 23 1.020 0.068 0.884 0.476 54.16667  
## 24 2.075 0.000 1.132 0.566 33.33333  
## 25 0.848 0.303 1.091 0.727 46.15385  
## 26 1.421 0.437 1.913 0.328 59.25926  
## 27 0.928 0.722 3.162 0.962 67.60563  
## 28 1.191 0.213 2.468 0.979 64.15094  
## 29 0.655 0.484 1.510 0.598 66.66667  
## 30 1.176 1.471 3.529 0.294 42.85714  
## 31 1.489 1.277 3.404 1.489 60.00000  
## 32 0.825 0.515 1.546 0.464 65.00000  
## 33 0.946 0.410 1.388 0.568 64.51613  
## 34 1.215 0.769 2.591 0.891 44.44444  
## 35 0.392 0.588 2.647 0.588 66.66667  
## 36 1.333 0.333 1.111 0.222 57.14286  
## 37 0.570 0.395 1.184 0.526 61.11111  
## 38 1.111 0.833 3.111 0.500 48.78049  
##   
## [[18]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 2 0.35 0.08 0.18 -1.4 0.14 0 0.00 0.8 -0.8  
## 2 10 0.31 0.13 0.34 0.6 0.25 10 0.31 8.0 2.0  
## 3 1 0.07 0.02 0.07 -2.4 0.19 1 0.07 2.8 -1.8  
## 4 1 0.20 0.08 0.50 -1.4 0.03 0 0.00 0.2 -0.2  
## 5 3 0.28 0.07 0.25 -3.0 0.09 0 0.00 0.9 -0.9  
## 6 5 0.22 0.10 0.26 -5.3 0.35 10 0.43 8.1 1.9  
## 7 8 0.44 0.12 0.33 -1.0 0.16 5 0.27 2.9 2.1  
## 8 1 0.22 0.08 0.25 -0.3 0.06 0 0.00 0.3 -0.3  
## 9 11 0.48 0.10 0.24 -4.5 0.27 8 0.35 6.0 2.0  
## 10 1 0.32 0.08 0.20 -1.2 0.33 1 0.32 1.0 0.0  
## 11 10 0.79 0.24 0.53 4.7 0.26 3 0.24 3.3 -0.3  
## 12 10 0.44 0.12 0.30 1.7 0.23 4 0.18 5.2 -1.2  
## 13 0 0.00 0.00 0.00 -1.0 0.07 0 0.00 0.2 -0.2  
## 14 3 0.20 0.14 0.38 0.6 0.12 1 0.07 1.8 -0.8  
## 15 4 0.24 0.07 0.21 -2.3 0.23 5 0.30 3.8 1.2  
## 16 5 0.56 0.19 0.42 1.4 0.36 3 0.34 3.2 -0.2  
## 17 4 0.14 0.08 0.21 0.1 0.15 7 0.25 4.2 2.8  
## 18 2 0.54 0.25 0.50 0.8 0.19 1 0.27 0.7 0.3  
## 19 10 0.44 0.19 0.56 3.7 0.40 9 0.39 9.2 -0.2  
## 20 1 0.09 0.04 0.20 -1.0 0.12 1 0.09 1.3 -0.3  
## 21 8 0.27 0.09 0.25 -3.9 0.19 5 0.17 5.7 -0.7  
## 22 11 0.41 0.15 0.31 2.3 0.12 7 0.26 3.2 3.8  
## 23 9 0.64 0.16 0.45 4.3 0.41 6 0.42 5.8 0.2  
## 24 13 0.46 0.12 0.28 -2.5 0.42 10 0.36 11.8 -1.8  
## 25 8 0.29 0.12 0.47 2.9 0.13 6 0.22 3.5 2.5  
## 26 5 0.29 0.14 0.42 0.6 0.23 2 0.11 4.1 -2.1  
## 27 2 0.21 0.07 0.20 -0.6 0.11 0 0.00 1.0 -1.0  
## 28 2 0.12 0.06 0.17 -1.5 0.26 9 0.53 4.4 4.6  
## 29 8 0.36 0.16 0.38 1.5 0.20 4 0.18 4.5 -0.5  
## 30 15 0.46 0.18 0.39 4.6 0.36 10 0.31 11.8 -1.8  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 42.3 1.90 84.8 94.4 82.0 90.9  
## 2 36.3 0.90 76.1 86.9 75.9 51.5  
## 3 34.9 1.02 78.7 84.8 85.0 53.3  
## 4 15.4 0.40 88.3 93.8 83.3 50.0  
## 5 28.6 1.14 60.0 67.3 64.2 71.4  
## 6 38.0 0.82 71.3 82.2 72.8 33.3  
## 7 36.4 1.31 77.3 84.4 74.3 75.0  
## 8 33.3 0.89 71.0 80.0 79.2 12.5  
## 9 43.0 2.02 69.2 78.1 68.7 59.5  
## 10 38.5 1.60 72.0 85.5 81.0 43.5  
## 11 46.3 1.49 72.8 81.5 79.8 64.7  
## 12 40.2 1.45 77.0 87.2 84.1 45.5  
## 13 42.9 1.02 80.3 86.0 88.9 25.0  
## 14 38.1 0.53 84.5 88.2 87.2 60.0  
## 15 34.5 1.16 78.6 84.6 79.3 62.5  
## 16 44.4 1.35 76.5 87.1 81.0 43.8  
## 17 39.6 0.67 74.0 87.2 74.7 32.4  
## 18 50.0 1.08 61.1 73.5 59.4 50.0  
## 19 34.0 0.78 72.5 83.6 76.0 58.5  
## 20 21.7 0.46 70.1 82.4 70.9 22.2  
## 21 34.0 1.10 83.5 90.2 85.6 74.7  
## 22 50.0 1.33 79.2 86.3 79.5 56.1  
## 23 35.7 1.41 74.9 88.5 79.0 47.4  
## 24 43.9 1.67 73.0 84.9 70.7 66.2  
## 25 25.4 0.62 77.4 88.1 82.2 64.8  
## 26 34.3 0.69 68.0 79.0 64.9 45.5  
## 27 37.0 1.07 65.8 79.0 71.0 40.0  
## 28 33.3 0.71 74.5 87.0 73.3 50.0  
## 29 41.2 0.96 73.9 84.8 70.7 54.5  
## 30 45.8 1.17 82.5 87.2 87.9 60.5  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 9.1 27.8 50.0 9.1 0.000  
## 2 34.4 40.6 42.1 34.6 0.031  
## 3 50.0 36.6 46.5 8.7 0.000  
## 4 50.0 41.9 51.6 22.2 0.000  
## 5 33.3 42.9 48.6 45.6 0.000  
## 6 38.7 35.2 54.9 23.8 0.000  
## 7 32.0 57.4 31.5 54.2 0.000  
## 8 30.8 46.2 46.2 25.0 0.000  
## 9 47.8 34.1 45.5 38.2 0.000  
## 10 50.0 40.0 60.0 14.3 0.000  
## 11 43.5 36.6 51.2 30.9 0.079  
## 12 48.4 49.3 45.7 33.3 0.000  
## 13 66.7 25.0 62.5 28.6 0.000  
## 14 31.8 34.6 53.8 27.3 0.000  
## 15 27.8 46.7 40.0 28.3 0.000  
## 16 50.0 28.0 56.0 33.3 0.000  
## 17 50.0 40.0 43.8 35.1 0.035  
## 18 0.0 14.3 71.4 54.8 0.000  
## 19 25.0 47.9 42.0 36.8 0.000  
## 20 20.0 42.3 50.0 6.9 0.000  
## 21 23.3 47.9 40.7 35.1 0.000  
## 22 37.1 45.7 43.6 25.4 0.000  
## 23 33.3 48.2 39.8 31.8 0.000  
## 24 28.6 35.1 63.6 30.0 0.000  
## 25 50.0 56.1 34.8 34.1 0.000  
## 26 31.3 48.1 38.3 35.0 0.000  
## 27 52.9 27.1 62.5 33.3 0.000  
## 28 33.3 42.0 47.7 18.2 0.000  
## 29 46.2 34.1 53.0 12.5 0.000  
## 30 47.6 42.4 51.1 23.8 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0.000 0.000 0.345 1.034 2.759  
## 2 0.031 0.000 0.374 1.184 4.299  
## 3 0.000 0.068 0.340 1.293 3.605  
## 4 0.000 0.000 0.000 0.800 2.200  
## 5 0.000 0.000 0.189 1.981 1.321  
## 6 0.000 0.000 0.129 0.733 4.181  
## 7 0.000 0.000 0.055 1.530 2.350  
## 8 0.000 0.000 0.222 0.889 1.556  
## 9 0.000 0.000 0.396 1.233 2.555  
## 10 0.000 0.000 0.323 1.935 2.581  
## 11 0.079 0.000 0.236 2.126 4.252  
## 12 0.000 0.044 0.132 1.184 2.982  
## 13 0.000 0.345 0.690 2.759 1.724  
## 14 0.000 0.000 0.461 2.237 1.513  
## 15 0.000 0.000 0.366 1.585 2.317  
## 16 0.000 0.000 0.225 0.562 5.056  
## 17 0.035 0.000 0.318 1.625 2.615  
## 18 0.000 0.000 0.000 2.703 2.162  
## 19 0.000 0.000 0.217 1.130 4.435  
## 20 0.000 0.000 0.000 1.667 4.907  
## 21 0.000 0.000 0.103 1.849 4.692  
## 22 0.000 0.000 0.332 1.144 3.948  
## 23 0.000 0.000 0.000 0.915 4.789  
## 24 0.000 0.000 0.071 0.426 3.475  
## 25 0.000 0.036 0.217 1.413 4.239  
## 26 0.000 0.000 0.286 1.257 5.257  
## 27 0.000 0.000 0.753 2.581 3.763  
## 28 0.000 0.000 0.238 0.893 5.833  
## 29 0.000 0.000 0.318 1.545 5.455  
## 30 0.000 0.031 0.031 0.368 3.650  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 176.724 77.759 0.862 1.552  
## 2 237.445 114.268 2.274 1.838  
## 3 253.265 132.857 2.517 1.565  
## 4 139.000 57.200 0.800 1.600  
## 5 96.321 36.226 0.849 1.226  
## 6 168.276 88.793 1.509 2.069  
## 7 164.098 80.437 1.694 0.710  
## 8 84.667 28.667 0.444 0.667  
## 9 118.678 56.344 1.542 1.586  
## 10 219.355 90.000 2.903 0.323  
## 11 165.669 97.559 2.283 1.811  
## 12 211.491 92.018 2.675 1.886  
## 13 150.690 64.138 1.724 0.345  
## 14 154.079 59.079 1.645 0.526  
## 15 161.829 69.878 1.280 1.524  
## 16 200.225 122.809 2.360 2.584  
## 17 194.664 74.876 1.943 0.707  
## 18 170.541 76.486 0.811 1.351  
## 19 223.826 108.478 2.043 1.783  
## 20 241.019 128.056 3.426 2.685  
## 21 256.849 126.370 2.637 2.397  
## 22 209.705 118.192 2.915 1.402  
## 23 280.211 155.634 3.521 1.901  
## 24 188.262 92.695 1.915 2.340  
## 25 249.058 116.848 2.246 1.449  
## 26 239.029 138.171 3.200 2.057  
## 27 199.355 98.387 1.720 1.613  
## 28 292.560 155.655 3.869 2.500  
## 29 232.409 139.227 2.318 2.955  
## 30 174.479 91.687 1.350 1.963  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.103 1.034 2.759 0.172 0.862  
## 2 0.174 1.776 2.679 0.405 0.343  
## 3 0.129 1.497 3.061 0.136 0.000  
## 4 0.060 0.600 1.000 0.200 0.000  
## 5 0.028 1.038 1.792 0.566 0.283  
## 6 0.194 1.940 2.371 0.172 0.259  
## 7 0.148 1.366 2.568 0.328 0.656  
## 8 0.067 1.111 1.778 0.667 0.889  
## 9 0.198 1.454 2.643 0.220 0.529  
## 10 0.161 2.581 5.161 0.323 0.323  
## 11 0.134 1.732 2.835 0.394 0.236  
## 12 0.246 2.368 2.368 0.482 0.307  
## 13 0.034 1.379 2.069 0.345 0.345  
## 14 0.079 1.184 1.711 0.132 0.197  
## 15 0.195 1.768 2.256 0.549 0.305  
## 16 0.213 1.461 2.022 0.562 0.337  
## 17 0.095 0.883 1.413 0.177 0.247  
## 18 0.189 1.081 2.162 0.270 0.270  
## 19 0.317 2.261 3.043 0.391 0.304  
## 20 0.102 1.019 1.111 1.019 0.185  
## 21 0.161 2.192 4.144 0.582 0.514  
## 22 0.111 1.033 1.697 0.443 0.295  
## 23 0.352 2.535 3.099 0.775 0.352  
## 24 0.266 2.340 3.652 0.248 0.745  
## 25 0.134 1.014 1.920 0.906 0.290  
## 26 0.183 1.829 2.229 0.400 0.057  
## 27 0.075 1.075 2.151 0.215 0.645  
## 28 0.220 2.262 2.440 0.476 0.238  
## 29 0.195 1.364 2.500 0.682 0.182  
## 30 0.255 2.086 3.313 0.337 0.184  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.172 4.828 402.069  
## 2 0.405 0.062 3.146 374.455  
## 3 0.272 0.204 4.354 420.068  
## 4 0.400 0.000 1.200 186.400  
## 5 0.189 0.189 1.321 136.887  
## 6 0.129 0.086 3.103 315.302  
## 7 0.273 0.109 4.536 334.973  
## 8 0.222 0.222 1.778 189.778  
## 9 0.088 0.000 2.379 210.573  
## 10 0.323 0.000 6.774 498.387  
## 11 0.315 0.000 2.677 314.567  
## 12 0.439 0.044 4.079 489.035  
## 13 0.345 0.000 3.448 268.621  
## 14 0.329 0.066 2.763 331.447  
## 15 0.183 0.244 2.561 324.085  
## 16 0.337 0.000 3.820 334.944  
## 17 0.424 0.106 2.226 344.629  
## 18 0.541 0.000 2.432 221.351  
## 19 0.130 0.043 3.565 391.000  
## 20 0.278 0.000 1.759 232.315  
## 21 0.274 0.034 3.870 471.644  
## 22 0.295 0.111 3.210 327.934  
## 23 0.493 0.000 5.493 602.606  
## 24 0.177 0.035 5.213 383.901  
## 25 0.435 0.036 2.899 408.080  
## 26 0.171 0.000 2.571 321.029  
## 27 0.108 0.108 3.226 230.215  
## 28 0.417 0.000 3.214 492.202  
## 29 0.318 0.182 3.545 322.318  
## 30 0.092 0.031 4.264 371.871  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 89.310 0.172 1.724 0.000 3.793  
## 2 109.034 0.249 1.028 0.374 3.894  
## 3 109.388 0.204 1.565 0.204 6.531  
## 4 18.200 0.000 0.000 0.000 2.600  
## 5 30.472 0.094 0.566 0.000 3.396  
## 6 76.638 0.000 1.595 0.431 3.233  
## 7 94.973 0.055 0.820 0.273 4.426  
## 8 37.778 0.000 1.333 0.000 2.667  
## 9 44.934 0.264 0.793 0.000 2.467  
## 10 214.839 0.323 1.935 0.968 5.484  
## 11 73.937 0.394 1.732 0.000 3.780  
## 12 141.491 0.307 0.877 0.307 5.921  
## 13 60.000 0.345 0.000 0.000 5.172  
## 14 67.632 0.066 0.592 0.066 4.342  
## 15 59.207 0.488 1.098 0.061 3.598  
## 16 84.270 0.112 1.461 0.337 4.831  
## 17 65.583 0.141 1.519 0.353 5.477  
## 18 59.459 0.270 1.081 0.541 6.216  
## 19 111.261 0.478 1.652 0.304 4.652  
## 20 43.981 0.000 1.481 0.185 4.259  
## 21 100.377 0.137 0.993 0.103 4.349  
## 22 85.166 0.295 0.701 0.037 4.207  
## 23 185.493 0.493 1.620 0.211 4.789  
## 24 113.936 0.638 1.489 0.213 2.979  
## 25 63.913 0.109 1.558 0.580 7.681  
## 26 105.886 0.286 0.800 0.229 2.857  
## 27 59.140 0.000 2.473 0.000 3.871  
## 28 118.095 0.060 1.012 0.714 4.702  
## 29 80.682 0.500 1.545 0.318 4.182  
## 30 86.564 0.521 1.104 0.061 2.454  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.517 0.000 2.586 1.724 0.345 2.241  
## 2 0.062 0.000 2.181 1.246 0.249 2.087  
## 3 0.204 0.000 1.769 1.293 0.136 2.177  
## 4 0.000 0.000 3.400 2.800 1.200 1.600  
## 5 0.000 0.000 4.434 2.075 0.943 1.792  
## 6 0.172 0.043 1.509 0.819 0.517 1.250  
## 7 0.109 0.000 2.404 1.749 0.437 2.077  
## 8 0.222 0.000 2.000 0.889 0.222 1.333  
## 9 0.176 0.000 2.335 1.278 1.454 0.661  
## 10 0.000 0.000 2.258 0.323 0.323 0.323  
## 11 0.000 0.000 3.307 1.417 0.236 1.654  
## 12 0.263 0.000 3.377 2.105 0.482 2.105  
## 13 0.000 0.000 4.138 1.379 1.724 1.379  
## 14 0.000 0.000 2.763 2.171 0.197 2.697  
## 15 0.488 0.000 3.720 2.317 0.976 1.951  
## 16 0.225 0.000 1.348 1.798 0.225 2.360  
## 17 0.071 0.000 3.004 2.827 0.247 3.322  
## 18 0.541 0.000 3.784 1.622 0.541 1.622  
## 19 0.217 0.000 2.217 1.783 0.478 1.130  
## 20 0.093 0.000 2.037 1.296 0.741 1.204  
## 21 0.205 0.000 2.363 2.466 0.685 1.438  
## 22 0.221 0.037 2.952 1.956 0.148 1.845  
## 23 0.352 0.000 2.887 2.324 0.141 3.028  
## 24 0.496 0.000 2.730 2.092 0.603 0.922  
## 25 0.145 0.036 2.899 3.370 0.580 2.717  
## 26 0.343 0.000 3.086 1.257 0.057 1.543  
## 27 0.108 0.000 3.333 3.871 0.000 2.258  
## 28 0.238 0.000 2.619 1.190 0.119 1.250  
## 29 0.227 0.045 2.455 2.000 0.455 1.864  
## 30 0.123 0.000 1.687 1.258 0.613 1.196  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0.000 1.379 0.000  
## 2 0.187 0.000 0.841 0.000  
## 3 0.068 0.000 1.973 0.068  
## 4 0.200 0.000 1.000 0.200  
## 5 0.000 0.000 1.038 0.000  
## 6 0.000 0.000 1.595 0.043  
## 7 0.000 0.000 1.148 0.219  
## 8 0.222 0.000 0.889 0.222  
## 9 0.044 0.000 0.793 0.264  
## 10 0.000 0.000 0.968 0.000  
## 11 0.157 0.000 0.709 0.079  
## 12 0.044 0.000 1.184 0.088  
## 13 0.000 0.000 0.345 0.000  
## 14 0.000 0.000 1.447 0.197  
## 15 0.061 0.000 1.402 0.061  
## 16 0.000 0.000 0.112 0.000  
## 17 0.000 0.000 1.519 0.071  
## 18 0.000 0.000 0.541 0.000  
## 19 0.000 0.000 0.783 0.043  
## 20 0.093 0.000 1.204 0.000  
## 21 0.034 0.000 0.514 0.000  
## 22 0.037 0.000 1.033 0.258  
## 23 0.000 0.000 1.479 0.000  
## 24 0.035 0.000 0.674 0.035  
## 25 0.036 0.000 0.906 0.000  
## 26 0.114 0.000 0.800 0.057  
## 27 0.000 0.000 1.398 0.000  
## 28 0.060 0.000 0.298 0.060  
## 29 0.136 0.000 0.591 0.000  
## 30 0.031 0.031 0.123 0.031  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.379 0.517 1.379 0.517 60.00000  
## 2 0.841 0.218 1.931 0.218 61.81818  
## 3 1.905 0.816 3.537 0.612 52.50000  
## 4 0.800 0.000 0.600 0.600 0.00000  
## 5 1.038 0.094 1.415 1.321 42.85714  
## 6 1.552 0.431 1.552 0.517 57.69231  
## 7 0.929 0.765 2.240 0.383 62.96296  
## 8 0.667 0.667 2.000 1.556 33.33333  
## 9 0.529 0.132 1.101 0.396 54.54545  
## 10 0.968 0.645 2.258 0.645 80.00000  
## 11 0.630 0.551 2.362 0.315 56.52174  
## 12 1.096 0.482 2.018 0.263 48.57143  
## 13 0.345 0.690 3.103 0.000 57.14286  
## 14 1.250 0.526 3.289 0.329 52.38095  
## 15 1.341 0.793 2.256 0.732 70.83333  
## 16 0.112 0.562 1.236 0.337 16.66667  
## 17 1.449 0.565 2.862 0.530 55.38462  
## 18 0.541 0.270 1.081 1.081 33.33333  
## 19 0.739 0.391 0.957 0.261 53.84615  
## 20 1.204 0.185 0.833 0.000 57.14286  
## 21 0.514 0.103 1.301 0.274 71.42857  
## 22 0.775 0.480 1.587 0.775 53.33333  
## 23 1.479 0.775 2.113 0.634 52.63158  
## 24 0.638 0.071 0.674 0.035 64.70588  
## 25 0.906 0.399 2.754 0.326 72.30769  
## 26 0.743 0.514 1.714 0.514 57.14286  
## 27 1.398 0.108 2.151 1.183 47.36842  
## 28 0.238 0.298 0.714 0.119 42.85714  
## 29 0.591 0.591 1.545 0.409 47.61905  
## 30 0.092 0.245 0.890 0.123 61.90476  
##   
## [[19]]  
## G\_PK G\_PK\_per\_90 G\_Sh G\_SoT np\_G\_xG xAG\_per\_90 Ast Ast\_per\_90 xAG A\_xAG  
## 1 0 0.00 0.00 0.00 -0.3 0.07 0 0.00 0.4 -0.4  
## 2 1 0.07 0.05 0.14 -0.2 0.10 3 0.22 1.3 1.7  
## 3 5 0.18 0.09 0.23 -1.6 0.25 9 0.33 6.7 2.3  
## 4 6 0.38 0.18 0.75 1.4 0.11 2 0.13 1.8 0.2  
## 5 8 0.39 0.21 0.40 5.3 0.14 1 0.05 2.8 -1.8  
## 6 0 0.00 0.00 0.00 -1.5 0.17 2 0.18 1.9 0.1  
## 7 3 0.12 0.09 0.33 -0.6 0.14 3 0.12 3.4 -0.4  
## 8 2 0.18 0.08 0.33 -0.8 0.06 0 0.00 0.7 -0.7  
## 9 5 0.36 0.12 0.36 0.8 0.10 0 0.00 1.5 -1.5  
## 10 1 0.11 0.05 0.25 -1.2 0.11 1 0.11 1.0 0.0  
## 11 2 0.10 0.08 0.25 -0.3 0.15 3 0.15 2.9 0.1  
## 12 1 0.11 0.05 0.14 -1.7 0.02 1 0.11 0.2 0.8  
## 13 2 0.19 0.13 0.40 0.4 0.09 1 0.09 1.0 0.0  
## 14 2 0.13 0.11 0.18 0.2 0.15 2 0.13 2.3 -0.3  
## 15 3 0.19 0.07 0.15 -3.3 0.11 1 0.06 1.7 -0.7  
## 16 5 0.20 0.08 0.26 -0.8 0.09 2 0.08 2.3 -0.3  
## 17 3 0.14 0.07 0.25 -1.5 0.12 1 0.05 2.6 -1.6  
## 18 0 0.00 0.00 0.00 -0.5 0.08 0 0.00 0.4 -0.4  
## 19 3 0.42 0.27 0.60 1.6 0.09 1 0.14 0.6 0.4  
## 20 6 0.25 0.11 0.27 -1.0 0.27 8 0.33 6.6 1.4  
## 21 0 0.00 0.00 0.00 -0.4 0.03 0 0.00 0.1 -0.1  
## 22 0 0.00 0.00 0.00 -1.0 0.21 1 0.15 1.4 -0.4  
## 23 3 0.13 0.06 0.21 0.2 0.14 2 0.09 3.3 -1.3  
## SoT\_Rate SoT\_per\_90 Cmp\_Rate Short\_Cmp\_Rate Medium\_Cmp\_Rate Long\_Cmp\_Rate  
## 1 33.3 0.34 78.1 84.5 80.4 90.0  
## 2 35.0 0.52 70.4 85.5 75.5 43.2  
## 3 40.7 0.81 69.9 80.1 67.8 53.6  
## 4 24.2 0.51 74.7 87.9 71.3 45.9  
## 5 52.6 0.97 78.0 90.5 74.5 55.4  
## 6 21.1 0.35 80.4 88.0 83.1 29.6  
## 7 26.5 0.37 64.8 83.5 65.1 31.5  
## 8 23.1 0.53 55.1 71.7 62.5 25.0  
## 9 32.6 1.01 71.9 80.9 74.1 60.9  
## 10 21.1 0.42 79.8 82.7 84.3 75.0  
## 11 32.0 0.40 68.3 79.5 67.3 44.6  
## 12 33.3 0.77 65.7 74.8 69.2 33.3  
## 13 33.3 0.47 76.8 89.4 77.6 48.3  
## 14 57.9 0.73 74.0 80.2 83.0 28.0  
## 15 46.5 1.25 69.6 82.0 74.8 33.9  
## 16 31.7 0.75 75.3 84.0 72.4 54.1  
## 17 29.3 0.56 83.4 90.1 83.2 55.3  
## 18 0.0 0.00 66.7 84.9 61.5 21.1  
## 19 45.5 0.71 75.4 77.8 83.3 85.7  
## 20 40.7 0.91 78.4 85.1 79.1 53.1  
## 21 42.9 0.78 68.4 85.4 45.5 57.1  
## 22 27.8 0.73 75.1 84.1 73.7 53.3  
## 23 28.6 0.60 76.4 86.4 77.5 51.6  
## Tkl\_dribble\_Rate Succ\_Take\_ons\_Rate Tkld\_Rate Aerial\_Won\_Rate CrdR\_per\_90  
## 1 50.0 30.0 60.0 44.4 0.000  
## 2 48.1 47.1 41.2 0.0 0.000  
## 3 47.2 36.8 55.3 31.5 0.000  
## 4 25.0 32.0 48.0 35.1 0.000  
## 5 25.0 53.8 33.8 22.2 0.000  
## 6 51.7 48.8 41.9 61.3 0.000  
## 7 34.7 38.7 52.0 34.5 0.000  
## 8 38.9 24.0 64.0 44.3 0.000  
## 9 33.3 36.4 56.4 30.0 0.000  
## 10 33.3 40.0 55.0 62.5 0.000  
## 11 39.4 35.9 56.5 24.4 0.000  
## 12 53.8 66.7 33.3 35.6 0.000  
## 13 46.7 43.6 43.6 23.5 0.094  
## 14 50.0 41.5 48.8 56.4 0.000  
## 15 46.7 36.2 56.9 40.5 0.000  
## 16 34.6 44.0 48.6 36.6 0.000  
## 17 37.9 44.2 42.3 46.2 0.000  
## 18 44.4 50.0 50.0 10.0 0.000  
## 19 18.2 51.5 36.4 46.7 0.000  
## 20 18.2 41.4 52.9 11.8 0.000  
## 21 0.0 0.0 80.0 17.4 0.263  
## 22 26.7 36.8 55.3 16.7 0.000  
## 23 27.3 48.2 44.5 34.8 0.000  
## CrdY\_2\_per\_90 PKcon\_per\_90 CrdY\_per\_90 Fls\_per\_90 PrgC\_per\_90  
## 1 0 0.169 0.169 1.186 1.356  
## 2 0 0.000 0.075 0.970 3.507  
## 3 0 0.000 0.037 0.333 3.630  
## 4 0 0.000 0.253 1.013 2.215  
## 5 0 0.000 0.000 0.680 5.388  
## 6 0 0.000 0.263 1.842 3.246  
## 7 0 0.000 0.041 0.813 2.642  
## 8 0 0.000 0.354 1.681 2.212  
## 9 0 0.000 0.072 0.935 4.388  
## 10 0 0.000 0.211 0.737 3.474  
## 11 0 0.000 0.099 0.743 2.723  
## 12 0 0.000 0.000 1.978 0.220  
## 13 0 0.000 0.000 0.943 2.830  
## 14 0 0.000 0.067 1.600 1.333  
## 15 0 0.000 0.000 0.562 3.500  
## 16 0 0.000 0.079 0.516 3.770  
## 17 0 0.000 0.093 0.744 3.628  
## 18 0 0.000 0.000 0.000 3.191  
## 19 0 0.000 0.423 1.690 3.099  
## 20 0 0.000 0.041 0.661 3.884  
## 21 0 0.000 0.000 1.316 0.263  
## 22 0 0.000 0.145 0.725 4.058  
## 23 0 0.000 0.129 0.386 4.378  
## Tot\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 Att\_3rd\_Car\_per\_90 CPA\_per\_90  
## 1 87.119 28.475 0.847 0.678  
## 2 180.970 82.015 2.313 0.522  
## 3 174.222 93.111 2.000 1.556  
## 4 118.671 56.962 1.139 0.696  
## 5 244.854 148.252 2.767 1.893  
## 6 199.298 106.404 2.018 0.351  
## 7 132.114 62.846 1.260 0.569  
## 8 98.407 44.602 1.239 0.796  
## 9 182.662 97.194 1.439 2.374  
## 10 187.053 88.000 2.000 1.158  
## 11 159.802 71.485 1.634 0.891  
## 12 48.462 15.055 0.330 0.110  
## 13 174.528 83.019 2.642 0.472  
## 14 91.467 41.733 0.667 0.400  
## 15 176.375 102.000 2.000 1.500  
## 16 197.619 94.762 2.024 2.540  
## 17 208.744 105.860 2.000 1.023  
## 18 165.319 92.979 1.489 0.638  
## 19 152.676 79.296 1.549 0.845  
## 20 162.231 83.182 1.777 1.612  
## 21 52.895 19.737 1.053 0.789  
## 22 244.493 114.493 2.464 2.174  
## 23 195.794 125.279 2.403 2.060  
## xA\_per\_90 KP\_per\_90 PassLive\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 Shot\_SCA\_per\_90  
## 1 0.085 0.169 0.847 0.000 0.000  
## 2 0.134 1.343 1.791 0.224 0.224  
## 3 0.148 1.185 1.963 0.222 0.222  
## 4 0.076 1.076 1.835 0.063 0.190  
## 5 0.121 1.748 3.058 0.388 0.194  
## 6 0.105 1.316 2.456 0.351 0.175  
## 7 0.134 1.138 1.870 0.122 0.285  
## 8 0.035 0.708 0.885 0.088 0.088  
## 9 0.129 1.799 2.302 0.072 0.072  
## 10 0.147 1.053 2.421 0.105 0.211  
## 11 0.104 1.386 2.228 0.248 0.198  
## 12 0.011 0.440 0.769 0.220 0.440  
## 13 0.075 1.132 1.887 0.566 0.094  
## 14 0.093 1.267 1.400 0.133 0.067  
## 15 0.125 0.812 1.312 0.375 0.250  
## 16 0.111 0.913 2.262 0.635 0.278  
## 17 0.112 1.116 1.860 0.140 0.326  
## 18 0.106 1.489 0.851 0.213 0.000  
## 19 0.056 1.268 2.535 0.423 0.000  
## 20 0.186 1.942 2.645 0.248 0.289  
## 21 0.026 0.526 1.579 0.000 0.263  
## 22 0.116 1.594 3.333 0.435 0.000  
## 23 0.155 1.330 2.361 0.429 0.343  
## Fouled\_SCA\_per\_90 Def\_SCA\_per\_90 PrgP\_per\_90 Total\_Pass\_Dist\_per\_90  
## 1 0.000 0.000 1.356 314.576  
## 2 0.075 0.000 2.612 385.224  
## 3 0.148 0.037 1.815 246.481  
## 4 0.000 0.127 2.975 324.620  
## 5 0.097 0.049 2.816 438.641  
## 6 0.000 0.000 5.000 442.193  
## 7 0.244 0.081 2.520 236.789  
## 8 0.265 0.000 1.681 165.044  
## 9 0.072 0.000 2.734 446.619  
## 10 0.000 0.105 2.947 394.842  
## 11 0.099 0.000 2.525 263.366  
## 12 0.000 0.000 1.868 215.165  
## 13 0.094 0.000 3.679 325.660  
## 14 0.133 0.133 2.200 233.200  
## 15 0.125 0.000 2.000 263.625  
## 16 0.238 0.000 2.579 304.524  
## 17 0.047 0.000 3.628 419.674  
## 18 0.000 0.000 2.128 343.404  
## 19 0.282 0.000 3.944 317.324  
## 20 0.083 0.000 2.975 287.603  
## 21 0.000 0.000 0.789 184.737  
## 22 0.000 0.000 4.058 374.928  
## 23 0.129 0.000 2.489 267.639  
## Prg\_Pass\_Dist\_per\_90 TB\_per\_90 Blocked\_Pass\_per\_90 CrsPA\_per\_90 Recov\_per\_90  
## 1 37.966 0.169 1.525 0.000 4.068  
## 2 91.418 0.075 1.642 0.896 5.075  
## 3 58.111 0.148 1.370 0.185 3.556  
## 4 90.570 0.127 1.013 0.316 3.797  
## 5 88.641 0.146 0.825 0.388 4.757  
## 6 115.965 0.351 0.789 0.000 5.263  
## 7 96.667 0.163 1.301 0.447 5.244  
## 8 55.398 0.000 1.593 0.088 4.956  
## 9 101.151 0.072 1.295 0.144 4.604  
## 10 90.842 0.316 0.947 0.000 4.421  
## 11 72.079 0.297 0.842 0.149 4.752  
## 12 43.516 0.110 0.440 0.000 2.747  
## 13 74.151 0.094 1.038 0.000 3.868  
## 14 60.200 0.000 0.667 0.133 3.600  
## 15 60.562 0.125 0.812 0.250 3.875  
## 16 80.754 0.238 0.714 0.040 3.214  
## 17 85.860 0.233 0.744 0.140 4.512  
## 18 98.298 0.000 1.915 0.000 5.957  
## 19 119.296 0.282 0.986 0.000 4.366  
## 20 55.702 0.248 0.620 0.372 2.562  
## 21 46.842 0.000 0.263 0.000 2.368  
## 22 73.043 0.725 1.304 0.290 6.232  
## 23 66.910 0.129 1.416 0.215 4.034  
## Off\_Pass\_per\_90 Err\_per\_90 Mis\_per\_90 Dis\_per\_90 Off\_per\_90 Fld\_per\_90  
## 1 0.169 0.000 1.864 1.695 0.169 0.508  
## 2 0.149 0.000 2.612 1.940 0.149 0.896  
## 3 0.148 0.037 2.481 0.815 0.704 0.963  
## 4 0.063 0.000 2.089 0.633 0.253 1.582  
## 5 0.194 0.049 1.650 1.602 0.437 1.456  
## 6 0.000 0.000 2.456 1.930 0.088 1.667  
## 7 0.244 0.000 2.764 1.667 0.041 1.220  
## 8 0.177 0.000 2.124 2.212 0.531 1.681  
## 9 0.144 0.000 2.014 0.719 0.791 0.504  
## 10 0.000 0.000 1.895 2.211 0.000 1.263  
## 11 0.198 0.000 2.426 1.980 0.050 1.436  
## 12 0.000 0.000 2.198 0.549 0.769 0.659  
## 13 0.189 0.000 2.358 1.792 0.189 2.264  
## 14 0.067 0.000 2.733 1.533 0.000 1.000  
## 15 0.062 0.000 1.875 1.125 0.188 1.125  
## 16 0.317 0.000 2.341 1.508 0.476 0.833  
## 17 0.140 0.000 1.395 1.256 0.465 1.023  
## 18 0.000 0.000 1.915 1.277 0.426 0.638  
## 19 0.423 0.000 2.394 1.549 0.000 1.268  
## 20 0.041 0.000 1.364 1.240 0.248 0.620  
## 21 0.000 0.000 2.105 2.105 0.263 1.316  
## 22 0.290 0.000 2.029 1.159 0.145 0.870  
## 23 0.086 0.000 2.060 1.288 0.043 0.815  
## PKwon\_per\_90 OG\_per\_90 Tot\_Blocks\_per\_90 Sh\_Blocked\_per\_90  
## 1 0.000 0 1.864 0.339  
## 2 0.000 0 0.896 0.000  
## 3 0.000 0 0.815 0.074  
## 4 0.000 0 1.519 0.127  
## 5 0.049 0 0.777 0.049  
## 6 0.000 0 2.018 0.351  
## 7 0.000 0 1.016 0.203  
## 8 0.000 0 1.770 0.088  
## 9 0.000 0 1.151 0.144  
## 10 0.000 0 1.579 0.211  
## 11 0.000 0 0.990 0.000  
## 12 0.000 0 1.209 0.110  
## 13 0.000 0 1.698 0.189  
## 14 0.000 0 0.867 0.133  
## 15 0.000 0 0.625 0.125  
## 16 0.040 0 0.595 0.040  
## 17 0.000 0 1.349 0.093  
## 18 0.000 0 1.064 0.000  
## 19 0.000 0 1.549 0.000  
## 20 0.000 0 0.331 0.041  
## 21 0.000 0 0.526 0.000  
## 22 0.000 0 1.159 0.000  
## 23 0.000 0 1.116 0.086  
## Pass\_Blocked\_per\_90 Int\_per\_90 Tkl\_Int\_per\_90 Clr\_per\_90 Tkl\_Rate  
## 1 1.525 0.169 3.051 1.695 82.35294  
## 2 0.896 0.373 1.940 0.746 61.90476  
## 3 0.741 0.296 1.519 0.741 57.57576  
## 4 1.392 0.316 1.709 0.886 63.63636  
## 5 0.728 0.340 1.214 0.583 44.44444  
## 6 1.667 0.702 2.807 2.018 75.00000  
## 7 0.813 0.488 1.992 0.976 59.45946  
## 8 1.681 0.708 2.389 1.947 63.15789  
## 9 1.007 0.504 1.151 1.655 44.44444  
## 10 1.368 0.316 2.000 0.842 50.00000  
## 11 0.990 0.545 2.129 0.891 65.62500  
## 12 1.099 0.110 1.648 0.879 64.28571  
## 13 1.509 0.755 2.358 1.321 58.82353  
## 14 0.733 0.533 3.067 1.600 63.15789  
## 15 0.500 0.438 1.500 1.438 41.17647  
## 16 0.556 0.159 0.913 0.833 63.15789  
## 17 1.256 0.465 2.140 0.605 66.66667  
## 18 1.064 0.213 2.340 0.213 60.00000  
## 19 1.549 0.423 1.549 1.549 12.50000  
## 20 0.289 0.372 0.868 0.248 41.66667  
## 21 0.526 0.263 1.579 0.526 20.00000  
## 22 1.159 0.725 1.884 1.014 50.00000  
## 23 1.030 0.258 0.987 0.601 76.47059

Introducing whoscored.com Player Ratings

setwd("C:/Users/CNHenry/Desktop/Guide Notes/Dissertation/Datasets/23-24")  
WSR.DF1 <- read.csv("DF1.csv", header = F)  
WSR.DF2 <- read.csv("DF2.csv", header = F)  
WSR.DF3 <- read.csv("DF3.csv", header = F)  
WSR.DF4 <- read.csv("DF4.csv", header = F)  
WSR.DF5 <- read.csv("DF5.csv", header = F)  
WSR.DF6 <- read.csv("DF6.csv", header = F)  
WSR.DF7 <- read.csv("DF7.csv", header = F)  
  
WSR.MF1 <- read.csv("MF1.csv", header = F)  
WSR.MF2 <- read.csv("MF2.csv", header = F)  
WSR.MF3 <- read.csv("MF3.csv", header = F)  
WSR.MF4 <- read.csv("MF4.csv", header = F)  
WSR.MF5 <- read.csv("MF5.csv", header = F)  
WSR.MF6 <- read.csv("MF6.csv", header = F)  
WSR.MF7 <- read.csv("MF7.csv", header = F)  
  
WSR.FW1 <- read.csv("FW1.csv", header = F)  
WSR.FW2 <- read.csv("FW2.csv", header = F)  
WSR.FW3 <- read.csv("FW3.csv", header = F)  
WSR.FW4 <- read.csv("FW4.csv", header = F)  
WSR.FW5 <- read.csv("FW5.csv", header = F)

Attaching the Rating to each cluster

subset\_DF1\_PE\_num$Rating <- WSR.DF1$V2  
subset\_DF2\_PE\_num$Rating <- WSR.DF2$V2  
subset\_DF3\_PE\_num$Rating <- WSR.DF3$V2  
subset\_DF4\_PE\_num$Rating <- WSR.DF4$V2  
subset\_DF5\_PE\_num$Rating <- WSR.DF5$V2  
subset\_DF6\_PE\_num$Rating <- WSR.DF6$V2  
subset\_DF7\_PE\_num$Rating <- WSR.DF7$V2  
  
subset\_MF1\_PE\_num$Rating <- WSR.MF1$V2  
subset\_MF2\_PE\_num$Rating <- WSR.MF2$V2  
subset\_MF3\_PE\_num$Rating <- WSR.MF3$V2  
subset\_MF4\_PE\_num$Rating <- WSR.MF4$V2  
subset\_MF5\_PE\_num$Rating <- WSR.MF5$V2  
subset\_MF6\_PE\_num$Rating <- WSR.MF6$V2  
subset\_MF7\_PE\_num$Rating <- WSR.MF7$V2  
  
subset\_FW1\_PE\_num$Rating <- WSR.FW1$V2  
subset\_FW2\_PE\_num$Rating <- WSR.FW2$V2  
subset\_FW3\_PE\_num$Rating <- WSR.FW3$V2  
subset\_FW4\_PE\_num$Rating <- WSR.FW4$V2  
subset\_FW5\_PE\_num$Rating <- WSR.FW5$V2

*PERFORMANCE EVALUATION (Variable Selection)*

# List of datasets  
PE\_num\_datasets <- c("subset\_DF1\_PE\_num", "subset\_DF2\_PE\_num", "subset\_DF3\_PE\_num", "subset\_DF4\_PE\_num",   
 "subset\_DF5\_PE\_num", "subset\_DF6\_PE\_num", "subset\_DF7\_PE\_num",  
 "subset\_MF1\_PE\_num", "subset\_MF2\_PE\_num", "subset\_MF3\_PE\_num", "subset\_MF4\_PE\_num",  
 "subset\_MF5\_PE\_num", "subset\_MF6\_PE\_num", "subset\_MF7\_PE\_num",  
 "subset\_FW1\_PE\_num", "subset\_FW2\_PE\_num", "subset\_FW3\_PE\_num", "subset\_FW4\_PE\_num",   
 "subset\_FW5\_PE\_num")  
  
# Function to calculate and rank correlations  
calculate\_and\_rank\_correlations <- function(df\_name) {  
   
 df <- get(df\_name)  
   
   
 if ("Rating" %in% colnames(df)) {  
 # Calculating correlations of numerical variables with Rating  
 numeric\_cols <- sapply(df, is.numeric) & !names(df) %in% "Rating"  
   
 correlations <- sapply(names(df)[numeric\_cols], function(col) {  
 cor(df[[col]], df$Rating, use = "complete.obs")  
 })  
   
 # Converting to data frame   
 correlation\_df <- data.frame(  
 Variable = names(correlations),  
 Correlation = correlations  
 )  
   
 # Ranking variables   
 correlation\_df <- correlation\_df %>%  
 arrange(desc(abs(Correlation)))  
   
 # Printing  
 print(paste("Correlations for dataset:", df\_name))  
 print(correlation\_df)  
   
 } else {  
 print(paste("Rating variable is not present in", df\_name))  
 }  
}  
  
# Applying the function to each dataset  
lapply(PE\_num\_datasets, calculate\_and\_rank\_correlations)

## [1] "Correlations for dataset: subset\_DF1\_PE\_num"  
## Variable Correlation  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 6.373370e-01  
## xAG xAG 6.325591e-01  
## Int\_per\_90 Int\_per\_90 6.182032e-01  
## G\_PK G\_PK 6.074406e-01  
## Tkld\_Rate Tkld\_Rate -5.758938e-01  
## Off\_per\_90 Off\_per\_90 -5.667442e-01  
## Fls\_per\_90 Fls\_per\_90 5.411507e-01  
## G\_PK\_per\_90 G\_PK\_per\_90 5.277191e-01  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 4.622349e-01  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 4.581233e-01  
## Err\_per\_90 Err\_per\_90 -4.579417e-01  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 4.128099e-01  
## Fld\_per\_90 Fld\_per\_90 -4.041131e-01  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 3.943491e-01  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 3.880279e-01  
## CPA\_per\_90 CPA\_per\_90 3.872642e-01  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 3.697432e-01  
## PrgC\_per\_90 PrgC\_per\_90 3.573205e-01  
## Ast Ast 3.518646e-01  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 3.492232e-01  
## TB\_per\_90 TB\_per\_90 3.387387e-01  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 3.229623e-01  
## G\_Sh G\_Sh 3.198876e-01  
## Tkl\_Rate Tkl\_Rate 3.133794e-01  
## Clr\_per\_90 Clr\_per\_90 3.125874e-01  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -3.110286e-01  
## PKcon\_per\_90 PKcon\_per\_90 3.011686e-01  
## PrgP\_per\_90 PrgP\_per\_90 -2.878644e-01  
## CrdR\_per\_90 CrdR\_per\_90 -2.725660e-01  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -2.725660e-01  
## Mis\_per\_90 Mis\_per\_90 2.655059e-01  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 2.417068e-01  
## SoT\_per\_90 SoT\_per\_90 2.132803e-01  
## np\_G\_xG np\_G\_xG 2.079427e-01  
## OG\_per\_90 OG\_per\_90 -2.073025e-01  
## G\_SoT G\_SoT 2.027496e-01  
## Recov\_per\_90 Recov\_per\_90 2.010951e-01  
## xAG\_per\_90 xAG\_per\_90 1.939947e-01  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 1.859209e-01  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 1.747192e-01  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 1.619154e-01  
## Cmp\_Rate Cmp\_Rate 1.542364e-01  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 1.458483e-01  
## KP\_per\_90 KP\_per\_90 1.381097e-01  
## xA\_per\_90 xA\_per\_90 1.117562e-01  
## CrdY\_per\_90 CrdY\_per\_90 -9.120320e-02  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -8.177992e-02  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 7.760538e-02  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 7.024469e-02  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 6.864060e-02  
## CrsPA\_per\_90 CrsPA\_per\_90 6.209906e-02  
## Ast\_per\_90 Ast\_per\_90 5.343004e-02  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 3.525912e-02  
## SoT\_Rate SoT\_Rate 3.277798e-02  
## PKwon\_per\_90 PKwon\_per\_90 -2.342387e-02  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -1.931504e-02  
## Dis\_per\_90 Dis\_per\_90 1.582259e-02  
## A\_xAG A\_xAG -7.632118e-03  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 4.425327e-05  
## [1] "Correlations for dataset: subset\_DF2\_PE\_num"  
## Variable Correlation  
## Ast Ast 0.75459825  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.71260370  
## xAG xAG 0.71233155  
## KP\_per\_90 KP\_per\_90 0.68905741  
## Ast\_per\_90 Ast\_per\_90 0.68558883  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.65893297  
## Int\_per\_90 Int\_per\_90 0.63211759  
## xA\_per\_90 xA\_per\_90 0.56774989  
## A\_xAG A\_xAG 0.54733909  
## xAG\_per\_90 xAG\_per\_90 0.52330052  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.48621098  
## Dis\_per\_90 Dis\_per\_90 -0.47471960  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.40333594  
## Clr\_per\_90 Clr\_per\_90 0.39518377  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.39061213  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.34610442  
## PrgP\_per\_90 PrgP\_per\_90 0.33086121  
## Off\_per\_90 Off\_per\_90 0.30806619  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.29753705  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.27216898  
## Recov\_per\_90 Recov\_per\_90 0.26902215  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.23968089  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.23517264  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.22671178  
## np\_G\_xG np\_G\_xG -0.21242814  
## Cmp\_Rate Cmp\_Rate 0.21241376  
## SoT\_per\_90 SoT\_per\_90 -0.21145545  
## CrdY\_per\_90 CrdY\_per\_90 0.20607741  
## CrsPA\_per\_90 CrsPA\_per\_90 0.20297888  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.19072456  
## CrdR\_per\_90 CrdR\_per\_90 0.18666753  
## Fld\_per\_90 Fld\_per\_90 -0.17399116  
## PrgC\_per\_90 PrgC\_per\_90 0.16450408  
## Err\_per\_90 Err\_per\_90 0.16449592  
## PKcon\_per\_90 PKcon\_per\_90 -0.15108546  
## CPA\_per\_90 CPA\_per\_90 -0.14098770  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.14020232  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.13865143  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.13226271  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.12788797  
## Tkld\_Rate Tkld\_Rate -0.12680216  
## G\_SoT G\_SoT 0.12435379  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.11916045  
## G\_PK G\_PK 0.11254717  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.10648138  
## G\_Sh G\_Sh 0.09972738  
## Mis\_per\_90 Mis\_per\_90 -0.09595963  
## Tkl\_Rate Tkl\_Rate 0.09523038  
## G\_PK\_per\_90 G\_PK\_per\_90 0.09036615  
## SoT\_Rate SoT\_Rate 0.08342747  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.06734959  
## Fls\_per\_90 Fls\_per\_90 0.05529346  
## PKwon\_per\_90 PKwon\_per\_90 0.04803604  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.04537708  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.04227076  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.04043607  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.03414083  
## OG\_per\_90 OG\_per\_90 0.03050513  
## TB\_per\_90 TB\_per\_90 -0.02105082  
## [1] "Correlations for dataset: subset\_DF3\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.571076396  
## SoT\_per\_90 SoT\_per\_90 0.565644793  
## G\_PK\_per\_90 G\_PK\_per\_90 0.433988383  
## PrgP\_per\_90 PrgP\_per\_90 0.418854470  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.386791294  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.368829274  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.340859239  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.325732072  
## CrdR\_per\_90 CrdR\_per\_90 0.319366488  
## Off\_per\_90 Off\_per\_90 -0.309997613  
## SoT\_Rate SoT\_Rate 0.299598220  
## Recov\_per\_90 Recov\_per\_90 0.299107622  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.292274181  
## G\_Sh G\_Sh 0.282792341  
## np\_G\_xG np\_G\_xG 0.280060249  
## Err\_per\_90 Err\_per\_90 -0.267661906  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.260663968  
## G\_SoT G\_SoT 0.259704663  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.257426039  
## Cmp\_Rate Cmp\_Rate 0.255916985  
## Int\_per\_90 Int\_per\_90 0.233043464  
## CrsPA\_per\_90 CrsPA\_per\_90 0.228972359  
## Tkl\_Rate Tkl\_Rate -0.224874125  
## CrdY\_per\_90 CrdY\_per\_90 -0.197823649  
## xAG xAG 0.196611908  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.187732848  
## Fls\_per\_90 Fls\_per\_90 -0.185987203  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.176915687  
## CPA\_per\_90 CPA\_per\_90 -0.170479189  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.164608536  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.159726271  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.159003186  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.158518044  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.148225134  
## Ast Ast 0.147796490  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.139969038  
## Dis\_per\_90 Dis\_per\_90 -0.139783719  
## xA\_per\_90 xA\_per\_90 0.137451352  
## xAG\_per\_90 xAG\_per\_90 -0.130273189  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.118751363  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.117353066  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.111151680  
## Mis\_per\_90 Mis\_per\_90 0.086152155  
## TB\_per\_90 TB\_per\_90 0.083309791  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.077484715  
## Ast\_per\_90 Ast\_per\_90 -0.073191778  
## PrgC\_per\_90 PrgC\_per\_90 -0.071327860  
## KP\_per\_90 KP\_per\_90 0.069563664  
## PKwon\_per\_90 PKwon\_per\_90 -0.055732588  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.052099800  
## OG\_per\_90 OG\_per\_90 -0.049509693  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.044411084  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.042700631  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.040879453  
## Clr\_per\_90 Clr\_per\_90 -0.040432347  
## A\_xAG A\_xAG 0.028701900  
## Tkld\_Rate Tkld\_Rate -0.021384129  
## Fld\_per\_90 Fld\_per\_90 -0.006225010  
## PKcon\_per\_90 PKcon\_per\_90 0.001983717  
## [1] "Correlations for dataset: subset\_DF4\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.618820344  
## Ast Ast 0.564725743  
## G\_PK G\_PK 0.551478432  
## CrdY\_per\_90 CrdY\_per\_90 -0.510400135  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.496503484  
## KP\_per\_90 KP\_per\_90 0.494110048  
## Recov\_per\_90 Recov\_per\_90 0.450144128  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.444406111  
## xA\_per\_90 xA\_per\_90 0.444402314  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.443893354  
## Int\_per\_90 Int\_per\_90 0.440443061  
## xAG\_per\_90 xAG\_per\_90 0.414548773  
## G\_SoT G\_SoT 0.400140242  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.390095589  
## Ast\_per\_90 Ast\_per\_90 0.386277663  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.381510584  
## Fls\_per\_90 Fls\_per\_90 -0.376996935  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.365223785  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.359723606  
## CrsPA\_per\_90 CrsPA\_per\_90 0.350088219  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.341640325  
## Fld\_per\_90 Fld\_per\_90 -0.330417037  
## PrgP\_per\_90 PrgP\_per\_90 0.327204360  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.317593893  
## Tkl\_Rate Tkl\_Rate 0.280093185  
## G\_PK\_per\_90 G\_PK\_per\_90 0.247869282  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.244282255  
## Off\_per\_90 Off\_per\_90 0.243329311  
## G\_Sh G\_Sh 0.227317936  
## TB\_per\_90 TB\_per\_90 0.217111853  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.213073313  
## Mis\_per\_90 Mis\_per\_90 -0.206366284  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.196821225  
## Tkld\_Rate Tkld\_Rate 0.165481960  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.157575687  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.148898694  
## PrgC\_per\_90 PrgC\_per\_90 0.142949265  
## SoT\_per\_90 SoT\_per\_90 0.132792421  
## CPA\_per\_90 CPA\_per\_90 0.123724390  
## SoT\_Rate SoT\_Rate 0.122441900  
## PKwon\_per\_90 PKwon\_per\_90 0.122017378  
## A\_xAG A\_xAG 0.121379959  
## OG\_per\_90 OG\_per\_90 0.120134679  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.111003556  
## np\_G\_xG np\_G\_xG 0.103850558  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.096919248  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.094026971  
## CrdR\_per\_90 CrdR\_per\_90 -0.092674872  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.089435073  
## Clr\_per\_90 Clr\_per\_90 0.075272435  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.073393268  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.057018417  
## PKcon\_per\_90 PKcon\_per\_90 -0.051980560  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.051567440  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.048291458  
## Err\_per\_90 Err\_per\_90 0.027517518  
## Cmp\_Rate Cmp\_Rate 0.021650805  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.016261393  
## Dis\_per\_90 Dis\_per\_90 0.001985192  
## [1] "Correlations for dataset: subset\_DF5\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.58877635  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.51442178  
## xAG xAG 0.48535223  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.44863618  
## Ast Ast 0.44649307  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.42879570  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.38744266  
## TB\_per\_90 TB\_per\_90 0.37987132  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.37535406  
## Clr\_per\_90 Clr\_per\_90 -0.36601970  
## PrgP\_per\_90 PrgP\_per\_90 0.35848763  
## OG\_per\_90 OG\_per\_90 -0.34781329  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.33712898  
## Tkl\_Rate Tkl\_Rate 0.32931106  
## Dis\_per\_90 Dis\_per\_90 -0.31590619  
## xA\_per\_90 xA\_per\_90 0.31513905  
## CPA\_per\_90 CPA\_per\_90 0.31318997  
## PrgC\_per\_90 PrgC\_per\_90 0.31065000  
## PKcon\_per\_90 PKcon\_per\_90 -0.30973733  
## CrdY\_per\_90 CrdY\_per\_90 -0.30868144  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.30795729  
## KP\_per\_90 KP\_per\_90 0.28207012  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.26951953  
## Ast\_per\_90 Ast\_per\_90 0.26572520  
## Fld\_per\_90 Fld\_per\_90 0.26394946  
## CrdR\_per\_90 CrdR\_per\_90 -0.25960572  
## G\_Sh G\_Sh 0.24833995  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.24374303  
## Err\_per\_90 Err\_per\_90 -0.23210856  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.21912438  
## G\_SoT G\_SoT 0.21882291  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate -0.21442141  
## Fls\_per\_90 Fls\_per\_90 -0.19669297  
## Off\_per\_90 Off\_per\_90 0.19417489  
## xAG\_per\_90 xAG\_per\_90 0.19040668  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.17190633  
## SoT\_Rate SoT\_Rate 0.16119559  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.16015276  
## Recov\_per\_90 Recov\_per\_90 0.15089400  
## Mis\_per\_90 Mis\_per\_90 0.14628941  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.13093489  
## Tkld\_Rate Tkld\_Rate 0.11946134  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.10254374  
## PKwon\_per\_90 PKwon\_per\_90 0.10158259  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.09245160  
## CrsPA\_per\_90 CrsPA\_per\_90 0.08303288  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.07751659  
## G\_PK\_per\_90 G\_PK\_per\_90 -0.07374425  
## Cmp\_Rate Cmp\_Rate 0.06535823  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.06067538  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.05794331  
## np\_G\_xG np\_G\_xG 0.05514575  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.05159207  
## A\_xAG A\_xAG 0.04126410  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.03142018  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.03050533  
## Int\_per\_90 Int\_per\_90 -0.01994908  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.01628757  
## SoT\_per\_90 SoT\_per\_90 -0.01287697

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_DF6\_PE\_num"  
## Variable Correlation  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.589375957  
## G\_PK G\_PK 0.478164909  
## KP\_per\_90 KP\_per\_90 0.477927449  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.454333371  
## xAG\_per\_90 xAG\_per\_90 0.450930058  
## CrdY\_per\_90 CrdY\_per\_90 -0.446556284  
## xAG xAG 0.437083458  
## G\_PK\_per\_90 G\_PK\_per\_90 0.425826344  
## TB\_per\_90 TB\_per\_90 0.377894330  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.376996874  
## Err\_per\_90 Err\_per\_90 -0.375998692  
## Recov\_per\_90 Recov\_per\_90 0.371354549  
## PrgP\_per\_90 PrgP\_per\_90 0.370220830  
## xA\_per\_90 xA\_per\_90 0.364706515  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.338996880  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.333326272  
## Clr\_per\_90 Clr\_per\_90 0.323937492  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.313563267  
## G\_SoT G\_SoT 0.308539581  
## Ast Ast 0.277472573  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.275753175  
## Tkld\_Rate Tkld\_Rate -0.270008845  
## Off\_per\_90 Off\_per\_90 0.266343886  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.259685688  
## np\_G\_xG np\_G\_xG 0.230045307  
## CrdR\_per\_90 CrdR\_per\_90 -0.229009852  
## Int\_per\_90 Int\_per\_90 0.224529837  
## SoT\_per\_90 SoT\_per\_90 0.197785579  
## Fld\_per\_90 Fld\_per\_90 0.196830888  
## Cmp\_Rate Cmp\_Rate -0.190134400  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate -0.184079108  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.177571286  
## Ast\_per\_90 Ast\_per\_90 0.166961140  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.162889414  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.149930479  
## Tkl\_Rate Tkl\_Rate -0.147453991  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.129498517  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.128947222  
## G\_Sh G\_Sh 0.108549341  
## OG\_per\_90 OG\_per\_90 -0.106689985  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.100469897  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.099124746  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.092500892  
## CPA\_per\_90 CPA\_per\_90 -0.088902643  
## SoT\_Rate SoT\_Rate 0.075733821  
## Mis\_per\_90 Mis\_per\_90 0.075067582  
## A\_xAG A\_xAG -0.072726782  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.069425616  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.067595653  
## PrgC\_per\_90 PrgC\_per\_90 0.066055207  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.061559683  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.058791283  
## Dis\_per\_90 Dis\_per\_90 0.052487491  
## CrsPA\_per\_90 CrsPA\_per\_90 0.037786796  
## Fls\_per\_90 Fls\_per\_90 -0.028208767  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.024251078  
## PKcon\_per\_90 PKcon\_per\_90 -0.022916298  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.009678032  
## PKwon\_per\_90 PKwon\_per\_90 NA  
## [1] "Correlations for dataset: subset\_DF7\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.775928492  
## xAG\_per\_90 xAG\_per\_90 0.673255999  
## xA\_per\_90 xA\_per\_90 0.594045889  
## G\_PK G\_PK 0.584453658  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.549014388  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.526707165  
## PKcon\_per\_90 PKcon\_per\_90 -0.525344467  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.516765670  
## PrgP\_per\_90 PrgP\_per\_90 0.507460513  
## Fls\_per\_90 Fls\_per\_90 -0.502573967  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.488803331  
## CrdY\_per\_90 CrdY\_per\_90 -0.485879257  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.482970858  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.441921322  
## KP\_per\_90 KP\_per\_90 0.400867150  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.397628245  
## Fld\_per\_90 Fld\_per\_90 0.368939023  
## Tkl\_Rate Tkl\_Rate -0.363605319  
## Off\_per\_90 Off\_per\_90 0.358639740  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.348639068  
## Ast Ast 0.340686518  
## Err\_per\_90 Err\_per\_90 -0.333859799  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.332403418  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.316887496  
## Int\_per\_90 Int\_per\_90 -0.314394234  
## PrgC\_per\_90 PrgC\_per\_90 0.313165295  
## Mis\_per\_90 Mis\_per\_90 -0.303329123  
## TB\_per\_90 TB\_per\_90 0.297377732  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.288940846  
## G\_SoT G\_SoT 0.285056833  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.283070796  
## CPA\_per\_90 CPA\_per\_90 0.278858892  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.266751693  
## PKwon\_per\_90 PKwon\_per\_90 0.265090576  
## G\_PK\_per\_90 G\_PK\_per\_90 0.260060215  
## SoT\_per\_90 SoT\_per\_90 0.256042697  
## Cmp\_Rate Cmp\_Rate 0.252633191  
## CrsPA\_per\_90 CrsPA\_per\_90 0.252328861  
## CrdR\_per\_90 CrdR\_per\_90 0.245821511  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.245821511  
## G\_Sh G\_Sh 0.237239008  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.221139259  
## Recov\_per\_90 Recov\_per\_90 0.203562903  
## Ast\_per\_90 Ast\_per\_90 0.181867569  
## A\_xAG A\_xAG -0.165220179  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.156217766  
## SoT\_Rate SoT\_Rate -0.146142943  
## Clr\_per\_90 Clr\_per\_90 -0.139915668  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.126021833  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.123635094  
## Dis\_per\_90 Dis\_per\_90 0.117467337  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.103864379  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.101598135  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.057306260  
## OG\_per\_90 OG\_per\_90 -0.056180195  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.040383787  
## np\_G\_xG np\_G\_xG 0.032153438  
## Tkld\_Rate Tkld\_Rate 0.025274550  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.008138081  
## [1] "Correlations for dataset: subset\_MF1\_PE\_num"  
## Variable Correlation  
## xAG xAG 5.587655e-01  
## G\_PK G\_PK 5.315924e-01  
## Int\_per\_90 Int\_per\_90 4.759405e-01  
## Dis\_per\_90 Dis\_per\_90 -4.752118e-01  
## CPA\_per\_90 CPA\_per\_90 -4.739512e-01  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 4.537243e-01  
## Recov\_per\_90 Recov\_per\_90 4.397353e-01  
## Mis\_per\_90 Mis\_per\_90 -4.286183e-01  
## Ast Ast 4.121997e-01  
## G\_PK\_per\_90 G\_PK\_per\_90 3.678605e-01  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 3.372593e-01  
## G\_Sh G\_Sh 3.269996e-01  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 2.632044e-01  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -2.507220e-01  
## TB\_per\_90 TB\_per\_90 2.374117e-01  
## Tkl\_Rate Tkl\_Rate 2.349341e-01  
## A\_xAG A\_xAG -2.268637e-01  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 2.241324e-01  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 2.168899e-01  
## SoT\_Rate SoT\_Rate 2.150080e-01  
## SoT\_per\_90 SoT\_per\_90 2.142902e-01  
## Clr\_per\_90 Clr\_per\_90 2.115385e-01  
## Err\_per\_90 Err\_per\_90 -2.113707e-01  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 2.111143e-01  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 2.083759e-01  
## KP\_per\_90 KP\_per\_90 2.051501e-01  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 -2.012310e-01  
## PrgC\_per\_90 PrgC\_per\_90 -1.999563e-01  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 1.943773e-01  
## G\_SoT G\_SoT 1.936532e-01  
## Ast\_per\_90 Ast\_per\_90 1.856630e-01  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 1.820496e-01  
## PKcon\_per\_90 PKcon\_per\_90 1.737643e-01  
## xAG\_per\_90 xAG\_per\_90 1.672691e-01  
## CrdY\_per\_90 CrdY\_per\_90 1.654225e-01  
## Tkld\_Rate Tkld\_Rate -1.588020e-01  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -1.355139e-01  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 1.323189e-01  
## PKwon\_per\_90 PKwon\_per\_90 1.190699e-01  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 1.102214e-01  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 1.090500e-01  
## CrdR\_per\_90 CrdR\_per\_90 9.872344e-02  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 8.710041e-02  
## Cmp\_Rate Cmp\_Rate 7.695617e-02  
## Off\_per\_90 Off\_per\_90 -7.580746e-02  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 5.743883e-02  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 4.983269e-02  
## PrgP\_per\_90 PrgP\_per\_90 4.543617e-02  
## Fls\_per\_90 Fls\_per\_90 -4.469806e-02  
## CrsPA\_per\_90 CrsPA\_per\_90 4.304120e-02  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -4.071553e-02  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 3.255471e-02  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -2.821776e-02  
## np\_G\_xG np\_G\_xG 2.792651e-02  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 2.764802e-02  
## xA\_per\_90 xA\_per\_90 -1.305197e-02  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 1.156476e-02  
## Fld\_per\_90 Fld\_per\_90 -4.068714e-03  
## OG\_per\_90 OG\_per\_90 1.321954e-16

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero  
  
## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_MF2\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.8763795349  
## xAG xAG 0.7966237407  
## Ast Ast 0.7733566888  
## G\_SoT G\_SoT 0.5534690573  
## G\_Sh G\_Sh 0.5220260108  
## PrgP\_per\_90 PrgP\_per\_90 0.4689654779  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.4516213775  
## KP\_per\_90 KP\_per\_90 0.4512114751  
## Ast\_per\_90 Ast\_per\_90 0.4507468964  
## A\_xAG A\_xAG 0.4345067230  
## Off\_per\_90 Off\_per\_90 0.4253248901  
## Dis\_per\_90 Dis\_per\_90 -0.4214733459  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.3993115956  
## G\_PK\_per\_90 G\_PK\_per\_90 0.3617435197  
## CrdR\_per\_90 CrdR\_per\_90 -0.3500711599  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.3495640513  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.3209753148  
## Tkld\_Rate Tkld\_Rate -0.3025040348  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.2962533866  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.2890240964  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.2811704200  
## xA\_per\_90 xA\_per\_90 0.2723081407  
## PKcon\_per\_90 PKcon\_per\_90 -0.2644101773  
## xAG\_per\_90 xAG\_per\_90 0.2503065597  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.2388060949  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.2292192347  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.2266513814  
## Cmp\_Rate Cmp\_Rate 0.2203145672  
## TB\_per\_90 TB\_per\_90 -0.2181449925  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.2090838889  
## Mis\_per\_90 Mis\_per\_90 -0.2069410173  
## SoT\_Rate SoT\_Rate -0.2042215443  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.2033491348  
## Int\_per\_90 Int\_per\_90 0.2022511918  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.1898781985  
## SoT\_per\_90 SoT\_per\_90 0.1817452621  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.1562617242  
## np\_G\_xG np\_G\_xG 0.1465399440  
## PKwon\_per\_90 PKwon\_per\_90 0.1332422636  
## Fls\_per\_90 Fls\_per\_90 -0.1279496215  
## CrdY\_per\_90 CrdY\_per\_90 0.1123015666  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.0930691066  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.0853536027  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.0830244143  
## Clr\_per\_90 Clr\_per\_90 0.0786852188  
## Fld\_per\_90 Fld\_per\_90 0.0677265138  
## Err\_per\_90 Err\_per\_90 0.0654234203  
## Recov\_per\_90 Recov\_per\_90 0.0636225666  
## PrgC\_per\_90 PrgC\_per\_90 0.0618577899  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.0575074914  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.0450859113  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.0343899706  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.0268346303  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.0233107624  
## CPA\_per\_90 CPA\_per\_90 -0.0204916140  
## Tkl\_Rate Tkl\_Rate -0.0086048527  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.0004582701  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA  
## [1] "Correlations for dataset: subset\_MF3\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.81399918  
## Ast Ast 0.80699074  
## xAG xAG 0.74346984  
## A\_xAG A\_xAG 0.60253307  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.56218296  
## G\_PK\_per\_90 G\_PK\_per\_90 0.54376665  
## Ast\_per\_90 Ast\_per\_90 0.51055532  
## PrgC\_per\_90 PrgC\_per\_90 0.44628571  
## np\_G\_xG np\_G\_xG 0.42928206  
## G\_SoT G\_SoT 0.42020197  
## Tkld\_Rate Tkld\_Rate -0.41667247  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.41434059  
## SoT\_per\_90 SoT\_per\_90 0.40979215  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.36622954  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.35596340  
## Fld\_per\_90 Fld\_per\_90 0.34752577  
## KP\_per\_90 KP\_per\_90 0.34552614  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.34123302  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.34088835  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.33680370  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.32514525  
## xAG\_per\_90 xAG\_per\_90 0.32450225  
## xA\_per\_90 xA\_per\_90 0.30532033  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.28573756  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.28387494  
## PrgP\_per\_90 PrgP\_per\_90 0.28194564  
## Int\_per\_90 Int\_per\_90 0.27456521  
## CrdY\_per\_90 CrdY\_per\_90 -0.26768787  
## CPA\_per\_90 CPA\_per\_90 0.25469592  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.25218444  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.24891603  
## Dis\_per\_90 Dis\_per\_90 0.23050928  
## OG\_per\_90 OG\_per\_90 -0.19634319  
## G\_Sh G\_Sh 0.19456128  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.18874730  
## TB\_per\_90 TB\_per\_90 0.18701568  
## Recov\_per\_90 Recov\_per\_90 0.17060525  
## Mis\_per\_90 Mis\_per\_90 0.16027369  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.15221968  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.14941139  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.14769767  
## Off\_per\_90 Off\_per\_90 0.13710684  
## SoT\_Rate SoT\_Rate 0.12849410  
## PKcon\_per\_90 PKcon\_per\_90 0.12392270  
## Err\_per\_90 Err\_per\_90 -0.11995257  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.11771082  
## PKwon\_per\_90 PKwon\_per\_90 0.11227020  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.09735708  
## Tkl\_Rate Tkl\_Rate 0.07637858  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.06788402  
## Fls\_per\_90 Fls\_per\_90 -0.05755108  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.05543119  
## Clr\_per\_90 Clr\_per\_90 0.04965733  
## CrdR\_per\_90 CrdR\_per\_90 -0.04208422  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.02484996  
## CrsPA\_per\_90 CrsPA\_per\_90 0.02153795  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.01934233  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.01341081  
## Cmp\_Rate Cmp\_Rate -0.01270533

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_MF4\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.841264078  
## Ast Ast 0.775484590  
## G\_PK G\_PK 0.755260267  
## xA\_per\_90 xA\_per\_90 0.661169202  
## xAG\_per\_90 xAG\_per\_90 0.594286932  
## KP\_per\_90 KP\_per\_90 0.562488159  
## G\_PK\_per\_90 G\_PK\_per\_90 0.557242317  
## TB\_per\_90 TB\_per\_90 0.494023062  
## SoT\_per\_90 SoT\_per\_90 0.486703825  
## Ast\_per\_90 Ast\_per\_90 0.476299149  
## np\_G\_xG np\_G\_xG 0.470464518  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.402136365  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.388379424  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.384560940  
## PrgP\_per\_90 PrgP\_per\_90 0.347987918  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.316672960  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.306103780  
## SoT\_Rate SoT\_Rate 0.305382720  
## G\_Sh G\_Sh 0.303281120  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.294714462  
## G\_SoT G\_SoT 0.264518311  
## PKwon\_per\_90 PKwon\_per\_90 0.236093720  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.220296347  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.219337215  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.215802749  
## Fld\_per\_90 Fld\_per\_90 0.212442642  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.204643776  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.204093221  
## CPA\_per\_90 CPA\_per\_90 0.203673762  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.203156146  
## CrsPA\_per\_90 CrsPA\_per\_90 0.197349643  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.195141969  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.189439429  
## Tkl\_Rate Tkl\_Rate 0.189102737  
## Recov\_per\_90 Recov\_per\_90 -0.186846262  
## Clr\_per\_90 Clr\_per\_90 -0.176111597  
## PrgC\_per\_90 PrgC\_per\_90 0.156071269  
## Tkld\_Rate Tkld\_Rate -0.146229680  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.140876437  
## Fls\_per\_90 Fls\_per\_90 -0.139041257  
## Err\_per\_90 Err\_per\_90 0.122852458  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.121399356  
## Mis\_per\_90 Mis\_per\_90 -0.111432739  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.095971654  
## Dis\_per\_90 Dis\_per\_90 0.076660218  
## PKcon\_per\_90 PKcon\_per\_90 -0.074429105  
## Off\_per\_90 Off\_per\_90 0.065595079  
## CrdR\_per\_90 CrdR\_per\_90 -0.064552441  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.059493637  
## Cmp\_Rate Cmp\_Rate 0.054545493  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.053844736  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.041240866  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.039437898  
## Int\_per\_90 Int\_per\_90 -0.037045640  
## CrdY\_per\_90 CrdY\_per\_90 -0.034172219  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.024609829  
## A\_xAG A\_xAG 0.012177667  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.005860776  
## OG\_per\_90 OG\_per\_90 NA  
## [1] "Correlations for dataset: subset\_MF5\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.92386279  
## xAG\_per\_90 xAG\_per\_90 0.81237107  
## Ast Ast 0.80811583  
## G\_PK G\_PK 0.75219423  
## xA\_per\_90 xA\_per\_90 0.72449189  
## G\_PK\_per\_90 G\_PK\_per\_90 0.70633102  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.67496516  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.66817909  
## Clr\_per\_90 Clr\_per\_90 -0.66189827  
## G\_SoT G\_SoT 0.63568498  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.63262883  
## Ast\_per\_90 Ast\_per\_90 0.60825345  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.60474169  
## KP\_per\_90 KP\_per\_90 0.60248058  
## OG\_per\_90 OG\_per\_90 -0.56626640  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.55818052  
## TB\_per\_90 TB\_per\_90 0.54827665  
## Dis\_per\_90 Dis\_per\_90 0.53135340  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.48835263  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.48613869  
## Mis\_per\_90 Mis\_per\_90 0.46761748  
## G\_Sh G\_Sh 0.46759082  
## PrgP\_per\_90 PrgP\_per\_90 0.44916552  
## PKcon\_per\_90 PKcon\_per\_90 -0.44048399  
## SoT\_per\_90 SoT\_per\_90 0.43610016  
## Cmp\_Rate Cmp\_Rate 0.42226937  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.39265950  
## CPA\_per\_90 CPA\_per\_90 0.38396914  
## Fld\_per\_90 Fld\_per\_90 0.37712513  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.34488199  
## PrgC\_per\_90 PrgC\_per\_90 0.34057786  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.31465946  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.29964268  
## Off\_per\_90 Off\_per\_90 0.25796688  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.24482757  
## CrdY\_per\_90 CrdY\_per\_90 -0.23227950  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.21963527  
## Tkl\_Rate Tkl\_Rate 0.21203382  
## A\_xAG A\_xAG -0.20320805  
## Fls\_per\_90 Fls\_per\_90 0.18702586  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.18311094  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.17520096  
## Err\_per\_90 Err\_per\_90 -0.15349931  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.15084247  
## SoT\_Rate SoT\_Rate -0.13389928  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -0.13094628  
## np\_G\_xG np\_G\_xG -0.12656858  
## PKwon\_per\_90 PKwon\_per\_90 -0.11572743  
## Tkld\_Rate Tkld\_Rate 0.11322588  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.11008795  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.10771922  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.10204553  
## Recov\_per\_90 Recov\_per\_90 0.10139155  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.09054377  
## CrdR\_per\_90 CrdR\_per\_90 -0.06169905  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.04519619  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.02938890  
## Int\_per\_90 Int\_per\_90 0.02697630  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.01279488

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_MF6\_PE\_num"  
## Variable Correlation  
## Ast Ast 0.79521306  
## Fls\_per\_90 Fls\_per\_90 -0.77570787  
## xAG xAG 0.76287361  
## G\_PK G\_PK 0.72972208  
## CrdY\_per\_90 CrdY\_per\_90 -0.71500646  
## A\_xAG A\_xAG 0.70963625  
## CPA\_per\_90 CPA\_per\_90 0.63324608  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.63125471  
## PrgC\_per\_90 PrgC\_per\_90 0.61803895  
## Err\_per\_90 Err\_per\_90 -0.60564647  
## PKcon\_per\_90 PKcon\_per\_90 -0.58110006  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.56386909  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.55621536  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.55024529  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.54434839  
## Cmp\_Rate Cmp\_Rate 0.54120711  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.54015292  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.52535336  
## Tkld\_Rate Tkld\_Rate -0.52202889  
## KP\_per\_90 KP\_per\_90 0.50976843  
## G\_SoT G\_SoT 0.50899484  
## CrsPA\_per\_90 CrsPA\_per\_90 0.49241725  
## xA\_per\_90 xA\_per\_90 0.47685759  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.46171162  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.45735610  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.44323721  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.42695981  
## G\_Sh G\_Sh 0.39940346  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.39089946  
## Recov\_per\_90 Recov\_per\_90 -0.38762601  
## CrdR\_per\_90 CrdR\_per\_90 -0.38009299  
## Int\_per\_90 Int\_per\_90 -0.36784650  
## Ast\_per\_90 Ast\_per\_90 0.36503678  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.30830529  
## xAG\_per\_90 xAG\_per\_90 0.29601069  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.27251300  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.26996588  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.26005448  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.25666905  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.24711808  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.23065532  
## G\_PK\_per\_90 G\_PK\_per\_90 0.21953722  
## Tkl\_Rate Tkl\_Rate 0.20544145  
## TB\_per\_90 TB\_per\_90 -0.19165846  
## Mis\_per\_90 Mis\_per\_90 0.18986808  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.18157158  
## SoT\_Rate SoT\_Rate -0.16120910  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.15365248  
## SoT\_per\_90 SoT\_per\_90 0.13354500  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.10544358  
## Clr\_per\_90 Clr\_per\_90 -0.10196800  
## Off\_per\_90 Off\_per\_90 0.09442562  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.08303398  
## np\_G\_xG np\_G\_xG -0.08065297  
## PKwon\_per\_90 PKwon\_per\_90 0.06055768  
## PrgP\_per\_90 PrgP\_per\_90 0.03201114  
## Fld\_per\_90 Fld\_per\_90 -0.02542229  
## Dis\_per\_90 Dis\_per\_90 0.02475676  
## OG\_per\_90 OG\_per\_90 NA

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_MF7\_PE\_num"  
## Variable Correlation  
## Ast Ast 0.639770348  
## Int\_per\_90 Int\_per\_90 0.543748321  
## xAG xAG 0.533330998  
## G\_PK G\_PK 0.481353740  
## OG\_per\_90 OG\_per\_90 -0.466549491  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.459131891  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.443211928  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.436421058  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.394642105  
## Fls\_per\_90 Fls\_per\_90 0.371379480  
## Cmp\_Rate Cmp\_Rate 0.366830942  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.330695018  
## A\_xAG A\_xAG 0.315451967  
## Ast\_per\_90 Ast\_per\_90 0.306177161  
## Clr\_per\_90 Clr\_per\_90 0.298753824  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.280419012  
## xAG\_per\_90 xAG\_per\_90 0.274611941  
## G\_SoT G\_SoT 0.266190441  
## Tkld\_Rate Tkld\_Rate -0.254341851  
## CPA\_per\_90 CPA\_per\_90 -0.240235248  
## Dis\_per\_90 Dis\_per\_90 -0.234836288  
## TB\_per\_90 TB\_per\_90 0.222206919  
## KP\_per\_90 KP\_per\_90 0.217505279  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.204452523  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.191871794  
## Tkl\_Rate Tkl\_Rate -0.183576426  
## PKcon\_per\_90 PKcon\_per\_90 0.174992314  
## Err\_per\_90 Err\_per\_90 -0.163917859  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.162313335  
## G\_PK\_per\_90 G\_PK\_per\_90 0.157863799  
## PKwon\_per\_90 PKwon\_per\_90 -0.157152308  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.151472877  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.151456482  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.139499421  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.133702845  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.126658316  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.121881478  
## CrdR\_per\_90 CrdR\_per\_90 -0.120861769  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.106407315  
## SoT\_per\_90 SoT\_per\_90 -0.106243634  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 -0.104858824  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.104778108  
## np\_G\_xG np\_G\_xG 0.101773812  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 -0.096260767  
## PrgC\_per\_90 PrgC\_per\_90 -0.089192943  
## CrdY\_per\_90 CrdY\_per\_90 0.088634081  
## Recov\_per\_90 Recov\_per\_90 0.088063775  
## Mis\_per\_90 Mis\_per\_90 -0.083427653  
## G\_Sh G\_Sh 0.077418873  
## SoT\_Rate SoT\_Rate -0.076332547  
## PrgP\_per\_90 PrgP\_per\_90 0.070112094  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 -0.062562203  
## xA\_per\_90 xA\_per\_90 0.041619677  
## Off\_per\_90 Off\_per\_90 -0.034531593  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.027751001  
## Fld\_per\_90 Fld\_per\_90 0.025855099  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.019921559  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.003368392  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero  
  
## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_FW1\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.685964749  
## G\_PK G\_PK 0.648419153  
## Ast Ast 0.612101498  
## G\_PK\_per\_90 G\_PK\_per\_90 0.567259830  
## G\_Sh G\_Sh 0.549944536  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.538144217  
## xA\_per\_90 xA\_per\_90 0.535012805  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -0.519864776  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.512583027  
## CPA\_per\_90 CPA\_per\_90 0.474972547  
## PrgC\_per\_90 PrgC\_per\_90 0.445111317  
## SoT\_Rate SoT\_Rate 0.400470178  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.395353764  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -0.385412308  
## KP\_per\_90 KP\_per\_90 0.360657127  
## Tkld\_Rate Tkld\_Rate -0.360520375  
## SoT\_per\_90 SoT\_per\_90 0.356548229  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.331438629  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.324663749  
## G\_SoT G\_SoT 0.314670132  
## Tkl\_Rate Tkl\_Rate 0.301870621  
## PrgP\_per\_90 PrgP\_per\_90 -0.278980324  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.276859005  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.268233101  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.265326976  
## xAG\_per\_90 xAG\_per\_90 0.253500135  
## Err\_per\_90 Err\_per\_90 -0.253354393  
## Ast\_per\_90 Ast\_per\_90 0.245188338  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.241140846  
## Clr\_per\_90 Clr\_per\_90 -0.234048322  
## A\_xAG A\_xAG 0.211486147  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.209640603  
## Recov\_per\_90 Recov\_per\_90 -0.207883377  
## Off\_per\_90 Off\_per\_90 0.201561103  
## np\_G\_xG np\_G\_xG 0.199871307  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.164514369  
## Cmp\_Rate Cmp\_Rate 0.145772002  
## CrdR\_per\_90 CrdR\_per\_90 -0.142258558  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.138570433  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.136368462  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.134566974  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.127741661  
## Dis\_per\_90 Dis\_per\_90 0.116415167  
## Int\_per\_90 Int\_per\_90 0.091512844  
## Mis\_per\_90 Mis\_per\_90 0.089868907  
## Fld\_per\_90 Fld\_per\_90 0.086832814  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.080896071  
## PKcon\_per\_90 PKcon\_per\_90 0.071942185  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.056293730  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.047516011  
## TB\_per\_90 TB\_per\_90 -0.046627359  
## Fls\_per\_90 Fls\_per\_90 -0.033791003  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.022373345  
## PKwon\_per\_90 PKwon\_per\_90 0.017240575  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.011080012  
## CrdY\_per\_90 CrdY\_per\_90 -0.008454219  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.006668068  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_FW2\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.877605211  
## xAG xAG 0.793025076  
## Ast Ast 0.732642551  
## Ast\_per\_90 Ast\_per\_90 0.617603087  
## G\_PK\_per\_90 G\_PK\_per\_90 0.511331061  
## SoT\_per\_90 SoT\_per\_90 0.492044355  
## A\_xAG A\_xAG 0.437310103  
## G\_Sh G\_Sh 0.414190882  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.407290554  
## xA\_per\_90 xA\_per\_90 0.400048651  
## G\_SoT G\_SoT 0.385151798  
## KP\_per\_90 KP\_per\_90 0.367283718  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.352826142  
## Fls\_per\_90 Fls\_per\_90 -0.352060298  
## Tkl\_Rate Tkl\_Rate -0.307737612  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.303026685  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.290597547  
## Tkld\_Rate Tkld\_Rate -0.262726019  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.218828233  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.213892217  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 -0.209292317  
## Recov\_per\_90 Recov\_per\_90 -0.192529184  
## Mis\_per\_90 Mis\_per\_90 -0.184919092  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.182562298  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.172795459  
## xAG\_per\_90 xAG\_per\_90 0.170029319  
## PrgP\_per\_90 PrgP\_per\_90 0.169077824  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.168992476  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.166971477  
## Clr\_per\_90 Clr\_per\_90 0.164508737  
## Int\_per\_90 Int\_per\_90 0.160618528  
## CrdY\_per\_90 CrdY\_per\_90 -0.148110681  
## Dis\_per\_90 Dis\_per\_90 -0.143984859  
## Err\_per\_90 Err\_per\_90 -0.128558416  
## TB\_per\_90 TB\_per\_90 -0.126314332  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 -0.119713927  
## PrgC\_per\_90 PrgC\_per\_90 -0.110317872  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.107517541  
## CPA\_per\_90 CPA\_per\_90 0.095355587  
## Off\_per\_90 Off\_per\_90 -0.092473485  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.080110377  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.074445232  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.069863785  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.068869596  
## PKcon\_per\_90 PKcon\_per\_90 0.068267785  
## Cmp\_Rate Cmp\_Rate 0.067634214  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.067426697  
## Fld\_per\_90 Fld\_per\_90 -0.063930416  
## CrdR\_per\_90 CrdR\_per\_90 0.061537682  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.057872736  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -0.052282884  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.049374256  
## np\_G\_xG np\_G\_xG 0.037283277  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.028348675  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.024902365  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.022784411  
## PKwon\_per\_90 PKwon\_per\_90 0.015473105  
## SoT\_Rate SoT\_Rate -0.003440282  
## OG\_per\_90 OG\_per\_90 NA

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero  
  
## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_FW3\_PE\_num"  
## Variable Correlation  
## xAG xAG 0.89609626  
## G\_PK G\_PK 0.78367575  
## Ast Ast 0.78156324  
## xAG\_per\_90 xAG\_per\_90 0.57660703  
## xA\_per\_90 xA\_per\_90 0.52683779  
## KP\_per\_90 KP\_per\_90 0.52117197  
## G\_PK\_per\_90 G\_PK\_per\_90 0.51856879  
## SoT\_per\_90 SoT\_per\_90 0.45910506  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.43712300  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.38490587  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.35981869  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.32829967  
## Tkld\_Rate Tkld\_Rate -0.31998301  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.31231896  
## PrgC\_per\_90 PrgC\_per\_90 0.29947642  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.29786206  
## np\_G\_xG np\_G\_xG 0.28547257  
## G\_SoT G\_SoT 0.27986078  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.27017700  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.26396879  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate -0.26033412  
## CPA\_per\_90 CPA\_per\_90 0.25562320  
## Cmp\_Rate Cmp\_Rate -0.25322896  
## Tkl\_Rate Tkl\_Rate 0.24865068  
## TB\_per\_90 TB\_per\_90 0.23516926  
## A\_xAG A\_xAG -0.22844722  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.22197164  
## G\_Sh G\_Sh 0.21602681  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.21134856  
## Ast\_per\_90 Ast\_per\_90 0.19353087  
## CrdY\_per\_90 CrdY\_per\_90 -0.19249839  
## CrsPA\_per\_90 CrsPA\_per\_90 0.19214713  
## Fld\_per\_90 Fld\_per\_90 0.18618503  
## PKwon\_per\_90 PKwon\_per\_90 0.18189358  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.18156707  
## Err\_per\_90 Err\_per\_90 0.17141387  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.16731744  
## Dis\_per\_90 Dis\_per\_90 0.16622775  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.16371774  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.16361515  
## Int\_per\_90 Int\_per\_90 -0.15767083  
## SoT\_Rate SoT\_Rate 0.15681923  
## Fls\_per\_90 Fls\_per\_90 -0.15343561  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.14407025  
## Clr\_per\_90 Clr\_per\_90 0.12478343  
## Off\_per\_90 Off\_per\_90 0.11723440  
## PrgP\_per\_90 PrgP\_per\_90 0.11510187  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.11117446  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.10280770  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.09070349  
## Mis\_per\_90 Mis\_per\_90 0.08667655  
## CrdR\_per\_90 CrdR\_per\_90 0.08601382  
## PKcon\_per\_90 PKcon\_per\_90 -0.06350559  
## Recov\_per\_90 Recov\_per\_90 0.04559673  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.04451413  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.04367059  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.03712135  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA  
## [1] "Correlations for dataset: subset\_FW4\_PE\_num"  
## Variable Correlation  
## G\_PK G\_PK 0.840566290  
## Ast Ast 0.774081990  
## xAG xAG 0.742358957  
## xA\_per\_90 xA\_per\_90 0.707523656  
## Ast\_per\_90 Ast\_per\_90 0.644207871  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.604147288  
## xAG\_per\_90 xAG\_per\_90 0.567700317  
## KP\_per\_90 KP\_per\_90 0.549934700  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.513613531  
## G\_PK\_per\_90 G\_PK\_per\_90 0.496166827  
## Tkld\_Rate Tkld\_Rate -0.489054339  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.484388969  
## TB\_per\_90 TB\_per\_90 0.482436779  
## PrgC\_per\_90 PrgC\_per\_90 0.480974263  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.471334751  
## Fls\_per\_90 Fls\_per\_90 -0.461404926  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.449317377  
## Clr\_per\_90 Clr\_per\_90 -0.429370416  
## CPA\_per\_90 CPA\_per\_90 0.419319375  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.417521549  
## G\_Sh G\_Sh 0.408631915  
## np\_G\_xG np\_G\_xG 0.404606428  
## CrdY\_per\_90 CrdY\_per\_90 -0.380953550  
## G\_SoT G\_SoT 0.370814194  
## Tkl\_Rate Tkl\_Rate 0.328686066  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.295443013  
## PrgP\_per\_90 PrgP\_per\_90 0.279979298  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.268104028  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.267032541  
## PKcon\_per\_90 PKcon\_per\_90 -0.263985834  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.249539026  
## A\_xAG A\_xAG 0.246665542  
## OG\_per\_90 OG\_per\_90 0.236817686  
## CrdR\_per\_90 CrdR\_per\_90 0.220085556  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.220085556  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.218534909  
## Off\_per\_90 Off\_per\_90 -0.207538358  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.206726652  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.189657189  
## Fld\_per\_90 Fld\_per\_90 0.181333934  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.178937747  
## Err\_per\_90 Err\_per\_90 0.178008175  
## SoT\_per\_90 SoT\_per\_90 0.177666497  
## Mis\_per\_90 Mis\_per\_90 -0.174659779  
## Cmp\_Rate Cmp\_Rate 0.169364533  
## SoT\_Rate SoT\_Rate 0.169059499  
## Dis\_per\_90 Dis\_per\_90 0.135819571  
## CrsPA\_per\_90 CrsPA\_per\_90 0.131968330  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.116402336  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.110725063  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.093262081  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.093144505  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.089733957  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.086342084  
## Recov\_per\_90 Recov\_per\_90 0.075654136  
## Int\_per\_90 Int\_per\_90 -0.019194258  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.010144569  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.005768654  
## PKwon\_per\_90 PKwon\_per\_90 0.001473635

## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero  
  
## Warning in cor(df[[col]], df$Rating, use = "complete.obs"): the standard  
## deviation is zero

## [1] "Correlations for dataset: subset\_FW5\_PE\_num"  
## Variable Correlation  
## PrgC\_per\_90 PrgC\_per\_90 0.683066625  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.651182720  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.629998501  
## G\_PK G\_PK 0.624751881  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.614115428  
## CrdR\_per\_90 CrdR\_per\_90 -0.569854691  
## PrgP\_per\_90 PrgP\_per\_90 0.564777203  
## xAG xAG 0.564099506  
## xAG\_per\_90 xAG\_per\_90 0.558238399  
## G\_Sh G\_Sh 0.543378575  
## G\_PK\_per\_90 G\_PK\_per\_90 0.541356169  
## Tkld\_Rate Tkld\_Rate -0.538696899  
## KP\_per\_90 KP\_per\_90 0.535843245  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.529805950  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.515793335  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.495598144  
## xA\_per\_90 xA\_per\_90 0.489101843  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.487908180  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.469003023  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.456548959  
## G\_SoT G\_SoT 0.437163725  
## CPA\_per\_90 CPA\_per\_90 0.435890128  
## Ast\_per\_90 Ast\_per\_90 0.422912104  
## PKwon\_per\_90 PKwon\_per\_90 0.412317377  
## PKcon\_per\_90 PKcon\_per\_90 -0.411522747  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.405353079  
## Ast Ast 0.393293642  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.390265752  
## Err\_per\_90 Err\_per\_90 0.369122986  
## TB\_per\_90 TB\_per\_90 0.351579311  
## Cmp\_Rate Cmp\_Rate 0.314900823  
## SoT\_per\_90 SoT\_per\_90 0.311331902  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.292412846  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.277375754  
## CrdY\_per\_90 CrdY\_per\_90 0.238631125  
## SoT\_Rate SoT\_Rate 0.225374307  
## CrsPA\_per\_90 CrsPA\_per\_90 0.220478645  
## np\_G\_xG np\_G\_xG 0.214340375  
## Int\_per\_90 Int\_per\_90 0.210295638  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.186304442  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.151012384  
## Dis\_per\_90 Dis\_per\_90 -0.138335989  
## Recov\_per\_90 Recov\_per\_90 0.137781426  
## Fls\_per\_90 Fls\_per\_90 -0.118697672  
## Fld\_per\_90 Fld\_per\_90 0.097523231  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.095565078  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.088116478  
## A\_xAG A\_xAG -0.086876874  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.086681942  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.074232216  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.052707023  
## Tkl\_Rate Tkl\_Rate -0.051097651  
## Off\_per\_90 Off\_per\_90 -0.043800133  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.041427176  
## Clr\_per\_90 Clr\_per\_90 0.033854741  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.015545455  
## Mis\_per\_90 Mis\_per\_90 -0.007952305  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA

## [[1]]  
## Variable Correlation  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 6.373370e-01  
## xAG xAG 6.325591e-01  
## Int\_per\_90 Int\_per\_90 6.182032e-01  
## G\_PK G\_PK 6.074406e-01  
## Tkld\_Rate Tkld\_Rate -5.758938e-01  
## Off\_per\_90 Off\_per\_90 -5.667442e-01  
## Fls\_per\_90 Fls\_per\_90 5.411507e-01  
## G\_PK\_per\_90 G\_PK\_per\_90 5.277191e-01  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 4.622349e-01  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 4.581233e-01  
## Err\_per\_90 Err\_per\_90 -4.579417e-01  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 4.128099e-01  
## Fld\_per\_90 Fld\_per\_90 -4.041131e-01  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 3.943491e-01  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 3.880279e-01  
## CPA\_per\_90 CPA\_per\_90 3.872642e-01  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 3.697432e-01  
## PrgC\_per\_90 PrgC\_per\_90 3.573205e-01  
## Ast Ast 3.518646e-01  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 3.492232e-01  
## TB\_per\_90 TB\_per\_90 3.387387e-01  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 3.229623e-01  
## G\_Sh G\_Sh 3.198876e-01  
## Tkl\_Rate Tkl\_Rate 3.133794e-01  
## Clr\_per\_90 Clr\_per\_90 3.125874e-01  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -3.110286e-01  
## PKcon\_per\_90 PKcon\_per\_90 3.011686e-01  
## PrgP\_per\_90 PrgP\_per\_90 -2.878644e-01  
## CrdR\_per\_90 CrdR\_per\_90 -2.725660e-01  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -2.725660e-01  
## Mis\_per\_90 Mis\_per\_90 2.655059e-01  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 2.417068e-01  
## SoT\_per\_90 SoT\_per\_90 2.132803e-01  
## np\_G\_xG np\_G\_xG 2.079427e-01  
## OG\_per\_90 OG\_per\_90 -2.073025e-01  
## G\_SoT G\_SoT 2.027496e-01  
## Recov\_per\_90 Recov\_per\_90 2.010951e-01  
## xAG\_per\_90 xAG\_per\_90 1.939947e-01  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 1.859209e-01  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 1.747192e-01  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 1.619154e-01  
## Cmp\_Rate Cmp\_Rate 1.542364e-01  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 1.458483e-01  
## KP\_per\_90 KP\_per\_90 1.381097e-01  
## xA\_per\_90 xA\_per\_90 1.117562e-01  
## CrdY\_per\_90 CrdY\_per\_90 -9.120320e-02  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -8.177992e-02  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 7.760538e-02  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 7.024469e-02  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 6.864060e-02  
## CrsPA\_per\_90 CrsPA\_per\_90 6.209906e-02  
## Ast\_per\_90 Ast\_per\_90 5.343004e-02  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 3.525912e-02  
## SoT\_Rate SoT\_Rate 3.277798e-02  
## PKwon\_per\_90 PKwon\_per\_90 -2.342387e-02  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -1.931504e-02  
## Dis\_per\_90 Dis\_per\_90 1.582259e-02  
## A\_xAG A\_xAG -7.632118e-03  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 4.425327e-05  
##   
## [[2]]  
## Variable Correlation  
## Ast Ast 0.75459825  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.71260370  
## xAG xAG 0.71233155  
## KP\_per\_90 KP\_per\_90 0.68905741  
## Ast\_per\_90 Ast\_per\_90 0.68558883  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.65893297  
## Int\_per\_90 Int\_per\_90 0.63211759  
## xA\_per\_90 xA\_per\_90 0.56774989  
## A\_xAG A\_xAG 0.54733909  
## xAG\_per\_90 xAG\_per\_90 0.52330052  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.48621098  
## Dis\_per\_90 Dis\_per\_90 -0.47471960  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.40333594  
## Clr\_per\_90 Clr\_per\_90 0.39518377  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.39061213  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.34610442  
## PrgP\_per\_90 PrgP\_per\_90 0.33086121  
## Off\_per\_90 Off\_per\_90 0.30806619  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.29753705  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.27216898  
## Recov\_per\_90 Recov\_per\_90 0.26902215  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.23968089  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.23517264  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.22671178  
## np\_G\_xG np\_G\_xG -0.21242814  
## Cmp\_Rate Cmp\_Rate 0.21241376  
## SoT\_per\_90 SoT\_per\_90 -0.21145545  
## CrdY\_per\_90 CrdY\_per\_90 0.20607741  
## CrsPA\_per\_90 CrsPA\_per\_90 0.20297888  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.19072456  
## CrdR\_per\_90 CrdR\_per\_90 0.18666753  
## Fld\_per\_90 Fld\_per\_90 -0.17399116  
## PrgC\_per\_90 PrgC\_per\_90 0.16450408  
## Err\_per\_90 Err\_per\_90 0.16449592  
## PKcon\_per\_90 PKcon\_per\_90 -0.15108546  
## CPA\_per\_90 CPA\_per\_90 -0.14098770  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.14020232  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.13865143  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.13226271  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.12788797  
## Tkld\_Rate Tkld\_Rate -0.12680216  
## G\_SoT G\_SoT 0.12435379  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.11916045  
## G\_PK G\_PK 0.11254717  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.10648138  
## G\_Sh G\_Sh 0.09972738  
## Mis\_per\_90 Mis\_per\_90 -0.09595963  
## Tkl\_Rate Tkl\_Rate 0.09523038  
## G\_PK\_per\_90 G\_PK\_per\_90 0.09036615  
## SoT\_Rate SoT\_Rate 0.08342747  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.06734959  
## Fls\_per\_90 Fls\_per\_90 0.05529346  
## PKwon\_per\_90 PKwon\_per\_90 0.04803604  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.04537708  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.04227076  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.04043607  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.03414083  
## OG\_per\_90 OG\_per\_90 0.03050513  
## TB\_per\_90 TB\_per\_90 -0.02105082  
##   
## [[3]]  
## Variable Correlation  
## G\_PK G\_PK 0.571076396  
## SoT\_per\_90 SoT\_per\_90 0.565644793  
## G\_PK\_per\_90 G\_PK\_per\_90 0.433988383  
## PrgP\_per\_90 PrgP\_per\_90 0.418854470  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.386791294  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.368829274  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.340859239  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.325732072  
## CrdR\_per\_90 CrdR\_per\_90 0.319366488  
## Off\_per\_90 Off\_per\_90 -0.309997613  
## SoT\_Rate SoT\_Rate 0.299598220  
## Recov\_per\_90 Recov\_per\_90 0.299107622  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.292274181  
## G\_Sh G\_Sh 0.282792341  
## np\_G\_xG np\_G\_xG 0.280060249  
## Err\_per\_90 Err\_per\_90 -0.267661906  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.260663968  
## G\_SoT G\_SoT 0.259704663  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.257426039  
## Cmp\_Rate Cmp\_Rate 0.255916985  
## Int\_per\_90 Int\_per\_90 0.233043464  
## CrsPA\_per\_90 CrsPA\_per\_90 0.228972359  
## Tkl\_Rate Tkl\_Rate -0.224874125  
## CrdY\_per\_90 CrdY\_per\_90 -0.197823649  
## xAG xAG 0.196611908  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.187732848  
## Fls\_per\_90 Fls\_per\_90 -0.185987203  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.176915687  
## CPA\_per\_90 CPA\_per\_90 -0.170479189  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.164608536  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.159726271  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.159003186  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.158518044  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.148225134  
## Ast Ast 0.147796490  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.139969038  
## Dis\_per\_90 Dis\_per\_90 -0.139783719  
## xA\_per\_90 xA\_per\_90 0.137451352  
## xAG\_per\_90 xAG\_per\_90 -0.130273189  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.118751363  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.117353066  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.111151680  
## Mis\_per\_90 Mis\_per\_90 0.086152155  
## TB\_per\_90 TB\_per\_90 0.083309791  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.077484715  
## Ast\_per\_90 Ast\_per\_90 -0.073191778  
## PrgC\_per\_90 PrgC\_per\_90 -0.071327860  
## KP\_per\_90 KP\_per\_90 0.069563664  
## PKwon\_per\_90 PKwon\_per\_90 -0.055732588  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.052099800  
## OG\_per\_90 OG\_per\_90 -0.049509693  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.044411084  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.042700631  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.040879453  
## Clr\_per\_90 Clr\_per\_90 -0.040432347  
## A\_xAG A\_xAG 0.028701900  
## Tkld\_Rate Tkld\_Rate -0.021384129  
## Fld\_per\_90 Fld\_per\_90 -0.006225010  
## PKcon\_per\_90 PKcon\_per\_90 0.001983717  
##   
## [[4]]  
## Variable Correlation  
## xAG xAG 0.618820344  
## Ast Ast 0.564725743  
## G\_PK G\_PK 0.551478432  
## CrdY\_per\_90 CrdY\_per\_90 -0.510400135  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.496503484  
## KP\_per\_90 KP\_per\_90 0.494110048  
## Recov\_per\_90 Recov\_per\_90 0.450144128  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.444406111  
## xA\_per\_90 xA\_per\_90 0.444402314  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.443893354  
## Int\_per\_90 Int\_per\_90 0.440443061  
## xAG\_per\_90 xAG\_per\_90 0.414548773  
## G\_SoT G\_SoT 0.400140242  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.390095589  
## Ast\_per\_90 Ast\_per\_90 0.386277663  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.381510584  
## Fls\_per\_90 Fls\_per\_90 -0.376996935  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.365223785  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.359723606  
## CrsPA\_per\_90 CrsPA\_per\_90 0.350088219  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.341640325  
## Fld\_per\_90 Fld\_per\_90 -0.330417037  
## PrgP\_per\_90 PrgP\_per\_90 0.327204360  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.317593893  
## Tkl\_Rate Tkl\_Rate 0.280093185  
## G\_PK\_per\_90 G\_PK\_per\_90 0.247869282  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.244282255  
## Off\_per\_90 Off\_per\_90 0.243329311  
## G\_Sh G\_Sh 0.227317936  
## TB\_per\_90 TB\_per\_90 0.217111853  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.213073313  
## Mis\_per\_90 Mis\_per\_90 -0.206366284  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.196821225  
## Tkld\_Rate Tkld\_Rate 0.165481960  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.157575687  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.148898694  
## PrgC\_per\_90 PrgC\_per\_90 0.142949265  
## SoT\_per\_90 SoT\_per\_90 0.132792421  
## CPA\_per\_90 CPA\_per\_90 0.123724390  
## SoT\_Rate SoT\_Rate 0.122441900  
## PKwon\_per\_90 PKwon\_per\_90 0.122017378  
## A\_xAG A\_xAG 0.121379959  
## OG\_per\_90 OG\_per\_90 0.120134679  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.111003556  
## np\_G\_xG np\_G\_xG 0.103850558  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.096919248  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.094026971  
## CrdR\_per\_90 CrdR\_per\_90 -0.092674872  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.089435073  
## Clr\_per\_90 Clr\_per\_90 0.075272435  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.073393268  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.057018417  
## PKcon\_per\_90 PKcon\_per\_90 -0.051980560  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.051567440  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.048291458  
## Err\_per\_90 Err\_per\_90 0.027517518  
## Cmp\_Rate Cmp\_Rate 0.021650805  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.016261393  
## Dis\_per\_90 Dis\_per\_90 0.001985192  
##   
## [[5]]  
## Variable Correlation  
## G\_PK G\_PK 0.58877635  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.51442178  
## xAG xAG 0.48535223  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.44863618  
## Ast Ast 0.44649307  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.42879570  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.38744266  
## TB\_per\_90 TB\_per\_90 0.37987132  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.37535406  
## Clr\_per\_90 Clr\_per\_90 -0.36601970  
## PrgP\_per\_90 PrgP\_per\_90 0.35848763  
## OG\_per\_90 OG\_per\_90 -0.34781329  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.33712898  
## Tkl\_Rate Tkl\_Rate 0.32931106  
## Dis\_per\_90 Dis\_per\_90 -0.31590619  
## xA\_per\_90 xA\_per\_90 0.31513905  
## CPA\_per\_90 CPA\_per\_90 0.31318997  
## PrgC\_per\_90 PrgC\_per\_90 0.31065000  
## PKcon\_per\_90 PKcon\_per\_90 -0.30973733  
## CrdY\_per\_90 CrdY\_per\_90 -0.30868144  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.30795729  
## KP\_per\_90 KP\_per\_90 0.28207012  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.26951953  
## Ast\_per\_90 Ast\_per\_90 0.26572520  
## Fld\_per\_90 Fld\_per\_90 0.26394946  
## CrdR\_per\_90 CrdR\_per\_90 -0.25960572  
## G\_Sh G\_Sh 0.24833995  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.24374303  
## Err\_per\_90 Err\_per\_90 -0.23210856  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.21912438  
## G\_SoT G\_SoT 0.21882291  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate -0.21442141  
## Fls\_per\_90 Fls\_per\_90 -0.19669297  
## Off\_per\_90 Off\_per\_90 0.19417489  
## xAG\_per\_90 xAG\_per\_90 0.19040668  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.17190633  
## SoT\_Rate SoT\_Rate 0.16119559  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.16015276  
## Recov\_per\_90 Recov\_per\_90 0.15089400  
## Mis\_per\_90 Mis\_per\_90 0.14628941  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.13093489  
## Tkld\_Rate Tkld\_Rate 0.11946134  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.10254374  
## PKwon\_per\_90 PKwon\_per\_90 0.10158259  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.09245160  
## CrsPA\_per\_90 CrsPA\_per\_90 0.08303288  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.07751659  
## G\_PK\_per\_90 G\_PK\_per\_90 -0.07374425  
## Cmp\_Rate Cmp\_Rate 0.06535823  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.06067538  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.05794331  
## np\_G\_xG np\_G\_xG 0.05514575  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.05159207  
## A\_xAG A\_xAG 0.04126410  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.03142018  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.03050533  
## Int\_per\_90 Int\_per\_90 -0.01994908  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.01628757  
## SoT\_per\_90 SoT\_per\_90 -0.01287697  
##   
## [[6]]  
## Variable Correlation  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.589375957  
## G\_PK G\_PK 0.478164909  
## KP\_per\_90 KP\_per\_90 0.477927449  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.454333371  
## xAG\_per\_90 xAG\_per\_90 0.450930058  
## CrdY\_per\_90 CrdY\_per\_90 -0.446556284  
## xAG xAG 0.437083458  
## G\_PK\_per\_90 G\_PK\_per\_90 0.425826344  
## TB\_per\_90 TB\_per\_90 0.377894330  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.376996874  
## Err\_per\_90 Err\_per\_90 -0.375998692  
## Recov\_per\_90 Recov\_per\_90 0.371354549  
## PrgP\_per\_90 PrgP\_per\_90 0.370220830  
## xA\_per\_90 xA\_per\_90 0.364706515  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.338996880  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.333326272  
## Clr\_per\_90 Clr\_per\_90 0.323937492  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.313563267  
## G\_SoT G\_SoT 0.308539581  
## Ast Ast 0.277472573  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.275753175  
## Tkld\_Rate Tkld\_Rate -0.270008845  
## Off\_per\_90 Off\_per\_90 0.266343886  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.259685688  
## np\_G\_xG np\_G\_xG 0.230045307  
## CrdR\_per\_90 CrdR\_per\_90 -0.229009852  
## Int\_per\_90 Int\_per\_90 0.224529837  
## SoT\_per\_90 SoT\_per\_90 0.197785579  
## Fld\_per\_90 Fld\_per\_90 0.196830888  
## Cmp\_Rate Cmp\_Rate -0.190134400  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate -0.184079108  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.177571286  
## Ast\_per\_90 Ast\_per\_90 0.166961140  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.162889414  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.149930479  
## Tkl\_Rate Tkl\_Rate -0.147453991  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.129498517  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.128947222  
## G\_Sh G\_Sh 0.108549341  
## OG\_per\_90 OG\_per\_90 -0.106689985  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.100469897  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.099124746  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.092500892  
## CPA\_per\_90 CPA\_per\_90 -0.088902643  
## SoT\_Rate SoT\_Rate 0.075733821  
## Mis\_per\_90 Mis\_per\_90 0.075067582  
## A\_xAG A\_xAG -0.072726782  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.069425616  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.067595653  
## PrgC\_per\_90 PrgC\_per\_90 0.066055207  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.061559683  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.058791283  
## Dis\_per\_90 Dis\_per\_90 0.052487491  
## CrsPA\_per\_90 CrsPA\_per\_90 0.037786796  
## Fls\_per\_90 Fls\_per\_90 -0.028208767  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.024251078  
## PKcon\_per\_90 PKcon\_per\_90 -0.022916298  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.009678032  
## PKwon\_per\_90 PKwon\_per\_90 NA  
##   
## [[7]]  
## Variable Correlation  
## xAG xAG 0.775928492  
## xAG\_per\_90 xAG\_per\_90 0.673255999  
## xA\_per\_90 xA\_per\_90 0.594045889  
## G\_PK G\_PK 0.584453658  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.549014388  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.526707165  
## PKcon\_per\_90 PKcon\_per\_90 -0.525344467  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.516765670  
## PrgP\_per\_90 PrgP\_per\_90 0.507460513  
## Fls\_per\_90 Fls\_per\_90 -0.502573967  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.488803331  
## CrdY\_per\_90 CrdY\_per\_90 -0.485879257  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.482970858  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.441921322  
## KP\_per\_90 KP\_per\_90 0.400867150  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.397628245  
## Fld\_per\_90 Fld\_per\_90 0.368939023  
## Tkl\_Rate Tkl\_Rate -0.363605319  
## Off\_per\_90 Off\_per\_90 0.358639740  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.348639068  
## Ast Ast 0.340686518  
## Err\_per\_90 Err\_per\_90 -0.333859799  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.332403418  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.316887496  
## Int\_per\_90 Int\_per\_90 -0.314394234  
## PrgC\_per\_90 PrgC\_per\_90 0.313165295  
## Mis\_per\_90 Mis\_per\_90 -0.303329123  
## TB\_per\_90 TB\_per\_90 0.297377732  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.288940846  
## G\_SoT G\_SoT 0.285056833  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.283070796  
## CPA\_per\_90 CPA\_per\_90 0.278858892  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.266751693  
## PKwon\_per\_90 PKwon\_per\_90 0.265090576  
## G\_PK\_per\_90 G\_PK\_per\_90 0.260060215  
## SoT\_per\_90 SoT\_per\_90 0.256042697  
## Cmp\_Rate Cmp\_Rate 0.252633191  
## CrsPA\_per\_90 CrsPA\_per\_90 0.252328861  
## CrdR\_per\_90 CrdR\_per\_90 0.245821511  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.245821511  
## G\_Sh G\_Sh 0.237239008  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.221139259  
## Recov\_per\_90 Recov\_per\_90 0.203562903  
## Ast\_per\_90 Ast\_per\_90 0.181867569  
## A\_xAG A\_xAG -0.165220179  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.156217766  
## SoT\_Rate SoT\_Rate -0.146142943  
## Clr\_per\_90 Clr\_per\_90 -0.139915668  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.126021833  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.123635094  
## Dis\_per\_90 Dis\_per\_90 0.117467337  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.103864379  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.101598135  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.057306260  
## OG\_per\_90 OG\_per\_90 -0.056180195  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.040383787  
## np\_G\_xG np\_G\_xG 0.032153438  
## Tkld\_Rate Tkld\_Rate 0.025274550  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.008138081  
##   
## [[8]]  
## Variable Correlation  
## xAG xAG 5.587655e-01  
## G\_PK G\_PK 5.315924e-01  
## Int\_per\_90 Int\_per\_90 4.759405e-01  
## Dis\_per\_90 Dis\_per\_90 -4.752118e-01  
## CPA\_per\_90 CPA\_per\_90 -4.739512e-01  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 4.537243e-01  
## Recov\_per\_90 Recov\_per\_90 4.397353e-01  
## Mis\_per\_90 Mis\_per\_90 -4.286183e-01  
## Ast Ast 4.121997e-01  
## G\_PK\_per\_90 G\_PK\_per\_90 3.678605e-01  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 3.372593e-01  
## G\_Sh G\_Sh 3.269996e-01  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 2.632044e-01  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -2.507220e-01  
## TB\_per\_90 TB\_per\_90 2.374117e-01  
## Tkl\_Rate Tkl\_Rate 2.349341e-01  
## A\_xAG A\_xAG -2.268637e-01  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 2.241324e-01  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 2.168899e-01  
## SoT\_Rate SoT\_Rate 2.150080e-01  
## SoT\_per\_90 SoT\_per\_90 2.142902e-01  
## Clr\_per\_90 Clr\_per\_90 2.115385e-01  
## Err\_per\_90 Err\_per\_90 -2.113707e-01  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 2.111143e-01  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 2.083759e-01  
## KP\_per\_90 KP\_per\_90 2.051501e-01  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 -2.012310e-01  
## PrgC\_per\_90 PrgC\_per\_90 -1.999563e-01  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 1.943773e-01  
## G\_SoT G\_SoT 1.936532e-01  
## Ast\_per\_90 Ast\_per\_90 1.856630e-01  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 1.820496e-01  
## PKcon\_per\_90 PKcon\_per\_90 1.737643e-01  
## xAG\_per\_90 xAG\_per\_90 1.672691e-01  
## CrdY\_per\_90 CrdY\_per\_90 1.654225e-01  
## Tkld\_Rate Tkld\_Rate -1.588020e-01  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -1.355139e-01  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 1.323189e-01  
## PKwon\_per\_90 PKwon\_per\_90 1.190699e-01  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 1.102214e-01  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 1.090500e-01  
## CrdR\_per\_90 CrdR\_per\_90 9.872344e-02  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 8.710041e-02  
## Cmp\_Rate Cmp\_Rate 7.695617e-02  
## Off\_per\_90 Off\_per\_90 -7.580746e-02  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 5.743883e-02  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 4.983269e-02  
## PrgP\_per\_90 PrgP\_per\_90 4.543617e-02  
## Fls\_per\_90 Fls\_per\_90 -4.469806e-02  
## CrsPA\_per\_90 CrsPA\_per\_90 4.304120e-02  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -4.071553e-02  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 3.255471e-02  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -2.821776e-02  
## np\_G\_xG np\_G\_xG 2.792651e-02  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 2.764802e-02  
## xA\_per\_90 xA\_per\_90 -1.305197e-02  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 1.156476e-02  
## Fld\_per\_90 Fld\_per\_90 -4.068714e-03  
## OG\_per\_90 OG\_per\_90 1.321954e-16  
##   
## [[9]]  
## Variable Correlation  
## G\_PK G\_PK 0.8763795349  
## xAG xAG 0.7966237407  
## Ast Ast 0.7733566888  
## G\_SoT G\_SoT 0.5534690573  
## G\_Sh G\_Sh 0.5220260108  
## PrgP\_per\_90 PrgP\_per\_90 0.4689654779  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.4516213775  
## KP\_per\_90 KP\_per\_90 0.4512114751  
## Ast\_per\_90 Ast\_per\_90 0.4507468964  
## A\_xAG A\_xAG 0.4345067230  
## Off\_per\_90 Off\_per\_90 0.4253248901  
## Dis\_per\_90 Dis\_per\_90 -0.4214733459  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.3993115956  
## G\_PK\_per\_90 G\_PK\_per\_90 0.3617435197  
## CrdR\_per\_90 CrdR\_per\_90 -0.3500711599  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.3495640513  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.3209753148  
## Tkld\_Rate Tkld\_Rate -0.3025040348  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.2962533866  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.2890240964  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.2811704200  
## xA\_per\_90 xA\_per\_90 0.2723081407  
## PKcon\_per\_90 PKcon\_per\_90 -0.2644101773  
## xAG\_per\_90 xAG\_per\_90 0.2503065597  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.2388060949  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.2292192347  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.2266513814  
## Cmp\_Rate Cmp\_Rate 0.2203145672  
## TB\_per\_90 TB\_per\_90 -0.2181449925  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.2090838889  
## Mis\_per\_90 Mis\_per\_90 -0.2069410173  
## SoT\_Rate SoT\_Rate -0.2042215443  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.2033491348  
## Int\_per\_90 Int\_per\_90 0.2022511918  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.1898781985  
## SoT\_per\_90 SoT\_per\_90 0.1817452621  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.1562617242  
## np\_G\_xG np\_G\_xG 0.1465399440  
## PKwon\_per\_90 PKwon\_per\_90 0.1332422636  
## Fls\_per\_90 Fls\_per\_90 -0.1279496215  
## CrdY\_per\_90 CrdY\_per\_90 0.1123015666  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.0930691066  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.0853536027  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.0830244143  
## Clr\_per\_90 Clr\_per\_90 0.0786852188  
## Fld\_per\_90 Fld\_per\_90 0.0677265138  
## Err\_per\_90 Err\_per\_90 0.0654234203  
## Recov\_per\_90 Recov\_per\_90 0.0636225666  
## PrgC\_per\_90 PrgC\_per\_90 0.0618577899  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.0575074914  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.0450859113  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.0343899706  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.0268346303  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.0233107624  
## CPA\_per\_90 CPA\_per\_90 -0.0204916140  
## Tkl\_Rate Tkl\_Rate -0.0086048527  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.0004582701  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[10]]  
## Variable Correlation  
## G\_PK G\_PK 0.81399918  
## Ast Ast 0.80699074  
## xAG xAG 0.74346984  
## A\_xAG A\_xAG 0.60253307  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.56218296  
## G\_PK\_per\_90 G\_PK\_per\_90 0.54376665  
## Ast\_per\_90 Ast\_per\_90 0.51055532  
## PrgC\_per\_90 PrgC\_per\_90 0.44628571  
## np\_G\_xG np\_G\_xG 0.42928206  
## G\_SoT G\_SoT 0.42020197  
## Tkld\_Rate Tkld\_Rate -0.41667247  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.41434059  
## SoT\_per\_90 SoT\_per\_90 0.40979215  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.36622954  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.35596340  
## Fld\_per\_90 Fld\_per\_90 0.34752577  
## KP\_per\_90 KP\_per\_90 0.34552614  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.34123302  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.34088835  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.33680370  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.32514525  
## xAG\_per\_90 xAG\_per\_90 0.32450225  
## xA\_per\_90 xA\_per\_90 0.30532033  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.28573756  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.28387494  
## PrgP\_per\_90 PrgP\_per\_90 0.28194564  
## Int\_per\_90 Int\_per\_90 0.27456521  
## CrdY\_per\_90 CrdY\_per\_90 -0.26768787  
## CPA\_per\_90 CPA\_per\_90 0.25469592  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.25218444  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.24891603  
## Dis\_per\_90 Dis\_per\_90 0.23050928  
## OG\_per\_90 OG\_per\_90 -0.19634319  
## G\_Sh G\_Sh 0.19456128  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.18874730  
## TB\_per\_90 TB\_per\_90 0.18701568  
## Recov\_per\_90 Recov\_per\_90 0.17060525  
## Mis\_per\_90 Mis\_per\_90 0.16027369  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.15221968  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.14941139  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.14769767  
## Off\_per\_90 Off\_per\_90 0.13710684  
## SoT\_Rate SoT\_Rate 0.12849410  
## PKcon\_per\_90 PKcon\_per\_90 0.12392270  
## Err\_per\_90 Err\_per\_90 -0.11995257  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.11771082  
## PKwon\_per\_90 PKwon\_per\_90 0.11227020  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.09735708  
## Tkl\_Rate Tkl\_Rate 0.07637858  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.06788402  
## Fls\_per\_90 Fls\_per\_90 -0.05755108  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.05543119  
## Clr\_per\_90 Clr\_per\_90 0.04965733  
## CrdR\_per\_90 CrdR\_per\_90 -0.04208422  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.02484996  
## CrsPA\_per\_90 CrsPA\_per\_90 0.02153795  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.01934233  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.01341081  
## Cmp\_Rate Cmp\_Rate -0.01270533  
##   
## [[11]]  
## Variable Correlation  
## xAG xAG 0.841264078  
## Ast Ast 0.775484590  
## G\_PK G\_PK 0.755260267  
## xA\_per\_90 xA\_per\_90 0.661169202  
## xAG\_per\_90 xAG\_per\_90 0.594286932  
## KP\_per\_90 KP\_per\_90 0.562488159  
## G\_PK\_per\_90 G\_PK\_per\_90 0.557242317  
## TB\_per\_90 TB\_per\_90 0.494023062  
## SoT\_per\_90 SoT\_per\_90 0.486703825  
## Ast\_per\_90 Ast\_per\_90 0.476299149  
## np\_G\_xG np\_G\_xG 0.470464518  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.402136365  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.388379424  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.384560940  
## PrgP\_per\_90 PrgP\_per\_90 0.347987918  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.316672960  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.306103780  
## SoT\_Rate SoT\_Rate 0.305382720  
## G\_Sh G\_Sh 0.303281120  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.294714462  
## G\_SoT G\_SoT 0.264518311  
## PKwon\_per\_90 PKwon\_per\_90 0.236093720  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.220296347  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.219337215  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.215802749  
## Fld\_per\_90 Fld\_per\_90 0.212442642  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.204643776  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.204093221  
## CPA\_per\_90 CPA\_per\_90 0.203673762  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.203156146  
## CrsPA\_per\_90 CrsPA\_per\_90 0.197349643  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.195141969  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.189439429  
## Tkl\_Rate Tkl\_Rate 0.189102737  
## Recov\_per\_90 Recov\_per\_90 -0.186846262  
## Clr\_per\_90 Clr\_per\_90 -0.176111597  
## PrgC\_per\_90 PrgC\_per\_90 0.156071269  
## Tkld\_Rate Tkld\_Rate -0.146229680  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.140876437  
## Fls\_per\_90 Fls\_per\_90 -0.139041257  
## Err\_per\_90 Err\_per\_90 0.122852458  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.121399356  
## Mis\_per\_90 Mis\_per\_90 -0.111432739  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.095971654  
## Dis\_per\_90 Dis\_per\_90 0.076660218  
## PKcon\_per\_90 PKcon\_per\_90 -0.074429105  
## Off\_per\_90 Off\_per\_90 0.065595079  
## CrdR\_per\_90 CrdR\_per\_90 -0.064552441  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.059493637  
## Cmp\_Rate Cmp\_Rate 0.054545493  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.053844736  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.041240866  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.039437898  
## Int\_per\_90 Int\_per\_90 -0.037045640  
## CrdY\_per\_90 CrdY\_per\_90 -0.034172219  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.024609829  
## A\_xAG A\_xAG 0.012177667  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.005860776  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[12]]  
## Variable Correlation  
## xAG xAG 0.92386279  
## xAG\_per\_90 xAG\_per\_90 0.81237107  
## Ast Ast 0.80811583  
## G\_PK G\_PK 0.75219423  
## xA\_per\_90 xA\_per\_90 0.72449189  
## G\_PK\_per\_90 G\_PK\_per\_90 0.70633102  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.67496516  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.66817909  
## Clr\_per\_90 Clr\_per\_90 -0.66189827  
## G\_SoT G\_SoT 0.63568498  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.63262883  
## Ast\_per\_90 Ast\_per\_90 0.60825345  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.60474169  
## KP\_per\_90 KP\_per\_90 0.60248058  
## OG\_per\_90 OG\_per\_90 -0.56626640  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.55818052  
## TB\_per\_90 TB\_per\_90 0.54827665  
## Dis\_per\_90 Dis\_per\_90 0.53135340  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.48835263  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.48613869  
## Mis\_per\_90 Mis\_per\_90 0.46761748  
## G\_Sh G\_Sh 0.46759082  
## PrgP\_per\_90 PrgP\_per\_90 0.44916552  
## PKcon\_per\_90 PKcon\_per\_90 -0.44048399  
## SoT\_per\_90 SoT\_per\_90 0.43610016  
## Cmp\_Rate Cmp\_Rate 0.42226937  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.39265950  
## CPA\_per\_90 CPA\_per\_90 0.38396914  
## Fld\_per\_90 Fld\_per\_90 0.37712513  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.34488199  
## PrgC\_per\_90 PrgC\_per\_90 0.34057786  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.31465946  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.29964268  
## Off\_per\_90 Off\_per\_90 0.25796688  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.24482757  
## CrdY\_per\_90 CrdY\_per\_90 -0.23227950  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.21963527  
## Tkl\_Rate Tkl\_Rate 0.21203382  
## A\_xAG A\_xAG -0.20320805  
## Fls\_per\_90 Fls\_per\_90 0.18702586  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.18311094  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.17520096  
## Err\_per\_90 Err\_per\_90 -0.15349931  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.15084247  
## SoT\_Rate SoT\_Rate -0.13389928  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -0.13094628  
## np\_G\_xG np\_G\_xG -0.12656858  
## PKwon\_per\_90 PKwon\_per\_90 -0.11572743  
## Tkld\_Rate Tkld\_Rate 0.11322588  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.11008795  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.10771922  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.10204553  
## Recov\_per\_90 Recov\_per\_90 0.10139155  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.09054377  
## CrdR\_per\_90 CrdR\_per\_90 -0.06169905  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.04519619  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.02938890  
## Int\_per\_90 Int\_per\_90 0.02697630  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.01279488  
##   
## [[13]]  
## Variable Correlation  
## Ast Ast 0.79521306  
## Fls\_per\_90 Fls\_per\_90 -0.77570787  
## xAG xAG 0.76287361  
## G\_PK G\_PK 0.72972208  
## CrdY\_per\_90 CrdY\_per\_90 -0.71500646  
## A\_xAG A\_xAG 0.70963625  
## CPA\_per\_90 CPA\_per\_90 0.63324608  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.63125471  
## PrgC\_per\_90 PrgC\_per\_90 0.61803895  
## Err\_per\_90 Err\_per\_90 -0.60564647  
## PKcon\_per\_90 PKcon\_per\_90 -0.58110006  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.56386909  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.55621536  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.55024529  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.54434839  
## Cmp\_Rate Cmp\_Rate 0.54120711  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.54015292  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.52535336  
## Tkld\_Rate Tkld\_Rate -0.52202889  
## KP\_per\_90 KP\_per\_90 0.50976843  
## G\_SoT G\_SoT 0.50899484  
## CrsPA\_per\_90 CrsPA\_per\_90 0.49241725  
## xA\_per\_90 xA\_per\_90 0.47685759  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 -0.46171162  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.45735610  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.44323721  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.42695981  
## G\_Sh G\_Sh 0.39940346  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.39089946  
## Recov\_per\_90 Recov\_per\_90 -0.38762601  
## CrdR\_per\_90 CrdR\_per\_90 -0.38009299  
## Int\_per\_90 Int\_per\_90 -0.36784650  
## Ast\_per\_90 Ast\_per\_90 0.36503678  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.30830529  
## xAG\_per\_90 xAG\_per\_90 0.29601069  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.27251300  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.26996588  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.26005448  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.25666905  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.24711808  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.23065532  
## G\_PK\_per\_90 G\_PK\_per\_90 0.21953722  
## Tkl\_Rate Tkl\_Rate 0.20544145  
## TB\_per\_90 TB\_per\_90 -0.19165846  
## Mis\_per\_90 Mis\_per\_90 0.18986808  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.18157158  
## SoT\_Rate SoT\_Rate -0.16120910  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.15365248  
## SoT\_per\_90 SoT\_per\_90 0.13354500  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.10544358  
## Clr\_per\_90 Clr\_per\_90 -0.10196800  
## Off\_per\_90 Off\_per\_90 0.09442562  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.08303398  
## np\_G\_xG np\_G\_xG -0.08065297  
## PKwon\_per\_90 PKwon\_per\_90 0.06055768  
## PrgP\_per\_90 PrgP\_per\_90 0.03201114  
## Fld\_per\_90 Fld\_per\_90 -0.02542229  
## Dis\_per\_90 Dis\_per\_90 0.02475676  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[14]]  
## Variable Correlation  
## Ast Ast 0.639770348  
## Int\_per\_90 Int\_per\_90 0.543748321  
## xAG xAG 0.533330998  
## G\_PK G\_PK 0.481353740  
## OG\_per\_90 OG\_per\_90 -0.466549491  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.459131891  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.443211928  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.436421058  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.394642105  
## Fls\_per\_90 Fls\_per\_90 0.371379480  
## Cmp\_Rate Cmp\_Rate 0.366830942  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.330695018  
## A\_xAG A\_xAG 0.315451967  
## Ast\_per\_90 Ast\_per\_90 0.306177161  
## Clr\_per\_90 Clr\_per\_90 0.298753824  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.280419012  
## xAG\_per\_90 xAG\_per\_90 0.274611941  
## G\_SoT G\_SoT 0.266190441  
## Tkld\_Rate Tkld\_Rate -0.254341851  
## CPA\_per\_90 CPA\_per\_90 -0.240235248  
## Dis\_per\_90 Dis\_per\_90 -0.234836288  
## TB\_per\_90 TB\_per\_90 0.222206919  
## KP\_per\_90 KP\_per\_90 0.217505279  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.204452523  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.191871794  
## Tkl\_Rate Tkl\_Rate -0.183576426  
## PKcon\_per\_90 PKcon\_per\_90 0.174992314  
## Err\_per\_90 Err\_per\_90 -0.163917859  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.162313335  
## G\_PK\_per\_90 G\_PK\_per\_90 0.157863799  
## PKwon\_per\_90 PKwon\_per\_90 -0.157152308  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.151472877  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.151456482  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.139499421  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.133702845  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.126658316  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.121881478  
## CrdR\_per\_90 CrdR\_per\_90 -0.120861769  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.106407315  
## SoT\_per\_90 SoT\_per\_90 -0.106243634  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 -0.104858824  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.104778108  
## np\_G\_xG np\_G\_xG 0.101773812  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 -0.096260767  
## PrgC\_per\_90 PrgC\_per\_90 -0.089192943  
## CrdY\_per\_90 CrdY\_per\_90 0.088634081  
## Recov\_per\_90 Recov\_per\_90 0.088063775  
## Mis\_per\_90 Mis\_per\_90 -0.083427653  
## G\_Sh G\_Sh 0.077418873  
## SoT\_Rate SoT\_Rate -0.076332547  
## PrgP\_per\_90 PrgP\_per\_90 0.070112094  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 -0.062562203  
## xA\_per\_90 xA\_per\_90 0.041619677  
## Off\_per\_90 Off\_per\_90 -0.034531593  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.027751001  
## Fld\_per\_90 Fld\_per\_90 0.025855099  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.019921559  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 0.003368392  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
##   
## [[15]]  
## Variable Correlation  
## xAG xAG 0.685964749  
## G\_PK G\_PK 0.648419153  
## Ast Ast 0.612101498  
## G\_PK\_per\_90 G\_PK\_per\_90 0.567259830  
## G\_Sh G\_Sh 0.549944536  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.538144217  
## xA\_per\_90 xA\_per\_90 0.535012805  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 -0.519864776  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.512583027  
## CPA\_per\_90 CPA\_per\_90 0.474972547  
## PrgC\_per\_90 PrgC\_per\_90 0.445111317  
## SoT\_Rate SoT\_Rate 0.400470178  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.395353764  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -0.385412308  
## KP\_per\_90 KP\_per\_90 0.360657127  
## Tkld\_Rate Tkld\_Rate -0.360520375  
## SoT\_per\_90 SoT\_per\_90 0.356548229  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.331438629  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.324663749  
## G\_SoT G\_SoT 0.314670132  
## Tkl\_Rate Tkl\_Rate 0.301870621  
## PrgP\_per\_90 PrgP\_per\_90 -0.278980324  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.276859005  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.268233101  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.265326976  
## xAG\_per\_90 xAG\_per\_90 0.253500135  
## Err\_per\_90 Err\_per\_90 -0.253354393  
## Ast\_per\_90 Ast\_per\_90 0.245188338  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.241140846  
## Clr\_per\_90 Clr\_per\_90 -0.234048322  
## A\_xAG A\_xAG 0.211486147  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 0.209640603  
## Recov\_per\_90 Recov\_per\_90 -0.207883377  
## Off\_per\_90 Off\_per\_90 0.201561103  
## np\_G\_xG np\_G\_xG 0.199871307  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.164514369  
## Cmp\_Rate Cmp\_Rate 0.145772002  
## CrdR\_per\_90 CrdR\_per\_90 -0.142258558  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.138570433  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.136368462  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.134566974  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.127741661  
## Dis\_per\_90 Dis\_per\_90 0.116415167  
## Int\_per\_90 Int\_per\_90 0.091512844  
## Mis\_per\_90 Mis\_per\_90 0.089868907  
## Fld\_per\_90 Fld\_per\_90 0.086832814  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.080896071  
## PKcon\_per\_90 PKcon\_per\_90 0.071942185  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.056293730  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.047516011  
## TB\_per\_90 TB\_per\_90 -0.046627359  
## Fls\_per\_90 Fls\_per\_90 -0.033791003  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.022373345  
## PKwon\_per\_90 PKwon\_per\_90 0.017240575  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.011080012  
## CrdY\_per\_90 CrdY\_per\_90 -0.008454219  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.006668068  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[16]]  
## Variable Correlation  
## G\_PK G\_PK 0.877605211  
## xAG xAG 0.793025076  
## Ast Ast 0.732642551  
## Ast\_per\_90 Ast\_per\_90 0.617603087  
## G\_PK\_per\_90 G\_PK\_per\_90 0.511331061  
## SoT\_per\_90 SoT\_per\_90 0.492044355  
## A\_xAG A\_xAG 0.437310103  
## G\_Sh G\_Sh 0.414190882  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.407290554  
## xA\_per\_90 xA\_per\_90 0.400048651  
## G\_SoT G\_SoT 0.385151798  
## KP\_per\_90 KP\_per\_90 0.367283718  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 -0.352826142  
## Fls\_per\_90 Fls\_per\_90 -0.352060298  
## Tkl\_Rate Tkl\_Rate -0.307737612  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.303026685  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.290597547  
## Tkld\_Rate Tkld\_Rate -0.262726019  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.218828233  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.213892217  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 -0.209292317  
## Recov\_per\_90 Recov\_per\_90 -0.192529184  
## Mis\_per\_90 Mis\_per\_90 -0.184919092  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.182562298  
## CrsPA\_per\_90 CrsPA\_per\_90 -0.172795459  
## xAG\_per\_90 xAG\_per\_90 0.170029319  
## PrgP\_per\_90 PrgP\_per\_90 0.169077824  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.168992476  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.166971477  
## Clr\_per\_90 Clr\_per\_90 0.164508737  
## Int\_per\_90 Int\_per\_90 0.160618528  
## CrdY\_per\_90 CrdY\_per\_90 -0.148110681  
## Dis\_per\_90 Dis\_per\_90 -0.143984859  
## Err\_per\_90 Err\_per\_90 -0.128558416  
## TB\_per\_90 TB\_per\_90 -0.126314332  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 -0.119713927  
## PrgC\_per\_90 PrgC\_per\_90 -0.110317872  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.107517541  
## CPA\_per\_90 CPA\_per\_90 0.095355587  
## Off\_per\_90 Off\_per\_90 -0.092473485  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.080110377  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.074445232  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.069863785  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.068869596  
## PKcon\_per\_90 PKcon\_per\_90 0.068267785  
## Cmp\_Rate Cmp\_Rate 0.067634214  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 -0.067426697  
## Fld\_per\_90 Fld\_per\_90 -0.063930416  
## CrdR\_per\_90 CrdR\_per\_90 0.061537682  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.057872736  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 -0.052282884  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.049374256  
## np\_G\_xG np\_G\_xG 0.037283277  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.028348675  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.024902365  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.022784411  
## PKwon\_per\_90 PKwon\_per\_90 0.015473105  
## SoT\_Rate SoT\_Rate -0.003440282  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[17]]  
## Variable Correlation  
## xAG xAG 0.89609626  
## G\_PK G\_PK 0.78367575  
## Ast Ast 0.78156324  
## xAG\_per\_90 xAG\_per\_90 0.57660703  
## xA\_per\_90 xA\_per\_90 0.52683779  
## KP\_per\_90 KP\_per\_90 0.52117197  
## G\_PK\_per\_90 G\_PK\_per\_90 0.51856879  
## SoT\_per\_90 SoT\_per\_90 0.45910506  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.43712300  
## Long\_Cmp\_Rate Long\_Cmp\_Rate -0.38490587  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.35981869  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.32829967  
## Tkld\_Rate Tkld\_Rate -0.31998301  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.31231896  
## PrgC\_per\_90 PrgC\_per\_90 0.29947642  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.29786206  
## np\_G\_xG np\_G\_xG 0.28547257  
## G\_SoT G\_SoT 0.27986078  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.27017700  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.26396879  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate -0.26033412  
## CPA\_per\_90 CPA\_per\_90 0.25562320  
## Cmp\_Rate Cmp\_Rate -0.25322896  
## Tkl\_Rate Tkl\_Rate 0.24865068  
## TB\_per\_90 TB\_per\_90 0.23516926  
## A\_xAG A\_xAG -0.22844722  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.22197164  
## G\_Sh G\_Sh 0.21602681  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.21134856  
## Ast\_per\_90 Ast\_per\_90 0.19353087  
## CrdY\_per\_90 CrdY\_per\_90 -0.19249839  
## CrsPA\_per\_90 CrsPA\_per\_90 0.19214713  
## Fld\_per\_90 Fld\_per\_90 0.18618503  
## PKwon\_per\_90 PKwon\_per\_90 0.18189358  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.18156707  
## Err\_per\_90 Err\_per\_90 0.17141387  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.16731744  
## Dis\_per\_90 Dis\_per\_90 0.16622775  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.16371774  
## Aerial\_Won\_Rate Aerial\_Won\_Rate -0.16361515  
## Int\_per\_90 Int\_per\_90 -0.15767083  
## SoT\_Rate SoT\_Rate 0.15681923  
## Fls\_per\_90 Fls\_per\_90 -0.15343561  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 0.14407025  
## Clr\_per\_90 Clr\_per\_90 0.12478343  
## Off\_per\_90 Off\_per\_90 0.11723440  
## PrgP\_per\_90 PrgP\_per\_90 0.11510187  
## Short\_Cmp\_Rate Short\_Cmp\_Rate -0.11117446  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 0.10280770  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.09070349  
## Mis\_per\_90 Mis\_per\_90 0.08667655  
## CrdR\_per\_90 CrdR\_per\_90 0.08601382  
## PKcon\_per\_90 PKcon\_per\_90 -0.06350559  
## Recov\_per\_90 Recov\_per\_90 0.04559673  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 -0.04451413  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.04367059  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.03712135  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA  
##   
## [[18]]  
## Variable Correlation  
## G\_PK G\_PK 0.840566290  
## Ast Ast 0.774081990  
## xAG xAG 0.742358957  
## xA\_per\_90 xA\_per\_90 0.707523656  
## Ast\_per\_90 Ast\_per\_90 0.644207871  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.604147288  
## xAG\_per\_90 xAG\_per\_90 0.567700317  
## KP\_per\_90 KP\_per\_90 0.549934700  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.513613531  
## G\_PK\_per\_90 G\_PK\_per\_90 0.496166827  
## Tkld\_Rate Tkld\_Rate -0.489054339  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.484388969  
## TB\_per\_90 TB\_per\_90 0.482436779  
## PrgC\_per\_90 PrgC\_per\_90 0.480974263  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.471334751  
## Fls\_per\_90 Fls\_per\_90 -0.461404926  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.449317377  
## Clr\_per\_90 Clr\_per\_90 -0.429370416  
## CPA\_per\_90 CPA\_per\_90 0.419319375  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.417521549  
## G\_Sh G\_Sh 0.408631915  
## np\_G\_xG np\_G\_xG 0.404606428  
## CrdY\_per\_90 CrdY\_per\_90 -0.380953550  
## G\_SoT G\_SoT 0.370814194  
## Tkl\_Rate Tkl\_Rate 0.328686066  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.295443013  
## PrgP\_per\_90 PrgP\_per\_90 0.279979298  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.268104028  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.267032541  
## PKcon\_per\_90 PKcon\_per\_90 -0.263985834  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.249539026  
## A\_xAG A\_xAG 0.246665542  
## OG\_per\_90 OG\_per\_90 0.236817686  
## CrdR\_per\_90 CrdR\_per\_90 0.220085556  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 0.220085556  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 -0.218534909  
## Off\_per\_90 Off\_per\_90 -0.207538358  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.206726652  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.189657189  
## Fld\_per\_90 Fld\_per\_90 0.181333934  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.178937747  
## Err\_per\_90 Err\_per\_90 0.178008175  
## SoT\_per\_90 SoT\_per\_90 0.177666497  
## Mis\_per\_90 Mis\_per\_90 -0.174659779  
## Cmp\_Rate Cmp\_Rate 0.169364533  
## SoT\_Rate SoT\_Rate 0.169059499  
## Dis\_per\_90 Dis\_per\_90 0.135819571  
## CrsPA\_per\_90 CrsPA\_per\_90 0.131968330  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.116402336  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.110725063  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.093262081  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.093144505  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 -0.089733957  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 0.086342084  
## Recov\_per\_90 Recov\_per\_90 0.075654136  
## Int\_per\_90 Int\_per\_90 -0.019194258  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate 0.010144569  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.005768654  
## PKwon\_per\_90 PKwon\_per\_90 0.001473635  
##   
## [[19]]  
## Variable Correlation  
## PrgC\_per\_90 PrgC\_per\_90 0.683066625  
## Prg\_Car\_Dist\_per\_90 Prg\_Car\_Dist\_per\_90 0.651182720  
## PassLive\_SCA\_per\_90 PassLive\_SCA\_per\_90 0.629998501  
## G\_PK G\_PK 0.624751881  
## Tot\_Car\_Dist\_per\_90 Tot\_Car\_Dist\_per\_90 0.614115428  
## CrdR\_per\_90 CrdR\_per\_90 -0.569854691  
## PrgP\_per\_90 PrgP\_per\_90 0.564777203  
## xAG xAG 0.564099506  
## xAG\_per\_90 xAG\_per\_90 0.558238399  
## G\_Sh G\_Sh 0.543378575  
## G\_PK\_per\_90 G\_PK\_per\_90 0.541356169  
## Tkld\_Rate Tkld\_Rate -0.538696899  
## KP\_per\_90 KP\_per\_90 0.535843245  
## Fouled\_SCA\_per\_90 Fouled\_SCA\_per\_90 0.529805950  
## Medium\_Cmp\_Rate Medium\_Cmp\_Rate 0.515793335  
## Take\_ons\_SCA\_per\_90 Take\_ons\_SCA\_per\_90 0.495598144  
## xA\_per\_90 xA\_per\_90 0.489101843  
## Succ\_Take\_ons\_Rate Succ\_Take\_ons\_Rate 0.487908180  
## Att\_3rd\_Car\_per\_90 Att\_3rd\_Car\_per\_90 0.469003023  
## Prg\_Pass\_Dist\_per\_90 Prg\_Pass\_Dist\_per\_90 0.456548959  
## G\_SoT G\_SoT 0.437163725  
## CPA\_per\_90 CPA\_per\_90 0.435890128  
## Ast\_per\_90 Ast\_per\_90 0.422912104  
## PKwon\_per\_90 PKwon\_per\_90 0.412317377  
## PKcon\_per\_90 PKcon\_per\_90 -0.411522747  
## Off\_Pass\_per\_90 Off\_Pass\_per\_90 0.405353079  
## Ast Ast 0.393293642  
## Tkl\_Int\_per\_90 Tkl\_Int\_per\_90 -0.390265752  
## Err\_per\_90 Err\_per\_90 0.369122986  
## TB\_per\_90 TB\_per\_90 0.351579311  
## Cmp\_Rate Cmp\_Rate 0.314900823  
## SoT\_per\_90 SoT\_per\_90 0.311331902  
## Total\_Pass\_Dist\_per\_90 Total\_Pass\_Dist\_per\_90 0.292412846  
## Aerial\_Won\_Rate Aerial\_Won\_Rate 0.277375754  
## CrdY\_per\_90 CrdY\_per\_90 0.238631125  
## SoT\_Rate SoT\_Rate 0.225374307  
## CrsPA\_per\_90 CrsPA\_per\_90 0.220478645  
## np\_G\_xG np\_G\_xG 0.214340375  
## Int\_per\_90 Int\_per\_90 0.210295638  
## Shot\_SCA\_per\_90 Shot\_SCA\_per\_90 0.186304442  
## Def\_SCA\_per\_90 Def\_SCA\_per\_90 0.151012384  
## Dis\_per\_90 Dis\_per\_90 -0.138335989  
## Recov\_per\_90 Recov\_per\_90 0.137781426  
## Fls\_per\_90 Fls\_per\_90 -0.118697672  
## Fld\_per\_90 Fld\_per\_90 0.097523231  
## Blocked\_Pass\_per\_90 Blocked\_Pass\_per\_90 -0.095565078  
## Pass\_Blocked\_per\_90 Pass\_Blocked\_per\_90 -0.088116478  
## A\_xAG A\_xAG -0.086876874  
## Tot\_Blocks\_per\_90 Tot\_Blocks\_per\_90 -0.086681942  
## Short\_Cmp\_Rate Short\_Cmp\_Rate 0.074232216  
## Tkl\_dribble\_Rate Tkl\_dribble\_Rate -0.052707023  
## Tkl\_Rate Tkl\_Rate -0.051097651  
## Off\_per\_90 Off\_per\_90 -0.043800133  
## Sh\_Blocked\_per\_90 Sh\_Blocked\_per\_90 -0.041427176  
## Clr\_per\_90 Clr\_per\_90 0.033854741  
## Long\_Cmp\_Rate Long\_Cmp\_Rate 0.015545455  
## Mis\_per\_90 Mis\_per\_90 -0.007952305  
## CrdY\_2\_per\_90 CrdY\_2\_per\_90 NA  
## OG\_per\_90 OG\_per\_90 NA

Selecting correlated independent variables Defenders

#Defender subsetting for relevant independent variables  
subset\_DF1\_PE\_ML <- subset(subset\_DF1\_PE\_num, select = c("Succ\_Take\_ons\_Rate", "xAG", "Int\_per\_90", "G\_PK", "Tkld\_Rate", "Off\_per\_90", "Rating"))  
  
subset\_DF2\_PE\_ML <- subset(subset\_DF2\_PE\_num, select = c("Ast", "Tkl\_Int\_per\_90", "xAG", "KP\_per\_90", "Ast\_per\_90", "PassLive\_SCA\_per\_90", "Int\_per\_90", "xA\_per\_90", "A\_xAG", "xAG\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Dis\_per\_90", "Rating"))  
  
subset\_DF3\_PE\_ML <- subset(subset\_DF3\_PE\_num, select = c("G\_PK", "SoT\_per\_90", "G\_PK\_per\_90", "PrgP\_per\_90", "Total\_Pass\_Dist\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Aerial\_Won\_Rate", "Tkl\_Int\_per\_90", "Rating"))  
  
subset\_DF4\_PE\_ML <- subset(subset\_DF4\_PE\_num, select = c("xAG", "Ast", "G\_PK", "CrdY\_per\_90", "Aerial\_Won\_Rate", "KP\_per\_90", "Recov\_per\_90", "PassLive\_SCA\_per\_90", "xA\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Int\_per\_90",  
"xAG\_per\_90", "G\_SoT", "Rating"))  
  
subset\_DF5\_PE\_ML <- subset(subset\_DF5\_PE\_num, select = c("G\_PK", "Aerial\_Won\_Rate", "xAG", "Tkl\_dribble\_Rate", "Ast", "Def\_SCA\_per\_90", "Rating"))  
  
subset\_DF6\_PE\_ML <- subset(subset\_DF6\_PE\_num, select = c("PassLive\_SCA\_per\_90", "G\_PK", "KP\_per\_90", "Off\_Pass\_per\_90", "xAG\_per\_90", "CrdY\_per\_90", "xAG", "G\_PK\_per\_90", "TB\_per\_90", "Aerial\_Won\_Rate", "Err\_per\_90", "Recov\_per\_90", "PrgP\_per\_90", "Rating"))  
  
subset\_DF7\_PE\_ML <- subset(subset\_DF7\_PE\_num, select = c("xAG", "xAG\_per\_90", "xA\_per\_90", "G\_PK", "Succ\_Take\_ons\_Rate", "PKcon\_per\_90", "PassLive\_SCA\_per\_90", "PrgP\_per\_90", "Fls\_per\_90", "Sh\_Blocked\_per\_90", "CrdY\_per\_90", "Rating"))

Midfielders

#Midfielder subsetting for relevant independent variables  
subset\_MF1\_PE\_ML <- subset(subset\_MF1\_PE\_num, select = c("xAG", "G\_PK", "Int\_per\_90", "Dis\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Recov\_per\_90", "Mis\_per\_90", "Ast", "G\_PK\_per\_90", "Tkl\_Int\_per\_90", "G\_Sh", "Rating"))  
  
subset\_MF2\_PE\_ML <- subset(subset\_MF2\_PE\_num, select = c("G\_PK", "xAG", "Ast", "G\_SoT", "G\_Sh", "PrgP\_per\_90", "Succ\_Take\_ons\_Rate", "KP\_per\_90", "Ast\_per\_90", "A\_xAG", "Rating"))  
  
subset\_MF3\_PE\_ML <- subset(subset\_MF3\_PE\_num, select = c("G\_PK", "Ast", "xAG", "A\_xAG", "Take\_ons\_SCA\_per\_90", "G\_PK\_per\_90", "Ast\_per\_90", "PrgC\_per\_90", "np\_G\_xG", "G\_SoT", "Tkld\_Rate", "Succ\_Take\_ons\_Rate", "SoT\_per\_90", "Rating"))  
  
subset\_MF4\_PE\_ML <- subset(subset\_MF4\_PE\_num, select = c("xAG", "Ast", "G\_PK", "xA\_per\_90", "xAG\_per\_90", "KP\_per\_90", "G\_PK\_per\_90", "TB\_per\_90", "SoT\_per\_90", "Ast\_per\_90", "np\_G\_xG", "PassLive\_SCA\_per\_90", "Rating"))  
  
subset\_MF5\_PE\_ML <- subset(subset\_MF5\_PE\_num, select = c("xAG", "xAG\_per\_90", "Ast", "G\_PK", "xA\_per\_90", "G\_PK\_per\_90", "Tot\_Car\_Dist\_per\_90", "Prg\_Car\_Dist\_per\_90", "G\_SoT", "Long\_Cmp\_Rate", "Ast\_per\_90", "PassLive\_SCA\_per\_90", "KP\_per\_90", "OG\_per\_90", "Def\_SCA\_per\_90", "TB\_per\_90", "Rating"))  
  
subset\_MF6\_PE\_ML <- subset(subset\_MF6\_PE\_num, select = c("Ast", "Fls\_per\_90", "xAG", "G\_PK", "CrdY\_per\_90", "A\_xAG", "CPA\_per\_90", "Prg\_Car\_Dist\_per\_90", "PrgC\_per\_90", "Err\_per\_90", "PKcon\_per\_90", "Tot\_Car\_Dist\_per\_90", "Att\_3rd\_Car\_per\_90", "Take\_ons\_SCA\_per\_90", "Short\_Cmp\_Rate", "Cmp\_Rate", "Off\_Pass\_per\_90", "Long\_Cmp\_Rate", "Tkld\_Rate", "KP\_per\_90", "G\_SoT", "Rating"))  
  
subset\_MF7\_PE\_ML <- subset(subset\_MF7\_PE\_num, select = c("Ast", "Int\_per\_90", "xAG", "G\_PK", "OG\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Succ\_Take\_ons\_Rate", "Tkl\_Int\_per\_90", "Short\_Cmp\_Rate", "Rating"))

Forwards

#Forward subsetting for relevant independent variables  
subset\_FW1\_PE\_ML <- subset(subset\_FW1\_PE\_num, select = c("xAG", "G\_PK", "Ast", "G\_PK\_per\_90", "G\_Sh", "Take\_ons\_SCA\_per\_90", "xA\_per\_90", "Rating"))  
  
subset\_FW2\_PE\_ML <- subset(subset\_FW2\_PE\_num, select = c("G\_PK", "xAG", "Ast", "Ast\_per\_90", "G\_PK\_per\_90", "SoT\_per\_90", "A\_xAG", "G\_Sh", "Succ\_Take\_ons\_Rate", "xA\_per\_90", "Rating"))  
  
subset\_FW3\_PE\_ML <- subset(subset\_FW3\_PE\_num, select = c("xAG", "G\_PK", "Ast", "xAG\_per\_90", "xA\_per\_90", "KP\_per\_90", "G\_PK\_per\_90", "SoT\_per\_90", "PassLive\_SCA\_per\_90", "Rating"))  
  
subset\_FW4\_PE\_ML <- subset(subset\_FW4\_PE\_num, select = c("G\_PK", "Ast", "xAG", "xA\_per\_90", "Ast\_per\_90", "Total\_Pass\_Dist\_per\_90", "xAG\_per\_90", "KP\_per\_90", "Succ\_Take\_ons\_Rate", "G\_PK\_per\_90", "Tkld\_Rate", "Prg\_Car\_Dist\_per\_90", "TB\_per\_90", "PrgC\_per\_90", "Tot\_Car\_Dist\_per\_90", "Fls\_per\_90", "Att\_3rd\_Car\_per\_90", "Rating"))  
  
subset\_FW5\_PE\_ML <- subset(subset\_FW5\_PE\_num, select = c("PrgC\_per\_90", "Prg\_Car\_Dist\_per\_90", "PassLive\_SCA\_per\_90", "G\_PK", "Tot\_Car\_Dist\_per\_90", "CrdR\_per\_90", "PrgP\_per\_90", "xAG", "xAG\_per\_90", "G\_Sh", "G\_PK\_per\_90", "Tkld\_Rate", "KP\_per\_90", "Fouled\_SCA\_per\_90", "Medium\_Cmp\_Rate", "Take\_ons\_SCA\_per\_90", "xA\_per\_90", "Succ\_Take\_ons\_Rate", "Att\_3rd\_Car\_per\_90", "Prg\_Pass\_Dist\_per\_90", "G\_SoT", "CPA\_per\_90", "Ast\_per\_90", "PKwon\_per\_90", "PKcon\_per\_90", "Rating"))

Checking for multicollinearity

# Function to compute the correlation matrix   
cor\_matrix <- function(df) {  
 df <- df[ , !(names(df) %in% "Rating")] # Remove the 'Rating' column  
 cor(df, use = "complete.obs") # Compute correlation matrix  
}  
  
# Computing correlation matrices for each subset  
cor\_matrix\_DF1\_PE\_ML <- cor\_matrix(subset\_DF1\_PE\_ML)  
cor\_matrix\_DF2\_PE\_ML <- cor\_matrix(subset\_DF2\_PE\_ML)  
cor\_matrix\_DF3\_PE\_ML <- cor\_matrix(subset\_DF3\_PE\_ML)  
cor\_matrix\_DF4\_PE\_ML <- cor\_matrix(subset\_DF4\_PE\_ML)  
cor\_matrix\_DF5\_PE\_ML <- cor\_matrix(subset\_DF5\_PE\_ML)  
cor\_matrix\_DF6\_PE\_ML <- cor\_matrix(subset\_DF6\_PE\_ML)  
cor\_matrix\_DF7\_PE\_ML <- cor\_matrix(subset\_DF7\_PE\_ML)  
  
cor\_matrix\_MF1\_PE\_ML <- cor\_matrix(subset\_MF1\_PE\_ML)  
cor\_matrix\_MF2\_PE\_ML <- cor\_matrix(subset\_MF2\_PE\_ML)  
cor\_matrix\_MF3\_PE\_ML <- cor\_matrix(subset\_MF3\_PE\_ML)  
cor\_matrix\_MF4\_PE\_ML <- cor\_matrix(subset\_MF4\_PE\_ML)  
cor\_matrix\_MF5\_PE\_ML <- cor\_matrix(subset\_MF5\_PE\_ML)  
cor\_matrix\_MF6\_PE\_ML <- cor\_matrix(subset\_MF6\_PE\_ML)  
cor\_matrix\_MF7\_PE\_ML <- cor\_matrix(subset\_MF7\_PE\_ML)  
  
cor\_matrix\_FW1\_PE\_ML <- cor\_matrix(subset\_FW1\_PE\_ML)  
cor\_matrix\_FW2\_PE\_ML <- cor\_matrix(subset\_FW2\_PE\_ML)  
cor\_matrix\_FW3\_PE\_ML <- cor\_matrix(subset\_FW3\_PE\_ML)  
cor\_matrix\_FW4\_PE\_ML <- cor\_matrix(subset\_FW4\_PE\_ML)  
cor\_matrix\_FW5\_PE\_ML <- cor\_matrix(subset\_FW5\_PE\_ML)

Removing unnecessary variables Defenders

#Defender subsetting for relevant independent variables  
subset\_DF1\_PE\_ML <- subset(subset\_DF1\_PE\_num, select = c("Succ\_Take\_ons\_Rate", "xAG", "Int\_per\_90", "G\_PK", "Off\_per\_90", "Rating"))  
  
subset\_DF2\_PE\_ML <- subset(subset\_DF2\_PE\_num, select = c("Ast", "Tkl\_Int\_per\_90", "KP\_per\_90", "PassLive\_SCA\_per\_90", "Int\_per\_90", "A\_xAG", "Prg\_Pass\_Dist\_per\_90", "Dis\_per\_90", "Rating"))  
  
subset\_DF3\_PE\_ML <- subset(subset\_DF3\_PE\_num, select = c("G\_PK", "SoT\_per\_90", "PrgP\_per\_90", "Total\_Pass\_Dist\_per\_90", "Aerial\_Won\_Rate", "Tkl\_Int\_per\_90", "Rating"))  
  
subset\_DF4\_PE\_ML <- subset(subset\_DF4\_PE\_num, select = c("xAG", "G\_PK", "CrdY\_per\_90", "Aerial\_Won\_Rate", "KP\_per\_90", "Recov\_per\_90", "PassLive\_SCA\_per\_90", "xA\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Int\_per\_90", "G\_SoT", "Rating"))  
  
subset\_DF6\_PE\_ML <- subset(subset\_DF6\_PE\_num, select = c("PassLive\_SCA\_per\_90", "G\_PK", "KP\_per\_90", "xAG\_per\_90", "CrdY\_per\_90", "TB\_per\_90", "Aerial\_Won\_Rate", "Err\_per\_90", "Recov\_per\_90", "PrgP\_per\_90", "Rating"))  
  
subset\_DF7\_PE\_ML <- subset(subset\_DF7\_PE\_num, select = c("xAG", "xAG\_per\_90", "xA\_per\_90", "G\_PK", "Succ\_Take\_ons\_Rate", "PKcon\_per\_90", "Fls\_per\_90", "Sh\_Blocked\_per\_90", "CrdY\_per\_90", "Rating"))

Midfielders

#Midfielder subsetting for relevant independent variables  
subset\_MF1\_PE\_ML <- subset(subset\_MF1\_PE\_num, select = c("xAG", "G\_PK", "Int\_per\_90", "Dis\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Recov\_per\_90", "Mis\_per\_90", "Ast", "Tkl\_Int\_per\_90", "G\_Sh", "Rating"))  
  
subset\_MF2\_PE\_ML <- subset(subset\_MF2\_PE\_num, select = c("G\_PK", "xAG", "G\_SoT", "PrgP\_per\_90", "Succ\_Take\_ons\_Rate", "KP\_per\_90", "Ast\_per\_90", "A\_xAG", "Rating"))  
  
subset\_MF3\_PE\_ML <- subset(subset\_MF3\_PE\_num, select = c("G\_PK", "Ast", "A\_xAG", "Take\_ons\_SCA\_per\_90", "PrgC\_per\_90", "np\_G\_xG", "G\_SoT", "Tkld\_Rate", "SoT\_per\_90", "Rating"))  
  
subset\_MF4\_PE\_ML <- subset(subset\_MF4\_PE\_num, select = c("xAG", "G\_PK", "xA\_per\_90", "G\_PK\_per\_90", "TB\_per\_90", "SoT\_per\_90", "Ast\_per\_90", "np\_G\_xG", "PassLive\_SCA\_per\_90", "Rating"))  
  
subset\_MF4\_PE\_ML <- subset(subset\_MF4\_PE\_num, select = c("xAG", "G\_PK", "xA\_per\_90", "G\_PK\_per\_90", "TB\_per\_90", "SoT\_per\_90", "Ast\_per\_90", "np\_G\_xG", "PassLive\_SCA\_per\_90", "Rating"))  
  
subset\_MF5\_PE\_ML <- subset(subset\_MF5\_PE\_num, select = c("xAG", "G\_PK", "xA\_per\_90", "Tot\_Car\_Dist\_per\_90", "G\_SoT", "Long\_Cmp\_Rate", "Ast\_per\_90", "OG\_per\_90", "Def\_SCA\_per\_90", "TB\_per\_90", "Rating"))  
  
subset\_MF6\_PE\_ML <- subset(subset\_MF6\_PE\_num, select = c("Ast", "Fls\_per\_90", "G\_PK", "CrdY\_per\_90", "CPA\_per\_90", "Prg\_Car\_Dist\_per\_90", "Err\_per\_90", "Att\_3rd\_Car\_per\_90", "Take\_ons\_SCA\_per\_90", "Rating"))  
  
subset\_MF7\_PE\_ML <- subset(subset\_MF7\_PE\_num, select = c("Ast", "Int\_per\_90", "xAG", "G\_PK", "OG\_per\_90", "Prg\_Pass\_Dist\_per\_90", "Succ\_Take\_ons\_Rate", "Tkl\_Int\_per\_90", "Short\_Cmp\_Rate", "Rating"))

Forwards

#Forward subsetting for relevant independent variables  
subset\_FW1\_PE\_ML <- subset(subset\_FW1\_PE\_num, select = c("xAG", "G\_PK", "G\_PK\_per\_90", "G\_Sh", "Take\_ons\_SCA\_per\_90", "xA\_per\_90", "Rating"))  
  
subset\_FW2\_PE\_ML <- subset(subset\_FW2\_PE\_num, select = c("G\_PK", "xAG", "Ast\_per\_90", "G\_PK\_per\_90", "SoT\_per\_90", "A\_xAG", "G\_Sh", "Succ\_Take\_ons\_Rate", "xA\_per\_90", "Rating"))  
  
subset\_FW3\_PE\_ML <- subset(subset\_FW3\_PE\_num, select = c("xAG", "G\_PK", "xAG\_per\_90", "xA\_per\_90", "KP\_per\_90", "SoT\_per\_90", "PassLive\_SCA\_per\_90", "Rating"))  
  
subset\_FW4\_PE\_ML <- subset(subset\_FW4\_PE\_num, select = c("G\_PK", "Ast", "xA\_per\_90", "Total\_Pass\_Dist\_per\_90", "xAG\_per\_90", "KP\_per\_90", "Succ\_Take\_ons\_Rate", "G\_PK\_per\_90", "Prg\_Car\_Dist\_per\_90", "TB\_per\_90", "Fls\_per\_90", "Rating"))  
  
subset\_FW5\_PE\_ML <- subset(subset\_FW5\_PE\_num, select = c("PrgC\_per\_90", "PassLive\_SCA\_per\_90", "G\_PK", "CrdR\_per\_90", "PrgP\_per\_90", "xAG", "G\_Sh", "Tkld\_Rate", "KP\_per\_90", "Fouled\_SCA\_per\_90", "Medium\_Cmp\_Rate", "Take\_ons\_SCA\_per\_90", "xA\_per\_90", "Prg\_Pass\_Dist\_per\_90", "CPA\_per\_90", "Ast\_per\_90", "PKwon\_per\_90", "PKcon\_per\_90", "Rating"))

Selected Variable Visualization (Defenders)

# List of datasets for Defender subsets  
df\_list <- list(  
 subset\_DF1\_PE\_ML, subset\_DF2\_PE\_ML, subset\_DF3\_PE\_ML,  
 subset\_DF4\_PE\_ML, subset\_DF5\_PE\_ML, subset\_DF6\_PE\_ML, subset\_DF7\_PE\_ML  
)  
  
# List to store the names for saving  
df\_names <- c("Moderate Supporting Wide Defender", "Balanced Advanced Carrying Defenders", "Ball Playing Deep Defenders", "Dynamic Advanced Defenders", "Minimal Support Wide Defender", "Safe Deep Defenders", "Pure Deep Defenders")  
  
# Looping through each dataset  
for (i in seq\_along(df\_list)) {  
 # Calculating correlation matrix  
 correlation\_matrix <- cor(df\_list[[i]], use = "complete.obs")  
  
 # plotting  
 melted\_correlation <- melt(correlation\_matrix)  
  
 melted\_correlation <- melted\_correlation[melted\_correlation$Var1 == "Rating", ]  
  
 # Heatmap  
 p <- ggplot(melted\_correlation, aes(Var2, Var1, fill = value)) +  
 geom\_tile(color = "white") +  
 scale\_fill\_gradient2(low = "blue", high = "red", mid = "white", midpoint = 0, limit = c(-1, 1), space = "Lab", name = "Correlation") +  
 geom\_text(aes(Var2, Var1, label = round(value, 2)), color = "black", size = 4) +  
 theme\_minimal() +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1)) +  
 labs(title = paste("Correlation with Rating -", df\_names[i]), x = "Variables", y = "")  
  
 # Saving plot  
 ggsave(filename = paste0(df\_names[i], ".png"), plot = p, width = 6, height = 4)  
}

Selected Variable Visualization (Midfielders)

# Datasets for Defender subsets  
mf\_list <- list(  
 subset\_MF1\_PE\_ML, subset\_MF2\_PE\_ML, subset\_MF3\_PE\_ML,  
 subset\_MF4\_PE\_ML, subset\_MF5\_PE\_ML, subset\_MF6\_PE\_ML, subset\_MF7\_PE\_ML  
)  
  
# List to store the names for saving  
mf\_names <- c("Defensive Midfielders", "Pure Attacking Midfielders", "Stationed Progressive Midfielders", "Dynamic Attacking Midfielders", "Static Creators", "Functional Midfielders)", "Box to box ball winning Midfielders")  
  
# Looping  
for (i in seq\_along(mf\_list)) {  
 # Calculating correlation matrix  
 correlation\_matrix <- cor(mf\_list[[i]], use = "complete.obs")  
  
 # Plotting  
 melted\_correlation <- melt(correlation\_matrix)  
  
 melted\_correlation <- melted\_correlation[melted\_correlation$Var1 == "Rating", ]  
  
 # Heatmap  
 p <- ggplot(melted\_correlation, aes(Var2, Var1, fill = value)) +  
 geom\_tile(color = "white") +  
 scale\_fill\_gradient2(low = "blue", high = "red", mid = "white", midpoint = 0, limit = c(-1, 1), space = "Lab", name = "Correlation") +  
 geom\_text(aes(Var2, Var1, label = round(value, 2)), color = "black", size = 4) +  
 theme\_minimal() +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1)) +  
 labs(title = paste("Correlation with Rating -", mf\_names[i]), x = "Variables", y = "")  
  
 # Saving  
 ggsave(filename = paste0(mf\_names[i], ".png"), plot = p, width = 6, height = 4)  
}

Selected Variable Visualization (Forwards)

# List of datasets for Defender subsets  
fw\_list <- list(  
 subset\_FW1\_PE\_ML, subset\_FW2\_PE\_ML, subset\_FW3\_PE\_ML,  
 subset\_FW4\_PE\_ML, subset\_FW5\_PE\_ML  
)  
  
# List to store the names for saving  
fw\_names <- c("Defensive Carriers", "Pure Forwards", "Central Supporters", "Pure Attacking Wingers", "Supporting Carriers")  
  
# Looping  
for (i in seq\_along(fw\_list)) {  
 # Calculating correlation matrix  
 correlation\_matrix <- cor(fw\_list[[i]], use = "complete.obs")  
  
 # Plotting  
 melted\_correlation <- melt(correlation\_matrix)  
  
 melted\_correlation <- melted\_correlation[melted\_correlation$Var1 == "Rating", ]  
  
 # Heatmap  
 p <- ggplot(melted\_correlation, aes(Var2, Var1, fill = value)) +  
 geom\_tile(color = "white") +  
 scale\_fill\_gradient2(low = "blue", high = "red", mid = "white", midpoint = 0, limit = c(-1, 1), space = "Lab", name = "Correlation") +  
 geom\_text(aes(Var2, Var1, label = round(value, 2)), color = "black", size = 4) +  
 theme\_minimal() +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1)) +  
 labs(title = paste("Correlation with Rating -", fw\_names[i]), x = "Variables", y = "")  
  
 # Saving  
 ggsave(filename = paste0(fw\_names[i], ".png"), plot = p, width = 6, height = 4)  
}

*MACHINE LEARNING (Linear Regression)*

# Fitting the model  
DF1\_model <- lm(Rating ~ ., data = subset\_DF1\_PE\_ML)  
  
# summary of the model  
summary(DF1\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.20804 -0.06091 -0.02418 0.06736 0.18168   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.867819 0.614639 11.174 1.41e-06 \*\*\*  
## Succ\_Take\_ons\_Rate -0.004413 0.006265 -0.704 0.4990   
## xAG 0.115685 0.074282 1.557 0.1538   
## Int\_per\_90 -0.418007 0.513046 -0.815 0.4362   
## G\_PK 0.262658 0.111833 2.349 0.0434 \*   
## Off\_per\_90 -2.323738 1.404019 -1.655 0.1323   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1234 on 9 degrees of freedom  
## Multiple R-squared: 0.8123, Adjusted R-squared: 0.708   
## F-statistic: 7.788 on 5 and 9 DF, p-value: 0.004338

DF1\_model\_step <- stepAIC(DF1\_model, direction = "both")

## Start: AIC=-58.43  
## Rating ~ Succ\_Take\_ons\_Rate + xAG + Int\_per\_90 + G\_PK + Off\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Succ\_Take\_ons\_Rate 1 0.007555 0.14458 -59.630  
## - Int\_per\_90 1 0.010107 0.14713 -59.367  
## <none> 0.13703 -58.435  
## - xAG 1 0.036927 0.17395 -56.855  
## - Off\_per\_90 1 0.041705 0.17873 -56.449  
## - G\_PK 1 0.083984 0.22101 -53.264  
##   
## Step: AIC=-59.63  
## Rating ~ xAG + Int\_per\_90 + G\_PK + Off\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Int\_per\_90 1 0.002820 0.14740 -61.340  
## <none> 0.14458 -59.630  
## - xAG 1 0.029564 0.17414 -58.839  
## + Succ\_Take\_ons\_Rate 1 0.007555 0.13703 -58.435  
## - G\_PK 1 0.153694 0.29827 -50.767  
## - Off\_per\_90 1 0.168182 0.31276 -50.055  
##   
## Step: AIC=-61.34  
## Rating ~ xAG + G\_PK + Off\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.14740 -61.340  
## + Int\_per\_90 1 0.002820 0.14458 -59.630  
## + Succ\_Take\_ons\_Rate 1 0.000268 0.14713 -59.367  
## - xAG 1 0.050663 0.19806 -58.908  
## - G\_PK 1 0.152226 0.29963 -52.699  
## - Off\_per\_90 1 0.186120 0.33352 -51.092

# summary of the stepwise model  
summary(DF1\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_PK + Off\_per\_90, data = subset\_DF1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.17784 -0.07596 -0.02130 0.06379 0.20976   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.37399 0.05990 106.402 < 2e-16 \*\*\*  
## xAG 0.06625 0.03407 1.944 0.07785 .   
## G\_PK 0.19600 0.05815 3.370 0.00625 \*\*   
## Off\_per\_90 -1.29955 0.34870 -3.727 0.00334 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1158 on 11 degrees of freedom  
## Multiple R-squared: 0.7981, Adjusted R-squared: 0.743   
## F-statistic: 14.49 on 3 and 11 DF, p-value: 0.0003878

DF2\_model <- lm(Rating ~ ., data = subset\_DF2\_PE\_ML)  
  
summary(DF2\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.16679 -0.05145 -0.01954 0.06926 0.18187   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.9024130 0.1219202 48.412 <2e-16 \*\*\*  
## Ast 0.0253810 0.0341239 0.744 0.4645   
## Tkl\_Int\_per\_90 0.0760281 0.0369879 2.055 0.0514 .   
## KP\_per\_90 0.1556410 0.1115331 1.395 0.1762   
## PassLive\_SCA\_per\_90 0.0681838 0.0823784 0.828 0.4164   
## Int\_per\_90 0.0710442 0.0647002 1.098 0.2835   
## A\_xAG 0.0402257 0.0490549 0.820 0.4206   
## Prg\_Pass\_Dist\_per\_90 0.0005903 0.0003787 1.559 0.1327   
## Dis\_per\_90 -0.0774523 0.0415312 -1.865 0.0750 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1074 on 23 degrees of freedom  
## Multiple R-squared: 0.8463, Adjusted R-squared: 0.7928   
## F-statistic: 15.83 on 8 and 23 DF, p-value: 1.146e-07

DF2\_model\_step <- stepAIC(DF2\_model, direction = "both")

## Start: AIC=-135.36  
## Rating ~ Ast + Tkl\_Int\_per\_90 + KP\_per\_90 + PassLive\_SCA\_per\_90 +   
## Int\_per\_90 + A\_xAG + Prg\_Pass\_Dist\_per\_90 + Dis\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Ast 1 0.006382 0.27172 -136.60  
## - A\_xAG 1 0.007757 0.27309 -136.44  
## - PassLive\_SCA\_per\_90 1 0.007903 0.27324 -136.42  
## - Int\_per\_90 1 0.013910 0.27925 -135.72  
## <none> 0.26534 -135.36  
## - KP\_per\_90 1 0.022465 0.28780 -134.76  
## - Prg\_Pass\_Dist\_per\_90 1 0.028038 0.29337 -134.15  
## - Dis\_per\_90 1 0.040123 0.30546 -132.85  
## - Tkl\_Int\_per\_90 1 0.048741 0.31408 -131.96  
##   
## Step: AIC=-136.6  
## Rating ~ Tkl\_Int\_per\_90 + KP\_per\_90 + PassLive\_SCA\_per\_90 + Int\_per\_90 +   
## A\_xAG + Prg\_Pass\_Dist\_per\_90 + Dis\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PassLive\_SCA\_per\_90 1 0.008214 0.27993 -137.65  
## <none> 0.27172 -136.60  
## - Int\_per\_90 1 0.019742 0.29146 -136.35  
## - Prg\_Pass\_Dist\_per\_90 1 0.027092 0.29881 -135.56  
## + Ast 1 0.006382 0.26534 -135.36  
## - Dis\_per\_90 1 0.044272 0.31599 -133.77  
## - Tkl\_Int\_per\_90 1 0.050997 0.32272 -133.09  
## - KP\_per\_90 1 0.053552 0.32527 -132.84  
## - A\_xAG 1 0.059221 0.33094 -132.29  
##   
## Step: AIC=-137.65  
## Rating ~ Tkl\_Int\_per\_90 + KP\_per\_90 + Int\_per\_90 + A\_xAG + Prg\_Pass\_Dist\_per\_90 +   
## Dis\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.27993 -137.65  
## - Int\_per\_90 1 0.020406 0.30034 -137.40  
## + PassLive\_SCA\_per\_90 1 0.008214 0.27172 -136.60  
## + Ast 1 0.006693 0.27324 -136.42  
## - Dis\_per\_90 1 0.037836 0.31777 -135.59  
## - Prg\_Pass\_Dist\_per\_90 1 0.050499 0.33043 -134.34  
## - Tkl\_Int\_per\_90 1 0.054408 0.33434 -133.96  
## - A\_xAG 1 0.060303 0.34024 -133.40  
## - KP\_per\_90 1 0.157690 0.43762 -125.35

summary(DF2\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ Tkl\_Int\_per\_90 + KP\_per\_90 + Int\_per\_90 +   
## A\_xAG + Prg\_Pass\_Dist\_per\_90 + Dis\_per\_90, data = subset\_DF2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.171123 -0.065883 -0.009806 0.060206 0.204514   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.9039723 0.1174251 50.279 < 2e-16 \*\*\*  
## Tkl\_Int\_per\_90 0.0799646 0.0362763 2.204 0.036928 \*   
## KP\_per\_90 0.2542939 0.0677627 3.753 0.000932 \*\*\*  
## Int\_per\_90 0.0836390 0.0619565 1.350 0.189125   
## A\_xAG 0.0694714 0.0299360 2.321 0.028754 \*   
## Prg\_Pass\_Dist\_per\_90 0.0007161 0.0003372 2.124 0.043773 \*   
## Dis\_per\_90 -0.0726414 0.0395176 -1.838 0.077944 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1058 on 25 degrees of freedom  
## Multiple R-squared: 0.8378, Adjusted R-squared: 0.7989   
## F-statistic: 21.53 on 6 and 25 DF, p-value: 9.421e-09

DF3\_model <- lm(Rating ~ ., data = subset\_DF3\_PE\_ML)  
  
summary(DF3\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.13456 -0.08758 -0.03879 0.07666 0.23464   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.1077623 0.2093088 29.181 <2e-16 \*\*\*  
## G\_PK 0.0528064 0.0219012 2.411 0.0236 \*   
## SoT\_per\_90 0.5280651 0.2774976 1.903 0.0686 .   
## PrgP\_per\_90 0.0237800 0.0210961 1.127 0.2704   
## Total\_Pass\_Dist\_per\_90 -0.0001070 0.0001799 -0.595 0.5575   
## Aerial\_Won\_Rate 0.0034034 0.0025314 1.344 0.1909   
## Tkl\_Int\_per\_90 0.1020226 0.0384157 2.656 0.0136 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1246 on 25 degrees of freedom  
## Multiple R-squared: 0.612, Adjusted R-squared: 0.5189   
## F-statistic: 6.573 on 6 and 25 DF, p-value: 0.0002916

DF3\_model\_step <- stepAIC(DF3\_model, direction = "both")

## Start: AIC=-127.19  
## Rating ~ G\_PK + SoT\_per\_90 + PrgP\_per\_90 + Total\_Pass\_Dist\_per\_90 +   
## Aerial\_Won\_Rate + Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Total\_Pass\_Dist\_per\_90 1 0.005489 0.39359 -128.74  
## - PrgP\_per\_90 1 0.019725 0.40783 -127.61  
## <none> 0.38810 -127.19  
## - Aerial\_Won\_Rate 1 0.028062 0.41617 -126.96  
## - SoT\_per\_90 1 0.056217 0.44432 -124.86  
## - G\_PK 1 0.090250 0.47835 -122.50  
## - Tkl\_Int\_per\_90 1 0.109492 0.49760 -121.24  
##   
## Step: AIC=-128.74  
## Rating ~ G\_PK + SoT\_per\_90 + PrgP\_per\_90 + Aerial\_Won\_Rate +   
## Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PrgP\_per\_90 1 0.014680 0.40827 -129.57  
## <none> 0.39359 -128.74  
## - Aerial\_Won\_Rate 1 0.026277 0.41987 -128.67  
## + Total\_Pass\_Dist\_per\_90 1 0.005489 0.38810 -127.19  
## - SoT\_per\_90 1 0.050895 0.44449 -126.85  
## - G\_PK 1 0.091607 0.48520 -124.05  
## - Tkl\_Int\_per\_90 1 0.104166 0.49776 -123.23  
##   
## Step: AIC=-129.57  
## Rating ~ G\_PK + SoT\_per\_90 + Aerial\_Won\_Rate + Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.40827 -129.57  
## + PrgP\_per\_90 1 0.014680 0.39359 -128.74  
## - Aerial\_Won\_Rate 1 0.052181 0.46045 -127.72  
## + Total\_Pass\_Dist\_per\_90 1 0.000443 0.40783 -127.61  
## - SoT\_per\_90 1 0.082652 0.49092 -125.67  
## - G\_PK 1 0.083714 0.49199 -125.60  
## - Tkl\_Int\_per\_90 1 0.121879 0.53015 -123.21

summary(DF3\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + SoT\_per\_90 + Aerial\_Won\_Rate + Tkl\_Int\_per\_90,   
## data = subset\_DF3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.16888 -0.09306 -0.02276 0.09405 0.23644   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.026738 0.161821 37.243 < 2e-16 \*\*\*  
## G\_PK 0.050403 0.021422 2.353 0.02617 \*   
## SoT\_per\_90 0.557559 0.238484 2.338 0.02705 \*   
## Aerial\_Won\_Rate 0.004251 0.002288 1.858 0.07416 .   
## Tkl\_Int\_per\_90 0.102326 0.036043 2.839 0.00849 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.123 on 27 degrees of freedom  
## Multiple R-squared: 0.5919, Adjusted R-squared: 0.5314   
## F-statistic: 9.789 on 4 and 27 DF, p-value: 5.007e-05

DF4\_model <- lm(Rating ~ ., data = subset\_DF4\_PE\_ML)  
  
summary(DF4\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.23244 -0.11792 -0.02356 0.11155 0.33809   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.8608901 0.1913953 30.622 <2e-16 \*\*\*  
## xAG 0.0129375 0.0251453 0.515 0.6111   
## G\_PK 0.0692990 0.0389030 1.781 0.0861 .   
## CrdY\_per\_90 -0.4742348 0.2311029 -2.052 0.0500 \*   
## Aerial\_Won\_Rate 0.0046534 0.0020125 2.312 0.0286 \*   
## KP\_per\_90 0.0667742 0.1040449 0.642 0.5264   
## Recov\_per\_90 0.0561643 0.0384869 1.459 0.1560   
## PassLive\_SCA\_per\_90 -0.0261474 0.0738106 -0.354 0.7259   
## xA\_per\_90 0.4139322 0.7862644 0.526 0.6029   
## Prg\_Pass\_Dist\_per\_90 0.0002058 0.0005327 0.386 0.7022   
## Int\_per\_90 0.1955923 0.0811790 2.409 0.0231 \*   
## G\_SoT -0.0077811 0.2306494 -0.034 0.9733   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1769 on 27 degrees of freedom  
## Multiple R-squared: 0.7799, Adjusted R-squared: 0.6902   
## F-statistic: 8.695 on 11 and 27 DF, p-value: 2.532e-06

DF4\_model\_step <- stepAIC(DF4\_model, direction = "both")

## Start: AIC=-125.45  
## Rating ~ xAG + G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 +   
## Recov\_per\_90 + PassLive\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Int\_per\_90 + G\_SoT  
##   
## Df Sum of Sq RSS AIC  
## - G\_SoT 1 0.000036 0.84508 -127.44  
## - PassLive\_SCA\_per\_90 1 0.003928 0.84897 -127.26  
## - Prg\_Pass\_Dist\_per\_90 1 0.004674 0.84972 -127.23  
## - xAG 1 0.008285 0.85333 -127.06  
## - xA\_per\_90 1 0.008674 0.85372 -127.05  
## - KP\_per\_90 1 0.012891 0.85793 -126.86  
## <none> 0.84504 -125.44  
## - Recov\_per\_90 1 0.066652 0.91169 -124.48  
## - G\_PK 1 0.099312 0.94435 -123.11  
## - CrdY\_per\_90 1 0.131793 0.97683 -121.79  
## - Aerial\_Won\_Rate 1 0.167328 1.01237 -120.40  
## - Int\_per\_90 1 0.181690 1.02673 -119.85  
##   
## Step: AIC=-127.44  
## Rating ~ xAG + G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 +   
## Recov\_per\_90 + PassLive\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PassLive\_SCA\_per\_90 1 0.004043 0.84912 -129.26  
## - Prg\_Pass\_Dist\_per\_90 1 0.004646 0.84972 -129.23  
## - xAG 1 0.008671 0.85375 -129.05  
## - xA\_per\_90 1 0.008840 0.85392 -129.04  
## - KP\_per\_90 1 0.013620 0.85870 -128.82  
## <none> 0.84508 -127.44  
## - Recov\_per\_90 1 0.066744 0.91182 -126.48  
## + G\_SoT 1 0.000036 0.84504 -125.44  
## - CrdY\_per\_90 1 0.131828 0.97691 -123.79  
## - G\_PK 1 0.160725 1.00580 -122.65  
## - Aerial\_Won\_Rate 1 0.167764 1.01284 -122.38  
## - Int\_per\_90 1 0.183198 1.02828 -121.79  
##   
## Step: AIC=-129.26  
## Rating ~ xAG + G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 +   
## Recov\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Prg\_Pass\_Dist\_per\_90 1 0.003046 0.85217 -131.12  
## - xA\_per\_90 1 0.008333 0.85745 -130.88  
## - KP\_per\_90 1 0.009917 0.85904 -130.81  
## - xAG 1 0.010245 0.85937 -130.79  
## <none> 0.84912 -129.26  
## - Recov\_per\_90 1 0.062764 0.91188 -128.48  
## + PassLive\_SCA\_per\_90 1 0.004043 0.84508 -127.44  
## + G\_SoT 1 0.000150 0.84897 -127.26  
## - CrdY\_per\_90 1 0.128602 0.97772 -125.76  
## - G\_PK 1 0.171243 1.02036 -124.09  
## - Aerial\_Won\_Rate 1 0.171403 1.02052 -124.09  
## - Int\_per\_90 1 0.181204 1.03032 -123.71  
##   
## Step: AIC=-131.12  
## Rating ~ xAG + G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 +   
## Recov\_per\_90 + xA\_per\_90 + Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xA\_per\_90 1 0.006332 0.85850 -132.83  
## - KP\_per\_90 1 0.017358 0.86952 -132.33  
## - xAG 1 0.017700 0.86987 -132.32  
## <none> 0.85217 -131.12  
## + Prg\_Pass\_Dist\_per\_90 1 0.003046 0.84912 -129.26  
## + PassLive\_SCA\_per\_90 1 0.002442 0.84972 -129.23  
## + G\_SoT 1 0.000242 0.85192 -129.13  
## - Recov\_per\_90 1 0.093661 0.94583 -129.05  
## - CrdY\_per\_90 1 0.128306 0.98047 -127.65  
## - G\_PK 1 0.170571 1.02274 -126.00  
## - Aerial\_Won\_Rate 1 0.191671 1.04384 -125.21  
## - Int\_per\_90 1 0.195100 1.04727 -125.08  
##   
## Step: AIC=-132.83  
## Rating ~ xAG + G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 +   
## Recov\_per\_90 + Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG 1 0.019961 0.87846 -133.93  
## <none> 0.85850 -132.83  
## - KP\_per\_90 1 0.067412 0.92591 -131.88  
## + xA\_per\_90 1 0.006332 0.85217 -131.12  
## + PassLive\_SCA\_per\_90 1 0.002577 0.85592 -130.95  
## + Prg\_Pass\_Dist\_per\_90 1 0.001044 0.85745 -130.88  
## + G\_SoT 1 0.000039 0.85846 -130.83  
## - Recov\_per\_90 1 0.110531 0.96903 -130.11  
## - CrdY\_per\_90 1 0.127580 0.98608 -129.43  
## - G\_PK 1 0.168666 1.02716 -127.83  
## - Int\_per\_90 1 0.188783 1.04728 -127.08  
## - Aerial\_Won\_Rate 1 0.189077 1.04757 -127.07  
##   
## Step: AIC=-133.93  
## Rating ~ G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate + KP\_per\_90 + Recov\_per\_90 +   
## Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.87846 -133.93  
## + xAG 1 0.019961 0.85850 -132.83  
## + xA\_per\_90 1 0.008593 0.86987 -132.32  
## + Prg\_Pass\_Dist\_per\_90 1 0.006507 0.87195 -132.22  
## + PassLive\_SCA\_per\_90 1 0.003028 0.87543 -132.07  
## + G\_SoT 1 0.000103 0.87836 -131.94  
## - CrdY\_per\_90 1 0.135079 1.01354 -130.35  
## - Recov\_per\_90 1 0.138183 1.01664 -130.24  
## - Int\_per\_90 1 0.171315 1.04977 -128.98  
## - Aerial\_Won\_Rate 1 0.229888 1.10835 -126.87  
## - G\_PK 1 0.252741 1.13120 -126.07  
## - KP\_per\_90 1 0.277053 1.15551 -125.24

summary(DF4\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + CrdY\_per\_90 + Aerial\_Won\_Rate +   
## KP\_per\_90 + Recov\_per\_90 + Int\_per\_90, data = subset\_DF4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.25464 -0.12784 -0.01494 0.13929 0.33693   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.783845 0.160322 36.076 < 2e-16 \*\*\*  
## G\_PK 0.076100 0.025080 3.034 0.00476 \*\*   
## CrdY\_per\_90 -0.443159 0.199780 -2.218 0.03376 \*   
## Aerial\_Won\_Rate 0.005157 0.001782 2.894 0.00680 \*\*   
## KP\_per\_90 0.123918 0.039007 3.177 0.00329 \*\*   
## Recov\_per\_90 0.066399 0.029595 2.244 0.03191 \*   
## Int\_per\_90 0.178935 0.071628 2.498 0.01782 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1657 on 32 degrees of freedom  
## Multiple R-squared: 0.7711, Adjusted R-squared: 0.7282   
## F-statistic: 17.97 on 6 and 32 DF, p-value: 5.333e-09

DF5\_model <- lm(Rating ~ ., data = subset\_DF5\_PE\_ML)  
  
summary(DF5\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF5\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.30658 -0.09565 -0.02981 0.09525 0.29315   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.821384 0.186325 31.243 < 2e-16 \*\*\*  
## G\_PK 0.097824 0.029562 3.309 0.00275 \*\*   
## Aerial\_Won\_Rate 0.006235 0.003553 1.755 0.09106 .   
## xAG 0.010036 0.034650 0.290 0.77438   
## Tkl\_dribble\_Rate 0.003266 0.001801 1.814 0.08125 .   
## Ast 0.030139 0.028536 1.056 0.30059   
## Def\_SCA\_per\_90 2.291084 0.767003 2.987 0.00607 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1583 on 26 degrees of freedom  
## Multiple R-squared: 0.688, Adjusted R-squared: 0.616   
## F-statistic: 9.555 on 6 and 26 DF, p-value: 1.408e-05

DF5\_model\_step <- stepAIC(DF5\_model, direction = "both")

## Start: AIC=-115.52  
## Rating ~ G\_PK + Aerial\_Won\_Rate + xAG + Tkl\_dribble\_Rate + Ast +   
## Def\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG 1 0.002102 0.65360 -117.42  
## - Ast 1 0.027953 0.67945 -116.14  
## <none> 0.65150 -115.53  
## - Aerial\_Won\_Rate 1 0.077166 0.72866 -113.83  
## - Tkl\_dribble\_Rate 1 0.082444 0.73394 -113.59  
## - Def\_SCA\_per\_90 1 0.223577 0.87507 -107.79  
## - G\_PK 1 0.274385 0.92588 -105.93  
##   
## Step: AIC=-117.42  
## Rating ~ G\_PK + Aerial\_Won\_Rate + Tkl\_dribble\_Rate + Ast + Def\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.65360 -117.42  
## - Ast 1 0.062963 0.71656 -116.38  
## - Tkl\_dribble\_Rate 1 0.080564 0.73416 -115.58  
## + xAG 1 0.002102 0.65150 -115.53  
## - Aerial\_Won\_Rate 1 0.084051 0.73765 -115.43  
## - Def\_SCA\_per\_90 1 0.241342 0.89494 -109.05  
## - G\_PK 1 0.302888 0.95649 -106.85

summary(DF5\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + Aerial\_Won\_Rate + Tkl\_dribble\_Rate +   
## Ast + Def\_SCA\_per\_90, data = subset\_DF5\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.305723 -0.103667 -0.005321 0.084492 0.296009   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.817732 0.182717 31.840 < 2e-16 \*\*\*  
## G\_PK 0.099852 0.028229 3.537 0.00148 \*\*   
## Aerial\_Won\_Rate 0.006411 0.003441 1.863 0.07332 .   
## Tkl\_dribble\_Rate 0.003210 0.001759 1.824 0.07919 .   
## Ast 0.035306 0.021892 1.613 0.11842   
## Def\_SCA\_per\_90 2.334492 0.739348 3.157 0.00389 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1556 on 27 degrees of freedom  
## Multiple R-squared: 0.687, Adjusted R-squared: 0.629   
## F-statistic: 11.85 on 5 and 27 DF, p-value: 3.939e-06

DF6\_model <- lm(Rating ~ ., data = subset\_DF6\_PE\_ML)  
  
summary(DF6\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF6\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.14658 -0.05848 -0.01027 0.06445 0.14480   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.235492 0.179788 34.682 2.1e-13 \*\*\*  
## PassLive\_SCA\_per\_90 0.174375 0.188395 0.926 0.3729   
## G\_PK 0.037012 0.028578 1.295 0.2196   
## KP\_per\_90 0.065688 0.228793 0.287 0.7789   
## xAG\_per\_90 0.101190 1.544888 0.066 0.9489   
## CrdY\_per\_90 -0.726275 0.293512 -2.474 0.0293 \*   
## TB\_per\_90 1.078014 1.083847 0.995 0.3396   
## Aerial\_Won\_Rate 0.001414 0.002338 0.605 0.5566   
## Err\_per\_90 -0.741225 0.322552 -2.298 0.0403 \*   
## Recov\_per\_90 0.051746 0.029699 1.742 0.1070   
## PrgP\_per\_90 -0.024870 0.055801 -0.446 0.6637   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1077 on 12 degrees of freedom  
## Multiple R-squared: 0.8037, Adjusted R-squared: 0.6402   
## F-statistic: 4.914 on 10 and 12 DF, p-value: 0.005776

DF6\_model\_step <- stepAIC(DF6\_model, direction = "both")

## Start: AIC=-95.45  
## Rating ~ PassLive\_SCA\_per\_90 + G\_PK + KP\_per\_90 + xAG\_per\_90 +   
## CrdY\_per\_90 + TB\_per\_90 + Aerial\_Won\_Rate + Err\_per\_90 +   
## Recov\_per\_90 + PrgP\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG\_per\_90 1 0.000050 0.13936 -97.442  
## - KP\_per\_90 1 0.000957 0.14027 -97.293  
## - PrgP\_per\_90 1 0.002306 0.14162 -97.073  
## - Aerial\_Won\_Rate 1 0.004246 0.14356 -96.760  
## - PassLive\_SCA\_per\_90 1 0.009946 0.14926 -95.864  
## - TB\_per\_90 1 0.011485 0.15080 -95.629  
## <none> 0.13931 -95.451  
## - G\_PK 1 0.019472 0.15878 -94.441  
## - Recov\_per\_90 1 0.035241 0.17455 -92.264  
## - Err\_per\_90 1 0.061306 0.20062 -89.063  
## - CrdY\_per\_90 1 0.071081 0.21039 -87.968  
##   
## Step: AIC=-97.44  
## Rating ~ PassLive\_SCA\_per\_90 + G\_PK + KP\_per\_90 + CrdY\_per\_90 +   
## TB\_per\_90 + Aerial\_Won\_Rate + Err\_per\_90 + Recov\_per\_90 +   
## PrgP\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - KP\_per\_90 1 0.001955 0.14131 -99.122  
## - PrgP\_per\_90 1 0.002402 0.14176 -99.049  
## - Aerial\_Won\_Rate 1 0.004350 0.14371 -98.735  
## - PassLive\_SCA\_per\_90 1 0.010235 0.14960 -97.812  
## - TB\_per\_90 1 0.011686 0.15105 -97.590  
## <none> 0.13936 -97.442  
## - G\_PK 1 0.019860 0.15922 -96.378  
## + xAG\_per\_90 1 0.000050 0.13931 -95.451  
## - Recov\_per\_90 1 0.035194 0.17455 -94.263  
## - Err\_per\_90 1 0.061796 0.20116 -91.001  
## - CrdY\_per\_90 1 0.073024 0.21238 -89.752  
##   
## Step: AIC=-99.12  
## Rating ~ PassLive\_SCA\_per\_90 + G\_PK + CrdY\_per\_90 + TB\_per\_90 +   
## Aerial\_Won\_Rate + Err\_per\_90 + Recov\_per\_90 + PrgP\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Aerial\_Won\_Rate 1 0.005456 0.14677 -100.251  
## - PrgP\_per\_90 1 0.005535 0.14685 -100.238  
## <none> 0.14131 -99.122  
## - PassLive\_SCA\_per\_90 1 0.016857 0.15817 -98.530  
## - TB\_per\_90 1 0.016913 0.15823 -98.522  
## - G\_PK 1 0.017941 0.15926 -98.373  
## + KP\_per\_90 1 0.001955 0.13936 -97.442  
## + xAG\_per\_90 1 0.001048 0.14027 -97.293  
## - Recov\_per\_90 1 0.045768 0.18708 -94.669  
## - Err\_per\_90 1 0.061735 0.20305 -92.785  
## - CrdY\_per\_90 1 0.084226 0.22554 -90.369  
##   
## Step: AIC=-100.25  
## Rating ~ PassLive\_SCA\_per\_90 + G\_PK + CrdY\_per\_90 + TB\_per\_90 +   
## Err\_per\_90 + Recov\_per\_90 + PrgP\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PrgP\_per\_90 1 0.002696 0.14947 -101.832  
## - PassLive\_SCA\_per\_90 1 0.012531 0.15930 -100.366  
## <none> 0.14677 -100.251  
## - G\_PK 1 0.016303 0.16307 -99.828  
## - TB\_per\_90 1 0.018096 0.16487 -99.576  
## + Aerial\_Won\_Rate 1 0.005456 0.14131 -99.122  
## + KP\_per\_90 1 0.003061 0.14371 -98.735  
## + xAG\_per\_90 1 0.001918 0.14485 -98.553  
## - Recov\_per\_90 1 0.049503 0.19627 -95.566  
## - Err\_per\_90 1 0.067877 0.21465 -93.508  
## - CrdY\_per\_90 1 0.169244 0.31601 -84.612  
##   
## Step: AIC=-101.83  
## Rating ~ PassLive\_SCA\_per\_90 + G\_PK + CrdY\_per\_90 + TB\_per\_90 +   
## Err\_per\_90 + Recov\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PassLive\_SCA\_per\_90 1 0.010115 0.15958 -102.326  
## <none> 0.14947 -101.832  
## - G\_PK 1 0.014534 0.16400 -101.698  
## - TB\_per\_90 1 0.015656 0.16512 -101.541  
## + KP\_per\_90 1 0.005082 0.14438 -100.628  
## + xAG\_per\_90 1 0.003348 0.14612 -100.353  
## + PrgP\_per\_90 1 0.002696 0.14677 -100.251  
## + Aerial\_Won\_Rate 1 0.002616 0.14685 -100.238  
## - Recov\_per\_90 1 0.051711 0.20118 -96.998  
## - Err\_per\_90 1 0.084548 0.23402 -93.521  
## - CrdY\_per\_90 1 0.182667 0.33213 -85.467  
##   
## Step: AIC=-102.33  
## Rating ~ G\_PK + CrdY\_per\_90 + TB\_per\_90 + Err\_per\_90 + Recov\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.15958 -102.326  
## - G\_PK 1 0.016953 0.17653 -102.004  
## + PassLive\_SCA\_per\_90 1 0.010115 0.14947 -101.832  
## + KP\_per\_90 1 0.008862 0.15072 -101.640  
## + xAG\_per\_90 1 0.006089 0.15349 -101.221  
## + Aerial\_Won\_Rate 1 0.000801 0.15878 -100.442  
## + PrgP\_per\_90 1 0.000280 0.15930 -100.366  
## - TB\_per\_90 1 0.076448 0.23603 -95.324  
## - Err\_per\_90 1 0.086529 0.24611 -94.362  
## - Recov\_per\_90 1 0.102831 0.26241 -92.887  
## - CrdY\_per\_90 1 0.225648 0.38523 -84.056

summary(DF6\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + CrdY\_per\_90 + TB\_per\_90 + Err\_per\_90 +   
## Recov\_per\_90, data = subset\_DF6\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.137554 -0.075923 0.006455 0.064464 0.174570   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.35745 0.09078 70.032 < 2e-16 \*\*\*  
## G\_PK 0.03230 0.02403 1.344 0.196656   
## CrdY\_per\_90 -0.95018 0.19380 -4.903 0.000134 \*\*\*  
## TB\_per\_90 1.61463 0.56579 2.854 0.010987 \*   
## Err\_per\_90 -0.82361 0.27127 -3.036 0.007458 \*\*   
## Recov\_per\_90 0.06207 0.01875 3.310 0.004142 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.09689 on 17 degrees of freedom  
## Multiple R-squared: 0.7752, Adjusted R-squared: 0.709   
## F-statistic: 11.72 on 5 and 17 DF, p-value: 5.058e-05

DF7\_model <- lm(Rating ~ ., data = subset\_DF7\_PE\_ML)  
  
summary(DF7\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_DF7\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.14538 -0.05272 -0.00354 0.05446 0.10014   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.491259 0.213703 30.375 8.45e-08 \*\*\*  
## xAG 0.086402 0.068343 1.264 0.253   
## xAG\_per\_90 1.180213 2.087888 0.565 0.592   
## xA\_per\_90 0.786616 2.519724 0.312 0.765   
## G\_PK 0.028556 0.036315 0.786 0.462   
## Succ\_Take\_ons\_Rate 0.001404 0.001220 1.150 0.294   
## PKcon\_per\_90 -1.190815 0.773131 -1.540 0.174   
## Fls\_per\_90 -0.091081 0.130621 -0.697 0.512   
## Sh\_Blocked\_per\_90 0.123653 0.092942 1.330 0.232   
## CrdY\_per\_90 -0.132796 0.241595 -0.550 0.602   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1085 on 6 degrees of freedom  
## Multiple R-squared: 0.9214, Adjusted R-squared: 0.8035   
## F-statistic: 7.813 on 9 and 6 DF, p-value: 0.01054

DF7\_model\_step <- stepAIC(DF7\_model, direction = "both")

## Start: AIC=-66.76  
## Rating ~ xAG + xAG\_per\_90 + xA\_per\_90 + G\_PK + Succ\_Take\_ons\_Rate +   
## PKcon\_per\_90 + Fls\_per\_90 + Sh\_Blocked\_per\_90 + CrdY\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xA\_per\_90 1 0.0011475 0.071792 -68.505  
## - CrdY\_per\_90 1 0.0035573 0.074202 -67.977  
## - xAG\_per\_90 1 0.0037621 0.074407 -67.933  
## - Fls\_per\_90 1 0.0057248 0.076369 -67.516  
## - G\_PK 1 0.0072805 0.077925 -67.194  
## <none> 0.070644 -66.763  
## - Succ\_Take\_ons\_Rate 1 0.0155764 0.086221 -65.575  
## - xAG 1 0.0188184 0.089463 -64.984  
## - Sh\_Blocked\_per\_90 1 0.0208410 0.091485 -64.627  
## - PKcon\_per\_90 1 0.0279325 0.098577 -63.432  
##   
## Step: AIC=-68.51  
## Rating ~ xAG + xAG\_per\_90 + G\_PK + Succ\_Take\_ons\_Rate + PKcon\_per\_90 +   
## Fls\_per\_90 + Sh\_Blocked\_per\_90 + CrdY\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Fls\_per\_90 1 0.0049868 0.076779 -69.431  
## - CrdY\_per\_90 1 0.0064971 0.078289 -69.119  
## - xAG\_per\_90 1 0.0094057 0.081198 -68.535  
## <none> 0.071792 -68.505  
## - Succ\_Take\_ons\_Rate 1 0.0152175 0.087009 -67.429  
## + xA\_per\_90 1 0.0011475 0.070644 -66.763  
## - Sh\_Blocked\_per\_90 1 0.0211974 0.092989 -66.366  
## - G\_PK 1 0.0255545 0.097346 -65.633  
## - PKcon\_per\_90 1 0.0273360 0.099128 -65.343  
## - xAG 1 0.0288068 0.100599 -65.107  
##   
## Step: AIC=-69.43  
## Rating ~ xAG + xAG\_per\_90 + G\_PK + Succ\_Take\_ons\_Rate + PKcon\_per\_90 +   
## Sh\_Blocked\_per\_90 + CrdY\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG\_per\_90 1 0.007602 0.084381 -69.920  
## <none> 0.076779 -69.431  
## + Fls\_per\_90 1 0.004987 0.071792 -68.505  
## + xA\_per\_90 1 0.000410 0.076369 -67.516  
## - PKcon\_per\_90 1 0.022350 0.099129 -67.343  
## - Sh\_Blocked\_per\_90 1 0.023823 0.100602 -67.107  
## - Succ\_Take\_ons\_Rate 1 0.028649 0.105428 -66.357  
## - xAG 1 0.031729 0.108508 -65.896  
## - CrdY\_per\_90 1 0.034892 0.111671 -65.437  
## - G\_PK 1 0.035972 0.112751 -65.283  
##   
## Step: AIC=-69.92  
## Rating ~ xAG + G\_PK + Succ\_Take\_ons\_Rate + PKcon\_per\_90 + Sh\_Blocked\_per\_90 +   
## CrdY\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.084381 -69.920  
## + xAG\_per\_90 1 0.007602 0.076779 -69.431  
## + Fls\_per\_90 1 0.003183 0.081198 -68.535  
## - Succ\_Take\_ons\_Rate 1 0.022546 0.106927 -68.131  
## + xA\_per\_90 1 0.000829 0.083552 -68.078  
## - CrdY\_per\_90 1 0.031520 0.115901 -66.842  
## - PKcon\_per\_90 1 0.032220 0.116601 -66.745  
## - Sh\_Blocked\_per\_90 1 0.033715 0.118096 -66.542  
## - G\_PK 1 0.034545 0.118926 -66.430  
## - xAG 1 0.121689 0.206070 -57.634

summary(DF7\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_PK + Succ\_Take\_ons\_Rate + PKcon\_per\_90 +   
## Sh\_Blocked\_per\_90 + CrdY\_per\_90, data = subset\_DF7\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.124152 -0.059780 -0.004654 0.069425 0.094162   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.3896512 0.1179239 54.185 1.25e-12 \*\*\*  
## xAG 0.1354219 0.0375893 3.603 0.00572 \*\*   
## G\_PK 0.0407710 0.0212403 1.920 0.08713 .   
## Succ\_Take\_ons\_Rate 0.0014590 0.0009408 1.551 0.15538   
## PKcon\_per\_90 -1.0524303 0.5677121 -1.854 0.09676 .   
## Sh\_Blocked\_per\_90 0.1507600 0.0795016 1.896 0.09042 .   
## CrdY\_per\_90 -0.2509324 0.1368560 -1.834 0.09993 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.09683 on 9 degrees of freedom  
## Multiple R-squared: 0.9061, Adjusted R-squared: 0.8435   
## F-statistic: 14.47 on 6 and 9 DF, p-value: 0.0003631

MF1\_model <- lm(Rating ~ ., data = subset\_MF1\_PE\_ML)  
  
summary(MF1\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.17936 -0.08876 -0.01020 0.09402 0.23050   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.7499805 0.2170206 26.495 <2e-16 \*\*\*  
## xAG 0.0607774 0.0309698 1.962 0.0631 .   
## G\_PK 0.0500423 0.0258933 1.933 0.0669 .   
## Int\_per\_90 0.1123097 0.0638816 1.758 0.0933 .   
## Dis\_per\_90 -0.0233722 0.0834297 -0.280 0.7821   
## Prg\_Pass\_Dist\_per\_90 0.0016559 0.0008667 1.911 0.0698 .   
## Recov\_per\_90 0.0404071 0.0377730 1.070 0.2969   
## Mis\_per\_90 -0.1090225 0.0883370 -1.234 0.2308   
## Ast 0.0211253 0.0307133 0.688 0.4991   
## Tkl\_Int\_per\_90 0.0420831 0.0487756 0.863 0.3980   
## G\_Sh -0.2461593 0.6054711 -0.407 0.6884   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1281 on 21 degrees of freedom  
## Multiple R-squared: 0.7898, Adjusted R-squared: 0.6896   
## F-statistic: 7.889 on 10 and 21 DF, p-value: 3.877e-05

MF1\_model\_step <- stepAIC(MF1\_model, direction = "both")

## Start: AIC=-123.01  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Dis\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Recov\_per\_90 + Mis\_per\_90 + Ast + Tkl\_Int\_per\_90 + G\_Sh  
##   
## Df Sum of Sq RSS AIC  
## - Dis\_per\_90 1 0.001287 0.34570 -124.89  
## - G\_Sh 1 0.002711 0.34712 -124.76  
## - Ast 1 0.007759 0.35217 -124.30  
## - Tkl\_Int\_per\_90 1 0.012209 0.35662 -123.90  
## - Recov\_per\_90 1 0.018768 0.36318 -123.31  
## <none> 0.34441 -123.01  
## - Mis\_per\_90 1 0.024981 0.36939 -122.77  
## - Int\_per\_90 1 0.050693 0.39511 -120.62  
## - Prg\_Pass\_Dist\_per\_90 1 0.059874 0.40429 -119.88  
## - G\_PK 1 0.061258 0.40567 -119.77  
## - xAG 1 0.063164 0.40758 -119.62  
##   
## Step: AIC=-124.89  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Recov\_per\_90 +   
## Mis\_per\_90 + Ast + Tkl\_Int\_per\_90 + G\_Sh  
##   
## Df Sum of Sq RSS AIC  
## - G\_Sh 1 0.002040 0.34774 -126.70  
## - Ast 1 0.007392 0.35309 -126.22  
## - Tkl\_Int\_per\_90 1 0.012649 0.35835 -125.74  
## - Recov\_per\_90 1 0.017935 0.36364 -125.28  
## <none> 0.34570 -124.89  
## - Mis\_per\_90 1 0.031775 0.37748 -124.08  
## + Dis\_per\_90 1 0.001287 0.34441 -123.01  
## - Int\_per\_90 1 0.054309 0.40001 -122.22  
## - G\_PK 1 0.060723 0.40642 -121.72  
## - Prg\_Pass\_Dist\_per\_90 1 0.072593 0.41829 -120.79  
## - xAG 1 0.086688 0.43239 -119.73  
##   
## Step: AIC=-126.71  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Recov\_per\_90 +   
## Mis\_per\_90 + Ast + Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Ast 1 0.006790 0.35453 -128.09  
## - Tkl\_Int\_per\_90 1 0.011539 0.35928 -127.66  
## - Recov\_per\_90 1 0.018032 0.36577 -127.09  
## <none> 0.34774 -126.70  
## - Mis\_per\_90 1 0.034063 0.38180 -125.72  
## + G\_Sh 1 0.002040 0.34570 -124.89  
## + Dis\_per\_90 1 0.000616 0.34712 -124.76  
## - Int\_per\_90 1 0.056289 0.40403 -123.90  
## - Prg\_Pass\_Dist\_per\_90 1 0.075260 0.42300 -122.44  
## - xAG 1 0.088675 0.43642 -121.44  
## - G\_PK 1 0.090903 0.43864 -121.27  
##   
## Step: AIC=-128.09  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Recov\_per\_90 +   
## Mis\_per\_90 + Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Tkl\_Int\_per\_90 1 0.011025 0.36556 -129.11  
## - Recov\_per\_90 1 0.015180 0.36971 -128.75  
## <none> 0.35453 -128.09  
## - Mis\_per\_90 1 0.030693 0.38522 -127.43  
## + Ast 1 0.006790 0.34774 -126.70  
## + G\_Sh 1 0.001438 0.35309 -126.22  
## + Dis\_per\_90 1 0.000452 0.35408 -126.13  
## - Int\_per\_90 1 0.053576 0.40811 -125.58  
## - G\_PK 1 0.099561 0.45409 -122.17  
## - Prg\_Pass\_Dist\_per\_90 1 0.103951 0.45848 -121.86  
## - xAG 1 0.201503 0.55603 -115.69  
##   
## Step: AIC=-129.11  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Recov\_per\_90 +   
## Mis\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Mis\_per\_90 1 0.020607 0.38616 -129.35  
## <none> 0.36556 -129.11  
## + Tkl\_Int\_per\_90 1 0.011025 0.35453 -128.09  
## + Ast 1 0.006276 0.35928 -127.66  
## + Dis\_per\_90 1 0.000883 0.36467 -127.18  
## + G\_Sh 1 0.000575 0.36498 -127.16  
## - Recov\_per\_90 1 0.081565 0.44712 -124.66  
## - Int\_per\_90 1 0.088865 0.45442 -124.14  
## - Prg\_Pass\_Dist\_per\_90 1 0.102062 0.46762 -123.23  
## - G\_PK 1 0.124355 0.48991 -121.74  
## - xAG 1 0.191239 0.55679 -117.64  
##   
## Step: AIC=-129.35  
## Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 + Recov\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.38616 -129.35  
## + Mis\_per\_90 1 0.020607 0.36556 -129.11  
## + Dis\_per\_90 1 0.004858 0.38130 -127.76  
## + Ast 1 0.003533 0.38263 -127.64  
## + G\_Sh 1 0.002715 0.38345 -127.58  
## + Tkl\_Int\_per\_90 1 0.000939 0.38522 -127.43  
## - Recov\_per\_90 1 0.076502 0.46267 -125.57  
## - Int\_per\_90 1 0.097992 0.48416 -124.11  
## - Prg\_Pass\_Dist\_per\_90 1 0.111778 0.49794 -123.22  
## - G\_PK 1 0.163319 0.54948 -120.06  
## - xAG 1 0.237713 0.62388 -116.00

summary(MF1\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_PK + Int\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Recov\_per\_90, data = subset\_MF1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.16590 -0.07969 -0.02152 0.10287 0.21352   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.5600036 0.1481621 37.526 < 2e-16 \*\*\*  
## xAG 0.0791875 0.0197938 4.001 0.000467 \*\*\*  
## G\_PK 0.0521714 0.0157330 3.316 0.002698 \*\*   
## Int\_per\_90 0.1401093 0.0545469 2.569 0.016303 \*   
## Prg\_Pass\_Dist\_per\_90 0.0020005 0.0007292 2.743 0.010869 \*   
## Recov\_per\_90 0.0556361 0.0245143 2.270 0.031764 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1219 on 26 degrees of freedom  
## Multiple R-squared: 0.7643, Adjusted R-squared: 0.7189   
## F-statistic: 16.86 on 5 and 26 DF, p-value: 1.938e-07

MF2\_model <- lm(Rating ~ ., data = subset\_MF2\_PE\_ML)  
  
summary(MF2\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.17947 -0.08742 0.03042 0.07261 0.19698   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.120015 0.108166 56.580 <2e-16 \*\*\*  
## G\_PK 0.030230 0.020639 1.465 0.1603   
## xAG 0.155660 0.057600 2.702 0.0146 \*   
## G\_SoT 0.265337 0.261170 1.016 0.3231   
## PrgP\_per\_90 0.080206 0.030701 2.613 0.0176 \*   
## Succ\_Take\_ons\_Rate -0.001218 0.002281 -0.534 0.5998   
## KP\_per\_90 -0.229522 0.126686 -1.812 0.0867 .   
## Ast\_per\_90 -0.176671 0.565697 -0.312 0.7584   
## A\_xAG 0.036681 0.043973 0.834 0.4151   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1246 on 18 degrees of freedom  
## Multiple R-squared: 0.8796, Adjusted R-squared: 0.8261   
## F-statistic: 16.44 on 8 and 18 DF, p-value: 8.276e-07

MF2\_model\_step <- stepAIC(MF2\_model, direction = "both")

## Start: AIC=-105.4  
## Rating ~ G\_PK + xAG + G\_SoT + PrgP\_per\_90 + Succ\_Take\_ons\_Rate +   
## KP\_per\_90 + Ast\_per\_90 + A\_xAG  
##   
## Df Sum of Sq RSS AIC  
## - Ast\_per\_90 1 0.001515 0.28104 -107.258  
## - Succ\_Take\_ons\_Rate 1 0.004430 0.28396 -106.979  
## - A\_xAG 1 0.010806 0.29033 -106.379  
## - G\_SoT 1 0.016029 0.29555 -105.898  
## <none> 0.27953 -105.403  
## - G\_PK 1 0.033314 0.31284 -104.363  
## - KP\_per\_90 1 0.050973 0.33050 -102.881  
## - PrgP\_per\_90 1 0.105991 0.38552 -98.723  
## - xAG 1 0.113412 0.39294 -98.208  
##   
## Step: AIC=-107.26  
## Rating ~ G\_PK + xAG + G\_SoT + PrgP\_per\_90 + Succ\_Take\_ons\_Rate +   
## KP\_per\_90 + A\_xAG  
##   
## Df Sum of Sq RSS AIC  
## - Succ\_Take\_ons\_Rate 1 0.005684 0.28672 -108.717  
## - A\_xAG 1 0.014580 0.29562 -107.892  
## - G\_SoT 1 0.016463 0.29750 -107.720  
## <none> 0.28104 -107.258  
## + Ast\_per\_90 1 0.001515 0.27953 -105.403  
## - KP\_per\_90 1 0.057982 0.33902 -104.193  
## - G\_PK 1 0.060013 0.34105 -104.032  
## - PrgP\_per\_90 1 0.104678 0.38572 -100.709  
## - xAG 1 0.117460 0.39850 -99.829  
##   
## Step: AIC=-108.72  
## Rating ~ G\_PK + xAG + G\_SoT + PrgP\_per\_90 + KP\_per\_90 + A\_xAG  
##   
## Df Sum of Sq RSS AIC  
## - G\_SoT 1 0.011489 0.29821 -109.66  
## - A\_xAG 1 0.014574 0.30130 -109.38  
## <none> 0.28672 -108.72  
## + Succ\_Take\_ons\_Rate 1 0.005684 0.28104 -107.26  
## + Ast\_per\_90 1 0.002769 0.28396 -106.98  
## - KP\_per\_90 1 0.053969 0.34069 -106.06  
## - G\_PK 1 0.076054 0.36278 -104.36  
## - PrgP\_per\_90 1 0.099239 0.38596 -102.69  
## - xAG 1 0.126829 0.41355 -100.83  
##   
## Step: AIC=-109.66  
## Rating ~ G\_PK + xAG + PrgP\_per\_90 + KP\_per\_90 + A\_xAG  
##   
## Df Sum of Sq RSS AIC  
## - A\_xAG 1 0.013510 0.31172 -110.460  
## <none> 0.29821 -109.656  
## + G\_SoT 1 0.011489 0.28672 -108.717  
## - KP\_per\_90 1 0.044397 0.34261 -107.909  
## + Ast\_per\_90 1 0.000910 0.29730 -107.739  
## + Succ\_Take\_ons\_Rate 1 0.000710 0.29750 -107.720  
## - PrgP\_per\_90 1 0.089127 0.38734 -104.596  
## - xAG 1 0.117912 0.41612 -102.660  
## - G\_PK 1 0.264256 0.56247 -94.524  
##   
## Step: AIC=-110.46  
## Rating ~ G\_PK + xAG + PrgP\_per\_90 + KP\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.31172 -110.460  
## + A\_xAG 1 0.013510 0.29821 -109.656  
## + G\_SoT 1 0.010425 0.30130 -109.378  
## + Ast\_per\_90 1 0.010413 0.30131 -109.377  
## + Succ\_Take\_ons\_Rate 1 0.000817 0.31091 -108.531  
## - KP\_per\_90 1 0.057728 0.36945 -107.873  
## - PrgP\_per\_90 1 0.117245 0.42897 -103.840  
## - xAG 1 0.138913 0.45064 -102.509  
## - G\_PK 1 0.274678 0.58640 -95.399

summary(MF2\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + xAG + PrgP\_per\_90 + KP\_per\_90, data = subset\_MF2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.185817 -0.078333 0.009124 0.067067 0.187956   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.09460 0.07158 85.147 < 2e-16 \*\*\*  
## G\_PK 0.04774 0.01084 4.403 0.000225 \*\*\*  
## xAG 0.12290 0.03925 3.131 0.004858 \*\*   
## PrgP\_per\_90 0.07499 0.02607 2.877 0.008764 \*\*   
## KP\_per\_90 -0.19791 0.09805 -2.018 0.055898 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.119 on 22 degrees of freedom  
## Multiple R-squared: 0.8658, Adjusted R-squared: 0.8414   
## F-statistic: 35.47 on 4 and 22 DF, p-value: 2.683e-09

MF3\_model <- lm(Rating ~ ., data = subset\_MF3\_PE\_ML)  
  
summary(MF3\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.258465 -0.098345 -0.001511 0.095166 0.300317   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.444190 0.133809 48.160 < 2e-16 \*\*\*  
## G\_PK 0.084575 0.033364 2.535 0.01651 \*   
## Ast 0.046485 0.024788 1.875 0.07020 .   
## A\_xAG -0.002327 0.038670 -0.060 0.95240   
## Take\_ons\_SCA\_per\_90 0.662107 0.358355 1.848 0.07422 .   
## PrgC\_per\_90 0.167324 0.076122 2.198 0.03554 \*   
## np\_G\_xG -0.005752 0.036939 -0.156 0.87728   
## G\_SoT -0.007845 0.176329 -0.044 0.96480   
## Tkld\_Rate -0.002177 0.002184 -0.997 0.32653   
## SoT\_per\_90 -0.780865 0.255675 -3.054 0.00461 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1527 on 31 degrees of freedom  
## Multiple R-squared: 0.8446, Adjusted R-squared: 0.7995   
## F-statistic: 18.73 on 9 and 31 DF, p-value: 3.393e-10

MF3\_model\_step <- stepAIC(MF3\_model, direction = "both")

## Start: AIC=-145.57  
## Rating ~ G\_PK + Ast + A\_xAG + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 +   
## np\_G\_xG + G\_SoT + Tkld\_Rate + SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_SoT 1 0.000046 0.72278 -147.57  
## - A\_xAG 1 0.000084 0.72281 -147.56  
## - np\_G\_xG 1 0.000565 0.72330 -147.54  
## - Tkld\_Rate 1 0.023169 0.74590 -146.28  
## <none> 0.72273 -145.57  
## - Take\_ons\_SCA\_per\_90 1 0.079587 0.80232 -143.29  
## - Ast 1 0.081990 0.80472 -143.16  
## - PrgC\_per\_90 1 0.112644 0.83537 -141.63  
## - G\_PK 1 0.149808 0.87254 -139.85  
## - SoT\_per\_90 1 0.217466 0.94020 -136.78  
##   
## Step: AIC=-147.57  
## Rating ~ G\_PK + Ast + A\_xAG + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 +   
## np\_G\_xG + Tkld\_Rate + SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - A\_xAG 1 0.000093 0.72287 -149.56  
## - np\_G\_xG 1 0.000630 0.72341 -149.53  
## - Tkld\_Rate 1 0.024309 0.74708 -148.21  
## <none> 0.72278 -147.57  
## + G\_SoT 1 0.000046 0.72273 -145.57  
## - Take\_ons\_SCA\_per\_90 1 0.079561 0.80234 -145.29  
## - Ast 1 0.085559 0.80834 -144.98  
## - PrgC\_per\_90 1 0.121679 0.84446 -143.19  
## - G\_PK 1 0.164605 0.88738 -141.16  
## - SoT\_per\_90 1 0.224844 0.94762 -138.46  
##   
## Step: AIC=-149.56  
## Rating ~ G\_PK + Ast + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 + np\_G\_xG +   
## Tkld\_Rate + SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - np\_G\_xG 1 0.001565 0.72443 -151.47  
## - Tkld\_Rate 1 0.024707 0.74758 -150.18  
## <none> 0.72287 -149.56  
## + A\_xAG 1 0.000093 0.72278 -147.57  
## + G\_SoT 1 0.000054 0.72281 -147.56  
## - Take\_ons\_SCA\_per\_90 1 0.087767 0.81064 -146.86  
## - PrgC\_per\_90 1 0.123038 0.84591 -145.12  
## - G\_PK 1 0.212698 0.93557 -140.99  
## - SoT\_per\_90 1 0.237220 0.96009 -139.93  
## - Ast 1 0.250572 0.97344 -139.36  
##   
## Step: AIC=-151.47  
## Rating ~ G\_PK + Ast + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 + Tkld\_Rate +   
## SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Tkld\_Rate 1 0.02375 0.74819 -152.15  
## <none> 0.72443 -151.47  
## + np\_G\_xG 1 0.00156 0.72287 -149.56  
## + A\_xAG 1 0.00103 0.72341 -149.53  
## + G\_SoT 1 0.00027 0.72416 -149.49  
## - Take\_ons\_SCA\_per\_90 1 0.09876 0.82319 -148.23  
## - PrgC\_per\_90 1 0.13868 0.86311 -146.29  
## - SoT\_per\_90 1 0.23597 0.96040 -141.91  
## - Ast 1 0.31482 1.03925 -138.68  
## - G\_PK 1 0.43623 1.16066 -134.15  
##   
## Step: AIC=-152.15  
## Rating ~ G\_PK + Ast + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 + SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.74819 -152.15  
## + Tkld\_Rate 1 0.02375 0.72443 -151.47  
## + G\_SoT 1 0.00148 0.74670 -150.23  
## + np\_G\_xG 1 0.00061 0.74758 -150.18  
## + A\_xAG 1 0.00000 0.74818 -150.15  
## - Take\_ons\_SCA\_per\_90 1 0.14823 0.89642 -146.74  
## - PrgC\_per\_90 1 0.22675 0.97494 -143.30  
## - Ast 1 0.30947 1.05765 -139.96  
## - SoT\_per\_90 1 0.34222 1.09040 -138.71  
## - G\_PK 1 0.47229 1.22048 -134.09

summary(MF3\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + Ast + Take\_ons\_SCA\_per\_90 + PrgC\_per\_90 +   
## SoT\_per\_90, data = subset\_MF3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.21222 -0.10908 0.00761 0.10634 0.33003   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.32709 0.06911 91.556 < 2e-16 \*\*\*  
## G\_PK 0.08197 0.01744 4.700 3.95e-05 \*\*\*  
## Ast 0.04641 0.01220 3.805 0.000547 \*\*\*  
## Take\_ons\_SCA\_per\_90 0.79805 0.30306 2.633 0.012504 \*   
## PrgC\_per\_90 0.20024 0.06148 3.257 0.002505 \*\*   
## SoT\_per\_90 -0.87101 0.21769 -4.001 0.000311 \*\*\*  
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1462 on 35 degrees of freedom  
## Multiple R-squared: 0.8392, Adjusted R-squared: 0.8162   
## F-statistic: 36.52 on 5 and 35 DF, p-value: 6.166e-13

MF4\_model <- lm(Rating ~ ., data = subset\_MF4\_PE\_ML)  
  
summary(MF4\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.41359 -0.13605 -0.00882 0.10767 0.42059   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.172178 0.089728 68.787 <2e-16 \*\*\*  
## xAG 0.044178 0.019006 2.324 0.0247 \*   
## G\_PK 0.050985 0.019285 2.644 0.0112 \*   
## xA\_per\_90 1.045786 0.599954 1.743 0.0881 .   
## G\_PK\_per\_90 -0.251699 0.334295 -0.753 0.4554   
## TB\_per\_90 -0.008115 0.132768 -0.061 0.9515   
## SoT\_per\_90 0.045255 0.106282 0.426 0.6723   
## Ast\_per\_90 0.146149 0.264816 0.552 0.5838   
## np\_G\_xG -0.002969 0.021169 -0.140 0.8891   
## PassLive\_SCA\_per\_90 -0.004297 0.040215 -0.107 0.9154   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1891 on 45 degrees of freedom  
## Multiple R-squared: 0.8139, Adjusted R-squared: 0.7767   
## F-statistic: 21.87 on 9 and 45 DF, p-value: 1.201e-13

MF4\_model\_step <- stepAIC(MF4\_model, direction = "both")

## Start: AIC=-174.24  
## Rating ~ xAG + G\_PK + xA\_per\_90 + G\_PK\_per\_90 + TB\_per\_90 + SoT\_per\_90 +   
## Ast\_per\_90 + np\_G\_xG + PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - TB\_per\_90 1 0.000134 1.6094 -176.23  
## - PassLive\_SCA\_per\_90 1 0.000408 1.6097 -176.22  
## - np\_G\_xG 1 0.000704 1.6100 -176.21  
## - SoT\_per\_90 1 0.006484 1.6158 -176.01  
## - Ast\_per\_90 1 0.010892 1.6202 -175.86  
## - G\_PK\_per\_90 1 0.020273 1.6296 -175.55  
## <none> 1.6093 -174.24  
## - xA\_per\_90 1 0.108659 1.7179 -172.64  
## - xAG 1 0.193208 1.8025 -170.00  
## - G\_PK 1 0.249964 1.8592 -168.29  
##   
## Step: AIC=-176.23  
## Rating ~ xAG + G\_PK + xA\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 +   
## Ast\_per\_90 + np\_G\_xG + PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - np\_G\_xG 1 0.000624 1.6100 -178.21  
## - PassLive\_SCA\_per\_90 1 0.000693 1.6101 -178.21  
## - SoT\_per\_90 1 0.007095 1.6165 -177.99  
## - Ast\_per\_90 1 0.010775 1.6202 -177.86  
## - G\_PK\_per\_90 1 0.021638 1.6310 -177.50  
## <none> 1.6094 -176.23  
## - xA\_per\_90 1 0.108695 1.7181 -174.64  
## + TB\_per\_90 1 0.000134 1.6093 -174.24  
## - xAG 1 0.194115 1.8035 -171.97  
## - G\_PK 1 0.250385 1.8598 -170.28  
##   
## Step: AIC=-178.21  
## Rating ~ xAG + G\_PK + xA\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 +   
## Ast\_per\_90 + PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PassLive\_SCA\_per\_90 1 0.000975 1.6110 -180.18  
## - SoT\_per\_90 1 0.009661 1.6197 -179.88  
## - Ast\_per\_90 1 0.010346 1.6204 -179.86  
## - G\_PK\_per\_90 1 0.025134 1.6352 -179.36  
## <none> 1.6100 -178.21  
## - xA\_per\_90 1 0.108667 1.7187 -176.62  
## + np\_G\_xG 1 0.000624 1.6094 -176.23  
## + TB\_per\_90 1 0.000054 1.6100 -176.21  
## - xAG 1 0.215035 1.8251 -173.31  
## - G\_PK 1 0.308977 1.9190 -170.55  
##   
## Step: AIC=-180.18  
## Rating ~ xAG + G\_PK + xA\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 +   
## Ast\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - SoT\_per\_90 1 0.00870 1.6197 -181.88  
## - Ast\_per\_90 1 0.01215 1.6232 -181.76  
## - G\_PK\_per\_90 1 0.02531 1.6363 -181.32  
## <none> 1.6110 -180.18  
## + PassLive\_SCA\_per\_90 1 0.00098 1.6100 -178.21  
## + np\_G\_xG 1 0.00091 1.6101 -178.21  
## + TB\_per\_90 1 0.00031 1.6107 -178.19  
## - xA\_per\_90 1 0.13331 1.7443 -177.80  
## - xAG 1 0.21543 1.8264 -175.27  
## - G\_PK 1 0.33407 1.9451 -171.81  
##   
## Step: AIC=-181.88  
## Rating ~ xAG + G\_PK + xA\_per\_90 + G\_PK\_per\_90 + Ast\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_PK\_per\_90 1 0.02023 1.6399 -183.20  
## - Ast\_per\_90 1 0.02824 1.6480 -182.93  
## <none> 1.6197 -181.88  
## + SoT\_per\_90 1 0.00870 1.6110 -180.18  
## + np\_G\_xG 1 0.00320 1.6165 -179.99  
## + TB\_per\_90 1 0.00046 1.6193 -179.90  
## + PassLive\_SCA\_per\_90 1 0.00001 1.6197 -179.88  
## - xA\_per\_90 1 0.13087 1.7506 -179.61  
## - xAG 1 0.20794 1.8276 -177.24  
## - G\_PK 1 0.36754 1.9872 -172.63  
##   
## Step: AIC=-183.2  
## Rating ~ xAG + G\_PK + xA\_per\_90 + Ast\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Ast\_per\_90 1 0.02147 1.6614 -184.48  
## <none> 1.6399 -183.20  
## + G\_PK\_per\_90 1 0.02023 1.6197 -181.88  
## - xA\_per\_90 1 0.11064 1.7506 -181.61  
## + np\_G\_xG 1 0.00670 1.6332 -181.42  
## + SoT\_per\_90 1 0.00362 1.6363 -181.32  
## + TB\_per\_90 1 0.00170 1.6382 -181.25  
## + PassLive\_SCA\_per\_90 1 0.00023 1.6397 -181.21  
## - xAG 1 0.41712 2.0571 -172.73  
## - G\_PK 1 0.80173 2.4417 -163.31  
##   
## Step: AIC=-184.48  
## Rating ~ xAG + G\_PK + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 1.6614 -184.48  
## + Ast\_per\_90 1 0.02147 1.6399 -183.20  
## + SoT\_per\_90 1 0.01461 1.6468 -182.97  
## + G\_PK\_per\_90 1 0.01346 1.6480 -182.93  
## + np\_G\_xG 1 0.00764 1.6538 -182.74  
## + TB\_per\_90 1 0.00190 1.6595 -182.54  
## + PassLive\_SCA\_per\_90 1 0.00064 1.6608 -182.50  
## - xA\_per\_90 1 0.23566 1.8971 -179.19  
## - xAG 1 0.44521 2.1066 -173.42  
## - G\_PK 1 0.78048 2.4419 -165.30

summary(MF4\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_PK + xA\_per\_90, data = subset\_MF4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.43487 -0.13123 -0.01211 0.10249 0.40004   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.185779 0.057233 108.080 < 2e-16 \*\*\*  
## xAG 0.052011 0.014069 3.697 0.000534 \*\*\*  
## G\_PK 0.040636 0.008302 4.895 1.03e-05 \*\*\*  
## xA\_per\_90 1.022789 0.380274 2.690 0.009644 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1805 on 51 degrees of freedom  
## Multiple R-squared: 0.8079, Adjusted R-squared: 0.7966   
## F-statistic: 71.5 on 3 and 51 DF, p-value: < 2.2e-16

MF5\_model <- lm(Rating ~ ., data = subset\_MF5\_PE\_ML)  
  
summary(MF5\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF5\_PE\_ML)  
##   
## Residuals:  
## 1 2 3 4 5 6 7 8   
## 0.017655 -0.015463 0.009372 -0.039355 -0.082094 0.021866 -0.027667 0.015665   
## 9 10 11 12 13   
## 0.019137 0.070381 -0.048142 -0.013561 0.072207   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.968022 0.733782 8.133 0.0148 \*  
## xAG 0.061499 0.077108 0.798 0.5088   
## G\_PK -0.005483 0.117129 -0.047 0.9669   
## xA\_per\_90 -0.749710 2.492528 -0.301 0.7920   
## Tot\_Car\_Dist\_per\_90 0.001800 0.011187 0.161 0.8870   
## G\_SoT 0.193339 1.129847 0.171 0.8799   
## Long\_Cmp\_Rate 0.006126 0.008353 0.733 0.5396   
## Ast\_per\_90 0.139666 0.671948 0.208 0.8546   
## OG\_per\_90 -3.794746 2.991373 -1.269 0.3323   
## Def\_SCA\_per\_90 1.664448 1.935117 0.860 0.4804   
## TB\_per\_90 -0.283773 0.937648 -0.303 0.7907   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1083 on 2 degrees of freedom  
## Multiple R-squared: 0.9756, Adjusted R-squared: 0.8538   
## F-statistic: 8.009 on 10 and 2 DF, p-value: 0.116

MF5\_model\_step <- stepAIC(MF5\_model, direction = "both")

## Start: AIC=-60.13  
## Rating ~ xAG + G\_PK + xA\_per\_90 + Tot\_Car\_Dist\_per\_90 + G\_SoT +   
## Long\_Cmp\_Rate + Ast\_per\_90 + OG\_per\_90 + Def\_SCA\_per\_90 +   
## TB\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_PK 1 0.0000257 0.023477 -62.117  
## - Tot\_Car\_Dist\_per\_90 1 0.0003036 0.023755 -61.964  
## - G\_SoT 1 0.0003433 0.023794 -61.942  
## - Ast\_per\_90 1 0.0005066 0.023958 -61.853  
## - xA\_per\_90 1 0.0010608 0.024512 -61.556  
## - TB\_per\_90 1 0.0010740 0.024525 -61.549  
## <none> 0.023451 -60.131  
## - Long\_Cmp\_Rate 1 0.0063064 0.029757 -59.035  
## - xAG 1 0.0074589 0.030910 -58.541  
## - Def\_SCA\_per\_90 1 0.0086748 0.032126 -58.040  
## - OG\_per\_90 1 0.0188693 0.042320 -54.457  
##   
## Step: AIC=-62.12  
## Rating ~ xAG + xA\_per\_90 + Tot\_Car\_Dist\_per\_90 + G\_SoT + Long\_Cmp\_Rate +   
## Ast\_per\_90 + OG\_per\_90 + Def\_SCA\_per\_90 + TB\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_SoT 1 0.0003183 0.023795 -63.942  
## - Tot\_Car\_Dist\_per\_90 1 0.0004766 0.023953 -63.856  
## - Ast\_per\_90 1 0.0005604 0.024037 -63.810  
## - TB\_per\_90 1 0.0011161 0.024593 -63.513  
## - xA\_per\_90 1 0.0015795 0.025056 -63.271  
## <none> 0.023477 -62.117  
## - Long\_Cmp\_Rate 1 0.0063590 0.029836 -61.001  
## + G\_PK 1 0.0000257 0.023451 -60.131  
## - Def\_SCA\_per\_90 1 0.0100410 0.033518 -59.488  
## - OG\_per\_90 1 0.0254231 0.048900 -54.578  
## - xAG 1 0.0282488 0.051725 -53.848  
##   
## Step: AIC=-63.94  
## Rating ~ xAG + xA\_per\_90 + Tot\_Car\_Dist\_per\_90 + Long\_Cmp\_Rate +   
## Ast\_per\_90 + OG\_per\_90 + Def\_SCA\_per\_90 + TB\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Tot\_Car\_Dist\_per\_90 1 0.000182 0.023977 -65.843  
## - Ast\_per\_90 1 0.000415 0.024210 -65.717  
## - TB\_per\_90 1 0.000951 0.024746 -65.433  
## - xA\_per\_90 1 0.002074 0.025869 -64.856  
## <none> 0.023795 -63.942  
## + G\_SoT 1 0.000318 0.023477 -62.117  
## + G\_PK 1 0.000001 0.023794 -61.942  
## - Def\_SCA\_per\_90 1 0.013547 0.037342 -60.084  
## - Long\_Cmp\_Rate 1 0.021565 0.045360 -57.555  
## - OG\_per\_90 1 0.031887 0.055682 -54.890  
## - xAG 1 0.117790 0.141585 -42.757  
##   
## Step: AIC=-65.84  
## Rating ~ xAG + xA\_per\_90 + Long\_Cmp\_Rate + Ast\_per\_90 + OG\_per\_90 +   
## Def\_SCA\_per\_90 + TB\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Ast\_per\_90 1 0.000759 0.024736 -67.438  
## - TB\_per\_90 1 0.001316 0.025293 -67.148  
## - xA\_per\_90 1 0.002021 0.025998 -66.791  
## <none> 0.023977 -65.843  
## + Tot\_Car\_Dist\_per\_90 1 0.000182 0.023795 -63.942  
## + G\_PK 1 0.000143 0.023834 -63.921  
## + G\_SoT 1 0.000024 0.023953 -63.856  
## - Long\_Cmp\_Rate 1 0.023358 0.047335 -59.001  
## - OG\_per\_90 1 0.031769 0.055746 -56.875  
## - Def\_SCA\_per\_90 1 0.041322 0.065299 -54.818  
## - xAG 1 0.118300 0.142277 -44.694  
##   
## Step: AIC=-67.44  
## Rating ~ xAG + xA\_per\_90 + Long\_Cmp\_Rate + OG\_per\_90 + Def\_SCA\_per\_90 +   
## TB\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - TB\_per\_90 1 0.001167 0.025903 -68.838  
## - xA\_per\_90 1 0.001302 0.026038 -68.771  
## <none> 0.024736 -67.438  
## + Ast\_per\_90 1 0.000759 0.023977 -65.843  
## + Tot\_Car\_Dist\_per\_90 1 0.000527 0.024210 -65.717  
## + G\_PK 1 0.000510 0.024226 -65.709  
## + G\_SoT 1 0.000261 0.024475 -65.575  
## - Long\_Cmp\_Rate 1 0.024185 0.048921 -60.572  
## - OG\_per\_90 1 0.034256 0.058992 -58.139  
## - Def\_SCA\_per\_90 1 0.045239 0.069976 -55.919  
## - xAG 1 0.166267 0.191003 -42.865  
##   
## Step: AIC=-68.84  
## Rating ~ xAG + xA\_per\_90 + Long\_Cmp\_Rate + OG\_per\_90 + Def\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.025903 -68.838  
## - xA\_per\_90 1 0.005138 0.031041 -68.486  
## + TB\_per\_90 1 0.001167 0.024736 -67.438  
## + Ast\_per\_90 1 0.000610 0.025293 -67.148  
## + Tot\_Car\_Dist\_per\_90 1 0.000244 0.025659 -66.962  
## + G\_PK 1 0.000033 0.025870 -66.855  
## + G\_SoT 1 0.000000 0.025903 -66.839  
## - Long\_Cmp\_Rate 1 0.023191 0.049094 -62.527  
## - OG\_per\_90 1 0.039146 0.065049 -58.868  
## - Def\_SCA\_per\_90 1 0.055377 0.081281 -55.972  
## - xAG 1 0.165188 0.191091 -44.859

summary(MF5\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + xA\_per\_90 + Long\_Cmp\_Rate + OG\_per\_90 +   
## Def\_SCA\_per\_90, data = subset\_MF5\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.076089 -0.030925 -0.004704 0.027880 0.073066   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.102164 0.100422 60.765 8.58e-11 \*\*\*  
## xAG 0.065155 0.009752 6.681 0.000282 \*\*\*  
## xA\_per\_90 -0.545813 0.463201 -1.178 0.277157   
## Long\_Cmp\_Rate 0.006500 0.002596 2.503 0.040789 \*   
## OG\_per\_90 -3.487527 1.072268 -3.252 0.014009 \*   
## Def\_SCA\_per\_90 1.952082 0.504614 3.868 0.006144 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.06083 on 7 degrees of freedom  
## Multiple R-squared: 0.9731, Adjusted R-squared: 0.9539   
## F-statistic: 50.62 on 5 and 7 DF, p-value: 2.404e-05

MF6\_model <- lm(Rating ~ ., data = subset\_MF6\_PE\_ML)  
  
summary(MF6\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF6\_PE\_ML)  
##   
## Residuals:  
## 1 2 3 4 5 6 7 8   
## 0.036709 0.049112 -0.098290 0.019257 -0.030457 0.030150 0.009587 -0.019402   
## 9 10 11   
## -0.054816 0.021990 0.036160   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.698007 0.145849 45.924 0.0139 \*  
## Ast 0.440230 0.217336 2.026 0.2919   
## Fls\_per\_90 -0.262391 0.068377 -3.837 0.1623   
## G\_PK -0.469289 0.307016 -1.529 0.3688   
## CrdY\_per\_90 0.009509 0.247565 0.038 0.9756   
## CPA\_per\_90 -0.483397 0.212149 -2.279 0.2633   
## Prg\_Car\_Dist\_per\_90 0.006269 0.004349 1.441 0.3861   
## Err\_per\_90 -0.134438 0.694222 -0.194 0.8782   
## Att\_3rd\_Car\_per\_90 -0.285909 0.185796 -1.539 0.3669   
## Take\_ons\_SCA\_per\_90 2.018799 1.013246 1.992 0.2961   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1445 on 1 degrees of freedom  
## Multiple R-squared: 0.9879, Adjusted R-squared: 0.8789   
## F-statistic: 9.063 on 9 and 1 DF, p-value: 0.2526

MF6\_model\_step <- stepAIC(MF6\_model, direction = "both")

## Start: AIC=-48.93  
## Rating ~ Ast + Fls\_per\_90 + G\_PK + CrdY\_per\_90 + CPA\_per\_90 +   
## Prg\_Car\_Dist\_per\_90 + Err\_per\_90 + Att\_3rd\_Car\_per\_90 + Take\_ons\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - CrdY\_per\_90 1 0.000031 0.02092 -50.913  
## - Err\_per\_90 1 0.000783 0.02168 -50.524  
## <none> 0.02089 -48.929  
## - Prg\_Car\_Dist\_per\_90 1 0.043406 0.06430 -38.563  
## - G\_PK 1 0.048814 0.06971 -37.675  
## - Att\_3rd\_Car\_per\_90 1 0.049473 0.07037 -37.571  
## - Take\_ons\_SCA\_per\_90 1 0.082936 0.10383 -33.292  
## - Ast 1 0.085720 0.10661 -33.001  
## - CPA\_per\_90 1 0.108471 0.12936 -30.873  
## - Fls\_per\_90 1 0.307658 0.32855 -20.621  
##   
## Step: AIC=-50.91  
## Rating ~ Ast + Fls\_per\_90 + G\_PK + CPA\_per\_90 + Prg\_Car\_Dist\_per\_90 +   
## Err\_per\_90 + Att\_3rd\_Car\_per\_90 + Take\_ons\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Err\_per\_90 1 0.00081 0.02173 -52.497  
## <none> 0.02092 -50.913  
## + CrdY\_per\_90 1 0.00003 0.02089 -48.929  
## - Prg\_Car\_Dist\_per\_90 1 0.04591 0.06683 -40.138  
## - G\_PK 1 0.04909 0.07002 -39.626  
## - Att\_3rd\_Car\_per\_90 1 0.05272 0.07365 -39.070  
## - Take\_ons\_SCA\_per\_90 1 0.08521 0.10614 -35.050  
## - Ast 1 0.08599 0.10691 -34.970  
## - CPA\_per\_90 1 0.11108 0.13200 -32.651  
## - Fls\_per\_90 1 0.37916 0.40008 -20.454  
##   
## Step: AIC=-52.5  
## Rating ~ Ast + Fls\_per\_90 + G\_PK + CPA\_per\_90 + Prg\_Car\_Dist\_per\_90 +   
## Att\_3rd\_Car\_per\_90 + Take\_ons\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.02173 -52.497  
## + Err\_per\_90 1 0.00081 0.02092 -50.913  
## + CrdY\_per\_90 1 0.00005 0.02168 -50.524  
## - Prg\_Car\_Dist\_per\_90 1 0.05914 0.08087 -40.041  
## - Att\_3rd\_Car\_per\_90 1 0.06484 0.08657 -39.292  
## - G\_PK 1 0.06838 0.09011 -38.851  
## - Take\_ons\_SCA\_per\_90 1 0.11420 0.13593 -34.329  
## - CPA\_per\_90 1 0.14014 0.16187 -32.407  
## - Ast 1 0.14421 0.16594 -32.134  
## - Fls\_per\_90 1 0.49548 0.51721 -19.629

summary(MF6\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ Ast + Fls\_per\_90 + G\_PK + CPA\_per\_90 +   
## Prg\_Car\_Dist\_per\_90 + Att\_3rd\_Car\_per\_90 + Take\_ons\_SCA\_per\_90,   
## data = subset\_MF6\_PE\_ML)  
##   
## Residuals:  
## 1 2 3 4 5 6 7 8   
## 0.02757 0.05870 -0.10192 0.02844 -0.03513 0.03720 0.01454 -0.02040   
## 9 10 11   
## -0.04791 0.02317 0.01574   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.708304 0.078383 85.584 3.52e-06 \*\*\*  
## Ast 0.464206 0.104032 4.462 0.0210 \*   
## Fls\_per\_90 -0.266649 0.032239 -8.271 0.0037 \*\*   
## G\_PK -0.494726 0.161012 -3.073 0.0545 .   
## CPA\_per\_90 -0.498094 0.113234 -4.399 0.0218 \*   
## Prg\_Car\_Dist\_per\_90 0.005746 0.002011 2.858 0.0647 .   
## Att\_3rd\_Car\_per\_90 -0.265003 0.088568 -2.992 0.0580 .   
## Take\_ons\_SCA\_per\_90 2.096769 0.528046 3.971 0.0286 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.0851 on 3 degrees of freedom  
## Multiple R-squared: 0.9874, Adjusted R-squared: 0.958   
## F-statistic: 33.59 on 7 and 3 DF, p-value: 0.007536

MF7\_model <- lm(Rating ~ ., data = subset\_MF7\_PE\_ML)  
  
summary(MF7\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_MF7\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.158975 -0.068240 0.009557 0.069756 0.185185   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.822105 0.516252 11.278 1.3e-06 \*\*\*  
## Ast 0.129852 0.046697 2.781 0.02137 \*   
## Int\_per\_90 0.074124 0.116237 0.638 0.53955   
## xAG 0.101141 0.060612 1.669 0.12953   
## G\_PK 0.088555 0.027116 3.266 0.00975 \*\*   
## OG\_per\_90 0.604714 1.000786 0.604 0.56061   
## Prg\_Pass\_Dist\_per\_90 0.000177 0.001040 0.170 0.86868   
## Succ\_Take\_ons\_Rate 0.011236 0.005210 2.156 0.05942 .   
## Tkl\_Int\_per\_90 0.081623 0.037246 2.191 0.05612 .   
## Short\_Cmp\_Rate -0.006312 0.007214 -0.875 0.40438   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.129 on 9 degrees of freedom  
## Multiple R-squared: 0.9056, Adjusted R-squared: 0.8111   
## F-statistic: 9.588 on 9 and 9 DF, p-value: 0.001223

MF7\_model\_step <- stepAIC(MF7\_model, direction = "both")

## Start: AIC=-72.02  
## Rating ~ Ast + Int\_per\_90 + xAG + G\_PK + OG\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Succ\_Take\_ons\_Rate + Tkl\_Int\_per\_90 + Short\_Cmp\_Rate  
##   
## Df Sum of Sq RSS AIC  
## - Prg\_Pass\_Dist\_per\_90 1 0.000482 0.15027 -73.956  
## - OG\_per\_90 1 0.006076 0.15586 -73.261  
## - Int\_per\_90 1 0.006768 0.15655 -73.177  
## - Short\_Cmp\_Rate 1 0.012739 0.16253 -72.466  
## <none> 0.14979 -72.017  
## - xAG 1 0.046342 0.19613 -68.895  
## - Succ\_Take\_ons\_Rate 1 0.077390 0.22718 -66.103  
## - Tkl\_Int\_per\_90 1 0.079928 0.22971 -65.892  
## - Ast 1 0.128692 0.27848 -62.234  
## - G\_PK 1 0.177506 0.32729 -59.165  
##   
## Step: AIC=-73.96  
## Rating ~ Ast + Int\_per\_90 + xAG + G\_PK + OG\_per\_90 + Succ\_Take\_ons\_Rate +   
## Tkl\_Int\_per\_90 + Short\_Cmp\_Rate  
##   
## Df Sum of Sq RSS AIC  
## - Int\_per\_90 1 0.006370 0.15664 -75.167  
## - OG\_per\_90 1 0.007144 0.15741 -75.073  
## - Short\_Cmp\_Rate 1 0.012421 0.16269 -74.447  
## <none> 0.15027 -73.956  
## + Prg\_Pass\_Dist\_per\_90 1 0.000482 0.14979 -72.017  
## - xAG 1 0.046041 0.19631 -70.878  
## - Succ\_Take\_ons\_Rate 1 0.088805 0.23907 -67.133  
## - Tkl\_Int\_per\_90 1 0.100268 0.25054 -66.243  
## - Ast 1 0.147680 0.29795 -62.950  
## - G\_PK 1 0.177179 0.32745 -61.156  
##   
## Step: AIC=-75.17  
## Rating ~ Ast + xAG + G\_PK + OG\_per\_90 + Succ\_Take\_ons\_Rate +   
## Tkl\_Int\_per\_90 + Short\_Cmp\_Rate  
##   
## Df Sum of Sq RSS AIC  
## - Short\_Cmp\_Rate 1 0.012202 0.16884 -75.742  
## - OG\_per\_90 1 0.014978 0.17162 -75.432  
## <none> 0.15664 -75.167  
## + Int\_per\_90 1 0.006370 0.15027 -73.956  
## + Prg\_Pass\_Dist\_per\_90 1 0.000084 0.15655 -73.177  
## - xAG 1 0.054100 0.21074 -71.530  
## - Succ\_Take\_ons\_Rate 1 0.113136 0.26977 -66.838  
## - Ast 1 0.160123 0.31676 -63.787  
## - G\_PK 1 0.195089 0.35173 -61.797  
## - Tkl\_Int\_per\_90 1 0.232916 0.38955 -59.857  
##   
## Step: AIC=-75.74  
## Rating ~ Ast + xAG + G\_PK + OG\_per\_90 + Succ\_Take\_ons\_Rate +   
## Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - OG\_per\_90 1 0.013956 0.18280 -76.233  
## <none> 0.16884 -75.742  
## + Short\_Cmp\_Rate 1 0.012202 0.15664 -75.167  
## + Int\_per\_90 1 0.006151 0.16269 -74.447  
## + Prg\_Pass\_Dist\_per\_90 1 0.000581 0.16826 -73.807  
## - xAG 1 0.043006 0.21185 -73.430  
## - Succ\_Take\_ons\_Rate 1 0.108687 0.27753 -68.299  
## - Ast 1 0.172852 0.34169 -64.347  
## - G\_PK 1 0.205278 0.37412 -62.625  
## - Tkl\_Int\_per\_90 1 0.220745 0.38959 -61.855  
##   
## Step: AIC=-76.23  
## Rating ~ Ast + xAG + G\_PK + Succ\_Take\_ons\_Rate + Tkl\_Int\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.18280 -76.233  
## + OG\_per\_90 1 0.013956 0.16884 -75.742  
## + Int\_per\_90 1 0.013547 0.16925 -75.696  
## + Short\_Cmp\_Rate 1 0.011181 0.17162 -75.432  
## - xAG 1 0.036482 0.21928 -74.775  
## + Prg\_Pass\_Dist\_per\_90 1 0.000014 0.18278 -74.234  
## - Succ\_Take\_ons\_Rate 1 0.134714 0.31751 -67.742  
## - Ast 1 0.162674 0.34547 -66.138  
## - G\_PK 1 0.193405 0.37620 -64.519  
## - Tkl\_Int\_per\_90 1 0.222171 0.40497 -63.119

summary(MF7\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ Ast + xAG + G\_PK + Succ\_Take\_ons\_Rate +   
## Tkl\_Int\_per\_90, data = subset\_MF7\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.20338 -0.05890 0.02593 0.05921 0.20981   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.542657 0.138007 40.162 5.09e-15 \*\*\*  
## Ast 0.135157 0.039737 3.401 0.00473 \*\*   
## xAG 0.081898 0.050845 1.611 0.13124   
## G\_PK 0.089177 0.024045 3.709 0.00263 \*\*   
## Succ\_Take\_ons\_Rate 0.007419 0.002397 3.095 0.00852 \*\*   
## Tkl\_Int\_per\_90 0.092726 0.023328 3.975 0.00159 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1186 on 13 degrees of freedom  
## Multiple R-squared: 0.8847, Adjusted R-squared: 0.8404   
## F-statistic: 19.96 on 5 and 13 DF, p-value: 1.102e-05

FW1\_model <- lm(Rating ~ ., data = subset\_FW1\_PE\_ML)  
  
summary(FW1\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_FW1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.27507 -0.09044 -0.03314 0.11760 0.48811   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.04728 0.12701 47.614 4.03e-13 \*\*\*  
## xAG 0.06760 0.10228 0.661 0.524   
## G\_PK 0.03698 0.05202 0.711 0.493   
## G\_PK\_per\_90 0.29245 0.56462 0.518 0.616   
## G\_Sh 1.58316 1.31973 1.200 0.258   
## Take\_ons\_SCA\_per\_90 0.09355 0.25605 0.365 0.722   
## xA\_per\_90 1.30497 1.06938 1.220 0.250   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.2354 on 10 degrees of freedom  
## Multiple R-squared: 0.7509, Adjusted R-squared: 0.6015   
## F-statistic: 5.025 on 6 and 10 DF, p-value: 0.01266

FW1\_model\_step <- stepAIC(FW1\_model, direction = "both")

## Start: AIC=-44.2  
## Rating ~ xAG + G\_PK + G\_PK\_per\_90 + G\_Sh + Take\_ons\_SCA\_per\_90 +   
## xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Take\_ons\_SCA\_per\_90 1 0.007398 0.56166 -45.971  
## - G\_PK\_per\_90 1 0.014870 0.56913 -45.747  
## - xAG 1 0.024211 0.57847 -45.470  
## - G\_PK 1 0.028010 0.58227 -45.359  
## <none> 0.55426 -44.197  
## - G\_Sh 1 0.079761 0.63402 -43.911  
## - xA\_per\_90 1 0.082537 0.63680 -43.837  
##   
## Step: AIC=-45.97  
## Rating ~ xAG + G\_PK + G\_PK\_per\_90 + G\_Sh + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_PK 1 0.021021 0.58268 -47.347  
## - G\_PK\_per\_90 1 0.023818 0.58548 -47.265  
## <none> 0.56166 -45.971  
## - xAG 1 0.073811 0.63547 -45.872  
## - xA\_per\_90 1 0.075545 0.63720 -45.826  
## - G\_Sh 1 0.088833 0.65049 -45.475  
## + Take\_ons\_SCA\_per\_90 1 0.007398 0.55426 -44.197  
##   
## Step: AIC=-47.35  
## Rating ~ xAG + G\_PK\_per\_90 + G\_Sh + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_PK\_per\_90 1 0.038913 0.62159 -48.248  
## - xA\_per\_90 1 0.059803 0.64248 -47.686  
## <none> 0.58268 -47.347  
## + G\_PK 1 0.021021 0.56166 -45.971  
## - G\_Sh 1 0.139939 0.72262 -45.687  
## + Take\_ons\_SCA\_per\_90 1 0.000409 0.58227 -45.359  
## - xAG 1 0.162756 0.74544 -45.159  
##   
## Step: AIC=-48.25  
## Rating ~ xAG + G\_Sh + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xA\_per\_90 1 0.04459 0.66619 -49.070  
## <none> 0.62159 -48.248  
## + G\_PK\_per\_90 1 0.03891 0.58268 -47.347  
## + G\_PK 1 0.03612 0.58548 -47.265  
## + Take\_ons\_SCA\_per\_90 1 0.00317 0.61842 -46.335  
## - xAG 1 0.23079 0.85238 -44.880  
## - G\_Sh 1 0.55051 1.17210 -39.465  
##   
## Step: AIC=-49.07  
## Rating ~ xAG + G\_Sh  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.66619 -49.070  
## + xA\_per\_90 1 0.04459 0.62159 -48.248  
## + G\_PK\_per\_90 1 0.02370 0.64248 -47.686  
## + G\_PK 1 0.01316 0.65303 -47.409  
## + Take\_ons\_SCA\_per\_90 1 0.00063 0.66556 -47.086  
## - G\_Sh 1 0.51206 1.17825 -41.376  
## - xAG 1 0.88618 1.55236 -36.688

summary(FW1\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_Sh, data = subset\_FW1\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.36860 -0.07501 -0.02372 0.07748 0.59308   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.1286 0.0991 61.843 < 2e-16 \*\*\*  
## xAG 0.1756 0.0407 4.315 0.000712 \*\*\*  
## G\_Sh 2.5366 0.7733 3.280 0.005471 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.2181 on 14 degrees of freedom  
## Multiple R-squared: 0.7006, Adjusted R-squared: 0.6579   
## F-statistic: 16.38 on 2 and 14 DF, p-value: 0.0002154

FW2\_model <- lm(Rating ~ ., data = subset\_FW2\_PE\_ML)  
  
summary(FW2\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_FW2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.24125 -0.06247 -0.01647 0.05488 0.22897   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.9514581 0.1078153 55.201 < 2e-16 \*\*\*  
## G\_PK 0.0461301 0.0092702 4.976 1.84e-05 \*\*\*  
## xAG 0.0005458 0.0315560 0.017 0.9863   
## Ast\_per\_90 0.8818686 0.5529300 1.595 0.1200   
## G\_PK\_per\_90 -0.2679361 0.2513902 -1.066 0.2940   
## SoT\_per\_90 0.2090649 0.0817923 2.556 0.0152 \*   
## A\_xAG -0.0124573 0.0266264 -0.468 0.6429   
## G\_Sh -0.2723079 0.5148785 -0.529 0.6003   
## Succ\_Take\_ons\_Rate 0.0052914 0.0024369 2.171 0.0370 \*   
## xA\_per\_90 0.1315087 0.7773512 0.169 0.8667   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1278 on 34 degrees of freedom  
## Multiple R-squared: 0.8717, Adjusted R-squared: 0.8378   
## F-statistic: 25.67 on 9 and 34 DF, p-value: 1.176e-12

FW2\_model\_step <- stepAIC(FW2\_model, direction = "both")

## Start: AIC=-172.39  
## Rating ~ G\_PK + xAG + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 +   
## A\_xAG + G\_Sh + Succ\_Take\_ons\_Rate + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG 1 0.00000 0.55532 -174.39  
## - xA\_per\_90 1 0.00047 0.55578 -174.35  
## - A\_xAG 1 0.00358 0.55889 -174.10  
## - G\_Sh 1 0.00457 0.55988 -174.03  
## - G\_PK\_per\_90 1 0.01855 0.57387 -172.94  
## <none> 0.55532 -172.39  
## - Ast\_per\_90 1 0.04155 0.59686 -171.21  
## - Succ\_Take\_ons\_Rate 1 0.07701 0.63232 -168.67  
## - SoT\_per\_90 1 0.10671 0.66202 -166.65  
## - G\_PK 1 0.40443 0.95975 -150.31  
##   
## Step: AIC=-174.39  
## Rating ~ G\_PK + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 + A\_xAG +   
## G\_Sh + Succ\_Take\_ons\_Rate + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xA\_per\_90 1 0.00050 0.55582 -176.35  
## - A\_xAG 1 0.00378 0.55910 -176.09  
## - G\_Sh 1 0.00484 0.56016 -176.00  
## - G\_PK\_per\_90 1 0.01955 0.57487 -174.86  
## <none> 0.55532 -174.39  
## - Ast\_per\_90 1 0.05037 0.60569 -172.56  
## + xAG 1 0.00000 0.55532 -172.39  
## - Succ\_Take\_ons\_Rate 1 0.08082 0.63614 -170.41  
## - SoT\_per\_90 1 0.10685 0.66217 -168.64  
## - G\_PK 1 1.07728 1.63260 -128.94  
##   
## Step: AIC=-176.35  
## Rating ~ G\_PK + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 + A\_xAG +   
## G\_Sh + Succ\_Take\_ons\_Rate  
##   
## Df Sum of Sq RSS AIC  
## - A\_xAG 1 0.00533 0.56115 -177.93  
## - G\_Sh 1 0.00553 0.56136 -177.91  
## - G\_PK\_per\_90 1 0.01945 0.57527 -176.83  
## <none> 0.55582 -176.35  
## + xA\_per\_90 1 0.00050 0.55532 -174.39  
## + xAG 1 0.00004 0.55578 -174.35  
## - Succ\_Take\_ons\_Rate 1 0.08080 0.63663 -172.37  
## - Ast\_per\_90 1 0.08471 0.64054 -172.10  
## - SoT\_per\_90 1 0.10635 0.66217 -170.64  
## - G\_PK 1 1.10136 1.65718 -130.28  
##   
## Step: AIC=-177.93  
## Rating ~ G\_PK + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 + G\_Sh +   
## Succ\_Take\_ons\_Rate  
##   
## Df Sum of Sq RSS AIC  
## - G\_Sh 1 0.00705 0.56820 -179.38  
## - G\_PK\_per\_90 1 0.01791 0.57906 -178.54  
## <none> 0.56115 -177.93  
## + A\_xAG 1 0.00533 0.55582 -176.35  
## + xA\_per\_90 1 0.00206 0.55910 -176.09  
## + xAG 1 0.00065 0.56050 -175.98  
## - Succ\_Take\_ons\_Rate 1 0.09490 0.65606 -173.05  
## - SoT\_per\_90 1 0.10531 0.66646 -172.36  
## - Ast\_per\_90 1 0.13878 0.69993 -170.20  
## - G\_PK 1 1.10170 1.66285 -132.13  
##   
## Step: AIC=-179.38  
## Rating ~ G\_PK + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 + Succ\_Take\_ons\_Rate  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.56820 -179.38  
## + G\_Sh 1 0.00705 0.56115 -177.93  
## + A\_xAG 1 0.00684 0.56136 -177.91  
## + xA\_per\_90 1 0.00374 0.56446 -177.67  
## + xAG 1 0.00215 0.56605 -177.54  
## - Succ\_Take\_ons\_Rate 1 0.08788 0.65608 -175.05  
## - G\_PK\_per\_90 1 0.10189 0.67009 -174.12  
## - Ast\_per\_90 1 0.13800 0.70620 -171.81  
## - SoT\_per\_90 1 0.16117 0.72938 -170.39  
## - G\_PK 1 1.09910 1.66730 -134.01

summary(FW2\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + Ast\_per\_90 + G\_PK\_per\_90 + SoT\_per\_90 +   
## Succ\_Take\_ons\_Rate, data = subset\_FW2\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.259806 -0.064199 -0.007747 0.039847 0.228833   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.956946 0.093991 63.378 < 2e-16 \*\*\*  
## G\_PK 0.046331 0.005404 8.574 2.05e-10 \*\*\*  
## Ast\_per\_90 0.752068 0.247558 3.038 0.00429 \*\*   
## G\_PK\_per\_90 -0.382006 0.146339 -2.610 0.01287 \*   
## SoT\_per\_90 0.230417 0.070182 3.283 0.00221 \*\*   
## Succ\_Take\_ons\_Rate 0.005163 0.002130 2.424 0.02020 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1223 on 38 degrees of freedom  
## Multiple R-squared: 0.8687, Adjusted R-squared: 0.8515   
## F-statistic: 50.3 on 5 and 38 DF, p-value: 9.852e-16

FW3\_model <- lm(Rating ~ ., data = subset\_FW3\_PE\_ML)  
  
summary(FW3\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_FW3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.27174 -0.08395 -0.01705 0.08754 0.27670   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.17646 0.08654 71.371 < 2e-16 \*\*\*  
## xAG 0.07595 0.01403 5.412 7.27e-06 \*\*\*  
## G\_PK 0.02758 0.01017 2.711 0.011 \*   
## xAG\_per\_90 0.03060 0.66702 0.046 0.964   
## xA\_per\_90 0.40794 0.59447 0.686 0.498   
## KP\_per\_90 -0.03585 0.07147 -0.502 0.620   
## SoT\_per\_90 0.06010 0.09207 0.653 0.519   
## PassLive\_SCA\_per\_90 0.03077 0.04586 0.671 0.507   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.142 on 30 degrees of freedom  
## Multiple R-squared: 0.8854, Adjusted R-squared: 0.8586   
## F-statistic: 33.1 on 7 and 30 DF, p-value: 2.01e-12

FW3\_model\_step <- stepAIC(FW3\_model, direction = "both")

## Start: AIC=-141.32  
## Rating ~ xAG + G\_PK + xAG\_per\_90 + xA\_per\_90 + KP\_per\_90 + SoT\_per\_90 +   
## PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - xAG\_per\_90 1 0.00004 0.60507 -143.32  
## - KP\_per\_90 1 0.00508 0.61010 -143.00  
## - SoT\_per\_90 1 0.00859 0.61362 -142.79  
## - PassLive\_SCA\_per\_90 1 0.00908 0.61411 -142.76  
## - xA\_per\_90 1 0.00950 0.61452 -142.73  
## <none> 0.60503 -141.32  
## - G\_PK 1 0.14822 0.75325 -135.00  
## - xAG 1 0.59078 1.19580 -117.43  
##   
## Step: AIC=-143.32  
## Rating ~ xAG + G\_PK + xA\_per\_90 + KP\_per\_90 + SoT\_per\_90 + PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - KP\_per\_90 1 0.00527 0.61034 -144.99  
## - PassLive\_SCA\_per\_90 1 0.00911 0.61418 -144.75  
## - SoT\_per\_90 1 0.00971 0.61478 -144.72  
## - xA\_per\_90 1 0.01889 0.62396 -144.15  
## <none> 0.60507 -143.32  
## + xAG\_per\_90 1 0.00004 0.60503 -141.32  
## - G\_PK 1 0.15446 0.75953 -136.68  
## - xAG 1 0.64713 1.25220 -117.68  
##   
## Step: AIC=-144.99  
## Rating ~ xAG + G\_PK + xA\_per\_90 + SoT\_per\_90 + PassLive\_SCA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PassLive\_SCA\_per\_90 1 0.00442 0.61476 -146.72  
## - SoT\_per\_90 1 0.00666 0.61701 -146.58  
## - xA\_per\_90 1 0.01506 0.62541 -146.06  
## <none> 0.61034 -144.99  
## + KP\_per\_90 1 0.00527 0.60507 -143.32  
## + xAG\_per\_90 1 0.00024 0.61010 -143.00  
## - G\_PK 1 0.20195 0.81229 -136.13  
## - xAG 1 0.76577 1.37612 -116.10  
##   
## Step: AIC=-146.72  
## Rating ~ xAG + G\_PK + xA\_per\_90 + SoT\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - SoT\_per\_90 1 0.01009 0.62486 -148.10  
## <none> 0.61476 -146.72  
## - xA\_per\_90 1 0.03610 0.65087 -146.55  
## + PassLive\_SCA\_per\_90 1 0.00442 0.61034 -144.99  
## + KP\_per\_90 1 0.00059 0.61418 -144.75  
## + xAG\_per\_90 1 0.00000 0.61476 -144.72  
## - G\_PK 1 0.19897 0.81373 -138.06  
## - xAG 1 0.77514 1.38990 -117.72  
##   
## Step: AIC=-148.1  
## Rating ~ xAG + G\_PK + xA\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.62486 -148.10  
## - xA\_per\_90 1 0.05002 0.67488 -147.17  
## + SoT\_per\_90 1 0.01009 0.61476 -146.72  
## + PassLive\_SCA\_per\_90 1 0.00785 0.61701 -146.58  
## + xAG\_per\_90 1 0.00152 0.62334 -146.19  
## + KP\_per\_90 1 0.00018 0.62468 -146.11  
## - G\_PK 1 0.40009 1.02495 -131.29  
## - xAG 1 0.78674 1.41160 -119.13

summary(FW3\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ xAG + G\_PK + xA\_per\_90, data = subset\_FW3\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.28936 -0.08905 -0.02915 0.08568 0.27301   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 6.223488 0.059272 104.999 < 2e-16 \*\*\*  
## xAG 0.070895 0.010836 6.543 1.71e-07 \*\*\*  
## G\_PK 0.032948 0.007062 4.666 4.64e-05 \*\*\*  
## xA\_per\_90 0.541530 0.328255 1.650 0.108   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1356 on 34 degrees of freedom  
## Multiple R-squared: 0.8816, Adjusted R-squared: 0.8712   
## F-statistic: 84.41 on 3 and 34 DF, p-value: 7.886e-16

FW4\_model <- lm(Rating ~ ., data = subset\_FW4\_PE\_ML)  
  
summary(FW4\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_FW4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.26230 -0.05371 0.01283 0.09128 0.19967   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.5559679 0.2197858 25.279 1.63e-15 \*\*\*  
## G\_PK 0.0342430 0.0184982 1.851 0.0806 .   
## Ast 0.0467217 0.0187441 2.493 0.0227 \*   
## xA\_per\_90 1.1212054 0.9713469 1.154 0.2635   
## Total\_Pass\_Dist\_per\_90 0.0010319 0.0004713 2.189 0.0420 \*   
## xAG\_per\_90 -1.4923842 0.8650253 -1.725 0.1016   
## KP\_per\_90 0.0187577 0.1298904 0.144 0.8868   
## Succ\_Take\_ons\_Rate 0.0064672 0.0042136 1.535 0.1422   
## G\_PK\_per\_90 0.4780637 0.3377309 1.416 0.1740   
## Prg\_Car\_Dist\_per\_90 0.0014228 0.0011924 1.193 0.2483   
## TB\_per\_90 0.0126217 0.2451946 0.051 0.9595   
## Fls\_per\_90 0.0164155 0.0626312 0.262 0.7962   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1489 on 18 degrees of freedom  
## Multiple R-squared: 0.9222, Adjusted R-squared: 0.8746   
## F-statistic: 19.39 on 11 and 18 DF, p-value: 9.182e-08

FW4\_model\_step <- stepAIC(FW4\_model, direction = "both")

## Start: AIC=-105.59  
## Rating ~ G\_PK + Ast + xA\_per\_90 + Total\_Pass\_Dist\_per\_90 + xAG\_per\_90 +   
## KP\_per\_90 + Succ\_Take\_ons\_Rate + G\_PK\_per\_90 + Prg\_Car\_Dist\_per\_90 +   
## TB\_per\_90 + Fls\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - TB\_per\_90 1 0.000059 0.39922 -107.583  
## - KP\_per\_90 1 0.000462 0.39963 -107.553  
## - Fls\_per\_90 1 0.001523 0.40069 -107.473  
## <none> 0.39916 -105.587  
## - xA\_per\_90 1 0.029546 0.42871 -105.445  
## - Prg\_Car\_Dist\_per\_90 1 0.031574 0.43074 -105.303  
## - G\_PK\_per\_90 1 0.044433 0.44360 -104.421  
## - Succ\_Take\_ons\_Rate 1 0.052240 0.45141 -103.898  
## - xAG\_per\_90 1 0.066006 0.46517 -102.996  
## - G\_PK 1 0.075992 0.47516 -102.359  
## - Total\_Pass\_Dist\_per\_90 1 0.106289 0.50545 -100.505  
## - Ast 1 0.137781 0.53695 -98.692  
##   
## Step: AIC=-107.58  
## Rating ~ G\_PK + Ast + xA\_per\_90 + Total\_Pass\_Dist\_per\_90 + xAG\_per\_90 +   
## KP\_per\_90 + Succ\_Take\_ons\_Rate + G\_PK\_per\_90 + Prg\_Car\_Dist\_per\_90 +   
## Fls\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - KP\_per\_90 1 0.000471 0.39969 -109.548  
## - Fls\_per\_90 1 0.001744 0.40097 -109.452  
## <none> 0.39922 -107.583  
## - Prg\_Car\_Dist\_per\_90 1 0.032200 0.43142 -107.256  
## - xA\_per\_90 1 0.033606 0.43283 -107.158  
## - G\_PK\_per\_90 1 0.047721 0.44694 -106.196  
## - Succ\_Take\_ons\_Rate 1 0.054506 0.45373 -105.744  
## + TB\_per\_90 1 0.000059 0.39916 -105.587  
## - xAG\_per\_90 1 0.066598 0.46582 -104.954  
## - Total\_Pass\_Dist\_per\_90 1 0.107509 0.50673 -102.429  
## - G\_PK 1 0.110895 0.51012 -102.229  
## - Ast 1 0.158041 0.55726 -99.577  
##   
## Step: AIC=-109.55  
## Rating ~ G\_PK + Ast + xA\_per\_90 + Total\_Pass\_Dist\_per\_90 + xAG\_per\_90 +   
## Succ\_Take\_ons\_Rate + G\_PK\_per\_90 + Prg\_Car\_Dist\_per\_90 +   
## Fls\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - Fls\_per\_90 1 0.003026 0.40272 -111.32  
## <none> 0.39969 -109.55  
## - Prg\_Car\_Dist\_per\_90 1 0.032755 0.43245 -109.19  
## - xA\_per\_90 1 0.035790 0.43548 -108.97  
## - G\_PK\_per\_90 1 0.053219 0.45291 -107.80  
## + KP\_per\_90 1 0.000471 0.39922 -107.58  
## + TB\_per\_90 1 0.000067 0.39963 -107.55  
## - Succ\_Take\_ons\_Rate 1 0.066211 0.46591 -106.95  
## - xAG\_per\_90 1 0.106379 0.50607 -104.47  
## - G\_PK 1 0.121405 0.52110 -103.59  
## - Total\_Pass\_Dist\_per\_90 1 0.153930 0.55362 -101.77  
## - Ast 1 0.169238 0.56893 -100.96  
##   
## Step: AIC=-111.32  
## Rating ~ G\_PK + Ast + xA\_per\_90 + Total\_Pass\_Dist\_per\_90 + xAG\_per\_90 +   
## Succ\_Take\_ons\_Rate + G\_PK\_per\_90 + Prg\_Car\_Dist\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.40272 -111.32  
## - Prg\_Car\_Dist\_per\_90 1 0.033077 0.43580 -110.95  
## - xA\_per\_90 1 0.034177 0.43690 -110.88  
## + Fls\_per\_90 1 0.003026 0.39969 -109.55  
## - G\_PK\_per\_90 1 0.054988 0.45771 -109.48  
## + KP\_per\_90 1 0.001752 0.40097 -109.45  
## + TB\_per\_90 1 0.000469 0.40225 -109.36  
## - Succ\_Take\_ons\_Rate 1 0.063730 0.46645 -108.91  
## - xAG\_per\_90 1 0.114506 0.51723 -105.81  
## - G\_PK 1 0.122182 0.52490 -105.37  
## - Total\_Pass\_Dist\_per\_90 1 0.162357 0.56508 -103.16  
## - Ast 1 0.166273 0.56899 -102.95

summary(FW4\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ G\_PK + Ast + xA\_per\_90 + Total\_Pass\_Dist\_per\_90 +   
## xAG\_per\_90 + Succ\_Take\_ons\_Rate + G\_PK\_per\_90 + Prg\_Car\_Dist\_per\_90,   
## data = subset\_FW4\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.254768 -0.053047 0.008757 0.089628 0.200905   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.6044691 0.1511420 37.081 < 2e-16 \*\*\*  
## G\_PK 0.0354097 0.0140285 2.524 0.01972 \*   
## Ast 0.0446387 0.0151598 2.945 0.00774 \*\*   
## xA\_per\_90 1.1268347 0.8440833 1.335 0.19618   
## Total\_Pass\_Dist\_per\_90 0.0010880 0.0003739 2.910 0.00838 \*\*   
## xAG\_per\_90 -1.4394316 0.5890737 -2.444 0.02346 \*   
## Succ\_Take\_ons\_Rate 0.0061987 0.0034003 1.823 0.08258 .   
## G\_PK\_per\_90 0.4597513 0.2715077 1.693 0.10518   
## Prg\_Car\_Dist\_per\_90 0.0013680 0.0010417 1.313 0.20324   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.1385 on 21 degrees of freedom  
## Multiple R-squared: 0.9215, Adjusted R-squared: 0.8916   
## F-statistic: 30.81 on 8 and 21 DF, p-value: 6.453e-10

FW5\_model <- lm(Rating ~ ., data = subset\_FW5\_PE\_ML)  
  
summary(FW5\_model)

##   
## Call:  
## lm(formula = Rating ~ ., data = subset\_FW5\_PE\_ML)  
##   
## Residuals:  
## 1 2 3 4 5 6 7   
## -9.975e-18 -4.202e-02 -8.909e-03 -9.493e-03 2.987e-02 4.701e-02 1.458e-02   
## 8 9 10 11 12 13 14   
## 7.177e-03 -2.079e-02 -5.163e-03 -8.033e-02 1.242e-02 -4.799e-02 4.501e-03   
## 15 16 17 18 19 20 21   
## 5.706e-02 -3.660e-02 -4.599e-02 1.899e-02 3.069e-02 3.500e-02 1.715e-02   
## 22 23   
## 1.001e-02 1.281e-02   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.824030 0.637289 9.139 0.000796 \*\*\*  
## PrgC\_per\_90 0.024189 0.046096 0.525 0.627497   
## PassLive\_SCA\_per\_90 0.120367 0.137508 0.875 0.430805   
## G\_PK 0.008042 0.056702 0.142 0.894071   
## CrdR\_per\_90 -0.806809 0.605511 -1.332 0.253554   
## PrgP\_per\_90 0.012147 0.130471 0.093 0.930301   
## xAG 0.063347 0.036941 1.715 0.161522   
## G\_Sh -0.525757 1.757686 -0.299 0.779747   
## Tkld\_Rate -0.002422 0.004276 -0.566 0.601331   
## KP\_per\_90 -0.120535 0.101608 -1.186 0.301157   
## Fouled\_SCA\_per\_90 0.768338 0.403820 1.903 0.129838   
## Medium\_Cmp\_Rate 0.007422 0.008019 0.926 0.407036   
## Take\_ons\_SCA\_per\_90 -0.144258 0.354576 -0.407 0.704950   
## xA\_per\_90 -1.290796 2.316717 -0.557 0.607118   
## Prg\_Pass\_Dist\_per\_90 0.001061 0.002749 0.386 0.719080   
## CPA\_per\_90 -0.010163 0.119936 -0.085 0.936545   
## Ast\_per\_90 -0.368288 0.445490 -0.827 0.454867   
## PKwon\_per\_90 1.897721 4.746823 0.400 0.709742   
## PKcon\_per\_90 -1.747517 0.777657 -2.247 0.087922 .   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.07824 on 4 degrees of freedom  
## Multiple R-squared: 0.9757, Adjusted R-squared: 0.8663   
## F-statistic: 8.918 on 18 and 4 DF, p-value: 0.02336

FW5\_model\_step <- stepAIC(FW5\_model, direction = "both")

## Start: AIC=-119.44  
## Rating ~ PrgC\_per\_90 + PassLive\_SCA\_per\_90 + G\_PK + CrdR\_per\_90 +   
## PrgP\_per\_90 + xAG + G\_Sh + Tkld\_Rate + KP\_per\_90 + Fouled\_SCA\_per\_90 +   
## Medium\_Cmp\_Rate + Take\_ons\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## CPA\_per\_90 + Ast\_per\_90 + PKwon\_per\_90 + PKcon\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - CPA\_per\_90 1 0.0000440 0.024530 -121.40  
## - PrgP\_per\_90 1 0.0000531 0.024539 -121.39  
## - G\_PK 1 0.0001231 0.024609 -121.32  
## - G\_Sh 1 0.0005477 0.025034 -120.93  
## - Prg\_Pass\_Dist\_per\_90 1 0.0009126 0.025399 -120.60  
## - PKwon\_per\_90 1 0.0009784 0.025464 -120.54  
## - Take\_ons\_SCA\_per\_90 1 0.0010133 0.025499 -120.51  
## - PrgC\_per\_90 1 0.0016856 0.026172 -119.91  
## - xA\_per\_90 1 0.0019003 0.026386 -119.72  
## - Tkld\_Rate 1 0.0019645 0.026451 -119.66  
## <none> 0.024486 -119.44  
## - Ast\_per\_90 1 0.0041837 0.028670 -117.81  
## - PassLive\_SCA\_per\_90 1 0.0046904 0.029176 -117.41  
## - Medium\_Cmp\_Rate 1 0.0052447 0.029731 -116.97  
## - KP\_per\_90 1 0.0086146 0.033101 -114.50  
## - CrdR\_per\_90 1 0.0108682 0.035354 -112.99  
## - xAG 1 0.0180015 0.042488 -108.76  
## - Fouled\_SCA\_per\_90 1 0.0221609 0.046647 -106.61  
## - PKcon\_per\_90 1 0.0309119 0.055398 -102.66  
##   
## Step: AIC=-121.4  
## Rating ~ PrgC\_per\_90 + PassLive\_SCA\_per\_90 + G\_PK + CrdR\_per\_90 +   
## PrgP\_per\_90 + xAG + G\_Sh + Tkld\_Rate + KP\_per\_90 + Fouled\_SCA\_per\_90 +   
## Medium\_Cmp\_Rate + Take\_ons\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Ast\_per\_90 + PKwon\_per\_90 + PKcon\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - G\_PK 1 0.000102 0.024632 -123.30  
## - PrgP\_per\_90 1 0.000484 0.025014 -122.95  
## - G\_Sh 1 0.000976 0.025506 -122.50  
## - Prg\_Pass\_Dist\_per\_90 1 0.001018 0.025548 -122.46  
## - PrgC\_per\_90 1 0.001808 0.026338 -121.76  
## <none> 0.024530 -121.40  
## - xA\_per\_90 1 0.002897 0.027427 -120.83  
## - Tkld\_Rate 1 0.003099 0.027629 -120.66  
## - PKwon\_per\_90 1 0.003182 0.027712 -120.59  
## - Take\_ons\_SCA\_per\_90 1 0.003703 0.028233 -120.16  
## - Ast\_per\_90 1 0.004383 0.028913 -119.62  
## + CPA\_per\_90 1 0.000044 0.024486 -119.44  
## - Medium\_Cmp\_Rate 1 0.009279 0.033809 -116.02  
## - KP\_per\_90 1 0.011044 0.035574 -114.85  
## - CrdR\_per\_90 1 0.012074 0.036604 -114.19  
## - PassLive\_SCA\_per\_90 1 0.017701 0.042231 -110.90  
## - xAG 1 0.018959 0.043489 -110.23  
## - Fouled\_SCA\_per\_90 1 0.023324 0.047854 -108.03  
## - PKcon\_per\_90 1 0.032584 0.057114 -103.96  
##   
## Step: AIC=-123.3  
## Rating ~ PrgC\_per\_90 + PassLive\_SCA\_per\_90 + CrdR\_per\_90 + PrgP\_per\_90 +   
## xAG + G\_Sh + Tkld\_Rate + KP\_per\_90 + Fouled\_SCA\_per\_90 +   
## Medium\_Cmp\_Rate + Take\_ons\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Ast\_per\_90 + PKwon\_per\_90 + PKcon\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## - PrgP\_per\_90 1 0.000626 0.025258 -124.72  
## - Prg\_Pass\_Dist\_per\_90 1 0.000922 0.025554 -124.46  
## - G\_Sh 1 0.001973 0.026604 -123.53  
## - PrgC\_per\_90 1 0.002087 0.026719 -123.43  
## <none> 0.024632 -123.30  
## - xA\_per\_90 1 0.002805 0.027436 -122.82  
## - Tkld\_Rate 1 0.003009 0.027641 -122.65  
## - Take\_ons\_SCA\_per\_90 1 0.004054 0.028686 -121.80  
## + G\_PK 1 0.000102 0.024530 -121.40  
## + CPA\_per\_90 1 0.000023 0.024609 -121.32  
## - Ast\_per\_90 1 0.005511 0.030143 -120.66  
## - PKwon\_per\_90 1 0.006806 0.031438 -119.69  
## - Medium\_Cmp\_Rate 1 0.009552 0.034184 -117.76  
## - KP\_per\_90 1 0.013949 0.038581 -114.98  
## - CrdR\_per\_90 1 0.014280 0.038912 -114.78  
## - PassLive\_SCA\_per\_90 1 0.018419 0.043051 -112.46  
## - xAG 1 0.028809 0.053441 -107.49  
## - Fouled\_SCA\_per\_90 1 0.029847 0.054478 -107.05  
## - PKcon\_per\_90 1 0.039847 0.064479 -103.17  
##   
## Step: AIC=-124.72  
## Rating ~ PrgC\_per\_90 + PassLive\_SCA\_per\_90 + CrdR\_per\_90 + xAG +   
## G\_Sh + Tkld\_Rate + KP\_per\_90 + Fouled\_SCA\_per\_90 + Medium\_Cmp\_Rate +   
## Take\_ons\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Ast\_per\_90 + PKwon\_per\_90 + PKcon\_per\_90  
##   
## Df Sum of Sq RSS AIC  
## <none> 0.025258 -124.72  
## - PrgC\_per\_90 1 0.002387 0.027645 -124.65  
## - Tkld\_Rate 1 0.002730 0.027988 -124.36  
## - Take\_ons\_SCA\_per\_90 1 0.003551 0.028809 -123.70  
## + PrgP\_per\_90 1 0.000626 0.024632 -123.30  
## - G\_Sh 1 0.004358 0.029616 -123.06  
## + G\_PK 1 0.000245 0.025014 -122.95  
## + CPA\_per\_90 1 0.000078 0.025180 -122.80  
## - Ast\_per\_90 1 0.006145 0.031404 -121.72  
## - PKwon\_per\_90 1 0.006495 0.031753 -121.46  
## - Prg\_Pass\_Dist\_per\_90 1 0.007438 0.032696 -120.79  
## - xA\_per\_90 1 0.010203 0.035461 -118.92  
## - KP\_per\_90 1 0.013330 0.038588 -116.98  
## - CrdR\_per\_90 1 0.015037 0.040295 -115.98  
## - Medium\_Cmp\_Rate 1 0.029024 0.054283 -109.13  
## - Fouled\_SCA\_per\_90 1 0.030892 0.056150 -108.35  
## - PassLive\_SCA\_per\_90 1 0.031969 0.057227 -107.91  
## - PKcon\_per\_90 1 0.040487 0.065745 -104.72  
## - xAG 1 0.051334 0.076592 -101.21

summary(FW5\_model\_step)

##   
## Call:  
## lm(formula = Rating ~ PrgC\_per\_90 + PassLive\_SCA\_per\_90 + CrdR\_per\_90 +   
## xAG + G\_Sh + Tkld\_Rate + KP\_per\_90 + Fouled\_SCA\_per\_90 +   
## Medium\_Cmp\_Rate + Take\_ons\_SCA\_per\_90 + xA\_per\_90 + Prg\_Pass\_Dist\_per\_90 +   
## Ast\_per\_90 + PKwon\_per\_90 + PKcon\_per\_90, data = subset\_FW5\_PE\_ML)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -0.084643 -0.020782 0.008078 0.018025 0.059009   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 5.7940766 0.2807217 20.640 1.57e-07 \*\*\*  
## PrgC\_per\_90 0.0250552 0.0308067 0.813 0.44282   
## PassLive\_SCA\_per\_90 0.1186342 0.0398563 2.977 0.02062 \*   
## CrdR\_per\_90 -0.8277444 0.4054769 -2.041 0.08055 .   
## xAG 0.0721360 0.0191250 3.772 0.00697 \*\*   
## G\_Sh -0.3743242 0.3406205 -1.099 0.30814   
## Tkld\_Rate -0.0023591 0.0027121 -0.870 0.41322   
## KP\_per\_90 -0.1235293 0.0642702 -1.922 0.09604 .   
## Fouled\_SCA\_per\_90 0.6942083 0.2372578 2.926 0.02215 \*   
## Medium\_Cmp\_Rate 0.0079838 0.0028150 2.836 0.02518 \*   
## Take\_ons\_SCA\_per\_90 -0.1363569 0.1374621 -0.992 0.35426   
## xA\_per\_90 -1.4749053 0.8771210 -1.682 0.13654   
## Prg\_Pass\_Dist\_per\_90 0.0014320 0.0009974 1.436 0.19423   
## Ast\_per\_90 -0.3917931 0.3002181 -1.305 0.23314   
## PKwon\_per\_90 2.0939525 1.5607869 1.342 0.22161   
## PKcon\_per\_90 -1.8098449 0.5403012 -3.350 0.01226 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.06007 on 7 degrees of freedom  
## Multiple R-squared: 0.9749, Adjusted R-squared: 0.9212   
## F-statistic: 18.14 on 15 and 7 DF, p-value: 0.0003665

*Model Accuracy*

# Predicting the Rating using the DF1\_model  
predicted\_DF1 <- predict(DF1\_model, subset\_DF1\_PE\_ML)  
  
# Predicting the Rating using the DF1\_model\_step  
predicted\_DF1\_step <- predict(DF1\_model\_step, subset\_DF1\_PE\_ML)  
  
cor(predicted\_DF1, subset\_DF1\_PE\_ML$Rating)

## [1] 0.9012584

cor(predicted\_DF1\_step, subset\_DF1\_PE\_ML$Rating)

## [1] 0.8933377

# DF2  
predicted\_DF2 <- predict(DF2\_model, subset\_DF2\_PE\_ML)  
predicted\_DF2\_step <- predict(DF2\_model\_step, subset\_DF2\_PE\_ML)  
cor(predicted\_DF2, subset\_DF2\_PE\_ML$Rating)

## [1] 0.9199371

cor(predicted\_DF2\_step, subset\_DF2\_PE\_ML$Rating)

## [1] 0.9153295

# DF3  
predicted\_DF3 <- predict(DF3\_model, subset\_DF3\_PE\_ML)  
predicted\_DF3\_step <- predict(DF3\_model\_step, subset\_DF3\_PE\_ML)  
cor(predicted\_DF3, subset\_DF3\_PE\_ML$Rating)

## [1] 0.7823235

cor(predicted\_DF3\_step, subset\_DF3\_PE\_ML$Rating)

## [1] 0.7693301

# DF4  
predicted\_DF4 <- predict(DF4\_model, subset\_DF4\_PE\_ML)  
predicted\_DF4\_step <- predict(DF4\_model\_step, subset\_DF4\_PE\_ML)  
cor(predicted\_DF4, subset\_DF4\_PE\_ML$Rating)

## [1] 0.8830931

cor(predicted\_DF4\_step, subset\_DF4\_PE\_ML$Rating)

## [1] 0.8781502

# DF5  
predicted\_DF5 <- predict(DF5\_model, subset\_DF5\_PE\_ML)  
predicted\_DF5\_step <- predict(DF5\_model\_step, subset\_DF5\_PE\_ML)  
cor(predicted\_DF5, subset\_DF5\_PE\_ML$Rating)

## [1] 0.829448

cor(predicted\_DF5\_step, subset\_DF5\_PE\_ML$Rating)

## [1] 0.8288409

# DF6  
predicted\_DF6 <- predict(DF6\_model, subset\_DF6\_PE\_ML)  
predicted\_DF6\_step <- predict(DF6\_model\_step, subset\_DF6\_PE\_ML)  
cor(predicted\_DF6, subset\_DF6\_PE\_ML$Rating)

## [1] 0.8965115

cor(predicted\_DF6\_step, subset\_DF6\_PE\_ML$Rating)

## [1] 0.8804396

# DF7  
predicted\_DF7 <- predict(DF7\_model, subset\_DF7\_PE\_ML)  
predicted\_DF7\_step <- predict(DF7\_model\_step, subset\_DF7\_PE\_ML)  
cor(predicted\_DF7, subset\_DF7\_PE\_ML$Rating)

## [1] 0.9598871

cor(predicted\_DF7\_step, subset\_DF7\_PE\_ML$Rating)

## [1] 0.9518911

# MF1  
predicted\_MF1 <- predict(MF1\_model, subset\_MF1\_PE\_ML)  
predicted\_MF1\_step <- predict(MF1\_model\_step, subset\_MF1\_PE\_ML)  
cor(predicted\_MF1, subset\_MF1\_PE\_ML$Rating)

## [1] 0.8886849

cor(predicted\_MF1\_step, subset\_MF1\_PE\_ML$Rating)

## [1] 0.8742287

# MF2  
predicted\_MF2 <- predict(MF2\_model, subset\_MF2\_PE\_ML)  
predicted\_MF2\_step <- predict(MF2\_model\_step, subset\_MF2\_PE\_ML)  
cor(predicted\_MF2, subset\_MF2\_PE\_ML$Rating)

## [1] 0.9378875

cor(predicted\_MF2\_step, subset\_MF2\_PE\_ML$Rating)

## [1] 0.9304667

# MF3  
predicted\_MF3 <- predict(MF3\_model, subset\_MF3\_PE\_ML)  
predicted\_MF3\_step <- predict(MF3\_model\_step, subset\_MF3\_PE\_ML)  
cor(predicted\_MF3, subset\_MF3\_PE\_ML$Rating)

## [1] 0.9190408

cor(predicted\_MF3\_step, subset\_MF3\_PE\_ML$Rating)

## [1] 0.9160588

# MF4  
predicted\_MF4 <- predict(MF4\_model, subset\_MF4\_PE\_ML)  
predicted\_MF4\_step <- predict(MF4\_model\_step, subset\_MF4\_PE\_ML)  
cor(predicted\_MF4, subset\_MF4\_PE\_ML$Rating)

## [1] 0.9021896

cor(predicted\_MF4\_step, subset\_MF4\_PE\_ML$Rating)

## [1] 0.8988427

# MF5  
predicted\_MF5 <- predict(MF5\_model, subset\_MF5\_PE\_ML)  
predicted\_MF5\_step <- predict(MF5\_model\_step, subset\_MF5\_PE\_ML)  
cor(predicted\_MF5, subset\_MF5\_PE\_ML$Rating)

## [1] 0.9877425

cor(predicted\_MF5\_step, subset\_MF5\_PE\_ML$Rating)

## [1] 0.9864519

# MF6  
predicted\_MF6 <- predict(MF6\_model, subset\_MF6\_PE\_ML)  
predicted\_MF6\_step <- predict(MF6\_model\_step, subset\_MF6\_PE\_ML)  
cor(predicted\_MF6, subset\_MF6\_PE\_ML$Rating)

## [1] 0.9939257

cor(predicted\_MF6\_step, subset\_MF6\_PE\_ML$Rating)

## [1] 0.9936818

# MF7  
predicted\_MF7 <- predict(MF7\_model, subset\_MF7\_PE\_ML)  
predicted\_MF7\_step <- predict(MF7\_model\_step, subset\_MF7\_PE\_ML)  
cor(predicted\_MF7, subset\_MF7\_PE\_ML$Rating)

## [1] 0.9516066

cor(predicted\_MF7\_step, subset\_MF7\_PE\_ML$Rating)

## [1] 0.9406068

# FW1  
predicted\_FW1 <- predict(FW1\_model, subset\_FW1\_PE\_ML)  
predicted\_FW1\_step <- predict(FW1\_model\_step, subset\_FW1\_PE\_ML)  
cor(predicted\_FW1, subset\_FW1\_PE\_ML$Rating)

## [1] 0.8665679

cor(predicted\_FW1\_step, subset\_FW1\_PE\_ML$Rating)

## [1] 0.8370462

# FW2  
predicted\_FW2 <- predict(FW2\_model, subset\_FW2\_PE\_ML)  
predicted\_FW2\_step <- predict(FW2\_model\_step, subset\_FW2\_PE\_ML)  
cor(predicted\_FW2, subset\_FW2\_PE\_ML$Rating)

## [1] 0.9336588

cor(predicted\_FW2\_step, subset\_FW2\_PE\_ML$Rating)

## [1] 0.9320634

# FW3  
predicted\_FW3 <- predict(FW3\_model, subset\_FW3\_PE\_ML)  
predicted\_FW3\_step <- predict(FW3\_model\_step, subset\_FW3\_PE\_ML)  
cor(predicted\_FW3, subset\_FW3\_PE\_ML$Rating)

## [1] 0.9409463

cor(predicted\_FW3\_step, subset\_FW3\_PE\_ML$Rating)

## [1] 0.9389479

# FW4  
predicted\_FW4 <- predict(FW4\_model, subset\_FW4\_PE\_ML)  
predicted\_FW4\_step <- predict(FW4\_model\_step, subset\_FW4\_PE\_ML)  
cor(predicted\_FW4, subset\_FW4\_PE\_ML$Rating)

## [1] 0.9603024

cor(predicted\_FW4\_step, subset\_FW4\_PE\_ML$Rating)

## [1] 0.9599415

# FW5  
predicted\_FW5 <- predict(FW5\_model, subset\_FW5\_PE\_ML)  
predicted\_FW5\_step <- predict(FW5\_model\_step, subset\_FW5\_PE\_ML)  
cor(predicted\_FW5, subset\_FW5\_PE\_ML$Rating)

## [1] 0.9877691

cor(predicted\_FW5\_step, subset\_FW5\_PE\_ML$Rating)

## [1] 0.9873809

*INTRODUCING OTHER PLAYERS TO THE CLUSTERS*

subset\_DF1\_PE\_ML$Player <- subset\_DF1\_PE$Player  
# Identifying row numbers where the values are in the range 0.1 to 0.5  
rows\_df1 <- which(gmm\_df$z[, 1] > 0.1 & gmm\_df$z[, 1] < 0.5)  
# Extracting the relevant rows from subset\_DF\_PE  
sub\_df1 <- subset\_DF\_PE[rows\_df1, ]  
# Adding these rows to subset\_DF1\_PE\_ML  
subset\_DF1\_PE\_ML <- bind\_rows(subset\_DF1\_PE\_ML, sub\_df1)  
subset\_DF1\_PE\_ML <- subset\_DF1\_PE\_ML[, 1:7]  
  
  
  
subset\_DF2\_PE\_ML$Player <- subset\_DF2\_PE$Player  
  
rows\_df2 <- which(gmm\_df$z[, 2] > 0.1 & gmm\_df$z[, 2] < 0.5)  
  
sub\_df2 <- subset\_DF\_PE[rows\_df2, ]  
  
subset\_DF2\_PE\_ML <- bind\_rows(subset\_DF2\_PE\_ML, sub\_df2)  
subset\_DF2\_PE\_ML <- subset\_DF2\_PE\_ML[, 1:10]  
  
  
  
subset\_DF3\_PE\_ML$Player <- subset\_DF3\_PE$Player  
rows\_df3 <- which(gmm\_df$z[, 3] > 0.1 & gmm\_df$z[, 3] < 0.5)  
sub\_df3 <- subset\_DF\_PE[rows\_df3, ]  
subset\_DF3\_PE\_ML <- bind\_rows(subset\_DF3\_PE\_ML, sub\_df3)  
subset\_DF3\_PE\_ML <- subset\_DF3\_PE\_ML[, 1:8]  
  
  
  
subset\_DF4\_PE\_ML$Player <- subset\_DF4\_PE$Player  
rows\_df4 <- which(gmm\_df$z[, 4] > 0.1 & gmm\_df$z[, 4] < 0.5)  
sub\_df4 <- subset\_DF\_PE[rows\_df4, ]  
subset\_DF4\_PE\_ML <- bind\_rows(subset\_DF4\_PE\_ML, sub\_df4)  
subset\_DF4\_PE\_ML <- subset\_DF4\_PE\_ML[, 1:13]  
  
  
  
subset\_DF5\_PE\_ML$Player <- subset\_DF5\_PE$Player  
rows\_df5 <- which(gmm\_df$z[, 5] > 0.1 & gmm\_df$z[, 5] < 0.5)  
sub\_df5 <- subset\_DF\_PE[rows\_df5, ]  
subset\_DF5\_PE\_ML <- bind\_rows(subset\_DF5\_PE\_ML, sub\_df5)  
subset\_DF5\_PE\_ML <- subset\_DF5\_PE\_ML[, 1:8]  
  
  
  
subset\_DF6\_PE\_ML$Player <- subset\_DF6\_PE$Player  
rows\_df6 <- which(gmm\_df$z[, 6] > 0.1 & gmm\_df$z[, 6] < 0.5)  
sub\_df6 <- subset\_DF\_PE[rows\_df6, ]  
subset\_DF6\_PE\_ML <- bind\_rows(subset\_DF6\_PE\_ML, sub\_df6)  
subset\_DF6\_PE\_ML <- subset\_DF6\_PE\_ML[, 1:12]  
  
  
  
subset\_DF7\_PE\_ML$Player <- subset\_DF7\_PE$Player

subset\_MF1\_PE\_ML$Player <- subset\_MF1\_PE$Player  
rows\_mf1 <- which(gmm\_mf$z[, 1] > 0.1 & gmm\_mf$z[, 1] < 0.5)  
sub\_mf1 <- subset\_MF\_PE[rows\_mf1, ]  
subset\_MF1\_PE\_ML <- bind\_rows(subset\_MF1\_PE\_ML, sub\_mf1)  
subset\_MF1\_PE\_ML <- subset\_MF1\_PE\_ML[, 1:12]  
  
  
  
subset\_MF2\_PE\_ML$Player <- subset\_MF2\_PE$Player  
rows\_mf2 <- which(gmm\_mf$z[, 2] > 0.1 & gmm\_mf$z[, 2] < 0.5)  
sub\_mf2 <- subset\_MF\_PE[rows\_mf2, ]  
subset\_MF2\_PE\_ML <- bind\_rows(subset\_MF2\_PE\_ML, sub\_mf2)  
subset\_MF2\_PE\_ML <- subset\_MF2\_PE\_ML[, 1:10]  
  
  
  
subset\_MF3\_PE\_ML$Player <- subset\_MF3\_PE$Player  
rows\_mf3 <- which(gmm\_mf$z[, 3] > 0.1 & gmm\_mf$z[, 3] < 0.5)  
sub\_mf3 <- subset\_MF\_PE[rows\_mf3, ]  
subset\_MF3\_PE\_ML <- bind\_rows(subset\_MF3\_PE\_ML, sub\_mf3)  
subset\_MF3\_PE\_ML <- subset\_MF3\_PE\_ML[, 1:11]  
  
  
  
subset\_MF4\_PE\_ML$Player <- subset\_MF4\_PE$Player  
rows\_mf4 <- which(gmm\_mf$z[, 4] > 0.1 & gmm\_mf$z[, 4] < 0.5)  
sub\_mf4 <- subset\_MF\_PE[rows\_mf4, ]  
subset\_MF4\_PE\_ML <- bind\_rows(subset\_MF4\_PE\_ML, sub\_mf4)  
subset\_MF4\_PE\_ML <- subset\_MF4\_PE\_ML[, 1:11]  
  
  
  
subset\_MF5\_PE\_ML$Player <- subset\_MF5\_PE$Player  
  
  
  
subset\_MF6\_PE\_ML$Player <- subset\_MF6\_PE$Player  
rows\_mf6 <- which(gmm\_mf$z[, 6] > 0.1 & gmm\_mf$z[, 6] < 0.5)  
sub\_mf6 <- subset\_MF\_PE[rows\_mf6, ]  
subset\_MF6\_PE\_ML <- bind\_rows(subset\_MF6\_PE\_ML, sub\_mf6)  
subset\_MF6\_PE\_ML <- subset\_MF6\_PE\_ML[, 1:11]  
  
  
  
subset\_MF7\_PE\_ML$Player <- subset\_MF7\_PE$Player  
rows\_mf7 <- which(gmm\_mf$z[, 7] > 0.1 & gmm\_mf$z[, 7] < 0.5)  
sub\_mf7 <- subset\_MF\_PE[rows\_mf7, ]  
subset\_MF7\_PE\_ML <- bind\_rows(subset\_MF7\_PE\_ML, sub\_mf7)  
subset\_MF7\_PE\_ML <- subset\_MF7\_PE\_ML[, 1:11]

subset\_FW1\_PE\_ML$Player <- subset\_FW1\_PE$Player  
rows\_fw1 <- which(gmm\_fw$z[, 1] > 0.1 & gmm\_fw$z[, 1] < 0.5)  
sub\_fw1 <- subset\_FW\_PE[rows\_fw1, ]  
subset\_FW1\_PE\_ML <- bind\_rows(subset\_FW1\_PE\_ML, sub\_fw1)  
subset\_FW1\_PE\_ML <- subset\_FW1\_PE\_ML[, 1:8]  
  
  
  
subset\_FW2\_PE\_ML$Player <- subset\_FW2\_PE$Player  
rows\_fw2 <- which(gmm\_fw$z[, 2] > 0.1 & gmm\_fw$z[, 2] < 0.5)  
sub\_fw2 <- subset\_FW\_PE[rows\_fw2, ]  
subset\_FW2\_PE\_ML <- bind\_rows(subset\_FW2\_PE\_ML, sub\_fw2)  
subset\_FW2\_PE\_ML <- subset\_FW2\_PE\_ML[, 1:11]  
  
  
  
subset\_FW3\_PE\_ML$Player <- subset\_FW3\_PE$Player  
rows\_fw3 <- which(gmm\_fw$z[, 3] > 0.1 & gmm\_fw$z[, 3] < 0.5)  
sub\_fw3 <- subset\_FW\_PE[rows\_fw3, ]  
subset\_FW3\_PE\_ML <- bind\_rows(subset\_FW3\_PE\_ML, sub\_fw3)  
subset\_FW3\_PE\_ML <- subset\_FW3\_PE\_ML[, 1:9]  
  
  
  
subset\_FW4\_PE\_ML$Player <- subset\_FW4\_PE$Player  
rows\_fw4 <- which(gmm\_fw$z[, 4] > 0.1 & gmm\_fw$z[, 4] < 0.5)  
sub\_fw4 <- subset\_FW\_PE[rows\_fw4, ]  
subset\_FW4\_PE\_ML <- bind\_rows(subset\_FW4\_PE\_ML, sub\_fw4)  
subset\_FW4\_PE\_ML <- subset\_FW4\_PE\_ML[, 1:13]  
  
  
  
subset\_FW5\_PE\_ML$Player <- subset\_FW5\_PE$Player  
rows\_fw5 <- which(gmm\_fw$z[, 5] > 0.1 & gmm\_fw$z[, 5] < 0.5)  
sub\_fw5 <- subset\_FW\_PE[rows\_fw5, ]  
subset\_FW5\_PE\_ML <- bind\_rows(subset\_FW5\_PE\_ML, sub\_fw5)  
subset\_FW5\_PE\_ML <- subset\_FW5\_PE\_ML[, 1:20]

*NEW PE SCORES*

# For DF1 to DF7  
subset\_DF1\_PE\_ML$DF1\_rating <- predict(DF1\_model, newdata = subset\_DF1\_PE\_ML)  
subset\_DF2\_PE\_ML$DF2\_rating <- predict(DF2\_model, newdata = subset\_DF2\_PE\_ML)  
subset\_DF3\_PE\_ML$DF3\_rating <- predict(DF3\_model, newdata = subset\_DF3\_PE\_ML)  
subset\_DF4\_PE\_ML$DF4\_rating <- predict(DF4\_model, newdata = subset\_DF4\_PE\_ML)  
subset\_DF5\_PE\_ML$DF5\_rating <- predict(DF5\_model, newdata = subset\_DF5\_PE\_ML)  
subset\_DF6\_PE\_ML$DF6\_rating <- predict(DF6\_model, newdata = subset\_DF6\_PE\_ML)  
subset\_DF7\_PE\_ML$DF7\_rating <- predict(DF7\_model, newdata = subset\_DF7\_PE\_ML)

# For MF1 to MF7  
subset\_MF1\_PE\_ML$MF1\_rating <- predict(MF1\_model, newdata = subset\_MF1\_PE\_ML)  
subset\_MF2\_PE\_ML$MF2\_rating <- predict(MF2\_model, newdata = subset\_MF2\_PE\_ML)  
subset\_MF3\_PE\_ML$MF3\_rating <- predict(MF3\_model, newdata = subset\_MF3\_PE\_ML)  
subset\_MF4\_PE\_ML$MF4\_rating <- predict(MF4\_model, newdata = subset\_MF4\_PE\_ML)  
subset\_MF5\_PE\_ML$MF5\_rating <- predict(MF5\_model, newdata = subset\_MF5\_PE\_ML)  
subset\_MF6\_PE\_ML$MF6\_rating <- predict(MF6\_model, newdata = subset\_MF6\_PE\_ML)  
subset\_MF7\_PE\_ML$MF7\_rating <- predict(MF7\_model, newdata = subset\_MF7\_PE\_ML)

# For FW1 to FW5  
subset\_FW1\_PE\_ML$FW1\_rating <- predict(FW1\_model, newdata = subset\_FW1\_PE\_ML)  
subset\_FW2\_PE\_ML$FW2\_rating <- predict(FW2\_model, newdata = subset\_FW2\_PE\_ML)  
subset\_FW3\_PE\_ML$FW3\_rating <- predict(FW3\_model, newdata = subset\_FW3\_PE\_ML)  
subset\_FW4\_PE\_ML$FW4\_rating <- predict(FW4\_model, newdata = subset\_FW4\_PE\_ML)  
subset\_FW5\_PE\_ML$FW5\_rating <- predict(FW5\_model, newdata = subset\_FW5\_PE\_ML)

*STEPWISE PE SCORES*

# For DF1 to DF7  
subset\_DF1\_PE\_ML$DF1\_rating\_2 <- predict(DF1\_model\_step, newdata = subset\_DF1\_PE\_ML)  
subset\_DF2\_PE\_ML$DF2\_rating\_2 <- predict(DF2\_model\_step, newdata = subset\_DF2\_PE\_ML)  
subset\_DF3\_PE\_ML$DF3\_rating\_2 <- predict(DF3\_model\_step, newdata = subset\_DF3\_PE\_ML)  
subset\_DF4\_PE\_ML$DF4\_rating\_2 <- predict(DF4\_model\_step, newdata = subset\_DF4\_PE\_ML)  
subset\_DF5\_PE\_ML$DF5\_rating\_2 <- predict(DF5\_model\_step, newdata = subset\_DF5\_PE\_ML)  
subset\_DF6\_PE\_ML$DF6\_rating\_2 <- predict(DF6\_model\_step, newdata = subset\_DF6\_PE\_ML)  
subset\_DF7\_PE\_ML$DF7\_rating\_2 <- predict(DF7\_model\_step, newdata = subset\_DF7\_PE\_ML)

# For MF1 to MF7  
subset\_MF1\_PE\_ML$MF1\_rating\_2 <- predict(MF1\_model\_step, newdata = subset\_MF1\_PE\_ML)  
subset\_MF2\_PE\_ML$MF2\_rating\_2 <- predict(MF2\_model\_step, newdata = subset\_MF2\_PE\_ML)  
subset\_MF3\_PE\_ML$MF3\_rating\_2 <- predict(MF3\_model\_step, newdata = subset\_MF3\_PE\_ML)  
subset\_MF4\_PE\_ML$MF4\_rating\_2 <- predict(MF4\_model\_step, newdata = subset\_MF4\_PE\_ML)  
subset\_MF5\_PE\_ML$MF5\_rating\_2 <- predict(MF5\_model\_step, newdata = subset\_MF5\_PE\_ML)  
subset\_MF6\_PE\_ML$MF6\_rating\_2 <- predict(MF6\_model\_step, newdata = subset\_MF6\_PE\_ML)  
subset\_MF7\_PE\_ML$MF7\_rating\_2 <- predict(MF7\_model\_step, newdata = subset\_MF7\_PE\_ML)

# For FW1 to FW5  
subset\_FW1\_PE\_ML$FW1\_rating\_2 <- predict(FW1\_model\_step, newdata = subset\_FW1\_PE\_ML)  
subset\_FW2\_PE\_ML$FW2\_rating\_2 <- predict(FW2\_model\_step, newdata = subset\_FW2\_PE\_ML)  
subset\_FW3\_PE\_ML$FW3\_rating\_2 <- predict(FW3\_model\_step, newdata = subset\_FW3\_PE\_ML)  
subset\_FW4\_PE\_ML$FW4\_rating\_2 <- predict(FW4\_model\_step, newdata = subset\_FW4\_PE\_ML)  
subset\_FW5\_PE\_ML$FW5\_rating\_2 <- predict(FW5\_model\_step, newdata = subset\_FW5\_PE\_ML)

*VALIDATION* Treating the Player Squads as their League Positions

# Replacing team names with table position  
team\_mapping <- c(  
 "Bournemouth" = 13,  
 "Chelsea" = 6,  
 "Luton Town" = 18,  
 "Sheffield Utd" = 20,  
 "Crystal Palace" = 10,  
 "Everton" = 12,  
 "Brentford" = 16,  
 "West Ham" = 9,  
 "Nott'ham Forest" = 17,  
 "Burnley" = 19,  
 "Wolves" = 15,  
 "Brighton" = 11,  
 "Manchester Utd" = 8,  
 "Tottenham" = 5,  
 "Manchester City" = 1,  
 "Aston Villa" = 4,  
 "Liverpool" = 3,  
 "Fulham" = 14,  
 "Arsenal" = 2,  
 "Newcastle Utd" = 7  
)  
  
# Replace the team names in the 'Squad' variable with the corresponding numbers  
sub\_clus\_23\_24$Squad <- as.numeric(team\_mapping[sub\_clus\_23\_24$Squad])

Integrating team mapping

sub\_clus\_23\_24$Rating <- NA

# Merging dataframes, ensuring no rows are lost from sub\_clus\_23\_24  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF1\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF1"))  
  
# Updating NA rows in 'Rating' column   
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_DF1[is.na(sub\_clus\_23\_24$Rating)]  
  
# Checking the updated dataframe  
head(sub\_clus\_23\_24)

## Player Nation Pos Squad Age Born X90s CrdY CrdR Crs TklW Int  
## 1 Max Aarons eng ENG DF 13 23 2000 13.7 1 0 13 19 8  
## 4 Ben Chilwell eng ENG DF 6 26 1996 8.4 5 0 43 10 4  
## 5 Tahith Chong nl NED MF,FW 18 23 1999 22.0 4 0 35 22 8  
## 6 Ryan Christie sct SCO MF 13 28 1995 32.3 6 0 73 44 52  
## 7 Carney Chukwuemeka eng ENG MF,FW 6 19 2003 2.5 2 0 1 4 0  
## 8 Jordan Clark eng ENG MF 18 29 1993 14.5 4 0 23 17 11  
## PrgC PrgR Cmp Ast xAG PrgP Gls PK PKatt xG npxG MP Starts Min G.A G\_PK  
## 1 22 26 450 1 0.8 43 0 0 0 0.0 0.0 20 13 1237 1 0  
## 4 22 59 373 1 2.2 25 0 0 0 1.2 1.2 13 9 756 1 0  
## 5 57 101 428 0 0.5 72 4 0 0 2.7 2.7 33 20 1982 4 4  
## 6 60 78 988 5 5.4 167 0 0 0 2.3 2.3 37 35 2907 5 0  
## 7 4 19 115 1 0.3 12 1 0 0 0.2 0.2 9 2 227 2 1  
## 8 21 39 369 1 1.3 51 1 0 0 1.0 1.0 23 14 1304 2 1  
## npxG.xAG Gls per 90 Ast\_per\_90 G.A per 90 G\_PK\_per\_90 G.A.PK per 90 xG per 90  
## 1 0.9 0.00 0.07 0.07 0.00 0.07 0.00  
## 4 3.4 0.00 0.12 0.12 0.00 0.12 0.14  
## 5 3.2 0.18 0.00 0.18 0.18 0.18 0.12  
## 6 7.7 0.00 0.15 0.15 0.00 0.15 0.07  
## 7 0.5 0.40 0.40 0.79 0.40 0.79 0.06  
## 8 2.2 0.07 0.07 0.14 0.07 0.14 0.07  
## xAG\_per\_90 xG.xAG per 90 npxG\_per\_90 npxG\_xAG\_per\_90 Sh SoT SoT\_Rate  
## 1 0.06 0.06 0.00 0.06 2 0 0.0  
## 4 0.26 0.41 0.14 0.41 12 4 33.3  
## 5 0.02 0.15 0.12 0.15 31 7 22.6  
## 6 0.17 0.24 0.07 0.24 43 13 30.2  
## 7 0.13 0.19 0.06 0.19 3 2 66.7  
## 8 0.09 0.16 0.07 0.16 17 4 23.5  
## Sh\_per\_90 SoT\_per\_90 G\_Sh G\_SoT Avg\_Shot\_Dist FK Shot attempts npxG\_per\_Sh  
## 1 0.15 0.00 0.00 NA 23.9 0 0.02  
## 4 1.43 0.48 0.00 0.00 16.6 1 0.10  
## 5 1.41 0.32 0.13 0.57 16.6 0 0.09  
## 6 1.33 0.40 0.00 0.00 20.0 0 0.05  
## 7 1.19 0.79 0.33 0.50 19.9 0 0.05  
## 8 1.17 0.28 0.06 0.25 16.9 0 0.06  
## G.xG np\_G\_xG Passes\_Att Cmp\_Rate Total\_Pass\_Dist Prg\_Pass\_Dist Short Cmp  
## 1 0.0 0.0 581 77.5 7402 2789 220  
## 4 -1.2 -1.2 495 75.4 5230 1552 230  
## 5 1.3 1.3 550 77.8 6679 1643 227  
## 6 -2.3 -2.3 1300 76.0 18802 5120 399  
## 7 0.8 0.8 134 85.8 1476 266 82  
## 8 0.0 0.0 513 71.9 6108 1636 180  
## Short\_Att Short\_Cmp\_Rate Medium Cmp Medium\_Att Medium\_Cmp\_Rate Long Cmp  
## 1 248 88.7 188 235 80.0 34  
## 4 259 88.8 112 143 78.3 18  
## 5 257 88.3 149 189 78.8 32  
## 6 467 85.4 425 510 83.3 143  
## 7 88 93.2 26 31 83.9 4  
## 8 231 77.9 136 173 78.6 33  
## Long\_Att Long\_Cmp\_Rate xA A\_xAG KP Final Third Pass PPA CrsPA Att Live\_Pass  
## 1 63 54.0 0.9 0.2 7 25 13 2 581 453  
## 4 48 37.5 1.8 -1.2 14 29 2 2 495 416  
## 5 54 59.3 1.4 -0.5 10 35 20 8 550 515  
## 6 253 56.5 5.4 -0.4 55 118 42 7 1300 1217  
## 7 5 80.0 0.3 0.7 4 4 6 0 134 134  
## 8 63 52.4 1.2 -0.3 12 19 18 4 513 475  
## Dead FK Pass attempts TB Sw TI CK In Out Str Off\_Pass Blocked\_Pass SCA  
## 1 127 11 2 3 116 0 0 0 0 1 23 23  
## 4 73 11 0 0 41 21 9 11 0 6 19 22  
## 5 31 4 5 6 11 0 0 0 0 4 21 49  
## 6 78 22 17 18 2 30 29 0 0 5 26 117  
## 7 0 0 2 0 0 0 0 0 0 0 4 9  
## 8 36 13 1 6 5 0 0 0 0 2 18 29  
## SCA\_per\_90 PassLive\_SCA PassDead SCA Take\_ons\_SCA Shot\_SCA Fouled\_SCA Def\_SCA  
## 1 1.68 16 4 0 0 3 0  
## 4 2.62 11 8 0 1 2 0  
## 5 2.22 31 0 3 2 11 2  
## 6 3.62 88 8 7 5 6 3  
## 7 3.57 7 0 1 1 0 0  
## 8 2.00 23 0 2 3 1 0  
## GCA GCA90 PassLive GCA PassDead GCA TO GCA Sh GCA Fld GCA Def GCA Tkl  
## 1 2 0.15 2 0 0 0 0 0 29  
## 4 2 0.24 1 0 0 1 0 0 15  
## 5 4 0.18 2 0 0 2 0 0 36  
## 6 6 0.19 5 1 0 0 0 0 86  
## 7 4 1.59 2 0 1 1 0 0 6  
## 8 1 0.07 1 0 0 0 0 0 30  
## Def\_3rd\_Tkl Mid\_3rd\_Tkl Att\_3rd\_Tkl Tkl dribble Tkl\_drib\_att Tkl\_dribble\_Rate  
## 1 20 7 2 20 34 58.8  
## 4 5 9 1 5 8 62.5  
## 5 19 13 4 15 33 45.5  
## 6 34 35 17 39 92 42.4  
## 7 3 3 0 1 3 33.3  
## 8 14 11 5 11 39 28.2  
## Tkl dribble Fail Tot\_Blocks Sh\_Blocked Pass\_Blocked Tkl\_Int Clr Err Touches  
## 1 14 9 5 4 37 27 0 711  
## 4 3 11 3 8 19 19 1 605  
## 5 18 30 6 24 44 11 1 819  
## 6 53 52 11 41 138 53 1 1737  
## 7 2 1 1 0 6 1 0 167  
## 8 28 24 3 21 41 15 1 694  
## Def\_P\_Touch Def\_3rd\_Touch Mid\_3rd\_Touch Att\_3rd\_Touch Att\_P\_Touch Live\_Touch  
## 1 43 252 303 165 11 711  
## 4 21 129 258 221 28 605  
## 5 30 160 351 324 52 819  
## 6 88 339 876 564 69 1737  
## 7 1 21 77 72 12 167  
## 8 36 130 339 234 42 694  
## Att\_Take\_ons Succ Take ons Succ\_Take\_ons\_Rate Tkld Tkld\_Rate Carries  
## 1 34 14 41.2 12 35.3 364  
## 4 19 7 36.8 8 42.1 333  
## 5 72 25 34.7 32 44.4 520  
## 6 98 51 52.0 41 41.8 933  
## 7 12 2 16.7 10 83.3 107  
## 8 42 12 28.6 24 57.1 385  
## Tot\_Car\_Dist Prg\_Car\_Dist Att\_3rd\_Car CPA Mis Dis Rec CrdY\_2 Fls Fld Off  
## 1 2174 1121 12 7 13 8 371 0 12 26 2  
## 4 1713 844 14 5 21 5 394 0 11 12 4  
## 5 3559 1880 47 9 59 40 560 0 21 64 4  
## 6 5769 2681 58 14 58 47 987 0 48 38 5  
## 7 646 231 5 2 5 4 129 0 3 2 0  
## 8 2122 1004 20 7 25 21 439 0 14 26 5  
## PKwon PKcon OG Recov Aerial\_W Aerial Lost Aerial\_Won\_Rate Rating  
## 1 0 1 0 75 5 11 31.3 6.13  
## 4 0 0 0 33 12 15 44.4 NA  
## 5 0 0 0 104 9 22 29.0 NA  
## 6 0 1 0 231 21 38 35.6 NA  
## 7 0 0 0 11 1 3 25.0 NA  
## 8 0 0 0 59 18 15 54.5 NA

# For subset\_DF3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF3\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF3"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_DF3[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_DF5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF5\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF5"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_DF5[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_DF6\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF6\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF6"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_DF6[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_DF7\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF7\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF7"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_DF7[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF1\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF1\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF1"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF1[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF2\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF2\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF2"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF2[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF3\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF3"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF3[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF4\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF4\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF4"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF4[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF5\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF5"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF5[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF6\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF6\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF6"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF6[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_MF7\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF7\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_MF7"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_MF7[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_FW1\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW1\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_FW1"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_FW1[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_FW3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW3\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_FW3"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_FW3[is.na(sub\_clus\_23\_24$Rating)]  
  
# For subset\_FW5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW5\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_FW5"))  
  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating)] <- merged\_df$Rating\_FW5[is.na(sub\_clus\_23\_24$Rating)]

# Identifying players that appear only once in sub\_clus\_23\_24  
unique\_players <- sub\_clus\_23\_24$Player[!duplicated(sub\_clus\_23\_24$Player) &   
 !duplicated(sub\_clus\_23\_24$Player, fromLast = TRUE)]  
  
# Subsetting sub\_clus\_23\_24 to include only rows with unique players  
sub\_clus\_unique <- sub\_clus\_23\_24[sub\_clus\_23\_24$Player %in% unique\_players, ]  
  
# Merge with subset\_DF2\_PE\_ML to get the Rating values  
merged\_df <- merge(sub\_clus\_unique, subset\_DF2\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF2"))  
  
# Updating Rating column in the original sub\_clus\_23\_24 for players that appear once  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating) & sub\_clus\_23\_24$Player %in% unique\_players] <-   
 merged\_df$Rating\_DF2[match(sub\_clus\_23\_24$Player[is.na(sub\_clus\_23\_24$Rating) &   
 sub\_clus\_23\_24$Player %in% unique\_players],   
 merged\_df$Player)]

# Identifying players that appear only once in sub\_clus\_23\_24  
unique\_players <- sub\_clus\_23\_24$Player[!duplicated(sub\_clus\_23\_24$Player) &   
 !duplicated(sub\_clus\_23\_24$Player, fromLast = TRUE)]  
  
# Subsetting sub\_clus\_23\_24 to include only rows with unique players  
sub\_clus\_unique <- sub\_clus\_23\_24[sub\_clus\_23\_24$Player %in% unique\_players, ]  
  
# Merge with subset\_DF4\_PE\_ML to get the Rating values  
merged\_df <- merge(sub\_clus\_unique, subset\_DF4\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_DF4"))  
  
# Updating Rating column in the original sub\_clus\_23\_24 for players that appear once  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating) & sub\_clus\_23\_24$Player %in% unique\_players] <-   
 merged\_df$Rating\_DF4[match(sub\_clus\_23\_24$Player[is.na(sub\_clus\_23\_24$Rating) &   
 sub\_clus\_23\_24$Player %in% unique\_players],   
 merged\_df$Player)]

# Identifying players that appear only once in sub\_clus\_23\_24  
unique\_players <- sub\_clus\_23\_24$Player[!duplicated(sub\_clus\_23\_24$Player) &   
 !duplicated(sub\_clus\_23\_24$Player, fromLast = TRUE)]  
  
# Subsetting sub\_clus\_23\_24 to include only rows with unique players  
sub\_clus\_unique <- sub\_clus\_23\_24[sub\_clus\_23\_24$Player %in% unique\_players, ]  
  
# Merge with subset\_FW2\_PE\_ML to get the Rating values  
merged\_df <- merge(sub\_clus\_unique, subset\_FW2\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_FW2"))  
  
# Updatimg Rating column in the original sub\_clus\_23\_24 for players that appear once  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating) & sub\_clus\_23\_24$Player %in% unique\_players] <-   
 merged\_df$Rating\_FW2[match(sub\_clus\_23\_24$Player[is.na(sub\_clus\_23\_24$Rating) &   
 sub\_clus\_23\_24$Player %in% unique\_players],   
 merged\_df$Player)]

# Identifying players that appear only once in sub\_clus\_23\_24  
unique\_players <- sub\_clus\_23\_24$Player[!duplicated(sub\_clus\_23\_24$Player) &   
 !duplicated(sub\_clus\_23\_24$Player, fromLast = TRUE)]  
  
# Subsetting sub\_clus\_23\_24 to include only rows with unique players  
sub\_clus\_unique <- sub\_clus\_23\_24[sub\_clus\_23\_24$Player %in% unique\_players, ]  
  
# Merging with subset\_FW4\_PE\_ML to get the Rating values  
merged\_df <- merge(sub\_clus\_unique, subset\_FW4\_PE\_ML[, c("Player", "Rating")],   
 by = "Player", all.x = TRUE, suffixes = c("", "\_FW4"))  
  
# Updating the Rating column in the original sub\_clus\_23\_24 for players that appear once  
sub\_clus\_23\_24$Rating[is.na(sub\_clus\_23\_24$Rating) & sub\_clus\_23\_24$Player %in% unique\_players] <-   
 merged\_df$Rating\_FW4[match(sub\_clus\_23\_24$Player[is.na(sub\_clus\_23\_24$Rating) &   
 sub\_clus\_23\_24$Player %in% unique\_players],   
 merged\_df$Player)]

# Updating Rating values for specific rows in sub\_clus\_23\_24  
sub\_clus\_23\_24$Rating[67] <- 6.32  
sub\_clus\_23\_24$Rating[68] <- 6.76  
sub\_clus\_23\_24$Rating[400] <- 6.42  
sub\_clus\_23\_24$Rating[401] <- 6.85

*INTEGRATING THE NEW RATINGS*

# Initializing the ML\_Rating and ML\_Rating\_2 columns in sub\_clus\_23\_24  
sub\_clus\_23\_24$ML\_Rating <- NA  
sub\_clus\_23\_24$ML\_Rating\_2 <- NA  
  
# Merging the dataframes  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF1\_PE\_ML[, c("Player", "Rating", "DF1\_rating", "DF1\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF1"))  
  
# Updating   
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF1\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF1\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF2\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF2\_PE\_ML[, c("Player", "Rating", "DF2\_rating", "DF2\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF2"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF2\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF2\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF3\_PE\_ML[, c("Player", "Rating", "DF3\_rating", "DF3\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF3"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF3\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF3\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF4\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF4\_PE\_ML[, c("Player", "Rating", "DF4\_rating", "DF4\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF4"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF4\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF4\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF5\_PE\_ML[, c("Player", "Rating", "DF5\_rating", "DF5\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF5"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF5\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF5\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF6\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF6\_PE\_ML[, c("Player", "Rating", "DF6\_rating", "DF6\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF6"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF6\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF6\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_DF7\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_DF7\_PE\_ML[, c("Player", "Rating", "DF7\_rating", "DF7\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_DF7"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$DF7\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$DF7\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF1\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF1\_PE\_ML[, c("Player", "Rating", "MF1\_rating", "MF1\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF1"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF1\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF1\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF2\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF2\_PE\_ML[, c("Player", "Rating", "MF2\_rating", "MF2\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF2"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF2\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF2\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF3\_PE\_ML[, c("Player", "Rating", "MF3\_rating", "MF3\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF3"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF3\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF3\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF4\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF4\_PE\_ML[, c("Player", "Rating", "MF4\_rating", "MF4\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF4"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF4\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF4\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF5\_PE\_ML[, c("Player", "Rating", "MF5\_rating", "MF5\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF5"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF5\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF5\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF6\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF6\_PE\_ML[, c("Player", "Rating", "MF6\_rating", "MF6\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF6"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF6\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF6\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_MF7\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_MF7\_PE\_ML[, c("Player", "Rating", "MF7\_rating", "MF7\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_MF7"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$MF7\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$MF7\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_FW1\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW1\_PE\_ML[, c("Player", "Rating", "FW1\_rating", "FW1\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_FW1"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$FW1\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$FW1\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW2\_PE\_ML[, c("Player", "Rating", "FW2\_rating", "FW2\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_FW2"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$FW2\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$FW2\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
  
# For subset\_FW3\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW3\_PE\_ML[, c("Player", "Rating", "FW3\_rating", "FW3\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_FW3"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$FW3\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$FW3\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW4\_PE\_ML[, c("Player", "Rating", "FW4\_rating", "FW4\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_FW4"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$FW4\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$FW4\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]  
  
# For subset\_FW5\_PE\_ML  
merged\_df <- merge(sub\_clus\_23\_24, subset\_FW5\_PE\_ML[, c("Player", "Rating", "FW5\_rating", "FW5\_rating\_2")],   
 by = c("Player", "Rating"), all.x = TRUE, suffixes = c("", "\_FW5"))  
sub\_clus\_23\_24$ML\_Rating[is.na(sub\_clus\_23\_24$ML\_Rating)] <- merged\_df$FW5\_rating[is.na(sub\_clus\_23\_24$ML\_Rating)]  
sub\_clus\_23\_24$ML\_Rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)] <- merged\_df$FW5\_rating\_2[is.na(sub\_clus\_23\_24$ML\_Rating\_2)]

Removing GK

# Remove rows where 'Pos' is "GK"  
sub\_val\_23\_24 <- sub\_clus\_23\_24 %>% filter(Pos != "GK")

*VALIDATION AND SELECTION* creating the result variable

last\_columns <- tail(names(sub\_val\_23\_24), 3)  
  
# Computing means  
result <- aggregate(. ~ Squad, data = sub\_val\_23\_24[, c("Squad", last\_columns)],   
 FUN = function(x) mean(x, na.rm = TRUE))  
  
# Renaming columns for clarity  
names(result)[-1] <- paste0("Mean\_", last\_columns)  
  
# Ensuring all columns are numeric  
result[] <- lapply(result, as.numeric)

Correlation Scores

result$Squad <- as.numeric(result$Squad)  
  
# Correlations  
correlations <- sapply(names(result)[-1], function(col) {  
 cor(result$Squad, result[[col]], use = "complete.obs")  
})  
  
# Storing the correlations  
correlation\_df <- data.frame(  
 Variable = names(correlations),  
 Correlation = correlations  
)  
  
print(correlation\_df)

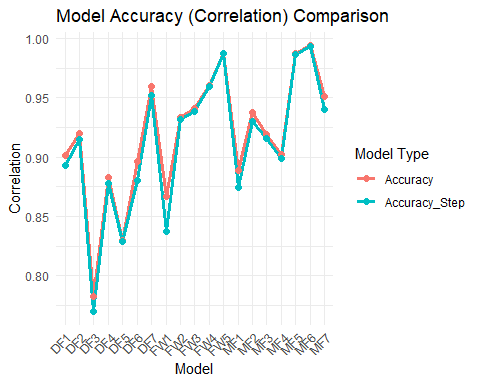
## Variable Correlation  
## Mean\_Rating Mean\_Rating -0.3470852  
## Mean\_ML\_Rating Mean\_ML\_Rating -0.2242131  
## Mean\_ML\_Rating\_2 Mean\_ML\_Rating\_2 -0.1616476

*VISUALIZING MODEL PARAMETERS* accuracy

# Creating a data frame for the accuracy (correlation) values  
accuracy\_values <- data.frame(  
 Model = c("DF1", "DF2", "DF3", "DF4", "DF5", "DF6", "DF7",   
 "MF1", "MF2", "MF3", "MF4", "MF5", "MF6", "MF7",   
 "FW1", "FW2", "FW3", "FW4", "FW5"),  
   
 Accuracy = c(cor(predicted\_DF1[!is.na(subset\_DF1\_PE\_ML$Rating)], subset\_DF1\_PE\_ML$Rating[!is.na(subset\_DF1\_PE\_ML$Rating)]),  
 cor(predicted\_DF2[!is.na(subset\_DF2\_PE\_ML$Rating)], subset\_DF2\_PE\_ML$Rating[!is.na(subset\_DF2\_PE\_ML$Rating)]),  
 cor(predicted\_DF3[!is.na(subset\_DF3\_PE\_ML$Rating)], subset\_DF3\_PE\_ML$Rating[!is.na(subset\_DF3\_PE\_ML$Rating)]),  
 cor(predicted\_DF4[!is.na(subset\_DF4\_PE\_ML$Rating)], subset\_DF4\_PE\_ML$Rating[!is.na(subset\_DF4\_PE\_ML$Rating)]),  
 cor(predicted\_DF5[!is.na(subset\_DF5\_PE\_ML$Rating)], subset\_DF5\_PE\_ML$Rating[!is.na(subset\_DF5\_PE\_ML$Rating)]),  
 cor(predicted\_DF6[!is.na(subset\_DF6\_PE\_ML$Rating)], subset\_DF6\_PE\_ML$Rating[!is.na(subset\_DF6\_PE\_ML$Rating)]),  
 cor(predicted\_DF7[!is.na(subset\_DF7\_PE\_ML$Rating)], subset\_DF7\_PE\_ML$Rating[!is.na(subset\_DF7\_PE\_ML$Rating)]),  
 cor(predicted\_MF1[!is.na(subset\_MF1\_PE\_ML$Rating)], subset\_MF1\_PE\_ML$Rating[!is.na(subset\_MF1\_PE\_ML$Rating)]),  
 cor(predicted\_MF2[!is.na(subset\_MF2\_PE\_ML$Rating)], subset\_MF2\_PE\_ML$Rating[!is.na(subset\_MF2\_PE\_ML$Rating)]),  
 cor(predicted\_MF3[!is.na(subset\_MF3\_PE\_ML$Rating)], subset\_MF3\_PE\_ML$Rating[!is.na(subset\_MF3\_PE\_ML$Rating)]),  
 cor(predicted\_MF4[!is.na(subset\_MF4\_PE\_ML$Rating)], subset\_MF4\_PE\_ML$Rating[!is.na(subset\_MF4\_PE\_ML$Rating)]),  
 cor(predicted\_MF5[!is.na(subset\_MF5\_PE\_ML$Rating)], subset\_MF5\_PE\_ML$Rating[!is.na(subset\_MF5\_PE\_ML$Rating)]),  
 cor(predicted\_MF6[!is.na(subset\_MF6\_PE\_ML$Rating)], subset\_MF6\_PE\_ML$Rating[!is.na(subset\_MF6\_PE\_ML$Rating)]),  
 cor(predicted\_MF7[!is.na(subset\_MF7\_PE\_ML$Rating)], subset\_MF7\_PE\_ML$Rating[!is.na(subset\_MF7\_PE\_ML$Rating)]),  
 cor(predicted\_FW1[!is.na(subset\_FW1\_PE\_ML$Rating)], subset\_FW1\_PE\_ML$Rating[!is.na(subset\_FW1\_PE\_ML$Rating)]),  
 cor(predicted\_FW2[!is.na(subset\_FW2\_PE\_ML$Rating)], subset\_FW2\_PE\_ML$Rating[!is.na(subset\_FW2\_PE\_ML$Rating)]),  
 cor(predicted\_FW3[!is.na(subset\_FW3\_PE\_ML$Rating)], subset\_FW3\_PE\_ML$Rating[!is.na(subset\_FW3\_PE\_ML$Rating)]),  
 cor(predicted\_FW4[!is.na(subset\_FW4\_PE\_ML$Rating)], subset\_FW4\_PE\_ML$Rating[!is.na(subset\_FW4\_PE\_ML$Rating)]),  
 cor(predicted\_FW5[!is.na(subset\_FW5\_PE\_ML$Rating)], subset\_FW5\_PE\_ML$Rating[!is.na(subset\_FW5\_PE\_ML$Rating)])),  
   
 Accuracy\_Step = c(cor(predicted\_DF1\_step[!is.na(subset\_DF1\_PE\_ML$Rating)], subset\_DF1\_PE\_ML$Rating[!is.na(subset\_DF1\_PE\_ML$Rating)]),  
 cor(predicted\_DF2\_step[!is.na(subset\_DF2\_PE\_ML$Rating)], subset\_DF2\_PE\_ML$Rating[!is.na(subset\_DF2\_PE\_ML$Rating)]),  
 cor(predicted\_DF3\_step[!is.na(subset\_DF3\_PE\_ML$Rating)], subset\_DF3\_PE\_ML$Rating[!is.na(subset\_DF3\_PE\_ML$Rating)]),  
 cor(predicted\_DF4\_step[!is.na(subset\_DF4\_PE\_ML$Rating)], subset\_DF4\_PE\_ML$Rating[!is.na(subset\_DF4\_PE\_ML$Rating)]),  
 cor(predicted\_DF5\_step[!is.na(subset\_DF5\_PE\_ML$Rating)], subset\_DF5\_PE\_ML$Rating[!is.na(subset\_DF5\_PE\_ML$Rating)]),  
 cor(predicted\_DF6\_step[!is.na(subset\_DF6\_PE\_ML$Rating)], subset\_DF6\_PE\_ML$Rating[!is.na(subset\_DF6\_PE\_ML$Rating)]),  
 cor(predicted\_DF7\_step[!is.na(subset\_DF7\_PE\_ML$Rating)], subset\_DF7\_PE\_ML$Rating[!is.na(subset\_DF7\_PE\_ML$Rating)]),  
 cor(predicted\_MF1\_step[!is.na(subset\_MF1\_PE\_ML$Rating)], subset\_MF1\_PE\_ML$Rating[!is.na(subset\_MF1\_PE\_ML$Rating)]),  
 cor(predicted\_MF2\_step[!is.na(subset\_MF2\_PE\_ML$Rating)], subset\_MF2\_PE\_ML$Rating[!is.na(subset\_MF2\_PE\_ML$Rating)]),  
 cor(predicted\_MF3\_step[!is.na(subset\_MF3\_PE\_ML$Rating)], subset\_MF3\_PE\_ML$Rating[!is.na(subset\_MF3\_PE\_ML$Rating)]),  
 cor(predicted\_MF4\_step[!is.na(subset\_MF4\_PE\_ML$Rating)], subset\_MF4\_PE\_ML$Rating[!is.na(subset\_MF4\_PE\_ML$Rating)]),  
 cor(predicted\_MF5\_step[!is.na(subset\_MF5\_PE\_ML$Rating)], subset\_MF5\_PE\_ML$Rating[!is.na(subset\_MF5\_PE\_ML$Rating)]),  
 cor(predicted\_MF6\_step[!is.na(subset\_MF6\_PE\_ML$Rating)], subset\_MF6\_PE\_ML$Rating[!is.na(subset\_MF6\_PE\_ML$Rating)]),  
 cor(predicted\_MF7\_step[!is.na(subset\_MF7\_PE\_ML$Rating)], subset\_MF7\_PE\_ML$Rating[!is.na(subset\_MF7\_PE\_ML$Rating)]),  
 cor(predicted\_FW1\_step[!is.na(subset\_FW1\_PE\_ML$Rating)], subset\_FW1\_PE\_ML$Rating[!is.na(subset\_FW1\_PE\_ML$Rating)]),  
 cor(predicted\_FW2\_step[!is.na(subset\_FW2\_PE\_ML$Rating)], subset\_FW2\_PE\_ML$Rating[!is.na(subset\_FW2\_PE\_ML$Rating)]),  
 cor(predicted\_FW3\_step[!is.na(subset\_FW3\_PE\_ML$Rating)], subset\_FW3\_PE\_ML$Rating[!is.na(subset\_FW3\_PE\_ML$Rating)]),  
 cor(predicted\_FW4\_step[!is.na(subset\_FW4\_PE\_ML$Rating)], subset\_FW4\_PE\_ML$Rating[!is.na(subset\_FW4\_PE\_ML$Rating)]),  
 cor(predicted\_FW5\_step[!is.na(subset\_FW5\_PE\_ML$Rating)], subset\_FW5\_PE\_ML$Rating[!is.na(subset\_FW5\_PE\_ML$Rating)]))  
)  
  
# Reshaping data  
accuracy\_long <- reshape2::melt(accuracy\_values, id.vars = "Model", variable.name = "Type", value.name = "Accuracy")  
  
# Plot  
accuracy\_plot <- ggplot(accuracy\_long, aes(x = Model, y = Accuracy, color = Type, group = Type)) +  
 geom\_line(size = 1.2) +  
 geom\_point(size = 2) +  
 labs(title = "Model Accuracy (Correlation) Comparison",  
 x = "Model",  
 y = "Correlation",  
 color = "Model Type") +  
 theme\_minimal() +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1))

## Warning: Using `size` aesthetic for lines was deprecated in ggplot2 3.4.0.  
## ℹ Please use `linewidth` instead.  
## This warning is displayed once every 8 hours.  
## Call `lifecycle::last\_lifecycle\_warnings()` to see where this warning was  
## generated.

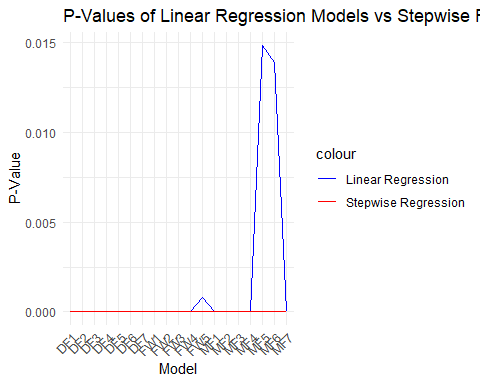
print(accuracy\_plot)



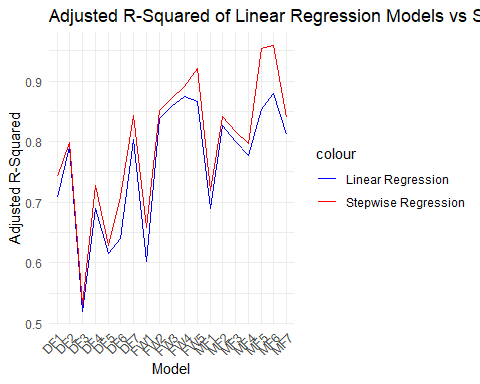
# Empty list to store model info  
model\_info\_list <- list()  
  
# Vector of model names  
model\_names <- c("DF1", "DF2", "DF3", "DF4", "DF5", "DF6", "DF7",  
 "MF1", "MF2", "MF3", "MF4", "MF5", "MF6", "MF7",  
 "FW1", "FW2", "FW3", "FW4", "FW5")  
  
# Looping  
for (model in model\_names) {  
   
 # linear regression and stepwise models   
 model\_lr <- get(paste0(model, "\_model"))  
 model\_step <- get(paste0(model, "\_model\_step"))  
   
 # p-values and adjusted R-squared in the list  
 model\_info\_list[[paste0(model, "\_model")]] <- list(  
 p\_values = summary(model\_lr)$coefficients[, "Pr(>|t|)"],  
 adj\_r\_squared = summary(model\_lr)$adj.r.squared  
 )  
   
 model\_info\_list[[paste0(model, "\_model\_step")]] <- list(  
 p\_values = summary(model\_step)$coefficients[, "Pr(>|t|)"],  
 adj\_r\_squared = summary(model\_step)$adj.r.squared  
 )  
}

p value and adjusted r squared

# Vectors to store p-values and adjusted R-squared values for both types of models  
p\_values\_lr <- numeric(length(model\_names))  
p\_values\_step <- numeric(length(model\_names))  
adj\_r\_squared\_lr <- numeric(length(model\_names))  
adj\_r\_squared\_step <- numeric(length(model\_names))  
  
# Filling vectors  
for (i in 1:length(model\_names)) {  
 model\_lr <- model\_info\_list[[paste0(model\_names[i], "\_model")]]  
 model\_step <- model\_info\_list[[paste0(model\_names[i], "\_model\_step")]]  
   
 # Extracting p-values  
 p\_values\_lr[i] <- ifelse(length(model\_lr$p\_values) > 0, min(model\_lr$p\_values), NA)  
 p\_values\_step[i] <- ifelse(length(model\_step$p\_values) > 0, min(model\_step$p\_values), NA)  
   
 # Extracting adjusted R-squared values  
 adj\_r\_squared\_lr[i] <- model\_lr$adj\_r\_squared  
 adj\_r\_squared\_step[i] <- model\_step$adj\_r\_squared  
}  
  
# Data frames for plotting  
p\_values\_df <- data.frame(Model = model\_names,  
 P\_Value\_LR = p\_values\_lr,  
 P\_Value\_Step = p\_values\_step)  
  
adj\_r\_squared\_df <- data.frame(Model = model\_names,  
 Adj\_R\_Squared\_LR = adj\_r\_squared\_lr,  
 Adj\_R\_Squared\_Step = adj\_r\_squared\_step)  
  
  
# Plot 1: P-Values  
p\_values\_plot <- ggplot(p\_values\_df, aes(x = Model)) +  
 geom\_line(aes(y = P\_Value\_LR, color = "Linear Regression", group = 1)) +  
 geom\_line(aes(y = P\_Value\_Step, color = "Stepwise Regression", group = 2)) +  
 labs(title = "P-Values of Linear Regression Models vs Stepwise Regression Models",  
 x = "Model", y = "P-Value") +  
 theme\_minimal() +  
 scale\_color\_manual(values = c("Linear Regression" = "blue", "Stepwise Regression" = "red")) +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1)) # Angle x-axis labels if necessary  
  
# Plot 2: Adjusted R-Squared  
adj\_r\_squared\_plot <- ggplot(adj\_r\_squared\_df, aes(x = Model)) +  
 geom\_line(aes(y = Adj\_R\_Squared\_LR, color = "Linear Regression", group = 1)) +  
 geom\_line(aes(y = Adj\_R\_Squared\_Step, color = "Stepwise Regression", group = 2)) +  
 labs(title = "Adjusted R-Squared of Linear Regression Models vs Stepwise Regression Models",  
 x = "Model", y = "Adjusted R-Squared") +  
 theme\_minimal() +  
 scale\_color\_manual(values = c("Linear Regression" = "blue", "Stepwise Regression" = "red")) +  
 theme(axis.text.x = element\_text(angle = 45, hjust = 1)) # Angle x-axis labels if necessary  
  
# Printing  
print(p\_values\_plot)



print(adj\_r\_squared\_plot)



# Saving  
ggsave(filename = "p\_values\_plot.png", plot = p\_values\_plot, width = 8, height = 6, dpi = 300)  
  
ggsave(filename = "adj\_r\_squared\_plot.png", plot = adj\_r\_squared\_plot, width = 8, height = 6, dpi = 300)  
  
ggsave(filename = "accuracy\_plot.png", plot = accuracy\_plot, width = 8, height = 6, dpi = 300)

*VISUALISING TOP 10 PLAYERS IN EACH CLUSTER*

# List of datasets  
datasets <- list(  
 subset\_DF1\_PE\_ML,  
 subset\_DF2\_PE\_ML,  
 subset\_DF3\_PE\_ML,  
 subset\_DF4\_PE\_ML,  
 subset\_DF5\_PE\_ML,  
 subset\_DF6\_PE\_ML,  
 subset\_DF7\_PE\_ML,  
 subset\_MF1\_PE\_ML,  
 subset\_MF2\_PE\_ML,  
 subset\_MF3\_PE\_ML,  
 subset\_MF4\_PE\_ML,  
 subset\_MF5\_PE\_ML,  
 subset\_MF6\_PE\_ML,  
 subset\_MF7\_PE\_ML,  
 subset\_FW1\_PE\_ML,  
 subset\_FW2\_PE\_ML,  
 subset\_FW3\_PE\_ML,  
 subset\_FW4\_PE\_ML,  
 subset\_FW5\_PE\_ML  
)  
  
# Function to process each dataset  
process\_dataset <- function(df) {  
 # Ensuring Player column is the first column  
 player\_col <- "Player"  
   
 # Finding the column that ends with '\_2'  
 var\_ending\_with\_2 <- grep("\_2$", names(df), value = TRUE)  
   
 # Rearranging  
 selected\_columns <- c(player\_col, var\_ending\_with\_2, setdiff(names(df), c(player\_col, var\_ending\_with\_2)))  
 df\_rearranged <- df[, selected\_columns]  
   
 # Sorting  
 df\_sorted <- df\_rearranged[order(-df\_rearranged[[var\_ending\_with\_2]]), ]  
   
 # First 10 rows and first 6 columns  
 df\_subset <- df\_sorted[1:10, 1:6]  
   
 # Visualizing the subset  
 print(df\_subset)  
}  
  
# Applying the function to each dataset  
lapply(datasets, process\_dataset)

## Player DF1\_rating\_2 Succ\_Take\_ons\_Rate xAG Int\_per\_90 G\_PK  
## 16 Tyrick Mitchell 6.915100 48.6 2.8 0.730 2  
## 7 Diogo Dalot 6.884039 59.6 2.9 1.048 2  
## 15 Vladimír Coufal 6.601304 31.6 4.0 1.236 0  
## 5 Charlie Taylor 6.549423 52.9 1.2 0.734 1  
## 10 Mads Roerslev 6.512500 39.3 1.8 0.860 1  
## 8 Lloyd Kelly 6.453490 50.0 1.2 0.751 0  
## 9 Luke Shaw 6.440240 63.6 1.0 0.561 0  
## 14 Séamus Coleman 6.440240 46.2 1.0 0.946 0  
## 3 Ashley Young 6.421383 44.4 1.5 0.870 0  
## 2 Adam Smith 6.405534 26.7 1.3 0.879 0  
## Player DF2\_rating\_2 Ast Tkl\_Int\_per\_90 KP\_per\_90  
## 29 Sergio Reguilón 7.021123 4 4.919 1.613  
## 5 Antonee Robinson 6.987500 6 4.766 0.909  
## 7 Daniel Muñoz 6.965486 4 4.938 1.312  
## 21 Marc Cucurella 6.780155 2 4.242 0.960  
## 2 Aaron Wan-Bissaka 6.696173 2 4.192 0.606  
## 8 Destiny Udogie 6.688415 3 3.947 0.902  
## 17 Kenny Tete 6.625425 0 4.479 0.312  
## 10 Emerson Palmieri 6.624787 2 4.269 0.716  
## 18 Lewis Hall 6.599101 0 4.598 0.345  
## 19 Lorenz Assignon 6.569604 2 3.942 0.949  
## PassLive\_SCA\_per\_90  
## 29 1.613  
## 5 1.736  
## 7 2.375  
## 21 1.414  
## 2 1.212  
## 8 1.917  
## 17 1.146  
## 10 1.404  
## 18 1.609  
## 19 1.314  
## Player DF3\_rating\_2 G\_PK SoT\_per\_90 PrgP\_per\_90  
## 6 Cristian Romero 7.096802 5 0.29 5.774  
## 31 Virgil van Dijk 6.925587 2 0.40 5.666  
## 14 Jarell Quansah 6.906066 2 0.30 5.076  
## 34 Gabriel Magalhães 6.870247 4 0.30 3.462  
## 18 Lewis Dunk 6.847898 3 0.38 4.765  
## 28 Tosin Adarabioyo 6.828733 2 0.28 3.444  
## 27 Thiago Silva 6.737659 3 0.14 3.630  
## 13 Jan Paul van Hecke 6.735139 0 0.23 5.589  
## 9 Ibrahima Konaté 6.718594 0 0.11 6.743  
## 21 Micky van de Ven 6.713011 3 0.12 4.154  
## Total\_Pass\_Dist\_per\_90  
## 6 1337.355  
## 31 1396.317  
## 14 1414.545  
## 34 950.385  
## 18 1592.194  
## 28 1167.222  
## 27 1371.601  
## 13 1456.274  
## 9 1299.029  
## 21 1147.692  
## Player DF4\_rating\_2 xAG G\_PK CrdY\_per\_90 Aerial\_Won\_Rate  
## 38 Trent Alexander-Arnold 7.248274 7.2 3 0.251 57.1  
## 3 Andrew Robertson 7.142265 5.4 3 0.106 53.8  
## 35 Solly March 7.093068 1.0 3 0.161 60.0  
## 16 Kieran Trippier 7.035290 7.5 1 0.202 64.6  
## 2 Alfie Doughty 7.022185 6.3 2 0.154 65.7  
## 26 Pedro Porro 6.987048 7.2 3 0.087 51.7  
## 14 Joško Gvardiol 6.984854 1.4 4 0.116 56.4  
## 27 Pervis Estupiñán 6.984640 3.5 2 0.290 46.2  
## 7 Conor Bradley 6.938737 1.5 1 0.238 68.8  
## 25 Pascal Groß 6.927637 8.1 3 0.173 45.2  
## Player DF5\_rating\_2 G\_PK Aerial\_Won\_Rate xAG Tkl\_dribble\_Rate  
## 6 Ben White 7.040368 4 62.1 3.8 44.8  
## 12 Gabriel Magalhães 6.890471 4 55.4 0.7 77.3  
## 8 Chris Richards 6.840621 1 58.1 0.4 66.7  
## 19 Kristoffer Ajer 6.727787 2 73.3 2.3 63.9  
## 31 Tyrick Mitchell 6.705441 2 44.7 2.8 71.7  
## 21 Lucas Digne 6.699945 1 63.6 4.1 56.8  
## 4 Ben Godfrey 6.692599 0 51.0 0.3 53.6  
## 33 Vitaly Janelt 6.685240 1 56.7 4.8 50.0  
## 10 Dan Burn 6.662028 2 68.2 1.1 42.6  
## 30 Toti Gomes 6.649185 1 65.1 1.2 64.9  
## Player DF6\_rating\_2 PassLive\_SCA\_per\_90 G\_PK KP\_per\_90 xAG\_per\_90  
## 21 Scott McKenna 6.694796 0.435 0 0.652 0.04  
## 5 Dara O'Shea 6.675901 0.841 3 0.405 0.06  
## 20 Raphaël Varane 6.642028 0.850 1 0.065 0.00  
## 11 Jonny Evans 6.620132 0.710 0 0.387 0.08  
## 13 Kurt Zouma 6.602951 0.349 3 0.127 0.01  
## 6 Gabriel Osho 6.595158 0.341 2 0.098 0.01  
## 18 Nathan Collins 6.576754 0.746 1 0.373 0.07  
## 19 Nayef Aguerd 6.557554 0.583 1 0.194 0.01  
## 24 Joël Matip 6.552722 0.920 0 0.230 0.01  
## 15 Max Kilman 6.535430 0.895 2 0.447 0.04  
## Player DF7\_rating\_2 xAG xAG\_per\_90 xA\_per\_90 G\_PK  
## 7 James Tarkowski 7.008031 2.5 0.06 0.071 1  
## 9 Joachim Andersen 6.964414 2.8 0.07 0.061 2  
## 2 Craig Dawson 6.934152 1.4 0.06 0.024 1  
## 12 Marcos Senesi 6.871511 1.7 0.07 0.100 4  
## 4 Fabian Schär 6.865870 0.7 0.02 0.041 4  
## 16 Willy Boly 6.860453 1.3 0.08 0.050 2  
## 3 Ethan Pinnock 6.814320 1.0 0.04 0.029 2  
## 8 Jarrad Branthwaite 6.806876 1.0 0.03 0.038 3  
## 6 Harry Maguire 6.775838 1.2 0.07 0.049 2  
## 13 Murillo 6.711752 1.2 0.04 0.019 0  
## Player MF1\_rating\_2 xAG G\_PK Int\_per\_90 Dis\_per\_90  
## 4 Christian Nørgaard 6.961318 1.9 2 1.942 0.540  
## 7 Idrissa Gana Gueye 6.816460 1.1 4 1.340 0.957  
## 30 Tyrick Mitchell 6.758888 2.8 2 0.730 0.787  
## 31 Vitaly Janelt 6.758757 4.8 1 1.062 0.295  
## 1 Amadou Onana 6.736955 2.7 2 0.905 0.431  
## 15 Mario Lemina 6.720753 1.5 4 1.242 0.667  
## 11 Jefferson Lerma 6.719584 2.2 1 1.348 0.524  
## 10 James Garner 6.717151 4.6 1 1.347 0.299  
## 5 Danilo 6.685116 1.5 2 1.759 0.653  
## 28 Sean Longstaff 6.678721 2.3 6 0.557 1.148  
## Player MF2\_rating\_2 G\_PK xAG G\_SoT PrgP\_per\_90  
## 19 Kai Havertz 7.150876 12 4.4 0.44 3.379  
## 14 Hwang Hee-chan 6.963345 11 3.0 0.65 1.574  
## 10 Cody Gakpo 6.902721 8 2.9 0.33 4.536  
## 2 Abdoulaye Doucouré 6.803922 7 2.9 0.33 3.322  
## 28 Jordan Ayew 6.793910 4 4.2 0.21 2.226  
## 9 Carlton Morris 6.720246 6 2.8 0.23 1.761  
## 27 Tomáš Souček 6.715771 7 1.7 0.47 2.696  
## 26 Scott McTominay 6.651409 7 0.8 0.37 3.033  
## 18 Justin Kluivert 6.643130 7 1.9 0.35 2.347  
## 6 Ben Brereton 6.614566 5 1.5 0.31 3.008  
## Player MF3\_rating\_2 G\_PK Ast A\_xAG Take\_ons\_SCA\_per\_90  
## 30 Rodri 7.470533 8 9 5.1 0.245  
## 8 Bruno Guimarães 7.467008 7 8 1.6 0.275  
## 11 Declan Rice 7.270931 7 8 2.7 0.084  
## 27 Pascal Groß 7.180243 3 10 1.9 0.145  
## 15 John McGinn 7.137208 6 4 -0.6 0.180  
## 12 Douglas Luiz 7.133778 5 5 -0.4 0.180  
## 10 Conor Gallagher 7.106757 5 7 2.0 0.144  
## 32 Ross Barkley 7.070487 5 4 0.3 0.481  
## 4 Alexis Mac Allister 7.030898 4 5 1.4 0.104  
## 46 Jack Harrison 7.016348 3 3 -0.4 0.122  
## Player MF4\_rating\_2 xAG G\_PK xA\_per\_90 G\_PK\_per\_90  
## 49 Phil Foden 7.617721 8.4 19 0.218 0.60  
## 12 Cole Palmer 7.598207 11.1 13 0.300 0.45  
## 35 Kevin De Bruyne 7.480350 11.5 4 0.522 0.29  
## 37 Leon Bailey 7.394866 9.2 10 0.317 0.44  
## 7 Bruno Fernandes 7.345052 11.8 6 0.295 0.17  
## 39 Martin Ødegaard 7.263355 9.6 6 0.327 0.17  
## 42 Michael Olise 7.213189 5.8 9 0.352 0.64  
## 15 Dejan Kulusevski 7.134321 7.7 8 0.218 0.26  
## 17 Eberechi Eze 7.114202 5.2 10 0.246 0.44  
## 6 Bernardo Silva 7.111261 7.6 6 0.280 0.21  
## Player MF5\_rating\_2 xAG G\_PK xA\_per\_90 Tot\_Car\_Dist\_per\_90  
## 4 Dwight McNeil 7.016870 8.8 3 0.255 182.087  
## 6 James Ward-Prowse 6.946718 7.8 5 0.189 118.649  
## 10 Morgan Gibbs-White 6.931015 8.4 4 0.194 160.570  
## 8 Lewis Cook 6.802120 4.3 0 0.097 128.065  
## 1 Andreas Pereira 6.756220 7.1 3 0.197 153.793  
## 12 Pablo Sarabia 6.732728 5.9 2 0.253 170.309  
## 9 Mathias Jensen 6.704367 4.0 3 0.196 120.857  
## 5 Gustavo Hamer 6.656089 6.1 4 0.142 102.384  
## 7 Jóhann Berg Guðmundsson 6.494704 2.7 1 0.189 139.091  
## 2 Ashley Young 6.430925 1.5 0 0.055 114.980  
## Player MF6\_rating\_2 Ast Fls\_per\_90 G\_PK CrdY\_per\_90  
## 8 Jeremy Doku 7.260395 8 0.847 3 0.169  
## 1 Casemiro 6.942430 2 1.364 1 0.318  
## 4 Chris Richards 6.691561 1 0.515 1 0.129  
## 10 Luis Sinisterra 6.656827 2 1.410 2 0.000  
## 7 Giovani Lo Celso 6.475458 2 2.143 2 0.357  
## 3 Chris Basham 6.451924 0 0.833 0 0.278  
## 12 Mohammed Kudus 6.413079 6 1.413 8 0.217  
## 5 Enes Ünal 6.395127 2 2.778 2 0.278  
## 6 Fabio Vieira 6.362797 2 2.424 0 0.000  
## 2 Cheikhou Kouyaté 6.041304 0 2.500 0 0.833  
## Player MF7\_rating\_2 Ast Int\_per\_90 xAG G\_PK  
## 9 João Palhinha 7.082975 1 1.533 0.8 4  
## 3 Daniel Muñoz 7.081956 4 1.500 2.4 0  
## 10 Joelinton 6.824824 1 1.338 2.8 2  
## 4 Edson Álvarez 6.721649 1 1.591 0.6 1  
## 5 Elliot Anderson 6.590899 2 0.702 1.9 0  
## 17 Vinicius Souza 6.560682 0 1.081 0.2 1  
## 15 Nélson Semedo 6.548600 1 1.050 1.7 0  
## 14 Morgan Rogers 6.520189 1 0.423 0.6 3  
## 18 Vitinho 6.513382 2 0.467 1.3 0  
## 8 Jean-Ricner Bellegarde 6.480177 1 0.755 1.0 2  
## Player FW1\_rating\_2 xAG G\_PK G\_PK\_per\_90 G\_Sh  
## 8 Jeremy Doku 7.063357 4.6 3 0.17 0.05  
## 19 Carney Chukwuemeka 7.018361 0.3 1 0.40 0.33  
## 9 João Pedro 6.973578 3.8 5 0.22 0.07  
## 7 Jack Grealish 6.922811 2.5 3 0.27 0.14  
## 14 Noni Madueke 6.915009 2.6 4 0.34 0.13  
## 10 Joelinton 6.899404 2.8 2 0.14 0.11  
## 16 Solly March 6.836915 1.0 3 0.49 0.21  
## 11 Luis Sinisterra 6.727685 2.4 2 0.26 0.07  
## 12 Mason Mount 6.688603 0.3 1 0.17 0.20  
## 15 Scott McTominay 6.674958 0.8 7 0.33 0.16  
## Player FW2\_rating\_2 G\_PK xAG Ast\_per\_90 G\_PK\_per\_90  
## 35 Ollie Watkins 7.420607 19 7.3 0.36 0.53  
## 20 Erling Haaland 7.359779 20 4.3 0.18 0.71  
## 46 Darwin Núñez 7.187960 11 6.0 0.35 0.48  
## 2 Alexander Isak 7.139003 16 3.7 0.08 0.64  
## 32 Nicolas Jackson 7.100513 14 4.3 0.16 0.45  
## 24 Jarrod Bowen 7.084942 16 5.5 0.18 0.48  
## 17 Dominic Solanke 7.037922 17 3.0 0.08 0.46  
## 25 Jean-Philippe Mateta 6.972791 14 3.1 0.20 0.55  
## 28 Kai Havertz 6.945499 12 4.4 0.24 0.41  
## 38 Richarlison 6.882298 11 2.1 0.24 0.66  
## Player FW3\_rating\_2 xAG G\_PK xAG\_per\_90 xA\_per\_90  
## 12 Cole Palmer 7.601212 11.1 13 0.38 0.300  
## 33 Phil Foden 7.563077 8.4 19 0.26 0.218  
## 10 Bukayo Saka 7.481491 10.5 10 0.32 0.340  
## 8 Bruno Fernandes 7.417494 11.8 6 0.34 0.295  
## 42 Leon Bailey 7.376872 9.2 10 0.40 0.317  
## 13 Dejan Kulusevski 7.151021 7.7 8 0.25 0.218  
## 7 Bernardo Silva 7.111610 7.6 6 0.27 0.280  
## 23 Julián Álvarez 7.089639 6.4 9 0.22 0.214  
## 14 Dwight McNeil 7.084303 8.8 3 0.27 0.255  
## 40 Brennan Johnson 7.067539 8.1 5 0.35 0.194  
## Player FW4\_rating\_2 G\_PK Ast xA\_per\_90 Total\_Pass\_Dist\_per\_90  
## 36 Cole Palmer 7.727089 13 11 0.300 642.138  
## 23 Michael Olise 7.459036 9 6 0.352 602.606  
## 35 Bukayo Saka 7.399145 10 9 0.340 521.327  
## 30 Son Heung-min 7.355487 15 10 0.255 371.871  
## 43 Leandro Trossard 7.269165 12 1 0.175 418.907  
## 41 Julián Álvarez 7.256904 9 8 0.214 475.408  
## 12 Eberechi Eze 7.249095 10 4 0.246 489.035  
## 22 Matheus Cunha 7.249056 11 7 0.111 327.934  
## 19 Leon Bailey 7.214768 10 9 0.317 391.000  
## 25 Mohammed Kudus 7.204368 8 6 0.134 408.080  
## Player FW5\_rating\_2 PrgC\_per\_90 PassLive\_SCA\_per\_90 G\_PK  
## 26 Son Heung-min 7.039057 3.650 3.313 15  
## 5 Callum Hudson-Odoi 6.760271 5.388 3.058 8  
## 16 Marcus Rashford 6.726418 3.770 2.262 5  
## 19 Morgan Rogers 6.708690 3.099 2.535 3  
## 17 Miguel Almirón 6.645299 3.628 1.860 3  
## 3 Anthony Elanga 6.640097 3.630 1.963 5  
## 24 Abdoulaye Doucouré 6.638934 1.884 2.021 7  
## 23 Wilson Odobert 6.611922 4.378 2.361 3  
## 20 Moussa Diaby 6.606872 3.884 2.645 6  
## 6 Elliot Anderson 6.598683 3.246 2.456 0  
## CrdR\_per\_90  
## 26 0  
## 5 0  
## 16 0  
## 19 0  
## 17 0  
## 3 0  
## 24 0  
## 23 0  
## 20 0  
## 6 0

## [[1]]  
## Player DF1\_rating\_2 Succ\_Take\_ons\_Rate xAG Int\_per\_90 G\_PK  
## 16 Tyrick Mitchell 6.915100 48.6 2.8 0.730 2  
## 7 Diogo Dalot 6.884039 59.6 2.9 1.048 2  
## 15 Vladimír Coufal 6.601304 31.6 4.0 1.236 0  
## 5 Charlie Taylor 6.549423 52.9 1.2 0.734 1  
## 10 Mads Roerslev 6.512500 39.3 1.8 0.860 1  
## 8 Lloyd Kelly 6.453490 50.0 1.2 0.751 0  
## 9 Luke Shaw 6.440240 63.6 1.0 0.561 0  
## 14 Séamus Coleman 6.440240 46.2 1.0 0.946 0  
## 3 Ashley Young 6.421383 44.4 1.5 0.870 0  
## 2 Adam Smith 6.405534 26.7 1.3 0.879 0  
##   
## [[2]]  
## Player DF2\_rating\_2 Ast Tkl\_Int\_per\_90 KP\_per\_90  
## 29 Sergio Reguilón 7.021123 4 4.919 1.613  
## 5 Antonee Robinson 6.987500 6 4.766 0.909  
## 7 Daniel Muñoz 6.965486 4 4.938 1.312  
## 21 Marc Cucurella 6.780155 2 4.242 0.960  
## 2 Aaron Wan-Bissaka 6.696173 2 4.192 0.606  
## 8 Destiny Udogie 6.688415 3 3.947 0.902  
## 17 Kenny Tete 6.625425 0 4.479 0.312  
## 10 Emerson Palmieri 6.624787 2 4.269 0.716  
## 18 Lewis Hall 6.599101 0 4.598 0.345  
## 19 Lorenz Assignon 6.569604 2 3.942 0.949  
## PassLive\_SCA\_per\_90  
## 29 1.613  
## 5 1.736  
## 7 2.375  
## 21 1.414  
## 2 1.212  
## 8 1.917  
## 17 1.146  
## 10 1.404  
## 18 1.609  
## 19 1.314  
##   
## [[3]]  
## Player DF3\_rating\_2 G\_PK SoT\_per\_90 PrgP\_per\_90  
## 6 Cristian Romero 7.096802 5 0.29 5.774  
## 31 Virgil van Dijk 6.925587 2 0.40 5.666  
## 14 Jarell Quansah 6.906066 2 0.30 5.076  
## 34 Gabriel Magalhães 6.870247 4 0.30 3.462  
## 18 Lewis Dunk 6.847898 3 0.38 4.765  
## 28 Tosin Adarabioyo 6.828733 2 0.28 3.444  
## 27 Thiago Silva 6.737659 3 0.14 3.630  
## 13 Jan Paul van Hecke 6.735139 0 0.23 5.589  
## 9 Ibrahima Konaté 6.718594 0 0.11 6.743  
## 21 Micky van de Ven 6.713011 3 0.12 4.154  
## Total\_Pass\_Dist\_per\_90  
## 6 1337.355  
## 31 1396.317  
## 14 1414.545  
## 34 950.385  
## 18 1592.194  
## 28 1167.222  
## 27 1371.601  
## 13 1456.274  
## 9 1299.029  
## 21 1147.692  
##   
## [[4]]  
## Player DF4\_rating\_2 xAG G\_PK CrdY\_per\_90 Aerial\_Won\_Rate  
## 38 Trent Alexander-Arnold 7.248274 7.2 3 0.251 57.1  
## 3 Andrew Robertson 7.142265 5.4 3 0.106 53.8  
## 35 Solly March 7.093068 1.0 3 0.161 60.0  
## 16 Kieran Trippier 7.035290 7.5 1 0.202 64.6  
## 2 Alfie Doughty 7.022185 6.3 2 0.154 65.7  
## 26 Pedro Porro 6.987048 7.2 3 0.087 51.7  
## 14 Joško Gvardiol 6.984854 1.4 4 0.116 56.4  
## 27 Pervis Estupiñán 6.984640 3.5 2 0.290 46.2  
## 7 Conor Bradley 6.938737 1.5 1 0.238 68.8  
## 25 Pascal Groß 6.927637 8.1 3 0.173 45.2  
##   
## [[5]]  
## Player DF5\_rating\_2 G\_PK Aerial\_Won\_Rate xAG Tkl\_dribble\_Rate  
## 6 Ben White 7.040368 4 62.1 3.8 44.8  
## 12 Gabriel Magalhães 6.890471 4 55.4 0.7 77.3  
## 8 Chris Richards 6.840621 1 58.1 0.4 66.7  
## 19 Kristoffer Ajer 6.727787 2 73.3 2.3 63.9  
## 31 Tyrick Mitchell 6.705441 2 44.7 2.8 71.7  
## 21 Lucas Digne 6.699945 1 63.6 4.1 56.8  
## 4 Ben Godfrey 6.692599 0 51.0 0.3 53.6  
## 33 Vitaly Janelt 6.685240 1 56.7 4.8 50.0  
## 10 Dan Burn 6.662028 2 68.2 1.1 42.6  
## 30 Toti Gomes 6.649185 1 65.1 1.2 64.9  
##   
## [[6]]  
## Player DF6\_rating\_2 PassLive\_SCA\_per\_90 G\_PK KP\_per\_90 xAG\_per\_90  
## 21 Scott McKenna 6.694796 0.435 0 0.652 0.04  
## 5 Dara O'Shea 6.675901 0.841 3 0.405 0.06  
## 20 Raphaël Varane 6.642028 0.850 1 0.065 0.00  
## 11 Jonny Evans 6.620132 0.710 0 0.387 0.08  
## 13 Kurt Zouma 6.602951 0.349 3 0.127 0.01  
## 6 Gabriel Osho 6.595158 0.341 2 0.098 0.01  
## 18 Nathan Collins 6.576754 0.746 1 0.373 0.07  
## 19 Nayef Aguerd 6.557554 0.583 1 0.194 0.01  
## 24 Joël Matip 6.552722 0.920 0 0.230 0.01  
## 15 Max Kilman 6.535430 0.895 2 0.447 0.04  
##   
## [[7]]  
## Player DF7\_rating\_2 xAG xAG\_per\_90 xA\_per\_90 G\_PK  
## 7 James Tarkowski 7.008031 2.5 0.06 0.071 1  
## 9 Joachim Andersen 6.964414 2.8 0.07 0.061 2  
## 2 Craig Dawson 6.934152 1.4 0.06 0.024 1  
## 12 Marcos Senesi 6.871511 1.7 0.07 0.100 4  
## 4 Fabian Schär 6.865870 0.7 0.02 0.041 4  
## 16 Willy Boly 6.860453 1.3 0.08 0.050 2  
## 3 Ethan Pinnock 6.814320 1.0 0.04 0.029 2  
## 8 Jarrad Branthwaite 6.806876 1.0 0.03 0.038 3  
## 6 Harry Maguire 6.775838 1.2 0.07 0.049 2  
## 13 Murillo 6.711752 1.2 0.04 0.019 0  
##   
## [[8]]  
## Player MF1\_rating\_2 xAG G\_PK Int\_per\_90 Dis\_per\_90  
## 4 Christian Nørgaard 6.961318 1.9 2 1.942 0.540  
## 7 Idrissa Gana Gueye 6.816460 1.1 4 1.340 0.957  
## 30 Tyrick Mitchell 6.758888 2.8 2 0.730 0.787  
## 31 Vitaly Janelt 6.758757 4.8 1 1.062 0.295  
## 1 Amadou Onana 6.736955 2.7 2 0.905 0.431  
## 15 Mario Lemina 6.720753 1.5 4 1.242 0.667  
## 11 Jefferson Lerma 6.719584 2.2 1 1.348 0.524  
## 10 James Garner 6.717151 4.6 1 1.347 0.299  
## 5 Danilo 6.685116 1.5 2 1.759 0.653  
## 28 Sean Longstaff 6.678721 2.3 6 0.557 1.148  
##   
## [[9]]  
## Player MF2\_rating\_2 G\_PK xAG G\_SoT PrgP\_per\_90  
## 19 Kai Havertz 7.150876 12 4.4 0.44 3.379  
## 14 Hwang Hee-chan 6.963345 11 3.0 0.65 1.574  
## 10 Cody Gakpo 6.902721 8 2.9 0.33 4.536  
## 2 Abdoulaye Doucouré 6.803922 7 2.9 0.33 3.322  
## 28 Jordan Ayew 6.793910 4 4.2 0.21 2.226  
## 9 Carlton Morris 6.720246 6 2.8 0.23 1.761  
## 27 Tomáš Souček 6.715771 7 1.7 0.47 2.696  
## 26 Scott McTominay 6.651409 7 0.8 0.37 3.033  
## 18 Justin Kluivert 6.643130 7 1.9 0.35 2.347  
## 6 Ben Brereton 6.614566 5 1.5 0.31 3.008  
##   
## [[10]]  
## Player MF3\_rating\_2 G\_PK Ast A\_xAG Take\_ons\_SCA\_per\_90  
## 30 Rodri 7.470533 8 9 5.1 0.245  
## 8 Bruno Guimarães 7.467008 7 8 1.6 0.275  
## 11 Declan Rice 7.270931 7 8 2.7 0.084  
## 27 Pascal Groß 7.180243 3 10 1.9 0.145  
## 15 John McGinn 7.137208 6 4 -0.6 0.180  
## 12 Douglas Luiz 7.133778 5 5 -0.4 0.180  
## 10 Conor Gallagher 7.106757 5 7 2.0 0.144  
## 32 Ross Barkley 7.070487 5 4 0.3 0.481  
## 4 Alexis Mac Allister 7.030898 4 5 1.4 0.104  
## 46 Jack Harrison 7.016348 3 3 -0.4 0.122  
##   
## [[11]]  
## Player MF4\_rating\_2 xAG G\_PK xA\_per\_90 G\_PK\_per\_90  
## 49 Phil Foden 7.617721 8.4 19 0.218 0.60  
## 12 Cole Palmer 7.598207 11.1 13 0.300 0.45  
## 35 Kevin De Bruyne 7.480350 11.5 4 0.522 0.29  
## 37 Leon Bailey 7.394866 9.2 10 0.317 0.44  
## 7 Bruno Fernandes 7.345052 11.8 6 0.295 0.17  
## 39 Martin Ødegaard 7.263355 9.6 6 0.327 0.17  
## 42 Michael Olise 7.213189 5.8 9 0.352 0.64  
## 15 Dejan Kulusevski 7.134321 7.7 8 0.218 0.26  
## 17 Eberechi Eze 7.114202 5.2 10 0.246 0.44  
## 6 Bernardo Silva 7.111261 7.6 6 0.280 0.21  
##   
## [[12]]  
## Player MF5\_rating\_2 xAG G\_PK xA\_per\_90 Tot\_Car\_Dist\_per\_90  
## 4 Dwight McNeil 7.016870 8.8 3 0.255 182.087  
## 6 James Ward-Prowse 6.946718 7.8 5 0.189 118.649  
## 10 Morgan Gibbs-White 6.931015 8.4 4 0.194 160.570  
## 8 Lewis Cook 6.802120 4.3 0 0.097 128.065  
## 1 Andreas Pereira 6.756220 7.1 3 0.197 153.793  
## 12 Pablo Sarabia 6.732728 5.9 2 0.253 170.309  
## 9 Mathias Jensen 6.704367 4.0 3 0.196 120.857  
## 5 Gustavo Hamer 6.656089 6.1 4 0.142 102.384  
## 7 Jóhann Berg Guðmundsson 6.494704 2.7 1 0.189 139.091  
## 2 Ashley Young 6.430925 1.5 0 0.055 114.980  
##   
## [[13]]  
## Player MF6\_rating\_2 Ast Fls\_per\_90 G\_PK CrdY\_per\_90  
## 8 Jeremy Doku 7.260395 8 0.847 3 0.169  
## 1 Casemiro 6.942430 2 1.364 1 0.318  
## 4 Chris Richards 6.691561 1 0.515 1 0.129  
## 10 Luis Sinisterra 6.656827 2 1.410 2 0.000  
## 7 Giovani Lo Celso 6.475458 2 2.143 2 0.357  
## 3 Chris Basham 6.451924 0 0.833 0 0.278  
## 12 Mohammed Kudus 6.413079 6 1.413 8 0.217  
## 5 Enes Ünal 6.395127 2 2.778 2 0.278  
## 6 Fabio Vieira 6.362797 2 2.424 0 0.000  
## 2 Cheikhou Kouyaté 6.041304 0 2.500 0 0.833  
##   
## [[14]]  
## Player MF7\_rating\_2 Ast Int\_per\_90 xAG G\_PK  
## 9 João Palhinha 7.082975 1 1.533 0.8 4  
## 3 Daniel Muñoz 7.081956 4 1.500 2.4 0  
## 10 Joelinton 6.824824 1 1.338 2.8 2  
## 4 Edson Álvarez 6.721649 1 1.591 0.6 1  
## 5 Elliot Anderson 6.590899 2 0.702 1.9 0  
## 17 Vinicius Souza 6.560682 0 1.081 0.2 1  
## 15 Nélson Semedo 6.548600 1 1.050 1.7 0  
## 14 Morgan Rogers 6.520189 1 0.423 0.6 3  
## 18 Vitinho 6.513382 2 0.467 1.3 0  
## 8 Jean-Ricner Bellegarde 6.480177 1 0.755 1.0 2  
##   
## [[15]]  
## Player FW1\_rating\_2 xAG G\_PK G\_PK\_per\_90 G\_Sh  
## 8 Jeremy Doku 7.063357 4.6 3 0.17 0.05  
## 19 Carney Chukwuemeka 7.018361 0.3 1 0.40 0.33  
## 9 João Pedro 6.973578 3.8 5 0.22 0.07  
## 7 Jack Grealish 6.922811 2.5 3 0.27 0.14  
## 14 Noni Madueke 6.915009 2.6 4 0.34 0.13  
## 10 Joelinton 6.899404 2.8 2 0.14 0.11  
## 16 Solly March 6.836915 1.0 3 0.49 0.21  
## 11 Luis Sinisterra 6.727685 2.4 2 0.26 0.07  
## 12 Mason Mount 6.688603 0.3 1 0.17 0.20  
## 15 Scott McTominay 6.674958 0.8 7 0.33 0.16  
##   
## [[16]]  
## Player FW2\_rating\_2 G\_PK xAG Ast\_per\_90 G\_PK\_per\_90  
## 35 Ollie Watkins 7.420607 19 7.3 0.36 0.53  
## 20 Erling Haaland 7.359779 20 4.3 0.18 0.71  
## 46 Darwin Núñez 7.187960 11 6.0 0.35 0.48  
## 2 Alexander Isak 7.139003 16 3.7 0.08 0.64  
## 32 Nicolas Jackson 7.100513 14 4.3 0.16 0.45  
## 24 Jarrod Bowen 7.084942 16 5.5 0.18 0.48  
## 17 Dominic Solanke 7.037922 17 3.0 0.08 0.46  
## 25 Jean-Philippe Mateta 6.972791 14 3.1 0.20 0.55  
## 28 Kai Havertz 6.945499 12 4.4 0.24 0.41  
## 38 Richarlison 6.882298 11 2.1 0.24 0.66  
##   
## [[17]]  
## Player FW3\_rating\_2 xAG G\_PK xAG\_per\_90 xA\_per\_90  
## 12 Cole Palmer 7.601212 11.1 13 0.38 0.300  
## 33 Phil Foden 7.563077 8.4 19 0.26 0.218  
## 10 Bukayo Saka 7.481491 10.5 10 0.32 0.340  
## 8 Bruno Fernandes 7.417494 11.8 6 0.34 0.295  
## 42 Leon Bailey 7.376872 9.2 10 0.40 0.317  
## 13 Dejan Kulusevski 7.151021 7.7 8 0.25 0.218  
## 7 Bernardo Silva 7.111610 7.6 6 0.27 0.280  
## 23 Julián Álvarez 7.089639 6.4 9 0.22 0.214  
## 14 Dwight McNeil 7.084303 8.8 3 0.27 0.255  
## 40 Brennan Johnson 7.067539 8.1 5 0.35 0.194  
##   
## [[18]]  
## Player FW4\_rating\_2 G\_PK Ast xA\_per\_90 Total\_Pass\_Dist\_per\_90  
## 36 Cole Palmer 7.727089 13 11 0.300 642.138  
## 23 Michael Olise 7.459036 9 6 0.352 602.606  
## 35 Bukayo Saka 7.399145 10 9 0.340 521.327  
## 30 Son Heung-min 7.355487 15 10 0.255 371.871  
## 43 Leandro Trossard 7.269165 12 1 0.175 418.907  
## 41 Julián Álvarez 7.256904 9 8 0.214 475.408  
## 12 Eberechi Eze 7.249095 10 4 0.246 489.035  
## 22 Matheus Cunha 7.249056 11 7 0.111 327.934  
## 19 Leon Bailey 7.214768 10 9 0.317 391.000  
## 25 Mohammed Kudus 7.204368 8 6 0.134 408.080  
##   
## [[19]]  
## Player FW5\_rating\_2 PrgC\_per\_90 PassLive\_SCA\_per\_90 G\_PK  
## 26 Son Heung-min 7.039057 3.650 3.313 15  
## 5 Callum Hudson-Odoi 6.760271 5.388 3.058 8  
## 16 Marcus Rashford 6.726418 3.770 2.262 5  
## 19 Morgan Rogers 6.708690 3.099 2.535 3  
## 17 Miguel Almirón 6.645299 3.628 1.860 3  
## 3 Anthony Elanga 6.640097 3.630 1.963 5  
## 24 Abdoulaye Doucouré 6.638934 1.884 2.021 7  
## 23 Wilson Odobert 6.611922 4.378 2.361 3  
## 20 Moussa Diaby 6.606872 3.884 2.645 6  
## 6 Elliot Anderson 6.598683 3.246 2.456 0  
## CrdR\_per\_90  
## 26 0  
## 5 0  
## 16 0  
## 19 0  
## 17 0  
## 3 0  
## 24 0  
## 23 0  
## 20 0  
## 6 0

# TERMINOLOGY

|  |  |  |
| --- | --- | --- |
| Term | Definition | Paper Author(s) |
| Standardized Test Battery | A standardized test battery is a collection of tests that are administered and scored in a consistent, standardized manner. These tests are designed to evaluate various aspects of a subject's abilities, knowledge, skills, or personality traits. | (Rosch *et al*., 2000) |
| Nonconcave Meta Frontier approach | While a regular meta frontier approach constructs a boundary (frontier) that envelops the production frontiers of all groups under consideration, the nonconcave meta-frontier approach relaxes the assumption that the meta-frontier must be concave. This allows for a comparison of the efficiency of entities operating under different technologies by evaluating their performance relative to a common benchmark, without assuming the production technologies typically exhibits diminishing returns to scale as complex technologies/diverse groups may have highly varied performance patterns. | (Tiedemann, Francksen and Latacz-Lohmann, 2011) |
| Set Plays/Piece | Game states where a team is freely allowed to play the ball, uninterrupted by the opposition. These include Free kicks, penalty kicks, corners and  throw-ins | (Sarmento *et al.,* 2018) |
| Shots on target | The shots which would enter the goal if they are uninterrupted (including goals) | (Sarmento *et al.,* 2018) |
| Running with the ball | The ball carrier performs at least three consecutive touches with the ball, progressing in the pitch space, providing the continuity of the attack. | (Pereira *et al*., 2019) |
| Average Rank | The average position of the teams of a player through the seasons analysed | (Richau *et al.*, 2019) |
| Shot efficiency | Ratio of shots to shots on target | (Richau *et al.*, 2019) |
| Multi-Criteria Decision Analysis | Making decisions when multiple criteria (or objectives) need to be considered together in order to rank or choose between alternatives. | (Wiȩckowski and Sałabun, 2023) |
| Through balls | An attempted/accurate pass between opposition players in their defensive line to find an onrushing teammate (running through on goal) !Ws! | (Wiȩckowski and Sałabun, 2023) |
| Crosses | Attempted/accurate passes from a wide position to a central attacking area !Ws! | (Wiȩckowski and Sałabun, 2023) |
| Key pass | The final pass leading to a shot at goal from a teammate | (Wiȩckowski and Sałabun, 2023) |
| Offside | A player is in an offside position if: any part of the head, body or feet is in the opponents' half (excluding the halfway line) and. any part of the head, body or feet is nearer to the opponents' goal line than both the ball and the second-last opponent. |  |
| Offside won | The last man to step up to catch an opponent in an offside position | (Wiȩckowski and Sałabun, 2023) |
| Weighing method (equal) | Assigns weights equally to each variable | (Wiȩckowski and Sałabun, 2023) |
| Weighing method (entropy) | Assigns greater weights to variables that hold more information | (Wiȩckowski and Sałabun, 2023) |
| Weighing method (standard deviation) | Assigns greater weights to variables with greater SD | (Wiȩckowski and Sałabun, 2023) |
| Weighing method (variance) | Assigns greater weights to variables with greater variance | (Wiȩckowski and Sałabun, 2023) |
| TOPSIS | TOPSIS ranks alternatives based on their distance to ideal and anti-ideal solutions. Shortest distance to ideal and longest to anti-ideal | (Wiȩckowski and Sałabun, 2023) |
| COPRAS | COPRAS assesses alternatives based on proportional relationships.  Each criterion's positive and negative impacts are weighted and summed to rank alternatives. | (Wiȩckowski and Sałabun, 2023) |

# CLUSTER VARIABLES

|  |  |
| --- | --- |
| Parameter Name | Parameter Description |
| xAG\_per\_90 | Total number of expected goals following the pass that assists a shot, per game (Numeric) |
| npxG\_per\_90 | Non penalty expected goals per game (Numeric) |
| npxG\_xAG\_per\_90 | Non penalty expected goals + expected assists per game (Numeric) |
| Sh\_per\_90 | Number of shots per game (Numeric) |
| Avg\_Shot\_Dist | Average distance in yards, from goal of all shots taken (Numeric) |
| SCA\_per\_90 | Number of actions (specifically the last two) directly leading to a shot attempt per game (Numeric) |
| PrgP\_per\_90 | Completed passes that move the ball towards the opponent’s goal line at least 10 yards from the furthest point in the last six passes, or any completed pass into the penalty area (Excludes passes from the defensive 40% of the pitch) per game (Numeric) |
| PrgR\_per\_90 | Number of progressive passes (PrgP) received per game (Numeric) |
| PrgC\_per\_90 | Carries that move the ball towards the opponent’s goal line at least 10 yards from the furthest point in the last six passes, or any carry into the penalty area. (Excludes carries which end in the defensive half of the pitch) per game (Numeric) |
| Total\_Pass\_Dist\_per\_90 | Total distance that all completed passes covered in yards per game (Numeric) |
| Prg\_Pass\_Dist\_per\_90 | Total distance that all progressive passes (PrgP) covered in yards per game (Numeric) |
| Short\_Att\_per\_90 | Number of attempted passes between 5 and 15 yards per game (Numeric) |
| Medium\_Att\_per\_90 | Number of attempted passes between 15 and 30 yards per game (Numeric) |
| Long\_Att\_per\_90 | Number of attempted passes beyond 30 yards per game (Numeric) |
| Live\_Pass\_per\_90 | Non set piece passes attempted per game (Numeric) |
| Crs\_per\_90 | Crosses attempted per game (Numeric) |
| Off\_Pass\_per\_90 | Passes delivered to a player offside per game (Numeric) |
| PassLive\_SCA\_per\_90 | Non set piece passes (specifically the last two) directly leading to a shot attempt per game (Numeric) |
| Shot\_SCA\_per\_90 | Shots that lead to another shot attempt per game (Numeric) |
| Take\_ons\_SCA\_per\_90 | Successful take-ons/dribbles that lead to a shot attempt per game (Numeric) |
| Fouled\_SCA\_per\_90 | Fouls drawn that lead to a shot attempt per game (Numeric) |
| Def\_SCA\_per\_90 | Defensive actions that lead to a shot attempt per game (Numeric) |
| Tkl\_per\_90 | Total number of tackles attempted per game (Numeric) |
| Def\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the defensive third of the pitch per game (Numeric) |
| Mid\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the middle third of the pitch per game (Numeric) |
| Att\_3rd\_Tkl\_per\_90 | Total number of tackles attempted in the offensive third of the pitch per game (Numeric) |
| Tkl\_drib\_att\_per\_90 | Total number of attempted tackles against dribble attempts per game (Numeric) |
| Tot\_Blocks\_per\_90 | Total number of blocks by standing in the path of the ball per game (Numeric) |
| Sh\_Blocked\_per\_90 | Total number of shots blocked by player per game (Numeric) |
| Pass\_Blocked\_per\_90 | Total number of passes blocked by player per game (Numeric) |
| Int\_per\_90 | Total number of interceptions made by moving into position per game (Numeric) |
| Tkl\_Int\_per\_90 | Total number of tackles and interceptions made per game (Numeric) |
| Clr\_per\_90 | Total number of clearances made per game (Numeric) |
| Live\_Touch\_per\_90 | Total number of non-set piece touches of the ball per game (Numeric) |
| Def\_P\_Touch\_per\_90 | Total number of touches in the defensive penalty area per game (Numeric) |
| Def\_3rd\_Touch\_per\_90 | Total number of touches in the defensive third of the pitch per game (Numeric) |
| Mid\_3rd\_Touch\_per\_90 | Total number of touches in the middle third of the pitch per game (Numeric) |
| Att\_3rd\_Touch\_per\_90 | Total number of touches in the offensive third of the pitch per game (Numeric) |
| Att\_P\_Touch\_per\_90 | Total number of touches in the offensive/opposition penalty area per game (Numeric) |
| Att\_Take\_ons\_per\_90 | Number of take-ons attempted while dribbling per game (Numeric) |
| Tkld\_per\_90 | Number of times tackled while attempting a take on per game (Numeric) |
| Carries\_per\_90 | Number of times the player controlled the ball with their feet while moving per game (Numeric) |
| Tot\_Car\_Dist\_per\_90 | Total distance (in any direction) covered by a player while controlling the ball with their feet while moving, in yards per game (Numeric) |
| Prg\_Car\_Dist\_per\_90 | Total distance (towards the opposition goal) covered by a player while controlling the ball with their feet in yards per game (Numeric) |
| Att\_3rd\_Car\_per\_90 | Number of carries into the offensive third per game (Numeric) |
| CPA\_per\_90 | Number of carries into the opposition penalty area per game (Numeric) |
| Rec\_per\_90 | Number of times the player received a pass per game (Numeric) |
| Fls\_per\_90 | Number of fouls committed per game (Numeric) |
| Fld\_per\_90 | Number of times fouled per game (Numeric) |
| Off\_per\_90 | Number of times the player has been caught offside per game (Numeric) |
| PKwon\_per\_90 | Number of penalty kicks won per game (Numeric) |
| PKcon\_per\_90 | Number of penalty kicks caused per game (Numeric) |
| Recov\_per\_90 | Number of loose balls recovered per game (Numeric) |
| Aerial\_W\_per\_90 | Number of aerial duels won per game (Numeric) |

# REGRESSION MODEL VARIABLES

|  |  |
| --- | --- |
| Parameter Name | Parameter Description |
| G\_PK | Total non-penalty goals |
| G\_PK\_per\_90 | Total non-penalty goals per game |
| G\_Sh | Total goals per shots attempted |
| G\_SoT | Total goals per shots on target |
| np\_G\_xG | Non penalty goals minus non penalty expected goals (Evaluates the effectiveness in maximizing scoring opportunities) |
| xAG\_per\_90 | Total number of expected goals following the pass that assists a shot, per game (Numeric) |
| Ast | Number of assists given to a goal |
| Ast\_per\_90 | Number of assists per game |
| xAG | Total number of expected goals following the pass that assists a shot |
| A\_xAG | Assists minus expected assisted goals. (Assesses the extent of assisting players' contributions to goals compared to the actual goal scorers) |
| SoT\_Rate | Percentage of shots that are on target (excludes penalty kicks) |
| SoT\_per\_90 | Shots on target per game |
| Cmp\_Rate | Percentage of attempted passes that were completed |
| Short\_Cmp\_Rate | Percentage of attempted passes between 5 and 15 yards that were completed |
| Medium\_Cmp\_Rate | Percentage of attempted passes between 15 and 30 yards that were completed |
| Long\_Cmp\_Rate | Percentage of attempted passes beyond 30 yards that were completed |
| Tkl\_dribble\_Rate | Percentage of successful tackles against dribblers |
| Succ\_Take\_ons\_Rate | Percentage of successful take ons while dribbling |
| Tkld\_Rate | Percentage number of times tackled while attempting a take on |
| Aerial\_Won\_Rate | Percentage of aerial duels won |
| CrdR\_per\_90 | Number of red cards received per game |
| CrdY\_2\_per\_90 | Number of second yellow cards received per game |
| PKcon\_per\_90 | Number of penalty kicks caused per game (Numeric) |
| CrdY\_per\_90 | Number of yellow cards received per game |
| Fls\_per\_90 | Number of fouls committed per game (Numeric) |
| PrgC\_per\_90 | Carries that move the ball towards the opponent’s goal line at least 10 yards from the furthest point in the last six passes, or any carry into the penalty area. (Excludes carries which end in the defensive half of the pitch) per game (Numeric) |
| Tot\_Car\_Dist\_per\_90 | Total distance (in any direction) covered by a player while controlling the ball with their feet while moving, in yards per game (Numeric) |
| Prg\_Car\_Dist\_per\_90 | Total distance (towards the opposition goal) covered by a player while controlling the ball with their feet in yards per game (Numeric) |
| Att\_3rd\_Car\_per\_90 | Number of carries into the offensive third per game (Numeric) |
| CPA\_per\_90 | Number of carries into the opposition penalty area per game (Numeric) |
| xA\_per\_90 | A measure of the quality of passes leading to shots, per game |
| KP\_per\_90 | Number of completed passes that lead to a shot per game |
| PassLive\_SCA\_per\_90 | Non set piece passes (specifically the last two) directly leading to a shot attempt per game (Numeric) |
| Take\_ons\_SCA\_per\_90 | Successful take-ons/dribbles that lead to a shot attempt per game (Numeric) |
| Shot\_SCA\_per\_90 | Shots that lead to another shot attempt per game (Numeric) |
| Fouled\_SCA\_per\_90 | Fouls drawn that lead to a shot attempt per game (Numeric) |
| Def\_SCA\_per\_90 | Defensive actions that lead to a shot attempt per game (Numeric) |
| PrgP\_per\_90 | Completed passes that move the ball towards the opponent’s goal line at least 10 yards from the furthest point in the last six passes, or any completed pass into the penalty area (Excludes passes from the defensive 40% of the pitch) per game (Numeric) |
| Total\_Pass\_Dist\_per\_90 | Total distance that all completed passes covered in yards per game (Numeric) |
| Prg\_Pass\_Dist\_per\_90 | Total distance that all progressive passes (PrgP) covered in yards per game (Numeric) |
| TB\_per\_90 | Completed passes sent between the back defenders into open space, per game |
| Blocked\_Pass\_per\_90 | Passes that were blocked by the defending player, per game |
| CrsPA\_per\_90 | Number of completed crosses into the penalty area per game |
| Recov\_per\_90 | Number of loose balls recovered per game (Numeric) |
| Off\_Pass\_per\_90 | Passes delivered to a player offside per game (Numeric) |
| Err\_per\_90 | Total number of errors made leading to an opposition player taking a shot per game |
| Mis\_per\_90 | Number of times the player failed to gain control of the ball per game |
| Dis\_per\_90 | Number of times the player has been dispossessed by a tackle (excluding take ons) per game |
| Off\_per\_90 | Number of times the player has been caught offside per game (Numeric) |
| Fld\_per\_90 | Number of times fouled per game (Numeric) |
| PKwon\_per\_90 | Number of penalty kicks won per game (Numeric) |
| OG\_per\_90 | Own goals scored |
| Tot\_Blocks\_per\_90 | Total number of blocks by standing in the path of the ball per game (Numeric) |
| Sh\_Blocked\_per\_90 | Total number of shots blocked by player per game (Numeric) |
| Pass\_Blocked\_per\_90 | Total number of passes blocked by player per game (Numeric) |
| Int\_per\_90 | Total number of interceptions made by moving into position per game (Numeric) |
| Tkl\_Int\_per\_90 | Total number of tackles and interceptions made per game (Numeric) |
| Clr\_per\_90 | Total number of clearances made per game (Numeric) |
| Tkl\_Rate | Percentage of tackles won, derived by dividing total number of tackles attempted (Tkl) by number of tackles won (TklW) |
| Rating | Whoscored.com Player Rating at the end of the season. |