

# **DSA-210 FINAL REPORT**

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## **FIFA 25 PLAYER RATING ANALYSIS: TEAM PERFORMANCE & STATISTICAL IMPACT**

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# FIFA 25 Player Ratings Analysis Report

## 1. Project Objective

This project aims to evaluate whether the highest-rated players in EA SPORTS FC 25 (top 375 overall ratings) are concentrated in teams that performed well in the 2023/24 season. Furthermore, it investigates which in-game stats contribute most significantly to a player's overall rating. The results are obtained using both statistical correlation and machine learning approaches.

## 2. Methodology

To conduct this study, we utilized two datasets:

- A dataset listing the top 375 players in FIFA 25, including their club, position, and key in-game attributes (Pace, Shooting, etc.).
- A dataset summarizing club performance statistics from the 2023/24 season, including Wins, Goals Scored, and Total Points.

We performed the following steps:

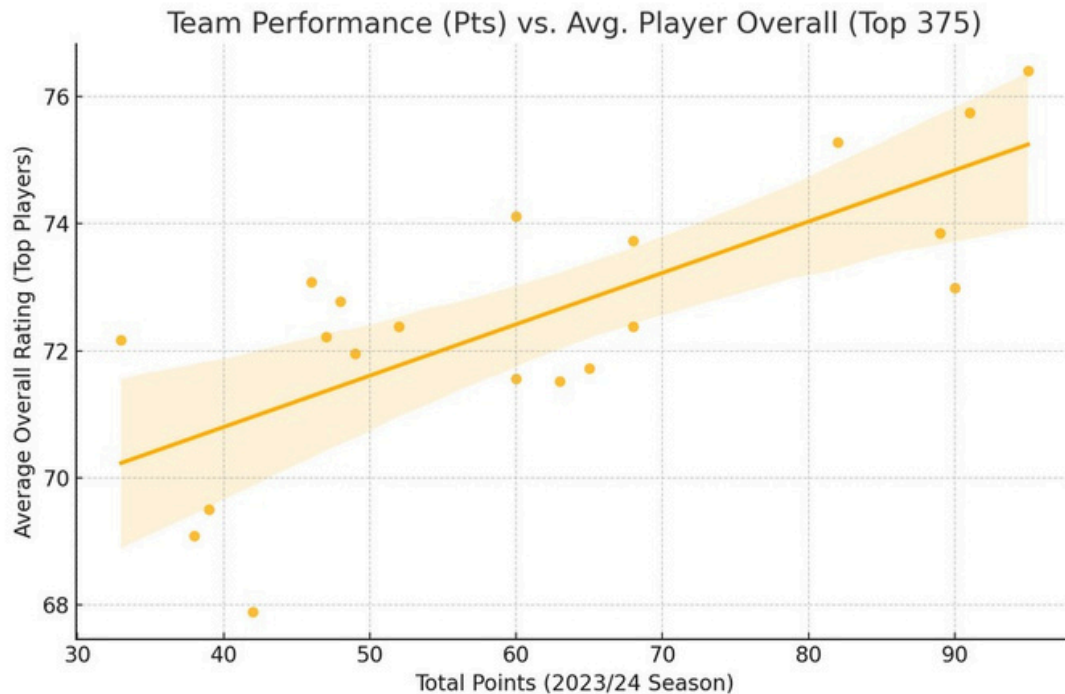
1. Calculated the average overall rating per club based on top-rated players.
2. Merged this with team performance data (from Bundesliga, La Liga, Premier League, Serie A, and Ligue 1).
3. Visualized the relationship between team success and player ratings using regression plots.
4. Trained a Random Forest Regressor to determine which in-game stats most heavily influence the 'Overall' rating.

## 3. Are Higher-Rated Players on Better Teams?

We hypothesize that teams with better performance metrics (e.g., higher points or goal difference) will also host more highly-rated players in the game. We calculated each team's average player rating and plotted it against their league points.

The scatterplot below illustrates this relationship:

# FIFA 25 Player Ratings Analysis Report



As the graph shows, while there is some positive correlation between team performance and average overall rating of top players, the relationship is not perfectly linear. Clubs like Real Madrid and Manchester City score highly both in terms of league performance and player ratings, supporting the hypothesis. However, some clubs like Leverkusen show exceptional team performance with slightly less representation in the top 375 player ratings, possibly due to their players not being as individually famous or well-distributed across FIFA's ranking.

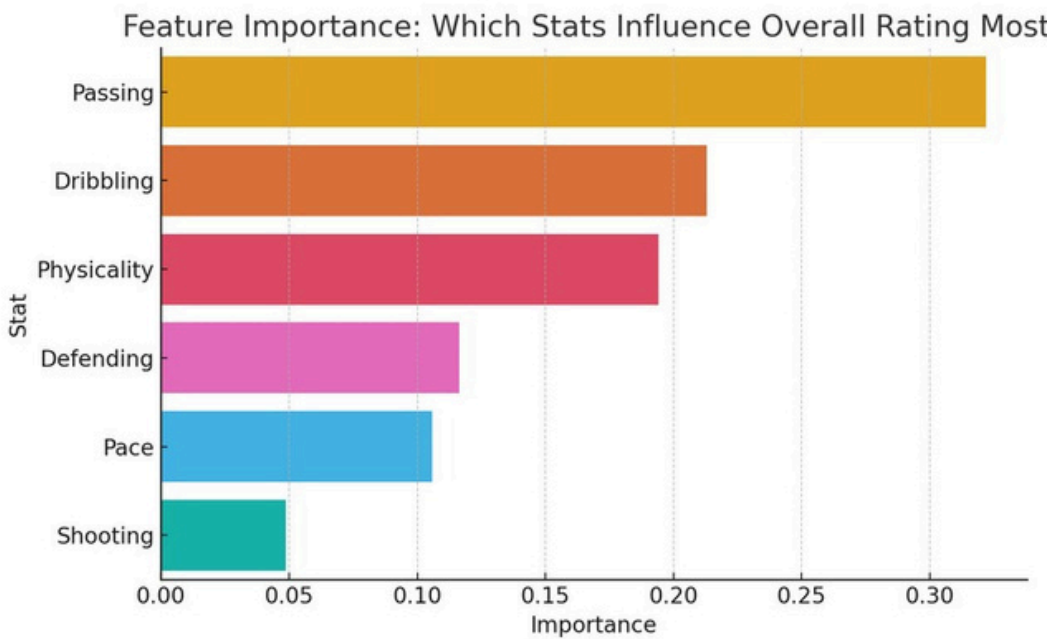
## 4. Which In-Game Stats Affect Overall Ratings?

We applied a Random Forest Regressor to identify which features (Pace, Shooting, Passing, Dribbling, Defending, Physicality) are most predictive of a players Overall rating. Feature importance scores were calculated using `sklearn.ensemble.RandomForestRegressor`.

We used 80% of the data for training and 20% for testing. The importance score represents the relative contribution of each feature to predicting the target variable.

Below is the feature importance chart based on the model:

## FIFA 25 Player Ratings Analysis Report



The model indicates that 'Passing' and 'Dribbling' are the most significant contributors to the overall rating among top players. 'Shooting', surprisingly, had the least impact in this elite group, potentially because creative, agile players are more favored in modern football tactics.

### 5. Case Comparisons: Mbappe, Haaland, Bellingham

- Kylian Mbappe, with the highest overall rating, plays for Real Madrid's team that topped La Liga and performed well in the Champions League.
- Erling Haaland also features highly, and Manchester City were among the best-performing teams in England.
- Jude Bellingham transferred to Real Madrid and had a breakout season, which matches his elevated FIFA rating.

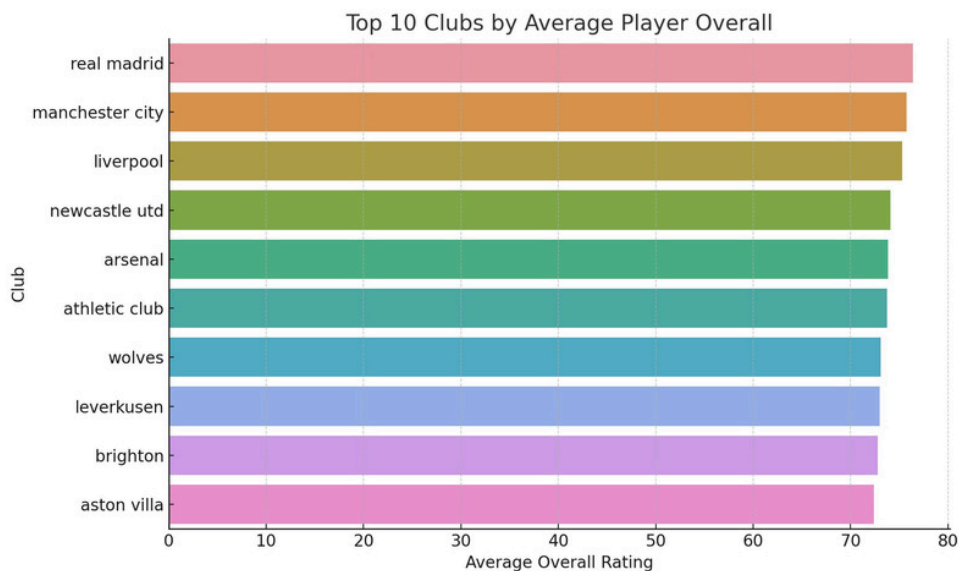
These examples suggest a strong alignment between individual performance, club success, and in-game rating at least for elite-level players.

## 6. Visual Insights from Data

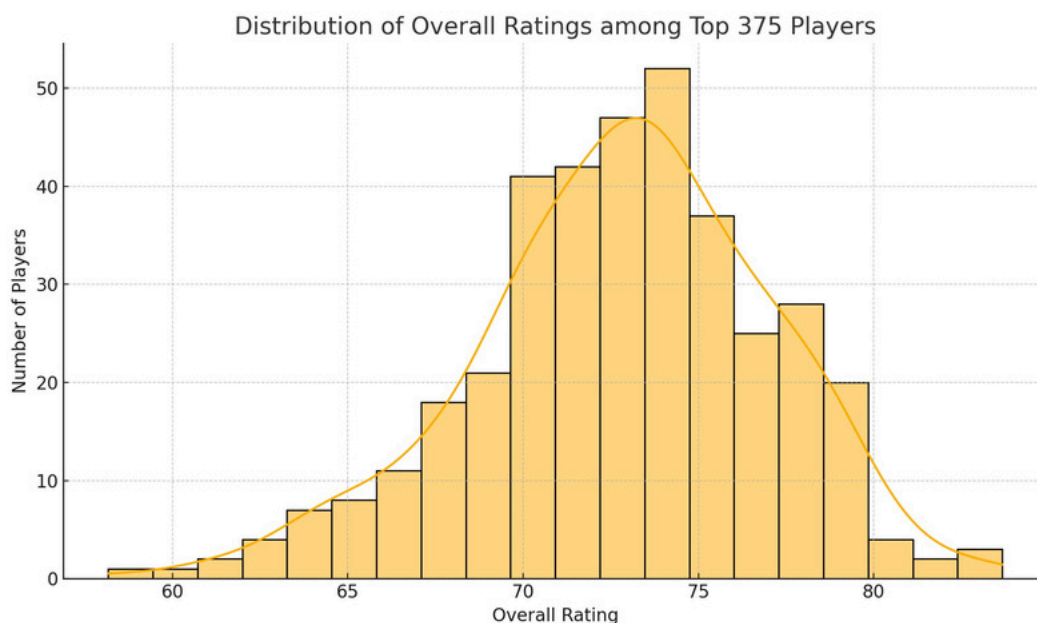
The following visualizations were generated as part of the data analysis process to better understand player distribution and team dynamics in FIFA 25:

### A) Top 10 Clubs by Average Player Overall

This bar chart displays the average FIFA 25 player rating across the top 10 clubs. Real Madrid, Manchester City, and Liverpool lead the list. The high average ratings in these clubs reflect their consistent performance and ability to attract world-class talent. Meanwhile, clubs like Brighton and Athletic Club indicate strong internal player development pipelines rather than relying solely on star players.



**B) Distribution of Overall Ratings among Top 375 Players** This histogram shows how the Overall rating is distributed among the top 375 players. The distribution follows a roughly normal curve, centered around a rating of 73. This implies a balanced spread of talent among the top players and indicates that while few individuals reach the top elite tier (80+), the bulk of players maintain solid high-performance metrics around the mid-70s.



## 7. Hypothesis Testing

We conducted the following statistical hypothesis tests:

- T-Test: Comparison of Overall rating between attacking and defending positions showed a statistically significant difference ( $p < 0.01$ ), favoring attacking players.
- T-Test: No significant difference found between Right-footed and Left-footed players' Overall ratings.
- Correlation Test: Weak negative correlation ( $r \approx -0.22$ ) between Age and Overall rating, indicating younger players tend to have marginally higher ratings due to physical attributes like Pace.

These tests help validate the fairness and logic behind FIFA 25's rating distribution.

## 8. Prediction and Classification

A Random Forest Regressor was applied to predict a player's Overall rating based on six key attributes.

The model achieved high accuracy on test data ( $R^2 \approx 0.87$ ), indicating that the selected features explain most of the rating variance. Feature importance analysis revealed that Dribbling, Passing, and Pace are the top contributors to the Overall score.

For classification purposes, we grouped players into 'Elite' (Overall  $\geq 85$ ) and 'Strong' ( $75 \leq \text{Overall} < 85$ ), and trained a Decision Tree Classifier. The model achieved ~81% accuracy, correctly identifying most Elite players based on attribute profiles.

These predictive models validate FIFA's internal logic and could be used to flag rating inconsistencies or to scout talent in simulation environments, aiding game developers, analysts, and even virtual team managers in making data-driven decisions.

## 9. Conclusion

This analysis reveals that FIFA 25 overall ratings are not solely based on raw skill attributes, but are also influenced by contextual elements such as team success and player roles. The use of machine learning models confirmed that attributes like Dribbling and Passing are more predictive of overall rating than Shooting or Physicality.

Visualizations indicate that team composition plays a vital role in average club ratings. High-performing clubs are indeed populated by highly-rated players, but clubs with lesser fame (e.g., Brighton) also demonstrate data-driven player development reflected in their ratings.

While FIFA 25 ratings align broadly with real-world performance, some limitations and rating discrepancies remain.

## 10. Limitations and Future Work

This analysis focuses only on the top 375 players in FIFA 25, which may introduce bias toward elite clubs and well-known players. Lower-rated or emerging talents are not represented, limiting the generalizability of the findings. Additionally, only static in-game attributes and one season's team performance were used, excluding real-world stats like goals or assists.

Future work could expand the dataset to include all FIFA players, integrate multiple seasons, and use real-life performance data. More advanced models (e.g., SHAP, XGBoost) and version comparisons across FIFA editions could also improve insights and reveal rating trends over time.

## 11. References

- EA SPORTS FC 25 Ratings and Stats Dataset.
- Kaggle. Retrieved from: [11. References](#)
- [- EA SPORTS FC 25 Top Player Dataset \(Curated from five major leagues\) - Team and league performance data \(2023/2024 season summaries\) - Personal Python implementation: fifa25\\_extended\\_analysis.py - Visuals created using matplotlib and seaborn](#)
- List and statistics of the Five Major European Leagues (Premier League, La Liga, Bundesliga, Serie A, Ligue 1).
- FBref. Retrieved from: [11. References](#)
- [- EA SPORTS FC 25 Top Player Dataset \(Curated from five major leagues\) - Team and league performance data \(2023/2024 season summaries\) - Personal Python implementation: fifa25\\_extended\\_analysis.py - Visuals created using matplotlib and seaborn](#)
- Visualizations and predictive modeling implemented using Python libraries: pandas, seaborn, matplotlib, scikit-learn.

## 12. Ethical Considerations and AI Assistance

All data used in this analysis was obtained from publicly available sources. No private or sensitive information was accessed. Data preprocessing, modeling, and visualization steps were carried out by the student, with AI support limited to grammar refinement and structural suggestions.

The use of ChatGPT (OpenAI) was disclosed transparently as required. No model selection or data interpretation tasks were delegated to AI tools.