GOLAZO: A Player Recommendation System

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Abstract

The objective of this research is to address issues in team sports analytics, specifically the absence of real-time datasets for player attributes in football. The authors propose an innovative and scalable Player Recommendation System utilizing a hybrid approach, incorporating Data Pre-processing, clustering, and recommendation modules, alongside dynamic programming and binary search methods. The research aids the society by employing certain algorithms that saves time, money and resources which can ultimately cater to the public.

Introduction

The paper underscores the escalating demand for data analytics across diverse sectors, with a particular focus on its transformative potential in the sports industry. Highlighting the quest for a profound understanding of player performance, the authors explore applications in player recommendations, game plan enhancement, and sports club management. The surge in global sports analytics (Figure 1) is evident, especially in football, with the emergence of various sports-related applications and systems.

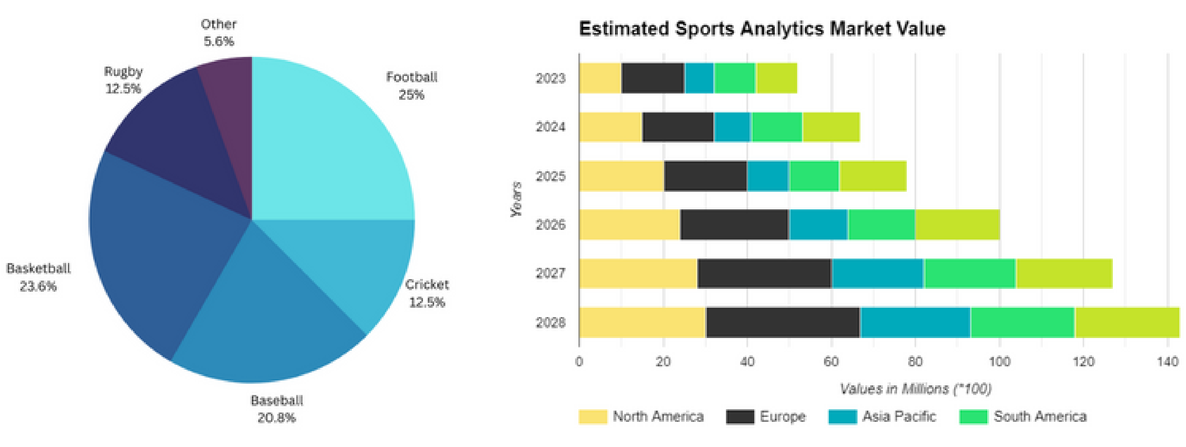

Figure 1. Sports and Data Science

The significance of the research lies in its potential to revolutionize user experience, optimize team-building processes, and contribute to the evolution of data-driven systems in sports analytics.

System Approach

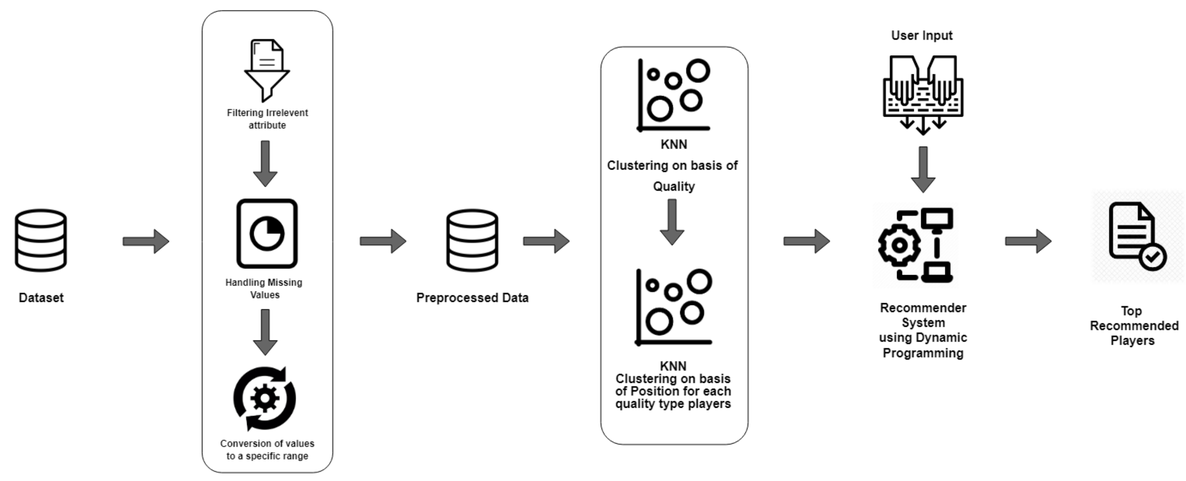

Figure 2. System Architecture

The authors propose a three-module strategy to address football player recommendation, as depicted in Figure 2. The initial module focuses on crucial data pre-processing, ensuring cleanliness and relevance for subsequent operations. The second module employs the K-Means algorithm to cluster players into twelve groups based on pre-processed data. The final module recommends players based on user preferences, considering budget constraints, desired positions, and team size using dynamic programming and binary search.

This methodology enhances the user's team-building experience, providing personalized recommendations that align with individual gaming preferences. Overall, this research contributes to a refined and data-driven approach in the realm of football player recommendation systems.

Results and Discussions

Figure 3 displays a clear visualization of four distinct clusters, each represented by a different color. The blue cluster represents the Forwards, while the green cluster represents the Midfielders. The orange cluster is indicative of Defenders, and the red cluster represents Goalkeepers. Each cluster is clearly defined, with minimal overlap between them. The green cluster representing Midfielders is situated slightly more towards the front of the image, reflecting the fact that Midfielders have more varied skill sets, with higher ratings in areas such as passing and dribbling.

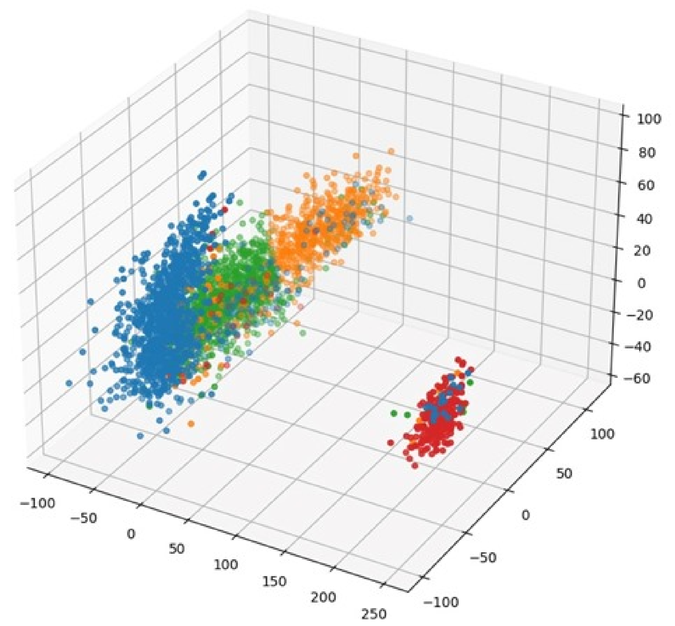

Figure 3. Clustered Players

Our smart recommendation system, originally designed for multiplayer sports, holds real-world applications for football clubs. By leveraging accurate player attributes, the system streamlines player selection, enabling clubs to identify ideal candidates for each position. This not only saves time for coaches but ensures a cohesive team dynamic. The system's potential extends further with the inclusion of real-life performance data, enhancing accuracy for precise player recommendations. Significantly, this comprehensive, data-driven approach addresses challenges in player selection and team formation, offering a practical and efficient solution for football clubs and coaches to elevate team performance and achieve success on the field.

Conclusion

This system, driven by user preferences and gameplay styles, addresses challenges in team formation. The significance of the research lies in its potential to revolutionize user experience, optimize team-building processes, and contribute to the evolution of data-driven systems in sports analytics.

The research underscores the rising importance of data analytics in team sports, especially in enhancing strategies and team performance. The global sports analytics market emphasizes the significance of data-driven approaches. The proposed Player Recommendation System employs a combination of preprocessing, clustering, and recommendation techniques, along with dynamic programming, providing tailored player suggestions based on individual attributes. The system's practical utility is evident for football clubs and coaches, with potential extensions to include real-life data for increased accuracy. This research introduces an adaptable and innovative approach to player recommendation, contributing to a data-driven transformation in player selection and team formation strategies within the realm of sports analytics.

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