



# How to Solve the Overvaluation of Players in Today's Soccer Market using Algorithms in Java

Kfir Cohen  
Innovation Academy



## Research Question or Driving Question

I wanted to research this topic and create a solution for it because I love watching and playing soccer and I am enthusiastic about programming. Unfortunately, players around the world are overpriced, often due to factors such as popularity, and these players are then bought for vast amounts of money. With my program, various parties – such as clubs, organizations, agents, and fans – can see a player's true market value. Clubs can decide whether or not to buy or sell players with this improved market value as they can now know the real value of a player purely based off their stats

## Methodology

I conducted my research by creating an app in Java that can generate a correct valuation of a soccer player's worth in the transfer market according to my custom algorithm. The **custom algorithm** includes statistical information such as age, goals, assists, tackles, and more in order to calculate market value. A different **weighing coefficient** was applied to every variable depending on how positive/negative it is to a player's market value.

**Example:** A player with higher age has a negative coefficient as they will not be as fast or strong as someone with a lower age. With different weights for each attribute, depending on position, age, height, etc. the algorithm calculates a **player's market value** in a mathematically viable method

How This Could **Impact** Different **Stakeholders**:

- Clubs: Buying or selling players for correct price
- Players: Know their market value when joining or leaving club
- Agents: Marketing their player to clubs based off the market value
- Fans: can use the app to create "fantasy" transfers of their favorite players

## Results

I created a basic **GUI** in order to improve user interaction. This GUI allows the user to enter a player's name and get the market value as the output. The program does this by:

1. First sorting through each data file (each of which contains thousands of statistics).
2. Then searching for the player's name.
3. If the player's name is not found, then the user is informed and they are prompted to re-enter the player.
4. If the player is found, then all their important statistics are imported into the algorithm in order to calculate the value.
5. The algorithm's calculation is then completed and outputted to the user.

## Recommendations/Conclusion

In the future, I plan to:

1. Update the GUI so it looks more professional, interactable, and clean.
2. Use real-time data in the program for up-to-date valuations. Currently, the data only includes stats from 2021-2023.
3. Update player names in the data files in order to access all foreign characters.
4. Add a league coefficient in order to better reflect a player's ability across the general basis

## Acknowledgements

Mathien, H. (2016). European Soccer Database. Kaggle.com. <https://www.kaggle.com/datasets/hugomathien/soccer/data>

```
;Mickey van de Ven      ;NED ;DF
;Unai Vencedor Paris    ;ESP ;MF
;Lorenzo Venuti         ;ITA ;DF
;Daniele Verde          ;ITA ;FWMF
;Simone Verdi           ;ITA ;FWMF
;Simone Verdi           ;ITA ;FWMF
;Gonzalo Verdi          ;ESP ;DF
;Jordan Veretout        ;FRA ;MF
;Edoardo Vergani       ;ITA ;FWMF
;Vincent Vermeij        ;NED ;MF
;Marco Verratti         ;ITA ;MF
;Valerio Verre          ;ITA ;MFFW
;Valerio Verre          ;ITA ;MFFW
;Freddie Veseli         ;ALB ;DF
;Mikel Vesga            ;ESP ;MF
;Jannik Vestergaard     ;DEN ;DF
;Robin Vezo             ;POR ;DF
;Guglielmo Vicario      ;ITA ;GK
;Aleix Vidal            ;ESP ;DFMF
;Arturo Vidal           ;CHI ;MF
;Nacho Vidal            ;ESP ;DF
;Gabriel Vidovic        ;CRO ;MF
;Ronaldo Vieira         ;GNB ;MF
;Nick Viergever         ;NED ;DF
;Luca Vignali           ;ITA ;DF
```