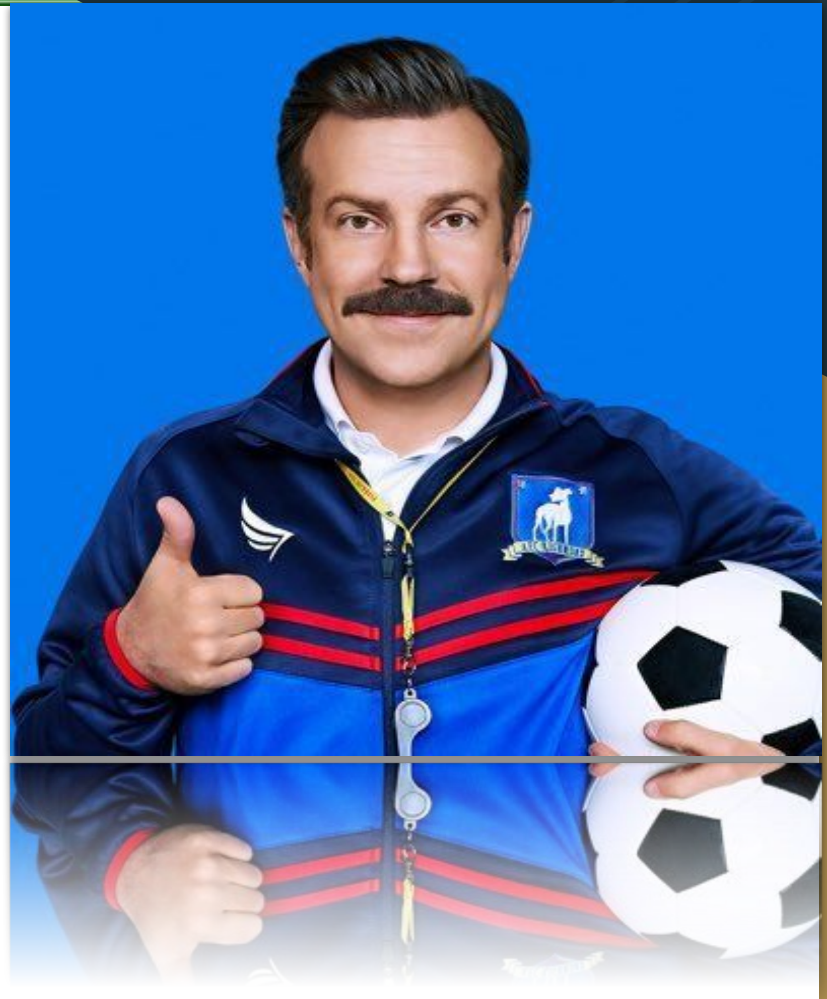


World Cup 2022 Player Age Analysis

By: Andrew, James, Khalid, Nick, and Adam



CSV Files

CSV files were found on Kaggle.com

- player_stats.csv
- player_shooting.csv
- player_playingtime.csv

Files were combined and cleaned into one file called:
merged_player_data.csv



Key Questions:

- 1. How does the team composition, in terms of squad size, vary across the 32 teams in the tournament?**
- 2. What is the average age of players in the 2022 Qatar World Cup, and how does it vary among different teams?**
- 3. How does the age of players impact the final standings of teams in the World Cup, and what patterns or trends emerge when comparing the top four teams to the bottom four teams?**
- 4. What is the distribution of goals scored based on the age groups of players, and how does this information relate to playing time and peak performance?**
- 5. How do age demographics relate to disciplinary aspects in the World Cup, such as yellow and red card incidents, and what insights can be derived from analyzing the average age of carded players by country?**

Initial Findings

**Total Number of Players:
680**

**Total Number of Teams:
32**

**Total Number of Players
Per Team**

*Mean Players per Team:
21.25*

*Median Players per Team:
21.0*

*Variance of Players per
Team: 3.81*

*Standard Deviation of
Players per Team: 1.95*

	team	player
0	Argentina	24
1	Australia	20
2	Belgium	20
3	Brazil	26
4	Cameroon	22
5	Canada	19
6	Costa Rica	22
7	Croatia	21
8	Denmark	20
9	Ecuador	18
10	England	20
11	France	24
12	Germany	20
13	Ghana	20
14	IR Iran	21
15	Japan	22
16	Korea Republic	21
17	Mexico	21
18	Morocco	25
19	Netherlands	21
20	Poland	21
21	Portugal	24
22	Qatar	20
23	Saudi Arabia	23
24	Senegal	20
25	Serbia	22
26	Spain	21
27	Switzerland	24
28	Tunisia	21
29	United States	20
30	Uruguay	19
31	Wales	18

**Average Age Per
Team**

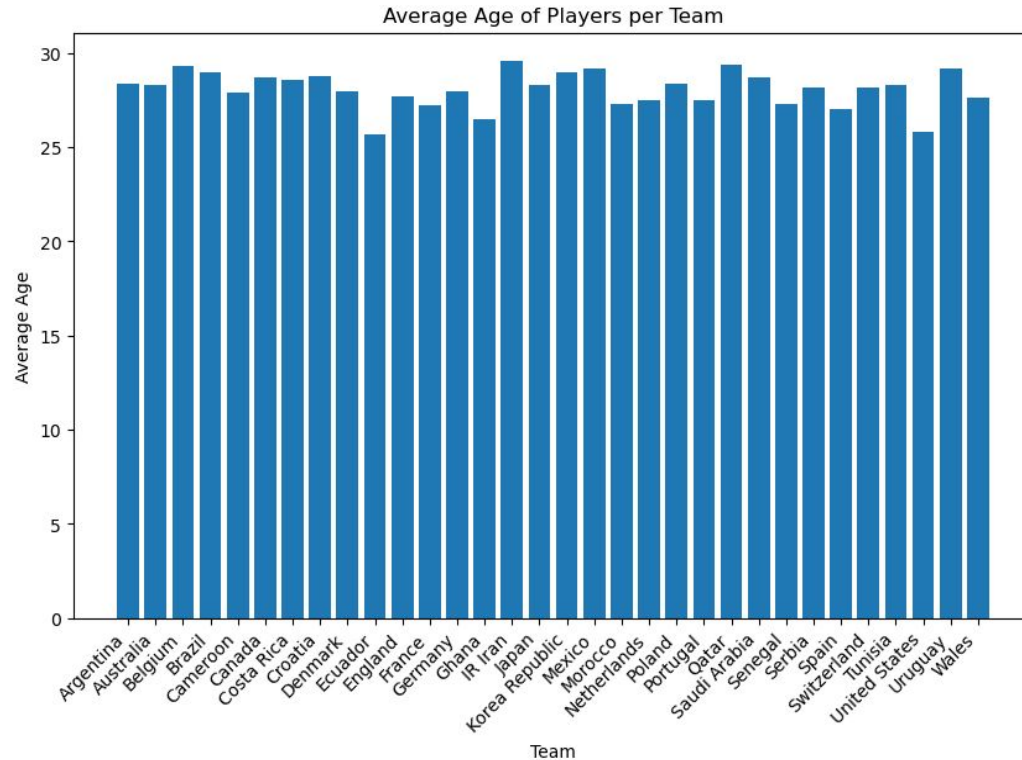
Mean Age: 28.08

Median Age: 28.25

*Variance of Age:
0.94*

*Standard Deviation
of Age: 0.97*

	team	avg age per team
0	Argentina	28.4
1	Australia	28.3
2	Belgium	29.3
3	Brazil	29.0
4	Cameroon	27.9
5	Canada	28.7
6	Costa Rica	28.6
7	Croatia	28.8
8	Denmark	28.0
9	Ecuador	25.7
10	England	27.7
11	France	27.2
12	Germany	28.0
13	Ghana	28.5
14	IR Iran	29.6
15	Japan	28.3
16	Korea Republic	29.0
17	Mexico	29.2
18	Morocco	27.3
19	Netherlands	27.5
20	Poland	28.4
21	Portugal	27.5
22	Qatar	29.4
23	Saudi Arabia	28.7
24	Senegal	27.3
25	Serbia	28.2
26	Spain	27.0
27	Switzerland	28.2
28	Tunisia	28.3
29	United States	25.8
30	Uruguay	29.2
31	Wales	27.6



Teams with the highest average age of players:

IR Iran: 29.6 years old

Qatar: 29.4 years old

Belgium: 29.3 years old

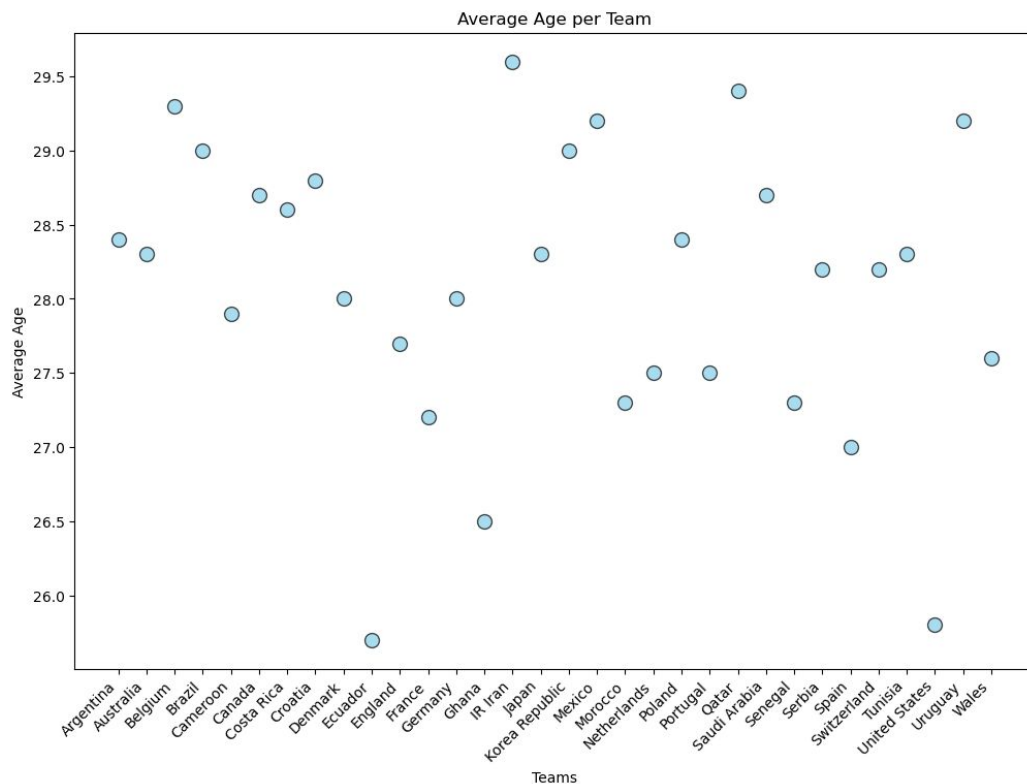
Uruguay: 29.2 years old

Teams with the lowest average age of players:

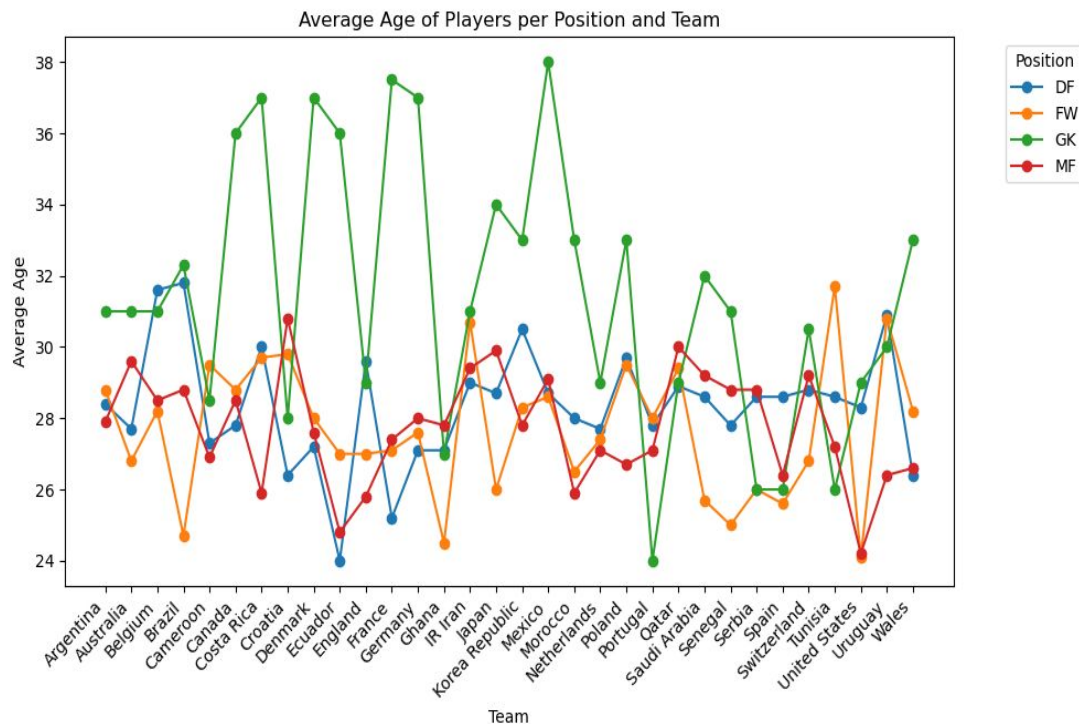
Ecuador: 25.7 years old

United States: 25.8 years old

Ghana: 26.5 years old



- Similar average ages are observed among teams from the same region, e.g., European teams like Belgium, Croatia, and Denmark have relatively higher average ages.
- Traditional football powerhouses like Brazil, Germany, and Argentina maintain average ages around 28, suggesting a balance of experience and skill.
- Qatar stands out with a high average age of 29.4, possibly influenced by factors like recruiting experienced players for the 2022 FIFA World Cup hosted in Qatar.
- Teams with higher average ages may benefit from experience but might face challenges related to the physical demands of the game.



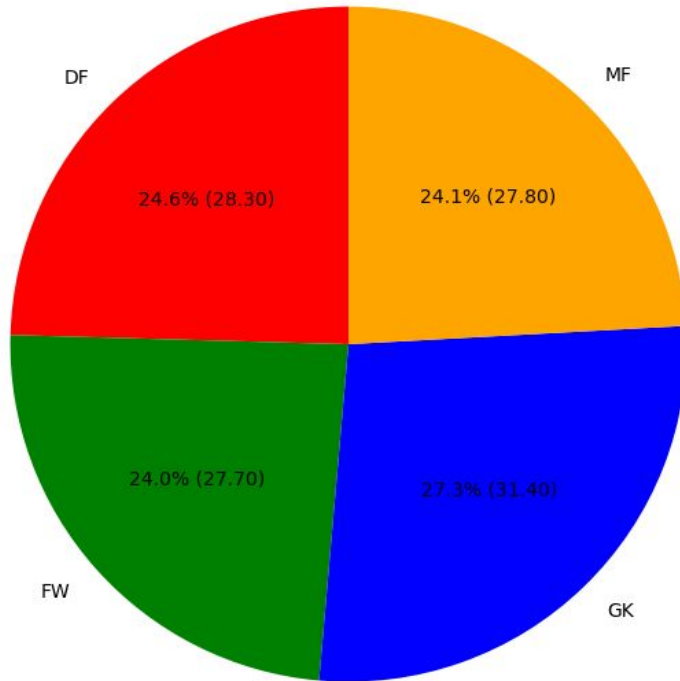
General Observations:

- Teams tend to have the youngest players in the forward position, while goalkeepers are generally the oldest.
- There is variability in average ages within each position, indicating diverse team strategies.
- Some countries maintain a consistent age pattern across positions, while others show significant variation.

Potential Implications:

- Teams with younger players may focus on building for the future, emphasizing development.
- Traditional football powerhouses (Brazil, Germany, Argentina) maintain average ages around 28, suggesting a balance of experience and skill.

Average Age per Position



Positional Age Dynamics:

- Defenders and forwards, on average, are younger than midfielders and goalkeepers.
- Goalkeepers tend to have the highest average age, emphasizing the importance of experience in this position.

Team Strategies:

- Teams with younger players in specific positions contribute to a lower overall average for that position.
- Teams with older players in specific positions contribute to a higher overall average for that position.

Positional Specialization:

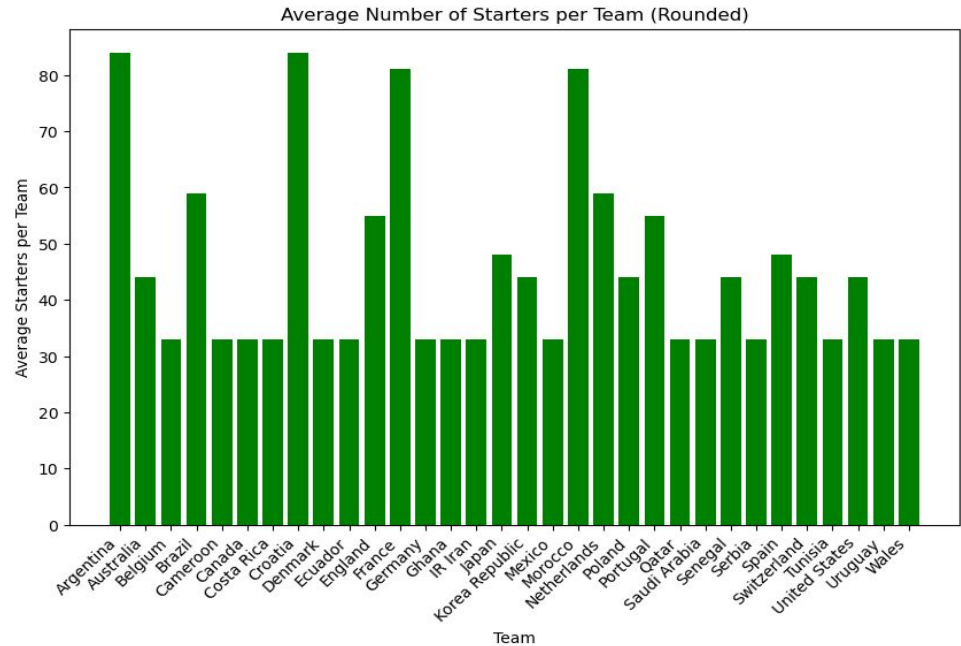
- The data supports the notion that certain positions, like goalkeepers, often require more experience and maturity.

Comparison of Starters to Substitute Players

Most starters per team = Argentina and Croatia (84)

Fewest starters per team = Uruguay, Wales and Germany (32)

Teams with the most overall starters lead to placing further in the World Cup



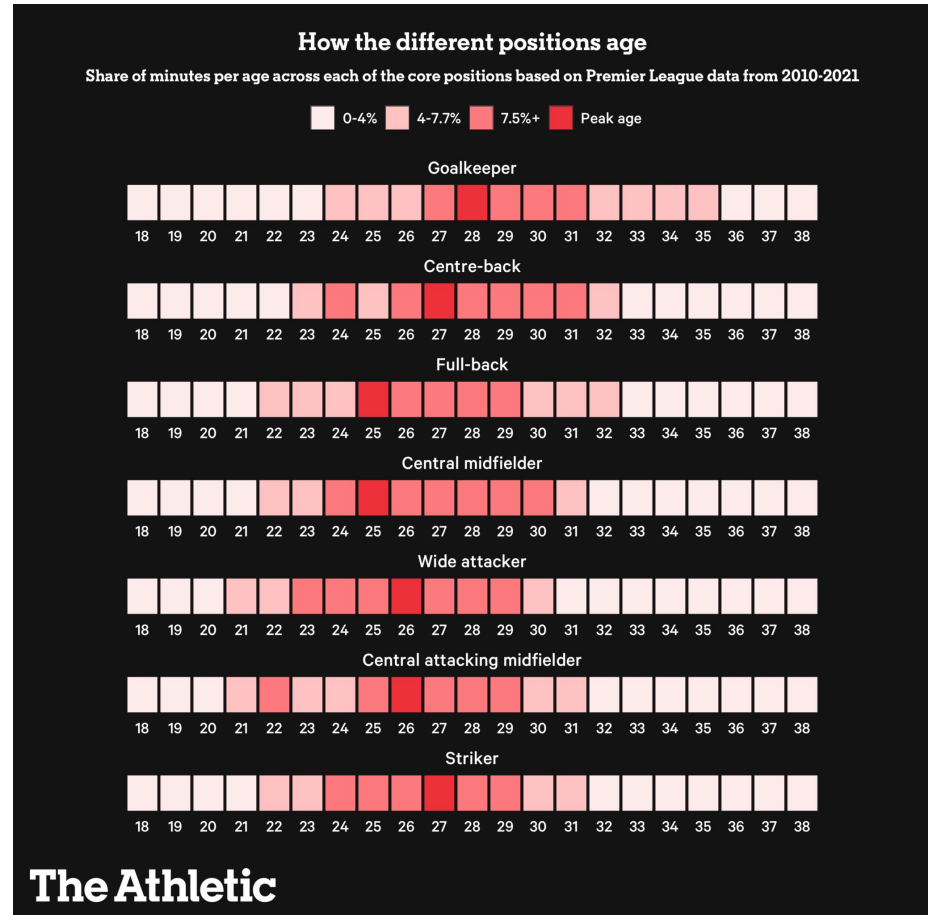
Background For Comparison

The Athletic did a study of Premier League players from 2010-2021 to determine the peak age for soccer players at every position

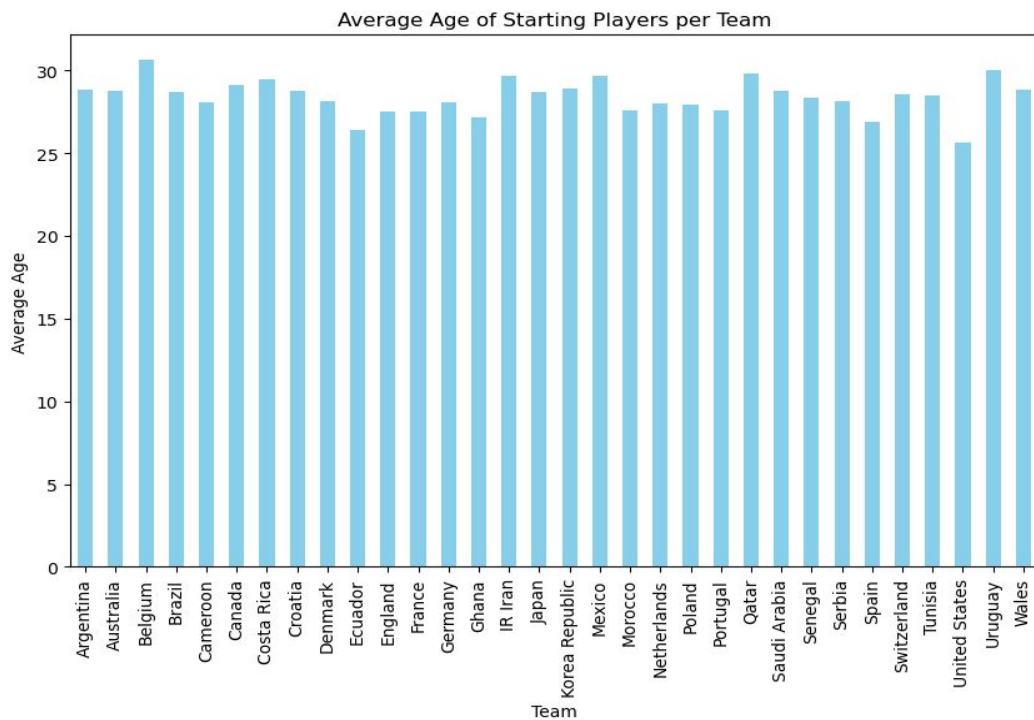
Peak age varied slightly depending on position, but determined that **26.29 years old** was the age for peak performance in soccer

Source:

Worville, T. (2021, November 15). What Age Do Players in Different Positions Peak? *The Athletic*.
<https://theathletic.com/2935360/2021/11/15/what-age-do-players-in-different-positions-peak/>



Average Age of Starters on Each Team



-Highest= Belgium 30.62 years old

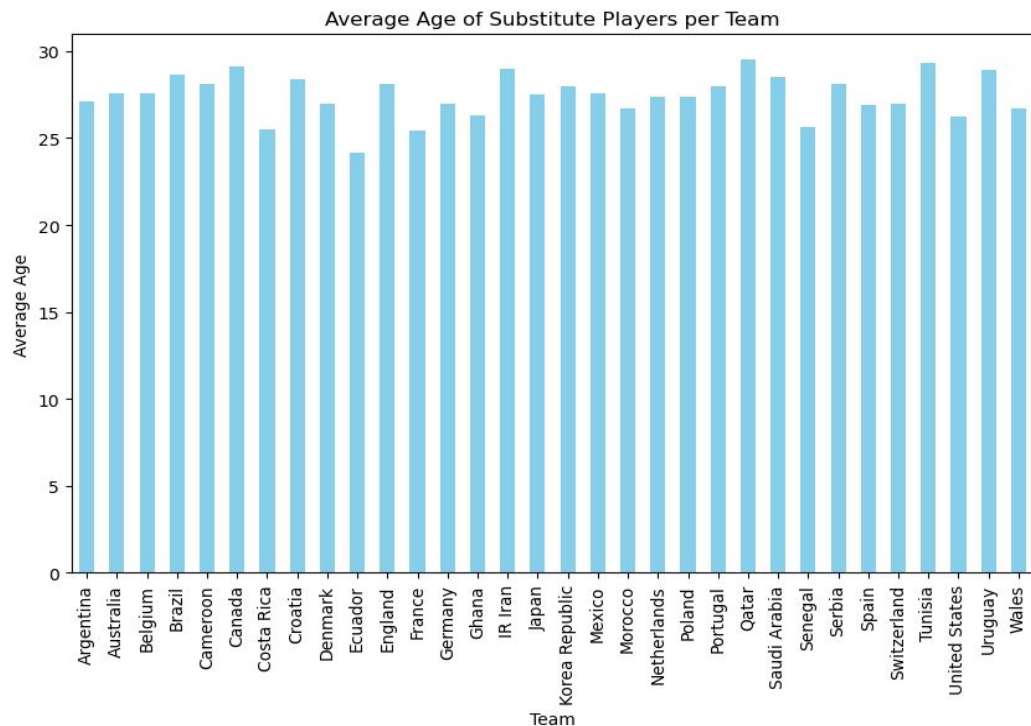
-Lowest= United States 25.62 years old

-Mean Age of Starter= 28.4 years old

-All but one team had an average starting age over
was The Athletic determined to be the peak age for
a soccer player (USA!)

-Ecuador (26.43) was the closest to The Athletic's
determination of the peak age

Average Age of Substitute Players



-Highest Average Age of Sub. Players= Qatar (29.50 years old)

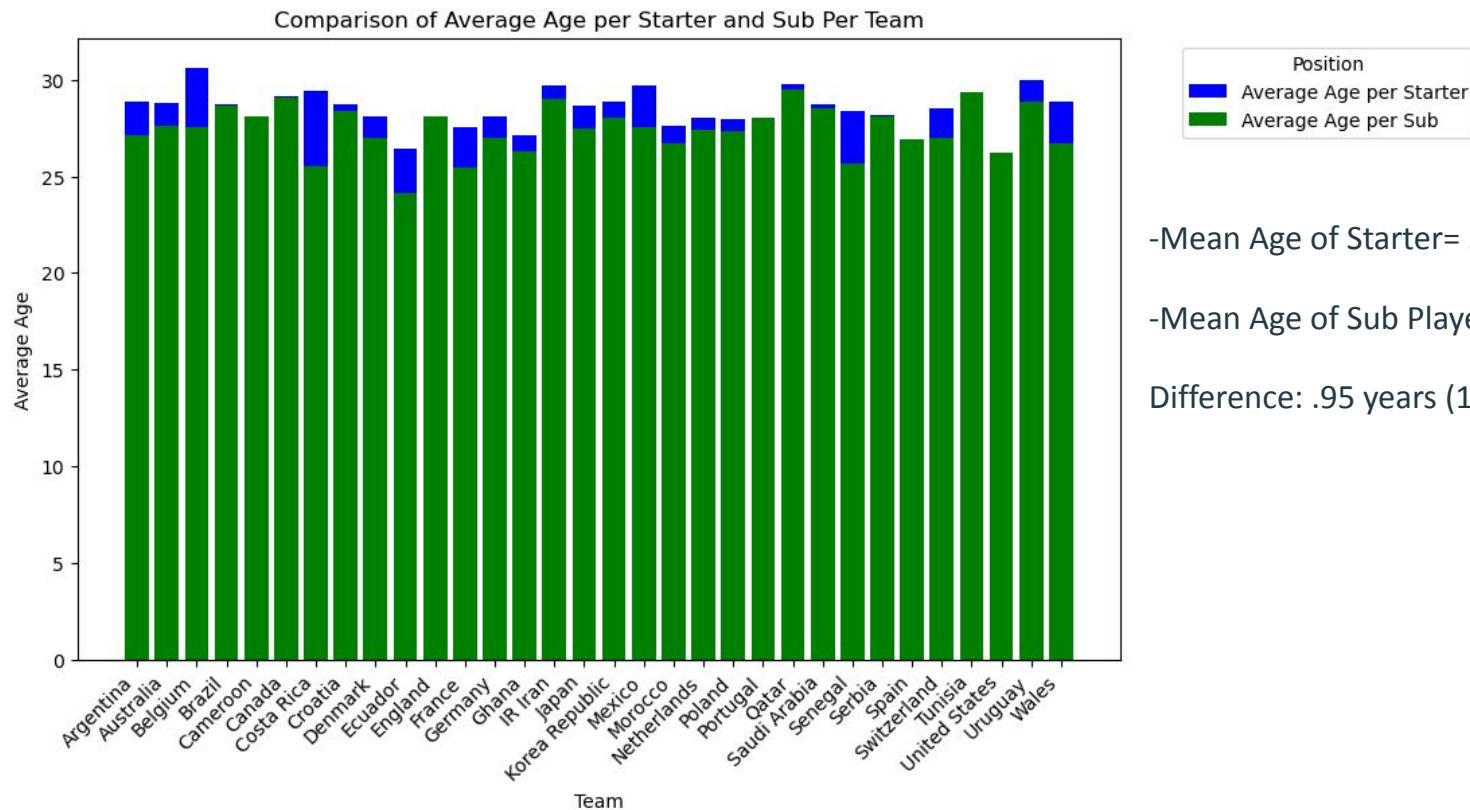
-Lowest Average Age of Sub Players= Ecuador (24.14 years old)

-Mean Age of Sub Players= 27.45 years old

- Five teams (US, Senegal, Costa Rica, France, & Ecuador) had an average Sub age below what was determined to be peak

-Ghana (26.30) was closest

Direct Comparison



-Mean Age of Starter= 28.4 years old

-Mean Age of Sub Players= 27.45 years old


Difference: .95 years (11 months 14 days)

Effect of Age on Success

Final Rank	Country	Avg. Age of Starter	Avg. Age of Substitute
1	Argentina	28.83	27.12
2	France	27.55	25.50
3	Croatia	28.74	28.38
4	Morocco	27.59	26.71

Analysis:

- All final four teams had an average starting age under 29 years old; avg starting age was 28.18
- No teams with an average starting age of 29 or higher advanced past the Round of 16
- All of the final four teams had an average starting age over what The Athletic determined to be the peak age of 26.29
- These things indicate that the most successful teams need to have a blend of experience while maintaining enough youth to be in peak athletic condition

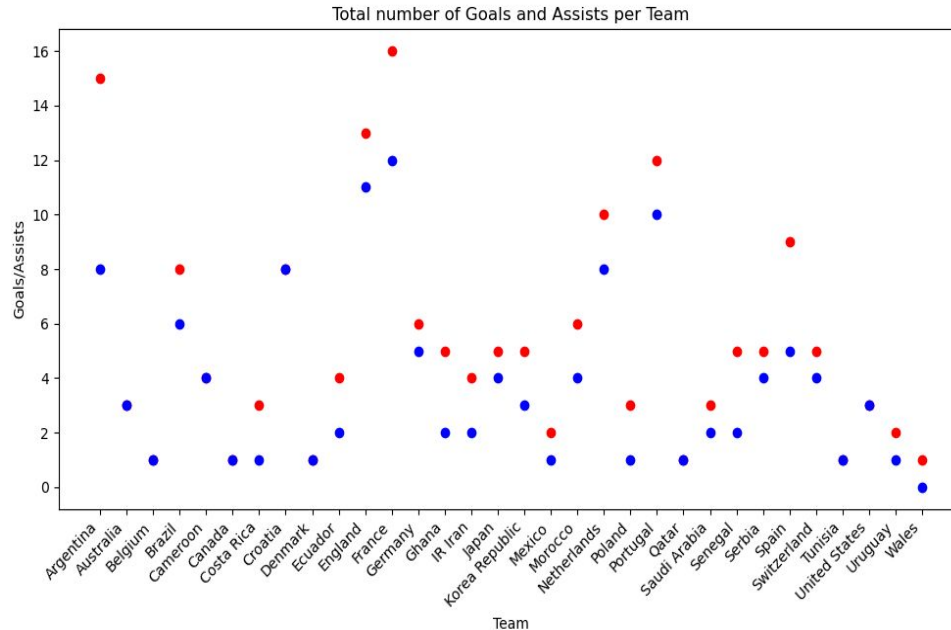


Final Rank	Country	Avg. Age of Starter	Avg. Age of Substitute
29	Wales	28.86	26.70
30	Ecuador	26.43	24.14
31	Canada	29.13	29.09
32	Qatar	29.79	29.50

Analysis:

- The average starting age of the bottom four teams (28.55) was only .37 years (4mo. 13 days) higher than the top four teams
- Two of the bottom four teams had an average starting age over 29
- All teams in both the top four and bottom four had average starting ages roughly two years over what The Athletic determined to be the peak age for a soccer player

Goals Scored vs Assists per team



Red = Goals

Blue = Assists

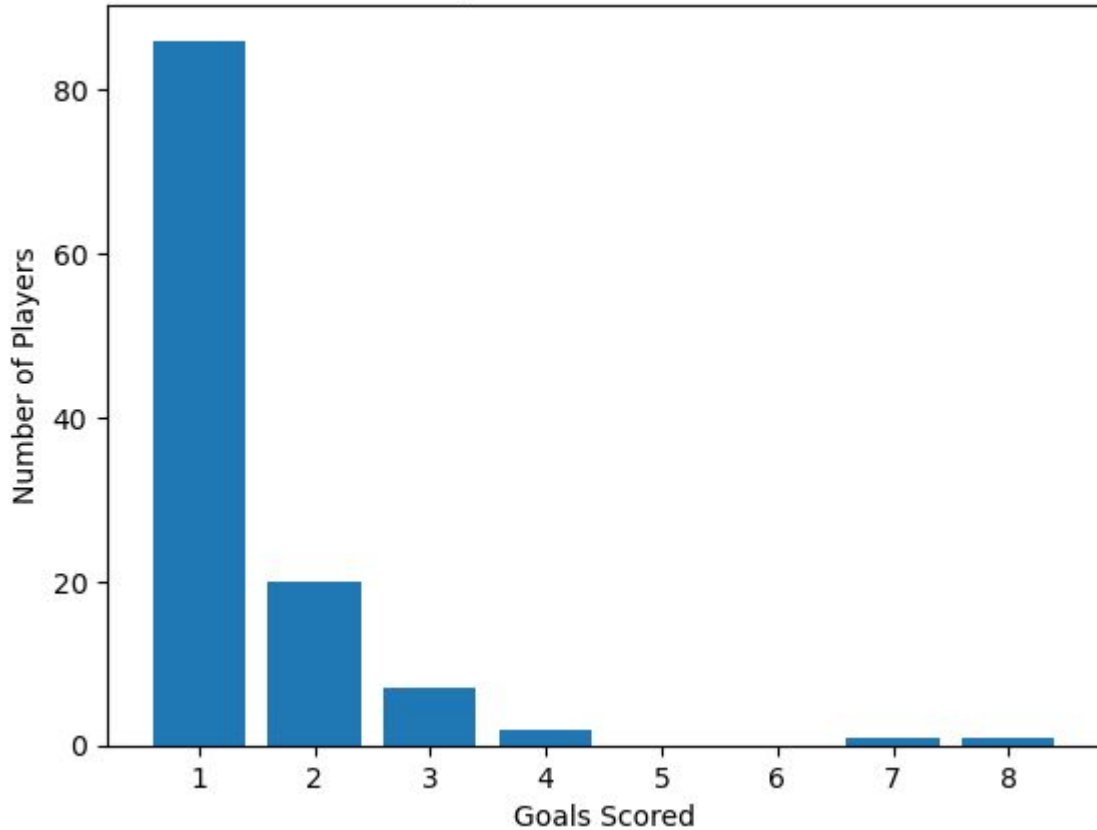
Most goals scored = France (Finished 2nd overall)

Fewest goals scored = Wales (Did not advance past group stages)

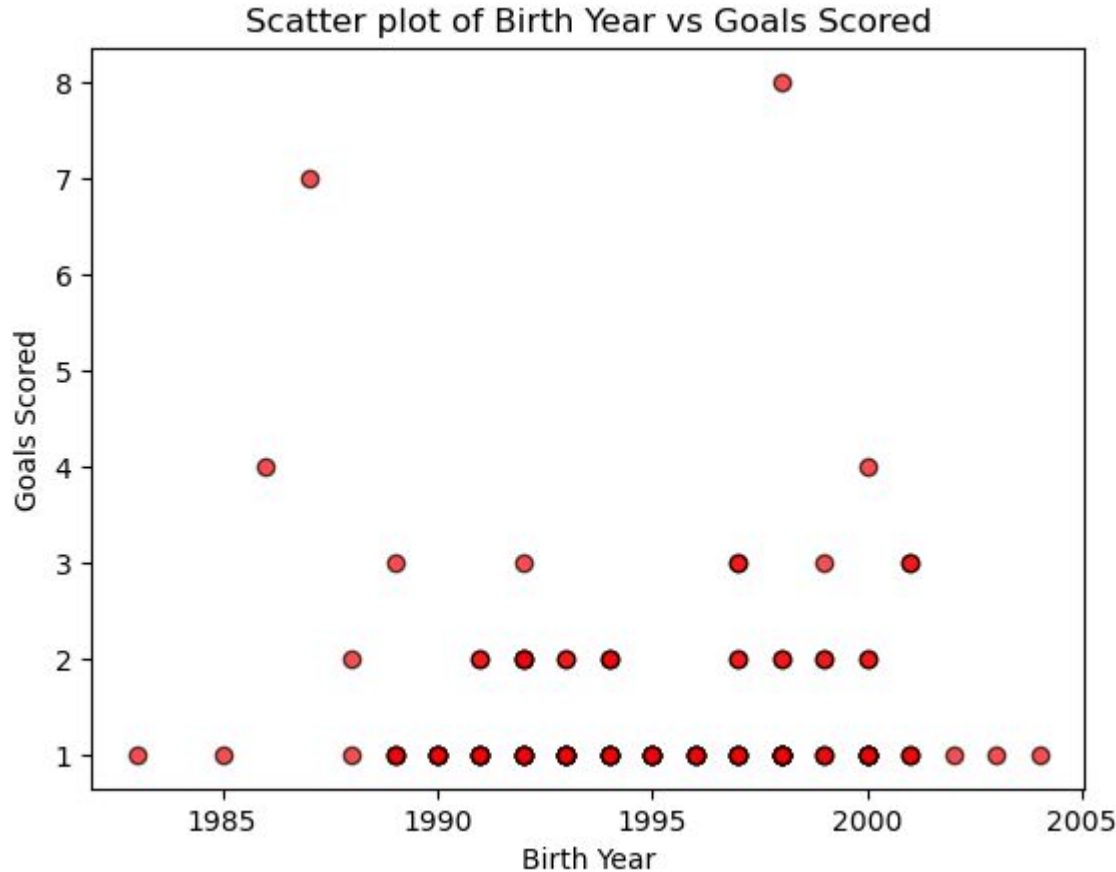
Most assists = France

Fewest assists = Wales

Number of Players vs Amount of Goals Scored



- 563 players scored 0 goals.
- 86 players scored 1 goal each.
- 7 and 8 goals were scored by one player each.
- This shows that the more goals that are scored the fewer the number of players that will score.
- No players scored 5 or 6 goals.



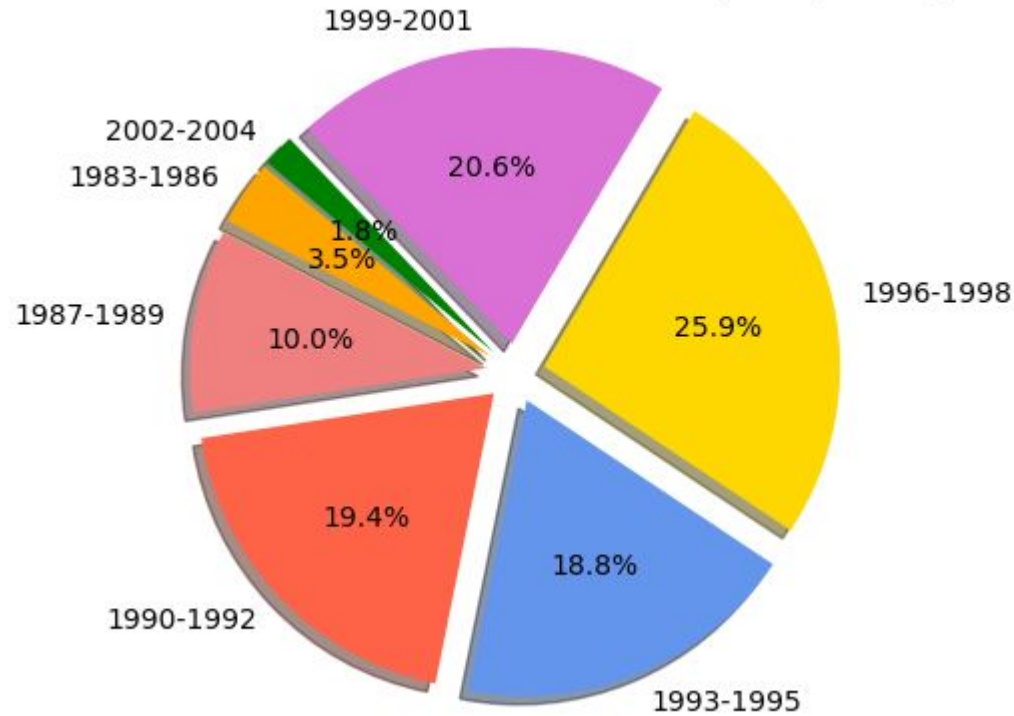
- There is a larger concentration of goal scorers who only scored one goal scattered across multiple years
- There is no direct correlation between the year a player was born and the number of goals they scored
- The darker "red markers" indicate that multiple goal scorers were born on those respective years.

No. of Goals Scorers Sum of Goal Scored

Range of goal scorers

1983-1986	3	6
1987-1989	8	17
1990-1992	25	33
1993-1995	27	32
1996-1998	29	44
1999-2001	22	35
2002-2004	3	3

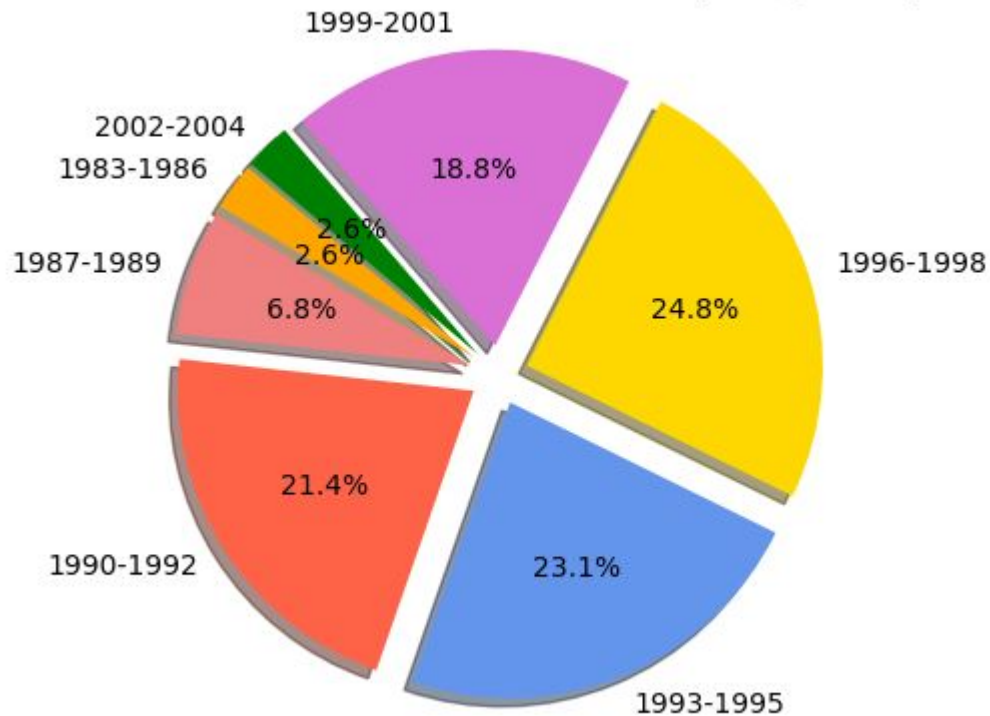
Breakdown of Number of Goals Scored per Age Range



The youngest age group contributed the least amount of goals (2002-2004, 3 goals), 1.8%.

The group with the most amount of goals was 1996-1998, 25.9%. (44 goals)

Breakdown of Number of Goal Scorers per age Range



The youngest and oldest age groups had the least number of goal scorer contributions. This would be indicative of these age groups playing the least amount of time, 2.6%. (1983-86, 2002-04,) 3 players each.

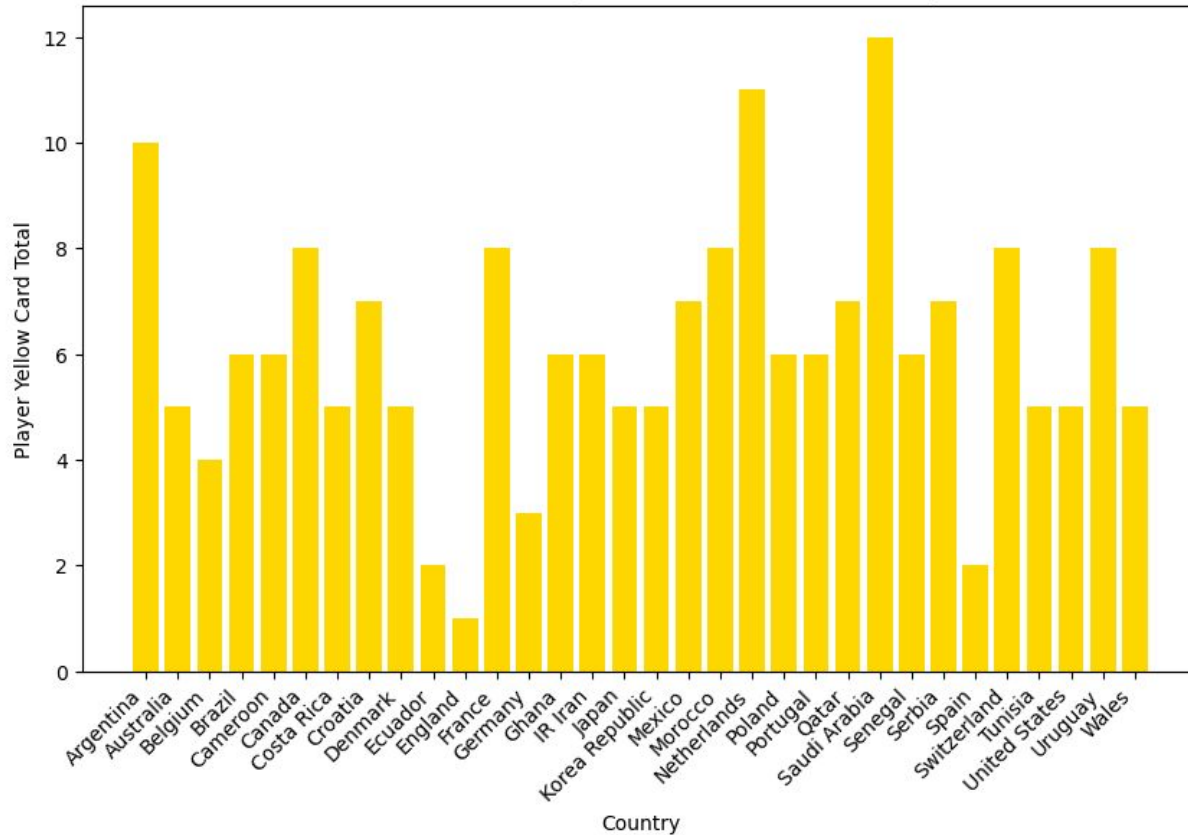
The “peak” playing time for these players contributed the largest amount of goal scorers, 24.8%. (1996-1998, 29 players).

YELLOW AND RED CARD AGE ANALYSIS

Presenter: James



Total Number of Players Yellow Carded Per Country



Countries with the most players yellow carded:

- 1) Saudi Arabia - 12 (Avg Age: 28.7)
- 2) Netherlands - 11 (Avg Age: 27.5)
- 3) Argentina - 10 (Avg Age: 28.4)

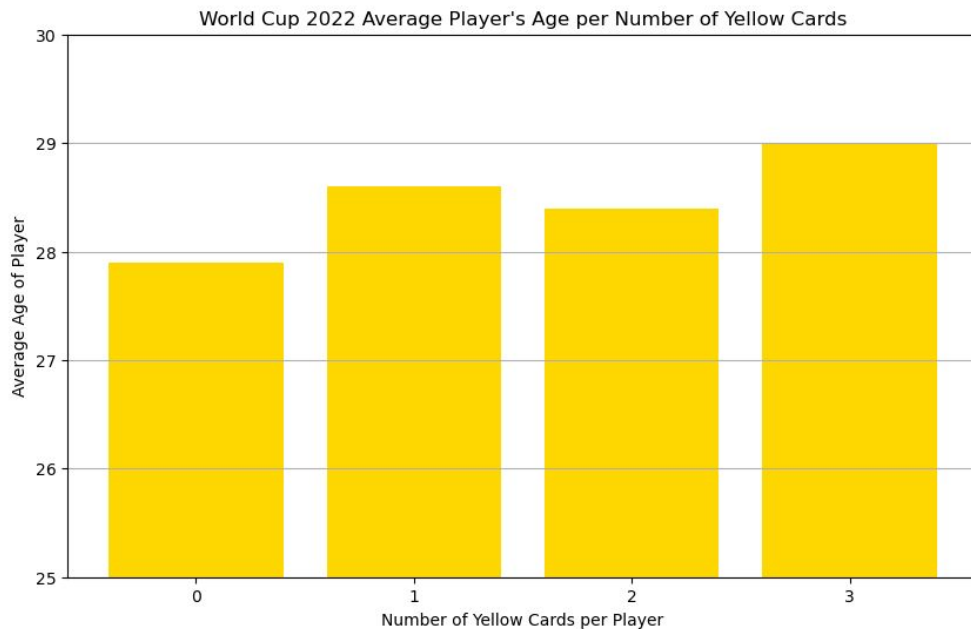
Countries with the fewest yellow carded players:

- 1) England - 1 (Avg Age: 27.7)
- 2) Spain - 2 (Avg Age: 27.0)
Ecuador - 2 (Avg Age: 25.7)

Observation of slightly older teams getting more yellow cards



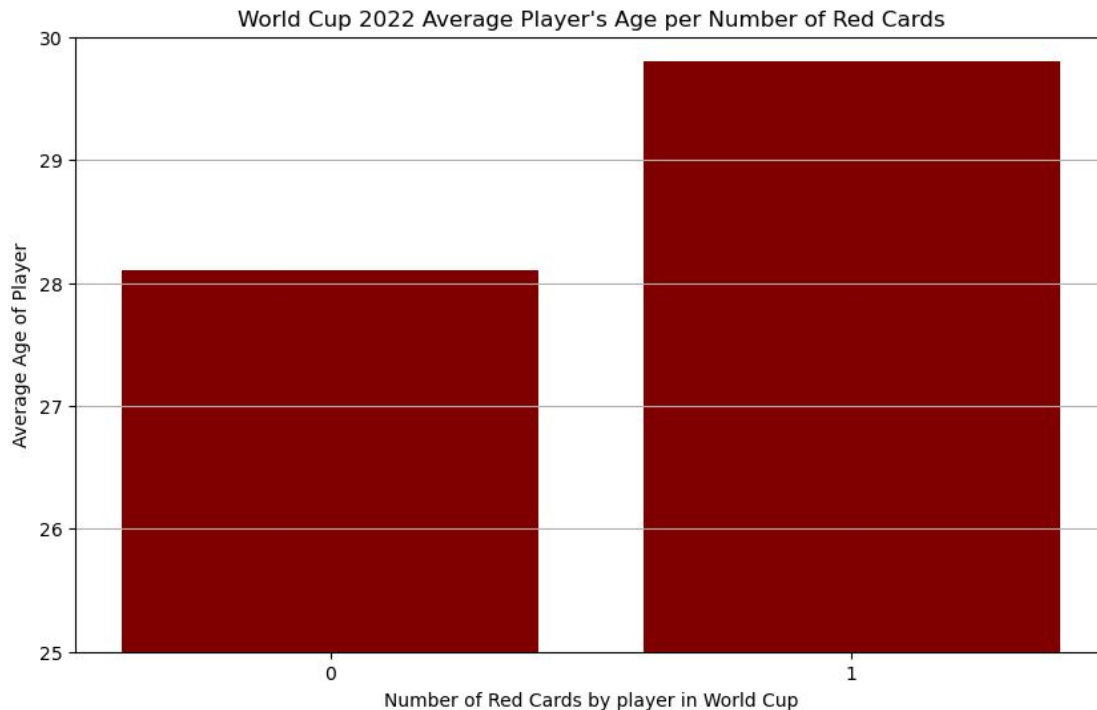
World Cup 2022 Average Player's Age per Number of Yellow Cards



- 1) Number of players with zero yellow cards 453 (Avg Age: 27.9)
- 2) Number of players with one yellow card: 195 (Avg Age: 28.6)
- 3) Number of players with two yellow cards: 29 (Avg Age: 28.4)
- 4) Number of players with three yellow cards: 2 (Avg Age: 29.0)

The only two players with three yellow cards both played for Argentina who won the World Cup

World Cup 2022 Average Player's Age per Red Card



Average age of players who didn't receive a red card: 28.1

Total number of players given red cards: 4
- Average age of a player that received a red card 29.8.

This data has a small sample size of only four players receiving red cards.

Wales goalkeeper (Age 35) received the only direct red card in the World Cup and third GK ever to receive a red card in a World Cup

Potential Limitations

- Data Source Reliability:
 - Accuracy dependent on the reliability of data sources.
 - Inaccuracies or omissions in player records may impact findings.
- Contextual Factors:
 - Lack of information on factors like injuries, career transitions, or late additions.
 - May overlook additional influences on player age dynamics.
- Sole Determinant Bias:
 - Assumes age is the sole determinant of player performance.
 - Overlooks other crucial factors such as skill, fitness, and playing experience.
- Selection Criteria Variability:
 - Team selection criteria and playing strategies may vary among nations.
 - Introduces potential biases in the analysis.
- Static Dataset Limitation:
 - Dataset's static nature limits capturing real-time changes in player demographics or - team dynamics.
 - Dynamic shifts in player characteristics over time may not be fully reflected.

Conclusion

Team Composition: Mean Players: 21.25, Consistent squad size.

Age Dynamics: Mean Age: 28.08, Balanced distribution.

Team Strategies: Experience prioritized (IR Iran, Qatar). Youth-focused (Ecuador, U.S.).

Positional Age Strategies: Varied among defenders, forwards, goalkeepers, and midfielders.

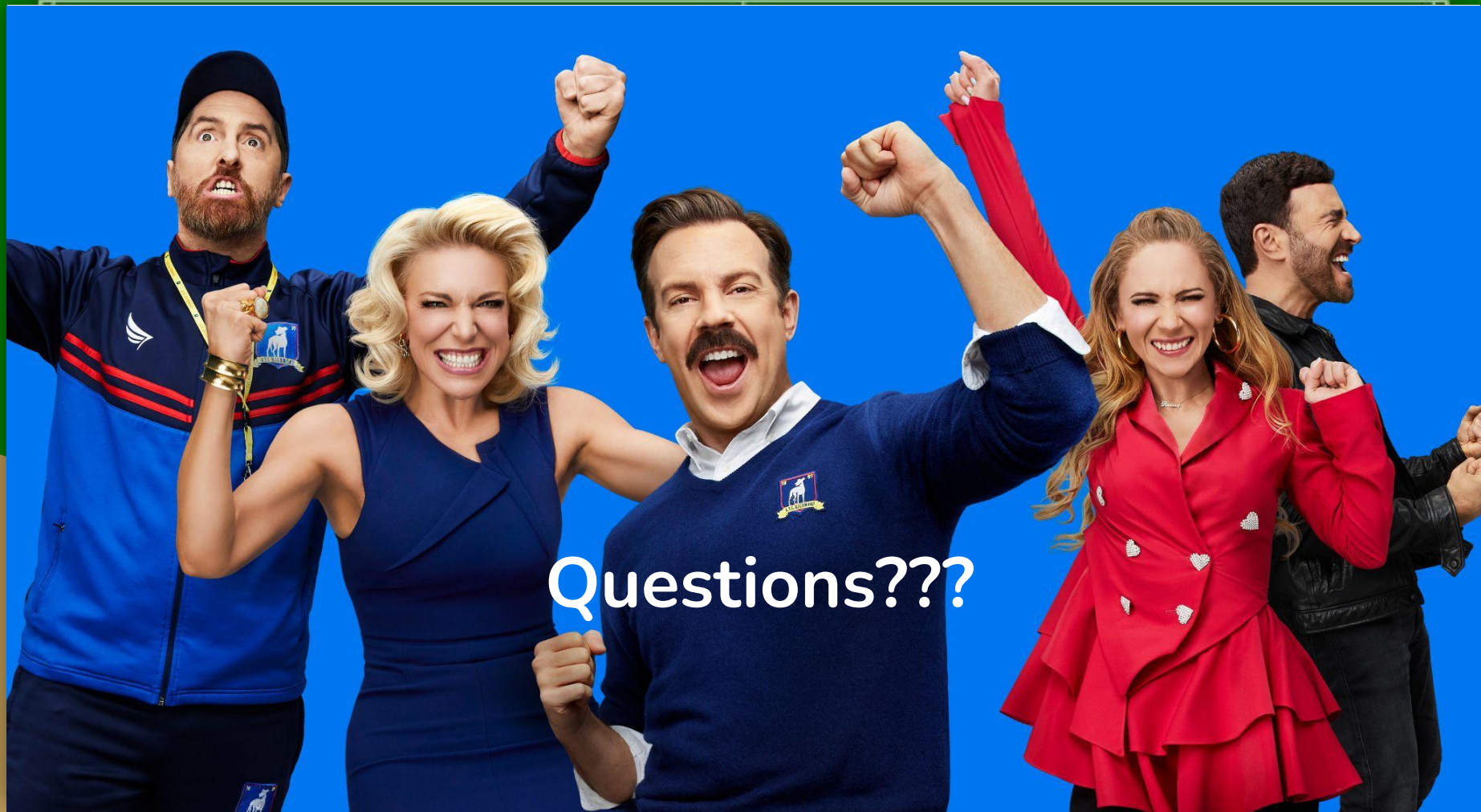
Performance Insights: No team >29 avg. age past Round of 16.

Goal Dynamics: Majority from 1990-2001 age groups.

Yellow/Red Card Analysis: Yellow cards skewed to older players. Top four teams <29 avg. age.

Future Analysis:

- a. Explore individual roles, tactics, and key moments.
- b. Psychological aspects of performance.
- c. Extend data to cover multiple World Cups.
- d. Advanced analytics and external factors and player demographics.



Questions???