

FIFA WORLD CUP Qatar2022

DEPI Graduation Project

Data Analysis CA11_DAT2_G3e



Our Team

01



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Agenda



action

insights

Analyze

After edit

history



Problem Statement

How can we provide a comprehensive analysis of the performance of teams participating in the World Cup and various international tournaments, focusing on their journey over the years, their international experience, and the strength of their players through detailed data such as goals, number of matches, and individual player performance?



about



Business Questions

- **Total Goals Scored by Country:** What is the total number of goals scored by each country across all World Cup tournaments?
- **Total Matches Played by Country:** How many matches have been played by each country in World Cup tournaments?
- **Average Goals per Match:** What is the average number of goals scored per match for each team?
- **Top 5 Goal Scorers:** Who are the top 5 goal scorers across all World Cup tournaments? How many goals did they score?
- **Performance of Host Countries:** How do host countries perform compared to non-host countries? What is the win/loss ratio of host countries?
- **Impact of Domestic League on Player Performance:** What is the relationship between the strength of domestic leagues (based on club rankings) and player performance (goals, assists, etc.) in the World Cup?
- **Average Age of Players by Stage:** What is the average age of players in the group stage, knockout stage, and finals of the tournament?
- **Total Caps by Country:** What is the total number of international caps (matches played) for players in each country during World Cup tournaments?



about



Business Questions

- **Top 5 Countries by Goals Conceded:** Which countries have conceded the most goals during the World Cup?
- **Success Rate of Teams in Group Stage:** What percentage of teams from each group advance to the knockout stage?
- **Correlation between FIFA Ranking and Goals Scored:** Is there a significant correlation between a country's FIFA ranking and the number of goals it scores?
- **Player Performance by Domestic Club:** Which domestic clubs contribute the most players to the World Cup, and how do those players perform (goals, assists, match wins)?
- **Loyal Players:** Which players have participated in more than one World Cup tournament? How many such players exist for each country?
- **Goals by Position:** What is the total number of goals scored by defenders, midfielders, and forwards for each country?



about



Business Questions

1.What is the overall international experience of the teams?

1. The dashboard answers this by providing insights into the number of international matches played, goals scored, and tournaments participated in.

2.How have teams performed at different stages of the World Cup?

1. The chart showing World Cup matches by stage helps answer how teams perform in various stages of the competition (group stage, knockouts, finals, etc.).

3.Which tournaments have teams been most active in besides the World Cup?

1. The breakdown of matches by tournaments (friendlies, Copa América, etc.) gives insights into where teams focus their efforts outside the World Cup.

4.How do teams perform in home vs. away matches?

1. The graph showing international goals by home and away over the years addresses this, helping to understand performance trends in different venues.



about



Business Questions

1.What is the average age and experience of players in the current squad?

1. This question is addressed by metrics showing the average age of players, their total caps, and their club distribution.

2.What are the top clubs contributing players to the team?

1. The dashboard highlights which clubs have the most players in the national team, providing insight into the source of the team's talent.

3.Which players have contributed the most goals?

1. The "Top Players by Number of Goals" section identifies the most impactful goal-scorers in the team, giving an understanding of key contributors.

4.How do players perform across different positions?

1. The dashboard breaks down players by position (defense, midfield, attack) and shows their contributions, helping to analyze how different positions affect overall performance.

5.Which players have the most experience with the national team?

1. The chart showing top players by matches played and their corresponding goals provides insights into which players have the most experience and their level of contribution to the team.



Row Data Summary

Extent of variability and diversity of the dataset



6

FILES

World_cups
World_cup_groups
Wc_squads
2022_Wc_matches
Wc_matches
intern_matches



32

COLUMNS



19,619

ROWS



5

DATA TYPES

Nominal
Ordinary
Numerical
Date
String



history

about

After edit

Cleaning and Preparation

Using Excel & Power Query



Duplicate

All missing values were handled by AI and have been validated

added a new columns
winner team, Host country win ,home team win

Formatting
errors

Normalization

Missing
Values

Enhance

After edit

No duplicates found

"2022_world_cup_matches" Rows 50 : 65 corrected to the actual team names. Corrected typos and syntax errors in players' names and club names

Dealing with columns containing binary data, highlight the team captain for each squad

Analysis using Excel and DAX

Data Modeling

Measures

Calculated Tables

Calculated Columns



Analyze

After edit

history

about

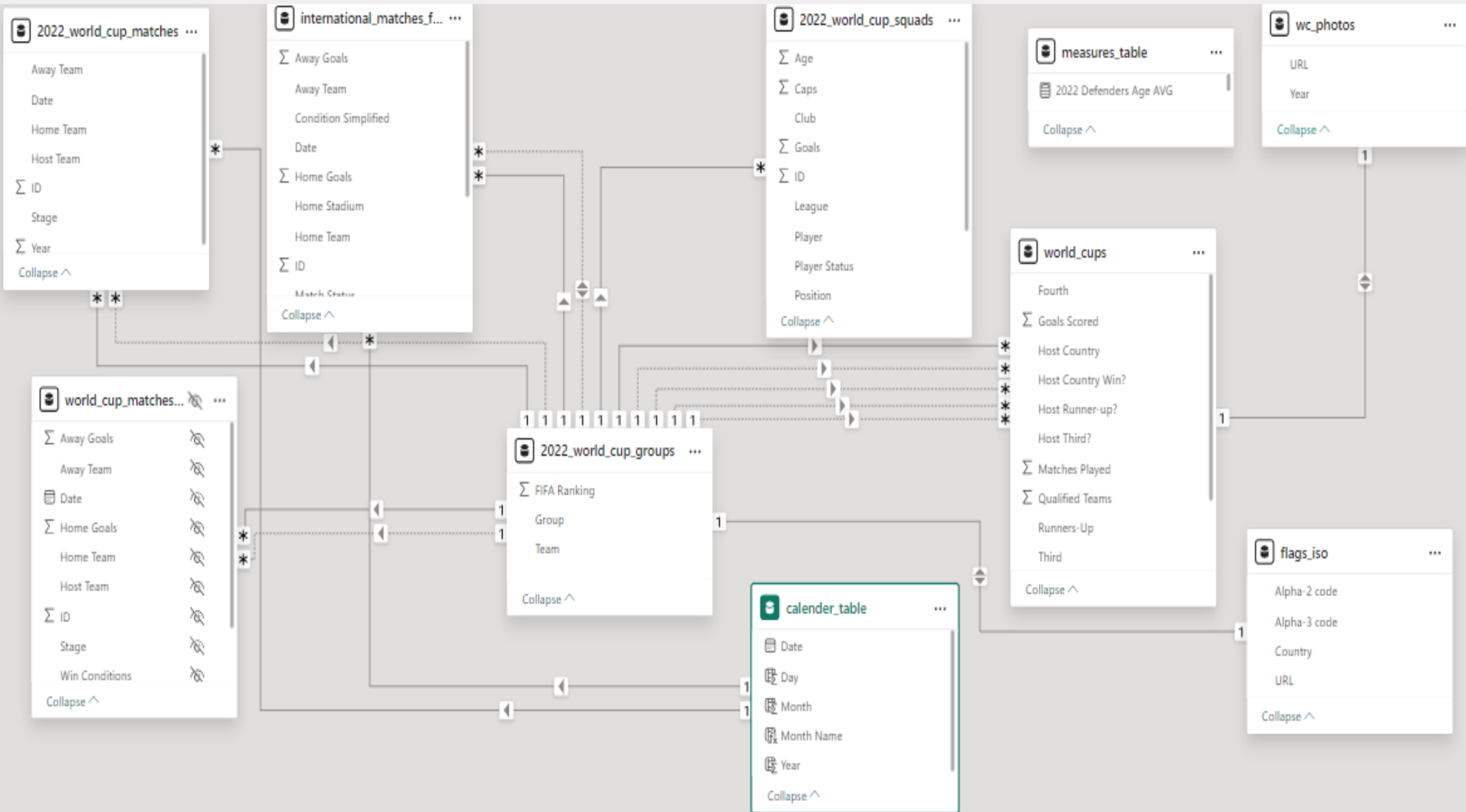


insights

Data Modeling



Analyze





measures_table



- 2022 Defenders Age AVG
- 2022 Defenders Count
- 2022 Forwards Age AVG
- 2022 Forwards Count
- 2022 Goalkeepers Age AVG
- 2022 Goalkeepers Count
- 2022 Groups Count
- 2022 Matches Count
- 2022 Max Caps Player
- 2022 Max Ranked Team
- 2022 Max WC goal Scorer
- 2022 Midfielders Age AVG
- 2022 Midfielders Count
- 2022 Min Caps Player
- 2022 Min Ranked Team
- 2022 Min WC goal Scorer
- 2022 Players Age AVG
- 2022 Qualified Teams
- 2022 Total Players Count
- 2022 World Cup Duration
- 2022 World cup Matches
- Average_Goals_Scored_per_Match
- Beginning Qualified Teams

Measures



- Winners Count
- World Cups Count by team
- World Cups Matches Count
- World Cups Total Goals
- World Cups Winnig Rate
- World Cups Won Matches Count

Collapse ^



measures_table



- Beginning Total Goals
- Beginning Total Played Matches
- Beginning World Cup Years
- Caps AVG
- Clubs Count
- FIFA Ranking
- Forths Count
- Goal_Difference
- Goals AVG per Player
- Host Count
- Int Away Goals
- Int Home Goals
- Int Total Goals
- Int Total Matches Count
- Int Total Matches for team
- Int Tournaments Count
- Runners-up Count
- Teams Coloring
- Thirds Count
- Total World Cups
- Total_Goals_Conceded
- Total_Goals_Scored
- WC Goals AVG per Player



Measures extracted from this table

world_cup_matches_facts

Σ Away Goals

Away Team

 Date

Σ Home Goals

Home Team

Host Team

Σ ID

Stage

Win Conditions

Winner Team

Σ Year

Collapse ^

- **Total_Goals_Conceded**

- **Total_Goals_Scored**

- **World Cup Matches Count: Total number of played matches in wc tournaments.**

- **World Cup Total Goals: Total number of goals in wc tournaments**

- **World Cups Won Matches Count**



Measures extracted from this table

 2022_world_cup_squads

Σ Age

Σ Caps

Club

Σ Goals

Σ ID

League

Player

Player Status

Position

Position Rule

Team

Σ WC Goals

Collapse ^

2022 Defenders Age AVG: Average of wc 2022 Defender players age.

2022 Defenders Count: Count of wc 2022 Defender players.

2022 Forwards Age AVG: Average of wc 2022 forward players age.

2022 Forwards Count: Count of wc 2022 forward players.

2022 Goalkeepers Age AVG: Average of wc 2022 Goalkeeper players age.

2022 Goalkeepers Count: Count of wc 2022 goalkeeper players.

2022 Max Caps Player: Maximum number of matches players played with national team.

2022 Max WC goal Scorer: First player in total wc goals.

2022 Midfielders Age AVG: Average of wc 2022 Midfielder players age.

2022 Midfielders Count: Count of wc 2022 Midfielder players.

2022 Min Caps Player: Minimum number of matches players played with national team.

2022 Min WC goal Scorer: Last player in total wc goals.

2022 Players Age AVG: Average of wc 2022 players ages.

Caps AVG

Clubs Count

Goals AVG per Player





Measures extracted from this table



2022_world_cup_groups

+++



FIFA Ranking

Group

Team

Collapse ^



2022 Groups Count



2022 Max Ranked Team: First ranked team by FIFA.



2022 Min Ranked Team: Last ranked team by FIFA.



2022 Qualified Teams: Total number of qualified teams in wc 2022.



2022 Total Players Count: Total number of participated players in wc 2022.






FIFA Ranking



Winners Count



Measures extracted from this table

 2022_world_cup_m...  ...
Away Team
Date  ...
Home Team
Host Team
Σ ID
Stage
Σ Year
Collapse ^

- **2022 Matches Count:** Count of wc 2022 matches.
- **2022 World Cup Duration:** Duration of wc 2022 tournament in days.



Measures extracted from this table



world_cups

...

Fourth

Σ Goals Scored

Host Country

Host Country Win?

Host Runner-up?

Host Third?

Σ Matches Played

Σ Qualified Teams

Runners-Up

Third

Winner

Year

Year (bins)

1



2022 World cup Matches



Beginning Qualified Teams: Count of team participated in wc form the start of tournament.



Beginning Total Goals: Total number of goals in wc form the start of tournament.



Beginning Total Played Matches: Total number of matches in wc form the start of tournament.



Beginning World Cup Years



Host Count



Total World Cups













World Cups Winnig Rate

Collapse ^



Measures extracted from this table

 international_matc...		
 Away Goals		
Away Team		
Condition Simplified		
Date		
 Home Goals		
Home Stadium		
Home Team		
 ID		
Match Status		
Tournament		
Tournament Classification		
Win Conditions		
 Year		
 Year (bins)		
Collapse ^		



Int Away Goals: Total number of international goals scored by away teams.



Int Home Goals: Total number of international goals scored by home teams.



Int Total Goals: Total number of international goals.



Int Total Matches Count: Count of international matches.



Int Tournaments Count: Count of international tournaments.



Int Total Matches for team

Calculated tables



calender_table



Date



Day



Month



Month Name



Year

Collapse ^



wc_photos



URL

Year

Collapse ^



flags_iso



Alpha-2 code

Alpha-3 code

Country

URL

Collapse ^

Calculated Columns



Player Status	Position Rule
Professional	1
Professional	1
Professional	2
Not Professional	3
Not Professional	2
Professional	3
Not Professional	3
Not Professional	4

Search

measures_table

2022_world_cup_groups

2022_world_cup_matches

2022_world_cup_squads

Age

Caps

Year (bins)	Host Runner-up?	Host Third?
1930	No	No
1930	No	No
1930	No	No
1945.333333333333	Yes	No
1945.333333333333	No	No
1945.333333333333	Yes	No
1960.666666666667	No	Yes
1960.666666666667	No	No
1960.666666666667	No	No
1960.666666666667	No	No
1976	No	No
1976	No	No
1976	No	No
1976	No	No
1976	No	Yes
1991.333333333333	No	No

Search

measures_table

2022_world_cup_groups

2022_world_cup_matches

2022_world_cup_squads

calender_table

flags_iso

international_matches_facts

wc_photos

world_cup_matches_facts

world_cups

Fourth

Goals Scored

Tournament Classification	Match Status	Condition Simplified	Year (bins)
Friendly	Win Match	On Time	1896
Friendly	Win Match	On Time	1908
Friendly	Win Match	On Time	1908
Friendly	Win Match	On Time	1908
Friendly	Win Match	On Time	1908
Friendly	Win Match	On Time	1908
Friendly	Win Match	On Time	1920
Friendly	Win Match	On Time	1920
Friendly	Win Match	On Time	1920
Friendly	Win Match	On Time	1920
Friendly	Win Match	On Time	1920

Search

measures_table

2022_world_cup_groups

2022_world_cup_matches

2022_world_cup_squads

calender_table

flags_iso

international_matches_facts

Away Goals

Away Team

Visualization and story telling Dashboard & insights



insights

Analyze

After edit

history

about

WORLD CUP JOURNEY ACROSS YEARS

2022

2018

2014

172

Total Goals

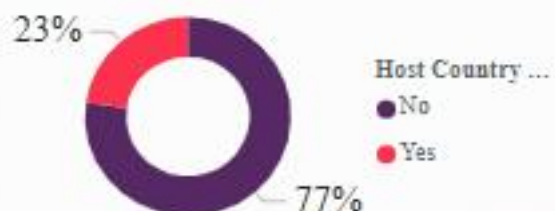
64

Total Matches

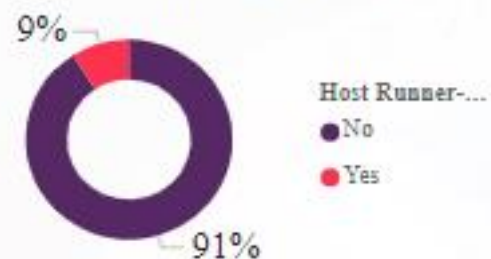
32

Qualified Teams

Host Country Wins?



Host Country Runner-up?



Winner

Argentina



France



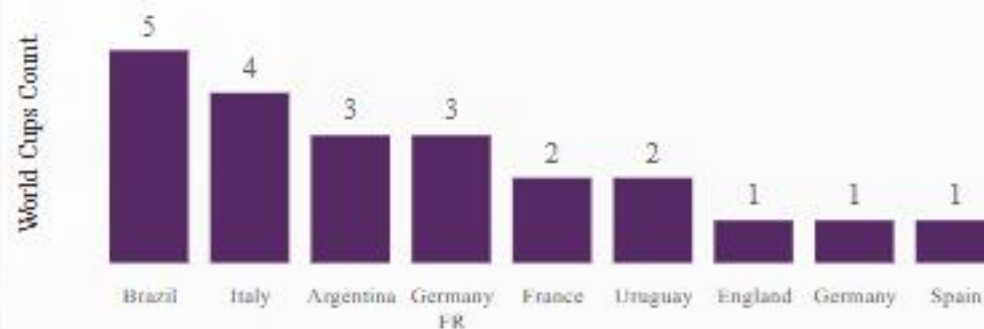
Croatia



Morocco



World Cups Count by Winner



Argentina Wins .. Why ?



PLAYING EXPERIENCE

1738

Int Total Goals

2.00

Goals AVG per Match

49

Goals Conceded

110

Goals Scored

FIFA Ranking



3

Argentina

Australia

Belgium

Brazil

Cameroon

Canada



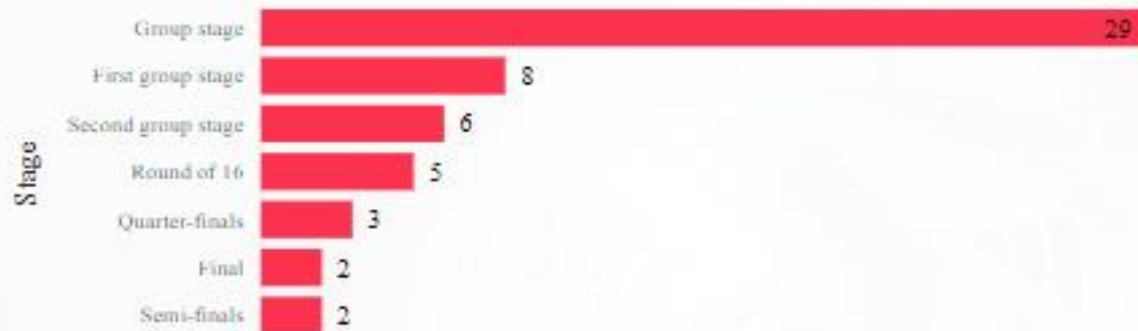
929

Int Total Matches for te...

22

Int Tournaments Count

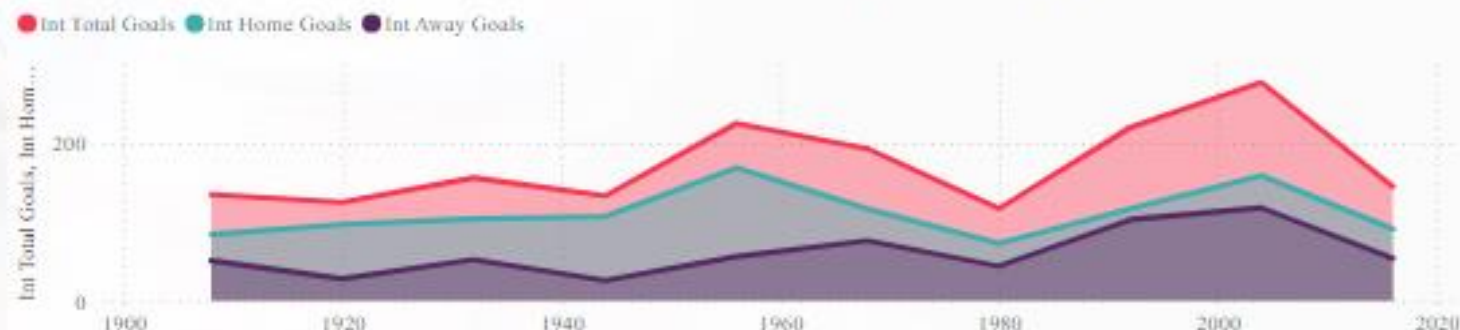
World Cup Matches by Stage and (Home & Away)



International Matches Count by Tournament



International Goals Scored by Home and Away over years



Playing Force



PLAYING FORCE

Argentina

Australia

Belgium

Brazil

Cameroon

Canada

27.92

2022 Players Age AVG

26

2022 Total Players Count

6.31

Goals AVG per Player

34.12

Caps AVG

0.31

WC Goals AVG per Player

18

Clubs Count

Count of ID by Position



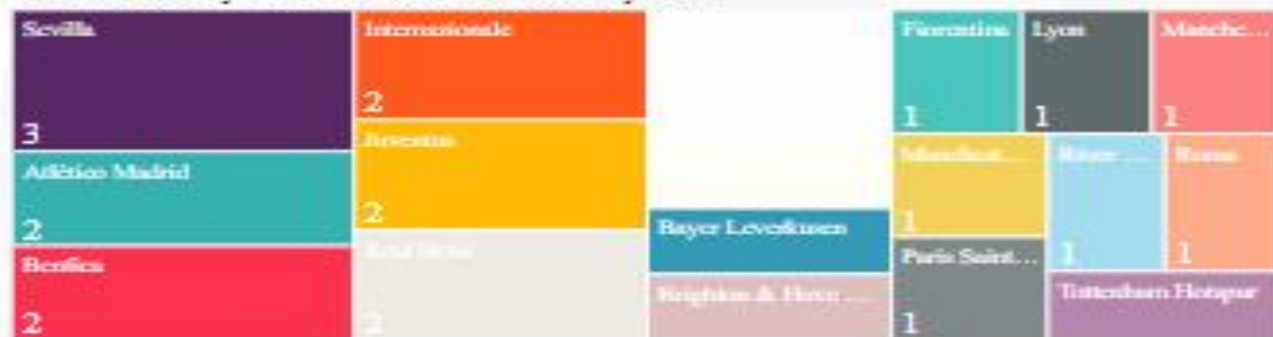
Age AVG by Position



Players Count by status



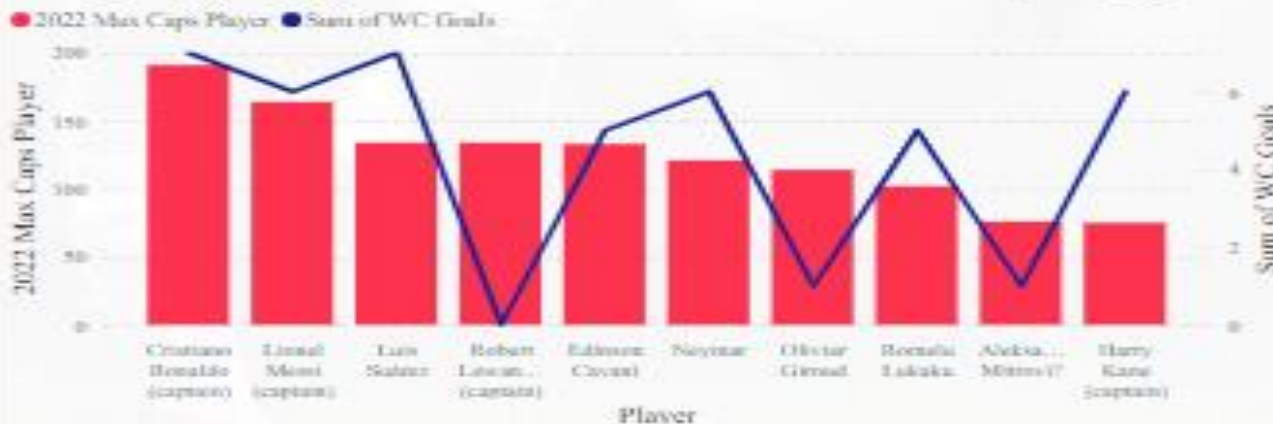
2022 Total Players Count and First URL by Club



Top Players by Number of Goals



Top 10 players played matches with national team and their corresponding goals





Top Performers

A few countries, including Brazil, Germany, and Italy, dominate the World Cup in terms of wins and overall performance. These countries consistently reach the advanced stages of the tournament, demonstrating that a combination of player experience, team cohesion, and preparation leads to success.



FIFA Ranking and Success

There is a moderate correlation between a country's FIFA ranking and its success in the World Cup. Top-ranked teams generally perform better, but there are occasional surprises where lower-ranked teams outperform expectations, highlighting the unpredictability of tournament play.



Average Age of Players

Teams with a balanced mix of youth and experience tend to perform better. Younger players bring energy and stamina, while older, more experienced players offer strategic thinking and leadership, particularly in knockout stages.



Domestic Leagues and Player Performance

Players from stronger domestic leagues tend to perform better in international tournaments. Teams with a higher concentration of players from top-tier clubs (like those in Europe) tend to advance further in the tournament due to better preparation and exposure to high-level competition.



Group Stage Performance

Teams that perform well in the group stage tend to carry their momentum into the knockout rounds. Consistency in the early stages is a strong indicator of success in the later stages of the tournament.



Loyal and Experienced Players

Teams that rely on players who have participated in multiple World Cups (loyal players) tend to perform better, as these players bring invaluable experience and composure to high-pressure matches.



insights

Analyze



Recommendations & Call to Action



- **Maintain a Balanced Team:** Successful teams combine young talent with experienced veterans. **Actionable Step:** National teams should aim to scout a balance of promising young players and experienced leaders to maintain this dynamic.
- **Strategic Use of Star Players:** Individual brilliance can be the deciding factor in crucial games. **Actionable Step:** Coaches should strategically utilize key players in high-stakes matches, ensuring they are well-rested and physically prepared for knockout games.
- **Develop Domestic Leagues:** Countries should invest in strengthening their domestic leagues, as stronger domestic leagues translate into better international performance. **Actionable Step:** Encourage development programs within domestic leagues to produce well-prepared, high-quality players for the national team.





Recommendations & Call to Action

- **Capitalize on FIFA Ranking Momentum:** Teams ranked highly by FIFA should use this as motivation and confidence going into the tournament.
Actionable Step: National teams should plan and execute their strategies with the knowledge that they are among the favorites, reinforcing team confidence.
- **Focus on Group Stage Performance:** Success in the group stage is crucial for later success in the tournament.
Actionable Step: Teams should treat group-stage matches with equal importance to knockout matches and aim for consistent performances throughout the tournament.
- **Retain Experienced Players:** Having players who have participated in multiple World Cups is a huge advantage.
Actionable Step: Ensure veteran players are retained in the squad for their leadership and experience, even if their role on the field is reduced.





Power BI Limitations

- One limitation we faced with Power BI was the inability to edit the dashboard collaboratively in real-time since each team member was from a different organization. While this enhances data security, it made collaboration challenging, requiring manual file sharing and slowing down the workflow.



*Thank
you!*

Any Questions?

2024 OCT

Microsoft power bi engineering team
Under Supervision of Eng/ Amira Shahin