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*Data Analytics Final Project*

**CR7**

**A COMPREHENSIVE ANALYSIS OF CRISTIANO  
RONALDO'S GOAL-SCORING CAREER**

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# PROJECT OVERVIEW

This project provides a full analytics-driven breakdown of Cristiano Ronaldo's **goal-scoring career**, combining multiple data sources into a validated and enriched dataset covering 954 official goals across clubs and the Portuguese National Team.

## MOTIVATION & OBJECTIVES

Our aim was to go beyond commonly available statistics and rebuild CR7's scoring history through a **clean, transparent, and fully traceable data pipeline**.

By combining Python, Power Query, and Power BI, we transformed fragmented datasets into a **unified analytical model** that captures his evolution, efficiency, and performance across competitions and stages of his career.



### **Build a Complete & Accurate Dataset**

Reconstruct CR7's full goal history by merging the Kaggle dataset with manually validated updates: missing goals, competition corrections, match dates, and the latest goals up to 23 November 2025.



### **Explore Career-Long Performance Patterns**

Analyze how Ronaldo's goals distribute across clubs, competitions, and seasons, including age at each goal, scoring streaks, and efficiency ratios such as "matches with goals vs. total matches".



### **Create Interactive Dashboards for Insights**

Develop Power BI dashboards embedded in PowerPoint, enabling the audience to explore trends, compare clubs, filter competitions, and interact with detailed statistics across Ronaldo's entire career.

# DATA SOURCES **FEATURE OVERVIEW**

Our analysis combines multiple verified sources to rebuild Cristiano Ronaldo's complete goal history with accuracy and transparency.



## **Kaggle Base Dataset**

Initial dataset containing 710 official goals, used as the foundation for cleaning, structuring and validating all records.



## **Manual Goal Additions**

Enrichment of missing goals across seasons, including competitions not listed in the original Kaggle file.



## **Latest Goal Updates**

Added all goals up to 23/11/2025, including the most recent bicycle kick and additional Al-Nassr records (UAFA).



## **National Team Data**

Integrated Portugal National Team goals to complete the official tally across all competitions.



## **Injury Data**

Standardized injury dates, durations and recovery details for reliable performance impact analysis.



## **Discrepancy Resolution**

Reconciled differences between public stats and raw dataset values — expanding the total from 710 → 954 goals after full data validation.

# DATA ENGINEERING PROCESS



## STEP ONE

### Python Data Cleaning

Handling missing values

Standardizing columns

Merging datasets

Matching goal dates & competitions

01

CR7 Last Checkpoint: 2 minutes ago

Run Kernel Settings Help

Code

JupyterLab Python [conda env:base]

```
Goals_Opponent"] = df["Result_clean"].str.split(":").str[1]
```

```
verter para número inteiro
```

```
Goals_Opponent"] = df["Goals_Opponent"].astype(int)
```

```
head()
```

Season	Competition	Matchday	Date	Venue	Club	Opponent	Result	Playing_Position	Minute	Type	Goal_assist	Category	Org
02/03	Liga Portugal	6	10-07-02	H	Sporting CP	Moreirense FC	3:00	LW	34	Solo run	NaN	National Leagues	Portu Fo
02/03	Liga Portugal	6	10-07-02	H	Sporting CP	Moreirense FC	3:00	LW	90+5	Header	Rui Jorge	National Leagues	Portu Fo
02/03	Liga Portugal	8	10/26/02	A	Sporting CP	Boavista FC	1:02	NaN	88	Right-footed shot	Carlos Martins	National Leagues	Portu Fo
02/03	Taca de Portugal Placard	Round 4	11/24/02	H	Sporting CP	CD Estarreja	4:01	NaN	67	Left-footed shot	Cesar Prates	National Cups	Portu Fo
02/03	Taca de Portugal Placard	Round 5	12/18/02	H	Sporting CP	FC Oliveira do Hospital	8:01	NaN	13	NaN	NaN	National Cups	Portu Fo

# DATA ENGINEERING PROCESS



## STEP TWO



### Data Transformation in Power Query

- Importing & shaping
- Removing duplicates
- Standardizing competition names
- Normalizing clubs over years



## STEP THREE

### Final Data Model

- Date dimension
- Clubs dimension
- Matches table
- Goals table
- Relationships diagram



# CLUBS OVERVIEW

01

## Goal Distribution

- Strongest scoring share in the Spanish league
- High consistency across multiple competitions
- Significant impact in Champions League performance

02

## Club Performance

- Highest goal tally achieved at the second club
- Solid contribution at all clubs with decisive goals in key matches
- Proven adaptability across different leagues and playing styles

03

## Scoring Profile

- Peaks in scoring frequency between ages 24–29
- Majority of goals scored at home venues
- Most goals increase or secure the team's lead



TOTAL  
GOALS

811

TOTAL  
GAMES

1016

AVERAGE  
FIRST GOAL

45 min

DECISIVE  
GOALS

38,6%

GOALS/  
GAME

0,80

National  
Team

Career

Goals  
Forecast

Sporting CP

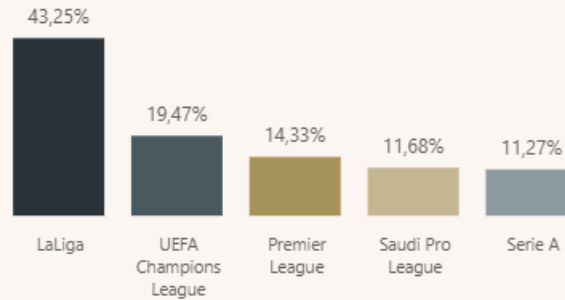
Real Madrid

Manchester United

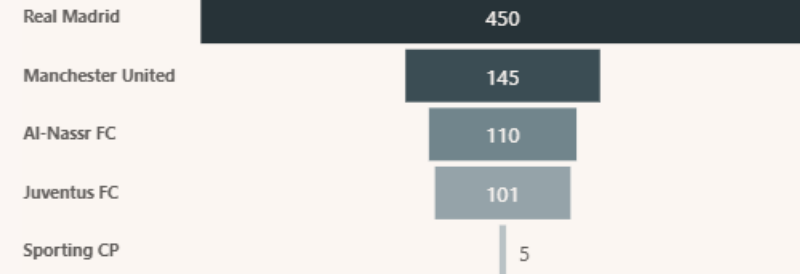
Juventus FC

Al-Nassr FC

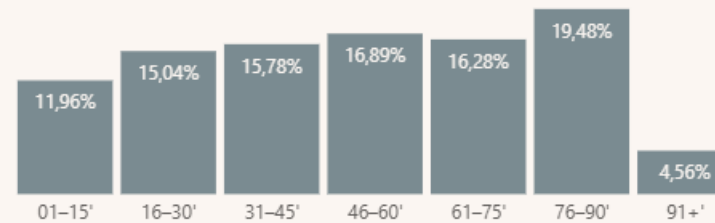
TOTAL GOALS (%) VS COMPETITION



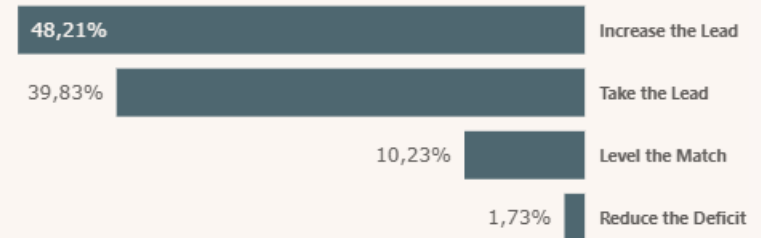
GOALS PER CLUB



GOAL TIMMING

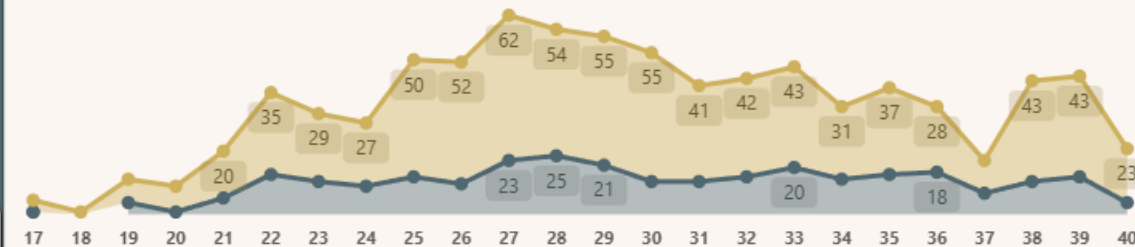


GOALS IMPACT ON GAME SCORE

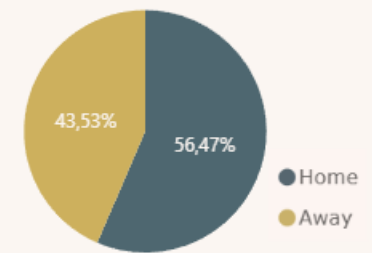


GOALS BY AGE

● Decisive Goals ● Total Club Goals



GOALS BY VENUE



# NATIONAL TEAM OVERVIEW

01

## Goal Volume

- 143 total goals across 226 matches
- Average of 0.63 goals per match

02

## Goal Distribution by Competition

- Highest goal share from European Championship (37.06%)
- Significant contributions from World Cup (34.97%)
- Goals from Friendly Matches and Nations League among other competitions

03

## Goal Scoring Positions

- Predominantly scores from CF (59.45%)
- Significant scoring contributions from RW and LW positions





TOTAL  
GOALS

143

TOTAL  
GAMES

226

GOALS /  
SCORING GAME

1,52

GOALS/  
GAME

0,63

Club

Career

Goals  
Forecast

Confederations Cup

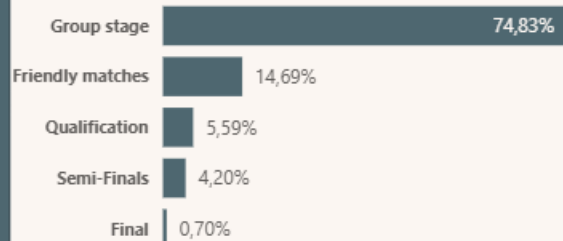
European Championship

Friendly Matches

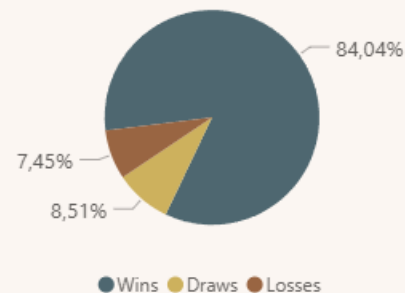
Nations League

World Cup

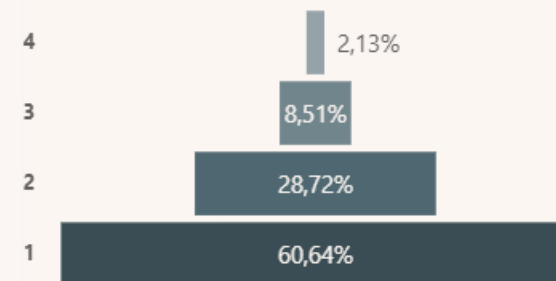
% GOALS BY MATCH TYPES



MATCH RESULTS (%)

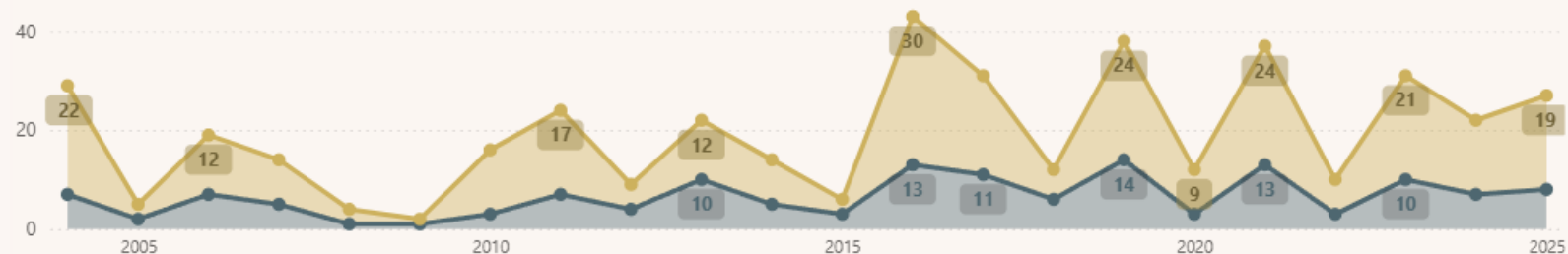


% OF MATCHES BY GOALS SCORED

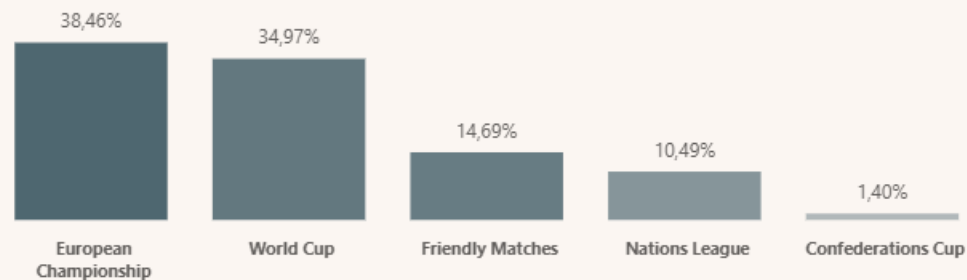


GOALS BY YEAR

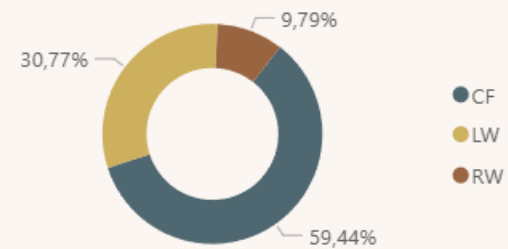
Goals Team Goals



% GOALS BY COMPETITION



GOALS BY PLAY POSITION



# CAREER OVERVIEW

01

## Career Volume

- 954 total goals across 1242 matches
- 642 games with goals scored
- Career average of 0.77 goals per match

02

## Seasonal Consistency

- Sustained goal production from early career (<20) through late 30s
- Peak seasons exceeding 50+ goals
- Maintained double-digit goals for nearly all seasons

03

## Longevity & Projection

- Clear upward career curve toward the 1000-goal milestone
- Long-term productivity with minimal decline over time
- Strong performance forecast into late-career seasons

# CAREER OVERVIEW

04

## Goals vs. Injuries Profile

- More than 0.8 goals/game from ages 20 to 35
- Multiple age peaks above 1 goals/game
- Injuries present but generally not performance-limiting

05

## Tactical Role

- Versatile positioning: primarily center forward, with significant impact as left winger
- Effective across multiple tactical systems
- Goal contribution unaffected by positional shifts



TOTAL GOALS

954

TOTAL GAMES

1242

SCORING GAMES

642

GOALS/GAME

0,77

COMPETITIONS

27

FOOTBALL CLUBS

5

Club

National Team

Goals Forecast

<20

20-24

25-29

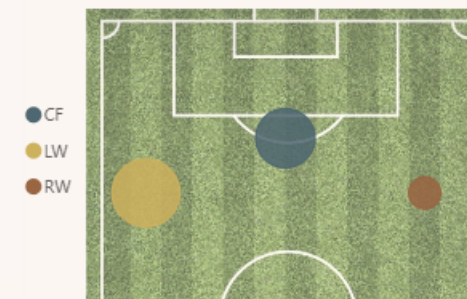
30-34

35-40

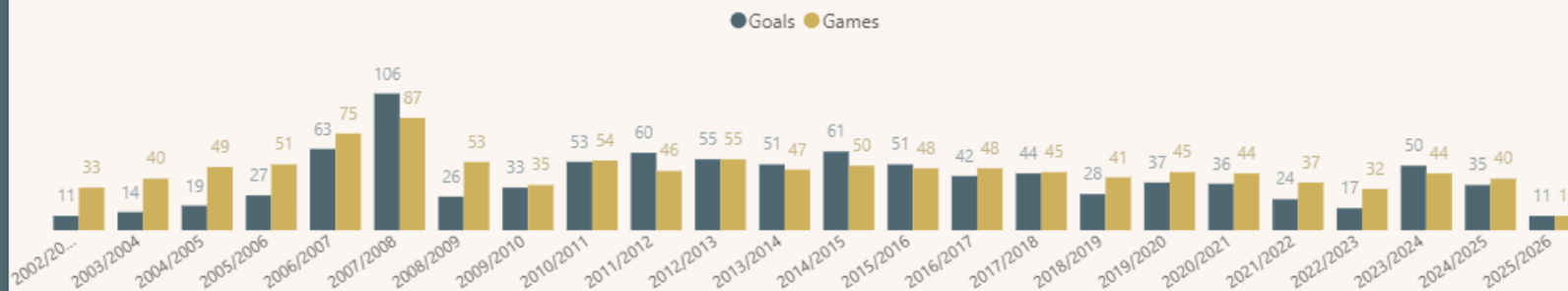
TOTAL GAMES BY COMPETITION



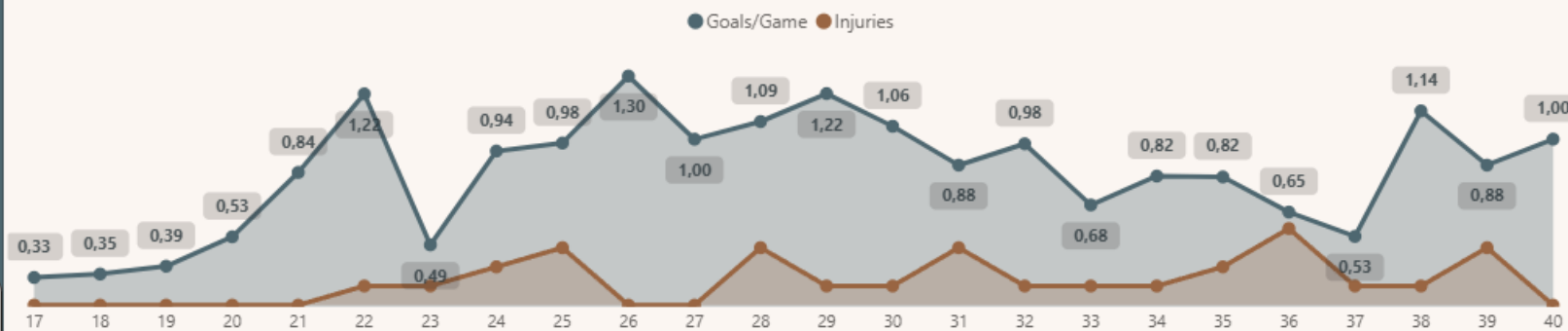
PLAY POSITION



GOALS AND GAMES BY SEASON



GOALS/GAME VS INJURIES BY AGE



# 1K GOALS FORECAST

$$EM = \frac{1.000 - CG}{GpM} = \frac{1.000 - 954}{0,77} \approx 60$$

*EM* → Expected Matches

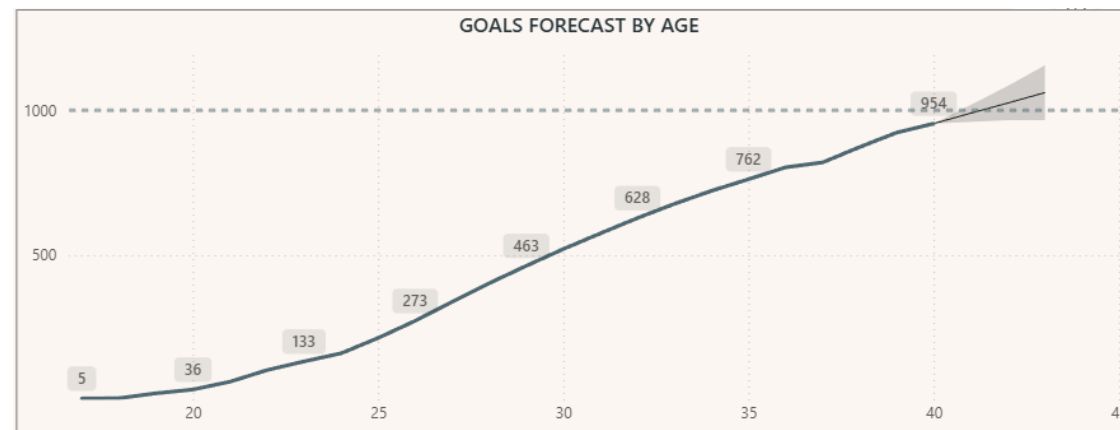
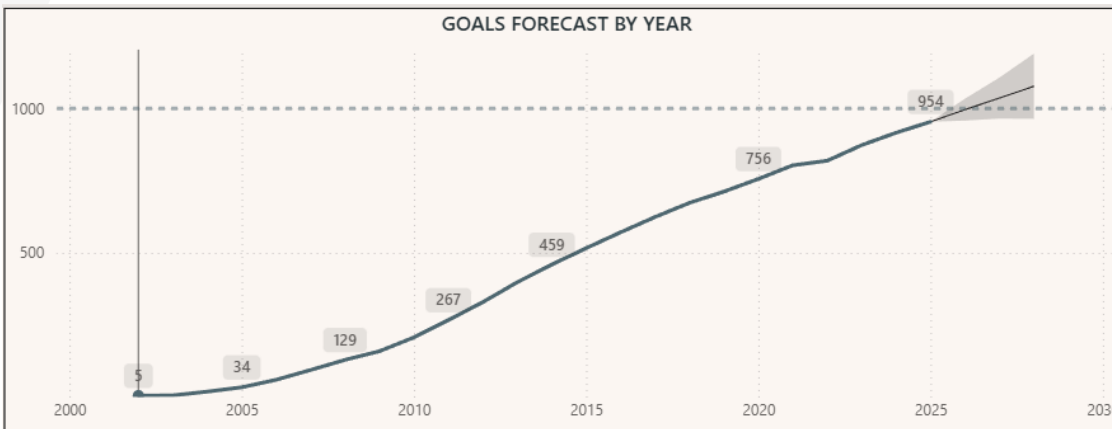
*CG* → Current Goals

*GpM* → Goals per Match

Year  
2026

Age  
41

Games  
60



# SUMMARY

All insights supported by a clean, structured, enriched, and fully validated dataset.

Data confirms consistency across continents, competitions, and tactical roles.

**954 official goals**

recorded after full data  
cleaning and validation

**Scored across 20+ different competitions**

from domestic leagues to  
international tournaments

**Five clubs + Portugal National Team**

delivering consistently in every  
environment

**Goals scored from age 17 to 40**

showing unmatched career  
longevity

**One of the greatest and longest-lasting goal scorers in football history.**

THANK  
YOU