

DECIMO

A

CALCETTO



INTRODUCTION

What?

A Unified Platform for Amateur Football

Why?

To Solve the most common problem in organising matches: find the Decimo!

How?

Through a distributed, microservice-based application (Frontend, PHP Backend, MySQL) deployed with Docker.

Who?

Connecting three key roles: Players, Team Organizers, and Referees



USER STORIES

to see the complete file [click here](#)



- As a player, I want to filter matches by location, time, and skill level so that I can find a game that suits my preferences
- As a player, I want to search for available matches so that I can find and join a game near me
- As a player, I want to report inappropriate behavior or unfair play so that I can help maintain a fair and safe community

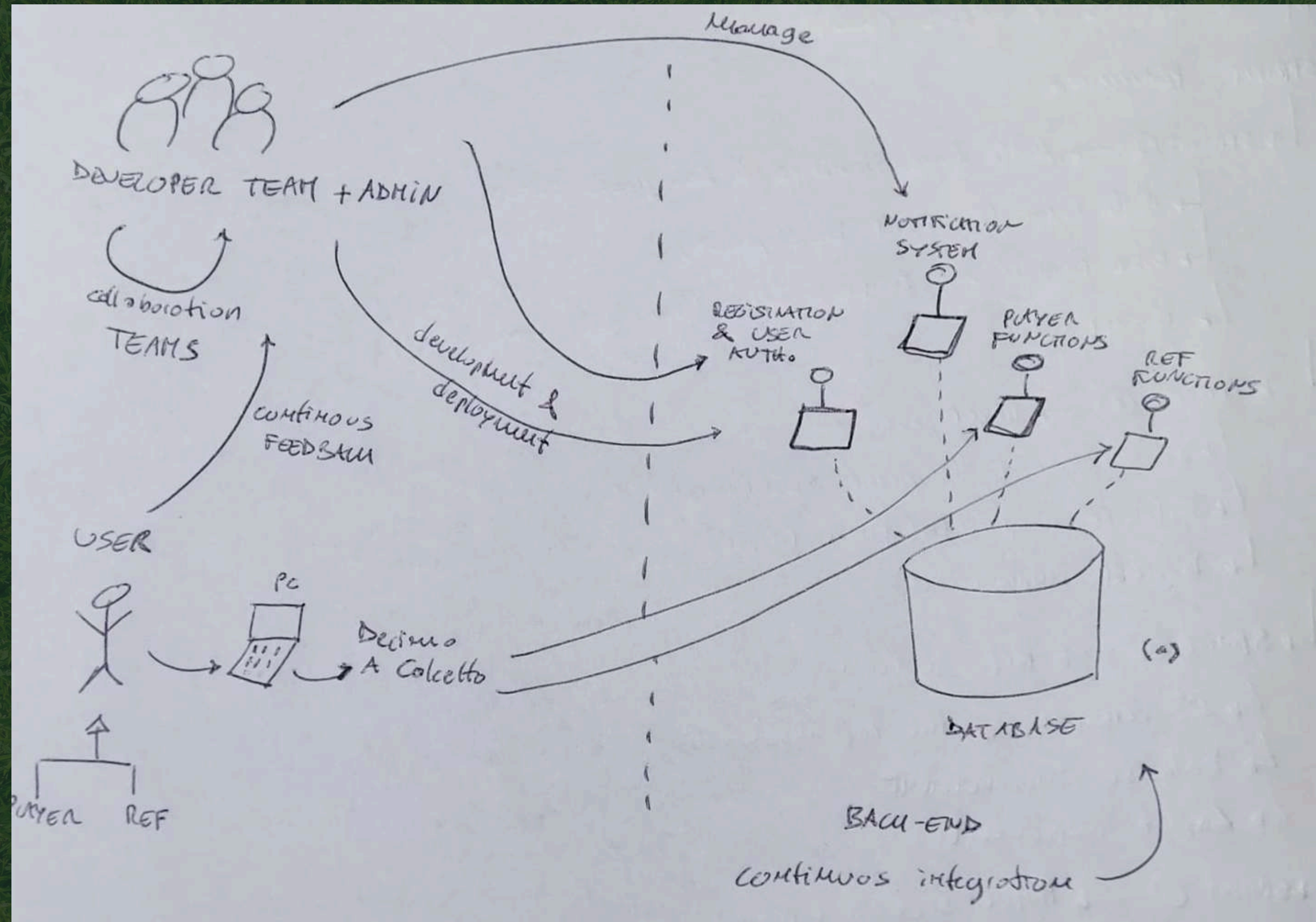


- As a referee, I want to search for matches that need a referee so that I can find games to officiate
- As a referee, I want to update the match results so that players can review scores and outcomes
- As a referee, I want to report rule violations or misconduct so that I can maintain fairness in the game



- As a team organizer, I want to create a match so that I can invite players and set up a game
- As a team organizer, I want to specify the number of players needed so that I can track team composition
- As a team organizer, I want to invite specific players so that I can build a well-balanced team

SOFTWARE ARCHITECTURE



SCRUM

Let's assume a project duration of 3 months (12 weeks) for a total of 6 sprints (2 weeks for each)

1. Authentication functionalities & Background setup

- Authentication form
- Basic layout and runtime setup
- Docker setup

2. Player section

- First version of the player dashboard
- Database implementation
- Docker improvement

3. Referee section

- First version of the referee dashboard
- Database improvement
- Layout improvement

4. Profile section + history

- First profile version
- History section development
- First release of the web app

5. Linking + other useful section

- Add help and FAQ section
- Add link between pages
- Manage the DB access

6. Testing & final version

- Test the web app
- Second and final version of the web app

FUNCTION POINT ANALYSIS

What We Measured – UFP

We analyzed the 22 project User Stories to identify all functional components.

These were classified into 19 total components, grouped into two types:

- **Data Functions:**
 - **ILF** - User Data, Match Data
 - **EIF** - Social Auth Data
- **Transaction Functions:**
 - **EI** - e.g., Create New Match, Update Match Results
 - **EQ** - e.g., Search & Filter Matches, View User Profile
 - **EO** - e.g., Match Notifications & Reminders

Total UFP = 81

How We Adjusted – VAF

We adjusted the raw score by rating the 14 General System Characteristics (GSCs) on a scale of 0 to 5, based on project complexity.

Most Impactful Factors (0-5):

- [5] Online Data Entry
- [4] Distributed Data Processing
- [4] End-User Efficiency
- [4] Data Communications
- [4] Online Update
- [3] - Performance

Total Degree of Influence (TDI) = 44

VAF = $(44 * 0,01) + 0,65 = 1,09$

Final Result

By applying the VAF to the UFP, we obtain the final functional size of the project.

FP = UFP x VAF = 81 x 1,09 = 88,29

COCOMO II: CALCULATION

Estimation



1) Size estimation

- Conversion from FP to SLOC
- HTML/CSS: 55%
- Javascript: 15%
- Dockerfile: 15%
- PHP: 15%

2) Scale factors and Effort Multipliers:

- Factors determine the exponent E
- Multipliers adjust nominal effort based on project characteristics (1.0: nominal value)

3) Effort and Time calculation:

$$PM = A \times \text{Size}^E \times \prod_{i=1}^n EM_i$$

$$TDEV = C \times (PM_{NS})^F \times \frac{SCED}{100}$$

4) Team calculation:

$$\text{Team} = \text{Effort}(PM) / \text{Duration}(TDEV)$$

(Person = Person-months / months)



COCOMO II: RESULTS



Result→ team of 3 developer:

- Effort per person: 2.12 person per month
- Working days per person: 42 working days
- Hours per person: 339 hours

PROTOTYPE

Works like a starting point to
develop application



WORK
DONE ON
BALSAMIQ

The background is a dark green, textured surface resembling grass. A thin white circle is centered on the page, and a thin white horizontal line passes through its center. The text "IT'S TIME TO DEMO!" is written in white, uppercase letters inside the circle.

IT'S TIME
TO
DEMO!

Playing Football is Always
Fun

THANK
YOU

Get In Touch

MANUEL AUDISIO

EDOARDO CAMPANELLA

BRUNO MASCIOTTA

