

DECIMO

A

CALCETTO

INTRODUCTION

What?

A Unified Platform for Amateur Football

Why?

To Solve the most common problem in organasing 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

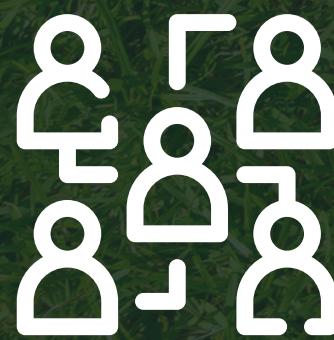
to see the complete file [click here](#)



- 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

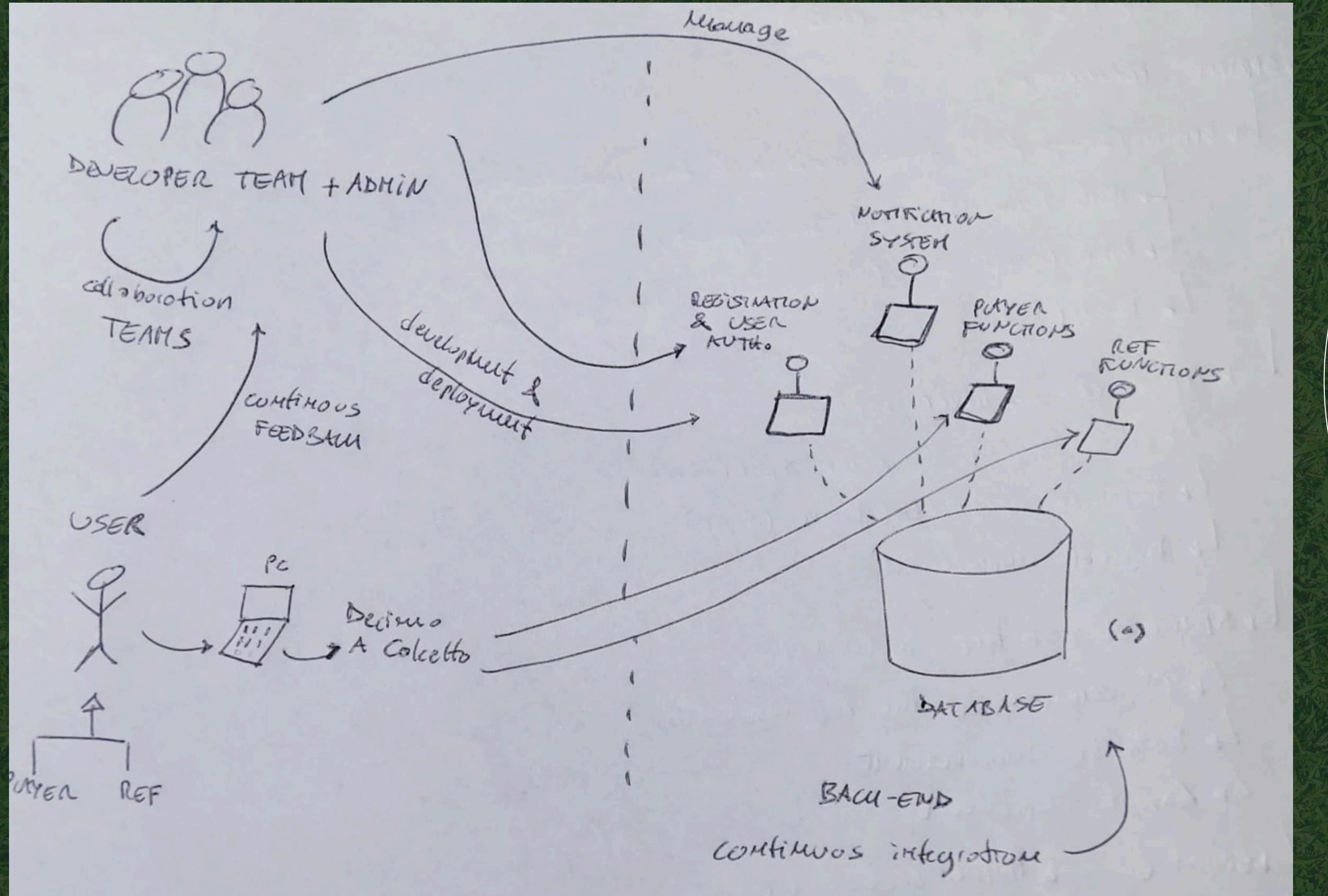


- As a referee, I want to search for matches that need a referee so that I can find games to officiate
- As a referee, I want to update the match results so that players can review scores and outcomes
- As a referee, I want to report rule violations or misconduct so that I can maintain fairness in the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

$$\mathbf{FP = UFP \times VAF = 81 \times 1,09 = 88,29}$$

COCOMO II: CALCULATION

Estimation



1) Size estimation

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

3) Effort and Time calculation:

$$PM = A \times \text{Size}^E \times \prod_{i=1}^n EM_i$$
$$TDEV = C \times (PM_{NS})^F \times \frac{SCED}{100}$$

2) Scale factors and Effort Multipliers:

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

4) Team calculation:

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



COCOMO II: RESULTS



EFFORT (PM)



DURATION (TDEV)



TEAM

Result → team of 3 developer:

- Effort per person: 2.2 person per month
- Working days per person: 44 working days
- Hours per person: 352 hours

PROTOTYPE

Works like a starting point to develop application



WORK
DONE ON
BALSAMIQ



IT'S TIME
TO
DEMO!

Playing Football is Always
Fun

Get In Touch

MANUEL AUDISIO

EDOARDO CAMPANELLA

BRUNO MASCIOTTA

THANK
YOU

