

Groofy Code

Competitive programming platform

Under the supervision of:

- *Dr. Mohamad Abdelwahab*

Agenda

01

Problem Significance

02

Project Idea

03

**Project
Specifications**

04

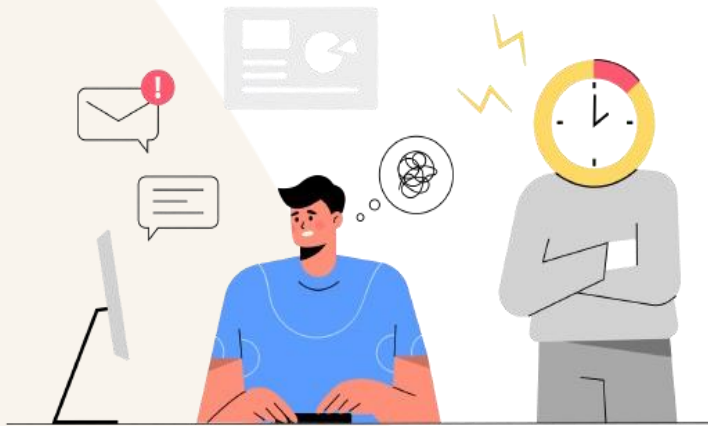
Time Plan

05

Conclusion

Problem Significance

Introduction & Problem Description

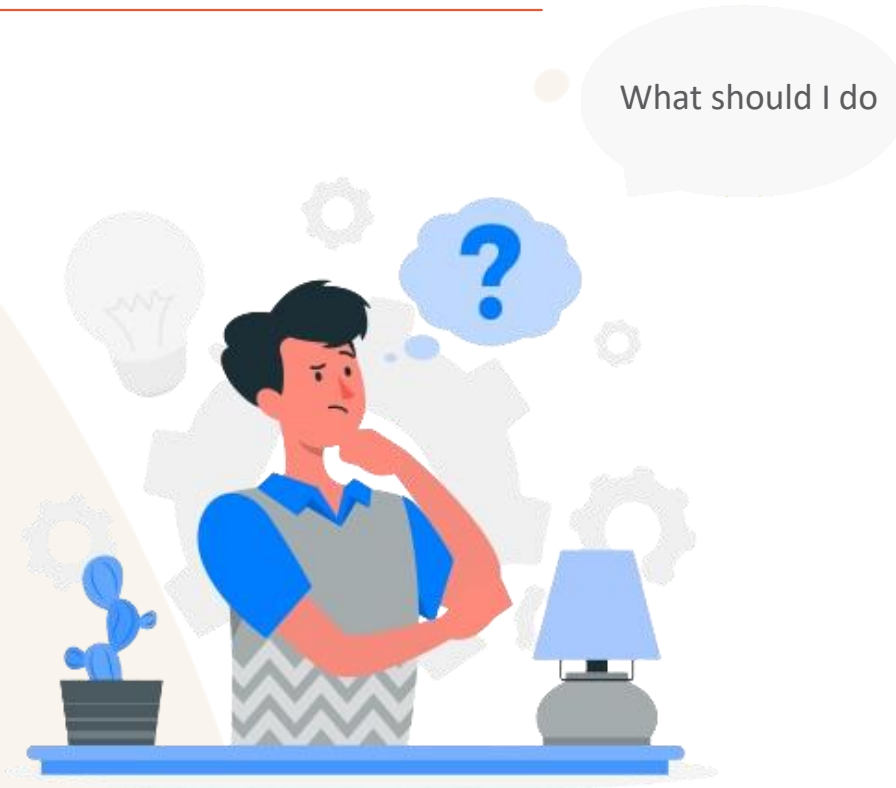


Tasks
→
Deadlines



Why don't I know
how to implement it ?

Thinking of the solution



- 1 Should I solve a lot of problems ?
- 2 Should I solve hard problems ?
- 3 What time should I spend in solving ?
- 4 What about challenging people ?
- 5 Leetcode ? Codeforces ? etc

Motivation

- [Competitive Programming Library](#)
- FCAI-ICPC Community
- Discord Bot Challenging
- Website -> Gaming Platform



Competitive Programming Library

Some materials for competitive programming

Discord Chat Log:

Hazem Adel 05/23/2023 2:55 AM
:gitgud

TLE BOT 05/23/2023 2:55 AM
Challenge problem for Rokba

A. Searching Local Minimum

Codeforces Round 700 (Div. 1)

Rating
1700

Hazem Adel 05/23/2023 3:31 AM
:gotgud

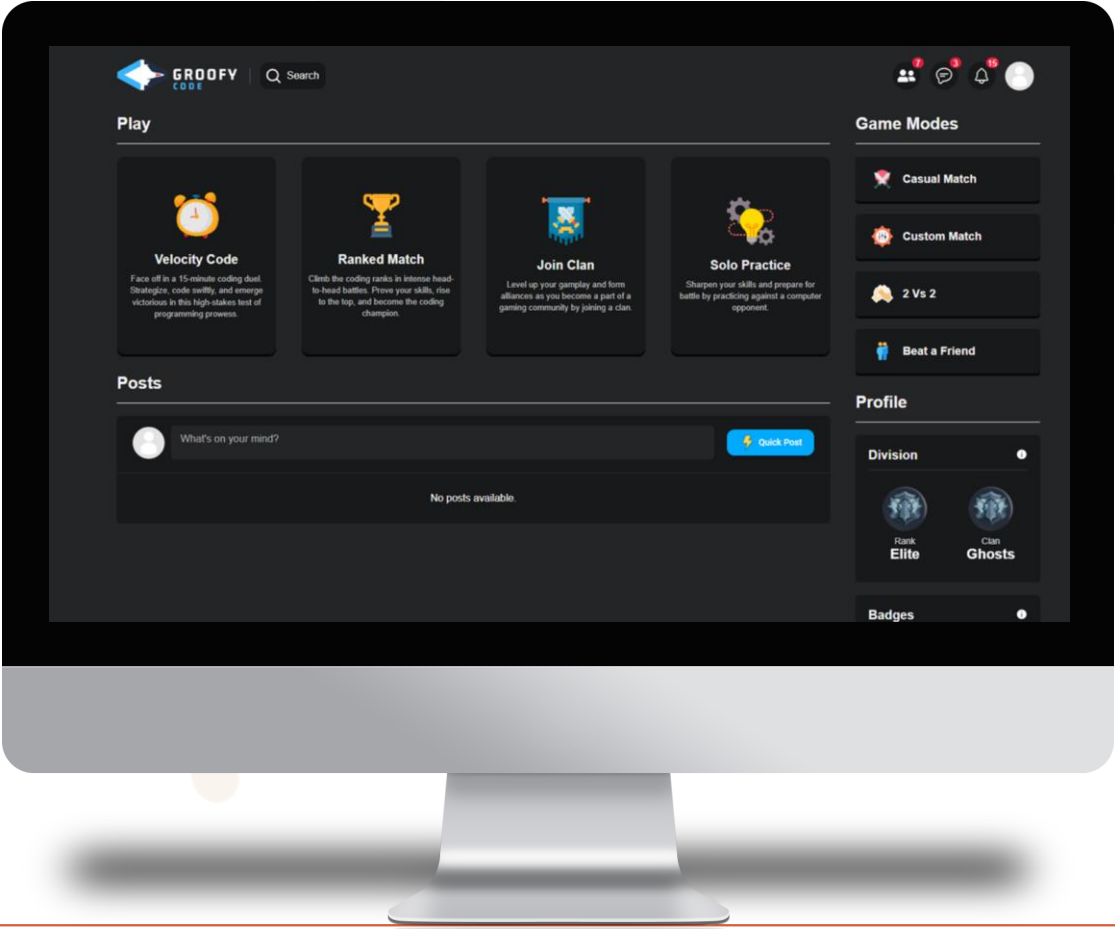
TLE BOT 05/23/2023 3:31 AM
Challenge completed in 36 minutes. Rokba gained 8 points.

SaTafy 06/23/2023 11:05 PM
:gitgudders

TLE BOT 06/23/2023 11:05 PM

#	Name	Handle	Points
0	Beshoy (2076)	Drakkon	780
1	hema (1268)	LABOLABO	767
2	moadel_ (1736)	Dola_	702
3	zeyad_farag (1223)	Zeyad_Farag	689
4	Gondoza (2001)	Gondoza	626
5	Ali_safwat 72 (1285)	Caraxes_	588
6	saTafy (1112)	SaTafy22	551
7	_ahmedsaid (1416)	Makrona	550
8	abdelrhmannezzat (1436)	abdelrhmannezzat	430
9	alaaA (1513)	alaa.A	353

Our Solution: Groofy Code



Project Idea

Highlight Features



1

Challenge Mechanism

2

Comprehensive User System

3

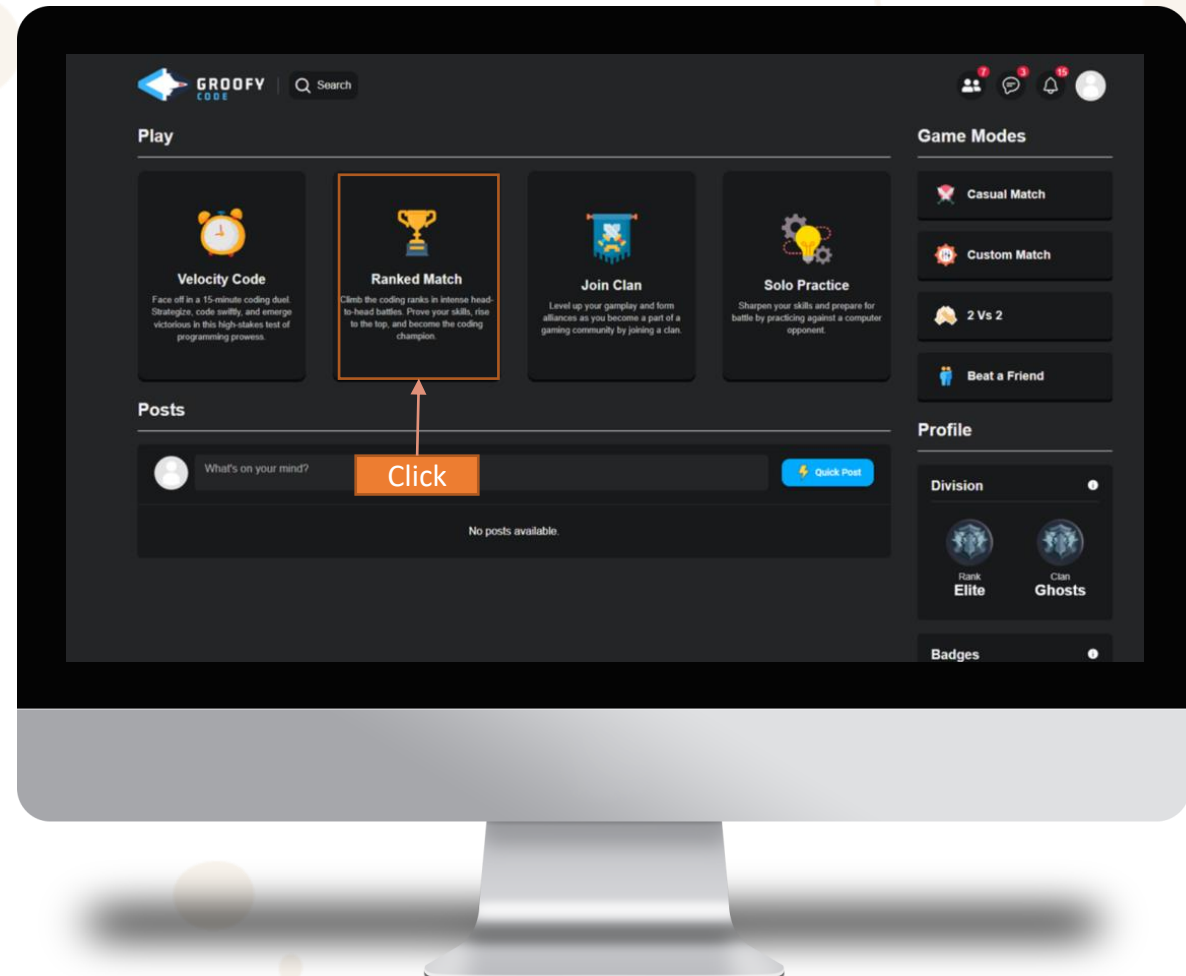
Clan Features

4

Interactive Chat System

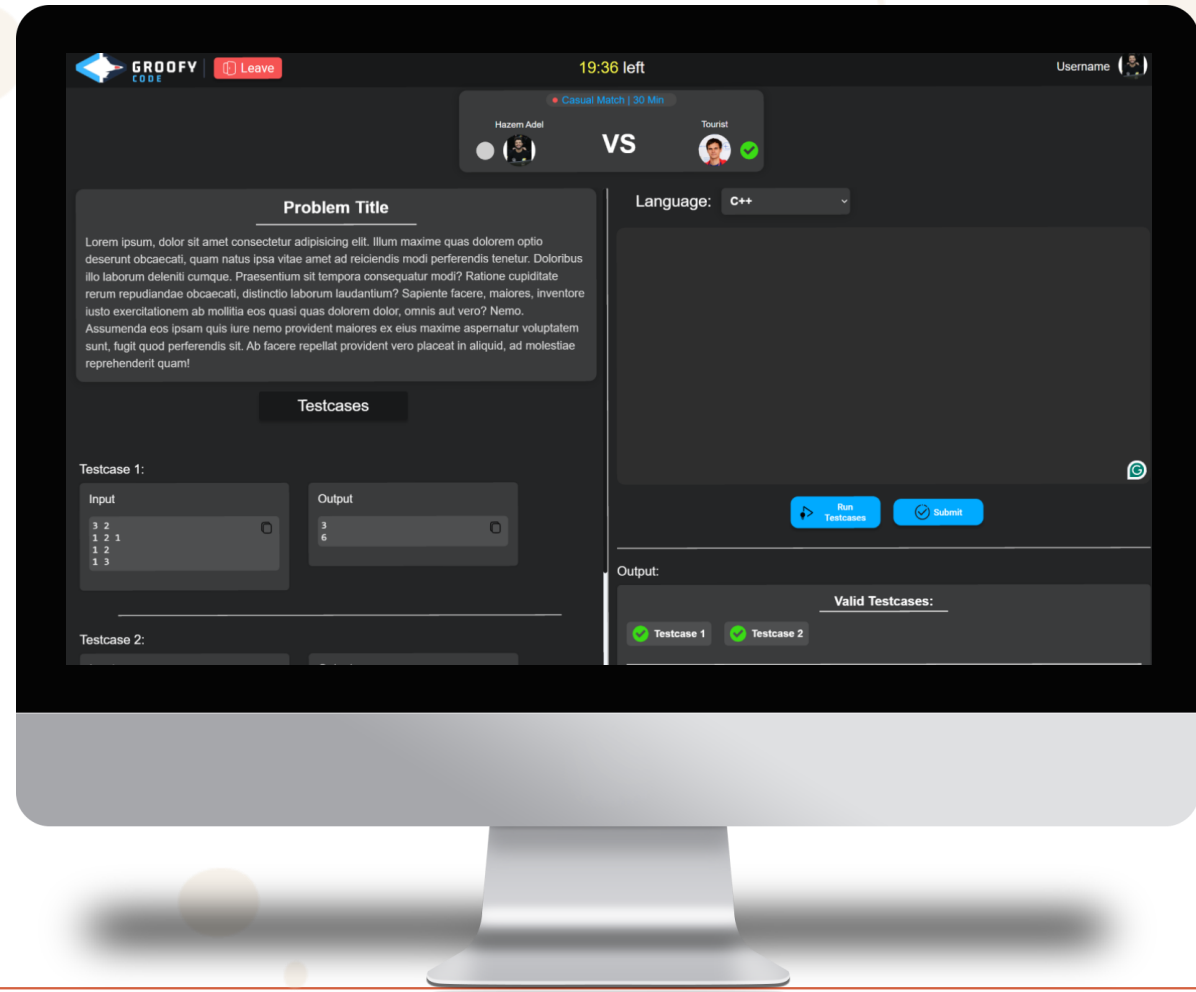
Match Modes

- Various Coding Challenges
- Difficulty Levels



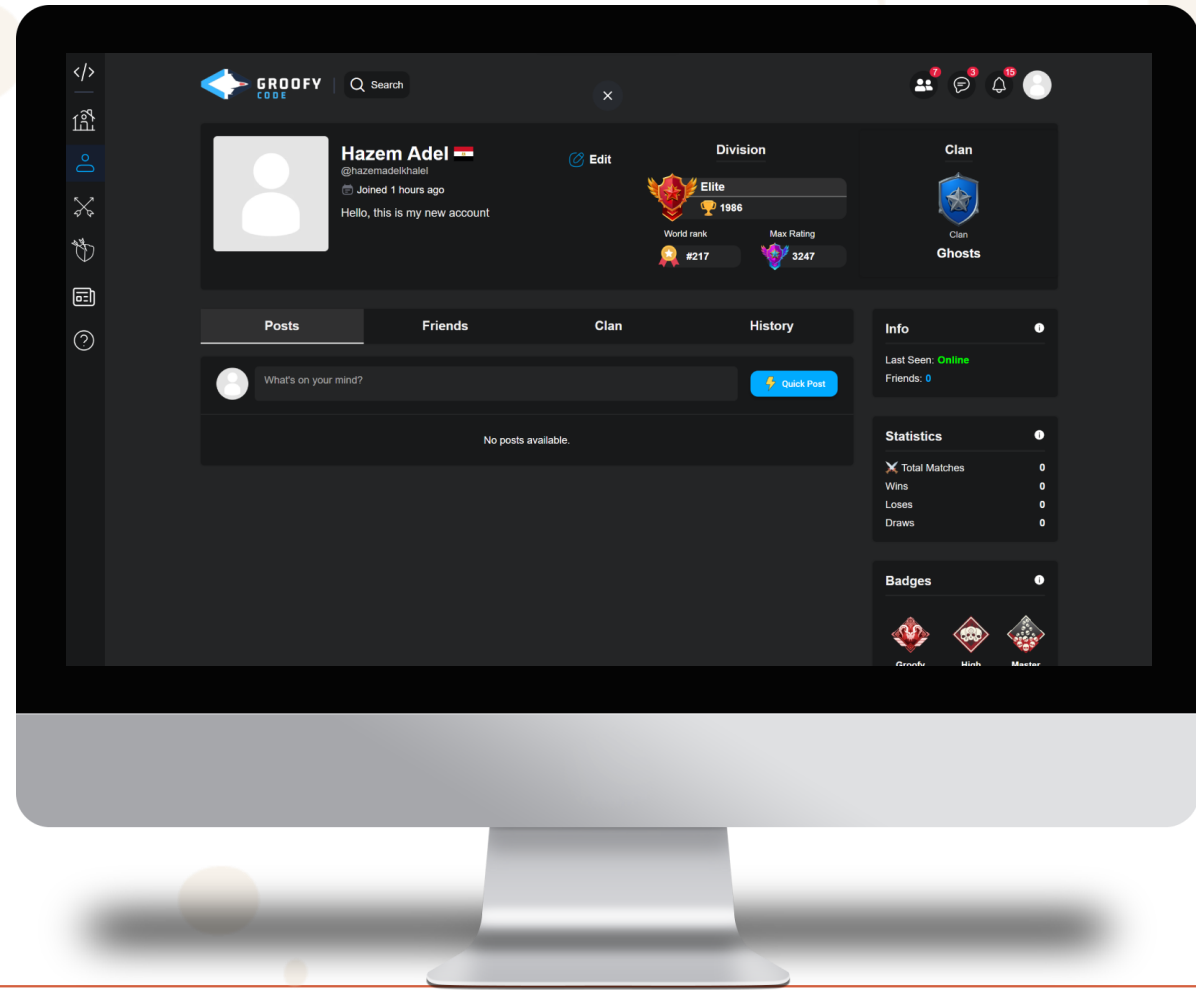
Match Challenge

- Real-time Code Editor
- Submission and Evaluation



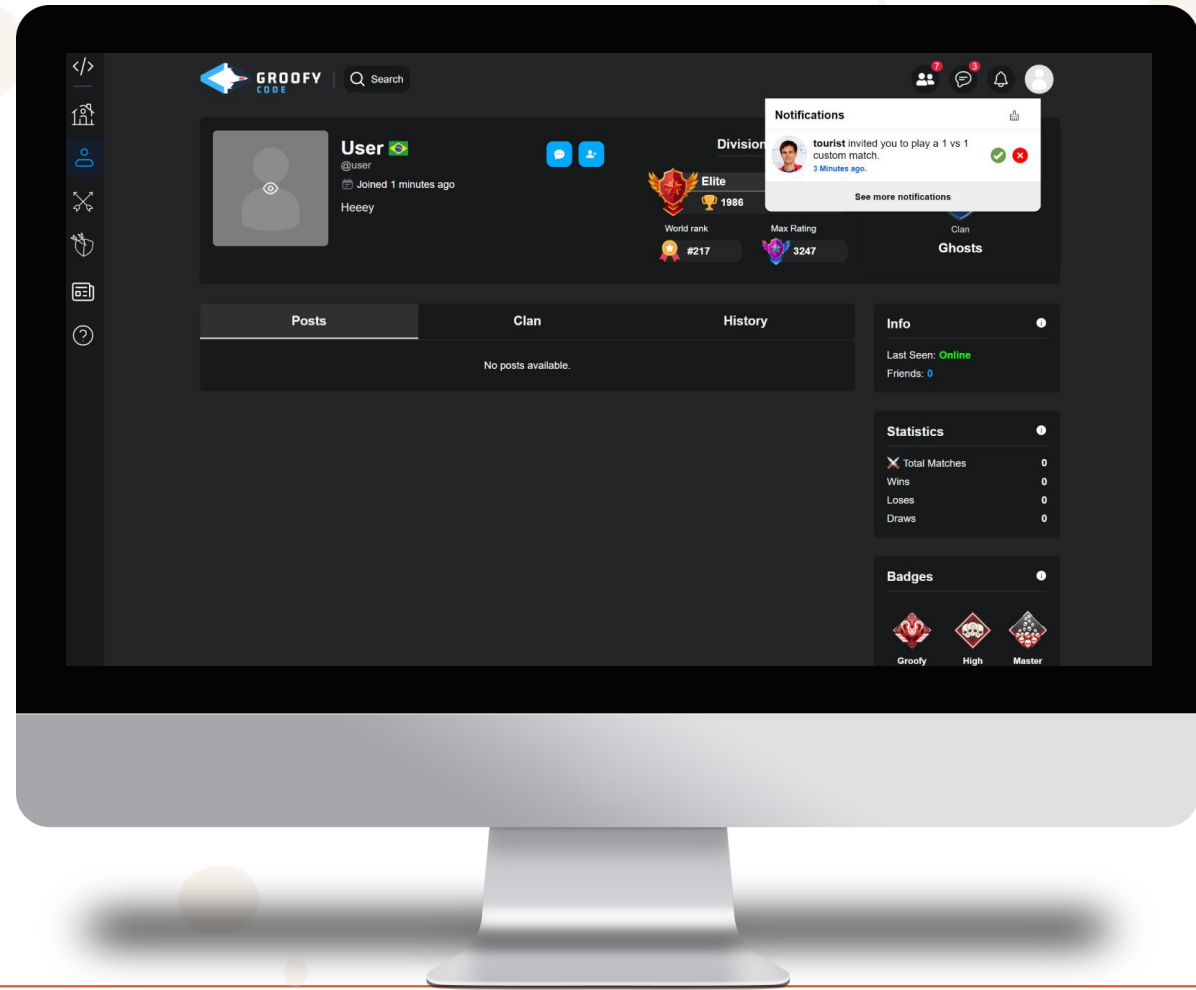
User Profile

- User Registration / Login
- Profile Creation
- Personalized Dashboard
- Insightful User Statistics



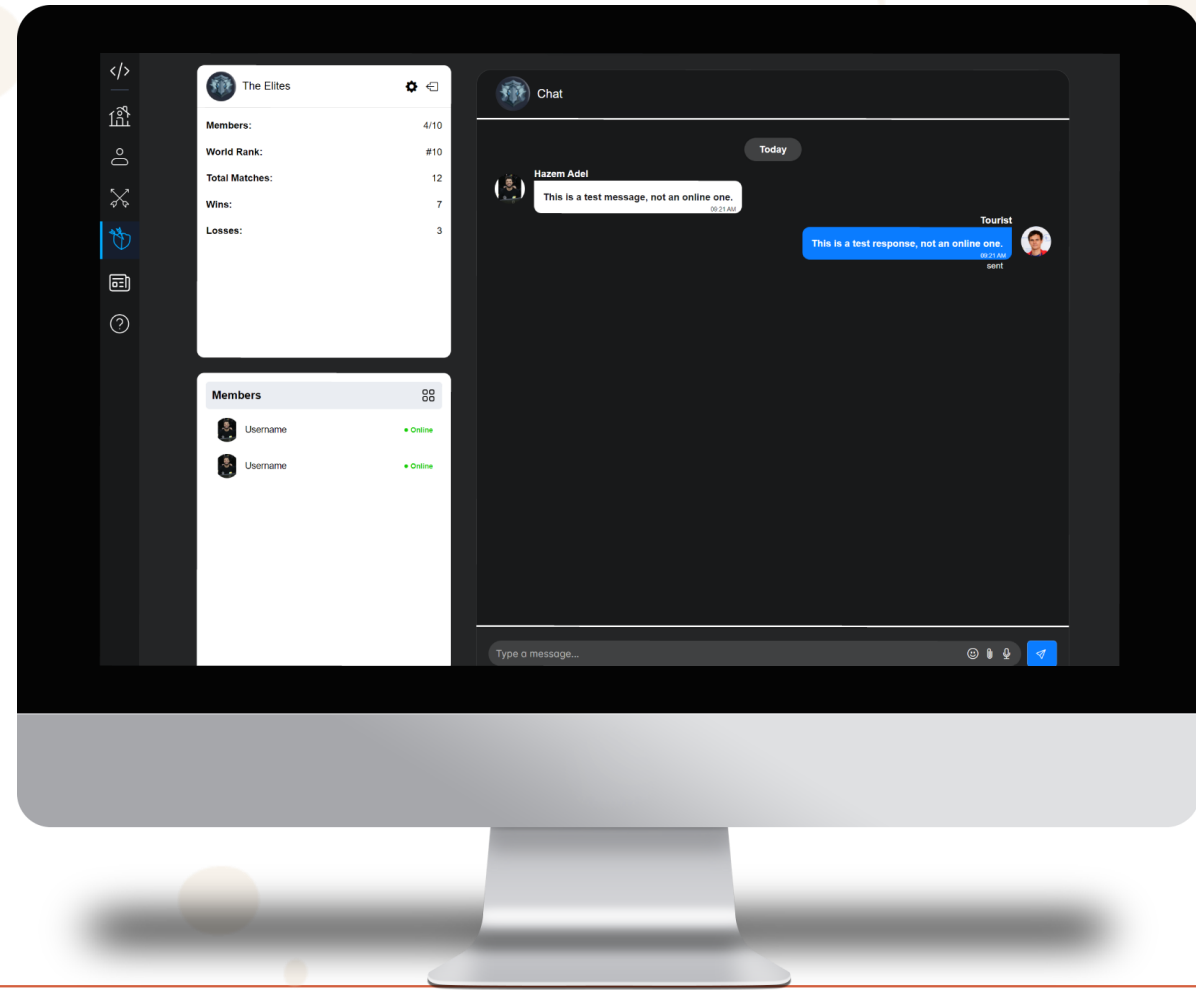
User Interactions

- View users' profile
- Friend Requests
- Notification system
- Invite a Friend to Match/Clan
- Posts



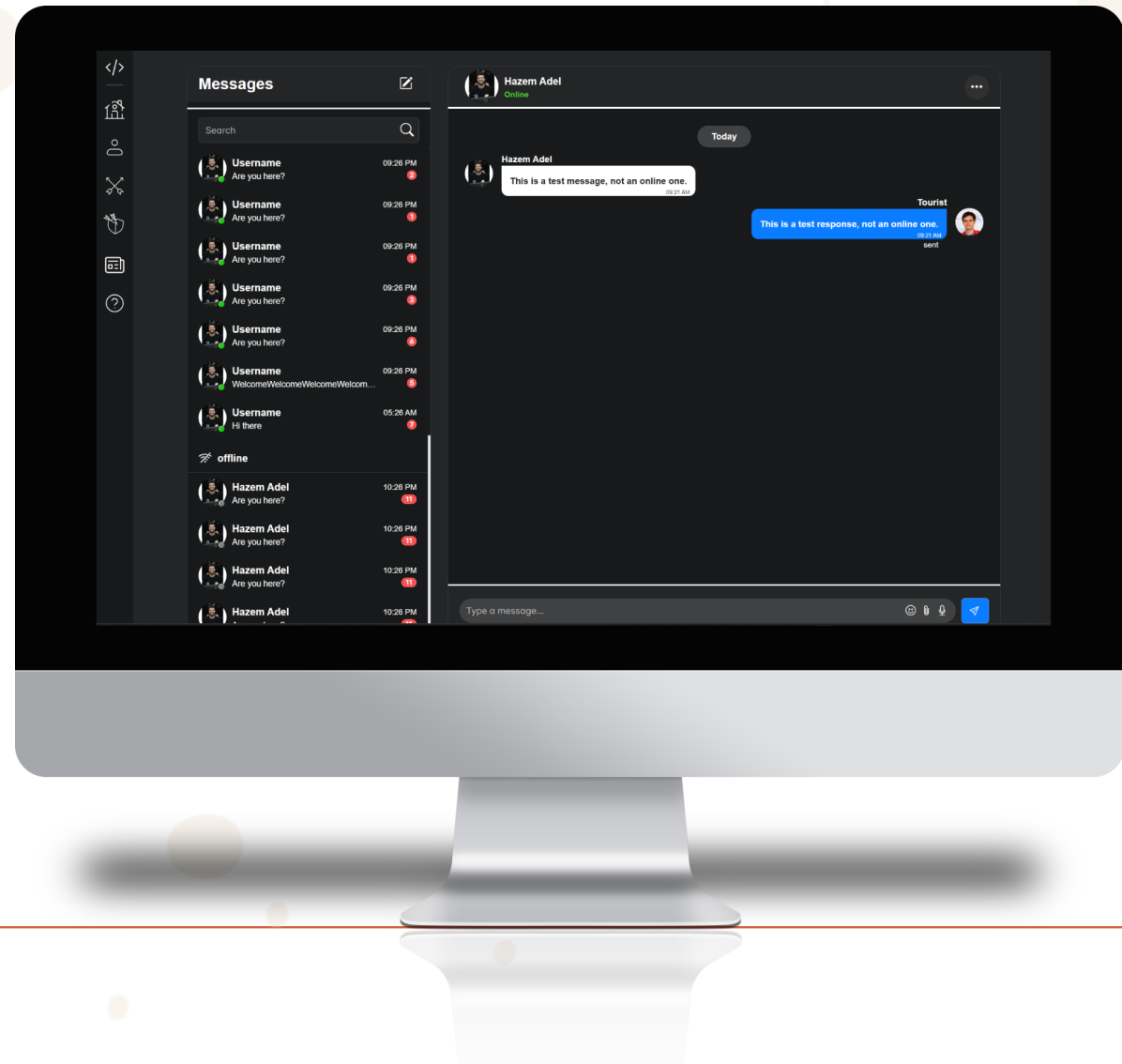
Clan Feature

- Viewing Clan members
- Collaborate with people
- Messaging members
- Play with them

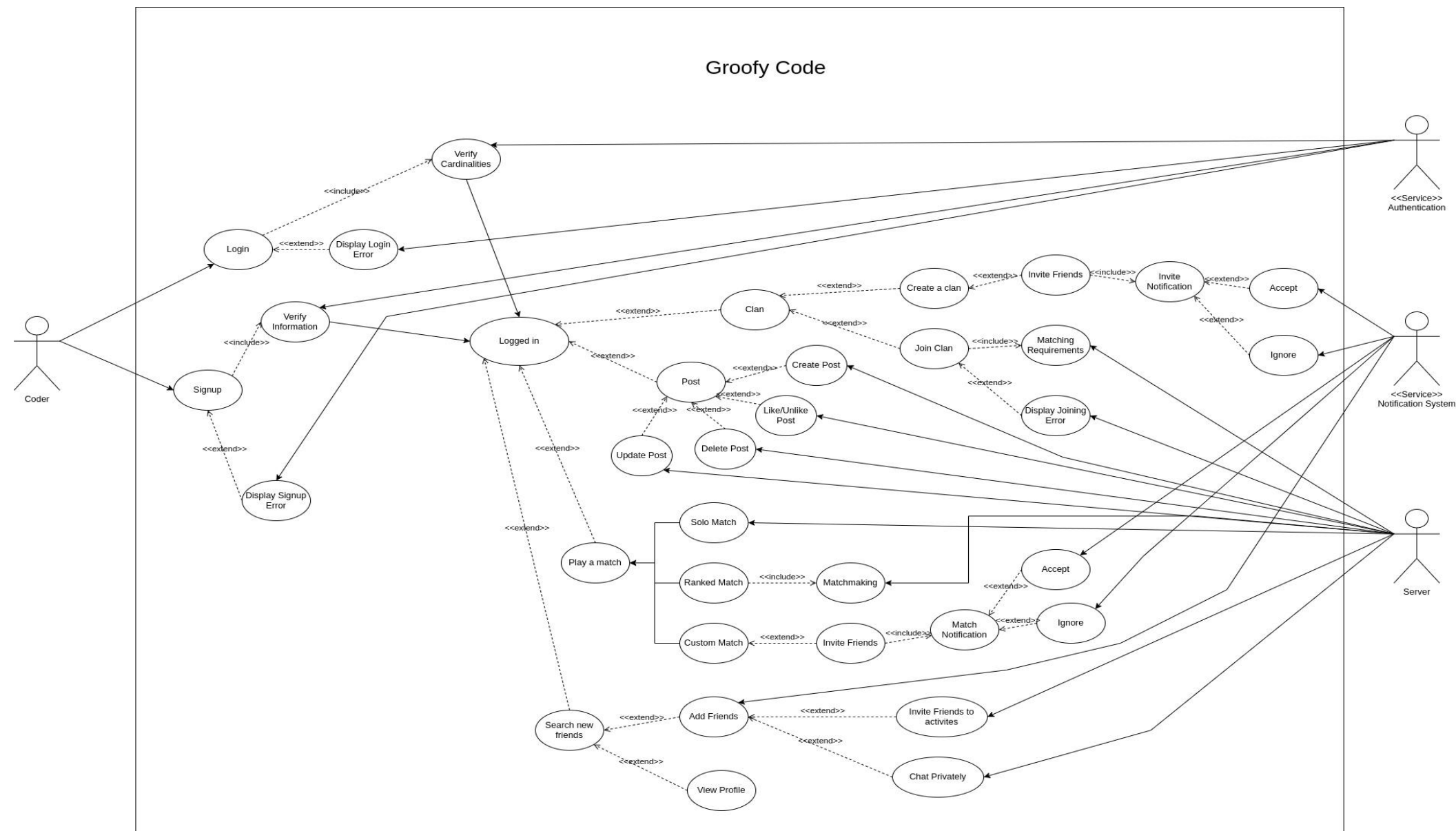


Chat System

- Viewing Friends
- Message a user
- Search for a friend



Use Case Diagram

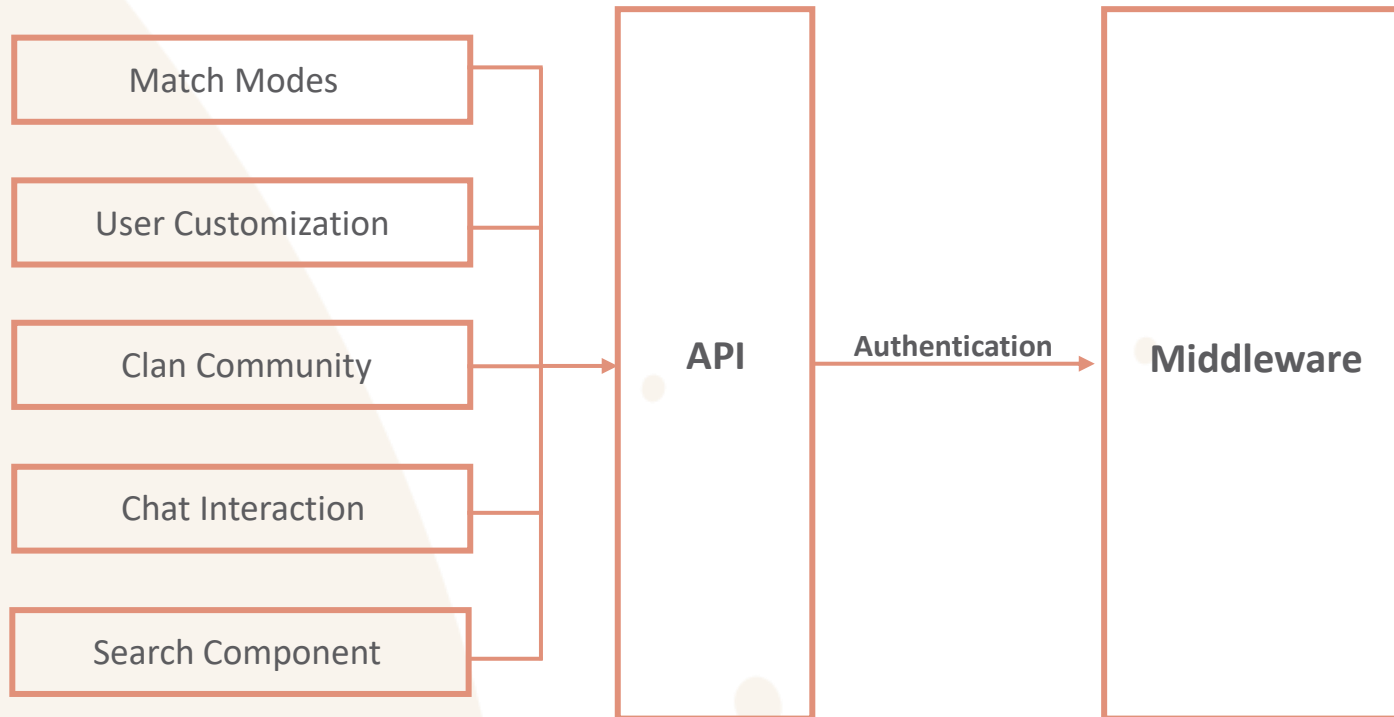




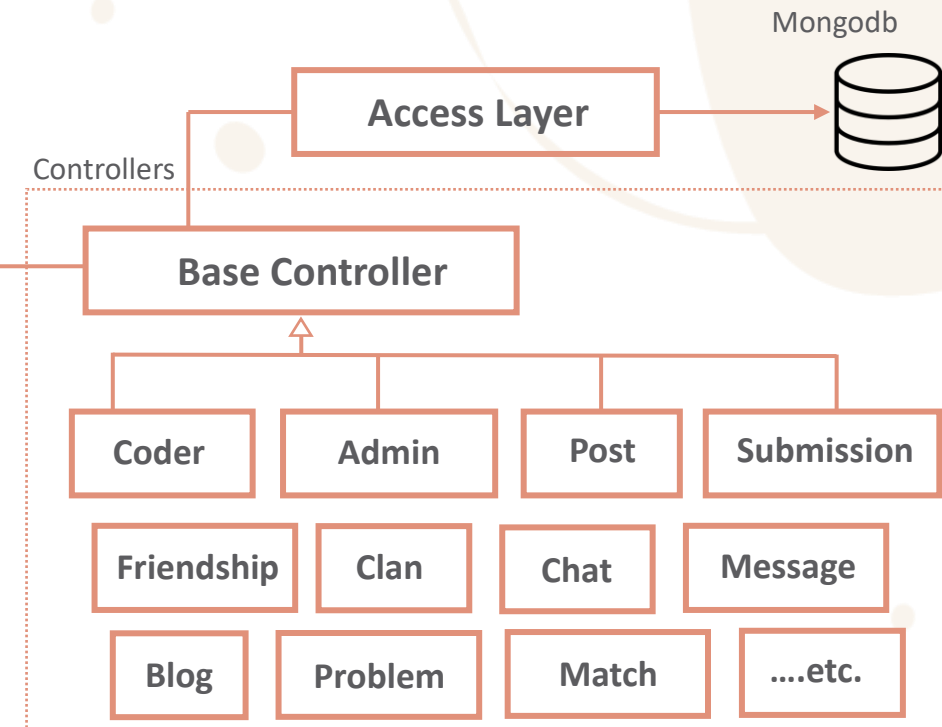
Project Specifications

Architecture

Frontend

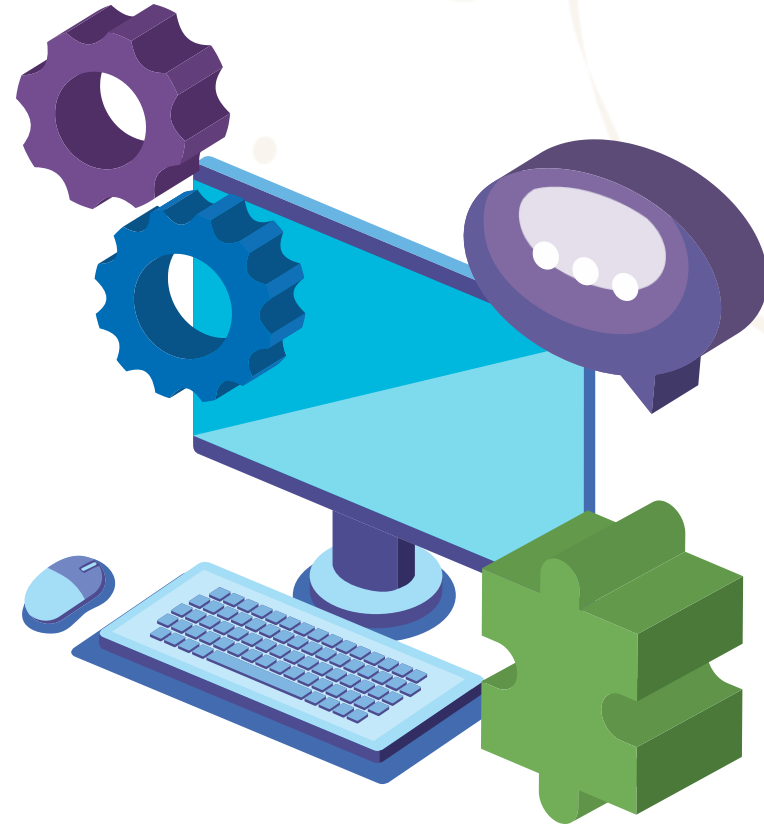


Backend

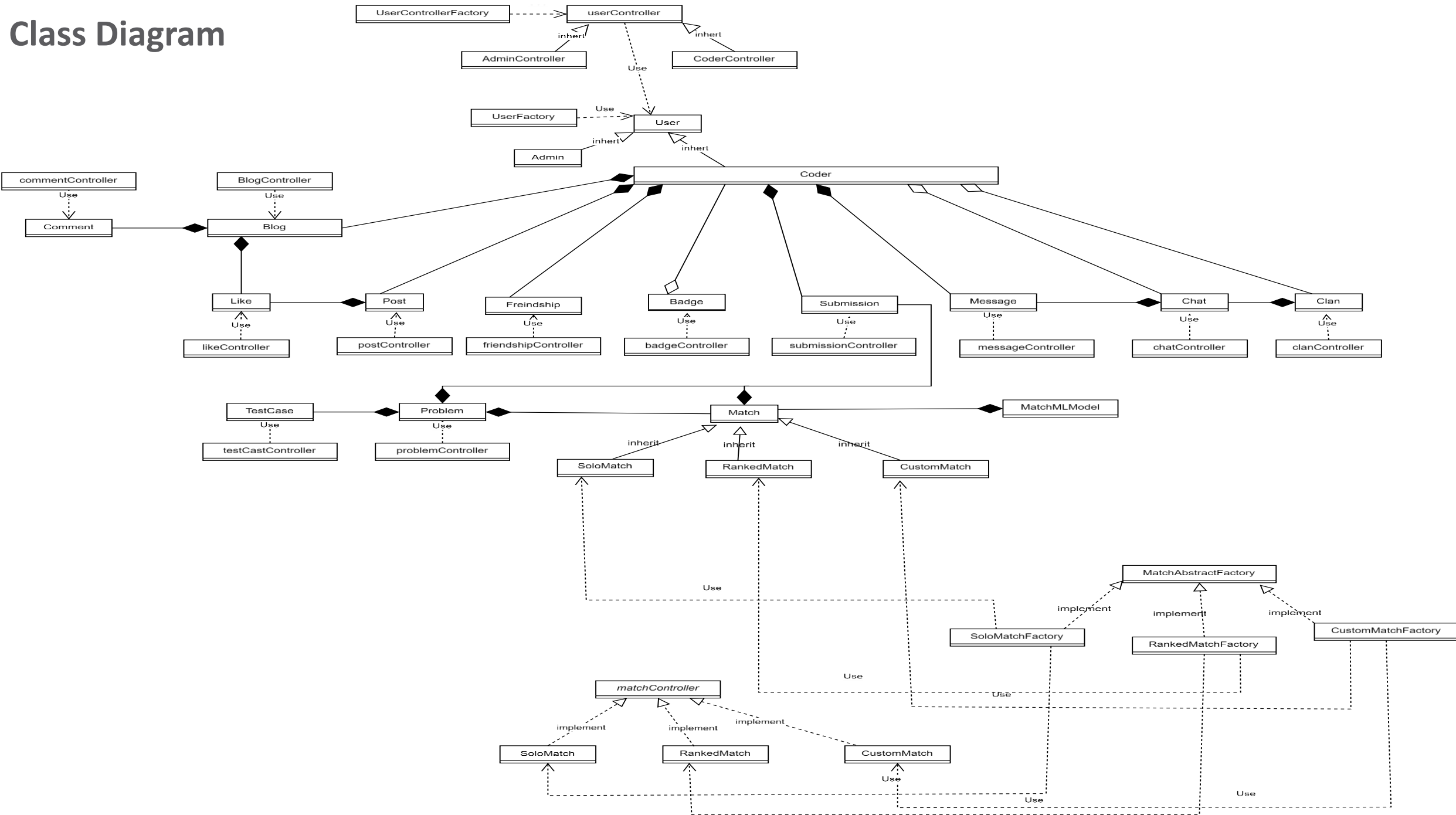


Design Patterns & SOLID Principles

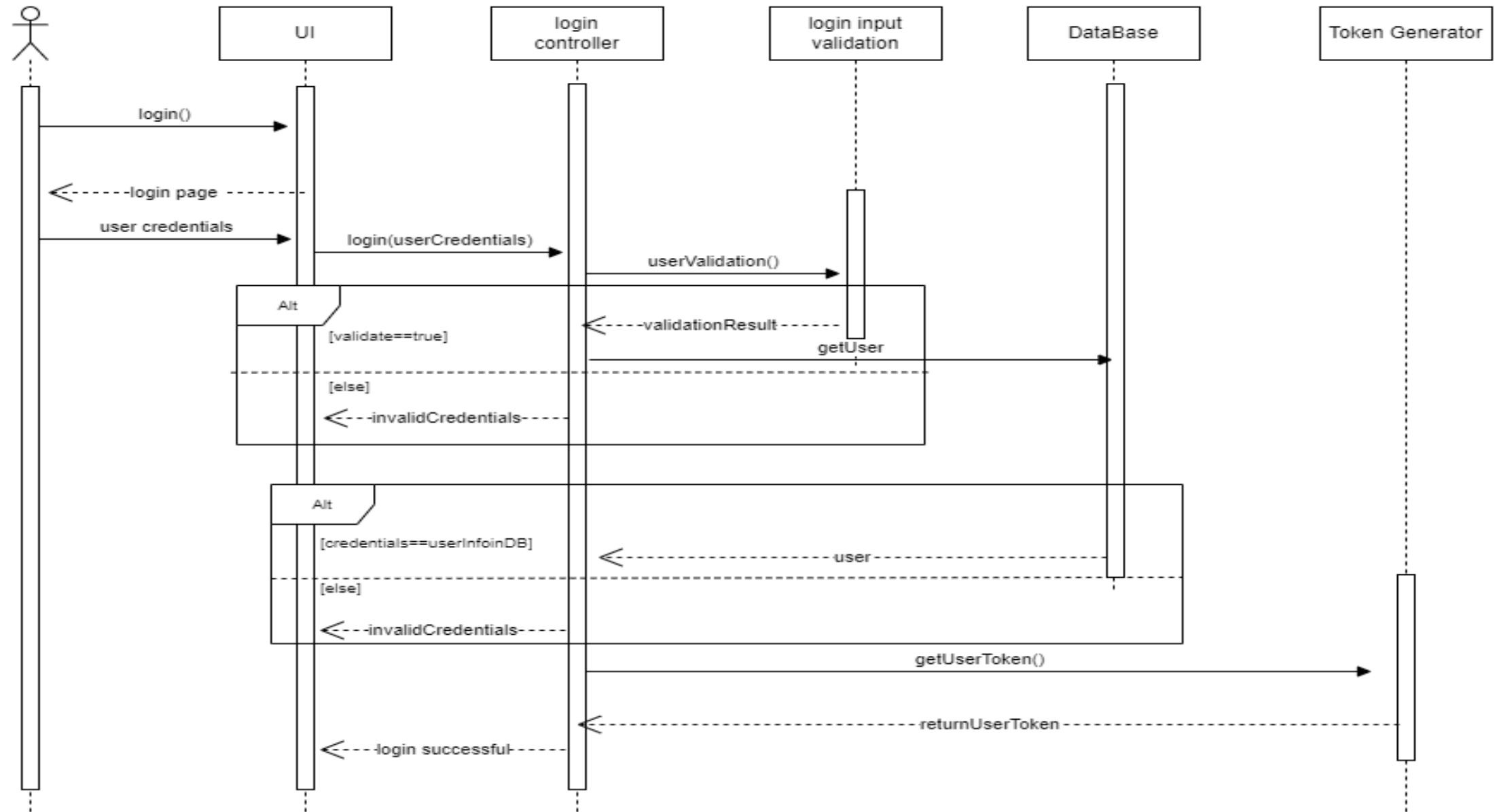
- Strategy Pattern
 - Match Controller
- Singleton
 - Controllers
- Abstract Factory
 - Match with Controller



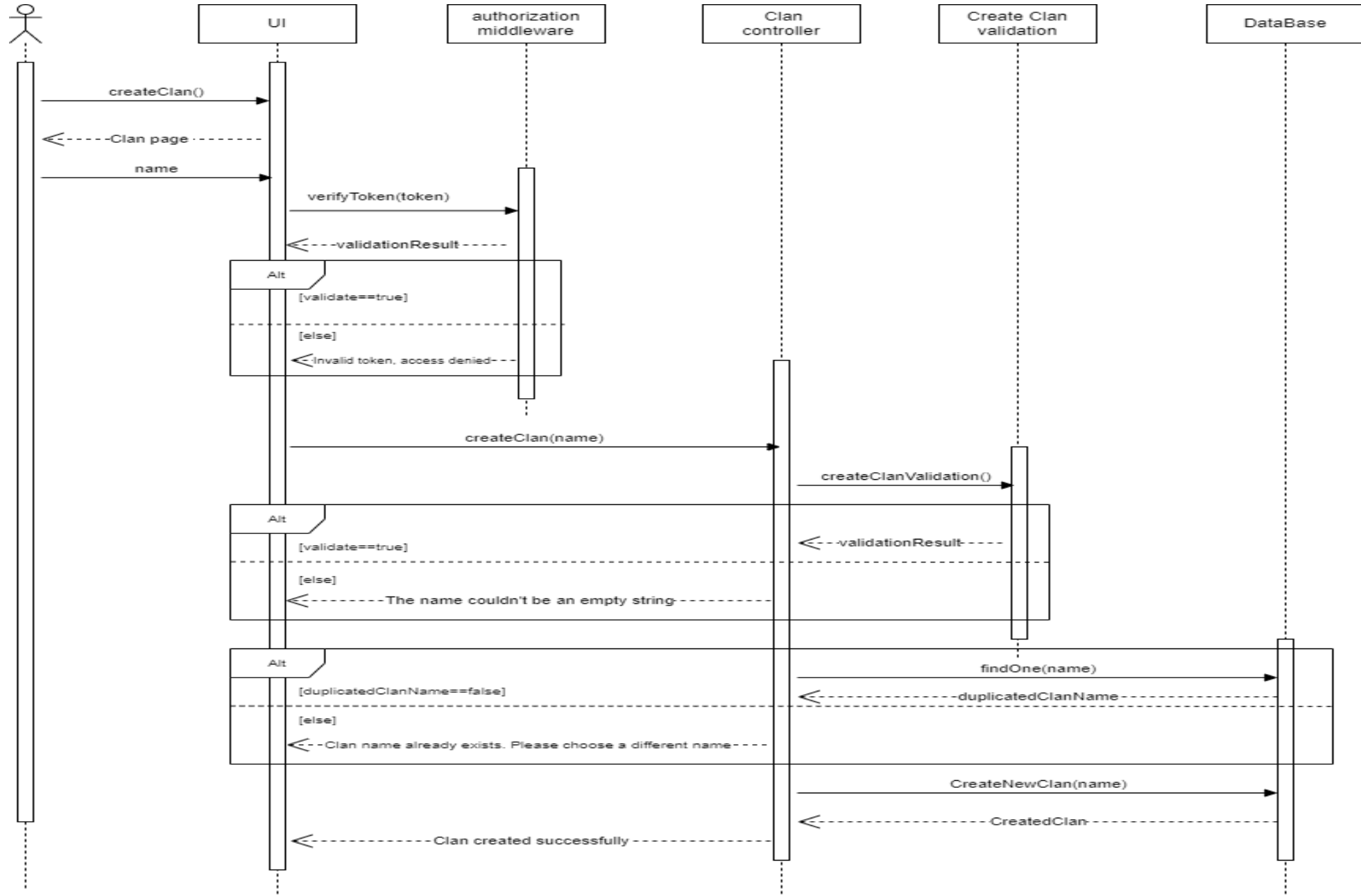
Class Diagram



Login Sequence

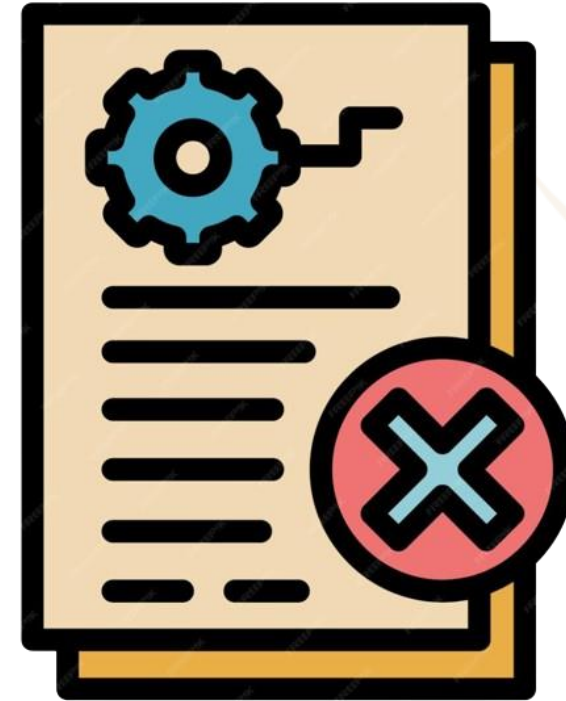


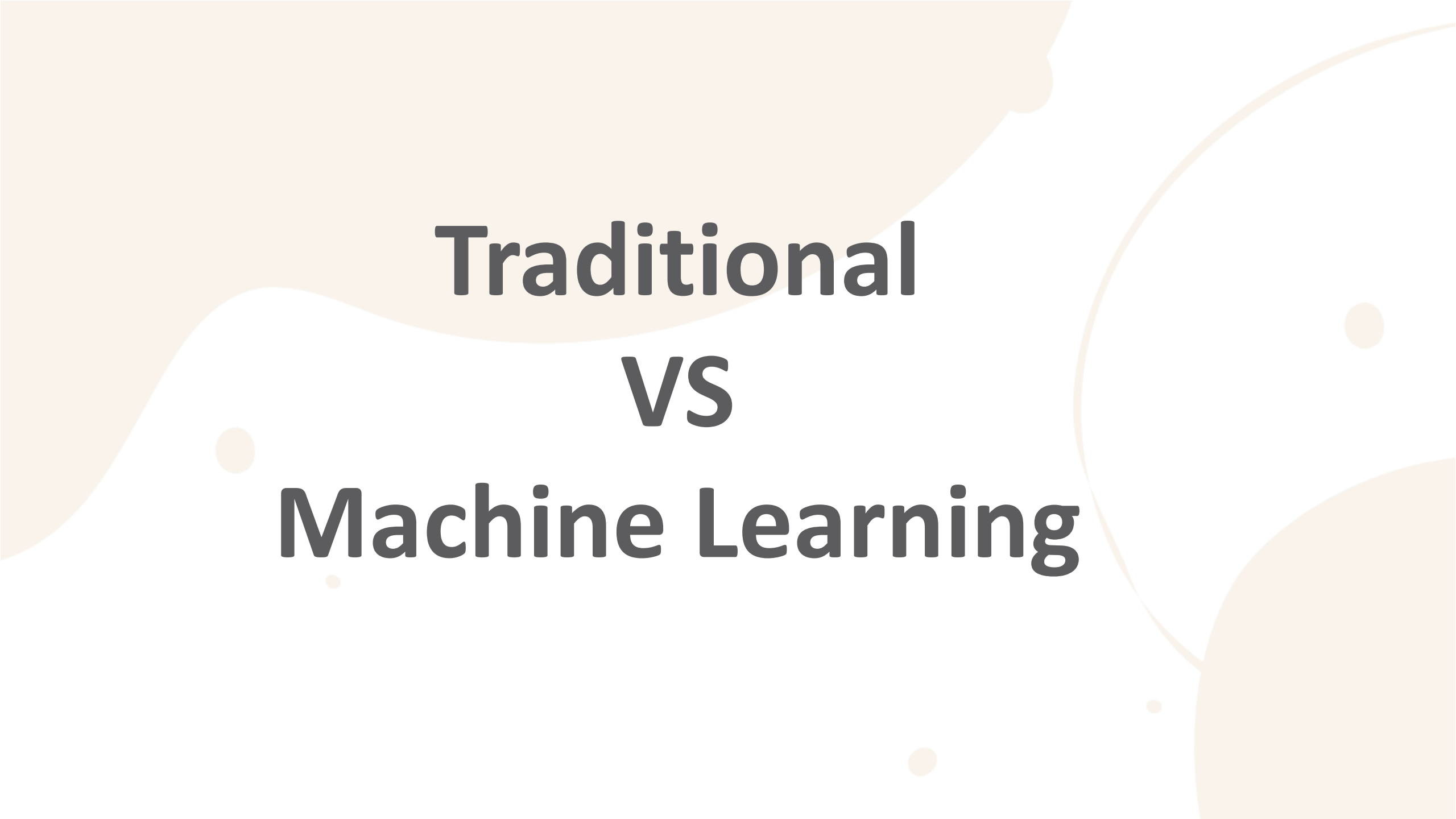
Clan Sequence



Non-Functional Requirements

- Scalability
 - Stable Server
 - Event-Driven & Non-Blocking I/O Backend
- Useability
 - Friendly User Interface
- Portability
 - Media Queries
- Performance
 - Single Page Application
 - Caching





Traditional VS Machine Learning

Why Machine Learning ?

- The Slow Improvement Problem
- Quantity vs Quality
- Reason for Slow Improvement
- Finding Suitable Problems for Individual Abilities
- Leveraging Machine Learning
- Matchmaking Problem



Our Model

- Problem Nature
- Recommendation System Type
- Similarity Scores Metrics and Implementation
- Solo Practicing Considerations
- Data Collection Methodology
- Feature and Target Variables
- Model Selection



Technologies and Libraries Used

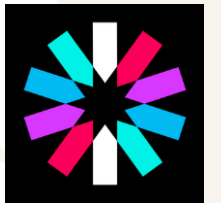
- Backend



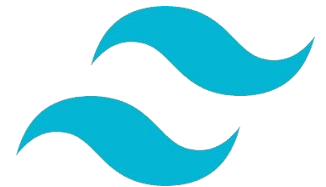
socket.io



mongoDB®

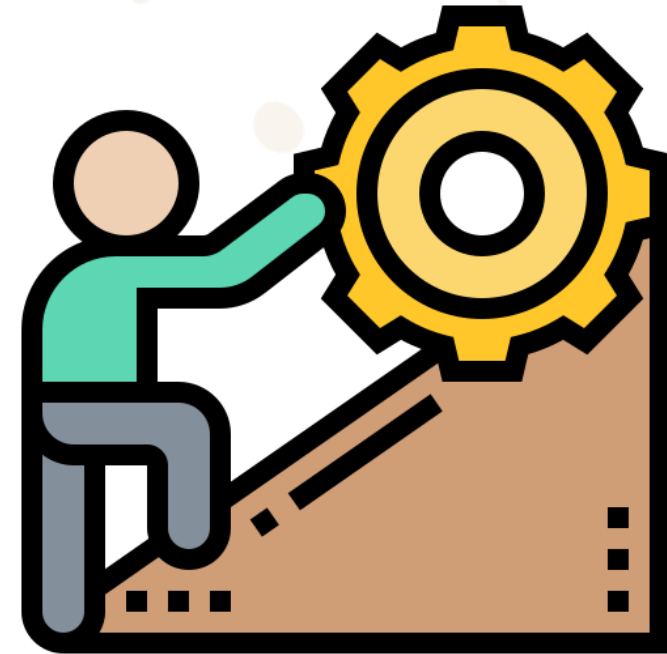


- Frontend



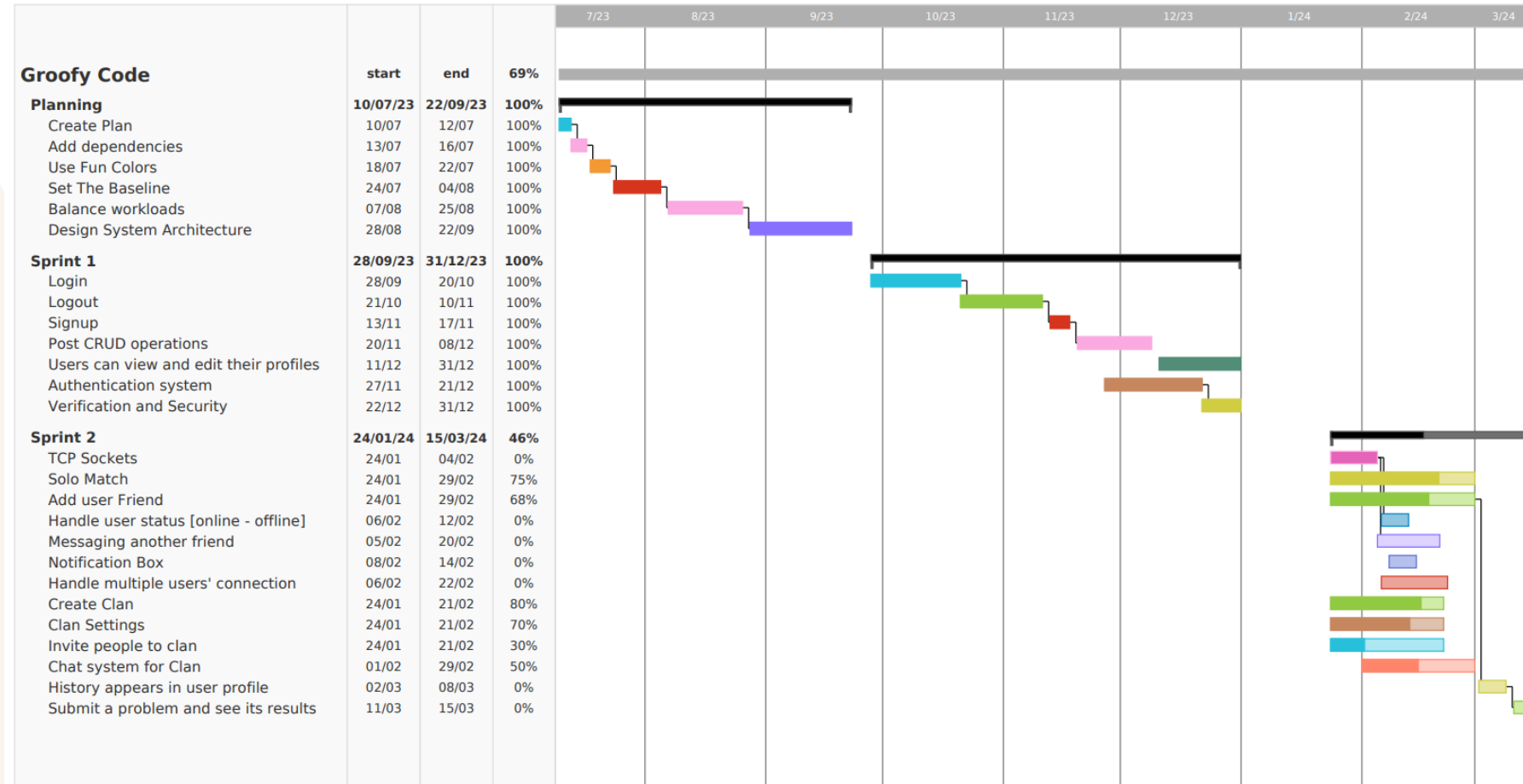
Challenges

- Lack of hands-on experience with used technologies.
- Integration with already existing website such as Codeforces, Codemirror and judge0
- Time & Collaboration constraints due to studies and work commitments
- Nodejs VS Java Spring boot



Time Plan

Gantt Chart



Conclusion

Conclusion

- Groofy Code aims to be a feature-rich and interactive online coding challenge platform.
- Encouraging users to improve their coding skills, compete in challenges, and foster a sense of community through clans and social features.

With a dedicated and skilled development team, we are confident in delivering a high-quality platform that will be a valuable resource for coding enthusiasts.

Questions ?





*Thank
you!*