

# Groofy Code

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Competitive programming platform

**Under the supervision of:**

- *Dr. Mohamad Abdelwahab*

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# Agenda

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**01**

**Problem Significance**

**02**

**Project Idea**

**03**

**Project  
Specifications**

**04**

**Time Plan**

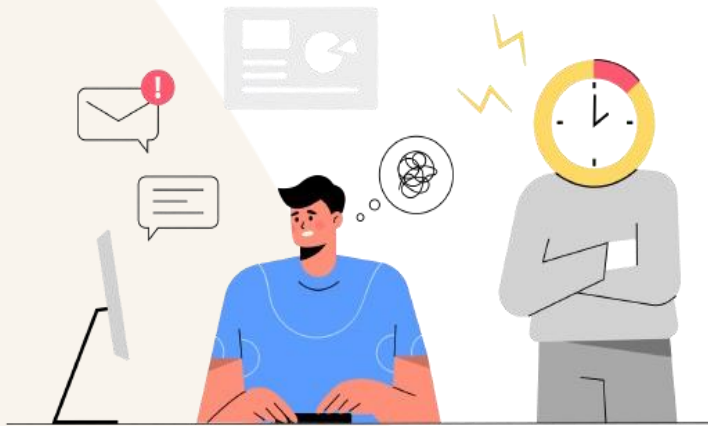
**05**

**Conclusion**

# Problem Significance

# Introduction & Problem Description

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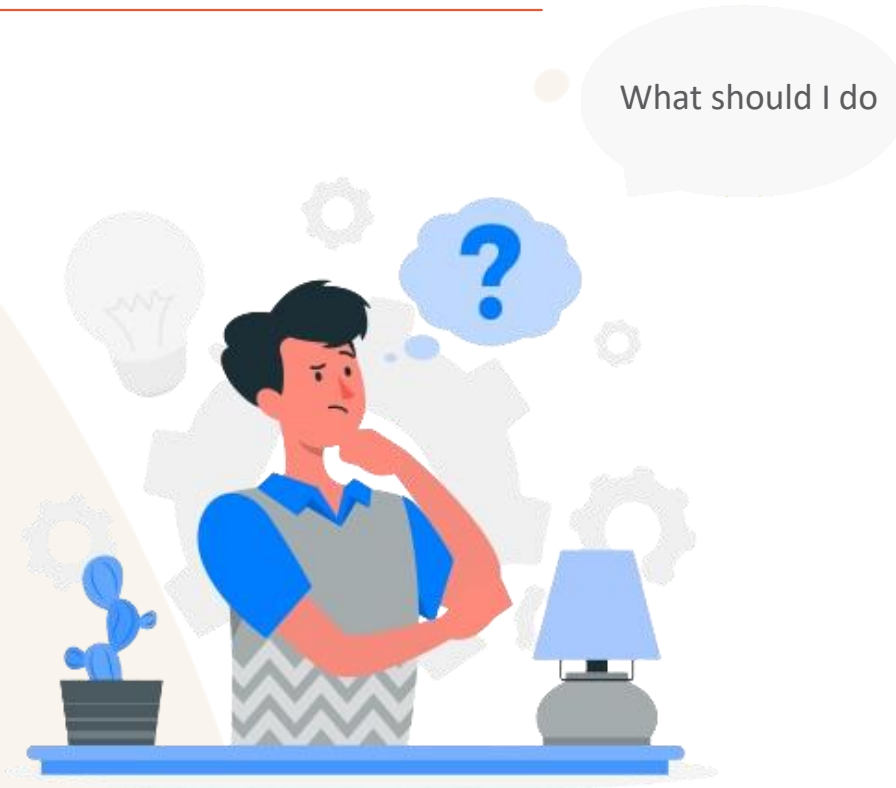
Tasks  
→  
Deadlines



Why don't I know  
how to implement it ?

## Thinking of the solution

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- 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

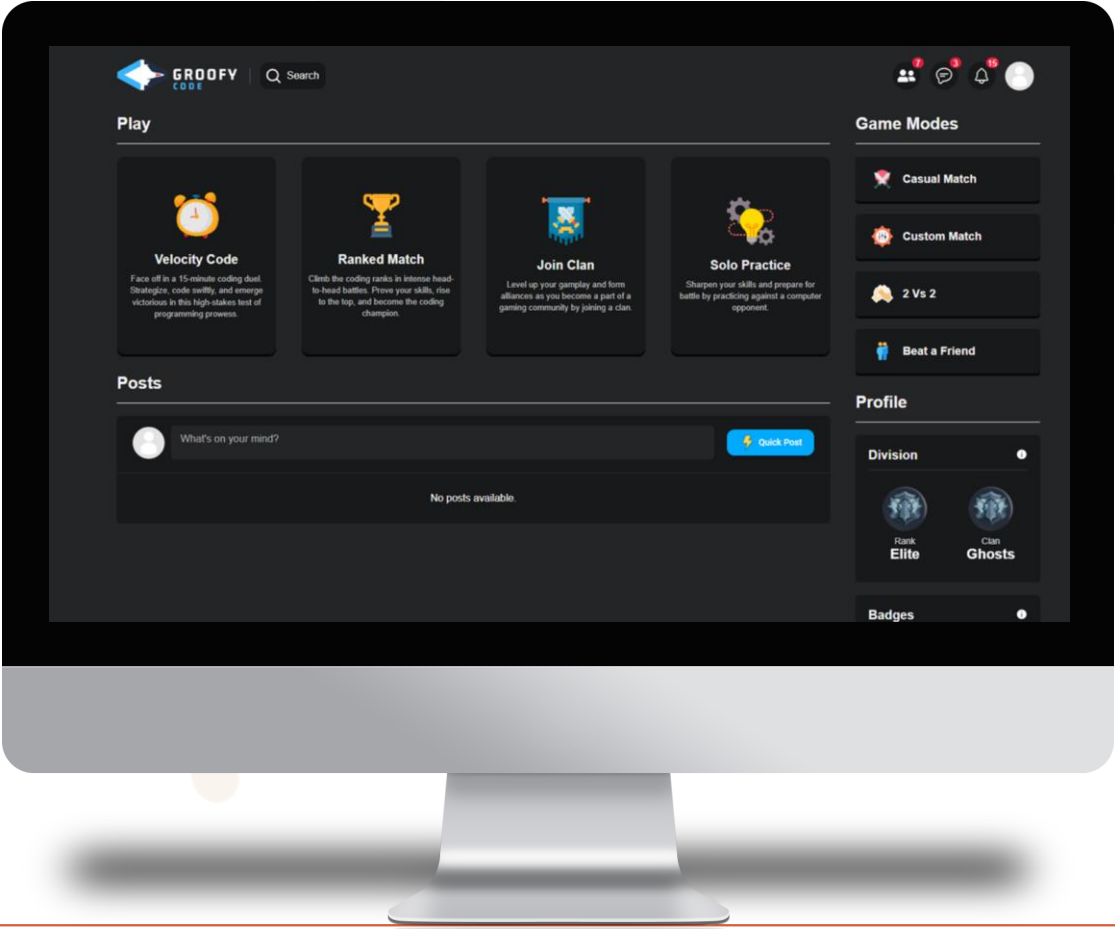
TLE BOT 05/23/2023 3:31 AM  
Challenge completed in 36 minutes. Rokba gained 8 points.

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

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1

Challenge Mechanism

2

Comprehensive User System

3

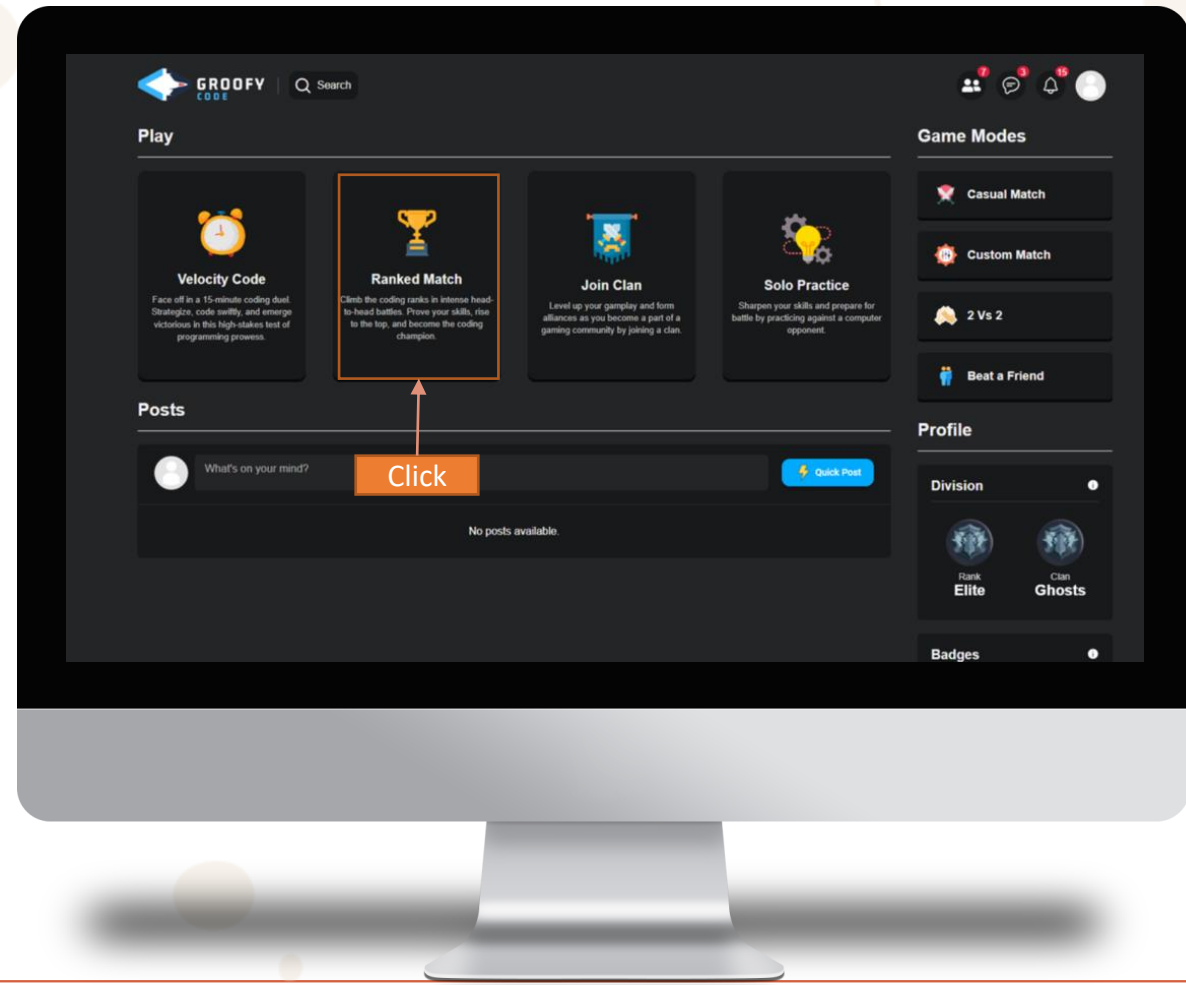
Clan Features

4

Interactive Chat System

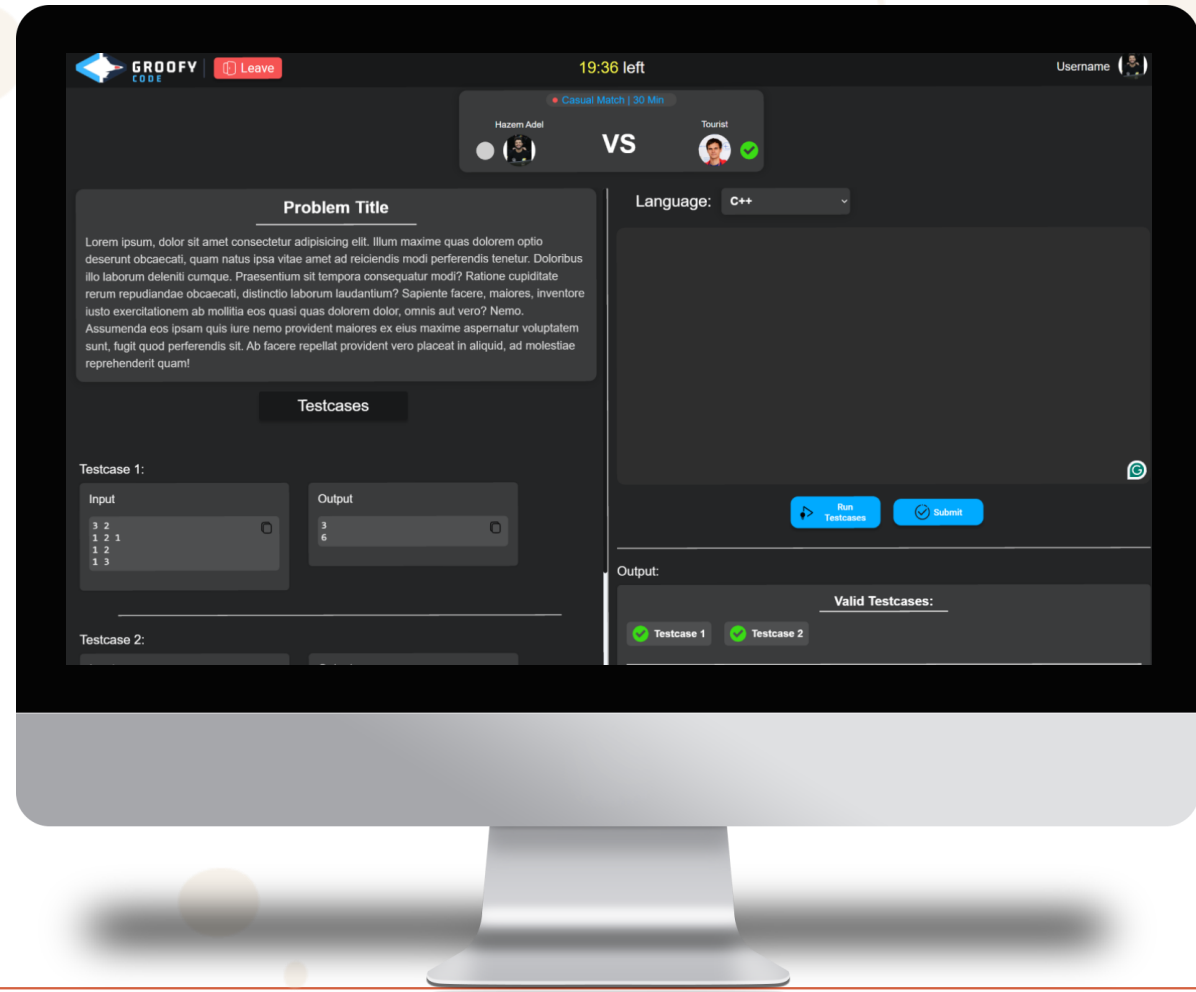
# Match Modes

- Various Coding Challenges
- Difficulty Levels



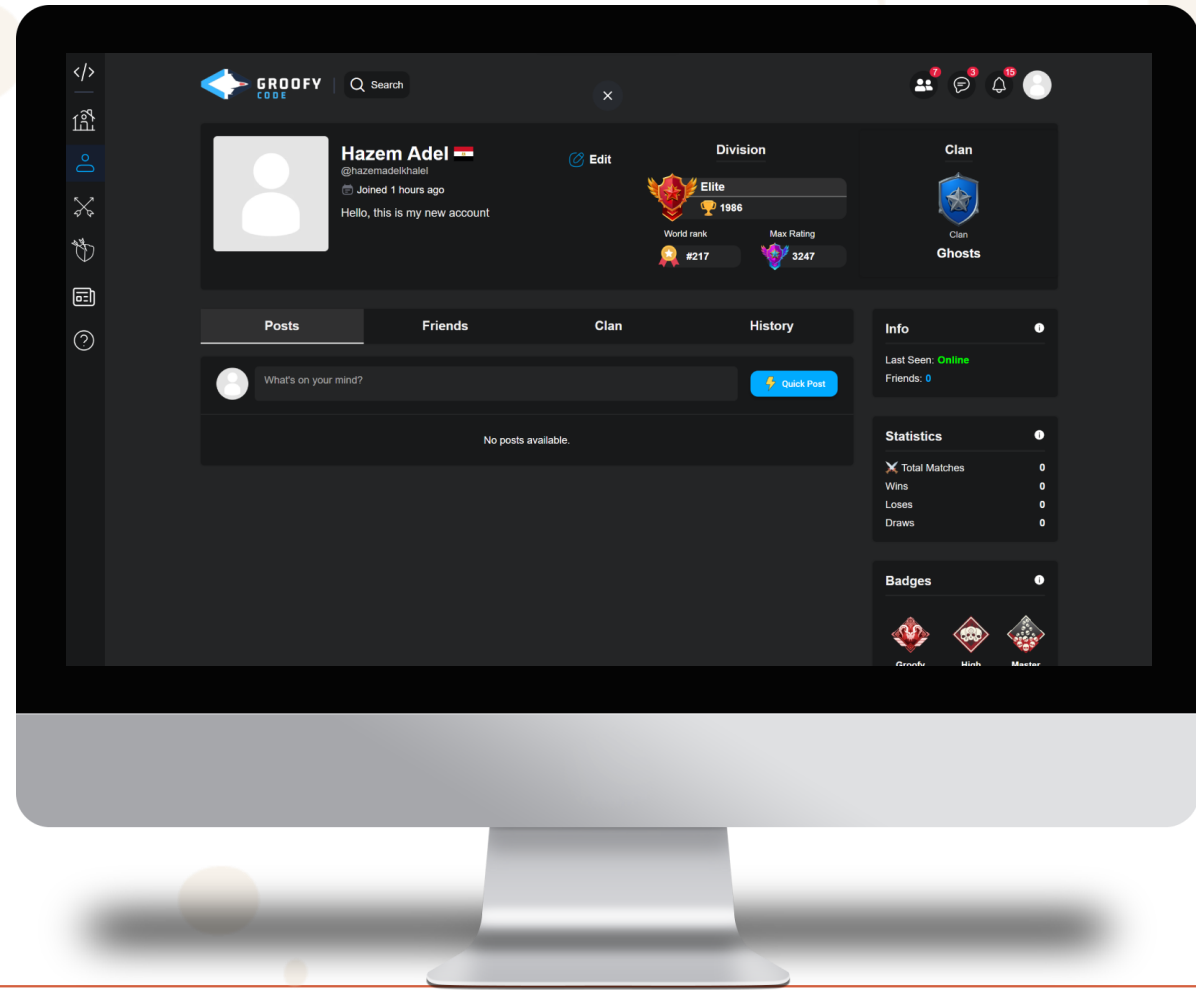
# Match Challenge

- Real-time Code Editor
- Submission and Evaluation



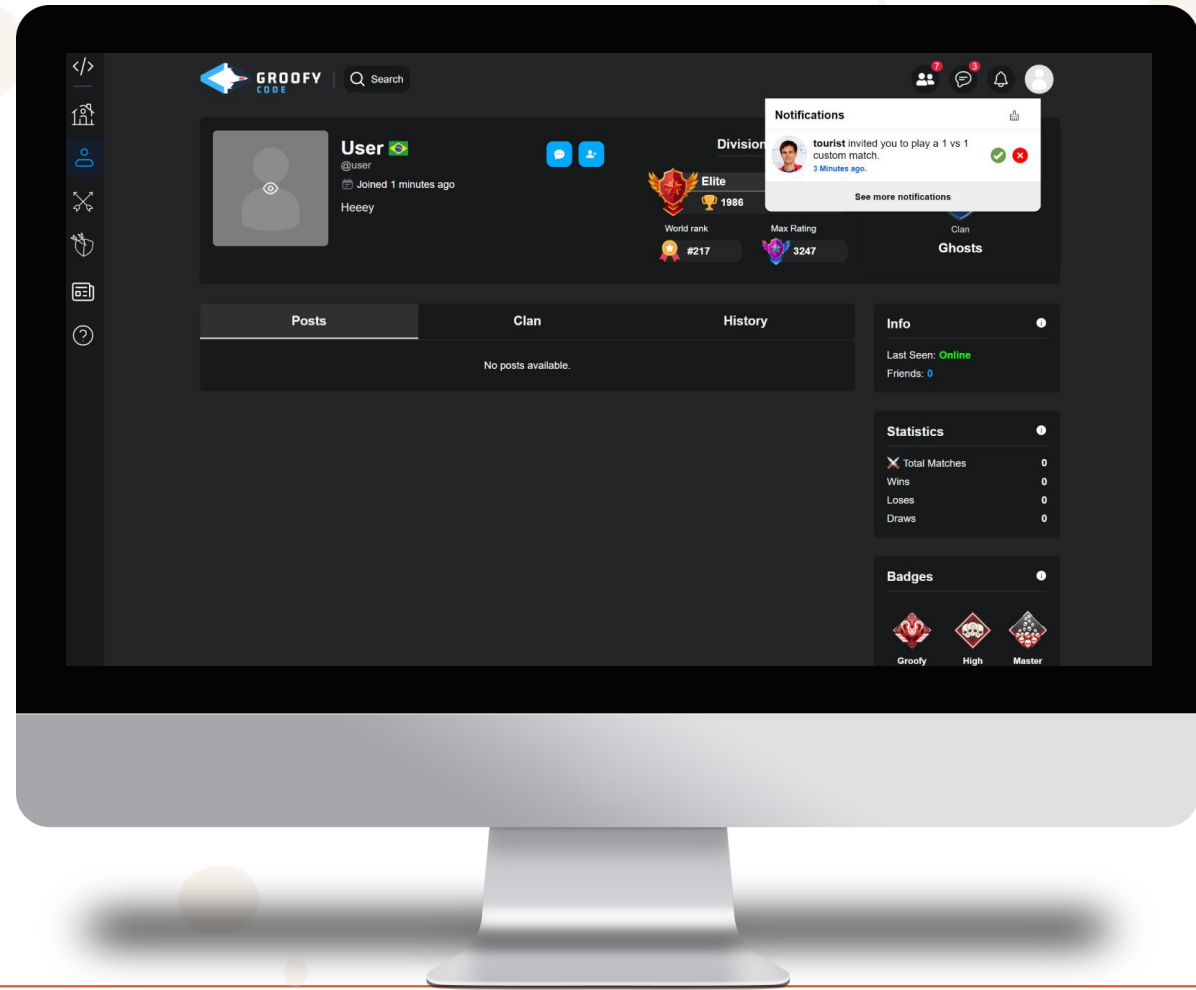
# User Profile

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



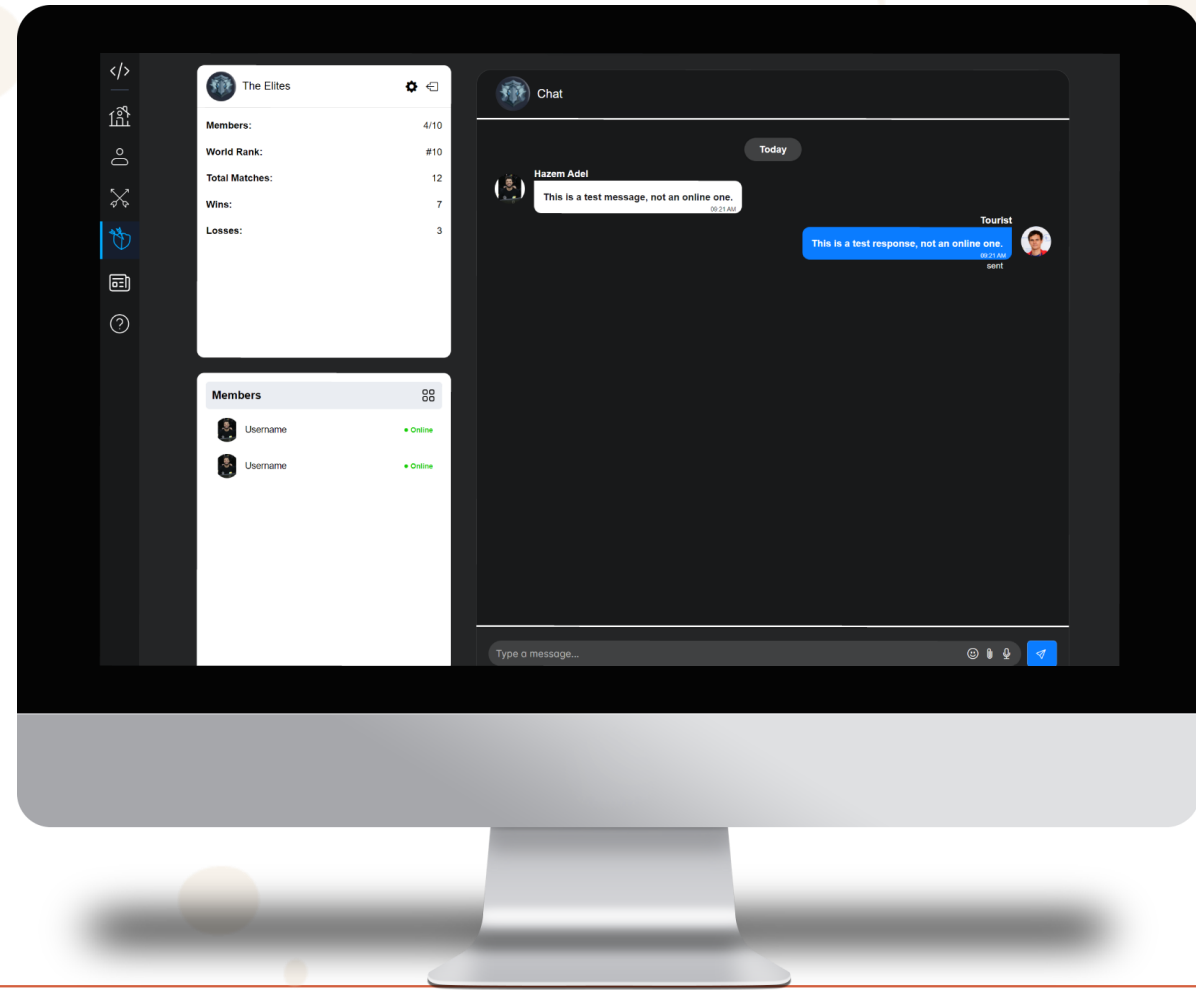
# User Interactions

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



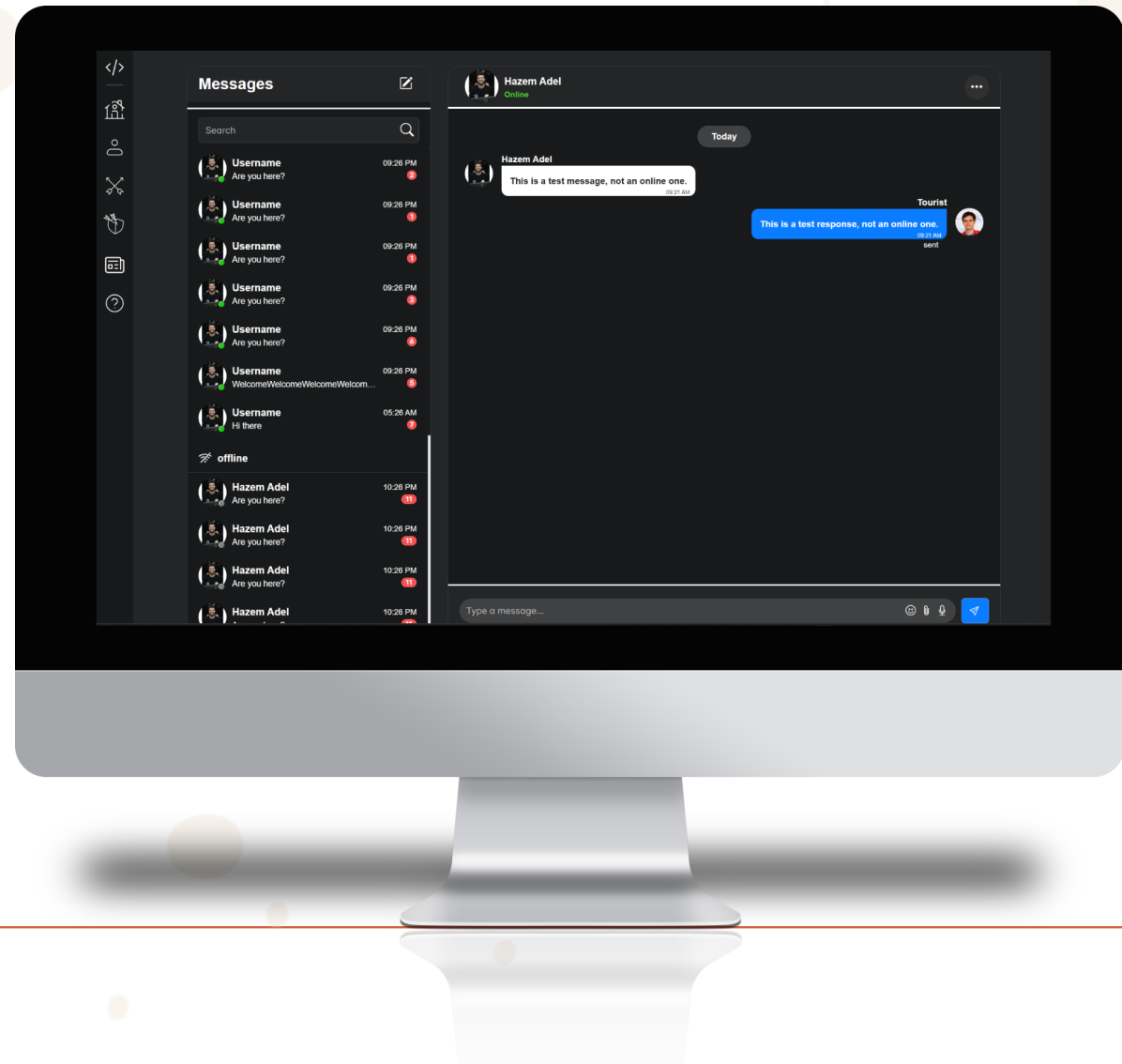
## Clan Feature

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

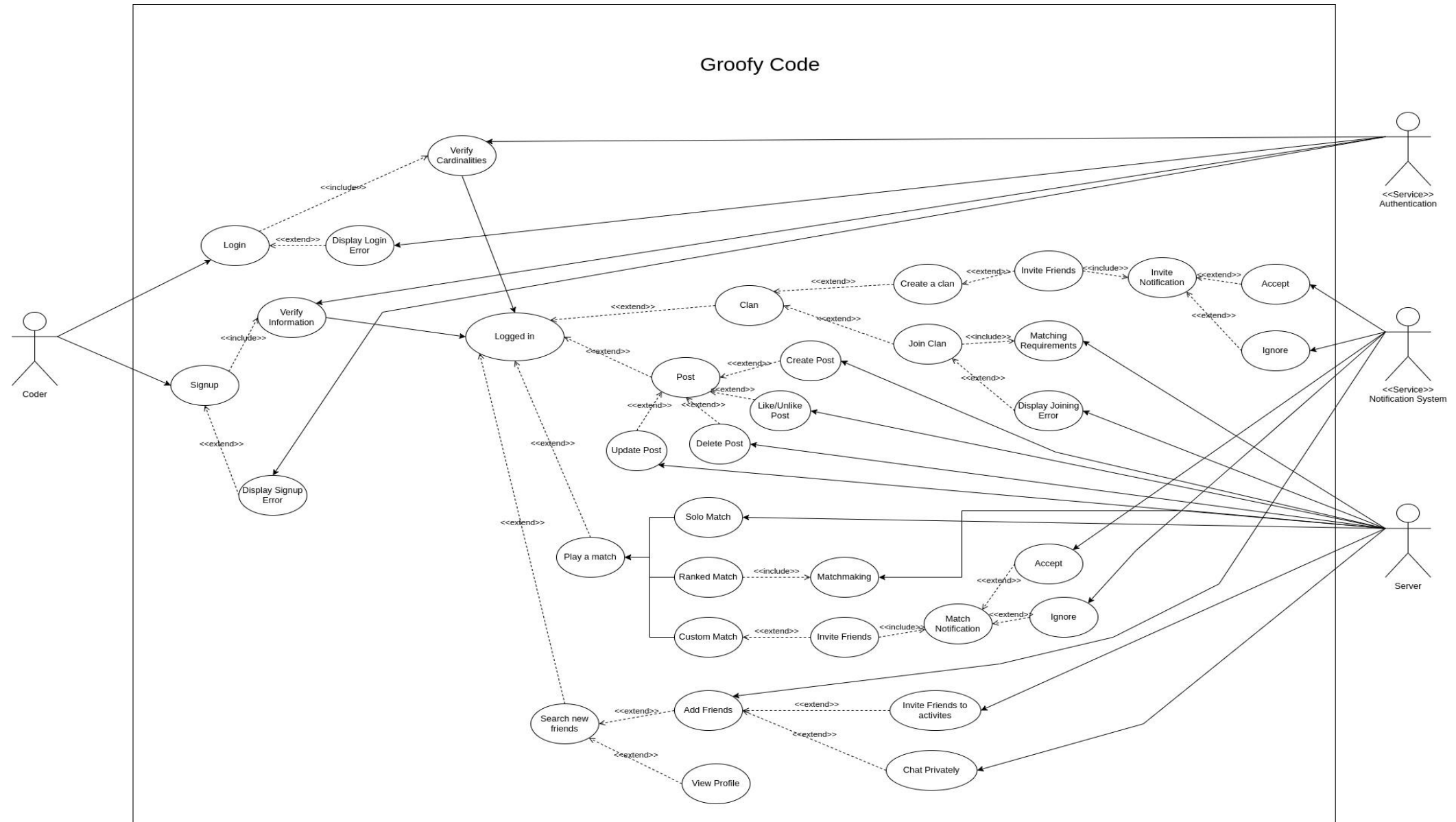


# Chat System

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



## Use Case Diagram



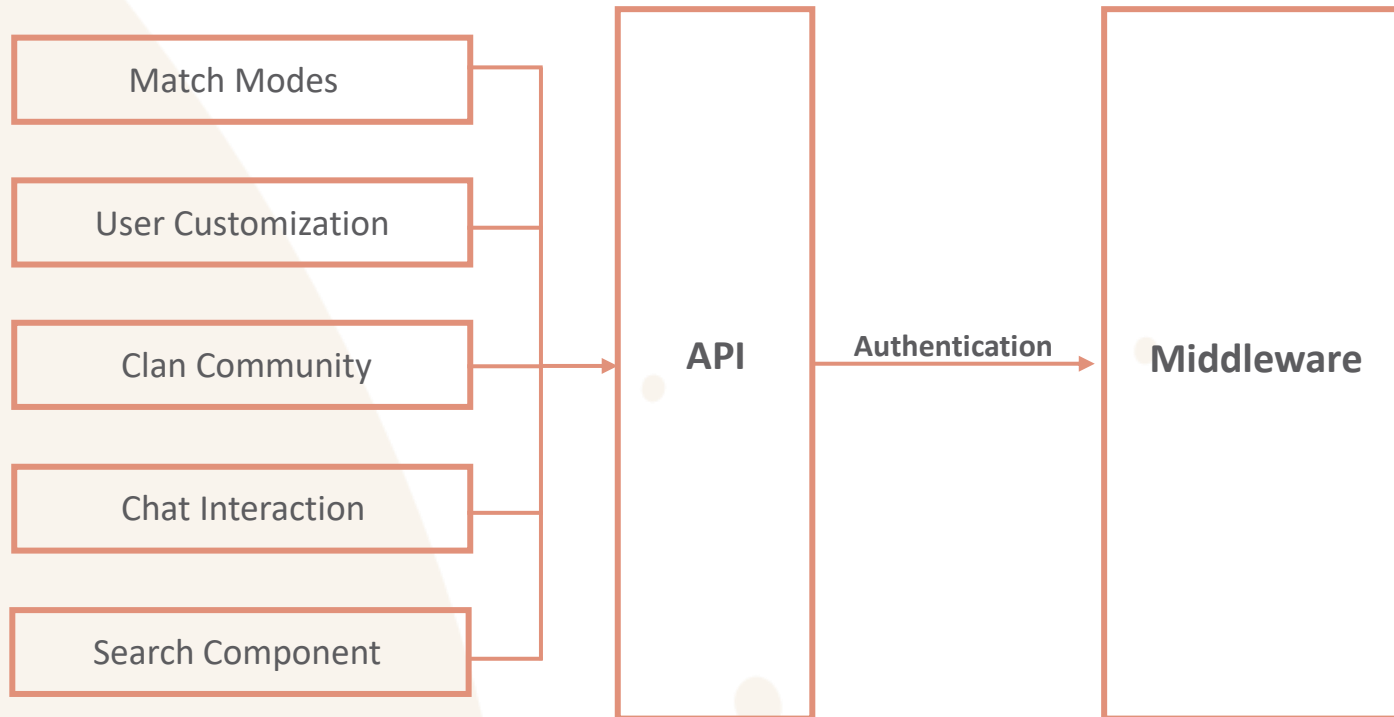




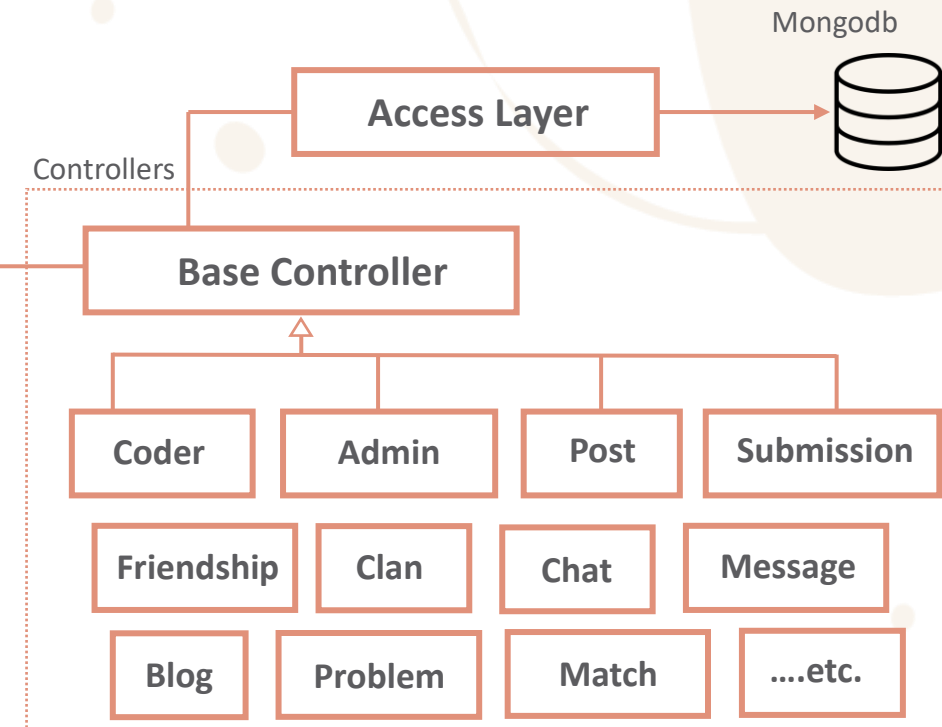
# **Project Specifications**

# Architecture

## Frontend



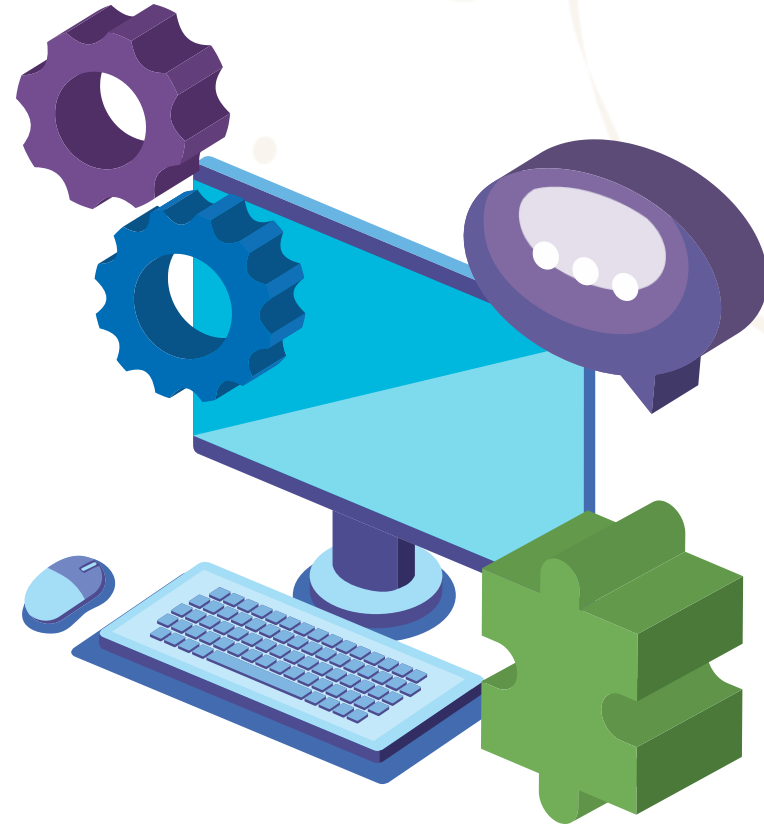
## Backend



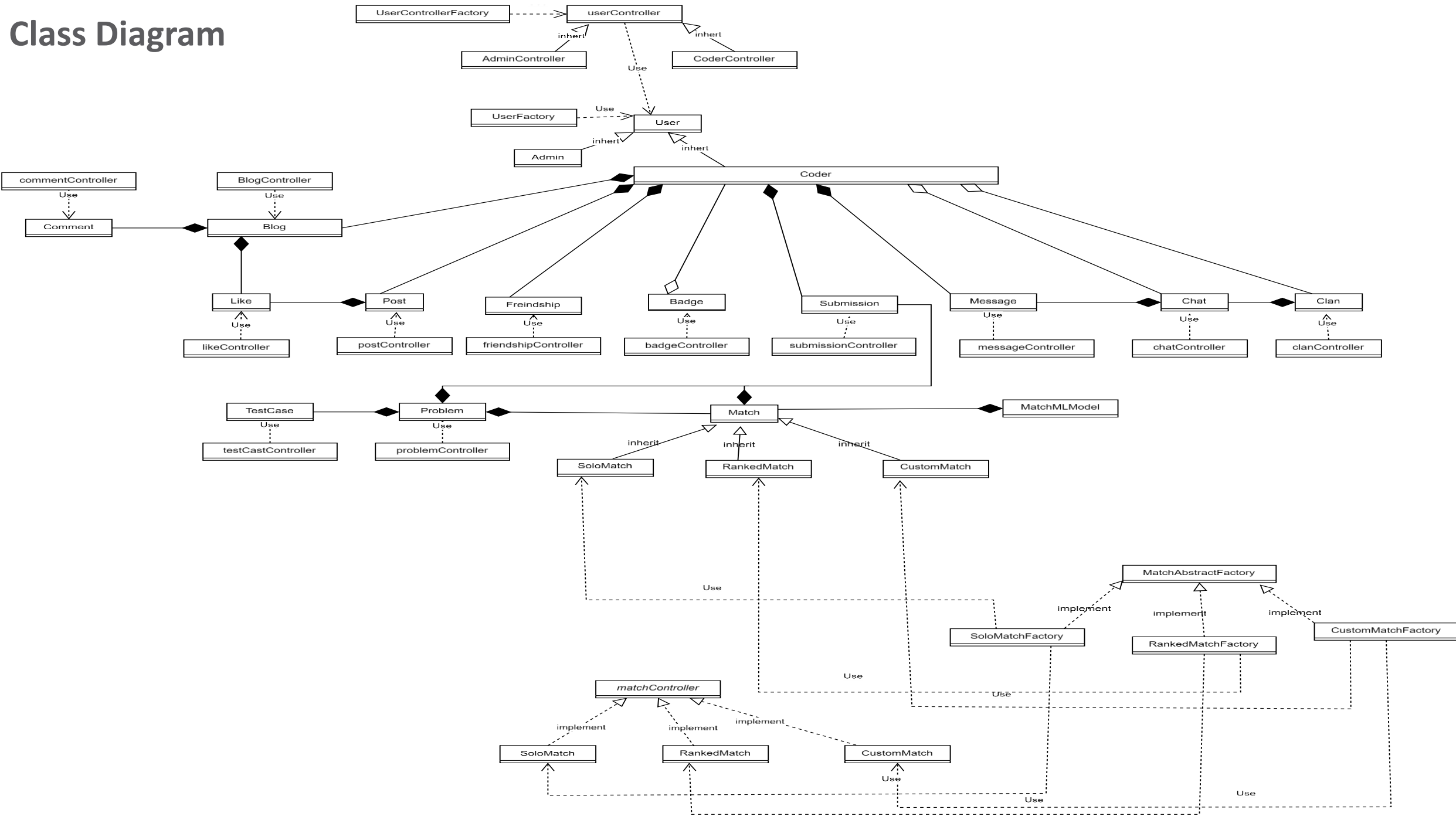
# Design Patterns & SOLID Principles

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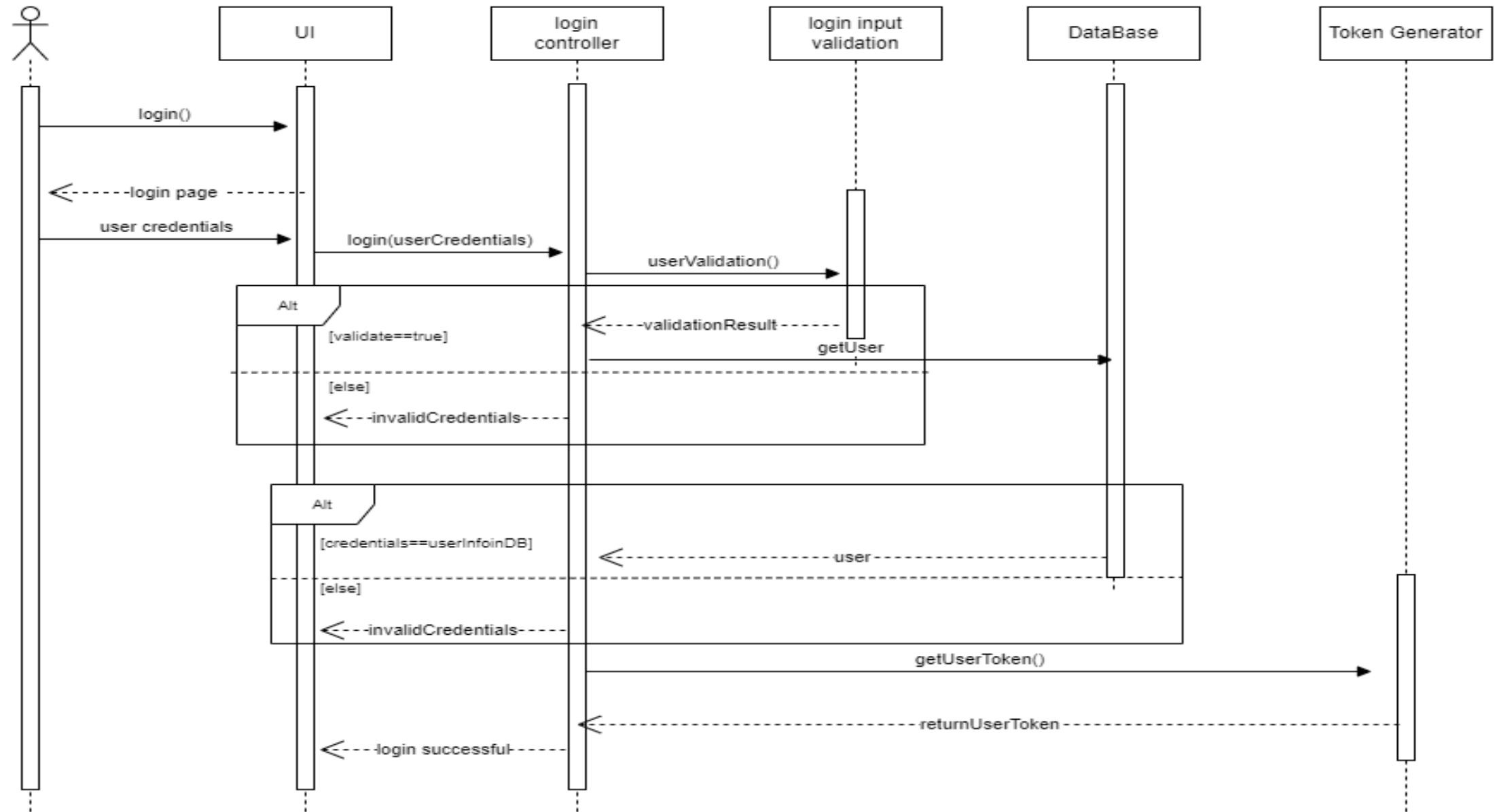
- Strategy Pattern
  - Match Controller
- Singleton
  - Controllers
- Abstract Factory
  - Match with Controller



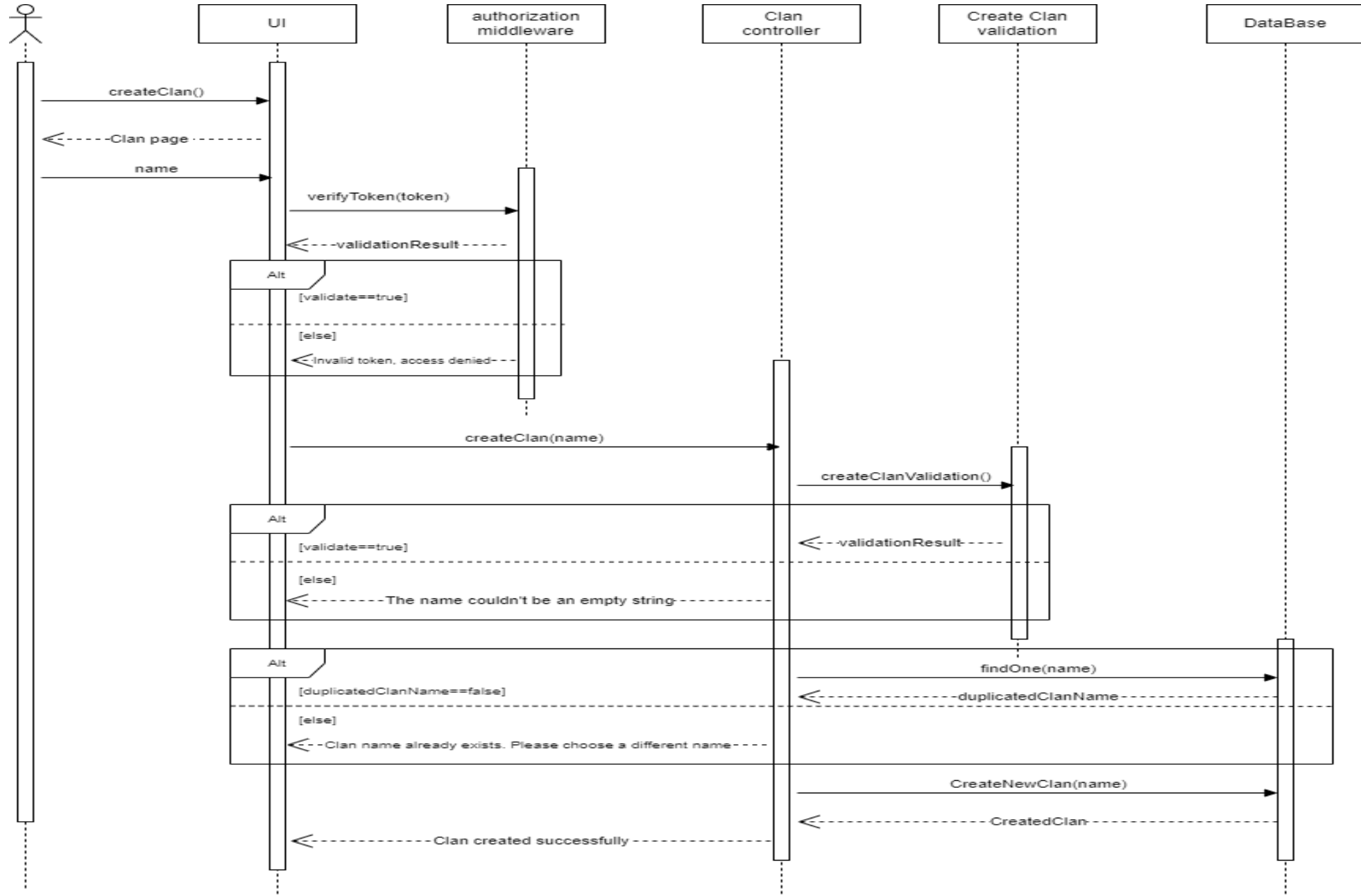
# Class Diagram



# Login Sequence



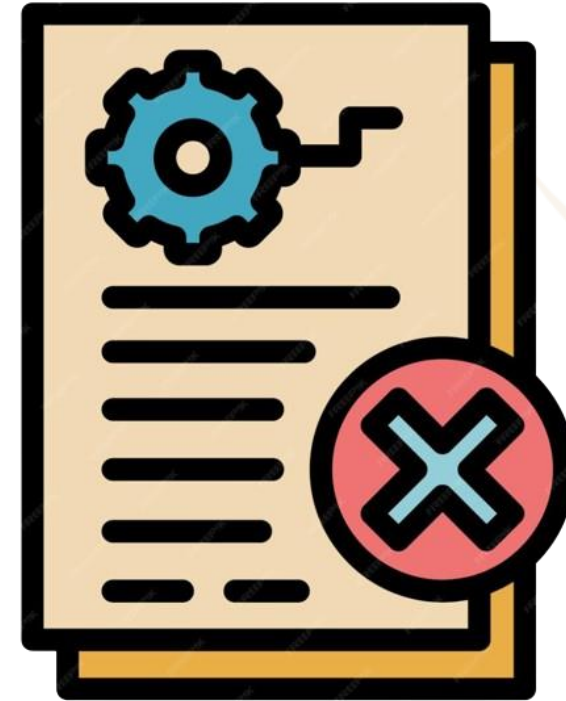
# Clan Sequence

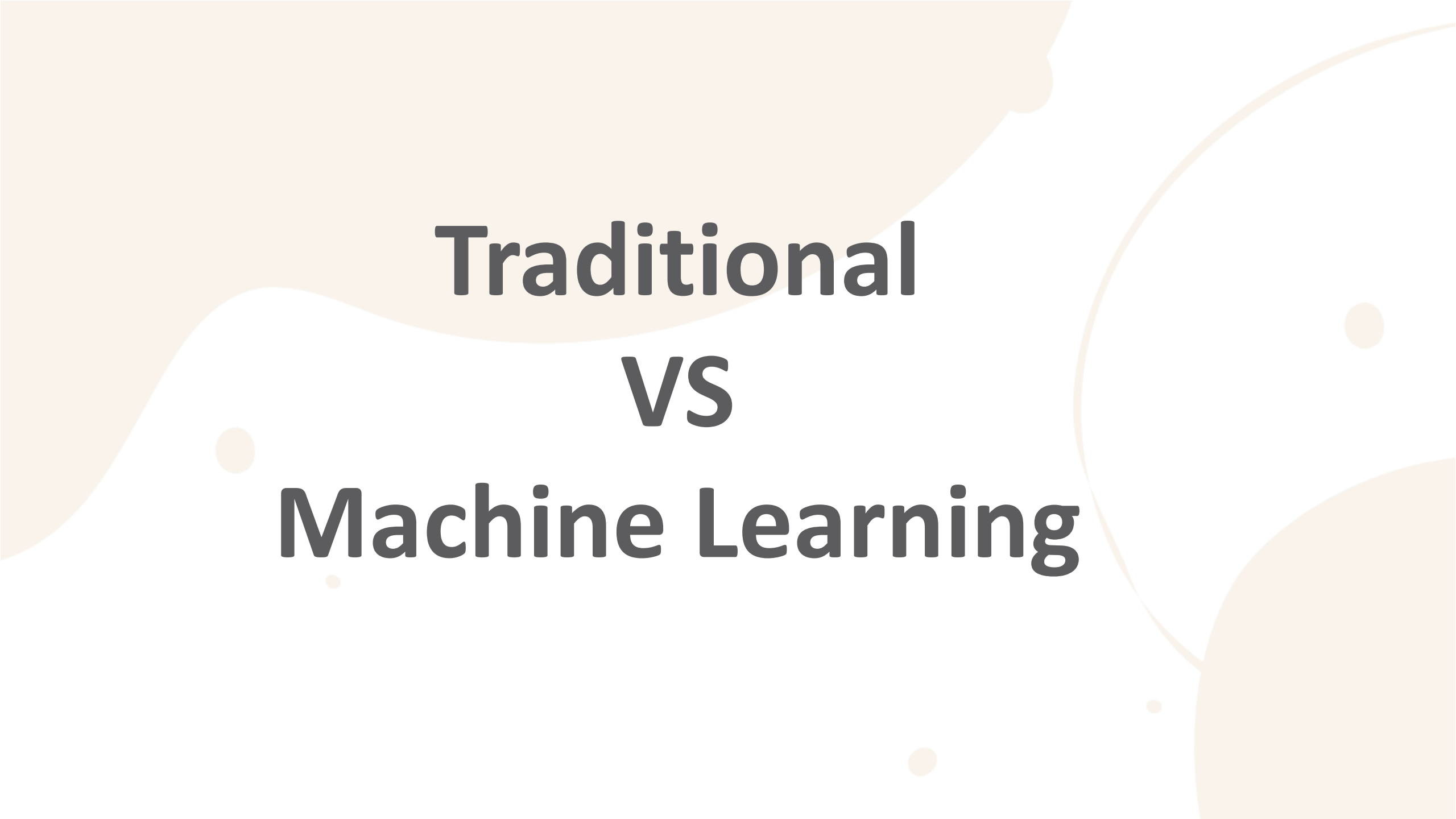


# Non-Functional Requirements

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





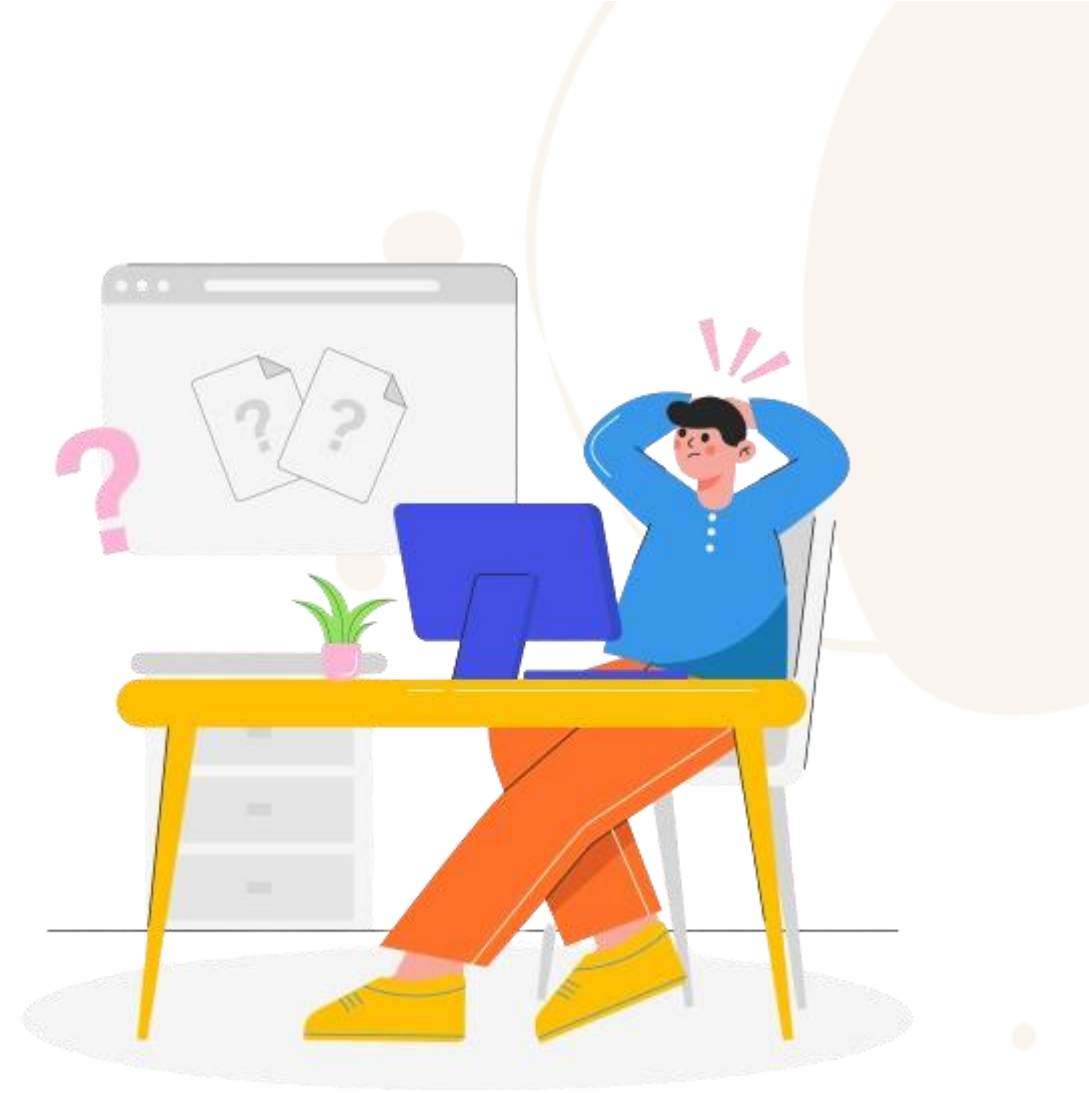
# **Traditional VS Machine Learning**



## Why Machine Learning ?

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- The Slow Improvement Problem
- Quantity vs Quality
- Reason for Slow Improvement
- Examples in Computer Science & Problem solving
- Finding Suitable Problems for Individual Abilities
- Leveraging Machine Learning
- Matchmaking Problem



## Our Model

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- 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

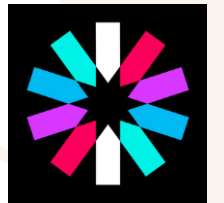
- Backend



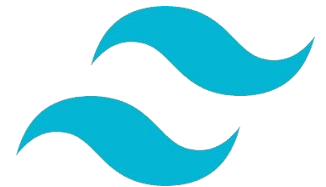
socket.io



mongoDB®



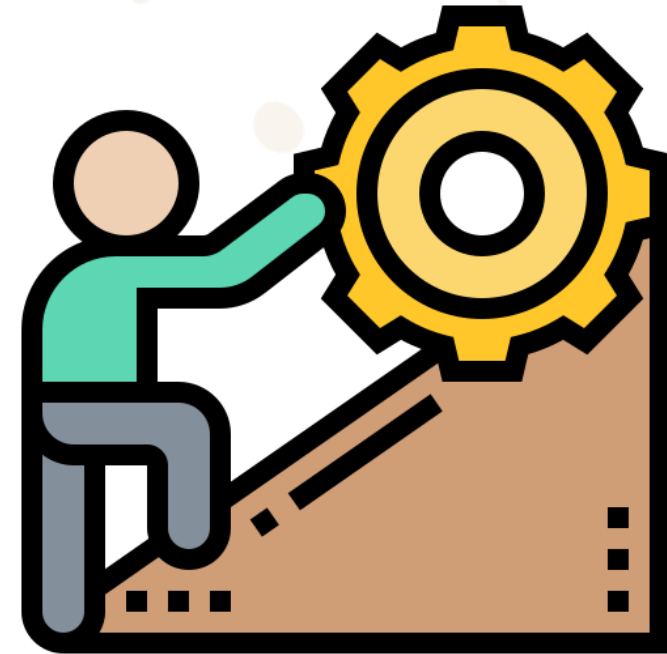
- Frontend



## Challenges

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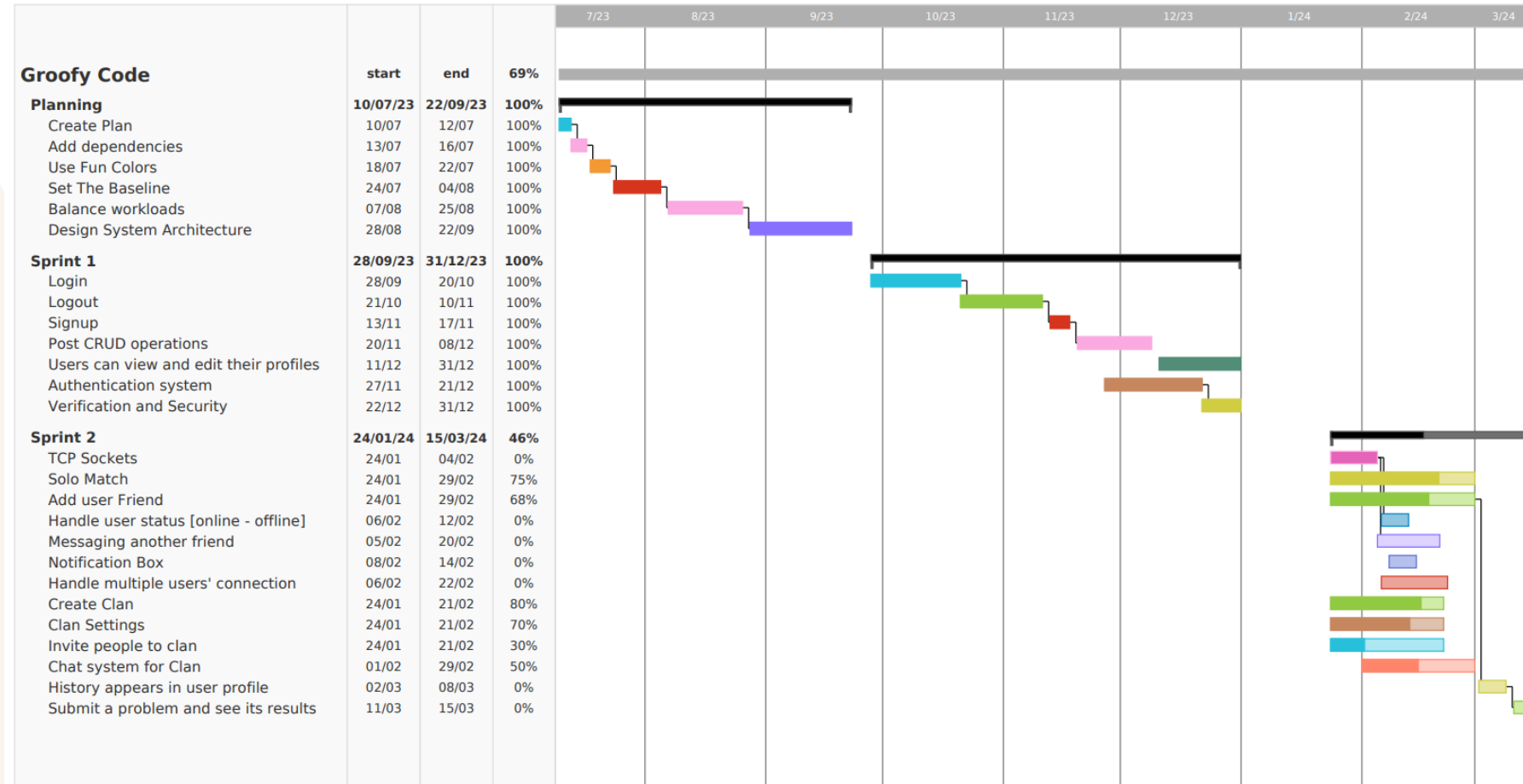
- Lack of hands-on experience with used technologies.
- Integration with already existing website such as Codeforces, Codemirror and judge0
- Time & Collaboration constraints due to studies and work commitments
- Nodejs VS Java Spring boot



# Time Plan



# Gantt Chart



# Conclusion

## Conclusion

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- 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 ?

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*Thank  
you!*