A

Project Report

On

Online Coding Platform

submitted to

Rajiv Gandhi University of Knowledge Technologies, Basar

for the partial fulfillment of the requirements of Software Engineering Project

by

Sathish Gajji (B141357)

Naveen Gaddi (B141410)

Junaid Shaik (B141911)

Under the guidance of

GangaMani,

Assistant.Prof,

RGUKT-IIIT BASAR

Department of Computer Science and Engineering

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES

Basar, Nirmal(DIST.),

TELANGANA-504107 *(2018-2019)*

Department of Computer Science and Engineering

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES,BASAR

CERTIFICATE

This is certify that Project Report entitled " Online Coding Platform" submitted by Sathish Gajji (B141357), Naveen Gaddi (B141410), Junaid Shaik (B141911), Department of Computer Science and Engineering, Rajiv Gandhi University of Knowledge Technologies,Basar for partial fulfillment of the requirements for the degree of Bachelor of Technology in Computer Science and Engineering is a bonafide record of the work and investigations carries out by them under my supervision and guidance.

Project Supervisor
A.Gangamani
Assistant Professor
RGUKT IIIT BASAR

Head of the Department
G.Ranijith Kumar(M-Tech)
Assistant Professor
RGUKT IIIT BASAR

Department of Computer Science and Engineering

RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES,BASAR

DECLARATION

We hereby declare that the work which is being presented in thi project entitled, “Online Coding Platform” submitted to RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES,BASAR is the partial fulfillment of the requirements for the award of the degree of BACHELOR OF TECHNOLOGY in COMPUTER SCIENCE AND ENGINEERING, is an authentic record of our own work carried out under the supervision of Assistant.Prof.Gangamani at RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES,BASAR.

The matter embodied in this project report has not been submitted by us for the award of any other degree.

Place:Basar

Date:17/04/2019

Junaid Shaik(B141911)

Sathish Gajji (B141357)

Naveen Gaddi (B141410)

Table of Contents:

ABSTRACT

Aim: This project is all about to implementing online coding platform.

Problem Statement : To build platform where coders can show their skills.

Proposed Statement : Making an online coding platform.

The project titled online coding platform is a software for monitoring and It is an online platform where users can practise coding problems and improve their skills. And users can participate in contests (coducted on it) win prizes and get ranking. Users can compete with each other. Contests can be hosted by recognized Institutions/Organizations.

It is designed to help users in friendly manner , maintain and organize their coding skill in an effective way. Admin plays main role in this software where he can keep track of all users. Software has well attractive user interface, a strong security and satisfying the needs of every user.

Functionalities

1 Admin : The Admin should first Login. After login he can Manage Contest & Practise problems and also he can Build Page for Hoster Requirement,Interface b/w contesters and contest hoster. He is Responsible for Hosted Contest.

2 Users: User first go for registration, after the he can Login. Once he login then he can Practise problems ,Participate in contests (get Ranking), View Previous Contests & Codes

3 Contest Hosters:He needs to one Register account then he can Login,and Create a contest (Schedule & Timing), he also give Prizes to winners.

1. Introduction

1.1 Purpose

The purpose of this document is to describe the "**Online Coding Platform"**. This document contains the functional, behavioral and non-functional requirements of the project.

1.2 Scope

"Online Coding Platform**"** is an online platform where users can practise coding problems and improve their skills.
And users can participate in contests (coducted on it) win prizes and get ranking. Users can compete with each other. Contests can be hosted by recognized Institutions/Organizations.

Contest hosters need to submit problem statements and solutions along with test cases before 1 week of contest schedule. Problem statement & test cases input should bre very clear. In simple terms this platform is a web-based IDE where user can run programs from his/her browser.

2. Product Functions

2.1.1 Admin

- ✔ The Admin should first Login.
- ✔ After login he can Manage Contest & Practice problems
- ✔ He can Build Page for Hoster Requirement.
- ✔ He will manage Hosted Contests.

2.1.2 Normal Users:

- ✔ User first go for registration, after the he can Login.
- ✔ Once he login then he can Practice problems ,Participate in contests (get Ranking).
- ✔ View Previous Contests & Codes

2.1.3 Contest Hosters:

- ✔ He needs to one Register account .
- ✔ He can Login,and Create a contest (Schedule & Timing).
- ✔ He also give Prizes to winners.

2.2 Operating Environment

The “Online Coding Platform” is a website shall operate in all famous browsers, for a model we are taking Microsoft Internet Explorer, Google Chrome and Mozilla Firefox with JavaScript.

2.3 User Characteristics

User of the “Online Coding Platform” are coders (normalusers), hosters and the administrators who maintain the website. coders and hosters are assumed to have basic knowledge of computers and Internet browsing. Administrators of the system should have more knowledge of internal modules of the system and are able to rectify small problems that may arise due to disk crosses and power failures.

2.4 Design and Implementation Constraints

- ✔ The information of all users, contests and problems must be stored in a database that is accessible by the website.

- ✔ My SQL Server will be used as SQL engine and database.
- ✔ Users may access from any computer that has Internet browsing capabilities and an Internet connection.
- ✔ Users must have their correct user names and passwords to enter into their accounts and do actions.

3. External Interfaces Requirements

3.1 User Interfaces

3.1.1 Login Interface :

In case the user is not registered yet, he can enter the details and register, which asks the user to type his user name and password . If the user entered either his user name or password incorrectly then an error message occurs.

3.1.2 User Registration :

When new user enters for the first time then he has to register. This asks the user to type his user name and password ,e-mail,phone etc. And after filling the form he should click the submit button.

3.1.3 Practice problems :

Practice problems shows the previous contest problems .Those problems can be solved at any time and also he can submit any number of times.

3.1.4 Participate contests :

This interface will allow users only the time when the contests are conducted. That means we can not participate after the contests is over. And while during the contests we can also view our rank and score.

3.2 Hardware Interfaces:

Only the recommended configuration (basic requirements of a computer system) no other specific hardware is required to run the software.

3.3 Software Interfaces :

- ✔ Browser to load and view the web pages
- ✔ Operating System

4.Functional Requirements

4.1 Admin:

4.1.1 Create contest:

This action is done to create new contest to online coding platform.

4.1.2 Modify contest:

This event is to add problems to an existing contest or modify its information.

4.2 Hoster:

4.2.1Request for Contest:

Hoster first request admin for create a contest.

4.2.2 Add Problems:

Admin can add a problems based on some rules specified by the hoster .

4.3 Normal User :

4.3.1 Register:

When new user enters for the first time then he has to register

4.3.2 Practice problems :

Practice problems shows the previous contest problems .Those problems can be solved at any time and also he can submit any number of times.

4.3.3 Participate contests :

This interface will allow users only the time when the contests are conducted. That means we can not participate after the contests is over. And while during the contests we can also view our rank and score.

4.4 Common Functions :

4.4.1 Login:

Both coders and hosters must be logged in before they use this platform.

4.4.2 Register:

Every user must be registered then only he can use this platform.

5. Non-functional Requirements

5.1 Error handling:

Online Coding Platform shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period.

5.2 Performance Requirements:

The Platform shall accommodate high number of problems and users without any fault.

5.3 Safety Requirements:

Platform usage shall not cause any harm to human users.

5.4 Security Requirements:

- ✔ Platform will use secured database
- ✔ Normal users can just read information but they cannot edit or modify anything except their personal and some other information.
- ✔ System will have different types of users and every user has access constraints

6 UML Diagrams

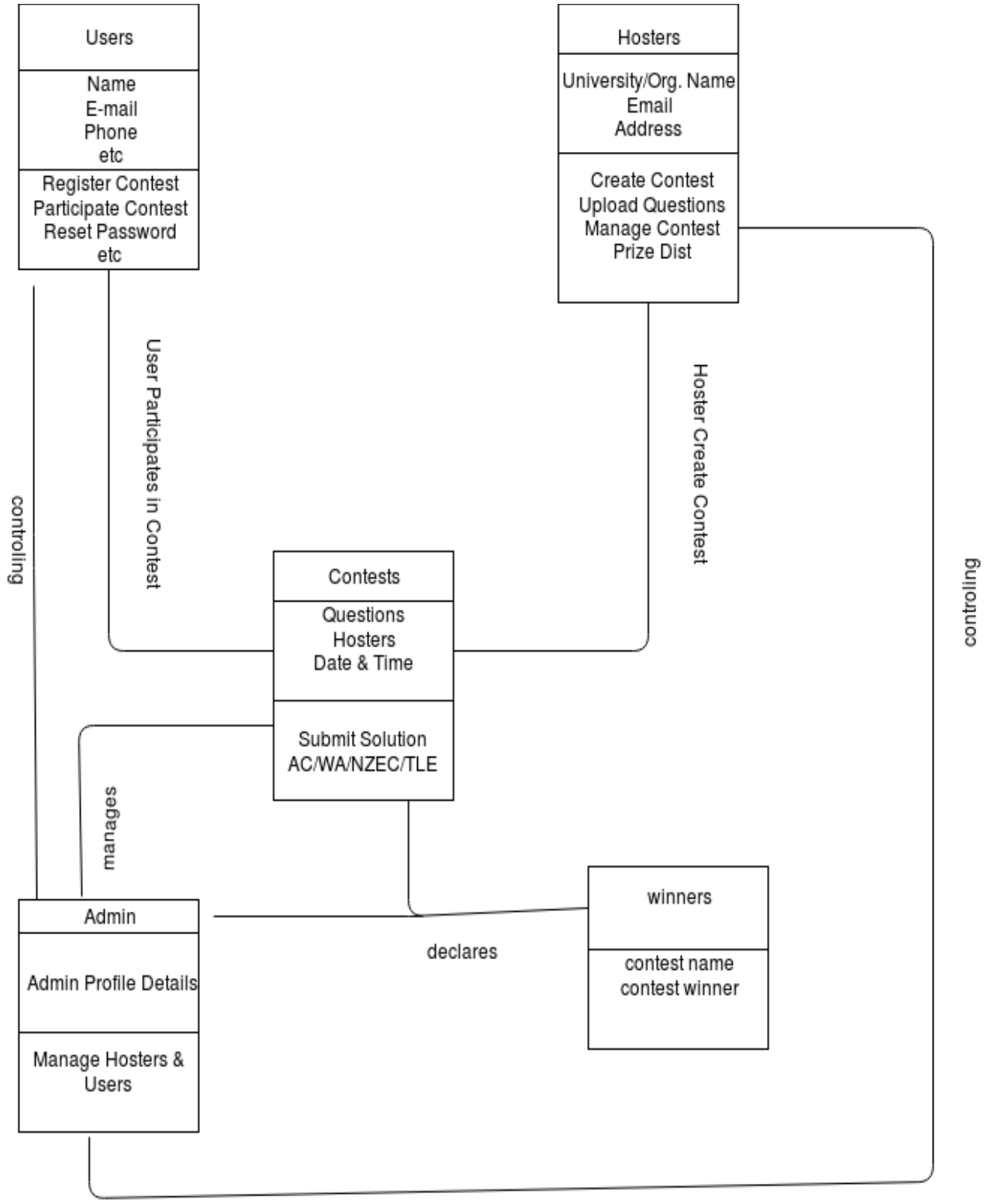
6.1 Use case Diagrams:

A use case diagram is a dynamic or behavior diagram in UML. Use case diagrams model the functionality of a system using actors and use cases. Use cases are a set of actions, services, and functions that the system needs to perform. In this context, a "system" is something being developed or operated, such as a web site. The "actors" are people or entities operating under defined roles within the system.

Admin can modify contests. Hoster can also add/delete a member/user based on some specific rules. User can practice any problem and participate in contests.

6.2 Class Diagram:

In a class diagram, the classes are arranged in groups that share common characteristics. A class diagram resembles a flowchart in which classes are portrayed as boxes, each box having three rectangles inside. The top rectangle contains the name of the class; the middle rectangle contains the attributes of the class; the lower rectangle contains the methods, also called operations, of the class. Lines, which may have arrows at one or both ends, connect the boxes. These lines define the relationships, also called associations, between the classes.

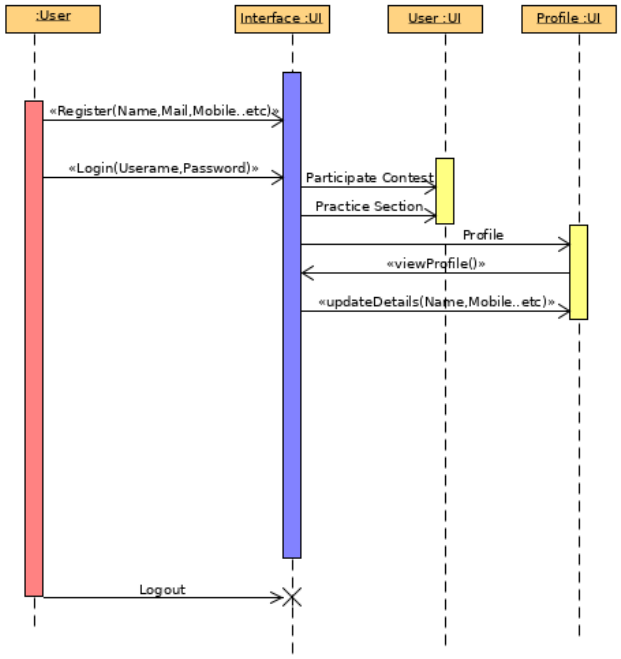

Users
Name
E-mail
Phone
etc
Register Contest
Participate Contest
Reset Password
etc
Hosters
University/Org. Name
Email
Address
Create Contest
Upload Questions
Manage Contest
Prize Dist
User Participates in Contest
Hoster Create Contest
controling
controling
Contests
Questions
Hosters
Date & Time
Submit Solution
AC/WA/NZEC/TLE
manages
Admin
Admin Profile Details
Manage Hosters &
Users
declares
winners
contest name
contest winner

6.3 Sequence Diagram:

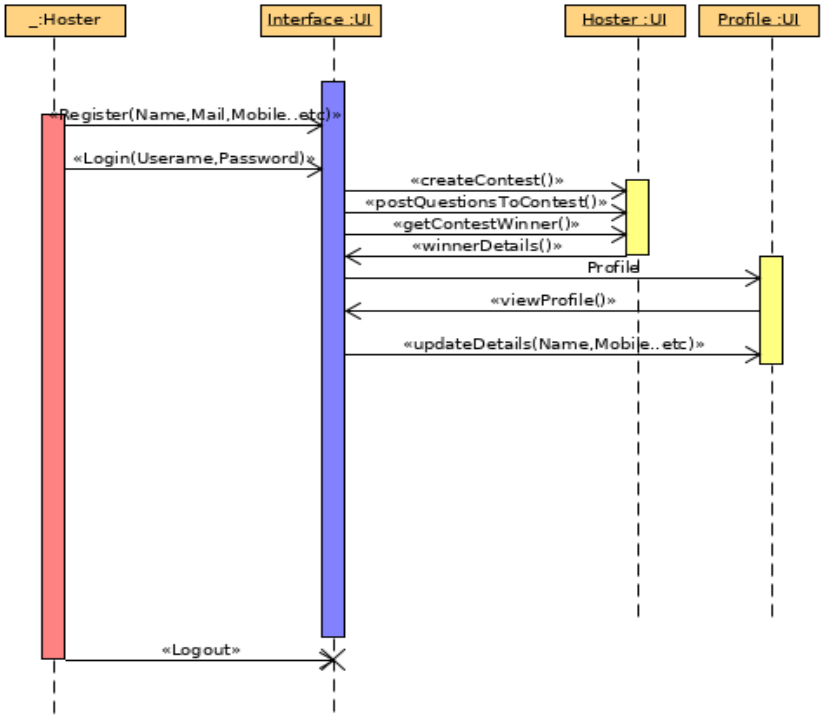
Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modeling a new system.

The user,hoster and admin login into software platform. The user practice any problem which he required. Then the admin issues score to the User. After so submission of the code . If any penalty ,The admin informs the User. The User submit solutions to problems . The User information is modified in database.

6.3.1 Sequence Diagram of User:

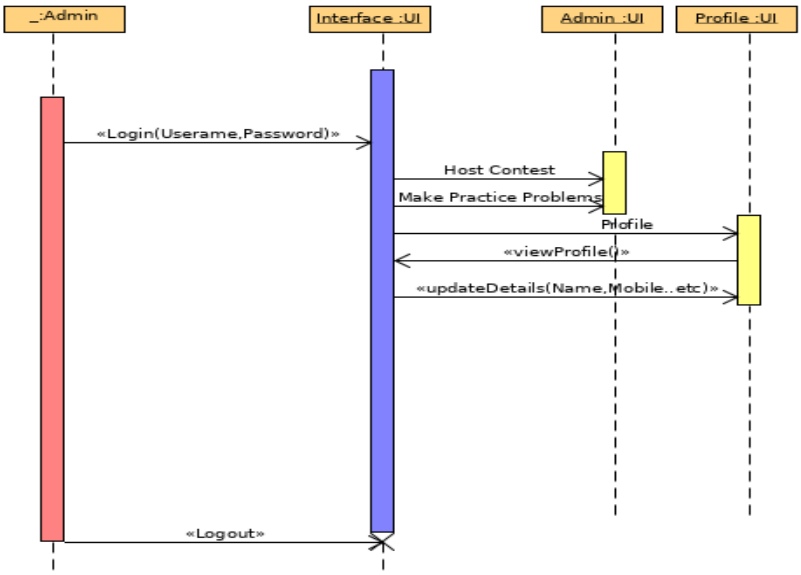


6.3.2 Sequence Diagram of Hoster:



Sequence diagram of hoster consists of some methods like creating contest, posting questions and get winner at the end of the contest. So, first hoster must have an account in this platform to perform these actions. This diagram explains about the sequence of steps involved in hosters credentials.

6.3.3 Sequence Diagram of Admin:

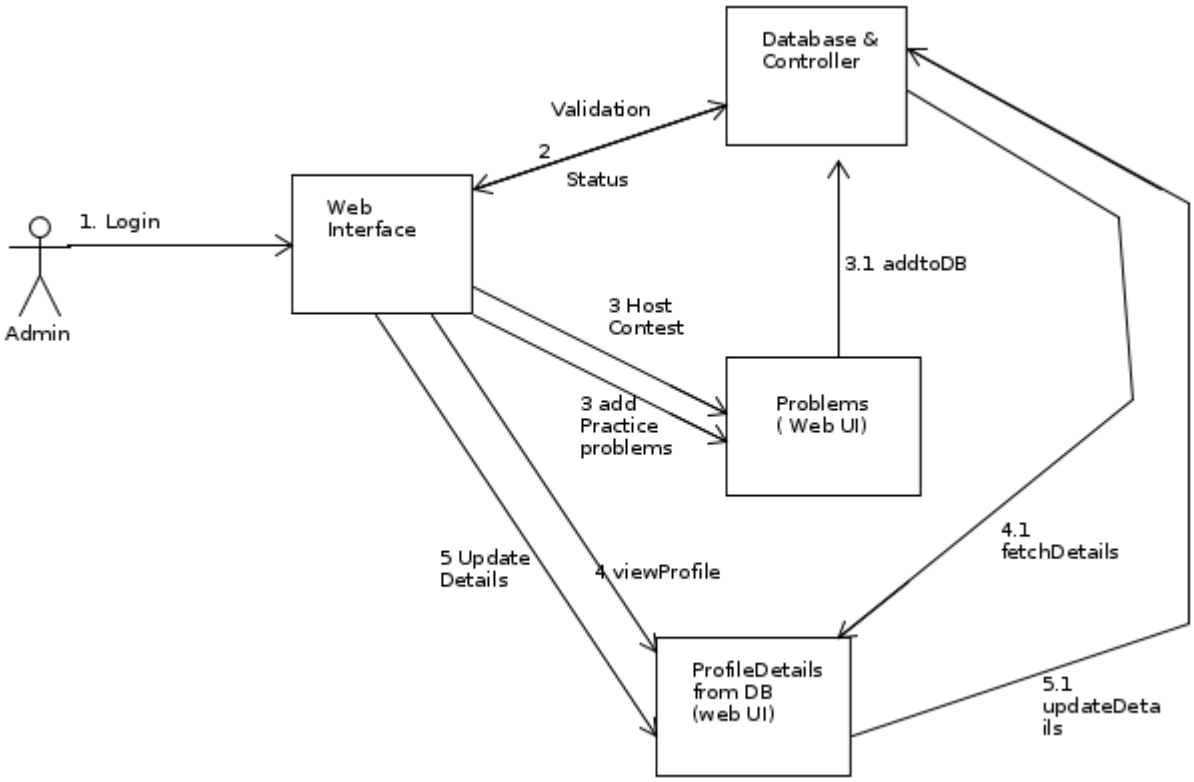


6.4 Collaboration diagram:

A collaboration diagram resembles a flowchart that portrays the roles, functionality and behavior of individual objects as well as the overall operation of the system in real time. Objects are shown as rectangles with naming labels inside. These labels are preceded by colons and may be underlined. The relationships between the objects are shown as lines connecting the rectangles. The messages between objects are shown as arrows connecting the relevant rectangles along with labels that define the message sequencing.

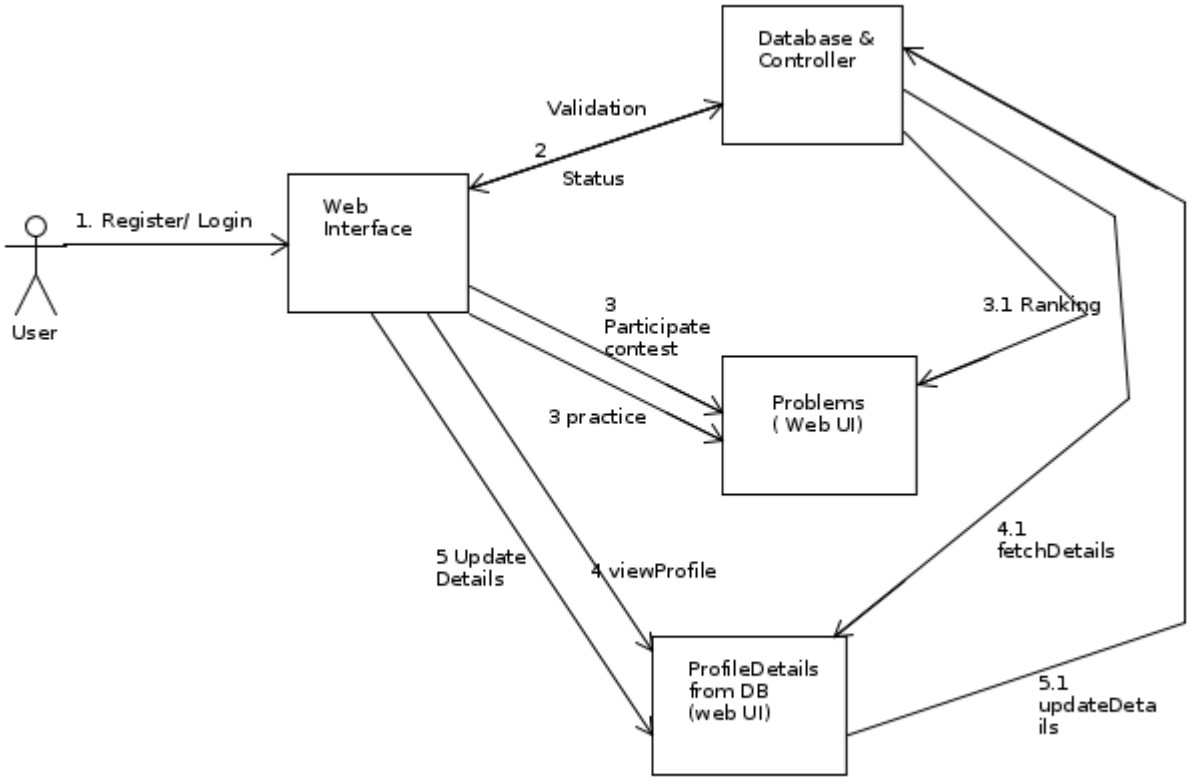
The Sequence of steps represented in Sequence diagram are given a number in Collaboration Diagram.

6.4.1 Collaboration Diagram of admin:



This diagram of collaboration explains about the sequence of steps are numbered at which ordering of actions performed by the admin view of the system.

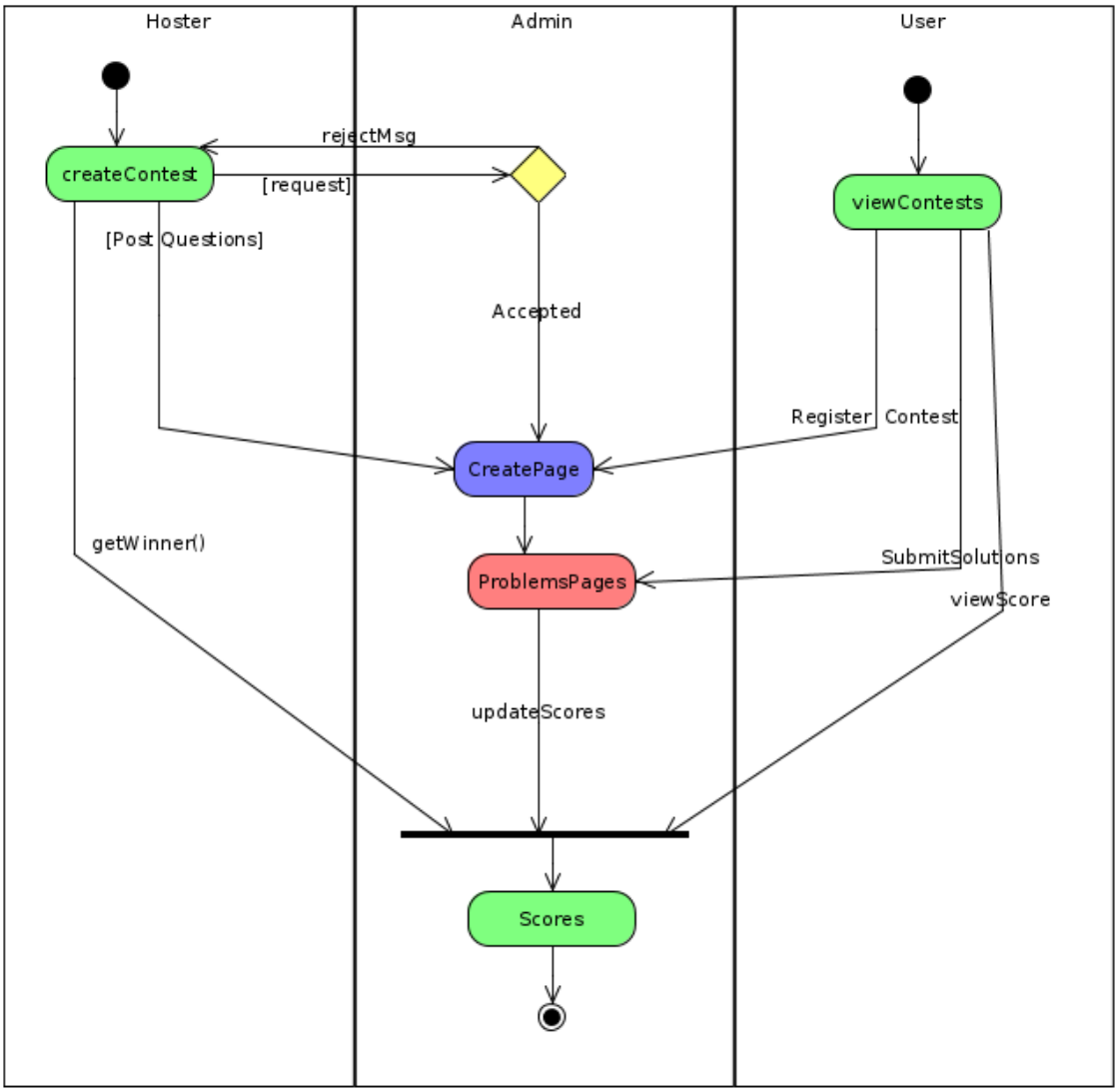
6.4.2 Collaboration Diagram of User:



6.5 Activity Diagram:

In Unified Modeling Language (UML), an activity diagram is a graphical representation of an executed set of procedural system activities and considered a state chart diagram variation. Activity diagrams describe parallel and conditional activities, use cases and system functions at a detailed level.

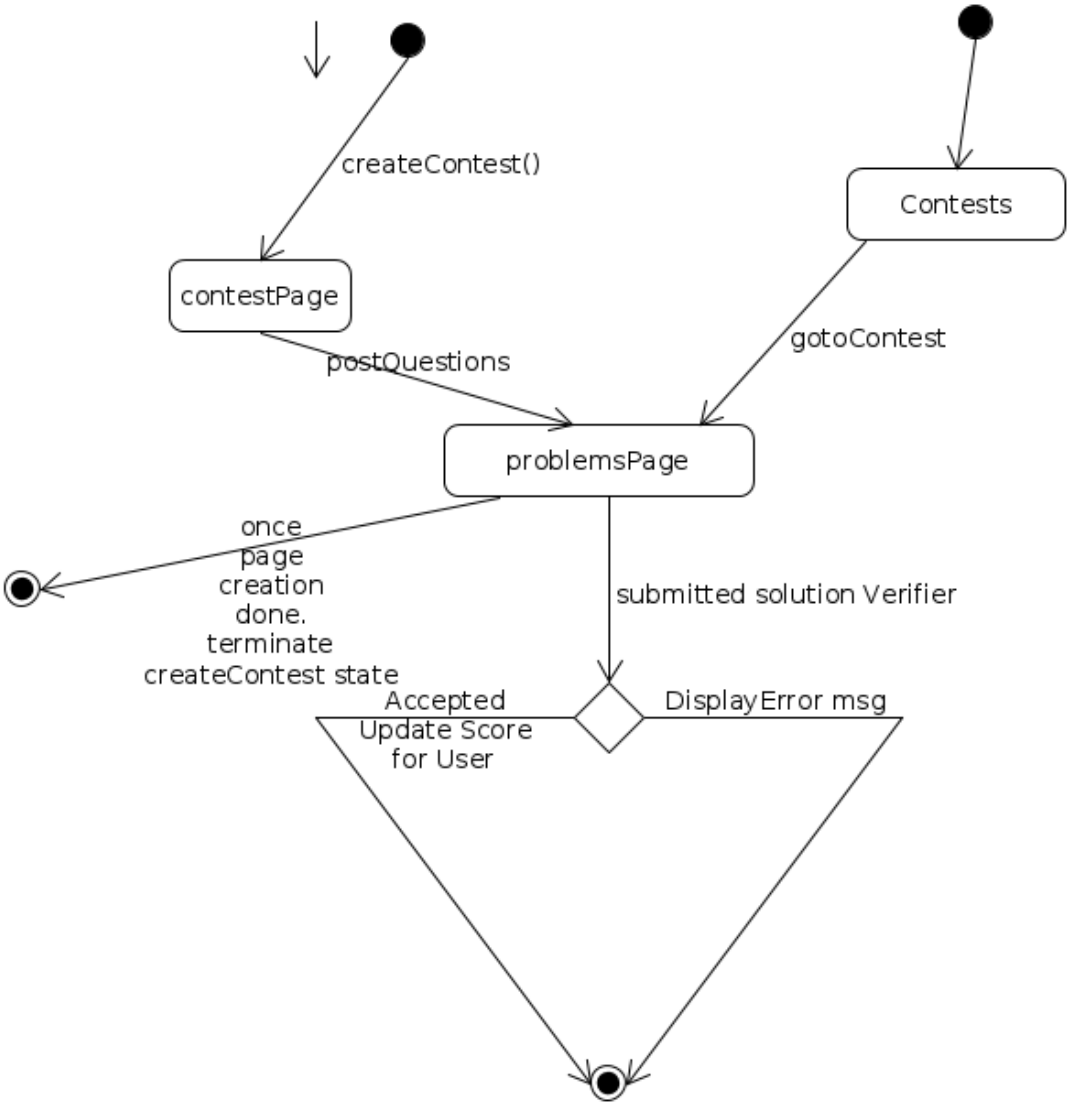
The User/members enters the user name and password. If they are valid,then they login into the software. Then they can use the platform.



Activity diagram of the system explains about the interactions and processes involved in the system to produce an outcome. Rather than focusing on what outcome is it focuses on how the system will produce the outcome in set of activities by different viewers and their actions.

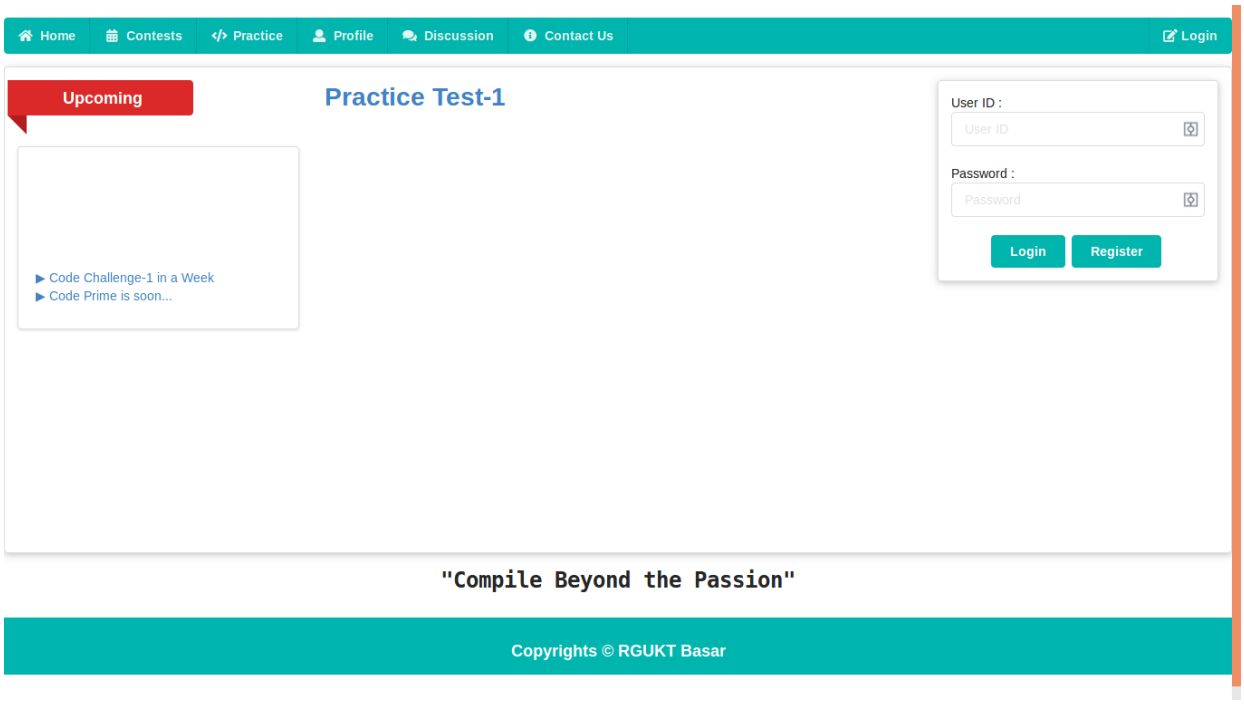
6.6 State chart Diagram:

A state diagram is a diagram used in computer science to describe the behavior of a system considering all the possible states of an object when an event occurs. This behavior is represented and analyzed in a series of events that occur in one or more possible states. Each diagram represents objects and tracks the various states of these objects throughout the system.
If the user/member login into the software,If the details are valid ,then they can perform some actions like practice/participate the contests.

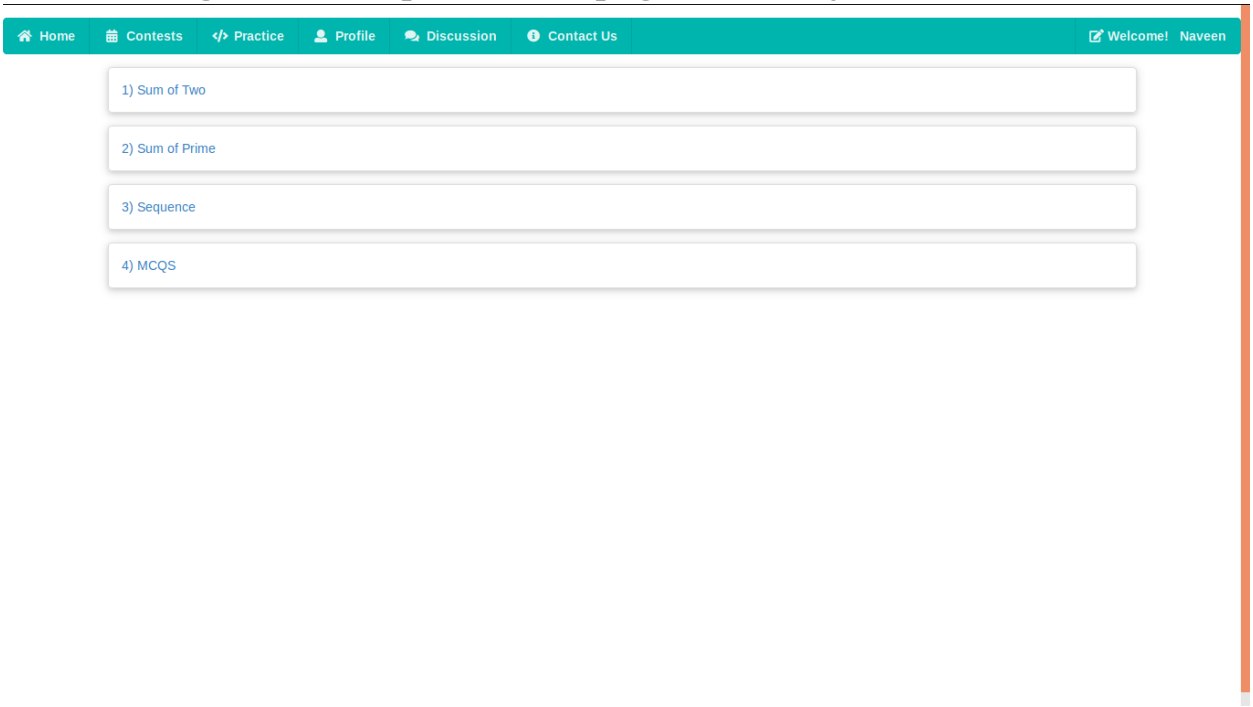


7 Screens

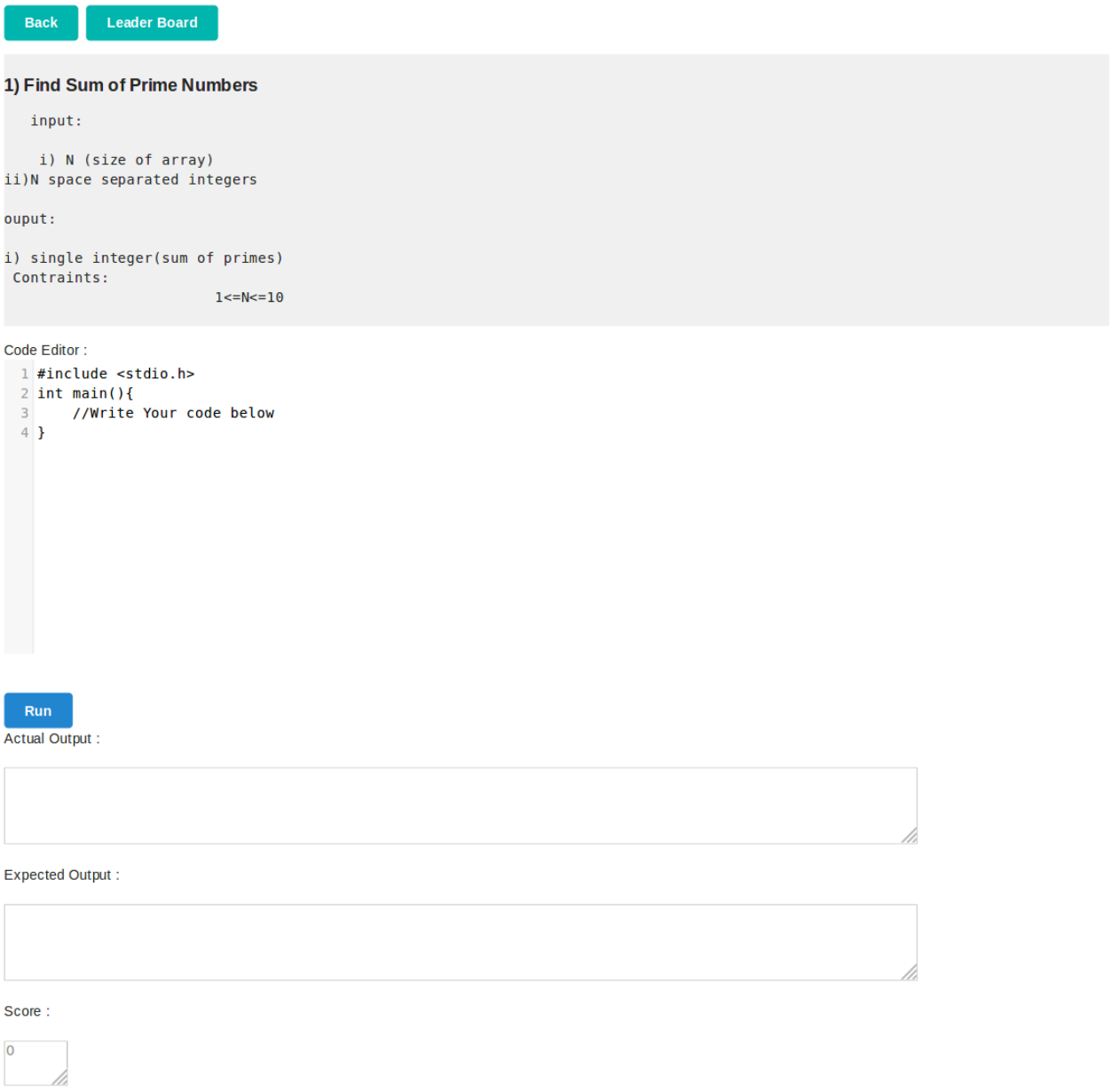
7.1 Home page: Preview of homepage with login board and upcoming contests.



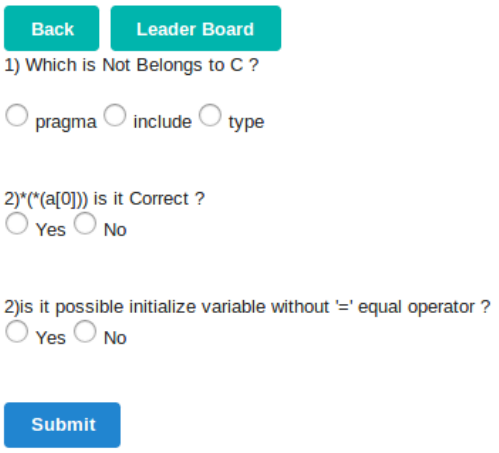
7.2 Contest Page: A sample contest page hosted by different hosters.



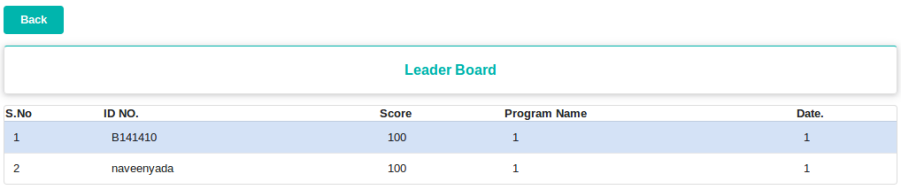
7.3 Problem Page : A sample problem page and text editor integrated.



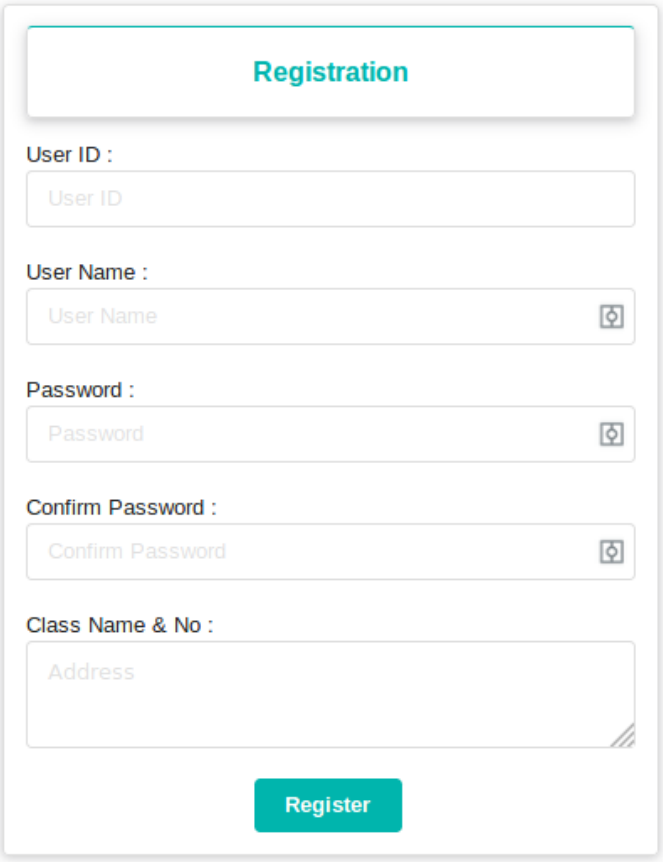
7.4 Practice Page: Quizzes can be conducted too.



7.5 Leader Board or View Ranks: To view scorecard of contest.



7.6 Registration Page: To create an account in the platform.



8.Future Scope

- ✔ This project is developed to enhance the programming skills of each individual
- ✔ This project can be further extended to distributed servers in order to access for more users.

9.Conclusion:

This project satisfies all programmers to excel their programming skills and develop in future.