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**Software Engineering (SE-202)**

**Coding Monitoring System**

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The Coding Monitor

ABSTRACT

Competitive programming is something which many students of CSE background are associated with. Questions related to Data Structures and Algorithms always need a good amount of practice. Almost all coders rely on websites like Codeforces, CodeChef etc. to master their skills and knowledge of competitive coding by giving various competitions on these platforms. But at the same time managing their performance across such platforms and also remain up-to-date with the ongoing and upcoming competitions can be tedious task. Every beginner coder suffers from problems similar to this problem. As such, there isn’t any dashboard where the user can get full statistics /overview and details of all the questions attempted. Through this project we want to solve this problem and build a dashboard that will monitor their progress across various platforms and help them maintain a pace to ace competitive programming.

INTRODUCTION

* Competitive programming needs a good amount of practice.
* For this, there are many websites available where they regularly host coding competitions and also have tremendous number of questions of all the levels: easy, medium and hard.
* Some of the examples of these websites are: CodeChef, Codeforces, Hackerrank, LeetCode, InterviewBit, Spoj and many more.
* All these websites despite of having a good pool of questions lack a dedicated dashboard where they can view their complete statistics of their progress.
* For example, there isn’t any way for coder to view how many questions he/she did on a particular day, or how in a month or in an year, there isn’t any way to assess and compare the rating changes and overall progress with those of your friends.

OBJECTIVES

In this project, we will make a website which will serve as a dashboard for a user to view his/her performance in competitive coding and Data Structures and Algorithms. For now the program will have features for Codeforces and Codechef (which will be expanded later on). There will be 2 types of users in our program, one who comes as guest.

* Temporary Users : These users will be temporary and there data will not be stored in the database. These users will get only limited features.
* Permanent Users : The second type of users will be the ones who log in our website. The data will be stored and all the additional functionalities will be available to these users.

**Functionalities:**

* View total number of questions done on a platform
* View your rating changes
* Questions done per day
* Difficulty(rating) of questions done per day
* Compare your progress with friends
* Save your friends and view their progress
* Practice questions by topics
* Daily questions for practice
* Around 450 Data Structures & Algorithms question

REQUIREMENTS

**Hardware:** Any laptop/desktop/mobile

**Software:**

* VS Code (as code editor)
* GitHub (code sharing and version control platform)
* NodeJS (used for backend server)
* MongoDB (database)
* Any web Browser

**Languages/Technologies Used:** HTML, CSS, JavaScript, Materialize CSS, MongoDB, NodeJS.

CONCLUSION / LEARNING OUTCOME

In this project, we will learn web development skills which includes making a server, making web pages, fetching details of a user from a third party website, hosting the website, maintaining database, using proper queries to access correct data from the database, prevent storing redundant data in the databse, proper encryption and authentication of user data , prevent invalid access of data, maintenance of software, removal of bugs through proper and thorough testing, deploying the website and collect user feedback, work on new features depending on the user response, roll out new versions of the website with time with more enhanced features and user experience, proper and timely response of user complaint (if any) .

PROJECT CONSTRAINTS

For implementing the project we are fetching the user data from various websites like Codeforces, Codechef through the use of API. The codeforces API is publicly available, but for codechef, we had to request them to provide us the access to API. In reply to this we got an API of version 1.0.0 which simply means that they have provided us some limited access to their database. Apart from this, we have requested the API from some other prominent websites like InterviewBit and Hackerrank. So further implementation and expansion will be subjected to availability of API from these organizations.