Cyber Trainer

User Manual

Introduction

This web app is designed to provide a learning platform for Rafael employees, the main goal is to teach how to write secure code and learn about different vulnerabilities and weaknesses.

User Registration

All the problem solving features the app provides can be accessed after logging in to an account. First, to create an account one should go to the ‘Register’ page and fill up the required fields: name, username, a valid email address and a password. It is important to note that each username is unique across all users. After creating an account, you can head to the ‘Login’ page in which you can then enter you details which were set up at the registration and log into the account.   
You can see that you are logged in immediately via the home page, if you are logged in with the user name ‘Alex’ then you should get a message that says “Welcome back, Alex”, otherwise Login/Register options will appear.

Problem Solving

Problems Menu

The problems are divided into different programming languages, this can be seen when going to the ‘Problems’ page in which there will appear a list of programming languages to choose from. After clicking a specific language a list of problems will appear, this list is composed of both closed (multiple choice) and open (code) questions. Each question has a name, type, difficulty (easy/medium/hard) and a mark that indicates if you have already solved it (If the question hasn’t been solved then a red ‘X’ will appear, otherwise if it was solved then a green ‘V’ will appear). You can use the filtering options to display only a certain group of questions. For example, if you mark ‘easy’ then only questions with the ‘easy’ difficulty will be displayed.  
When picking a question to solve and clicking it you will be able to try and solve it as discussed in the next paragraph.

Solving a Problem

There are two kinds of problems to solve:  
- Open problems: This is a problem which involves writing code. The problem has a paragraph explaining what the problem is about and what the user should do, this part contains all the instructions required to understand the question. Under the paragraph there will be a text window which contains some code, this code is editable and can be deleted and changed by the user. After modifying the code, you can submit the code for review via the ‘Submit’ button, a loading bar will appear at the bottom of the page and after the code has been checked a feedback message will appear. If the submitted code was correct and the problem was successfully solved then ‘Correct!’ will be displayed in green, if the code didn’t compile correctly then ‘Compilation error’ will be displayed in red and in the case that the code compiled but the solution was not current, the message ‘Wrong Solution!’ will appear in red.   
There is no limit on the number of tries for submitting a question so even if a question has been solved and the user wants to try a different solution he is able to do so.

- Close Problems: This type of problem has a paragraph describing the problem, after that multiple possible answers will appear where only one is correct and the user needs to pick the write answer. Feedback of correctness will be given after choosing an answer.

Profile

The profile can be accessed by tapping ‘Profile’ in the navigation bar. The profile page displays all the information about the user that was given in the registration. In addition, every time the user tries to solve a question, either by submitting code or trying to solve a close-problem the number of total attempts displayed will be increased by 1.  
The profile of any user can be accessed by anyone, but in this case not all stats will be displayed but only a select few – the user name, email and join date.

Leaderboard

The leaderboard can be accessed via the navigation bar.  
This page displays all the users in the system ordered by their total points such that the user with the highest number of total points will the first on the board.  
For each user on the board the following stats are displayed – Username, join date, number of solved problems and total points earned so far.

Tests

A user can take a test whenever he wants. A test is composed of the same questions that are found in the ‘Problems’ section. Before taking a test, the user can choose which categories the questions of the test will be from, and the number of questions in the test.  
For each question, if the question is an open question and the answer was wrong due to compilation error than a second attempt will be given, otherwise the user will be forced to move on to the next question.   
At the end of a test various stats will be displayed such as the number of problems which were solved, the names of solved problems and the failed problems as well. An option of ‘Retake Test’ will be available at the end which gives the option to take the same test again.

Stats

In addition to regular users, there are admins. Admins have an additional feature in the navigation bar called ‘Stats’. In this page an admin can view different statistics about the different users and problems in the system.   
An admin can view the full profile of any user, in addition he can see which problems the user attempted to solve, and which he has successfully solved.  
Furthermore, the most and least solved problems overall are displayed to the admin. For each category the number of attempts and number of successful attempts can be reviewed.

The admin can remove any user he wants, this can be done when accessing the user profile, a button ‘Remove User’ appears at the bottom.  
Adding new problems is available in the ‘Add Problem’ option in this page. There, the name of the problem should be filled in, choose the difficulty and the category of the problem. After that the admin can write the paragraph explaining the problem and even add code which will be displayed as part of the paragraph but stylized. Later the admin is required to add the multiple answers, the number of possible answers is not limited. All that is left is to choose which is the right answer and press ‘Add Problem’ to finish the process.