15637 Team 43 Project: Online Judge Platform Product Backlog

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In our project, we will build an online judge platform where users can practice solving algorithms problems and participate in code competitions.

For all modules inside the project, there will be two common parts:

- User Interface: It includes appearance design, html, css and javascript implementation. We may change our design and add incremental features into the very first design in the first project specification.

- Data Model Design and Implementation: As we use Django framework, we will design and implemente the data model within **models.py**.

We will build the following modules based on functionalities and features:

1. Account Management: This module is responsible for all user-related features including

   - Register and Login: Similar with what we've done in the homeworks, we'll used the api provided by Django to build the user authentication feature.
   - Profile: It consists of profile presentation and edition.
   - (incremental feature) Link to other social media: User can link his account in our site with other social media and probably interacts with them like posting on Facebook or Twitter.
   - (incremental feature) Insite message: User can communicate with each other through insite message feature, similar with Facebook messager.

2. Problem Management: This module is responsible for all coding-problems-related features including

   - Problem administration: It includes problem uploading, deletion and update. A standard problem consists of problem description, test cases.
   - A rich feature editor: It should support different programming languages, syntax highlight and other features that makes coding easy and happy.
   - Solution validation: It will compile the code provided by the user, run and evaluation the output. It will also use some sandbox libraries to prevent the potential damage to the server caused by this solution validation process.
   - Result Display: It will present the output to the user with all the information concerning the validation process, including compiling result, validation result and comparison with other submissions on the same problem.
   - (incremental feature) Problem-specific Discussion: User can discuss the problem in a link given by the problem description page. The style is similar with the post and comment part in the previous homeworks.

3. Competion Management: The admistrator account of the site should be able to host an online coding competion and set up the problems for the competion. The normal account of the site should be able to participate in such kinds of competions. The detailed features includes

   - Competion Setting: The owner of the competition can provide existing problems or new problems for the competion and set up the restriction for the participants. The rewards for the competition should also be clarified (virtual points or something else).
   - Competion registration and monitoring: Users that satisfy the restriction can register with the competion and participate in the competion. The owner should be able to monitor the progress of the competion and admistrate the competion.
   - In-competion features: It includes scoreboard(binded with some ranking algorithms), competion discussion(posts and comments) and announcement.