Team B - Kattis Problem Practice Tool
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<u>**User Stories**</u>

As a student
I want easy access to practice problems
So that I can prepare for the coding competition

As a student
I want to receive instant feedback
So that I may make quick and appropriate changes to my code

As a student
I want to be able to submit code written in any language
So that I can write in any language and receive feedback

As a professor
I want to edit and upload new problems
So that my students can get fresh problems to practice and not find answers online

As a professor
I want to be able to check students code in the background of the site
So that the student's code is not able to affect the site itself

<u>**Requirements**</u>

1. **Definite**

   Functional Requirements
   - Once logged in, students should be able to see problems uploaded by the admin
   - Clicking on a problem name should show the problem description, and a place for uploading a file
   - A user may input a file of certain languages (py, java, js, c, c++) and receive prompt feedback
   - An admin may upload new problems from Open Kattis and tests to those problems that the grader will use

   Non-Functional Requirements

   - A user may input a file and see results of test

- When a solution is uploaded, the test should be run using kattis-cli if the problem is a kattis problem
- Supports Google Chrome
- All tests should be run in the background using docker, to ensure reliability of the website. This ensures students are not able to crash the site by uploading a file.
- When new problem is created by admin, the problem should be verified with Kattis using problemtools 'verifyproblem'

2. Perhaps

Functional Requirements

- Admin may create new problem based off Kattis format and create new tests to go with the new problem

Non-functional Requirements

- Users profile tracks the scores on recent problems
- If the problem is non-kattis and admin created, the code should be run against the admin created tests

3. Improbable (None)

Interfaces

Separate interfaces for student/admin

Student interface:
- Can see available problems
- Clicking on a problem shows problem description and place for uploading a file
- Submitting a file shows results of testing the file
- Can see past scores on coding problems on profile (perhaps)

Admin interface:
- Ability to upload a new problem either directly from kattis or a new problem
  - If comes from open kattis directly, use kattis-cli so it can be easily checked
  - If problem is edited from original kattis version/created from scratch - new test will need to be created for new problem and then kattisproblemtools will need to be used to verify problem fits with kattis format
- Ability to see students scores