



Project title: **An-Najah Rank**

Academic Year: 2023/2024

Project Type: Software

Department Name: Computer Engineering Department

Supervisor Name: **Dr. Samer Arandi**

Group Members: 1- **Momen Odeh** 2- **Noor Aldeen AbuShehadeh**

Project's Abstract:

One of the most important skills for any programmer is problem-solving skills, and there are many websites that can be used to train these skills, such as HackerRank, Codeforces, LeetCode, etc.

At An-Najah National University, professors always strive to improve students' problem-solving skills in many subjects such as computer programming, data structures, algorithms, and object-oriented programming by assigning problem-solving assignments and quizzes using problem-solving websites. However, they face several challenges in using these websites, such as difficulty tracking student submissions, an inability to directly identify code similarities among students' submissions, and the inability to manually mark incorrect answers.

We will implement this project by building a web application with React JS as the frontend and Flask Python as the backend, and we will use Docker for containerizing the application. This will allow easy deployment on the cloud or any local server.

Features of An-Najah Rank:

- Registration and login for both students and professors on the web application.
- Professors can create new courses and enroll students in them by simply uploading the excel file exported from any zajel course.
- Professors can add programming assignments and quizzes to their courses. For each such assignment or quiz, the professor provides a set of input test cases and the expected correct output. The system will automatically correct the assignments based on the output test cases. Each assignment has a starting and ending date, during which it will be available to the students.
- Professors can view a list of students who have submitted assignments, their grades, and the similarity of their submissions. They can also review the submissions and optionally manually mark submissions that was found incorrect by the system.



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- The professor can also track the progress of the student submission, i.e. they can see the changes from the first version the students submit to the last (hopefully) correct answer.
 - Students can access their homepage on the system which shows information about the assignments and quizzes in current or previous courses. The student can start solving the assignments/quizzes assigned to them by writing code in their preferred programming language, such as C, C++, Java, Python, or JavaScript directly in the browser. They can then run the code to check if it passes or fails test cases.
 - The student can also view the status for each assignment/quiz, their score and general performance.
 - Students will receive notifications when the professors add a new assignment.