CS621 Final Project Proposal: Likecode

Improving Leetcode algorithm

June 24, 2023

1. Summary

"LikeCode" is a dynamic website dedicated to assisting students in their interview preparation by providing a platform for practicing LeetCode problems. Unlike traditional question-answer platforms, LikeCode goes beyond providing simple answers and offers a unique learning experience. It leverages a diverse collection of coding challenges carefully curated to enhance problem-solving skills and algorithmic thinking. By offering an interactive coding environment, comprehensive explanations, and hints, LikeCode empowers students to excel in coding interviews, gaining confidence in solving real-world coding problems encountered during interviews.

2. Problem description

"LikeCode" addresses the common challenge faced by job-seeking students in preparing for coding interviews. While platforms like LeetCode provide a question-answer approach, LikeCode takes it further by offering an interactive training program that promotes a deep understanding of coding concepts and practical problem-solving skills.

Traditional question-answer platforms often lack the educational aspect required for students to grasp the underlying principles and techniques used in coding interviews. LikeCode fills this gap by providing a comprehensive learning experience that goes beyond providing answers. By immersing themselves in thoughtfully selected coding challenges, students using LikeCode enhance their problem-solving abilities and develop strong algorithmic thinking. With a wide variety of problem types and difficulty levels, LikeCode ensures that students are well-prepared for the diverse range of problems encountered during interviews.

3. Implementation plan

To create LikeCode and deliver a seamless user experience, we will implement the following components:

- Online Code IDE: We will develop an intuitive and user-friendly code Integrated Development Environment (IDE) that supports popular programming languages such as Java, C++, and Python. This IDE will allow students to write, compile, and run their code directly on the website, providing an interactive coding environment.
- Front-end: LikeCode's front-end will be developed using HTML, CSS, and JavaScript. These technologies will ensure an engaging and visually appealing user interface, enabling students to navigate coding challenges effortlessly.
- Back-end: LikeCode's back-end will utilize a JSON (JavaScript Object Notation) file to store data and provide instructions to the website. This approach ensures efficient data retrieval and seamless integration with the front-end. We will implement a Python Flask framework to handle the back-end logic and serve the JSON data to the front-end.
- Database: To enhance the user experience, we will implement a database to store user progress, including completed challenges and performance metrics. This database will enable students to track their progress, review past solutions, and receive personalized recommendations for further practice.
- Scalability and Performance: LikeCode will be designed for scalability and performance. By leveraging modern technologies and cloud-based infrastructure, we will ensure that the website can accommodate a large user base without compromising speed or reliability.

By following this comprehensive implementation plan, we will create a robust and user-centric platform that revolutionizes coding interview preparation. LikeCode will empower students to excel in their job search and pursue their career aspirations with confidence.

4. Team Member

Name	Blazer ID & E-mail	Role
Sori Sim	・ ssim (ssim@uab.edu)	・ In this project, I handle the online IDE aspect for Java. To accomplish this, I utilize relevant JavaScript libraries obtained from online resources. Additionally, I am in charge of writing the project proposal, outlining its objectives and important details.
Felix Tien	・ tien0719 (tien0719@uab.edu)	・ The proposed project aims to replicate the functionality of the LeetCode platform and integrate the

		concepts covered in our class. Given the absence of a standardized approach on the LeetCode website, the idea is to provide an alternative by presenting optimal solutions alongside corresponding questions. This would enable users to practice problem-solving using our platform's recommended approach.
Howard Yu	• yuc (yuc@uab.edu)	• I do the online IDE part for C++. Use by creating a text box for users type in their code and run button to run the code and then get the output in the output box. For running the code I use some libraries from online resources which is code by JavaScript.
Jay Chin	• jchin25 (jchin25@uab.edu)	As part of the project, my responsibility entails implementing the online IDE for Python. To achieve this functionality, I create the user interface for users to code and utilize JavaScript libraries for the website to run the code. Additionally, I am responsible for the front page's introduction.
Annie Wu	• ywu3 (ywu3@uab.edu)	In the project, my responsibility was to provide optimal solutions to various Leetcode problems, utilizing a range of tools, algorithms, and considering time and space complexities. I also incorporated valuable insights from YouTube videos as reference.