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CompSciPrep
Vision

Version 1.0

Revision History

Date	Version	Description	Author
<dd/mmm/yy>	1.0	First Project Vision	Iancu Paul

Table of Contents

Vision

1. Introduction

Every computer science student will take technical interviews along his/hers career. Such interviews almost always require at some point an algorithmic type problem. These problems can be tricky because some of them require a very specific idea that you may not come up with in stressful situations. In order to have a better chance at passing interviews, some experience with this type of problems is necessary. Also, from the perspective of the employer, these types of interviews are expensive, because they require on site resources.

1.1 Purpose

The CompSciPrep System aims to solve the problem of students being unprepared for technical interviews. This system will also teach them some basic computer science concepts through a very practical and interactive approach. We will do this by categorizing each problem by difficulty, concepts used in solving the problem, estimated time for solving it. A user can submit his/her solution (written in one of the supported languages for our system) and tests will be run against it, the results will be almost immediately shown back. Our system also aims to reduce the headache of organizing an onsite interview, by allowing the employer to create online interviews.

1.2 Scope

The features of the CompSciPrep System are the following:

- User Authentication (Create Account + Loggin)
- List problems found by a searching criteria (title, categories, difficulty)
- View a specific problem (title, categories, difficulty, task, example input, example output)
- View submissions made by the user
- View submissions made for a specific problem
- Create a submission for a problem (upload the source code of the solution)
- View details for a submission (the tests for that problem that passed/failed)
- Modify a submission (added a new source file)
- Delete a submission
- Create a new problem (title, categories, difficulty, task, example input, example output, test cases)
- Modify a problem (categories, difficulty, task, example input, example output, test cases)
- Delete a problem
- Provides statistics with the improvement of the user
- Create an online interview
- Modify an online interview
- Delete an online interview
- View online interviews created
- View the users with the top scores for an online interview

The following functionalities will be provided by external system:

- Compilers\Interpreters for the supported languages

1.3 Definitions, Acronyms, and Abbreviations

Throughout this and all related papers the following terms will be defined and understood by the reader as follows:

Term	Definition
Problem	A problem will consist of the following elements: title, categories, task, example input, example output, one or more test cases.
Input	An input is a sequence of characters given from the console or from a file that is meant to be processed by the solution to the problem.
Output	An output is a sequence of characters written in the console or in a file by the solution to the problem.

Test Case	A test case of a problem will consist of an input for the problem and the expected output to be generated by a correct solution.
Test Result	A test result will contain information about the behavior of a solution on a specific test case. The main category in which test results are organized are test run success/failed. In the test run success group, a test run will contain the time duration for the test case. In the test run failed, it will contain the reason of failure (incorrect output, run time error, time limit exceeded, etc.)
Category	A category is a user submitted string linked with the problem that allows for easier searching of specific types of problems.
Difficulty	A difficulty is a property attached to the problem by the author of the problem. It can have one of the following values: Easy, Medium, Hard.
Submission	A submission for a problem is a source file written in one of the supported languages that is meant to be a solution.
Online interview	An online interview is a group of one or more problems that must be solved within a time period that starts from the moment the user accepts the online interview.

1.4 References

For further clarifications see the following resources:

- Project_SupplementarySpecification
- Project_Analysis_and_Design_Document
- Project_UseCaseModel_Create_Problem
- Project_UseCaseModel_Submit_Solution

1.5 Overview

The upcoming sections of the document will describe the product positioning in the market, relative to other interview preparation systems. We will then continue by describing the involved stakeholders, the end users, the end user environment and the product hardware and software requirements.

2. Positioning

2.1 Problem Statement

The problem of	Getting false negatives in an interview process.
affects	Good candidates that were rejected.
the impact of which is	Less economic well being for both the candidate and the employer.
a successful solution would be	A system which will help candidates prepare for technical interviews.
The problem of	Wasting too much resources for an interview.
affects	The employer preparing the interview.
the impact of which is	Less economic well being for both the candidate and the employer.
a successful solution would be	A system which will help reduce the cost of such an interview.

2.2 Product Position Statement

For	Candidates preparing for technical interviews.
Who	Need to refresh their problem solving skills related to algorithms and data structures problems.
The CompSciPrep System	Is an educational system.
That	Prepares candidates for these type of questions.
Unlike	The old way of preparing for interviews by reading textbooks.
Our product	- Provides an interactive medium - Provides an easy way to estimate time needed to solve a specific problem - Provides statistics with the improvement of the user in a period of time
For	Employers working for software companies.
Who	Want a cheaper way to make interviews.
The CompSciPrep System	Is an interview creation system.
That	Makes the creation of an interview easier.
Unlike	The old way of organizing an onsite interview.
Our product	- Provides a system in which employers can interview candidates without on site resources

3. Stakeholder and User Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Candidate	Person that is preparing for a technical interview.	To accept and follow the terms and conditions of our system.
Interviewer	Person that wants to hire a possible candidate.	To accept and follow the terms and conditions of our system.
System Administrator	The person that ensures that the systems (servers, network connections, database) are working properly.	Ensures that the systems (servers, network connections, database) are working properly.
Implementation Team	The team developing the project. (That is you)	Provide a clean implementation with minimum effort.

3.2 User Summary

Name	Description	Responsibilities	Stakeholder
Candidate	Person that is preparing for a technical interview.	Submit the contact information that is required for creating an account. Submits solutions to the problems. Update his/her solutions to the problems. Delete his/her solutions to the problems. Sees his/her submissions. Sees his/her submissions statistics.	He is a direct user.
Interviewer	Person that wants to hire a possible candidate.	Creates online interviews. Sees his/her created interviews. Modify his/her online interviews. Deletes his/her online interviews. Sees the list with all of the submissions for one of his/her online interviews.	He is a direct user.

3.3 User Environment

Candidate

The candidate is considered to submit submission to problems/online interviews from his personal computer in a non-stressful environment.

Interviewer

The interviewer is considered to create an online interviews from his office and to be able to assess the submissions of the candidates without spending on site resources.

4. Product Requirements

For either user, the product requires first of all a stable internet connection, a computer with at least 8 GB RAM, Dual Core processor, one monitor, mouse and keyboard.