Bilkent University

Department of Computer Engineering

CS 353 Term Project

CSCareer: A Quiz Based Hiring System

Proposal

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Proposal

CSCareer: A Quiz Based Hiring System

1. Introduction

Nowadays, the need for software engineers in companies is increasing. While companies look for qualified developers, developers also look for companies which can satisfy their demands. For this reason, companies hold interviews for many engineering candidates. However, if companies don't eliminate candidates before the interview, holding the interviews may not be easy to select a developer who is really qualified in the desired area. Also, it should be noted that an interview is a time-consuming event and neither a developer nor a company wants to waste a lot of time. Because of all these reasons, some online hiring systems such as TripleByte is established to measure the developers' proficiency in a particular computer science related area as a first step of the hiring process.

In this project, we are going to implement a similar web application called CSCareer and this proposal includes description of the project, requirements, limitations, and entity-relationship model of the back-end database system.

2. Project Description

CSCareer is a web-based application which basically includes quizzes related to computer science and provides technology companies with quizzes' results to hire qualified employees. In the system, there are many quizzes in different categories

which include computer science related multiple choice questions. The developers who look for a job or want to prove themselves should sign up to the system. Then, they can solve the quizzes to demonstrate themselves. It is also important to note that the developers cannot take more than three quizzes within four months. A company representative who wants to hire a developer looks at the quiz results and can send an interview request to one they chose. This request may be accepted or declined by the developer.

2.1. Why Do We Need a Database?

CSCareer is designed as a multifunctional system. Therefore, it requires persistent storage to store data and control user-based actions.

First of all, the application will include many quizzes in different categories. In order to keep these quizzes, the system needs a large storage. Keeping the quizzes in the database helps adding new questions/quizzes, categorizing the quizzes, and changing the questions easily in case there is a mistake.

Secondly, it is expected that a lot of developers will sign up to the system. Not only developers but also company representatives will sign up. Since the user will login the system many times, user's login information should be kept in a database.

Thirdly, developers will solve quizzes and they will get points. Since company representatives will hire someone by considering his/her quiz grade, their results should also be kept. Furthermore, as mentioned above, since developers will have 3 trials within a four months, their number of trials should be stored as well.

3. Requirements

In this section, there are functional / nonfunctional requirements and constraints of our system.

3.1. Functional Requirements

- Every person who use this system needs to sign up when they enter the system first time.
- Each user needs to sign in to system whenever they use it.
- Admin prepares quiz.
- Developers solves questions and takes quizzes.
- Company representatives can see quiz results of developers.
- Representatives can send interview request to developers.
- Developers can accept or decline the interview request of company representatives.

3.2. Non-Functional Requirements

- Developers and company representatives should authenticate themselves via e-mail.
- Within at most three days, it should be determined whether the information of company representative is accurate. (e.g. Representative should represent a real company.)
- System should be user friendly to facilitate the usage. Developers or company representatives will learn how to use it within 5 minutes.

- Data need to be kept in safe and the system does not lose any data. It is serious safety issue since the system includes personal information of the users.
- The system should perform its functionalities without any failure. If there is a failure, it should not affect the whole system and can be recovered as fast as possible.
- New features should be added easily into system without huge alterations on other parts of system.

3.3. Constraints

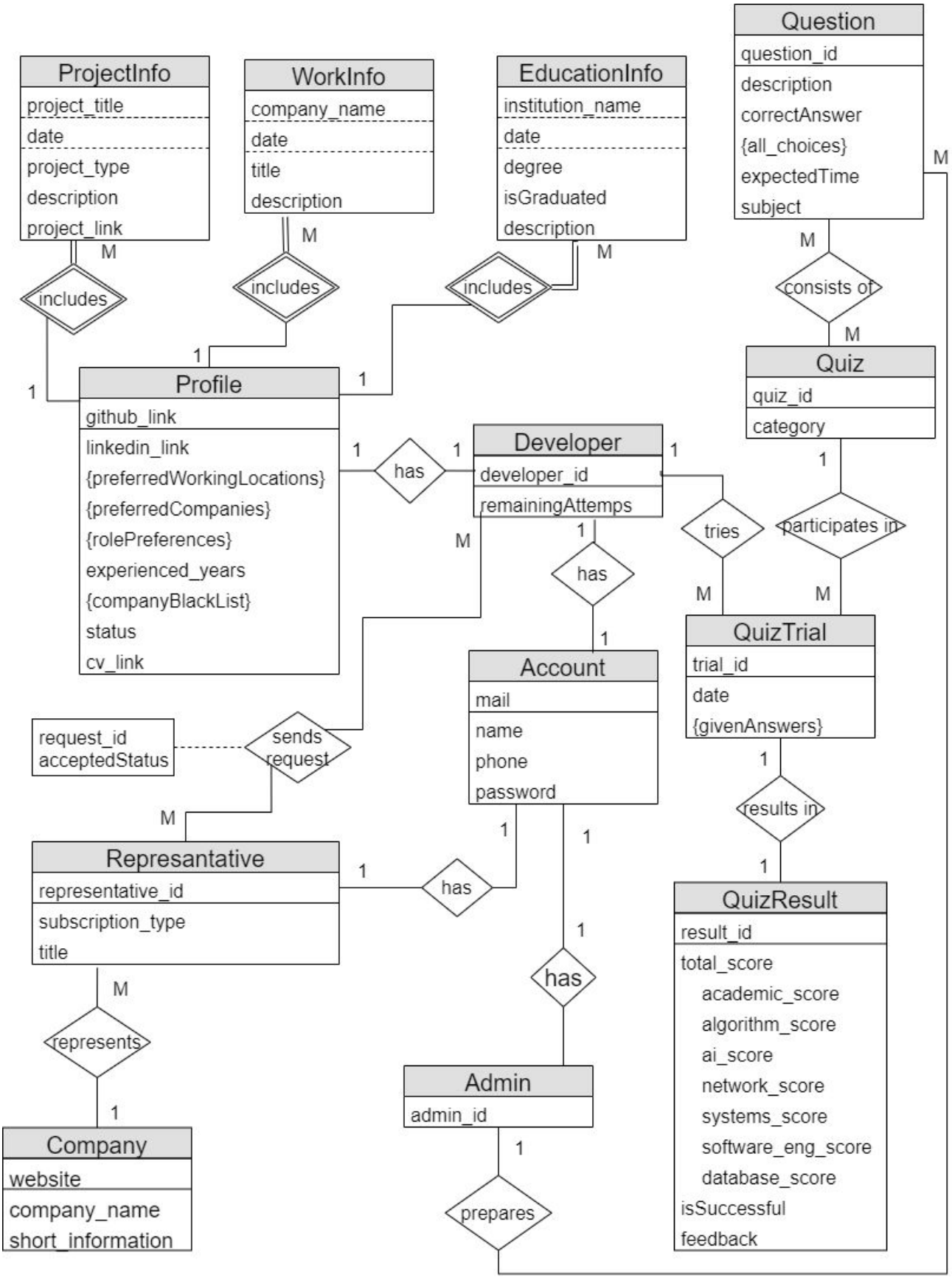
- MSSQL will be used for database.
- HTML, CSS, Javascript will be used for development of website.

4. Limitations

- Both developers and companies should sign up for the system.
- Developers cannot apply to a company. Company representatives send interview requests to developers. Thus, the communication can only start from one way.
- Developers cannot take more than three quizzes within four months.
- Every company should at least have one representative.
- Company representatives or developers cannot add or change questions of the quizzes.

- The system doesn’t share the quiz results of the developer with a company if the developer states so.
- Admins can just communicate with company representatives or other admins not with developers.
- Companies should be approved to be registered into the system.

5. Entity-Relationship Diagram



6. Conclusion

CSCareer is an online hiring system which helps the developers to demonstrate their skill and knowledge by taking quizzes for many computer science related areas. It also allows companies to find and get in contact with qualified developers by looking at their quiz scores. The system aims to reduce the time spent when finding a qualified developer as the company representatives will only contact developers who passed a certain threshold. They will be able to know more about the developer's proficiency before the interview.

In this report, we explained the need for such a system and described our aimed system. We based our need for a database to store and change various data. Then, we listed our functional, non-functional requirements, constraints and limitations. Finally, we provided our database design by using an entity-relationship (E/R) diagram.

7. Website

Our website for further project information:

https://hamzapehlivan.github.io/Database-Project/