Problem Statement

Gradebook Assistant

Rose-Hulman Institute of Technology – CSSE 333

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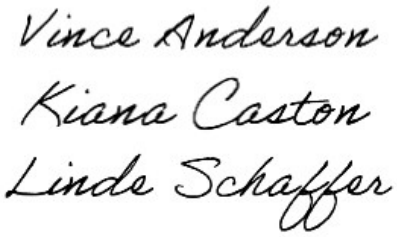
Spring 2017



Contents

Executive Summary

The purpose of this document is to describe the problem that our project will attempt to solve. Our solution has been drafted in form of the included Entity Relationship diagram (ER diagram) and a preliminary relational schema chart. A high level problem summary, as well as a detailed problem statement and solution plan are included in the following document as well as a list of the stakeholders and their roles in this project. The detailed problem statement and solution will include specifically how our solution will address the needs that are present as well as the tools used to meet this goal.

The education system of any community is fundamental to their overall infrastructure. A good school system will bring a community up, and an inadequate system will bring the community down. In order to deliver a valuable education to the students in a school, there needs to be an assessment that allows teachers and faculty to identify problematic topics as quickly and accurately as possible. Many times it is hard to get anything close to real time feedback from a class to know how a student is currently doing. Some schools have adapted to use online databases to give their students access to their grades. Often times that system is only accurate at midterms, or end of terms, or it only includes major assessments such as midterm tests, finals, or big projects. In addition, there are no tools currently available that allow for real-time quiz creation, where a quiz can be sent out electronically and automatically processed and inserted into the gradebook while at the same time, giving the teacher valuable information on where more time and examples are needed on a particular concept. We propose a solution that would allow for a teacher to create an online assessment that could be completed and then automatically graded in the framework of a class to allow for follow-up lessons on the problem areas. Also included in this solution will be the capability of a student to check on his or her grades as well as a teacher to identify the most missed problems from any number of assignments recorded in this gradebook. This will give all involved parties real time feedback in order to allocate lesson time and resources to where they would be most useful.

Introduction

This document is the first describing our Gradebook Assistant solution. Included in this document will be an ER diagram illustrating the relationships between the entities we chose for this solution, as well as a high level problem statement that will accurately and concisely explain the use of our solution. Following that will be a detailed problem statement and an explanation of the functions our solution will include as well as the form of, or tools, implemented to accomplish these functions and the resources that are required. Also included will be information on the stakeholders and their roles in this system.

High Level Problem Summary

Elevator Statement

We are designing a system that students and professors can use to properly assess students' knowledge on topics they learn in class. It is not possible for a professor to receive real time data on assignments

students complete related to their classes. We propose a software solution that will allow students to complete quizzes, testing their knowledge as well as providing quick feedback on how they did.

Primary Success Criteria

Our primary goal is to provide a way for professors to create quizzes and assignments for their students to take. Upon completion, students will receive instant feedback on the correct answers to the quizzes and the professors will have students' grades on the assignments. The project's success depends upon having a usable system to meet the specified client base's needs by the end of Spring Quarter 2017.

Scope

Within Scope

1. User
    a. Professor
    b. Student
2. Assignment
3. Course
4. Section
5. Quiz
6. Question

Outside Scope

1. School
2. Departments

Detailed Problem Statement

Function

- ~~Ability for Rose-Hulman students and professors to login using Rosefire~~
- Ability to display the appropriate data for the user type
- Ability to track the section a professor teaches
- Ability to track the sections and courses a student are enrolled in
- Ability for a professor to record assignment grades
- Ability for a professor to create an assignment
    - A professor can create a quiz, which has questions
- Ability for students to view and take a quiz
    - Ability to earn a score on the quiz ○ Ability to view results of the quiz
- Ability for a professor to acquire instant results from the assignment

Form

Availability

- Web accessible, convenient for students and professors, as nearly all of them have access to a device with internet access

Usability

- Intuitive, simple user interface

Performance

- To be determined

Security

- To be determined

Maintainability

- Professors will act as an administrator for their own section with a user friendly interface
    - Can add/delete assignments ○ Can add/delete questions
    - Can add/delete students to/from their sections
- One professor will be set as the "Top Administrator"
    - Can add/delete professors
    - Can assign/delete the sections a professor teaches

Technology

- SQL, Java

Economy

Marketability

Educators and students are continually looking for ways to improve technology in the classroom. Our technology would improve technology in the classroom by enabling students and educators to get feedback quickly on their work. As a student, it's frustrating not to get results back quickly from your hard work, which would be resolved by our technology. It would also help educators pinpoint where students are struggling and will enable them to go over material right after it is processed by students.

Time

Past

In the past, educators have used pencil and paper as the main method to test students' knowledge on a subject. This doesn't usually produce immediate results, as the educators have to grade the papers by hand.

Present

In the present, educators use a mix of paper and pencil testing and online testing methods. However, the online testing methods usually occur outside of the classroom, or do not provide immediate feedback for the teacher to use in the same class period.

Future

In the future, technology will increasingly become a part of education outside the classroom, as well as inside it. We plan to provide a technology that will gather instant results from students inside the classroom, as well as outside.

Key Stakeholders

NAME	ROLE
Sriram Mohan	Project Advisor
Vince Anderson	Project Team Member
Kiana Caston	Project Team Member
Linde Schaffer	Project Team Member
Educators	End Users
Students	End Users

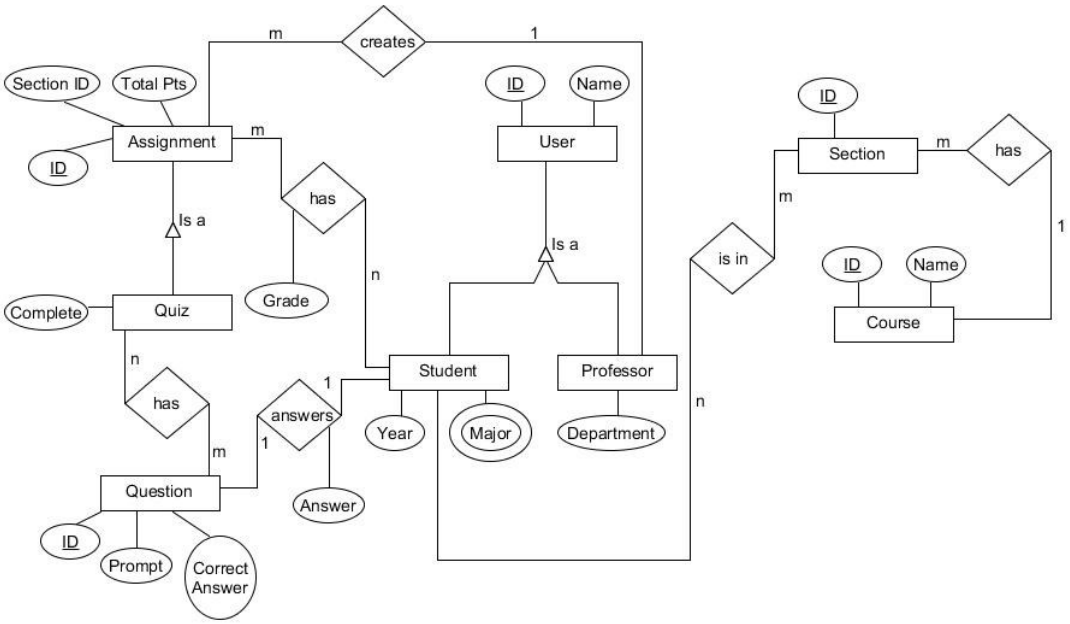
Revision History

VERSION	DATE	COMMENTS
1.0	3/31/17	Initial Draft
1.1	4/7/17	Revised Draft Based Upon Instructor Feedback
1.2	5/12/17	Revised Draft Based Upon Instructor Feedback

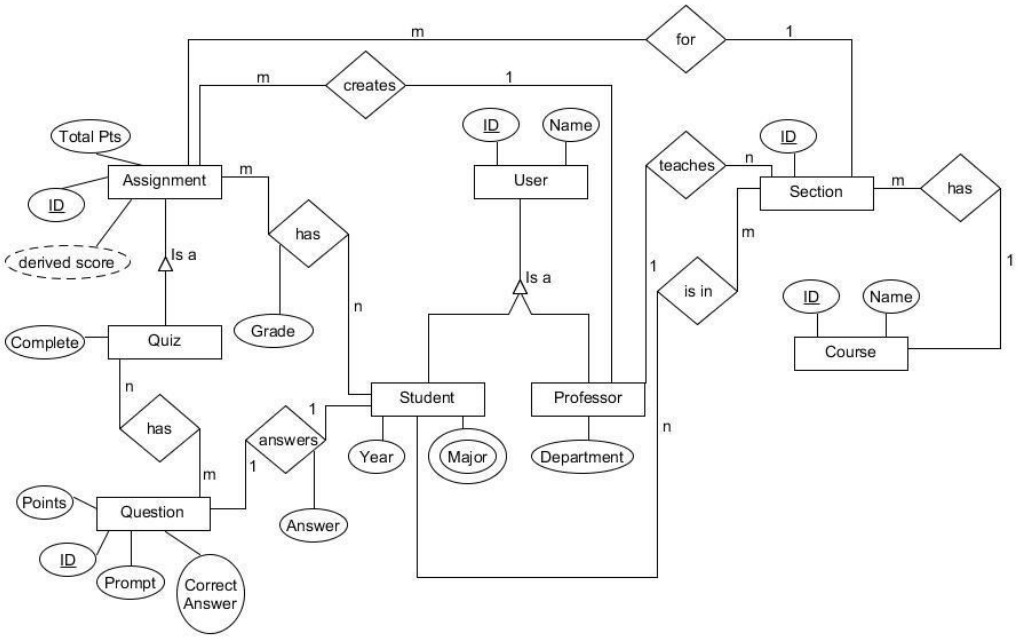
Appendix

ER Diagram

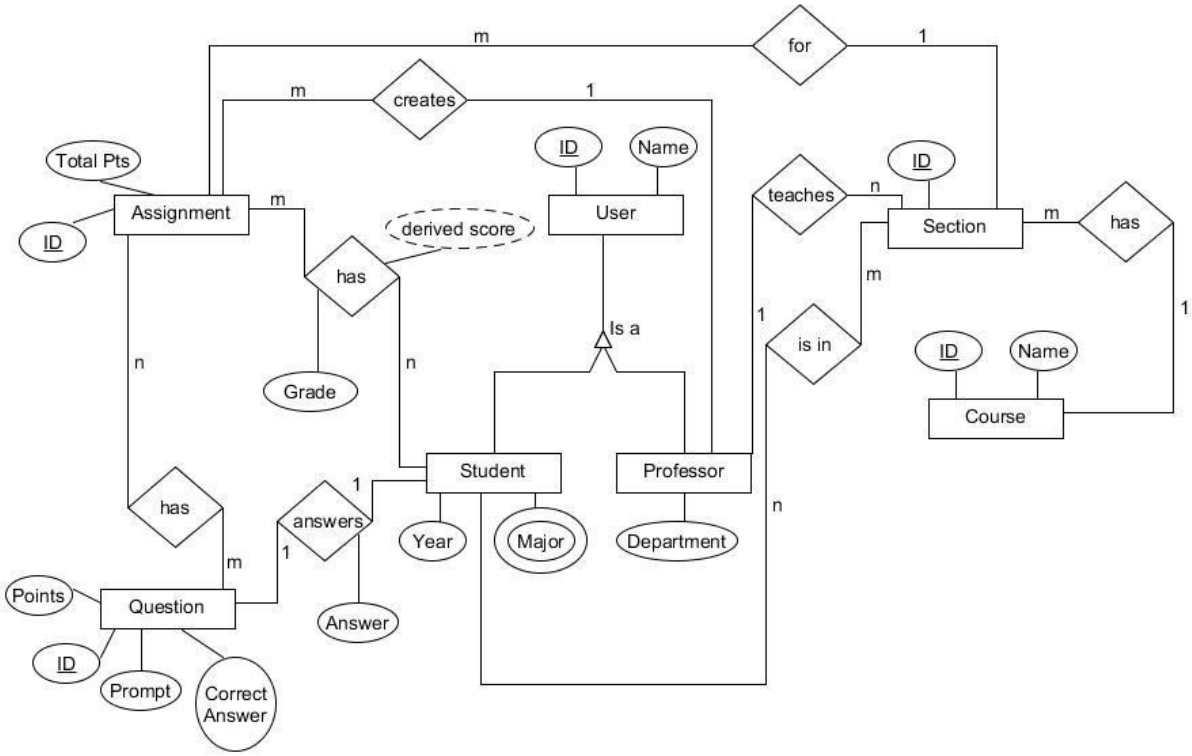
ER Diagram - Original



ER Diagram – First Revision



ER Diagram – Second Revision



Relational Schema