WEST UNIVERSITY OF TIMIŞOARA
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
BACHELOR STUDY PROGRAM: Computer Science in English

BACHELOR THESIS

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TIMIŞOARA
2020

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Application for creating, distributing and customizable evaluation of quizzes

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Abstract

We all know that the pandemic affected us on so many levels and one of the fields that were strongly affected was the education one. We faced many obstacles during online school and we realized that some activities are harder to execute. One such obstacle is the problem addressed in this application developed, online tests. There is a wide variety of test making applications and sites however, none of them cover all the needs of both teachers and students.
The application that I am developing will be used to create, distribute and evaluate different types of tests. It will allow users to log in and start creating tests with any kind of questions, multiple choice with one or more correct answers, dropdown, short answer, paragraph answer and file uploading. Each question can have a different number of points assigned. The test will be automatically evaluated however, the creator of the test will be able to manually evaluate the test, assign points and return the grade and the corrected test, just like in the classroom. The tests can be distributed to students via a special code generated for each test. From the student's point of view, the application is easy to use, it only requires an email address and the code of the test. The time limit for the test is always displayed to help students manage to complete the test and once the time is up, the test will be automatically saved and sent for evaluation.

I talked with my coordinator and we agreed in the beginning to meet online every 2-3 weeks when I manage to solve a part of the application to present it and receive feedback.

Contents

1 Introduction **7**
1.1 Motivation 7

2 Expected App Requirements **9**

3 Initial Use Cases Diagrams **11**

4 Preliminary App Architecture **13**

5 Related Apps **15**

Bibliography **15**

Chapter 1

Introduction

1.1 Motivation

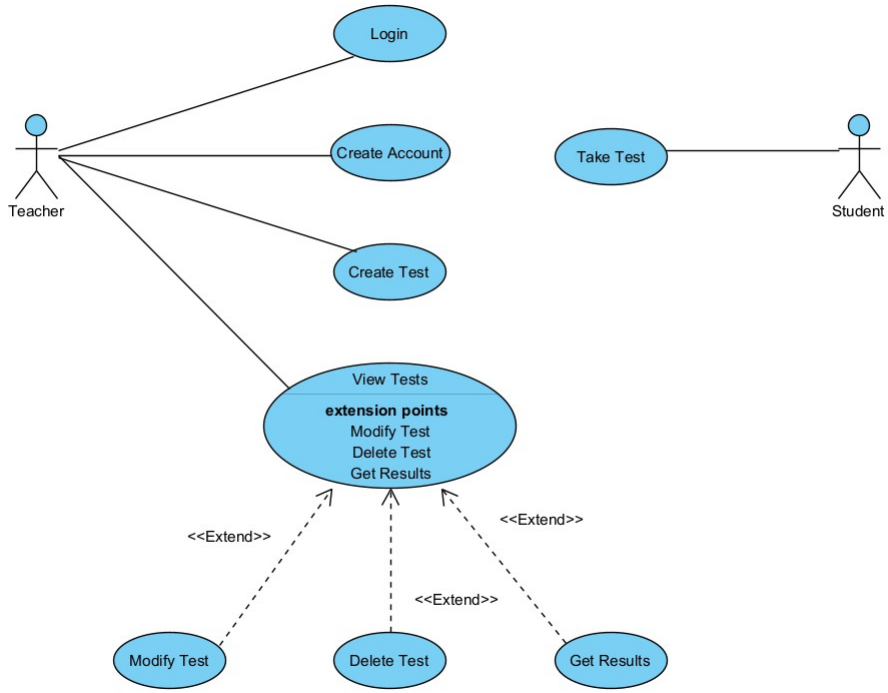
Chapter 2

Expected App Requirements

The application that I am developing aims to be used to create, distribute and evaluate different types of tests. It will allow users to log in and start creating tests with any kind of questions, multiple choice, checkboxes, dropdown, short answer, paragraph answer and file uploading. Each question can have a different number of points assigned. Teachers can modify, delete or change the status of a test (active, if the teacher wants the students to be able to send responses or inactive, when the teacher is done with the test). The test will be automatically evaluated however, the creator of the test will be able to manually evaluate the test, assign points, add comments for each question and return the grade and the corrected test, just like in a real classroom. The tests can be distributed to students via a special code generated for each test. From the student's point of view, the application is easy to use, it only requires an email address and the code of the test. The time limit for the test is always displayed to help students manage their time to complete the test. When the student submits the test or once the time is up, the test will be automatically saved and sent for evaluation.

Chapter 3

Initial Use Cases Diagrams



Chapter 4

Preliminary App Architecture

My application will be built as a web application. For the backend side, I will use Python and Flask for the code and behaivour of the app side and SQL Alchemy for the databases side. For the front end I will be using HTML, Jinja and CSS.

Chapter 5

Related Apps

We know that there is a variety of apps that allow users to create and distribute tests. One of the most known application for test creation is Google Forms. Besides being popular, it's pretty easy to use, offers a large variety of question types and allows users to upload images, videos and other things to the question.
Google Forms is easy to use because you have the steps of creating a test are clearly defined. You just create a new form and add the questions that you want. There are all the question types that someone can want, from short answer, long answer to multiple choice, checkboxes, dropdown, file uploading and many others. Another interesting feature is that it allows users to add pictures, videos and sections to the the questions which can help students visualize a problem or to better understand the questions.
However, from my experience, the main downside of this app is first an foremost the lack of custom grading. It is not build just for academic tests so it makes it more difficult to evaluate the responses. Another problem is the lack of custom grading and for the students it's hard to keep track of the time they have left.
Like many apps, Google Forms has some strengths and some weaknesses. The main problem seems to be that it was not made specifically for the academic environment. It does not offer the possibility to simulate a test from the real life classroom.
My application aims to recreate the experience of creating and taking a test. It will be easy to use for both teachers and students. It will offer the most used features of Google Forms (clear steps for test creation and different types of questions) while also having some other useful properties (custom grading and evaluation, easy access to the tests and time limit for tests).