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Programming Fundamental Lab Project

Smart Quiz Maker

Fall 2024

Deadline: Sunday, 22nd December

Project Description:

The Smart Quiz Maker is a console-based project which provides a user-friendly interface where instructors can create quizzes by defining questions, possible answers, and the correct answers. The quiz maker can also randomize question order and answer options to ensure a fair and dynamic testing experience. After creating quizzes, students can attempt them, and their responses will be evaluated in real-time, providing instant feedback.

Key Features:

- **Quiz Creation:** Instructors can add questions, multiple choice options, and mark correct answers. Questions can be related to any subjects like programming, engineering, English etc.

- **Randomization:** The application can randomize questions and answer order to avoid predictability.

- **Timer:** Option to set a time limit for each question or quiz.

- **Student Interaction:** Students can take quizzes in a console environment. After answering each question, they get immediate feedback at the end of the quiz.

- **Scoring and Results:** The program tracks the number of correct answers and provides a score at the end of the quiz. It can also display a summary with the correct answers for review.

- **Saving and Loading Quizzes:** Instructors can save quizzes for later use and load existing quizzes for modification.

- **Data Persistence:** All information (quizzes, student, teacher, admin, result etc.) must be saved in file.

- **Menu Drive:** The project must be menu driven a user can perform tasks based on given option.

Learning Outcomes for Students:

- Understanding the concepts of basic file I/O and data storage.

- Applying control structures, loops, functions, dynamic arrays to create interactive programs.

- Learning how to design simple but efficient command-line applications.

Feature Details

1. **Admin's Features**
   - Login to teacher dashboard

- Update information (password, designation, contact etc.)
- Registered the user (Students and Teachers).
- Generate the user's credentials
- Add, remove, search users.

2. **Teacher's Features**
   - Login to teacher dashboard
   - Update information (password, designation, contact etc.)
   - Create quizzes with customizable parameters:
     - Title, description, and subject tags.
     - Add multiple question types
     - Set Timer for quiz.
     - Preview the quiz before publishing.
     - Save the quiz.
   - Editing Existing Quizzes
     - Add, update, or delete questions.
   - Assign quizzes to specific classes
   - Results and Grading
     - View the quizzes marks of class
     - View the quizzes marks of student
     - Assign grades based on quizzes marks for each subject
     - Display the result of class.

3. **Student Features**
   - Login to teacher dashboard
   - Update information (password, designation, contact etc.)
   - View Assigned Quiz
   - Taking Quiz
   - Submit Quiz
   - View Result
   - View Grades of each subject

Technologies Used:

- **Programming Language:** C++

- **File Handling:** For saving and loading all the data.

- **Basic Data Structures:** Arrays, Structures, Dynamic Structures

- **Programming Constructs:** Functions, Loop, Control Structures

Project Rubrics:

- The project must be menu driven and user friendly. [2]

- File handling to store student, teacher, admin and quiz related information. [4]
- Implement functions, structures, arrays and dynamic arrays etc. [5]
- The code must be well commented on and organized. [2]
- Implement admin dashboard features. [4]
- Implement student dashboard features. [8]
- Implement the teacher's dashboard features. [5]

Note:
- Each group consists of three members at max.
- In case of plagiarism the whole group will get an F grade in lab.
- The contribution of each member will be evaluated through the project viva.