

Criterion A: Planning

Description of Scenario

My client, Ms. Sunny, is looking for an easy way to teach IGCSE physics past paper questions for the physics revision school club. It was challenging for her to mark many past paper questions and sometimes she wouldn't have time to grade them(problem). She approached me to help create a solution that can manage tasks for her students and simplify the grading process (see appendix A). So, I suggested making a learning management program in which she can gather questions for her students and make tasks for them. The program must grade multiple-choice questions, short-subjective questions, and long essay questions automatically with artificial intelligence. This program should give different permissions between students and teachers. The program must make it easier to manage students by setting up classes. This program should use the A, B, C, and D buttons for Multiple- choice question or text field for essay, short subjective questions. The teacher will be able to access a task manager to know which students were overdue and finished the task, how much they scored, and how they answered. Students could also access a revision page so that they can know their scores and which part they must revise.

Word count: 204

RATIONALE FOR SOLUTION

The best solution for this scenario would be to make a learning management app. In this app, students must attempt to finish tasks given by the teacher. Due to the characteristics of the software, the program must be used on different computers, it is inevitable to use an online database. Questions, tasks, and user information must be stored in the database, and this information must interact with each other. Java is an object-oriented language, so it can create a program that fits its purpose by connecting objects with objects. It uses Java because it has a rich open-source library that does not require complex coding and There's also a Swing library where you can make GUIs easily. Furthermore, a solution is needed to automate the scoring process. Multiple choice questions or short subjective questions can find out whether the student's answers are exactly same with mark sheet, but the essay question requires human subjectivity, and the mark sheet makes it impossible to focus on only basic comparisons. And in addition to using my program, using an online grading service was also considered. using online grading service was also considered. But these services had to pay, and they cannot grade the long essay question. That's why it was more relevant for this case to make a program.

Word count: 219words

Success Criteria

- a user-friendly, intuitive GUI
- task and student management systems.
- Set differentiated permissions by role (teacher, student, admin, etc.).
- ability to check students' progress.
- Allow pupils to attempt a variety of previous physics questions.
- Automatic scoring using the ChatGPT Web API
- Automatic recommendation system for students