Submission Deadline: 1st Stage – Nov 27, 2020 | 2nd Stage – Dec 5, 2020

Weighting: 10% | 20%

Project Title: Automated Examination System

An automated examination system is as follows:

A teacher creates an exam paper by logging on to the system and selecting the "Test Designer" option. He/She selects the class that the exam is for and the subject and test number. He/She also sets the date, start-time and duration of the exam. There are three types of questions: multiple-choice, fill in the blank, or standard full-length test questions. The teacher must enter the question and the correct answers (*excluding the standard exam type questions which will be corrected manually on-screen in a batch*). Each question must be given a score and flagged as compulsory / optional.

(*Optional: You may consider including "graphics" and "audio" in the exam.*)

A student sits the paper by logging on to the system. He/She is notified of any exam that will be coming up during the examination period. If there is an exam scheduled on that date, for the class which the student belongs the student is allowed access to the exam. He/She must answer the questions asked on-screen. There will be both compulsory and optional questions. The results are stored in memory and when the class test is finished, the multiple choice and fill-in-the-blanks questions are graded automatically. The teacher then records results for manually corrected questions. The student's results are then available for the student to see through the system.

Each student is a member of one and only one class. Each class has a class teacher, but different teachers for different subjects. A teacher can teach many subjects and a subject can be taught by many teachers, but an individual teacher can only set an exam in a subject for a class, where he/she teaches that subject to the class. At the end of the semester, the student reports are compiled and uploaded to the system. Results are to be displayed as letter grades (*reference to the table: Conversion of Marks*) to students.

(*Optional*: *For example, consider allowing teacher to add comments and/or remarks before sending out the results.*)

Test results for students are kept for ten years. However, as long as the student is studying in the school, the results (records) are to be available online. Otherwise the records are to be archived.

Analysis reports: Generate reports from the database to analyse the performance of students in different subjects. Those reports might be the "Student Performance Analysis" or "Results Analysis" or some other related reports.

(*Note:* *You may propose different kinds of reports which is supposed to improve the "Teaching and Learning*.)

Conversion of Marks

Mark	Grade
[95 100]	A+
[90 95)	A
[85 90)	A−
[80 85)	B+
[75 80)	B
[70 75)	B−
[65 70)	C+
[60 65)	C
[55 60)	C−
[50 55)	D+
[45 50)	D
[40 45)	D−
Below 40	F

What to do and submit?

1. Form a group of **THREE to FIVE** (*3 ~ 5*) and confirm the group member list on or before **11-Nov-2020** and send the Group Member List to us through email. In addition, this group project is divided into TWO stages.

2. For the **First Stage**, each group should submit the following on or before **Nov 27, 2020** (*Friday*) to the Blackboard:

   a. According to the description of the *Automated Examination System*, provide an **E-R diagram** to define clearly for all necessary entities, for example, which entities are "weak" or "strong" as well as the relationships (*especially the many-to-many relationship and the N-ary relationship*) among the entities.

   b. Based on the E-R diagram, generate a **relational schema** for the *Automated Examination System*.

   c. A **project plan** or a **project schedule** should be prepared and submitted.

3. For the **Second Stage**, the following materials are required and submitted to Blackboard on or before **Dec 5, 2020** (*Saturday*):

   a. A **project report** in Microsoft Word format or PDF format.

   b. A "*User Guide*" to show how to setup and use the application.

   c. **Source code** file(s).

   d. **Testing data** file(s).

   e. A soft copy of the **presentation file**.

   f. Sample(s) of the **analysis report**(s).

   g. A **FIVE minutes** (*at most*) **video demonstration** (*presentation*) which is to introduce and demonstrate your application (*see part 4*).

   h. **Contribution of Work** – A list to indicate/describe the workload of each member. The list should be **signed by all group members** to show your consensus.

4. **Demonstration** – Each group should prepare **a task list and testing data** to test their application. The task list and the testing data should be included in the submission. For the video, it is to show how your group complete all the required tasks. For example, how to set up the proper environment, how to initialize the application, and so on. In addition, all members should present here, and the length of the video is at most FIVE minutes long. (*Note: A random selection of the group presentation would be introduced for the demonstration. Most likely a "Teams" meeting is to be arranged for that presentation.*)

Late Submission Penalty – 33% per day.

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