**Database: Examination System**

**1. Tables**

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- \***Intake**\*: Stores intake details, including intake ID and name.

- \***Branch**\*: Stores branch details, with a foreign key referencing the Intake table.

- \***Track**\*: Stores information about different tracks.

- \***User\_Account**\*: Stores user account details like email, password, and user type.

- \***Student**\*: Stores student details such as ID, name, gender, grade, etc.

- \***Instructor**\*: Stores instructor details, including track, branch, and intake.

- \***Course**\*: Stores course details such as name, description, and grade limits.

- \***Exam**\*: Stores exam details including course ID, exam type, date, start time, and end time.

- \***Instructor\_Course**\*: A many-to-many relationship table between instructors and courses.

- \***Instructor\_Exam**\*: A many-to-many relationship table between instructors and exams.

- \***Question**\*: Stores questions related to each course with a question type.

- \***MCQ**\*: Stores MCQ question-specific information like correct answers.

- \***Choice**\*: Stores multiple choice options for MCQ questions.

- \***Text**\*: Stores the best accepted answer for text-based questions.

- \***TF**\*: Stores true/false question-specific information like correct answers.

- \***Exam\_Question**\*: Maps questions to exams with marks for each question.

- \***Student\_Question\_Exam**\*: Stores student responses to questions in exams.

- \***Student\_Exam**\*: Stores student exam details including total marks and result status.

2. **Views**

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-**\_StudentAnswersForReview** :→ This view displays each student's answer, the best accepted answer, and the correctness status for 'TEXT' type questions.

\_**ExamDetails**:→show the exam and the course spisific for it and it's details.

**-V\_Show\_Students\_Results**:→show the exam and the course spisific for it and it's details.

**3.** **Stored Procedures**

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- **UpdateExamSchedule**

→ Updates the schedule of an existing exam if the instructor is assigned to it.

- **StartExam**

→ Checks if a student is allowed to start an exam and retrieves the questions.

**InsertStudentTextAnswer :**

→ Inserts a student's text answer into Student\_Question\_Exam and checks if it matches

the best accepted answer using fn\_CheckTextAnswer, updating the correctness status.

**AddOrUpdateBranch :**

→ Stored Procedures for the training manager make him able to add or update on branch table using flag for update or adding

**AddOrUpdateIntake:**

→ Stored Procedures for the training manager make him able to add or update on Intake table using flag for update or adding

**AddStudent**:

→ Stored Procedures for the training manager make him able to add or update on Intake table

**SelectExamQuestions**:

→ Stored Procedures for the instructor to choose from the pool of questions of spisific exam with flag that make him choose manually or make the system choose in random

**SearchUserInfo**:

→ search for user if it student or instructor or training manger the student can only see his details only also the instructor and the training manger ,the training manager can search for instructor and student details

**DefineExamWithoutDetermineTimeOrDate**

→ Creates a new exam without specifying a time or date.

**UpdateExamSchedule**

→ Updates the schedule of an existing exam if the instructor is assigned to it.

**AssignStudentToExam**

→ Assigns a student to a specific exam.

**ShowExamForStudent**

→ Displays exam details and questions for a student.

**Proc\_CheckStudentAnswer**→ Checks each student answer for an exam and updates the student exam total grade once exam is submitted

**Proc\_LogStudentExam**→ Logs the student in the exam once student submits it

**Proc\_Start\_Exam**→ Creates Virtual table where student answers can be changed quickly instead of changing database table columns

**Proc\_StoreStudentAnswer**→ This procedure just stores the student answer.

**4. Functions**

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- Show\_ALL\_Students\_Results → returns all the students results in a given specific exam, branch, intake and track

- Show\_Student\_Result\_By\_Name → Returns all the students whose first names match the passed name.

-Show\_Result\_By\_Student\_Exam\_Ids → return the student result by entering his id and exam id

-fn\_CheckTextAnswer → checks if the student's answer matches the best accepted answer using a CLR function.

5. **Triggers**

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- \*trg\_RestrictExamDeletion\*

→ Prevents an exam from being deleted if students have already taken it.

- \*trg\_UpdateStudentGrade\*

→ Updates student grades automatically when their exam is graded.

-trg\_CheckStudentAnswer\_Text :

→ This trigger checks the student's text answer against the best accepted answer and updates the 'iscorrect' column.

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The system could make a daily back up (automatically).