SQL Server Project Requirements sheet

- **Project Title:**
  - Examination System Database (As a sample and any team can implement his own project).

- **System requirements:**

Notes: Points in red are Bonus

- System should provide question pool, so instructor can pick an exam from it.
- Questions type may be Multiple choice, True & false or text questions.
- For multiple choice and true & false questions system should store correct answer and check student answer and store his result.
- As for text question system should store best accepted answer and use text functions and regular expression to check student answer and display result to the instructor show him valid answers and not valid answers to review them and enter the marks manually (Bonus).
- System should store courses information (Course name, description, Max degree, Min Degree,...) , instructors information, and students information, each instructor can teach one or more course, and each course may be teacher by one instructor in each class (Instructor may be changed for other class in other year).
- Instructor can edit (add, Update and delete) question pool in his course only.
- Training Manager (One of the instructors) can edit (add, Update and delete) instructors and courses and instructors for each course.
- Training manager can add and edit: Branches, tracks in each department, and add new intake.
- Training manager can add students, and define their personal data, intake, branch, and track.
- Training manager, Instructors, Students should have a login account to access the system.
- Instructor can make Exam (For his course only) by selecting number of questions of each type, the system select the questions random, or he can select them manually from question pool. And he must put a degree for each question on the exam, and total degrees must not exceed the course Max Degree (One course may has more than one exam).
- For each exam, we should know type (exam or corrective), intake, branch, track, course, start time, End time, total time and allowance options.
- System should store each exam which defined by year, Course, instructor.
- Instructor can select students that can do specific exam, and define Exam date, start time and end time. Students can see the exam and do it only on the specified time.
- System should store students answer for the exam and calculate the correct answers, and calculate final result for the student in this course.
- Insert test data in all tables and test your system.

Technical requirements:

- Implement your database in files and files groups according to data size and your estimation.
- Choose the right datatype for each column, and use naming conventions in naming of all objects.
- Implement Indexes for your database to get best performance for your DB.
  - Use constraints and triggers to make sure of data integrity and users' access.
  - Use procedures and functions to do all system tasks, and views to show any results, so system users not need to write any query to do any task, and only use created objects.
  - Make Different options for the users to search and display results with different criteria.
  - Four accounts are needed for the system, one admin account that perform admin tasks only, account for training manager, account for instructors and account for students.
  - Each account can deal and work with his related tasks only and cannot access others' tasks and objects (implement SQL users and their permissions).
  - The system should make a daily back up, and snapshots of the database (automatically).
  - System should be able to read students data from XML file, and export reports (Quiries) in XML Format, and also add facility to insert students manually.

Project Deliveries:

- System Requirement sheet.
- System ERD (Image).
- Database Files.
- SQL Server solution that has script file for each team member contain queries and code he done, and one script file for all database structure, objects and data.
- Text file containing name and brief description for all objects in DB (Views, Proc, Functions,Triggers,…..).
- Test sheets that contain test queries, its result and comment.
- Text file contains all accounts for the database and passwords.

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