Subject Change Request SQL Problem

This project implements a student elective allocation and tracking system using SQL. It assigns elective subjects to students based on their GPA and preferences, and also tracks changes in subject allotments while preserving historical data.

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📘 Overview

1. **Elective Allocation**: Automatically assigns subjects to students based on GPA and preferences using a stored procedure.

2. **Change Tracking**: Maintains a history of subject changes when students request new electives.

💾 Database Schema

1. Elective Allocation Tables

- **StudentDetails**: Basic student info (ID, GPA, etc.)

- **SubjectDetails**: Elective subject info and available seat count

- **StudentPreference**: Students' ranked preferences for subjects

- **Allotments**: Final allocated subjects

- **UnallotedStudents**: Students who couldn't be allocated any subject

2. Subject Change Tracking Tables

- **SubjectAllotments**: Stores all historical and active subject allotments (Is_Valid marks current)

- **SubjectRequest**: Stores latest subject change requests by students

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🛠️ Setup Instructions

1. Clone the repository and run the setup SQL scripts to create all required tables.

   Refer to: Student Allotment SQL Table

2. Create the **AllocateElectives** stored procedure to perform allocation based on GPA and preferences.

3. Create the **ProcessSubjectRequest** stored procedure to update SubjectAllotments based on SubjectRequest.

▶️ Running the Allocation Procedure

Execute the elective allocation with:

sql

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EXEC AllocateElectives;

🔄 Subject Change Tracking

To track and process student subject change requests:

Logic:

- If the requested subject is different from the active one (Is_Valid = 1), insert the new subject as valid and mark previous as invalid.

- If the student has no entry in SubjectAllotments, insert the new record as valid.

sql

-- Check Allotments

SELECT * FROM Allotments;

-- Check UnallotedStudents

SELECT * FROM UnallotedStudents;

If you have any questions or suggestions, feel free to reach out to me at:

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