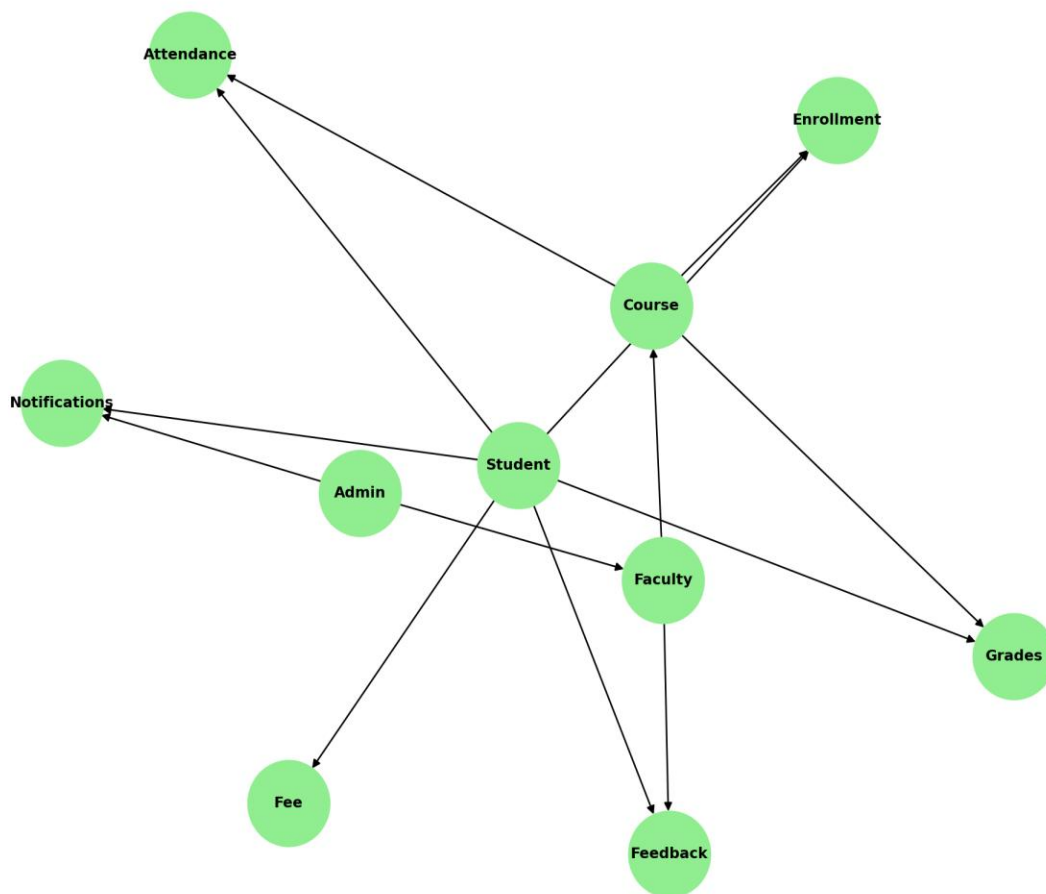# EDU-Track

Database Schema Report

This document provides a detailed description of the EDU Track database schema, designed to efficiently manage data related to students, faculty, administrators, courses, enrollments, attendance, grading, notifications, and fee processing.

Entity-Relationship Diagram

Database Schema Overview

The EDU Track database consists of ten main tables. Each entity is defined with primary and foreign keys, ensuring relational integrity and scalability. The following section details each table and its structure.

Student

Column Name	Data Type	Constraints	Description
student_id	INT	PRIMARY KEY, IDENTITY(1,1)	Unique Student ID
full_name	VARCHAR(100)	NOT NULL	Student's full name
email	VARCHAR(100)	UNIQUE, NOT NULL	Email used for login
password	VARCHAR(255)	NOT NULL	Hashed password
gender	VARCHAR(10)	NULL	Gender information
dob	DATE	NULL	Date of birth
department	VARCHAR(50)	NULL	Department name
semester	INT	NULL	Current semester
contact	VARCHAR(20)	NULL	Contact number
address	VARCHAR(255)	NULL	Home address

Faculty

Column Name	Data Type	Constraints	Description
faculty_id	INT	PRIMARY KEY, IDENTITY(1,1)	Faculty ID
name	VARCHAR(100)	NOT NULL	Faculty name
email	VARCHAR(100)	UNIQUE, NOT NULL	Email for login

password	VARCHAR(255)	NOT NULL	Hashed password
department	VARCHAR(50)	NULL	Department name
contact	VARCHAR(20)	NULL	Contact number

Admin

Column Name	Data Type	Constraints	Description
admin_id	INT	PRIMARY KEY, IDENTITY(1,1)	Admin ID
name	VARCHAR(100)	NOT NULL	Admin name
email	VARCHAR(100)	UNIQUE, NOT NULL	Admin email
password	VARCHAR(255)	NOT NULL	Hashed password

Course

Column Name	Data Type	Constraints	Description
course_id	INT	PRIMARY KEY, IDENTITY(1,1)	Unique Course ID
course_name	VARCHAR(100)	NOT NULL	Course title
course_code	VARCHAR(20)	UNIQUE, NOT NULL	Course code
credit_hours	INT	NOT NULL	Credit hours
faculty_id	INT	FOREIGN KEY REFERENCES Faculty(faculty_id)	Assigned faculty

Enrollment

Column Name	Data Type	Constraints	Description
enrollment_id	INT	PRIMARY KEY,	Enrollment ID

		IDENTITY(1,1)	
student_id	INT	FOREIGN KEY REFERENCES Student(student_id)	Linked student
course_id	INT	FOREIGN KEY REFERENCES Course(course_id)	Linked course
semester	INT	NOT NULL	Semester number
status	VARCHAR(20)	DEFAULT 'Active'	Active/Completed/Dropped

Attendance

Column Name	Data Type	Constraints	Description
attendance_id	INT	PRIMARY KEY, IDENTITY(1,1)	Attendance record ID
student_id	INT	FOREIGN KEY REFERENCES Student(student_id)	Student
course_id	INT	FOREIGN KEY REFERENCES Course(course_id)	Course
date	DATE	NOT NULL	Date of attendance
status	VARCHAR(10)	NOT NULL	Present/Absent/Late

Grades

Column Name	Data Type	Constraints	Description
grade_id	INT	PRIMARY KEY, IDENTITY(1,1)	Grade record ID
student_id	INT	FOREIGN KEY REFERENCES Student(student_id)	Student

course_id	INT	FOREIGN KEY REFERENCES Course(course_id)	Course
marks_obtained	DECIMAL(5,2)	NULL	Marks scored
grade	CHAR(2)	NULL	Grade letter
semester	INT	NULL	Semester number

Fee

Column Name	Data Type	Constraints	Description
fee_id	INT	PRIMARY KEY, IDENTITY(1,1)	Fee record ID
student_id	INT	FOREIGN KEY REFERENCES Student(student_id)	Linked student
total_amount	DECIMAL(10,2)	NOT NULL	Total fee amount
amount_paid	DECIMAL(10,2)	DEFAULT 0	Amount paid
due_date	DATE	NULL	Due date
status	VARCHAR(20)	DEFAULT 'Pending'	Pending/Paid/Overdue

Notifications

Column Name	Data Type	Constraints	Description
notification_id	INT	PRIMARY KEY, IDENTITY(1,1)	Notification ID
sender_id	INT	NULL	Admin or Faculty sender
recipient_id	INT	NULL	Student recipient
message	VARCHAR(255)	NOT NULL	Notification content

date_sent	DATETIME	DEFAULT GETDATE()	Sent timestamp
type	VARCHAR(20)	NULL	Fee/Result/General

Feedback

Column Name	Data Type	Constraints	Description
feedback_id	INT	PRIMARY KEY, IDENTITY(1,1)	Feedback ID
student_id	INT	FOREIGN KEY REFERENCES Student(student_id)	Linked student
faculty_id	INT	FOREIGN KEY REFERENCES Faculty(faculty_id)	Linked faculty
course_id	INT	FOREIGN KEY REFERENCES Course(course_id)	Linked course
message	VARCHAR(255)	NOT NULL	Feedback message
date_submitted	DATETIME	DEFAULT GETDATE()	Submission date

Conclusion

This database schema provides the structural foundation of the EDU Track academic portal.
It ensures data normalization, referential integrity, and scalability. The relational design efficiently supports all portal functionalities such as attendance management, grading, course enrollment, notifications, and feedback systems.