

ATTENDANCE TRACKING SYSTEM – SCHEMA & CONCEPTUAL E-R DIAGRAM SUMMARY

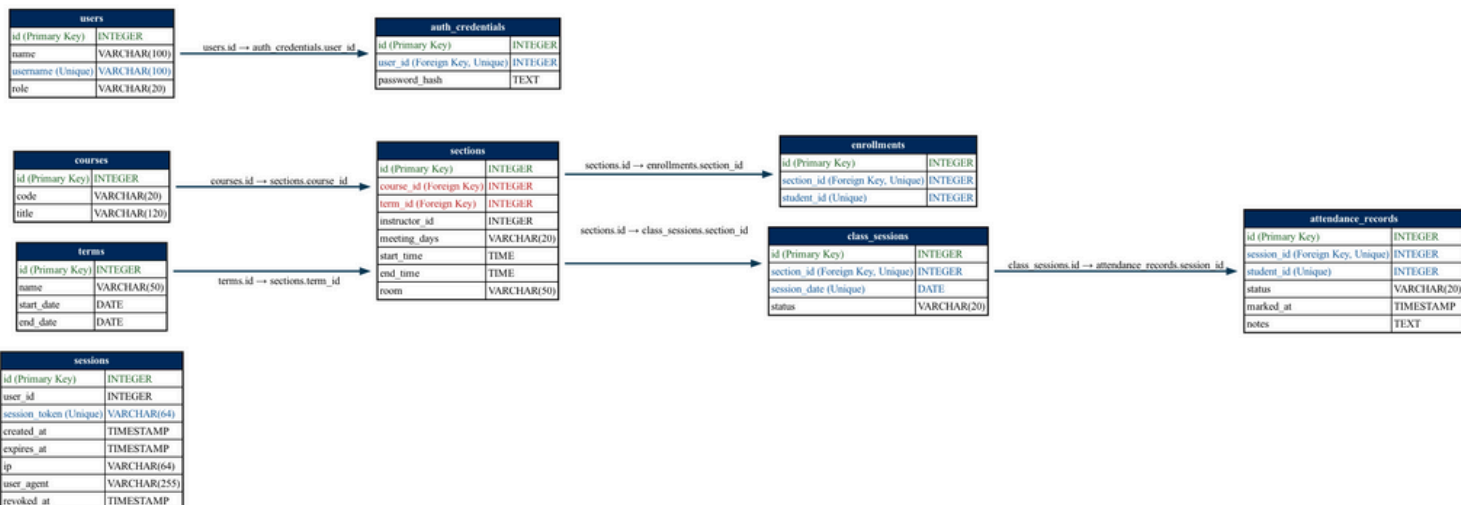
SCHEMA RESULTS:

The relational schema efficiently models the university's attendance management process.

- It defines clear relationships among users, courses, terms, sections, enrollments, class sessions, and attendance records.
- Each table has a **primary key**, ensuring **entity uniqueness**, and **foreign keys** maintain referential integrity across tables.
- The schema prevents redundancy through composite uniqueness constraints like:

- 1) (section_id, student_id) in enrollments
- 2) (section_id, session_date) in class_sessions
- 3) (session_id, student_id) in attendance_records

- The users table manages different roles (student, instructor, admin), while attendance_records captures real-time attendance status for every student and session.
- Cascading relationships ensure that deleting a section automatically removes its dependent sessions, enrollments, and attendance data.
- Overall, the schema is normalized, consistent, and scalable; deal for managing attendance across multiple courses and terms.



CONCEPTUAL ER DIAGRAM RESULTS:

The conceptual E-R diagram shows the main entities and how they are connected.

Entities: User, Course, Term, Section, Enrollment, ClassSession, AttendanceRecord

Relationships:

- A User can teach or attend many Sections.
- A Student can enroll in multiple Courses.
- A Course can have multiple Sections.
- Each Section belongs to one Course and one Term.
- A Section has many ClassSessions.
- Each ClassSession has multiple AttendanceRecords for enrolled students.

The diagram clearly shows **one-to-many** and **many-to-many relationships** using linking entities like Enrollments and AttendanceRecords.

This model gives a simple and clear view of how users, courses, and attendance are connected, forming a solid base for the database design.

