Activity 04: Design a database for Yoobee College

1. Project Scope (Short Paragraph)
   Write a story that defines the purpose and scope of the database. Describe the main entities (e.g., students, lecturers, etc.)
2. Entities and EER Diagram
   List all entities with brief descriptions of their roles and attributes (e.g., Student, Course, Class, Lecturer, etc.)
3. Table Design
   State how many tables are required after mapping the EER to a relational schema?

1. Project Scope (Short Paragraph) –

A. Purpose of the Database

This database is designed to manage core academic operations for an educational institution, specifically tracking:

- Student information and enrollment
- Course offerings and details
- Lecturer assignments and information
- Class scheduling and section management
- Student enrollment in classes with grade tracking

B. Scope of the Database

The database covers the following key academic functions:

a. Student Management

- Stores student personal information
- Tracks academic details
- Maintains a unique identifier for each student

b. Course Catalog

- Defines all available courses with codes, titles, and descriptions
- Tracks credit hours and departmental affiliation
- Supports prerequisite relationships

c. Lecturer Information

- Maintains faculty records with contact and departmental information
- Tracks office locations and employment dates

d. Class Scheduling

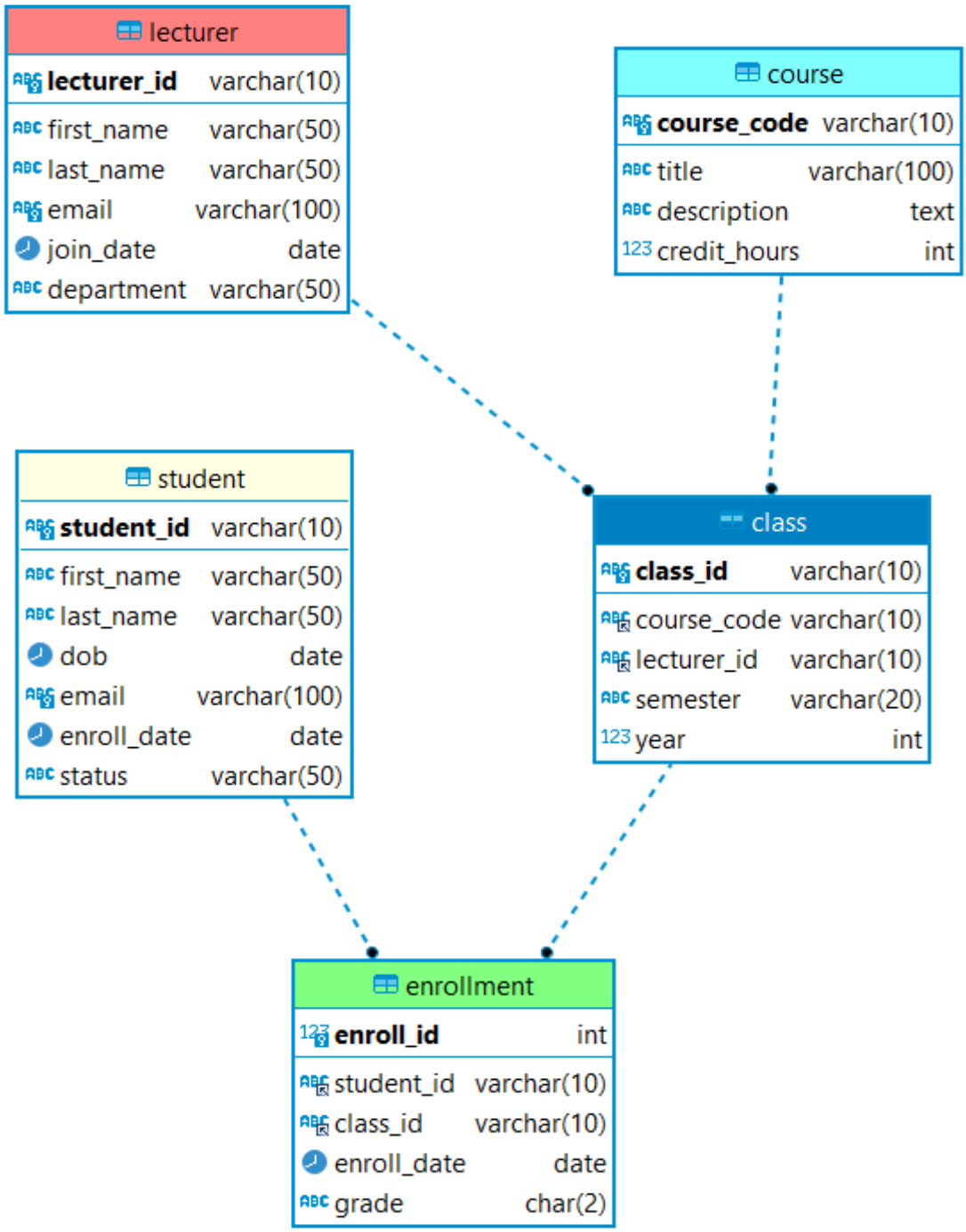
- Manages specific class instances of courses
- Assigns lecturers to classes

- Organizes by semester/year with section numbering
- Controls room assignments and capacity limits

e. Enrollment System

- Links students to classes they're taking
- Records enrollment dates and status
- Stores final grades for completed classes
- Tracks current enrollment numbers against class capacities

2. Entities and EER Diagram –



3. Table Design –

```
CREATE TABLE student (
   student_id       VARCHAR(10)   PRIMARY KEY,
   first_name       VARCHAR(50)   NOT NULL,
   last_name        VARCHAR(50)   NOT NULL,
   dob              DATE,
   email            VARCHAR(100)  UNIQUE    NOT NULL,
   enroll_date      DATE          NOT NULL,
   status           VARCHAR(50)
);

CREATE TABLE lecturer (
   lecturer_id      VARCHAR(10)   PRIMARY KEY,
   first_name       VARCHAR(50)   NOT NULL,
   last_name        VARCHAR(50)   NOT NULL,
   email            VARCHAR(100)  UNIQUE    NOT NULL,
   join_date        DATE          NOT NULL,
   department       VARCHAR(50)
);

CREATE TABLE course (
   course_code      VARCHAR(10)   PRIMARY KEY,
   title            VARCHAR(100)  NOT NULL,
   description      TEXT,
   credit_hours     INT           NOT NULL
);

CREATE TABLE class (
   class_id         VARCHAR(10)   PRIMARY KEY,
   course_code      VARCHAR(10)   NOT NULL,
   lecturer_id      VARCHAR(10)   NOT NULL,
   semester         VARCHAR(20)   NOT NULL,
   year             INT           NOT NULL,
   schedule         VARCHAR(50),
   FOREIGN KEY (course_code) REFERENCES course(course_code),
   FOREIGN KEY (lecturer_id) REFERENCES lecturer(lecturer_id)
);
```

```
CREATE TABLE enrollment (
   enroll_id       INT             AUTO_INCREMENT PRIMARY KEY,
   student_id      VARCHAR(10)     NOT NULL,
   class_id        VARCHAR(10)     NOT NULL,
   enroll_date     DATE            NOT NULL,
   grade           CHAR(2),
   FOREIGN KEY (student_id) REFERENCES student(student_id),
   FOREIGN KEY (class_id) REFERENCES class(class_id),
   UNIQUE (student_id, class_id)
);
```