Exercise 1

relationship between STUDENT and COURSE:

many-to-many relationship is resolved by introducing an intersection (junction) entity called ENROLLMENT, which connects STUDENT and COURSE. It will include additional attributes such as:

- Student_ID (Foreign key from STUDENT)
- Course_ID (Foreign key from COURSE)
- Enrollment_Date
- Grade

ERD Design:

STUDENT --< ENROLLMENT >-- COURSE

relationship between FACULTY and COURSE:

- Similar to the STUDENT-COURSE relationship, we introduce an intersection entity called TEACHING_ASSIGNMENT. It will have:
  - Faculty_ID (Foreign key from FACULTY)
  - Course_ID (Foreign key from COURSE)
  - Semester
  - Assignment_Type (e.g., Lecturer, Coordinator)

ERD Design:

FACULTY --< TEACHING_ASSIGNMENT >-- COURSE

relationship between STUDENT, COURSE, and EXAM:

- This three-way relationship is resolved by introducing an entity called EXAM_RESULT, which captures the association of students with their course exams. Attributes include:
  - Student_ID (Foreign key from STUDENT)
  - Course_ID (Foreign key from COURSE)
  - Exam_ID (Foreign key from EXAM)
  - Score
  - Exam_Date

ERD Design:

STUDENT --< EXAM_RESULT >-- COURSE --< EXAM

Exercise 2

STUDENT --< EXAM_RESULT

Exercise 3

FACULTY |
|--- FULL_TIME_FACULTY
|--- PART_TIME_FACULTY

Exercise 4

COURSE | |--- ONLINE_COURSE (exclusive) |--- SEATED_COURSE (exclusive)

Exercise 5

FLOOR --< SUITE --< ROOM

Exercise 6

REGION --< DISTRICT --< TERRITORY --< SALES_AREA
REGION --< REGION (recursive)

Exercise 7

VEHICLE
|
|--- TRUCK
|--- TRAILER
CUSTOMER
|
|--- INDIVIDUAL
|--- COMPANY RENTAL_AGREEMENT --< VEHICLE --< RENTAL_OFFICE