DAY 5 :

ASSIGNMENT 1 :

Q) : Analyse a given business scenario and create an ER diagram that includes entities, relationships, attributes, and cardinality. Ensure that the diagram reflects proper normalization up to the third normal form.

ANSWER :

Business Scenario: A University Database

In this scenario, we discuss as a database for a university. We'll consider students, courses, and professors.

Entities:

1. Student
2. Course
3. professors

Attributes:

1. Student:
   - Student ID (Primary Key)
   - Name
   - Email
   - Phone Number
   - Date of Birth

2. Course:
   - Course ID (Primary Key)
   - Course Name
   - Credit Hours
   - Department
   - professor ID (Foreign Key)

3. professors:
   - professor ID (Primary Key)

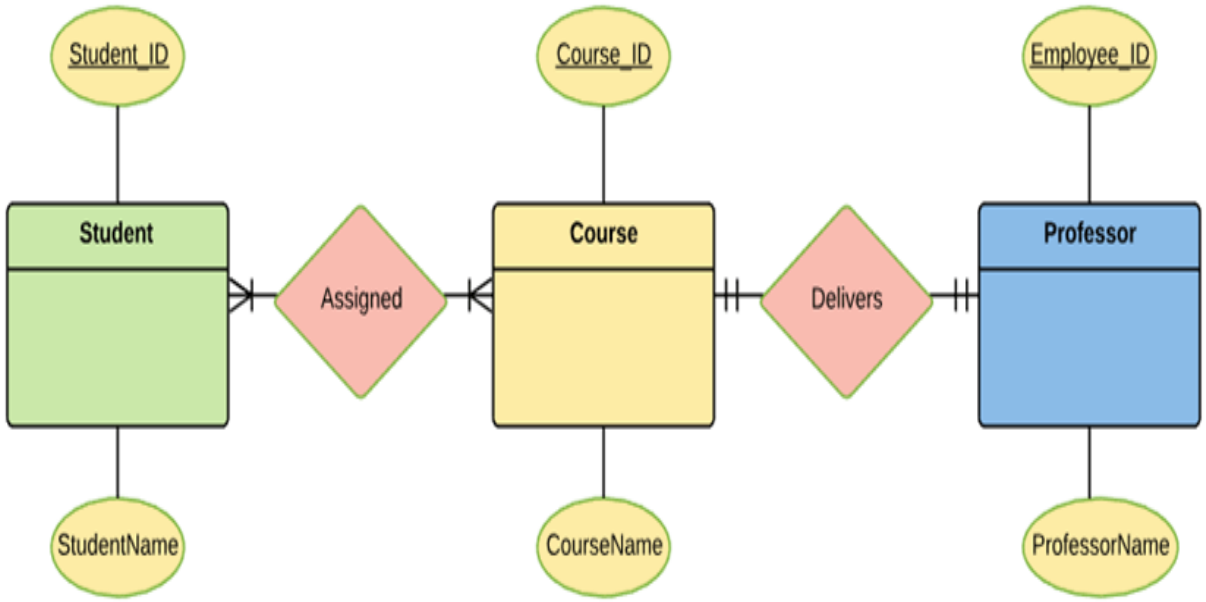
- Name
- Email
- Phone Number
- Office Location

Relationships:

1. Enrolment:
   - Student (Many) ------ (Many) Course

2. Teaches:
   - professor(One) ------ (Many) Course

ER Diagram:



Cardinality:

- One Student can enrol in Many Courses (One-to-Many)
- One Course can have Many Students enrolled (One-to-Many)
- One professor can teach Many Courses (One-to-Many)
- Many Courses can have One professor (One-to-Many)

This ER diagram reflects proper normalization up to the third normal form by breaking down data into smaller, more manageable tables and ensuring there are no transitive dependencies.