

Assignment 1: Analyze 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.

Entities:

1. Student
2. Course

Relationships:

1. Enrollment: A student can enroll in multiple courses, and a course can have multiple students enrolled in it.

Attributes:

1. Student:
 - Student ID (Primary Key)
 - Name
 - Email
 - Date of Birth
 - Address
 - Phone Number
 - Any other relevant student information
2. Course:
 - Course ID (Primary Key)
 - Course Name
 - Instructor
 - Schedule (Time and Days)
 - Room Number
 - Maximum Capacity
 - Any other relevant course information

Cardinality:

- One student can enroll in multiple courses, but each course can have multiple students.
- Therefore, the relationship between Student and Course is many-to-many.

Normalization:

1. First Normal Form (1NF): Attributes are atomic.
2. Second Normal Form (2NF): No partial dependencies exist; all attributes are fully functionally dependent on the primary key.
3. Third Normal Form (3NF): No transitive dependencies exist; attributes are dependent only on the primary key, not on other non-key attributes.

