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.

Business Scenario: Student Book Issue System

In a university library system, students can borrow books from the library. Each student can borrow multiple books, and each book can be borrowed by multiple students. The library needs a system to manage the book borrowing process efficiently.

Based on this scenario, we can identify the following entities:

Student: Represents the individuals who are registered in the university.

Attributes: Student ID (primary key), Name, Email, etc.

Book: Represents the books available in the library.

Attributes: Book ID (primary key), Title, Author, ISBN, etc.

Issue: Represents the borrowing of a book by a student.

Attributes: Issue ID (primary key), Student ID (foreign key), Book ID (foreign key), Date Issued, Due Date, etc.

Now, let's define the relationships and cardinality:

Student-Book (Many-to-Many): A student can borrow multiple books, and a book can be borrowed by multiple students.

This relationship is represented by the "Issue" entity.

Cardinality: One Student can issue many books, and one book can be issued to many students.

Student-Issue (One-to-Many): Each student can have multiple issued books.

This relationship is between the "Student" and "Issue" entities.

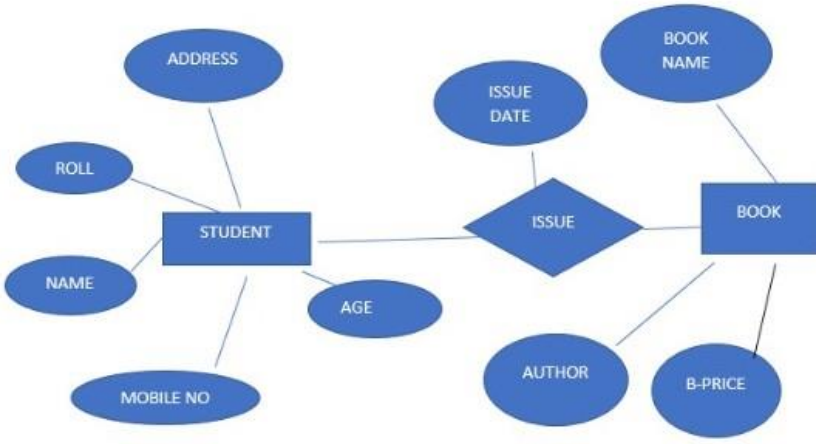
Cardinality: One Student can issue many books.

Book-Issue (One-to-Many): Each book can be issued multiple times.

This relationship is between the "Book" and "Issue" entities.

Cardinality: One book can be issued multiple times.

Now, let's create the ER diagram:



This ER diagram represents the entities (Student, Book, Issue) and their attributes, as well as the relationships between them. It also ensures proper normalization up to the third normal form.