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.

In a library system, we typically have several entities and relationships:

Entities:

1. Books
2. Authors
3. Members (library patrons)
4. Transactions (borrowing and returning books)

Attributes:

1. Books: BookID (Primary Key),Title,ISBN,PublishedYear,AuthorID (Foreign Key)
2. Authors:AuthorID (Primary Key),Name,BirthDate,Country
3. Members:MemberID (Primary Key),Name,Email,JoinDate
4. Transactions:TransactionID (Primary Key),BookID (Foreign Key),MemberID (Foreign Key),TransactionDate,DueDate,ReturnedDate

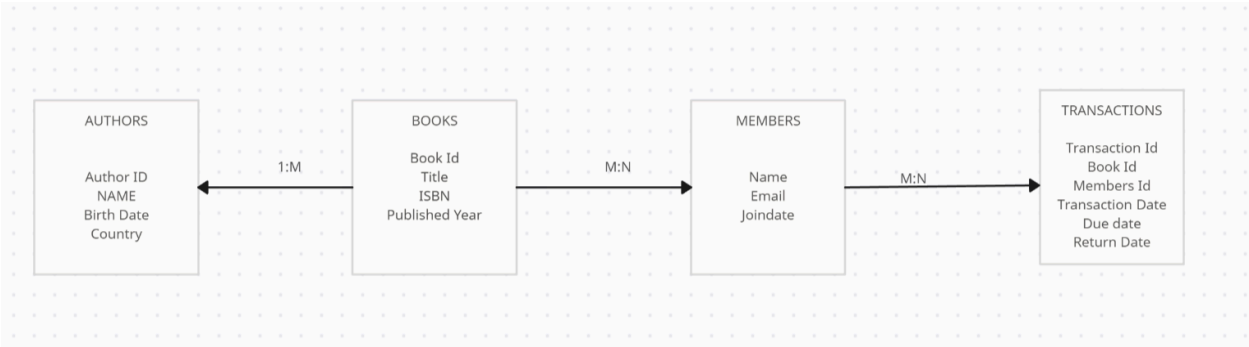
Relationships:

1. One Author can write Many Books (1:M relationship)
2. Many Members can have Many Transactions (M:N relationship)
3. Many Books can be involved in Many Transactions (M:N relationship)

Cardinality:

1. Author to Books: One Author can write Many Books (1:M)
2. Members to Transactions: Many Members can have Many Transactions (M:N)
3. Books to Transactions: Many Books can be involved in Many Transactions (M:N)

ER Diagram:


AUTHORS
Author ID
NAME
Birth Date
Country
1:M
BOOKS
Book Id
Title
ISBN
Published Year
M:N
MEMBERS
Name
Email
Joindate
M:N
TRANSACTIONS
Transaction Id
Book Id
Members Id
Transaction Date
Due date
Return Date