

Business Scenario:

A library system needs to manage its inventory, patrons, borrowing, and cataloging.

Entities:

Book: Represents each book in the library. Attributes may include ISBN, title, author, genre, publication year, and number of copies.

Patron: Represents individuals who borrow books from the library. Attributes may include patron ID, name, address, email, and phone number.

Borrowing: Represents the act of a patron borrowing a book from the library. Attributes may include borrowing ID, date borrowed, due date, and return date.

Author: Represents the authors of the books. Attributes may include author ID, name, nationality, and birth year.

Relationships:

Borrowing Relation (Patron - Book): A patron can borrow multiple books, and a book can be borrowed by multiple patrons. This is a many-to-many relationship.

Written By Relation (Author - Book): An author can write multiple books, and a book can be written by multiple authors. This is also a many-to-many relationship.

Attributes:

Book: ISBN, title, author, genre, publication year, number of copies

Patron: Patron ID, name, address, email, phone number

Borrowing: Borrowing ID, date borrowed, due date, return date

Author: Author ID, name, nationality, birth year

Cardinality:

Each book can be borrowed by many patrons (many) and each patron can borrow many books (many). (Many-to-Many)

Each author can write many books (many) and each book can have many authors (many). (Many-to-Many)

ER Diagram:

