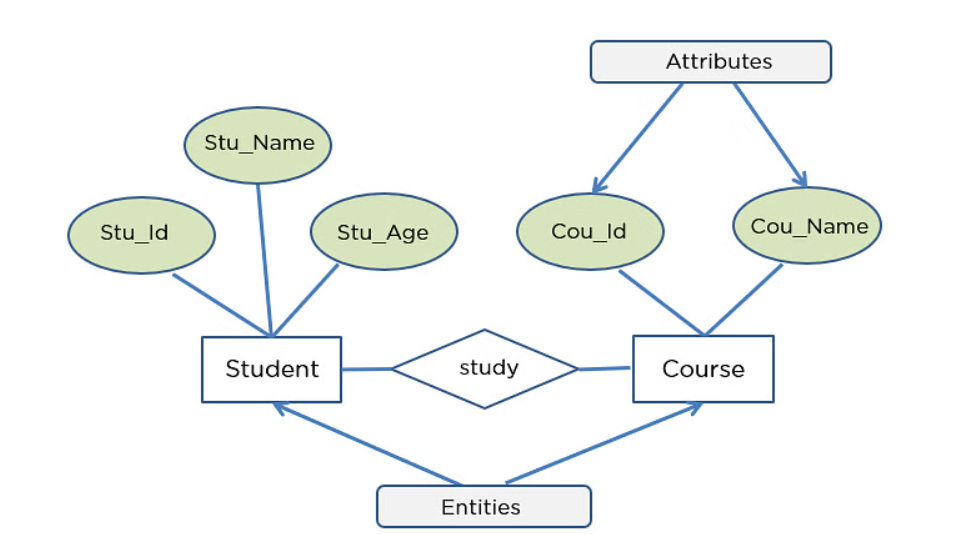
Assignment-1

Question-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.



Assignment-2

Question-2Design a database schema for a library system, including tables, fields, and constraints like NOT NULL, UNIQUE, and CHECK. Include primary and foreign keys to establish relationships between tables.

**Tables:**

Books

book\_id (Primary Key)

title

author

publication\_year

genre

ISBN (Unique)

Authors:

author\_id (Primary Key)

author\_name

Members:

member\_id (Primary Key)

name

email

address

Borrowings:

borrowing\_id (Primary Key)

book\_id (Foreign Key referencing Books)

member\_id (Foreign Key referencing Members)

borrow\_date

return\_date

status (e.g., 'borrowed', 'returned')

**Constraints:**

NOT NULL Constraints:

All primary key fields (book\_id, author\_id, member\_id, borrowing\_id) cannot be NULL.

Fields such as title, author, publication\_year, genre, ISBN, author\_name, name, email, address, borrow\_date, status cannot be NULL where applicable.

UNIQUE Constraints:

The ISBN field in the Books table should be unique to ensure each book has a unique identifier.

email field in the Members table should be unique to ensure each member has a unique email address.

CHECK Constraints:

The status field in the Borrowings table should only allow values 'borrowed' or 'returned'.

**Primary and Foreign Keys:**

book\_id in the Books table is the primary key.

author\_id in the Authors table is the primary key.

member\_id in the Members table is the primary key.

borrowing\_id in the Borrowings table is the primary key.

book\_id in the Borrowings table is a foreign key referencing book\_id in the Books table.

member\_id in the Borrowings table is a foreign key referencing member\_id in the Members table.

**Database Schema:**

Books:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Books:** |  |  |  |  |  |
| book\_id | title | author | publication\_year | genre | ISBN |
| **Authors:** |  |  |  |  |  |
| author\_id | author\_name |  |  |  |  |
| **Members:** |  |  |  |  |  |
| member\_id | name | email | address |  |  |
| **Borrowings:** |  |  |  |  |  |
| borrowing\_id | book\_id | member\_id | borrow\_date | return\_date | status |