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COSC 257 – Phase 2
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1. A revision of the project that you developed in phase 1, through more requirement analysis performed together with the client.

Our project idea is to improve the Classics Library database. The current database is not functional. We aim to build a new database system and display the data on a website. The goal is to allow users to search by multiple categories, such as title, author, editor, etc. We also would like the user to be able to search without the need for an exact match. For the books displayed, we would like the entries to contain all information about a book, its location, its status, and additional notes. Additionally, we would like to provide the faculty members managing the library with the power to insert and update book entries. Ultimately, we want to provide users with efficient access to the Classics Library with a user-friendly interface and advanced search capabilities.

Refinement: To distinguish between duplicate copies of the same book we will assign a number to each copy to uniquely identify every book. So we will log duplicate books arbitrarily as c(opy) 1, c. 2, c. 3, etc., as they would be in a regular library catalog. Otherwise, if the books differ by edition we will create separate entries.

2. A tentatively final ER schema of your database
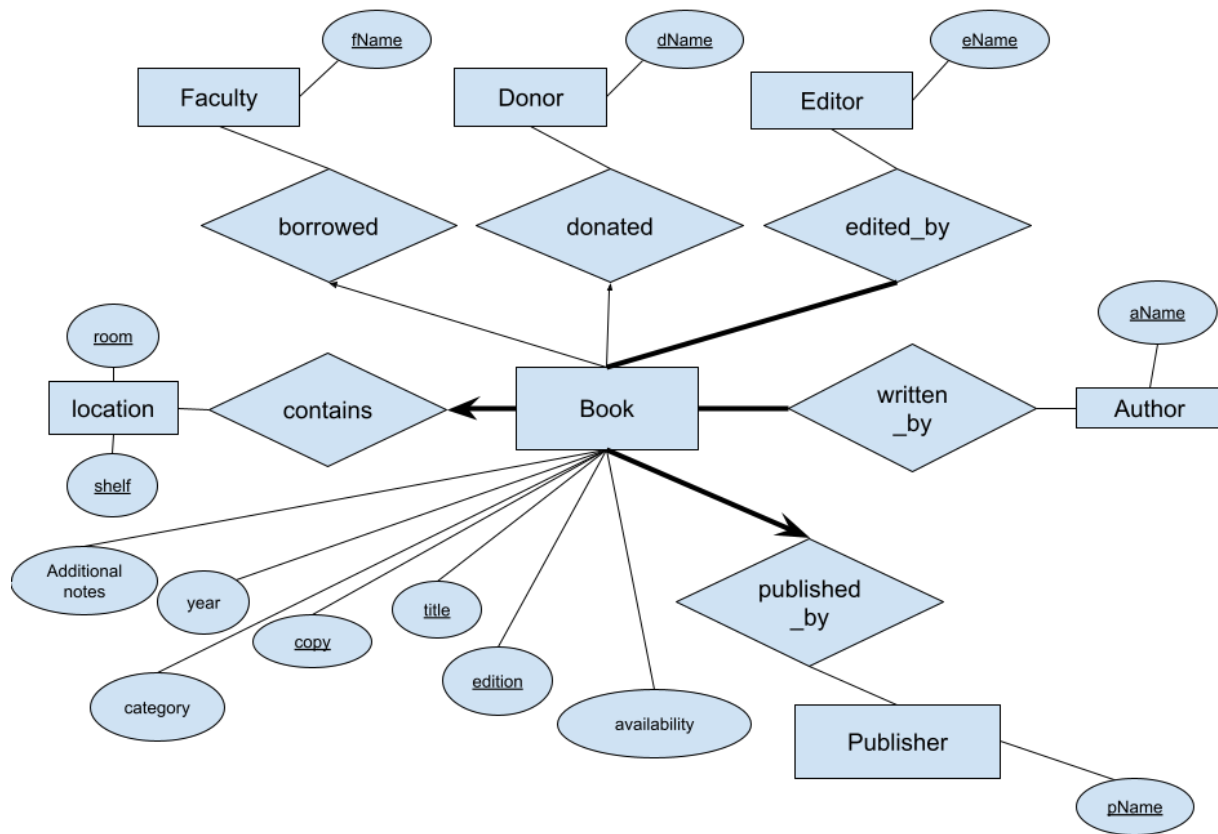
3. An initial translation of the ER schema into a relational schema'

```
CREATE TABLE Book (
        title      CHAR(20),
        year       DATE,
        category          CHAR(20),
        edition           INTEGER,
        availability      CHAR(20),
        additional_notes        CHAR(20),
        copy              INTEGER,
        PRIMARY KEY       (title, edition, copy),
)

CREATE TABLE Author(
        aName CHAR(20),
        PRIMARY KEY       (aName)
)
```

```sql
CREATE TABLE written_by(
        aName           CHAR(20),
        title           CHAR(20),
        edition         CHAR(20),
        PRIMARY KEY     (aName, title, edition),
        FOREIGN KEY     (aName),
            REFERENCES Author,
        FOREIGN KEY     (title, edition),
            REFERENCES Book
)

CREATE TABLE Faculty(
        fName CHAR(20),
        PRIMARY KEY     (fName)
)

CREATE TABLE Donor(
        dName           CHAR(20),
        PRIMARY KEY     (dName)
)

CREATE TABLE Editor(
        eName           CHAR(20),
        PRIMARY KEY     (eName)
)

CREATE TABLE edited_by(
        eName           CHAR(20),
        title           CHAR(20),
        edition         CHAR(20),
        PRIMARY KEY     (eName, title, edition),
        FOREIGN KEY     (eName),
            REFERENCES Editor,
        FOREIGN KEY     (title, edition),
            REFERENCES Book
)

CREATE TABLE Location(
```

```
        room    CHAR(20),
        shelf   CHAR(20),
        PRIMARY KEY     (room, shelf)
)
```