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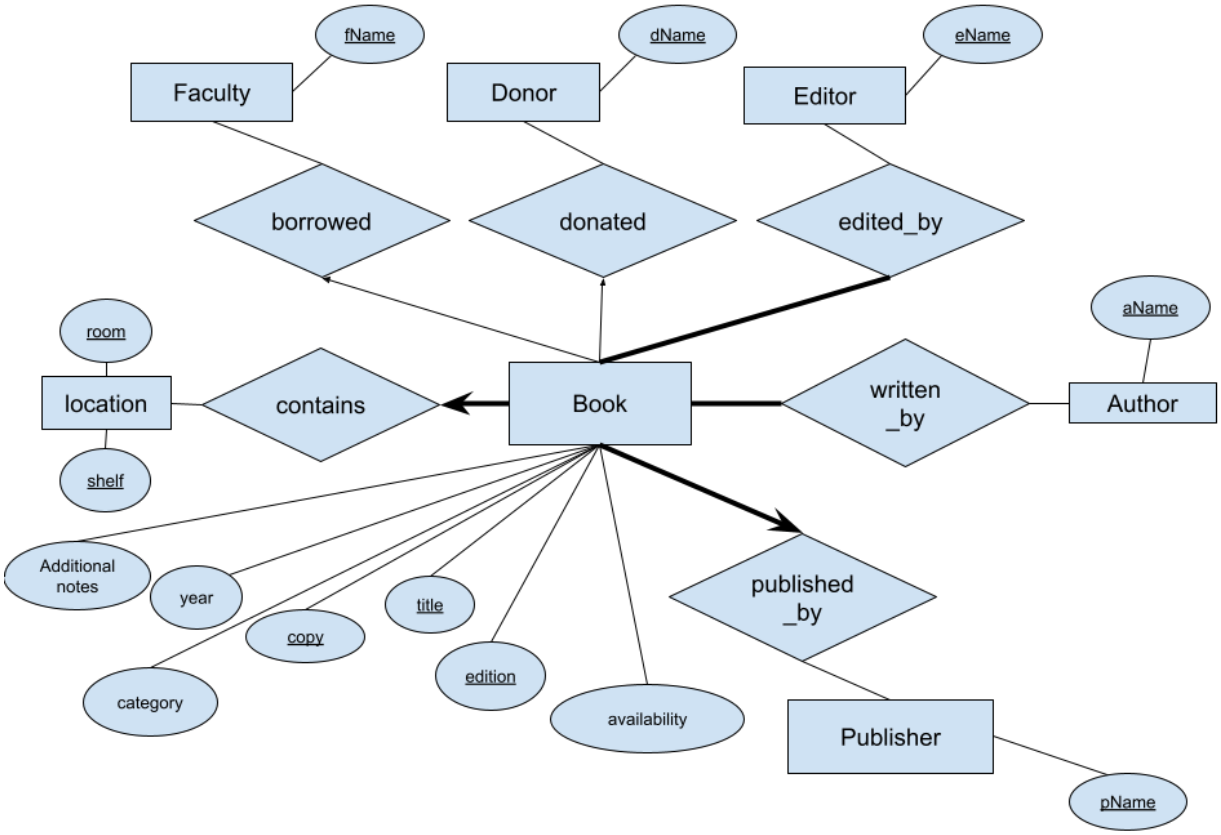
COSC 257 – Phase 2
18 October 2023

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)
)
```

```
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)
)

CREATE TABLE Publisher(
    pName       CHAR(20),
    PRIMARY KEY     (pName)
)

CREATE TABLE published_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
)
```

4. A first assignment of roles to your team members for phase 3
    ER schema into the relational schema, in normal form - Ali
    Manage the database and the tables - Ahmad
    Devise SQL queries to interact with the database - Jason
    Implement the website to perform the example SQL queries - Hamza

5. Software installed and configured: PostgreSQL, Python

6. Questions:
- How will keyword searches work in cases where there are multiple names for an entity (multiple authors, editors, publishers)?
- How should multiple names for an entity be represented on the website?
- Do we need any backend softwares downloaded other than PostgreSQL?