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Prof. VB

CS457

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HW#3A

**Exercise 4.19:**

Entity and relationship types:

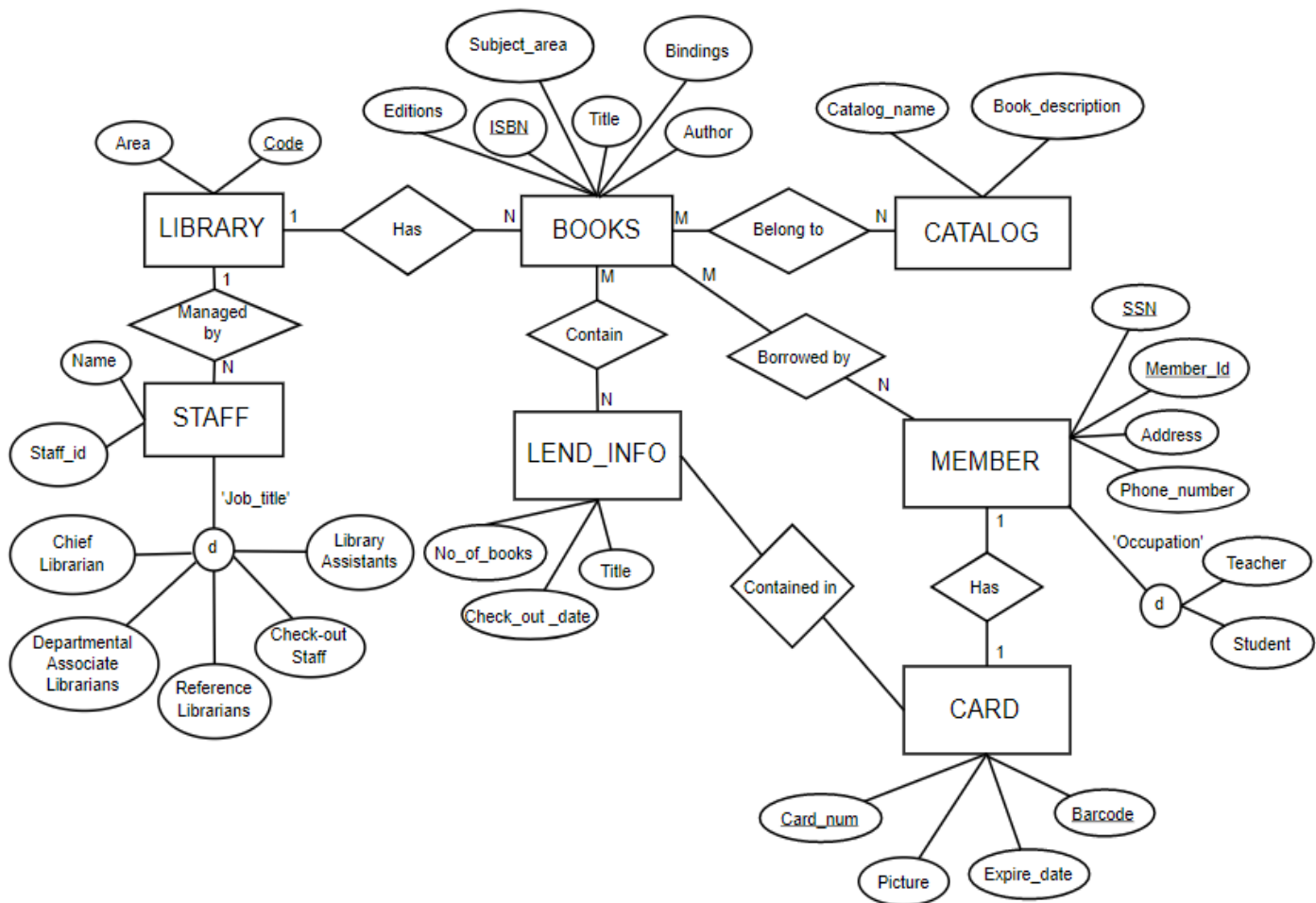
- Librarians ACCESS books
- Members BORROW books
- Library staff MAINTAINS library
- Books CONTAIN description and catalog
- Librarians MANAGE members
- Members HAVE a library card
- Library cards HAVE lending information (books, days left of lending, etc.)

Attributes:

- Library staff contains the chief librarian, departmental associate librarians, reference librarians, check-out staff, and library assistants
- Books contain author, title, subject area, bindings (hardcover/softcover), editions, ISBN (primary key), and description
- Books are divided into 2 categories: lendable and non-lendable (reference books, rare books, maps)

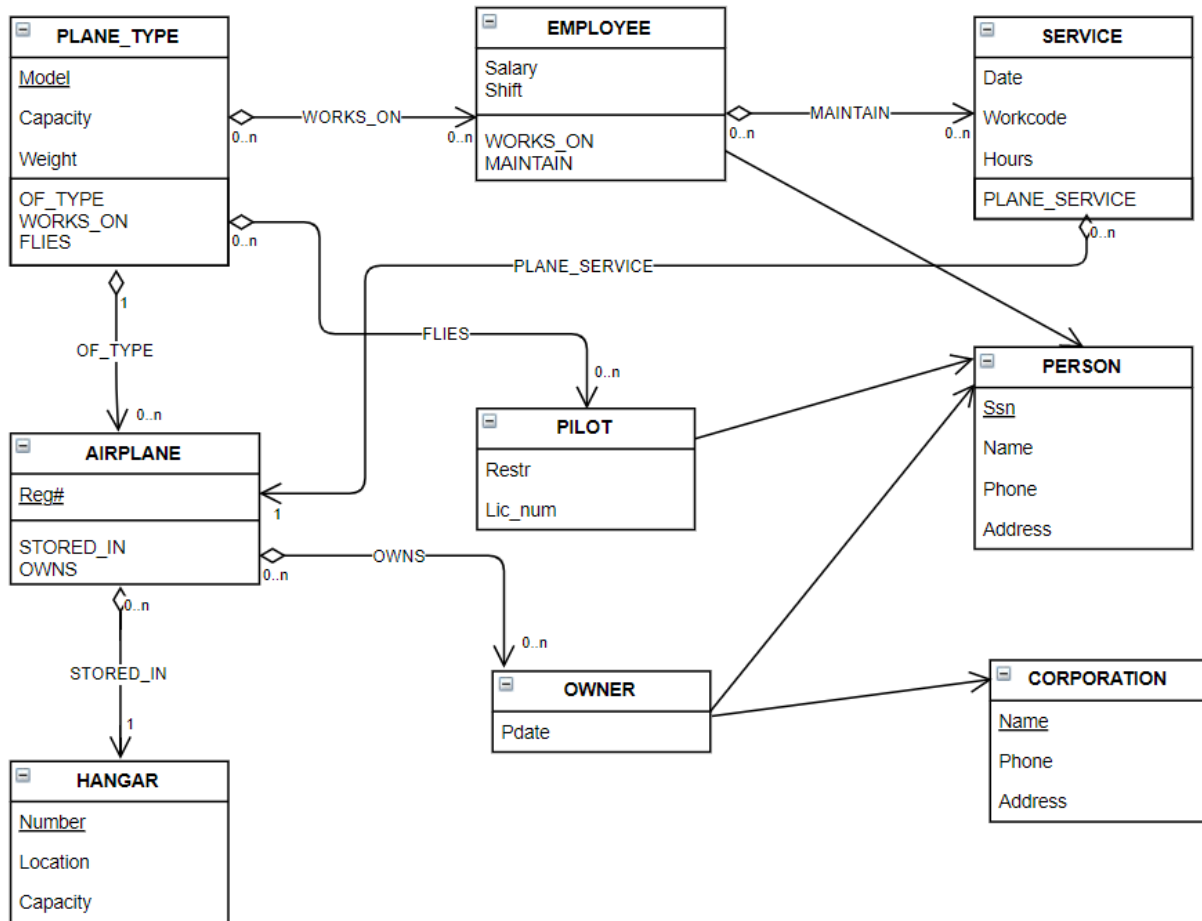
- Members have SSNs, campus and home mailing addresses, and phone numbers
- Superclass is MEMBERS, contains subclasses (STUDENTS and PROFESSORS)

### EER diagram



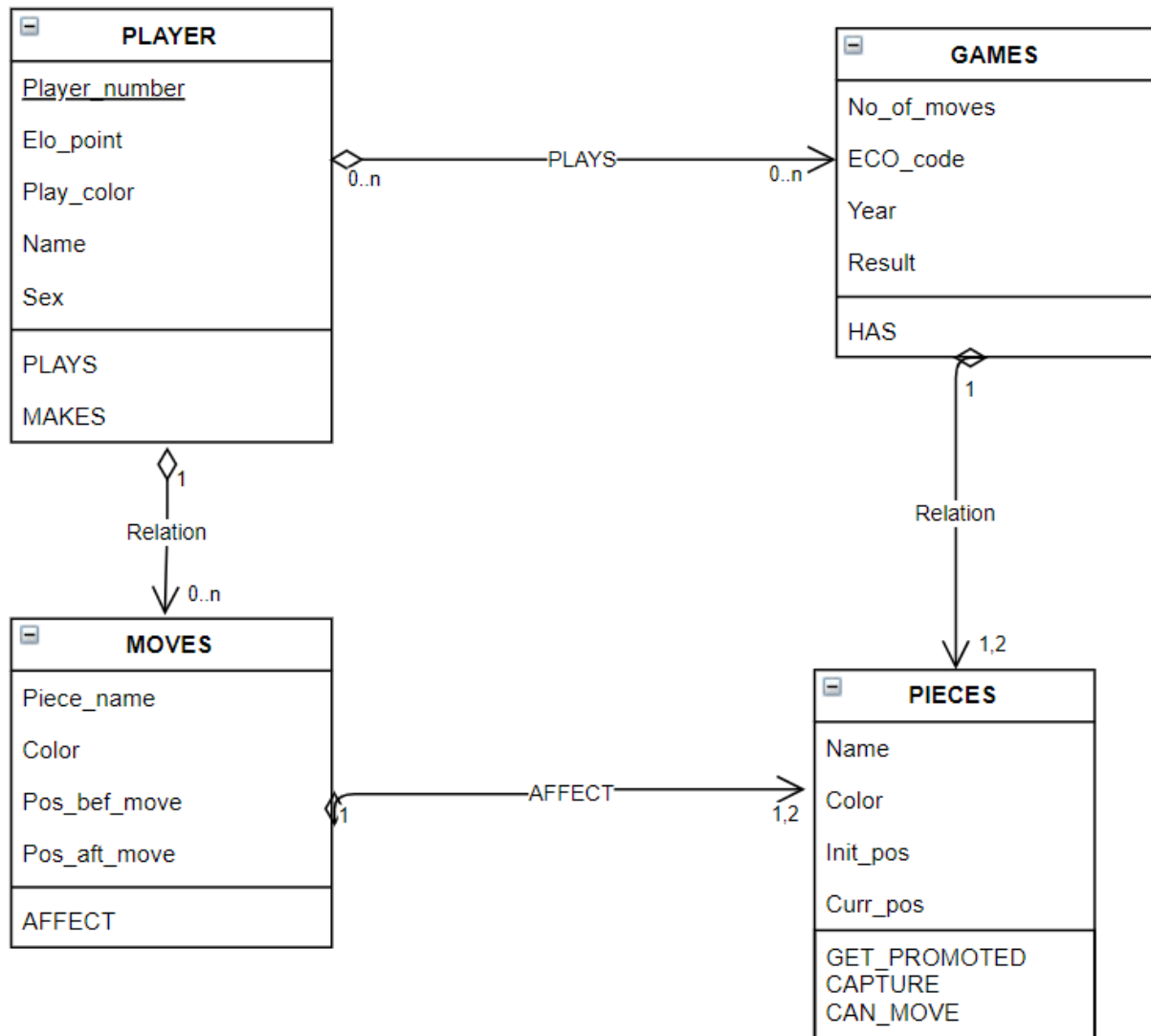
**Exercise 4.21:**

SMALL\_AIRPORT EER schema in Figure 4.12 represented in UML notation:



**Exercise 4.24:**

Chess game in UML notation:



**Exercise 4.27:**

