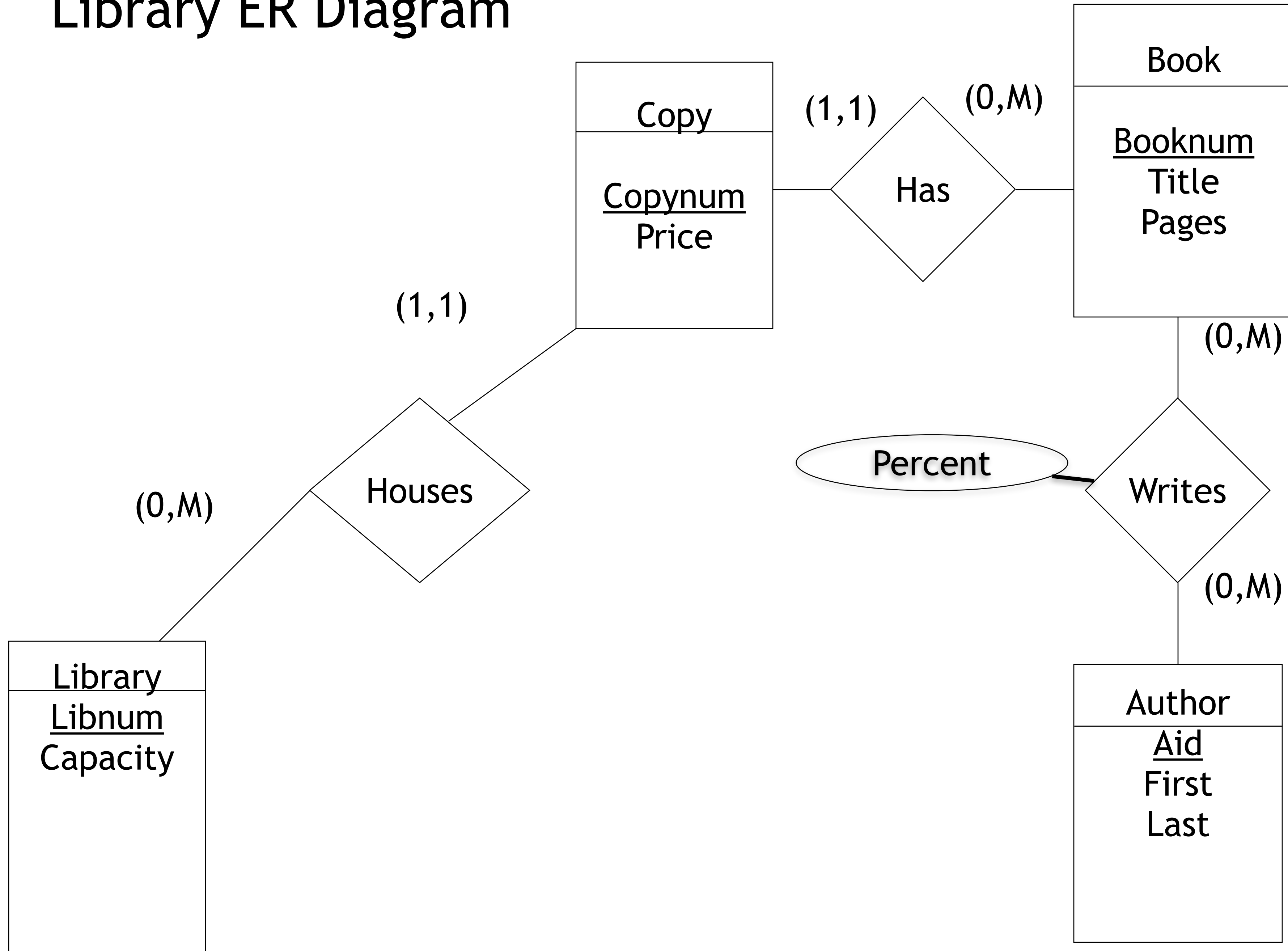


Solution to Review Problems

Library ER Diagram



Creates

- CREATE TABLE Author(aid int primary key, first VARCHAR(30), last VARCHAR(30));
- CREATE TABLE Book(booknum int primary key, title VARCHAR(50), pages int);
- CREATE TABLE Library(libnum int primary key, capacity int);
- CREATE TABLE Writes(aid int references Author(aid), booknum int references Book(booknum), percent int, primary key(aid, booknum));
- CREATE TABLE Copy(copynum int primary key, booknum int references Book(booknum), price decimal(8,2), libnum int references Library(libnum));

Query Problems Problems

- Find the number of pages in *War and Peace*
- Select pages from Book where title = 'War and Peace'

Query Problems Problems

- Find the titles of books written by Anton Chekhov
- Select title from Author natural join Writes natural join Book where first = 'Anton' and last = 'Chekhov'
- Select title from Author A join Writes W on A.aid = W.aid join Book B on W.booknum = B.booknum where first = 'Anton' and last = 'Chekhov'
- Select title from Author A, Writes W, Book B where A.aid = W.aid and W.booknum = B.booknum and first = 'Anton' and last = 'Chekhov'

Query Problems Problems

- Find the names of the authors of books with more than 600 pages.
- Select first, last from Author natural join Writes natural join Book where pages > 600

Query Problems Problems

- Find the price of each copy of *Middlemarch*
- Select price from Copy natural join Book where title = 'Middlemarch'
- Select price from Copy join Book using booknum where title = 'Middlemarch'

Query Problems Problems

- Find the number of books written by each author.
- Select aid, Count(booknum) from Writes group by aid
- Select aid, first, last, Count(booknum) from Author natural join Writes group by aid, first, last
- Select aid, first, last, Count(booknum) AS NumBooks from Author natural join Writes group by aid

Query Problems Problems

- Find the average copy price for each book.
- Select booknum AVG(price) from Copy group by booknum
- Select booknum, title, AVG(price) from Book natural join Copy group by booknum, title

Query Problems Problems

- Find the library with the largest capacity.
- Select libnum from Library where capacity = (select Max(capacity) from Library)

Query Problems Problems

- Find the unused capacity for each library.
- `select libnum, Count(copynum) as used from Copy group by libnum`
- `Select libnum, capacity-used as unused from Library natural join (select libnum, Count(copynum) as used from Copy group by libnum)`

Query Problems Problems

- Find the libraries with copies of books by every author
- Select libnum from Library L1 where Not Exists ((select aid from Author) Except (select aid from Writes natural join Book natural join Copy join Library L2 using libnum where L1.libnum = L2.libnum))
- Select aid from Author
- Select aid from Writes natural join Book natural join Copy join Library L2 using libnum where L1.libnum = L2.libnum

Query Problems Problems

- Find the libraries with copies of books by every author that has at least one book in the database
- Select libnum from Library L1 where Not Exists ((select aid from Author where aid in (select aid from Writes)) Except (select aid from Writes natural join Book natural join Copy join Library L2 using libnum where L1.libnum = L2.libnum))