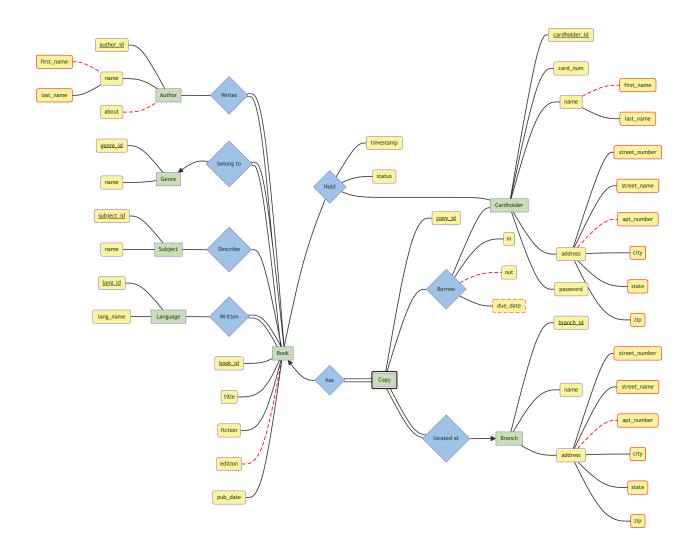
Chicago public library database design

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Entity Relationship Diagram



[™] Relational Schema

The main entities, including all necessary data for books & where they're stored:

- 1. Book(<u>bid</u>, isbn, title, genre_id, fiction, edition, pub_date)
- 2. Author(aid, first_name, last_name, about)
- 3. Genre(gid, name)
- 4. Subject(sid, name)
- 5. Language(<u>lid</u>, name)

- 6. Copy(<u>cid</u>, book_id, branch_id)
- 7. Cardholder(<u>chid</u>, card_num, first_name, last_name, password, addr_num, addr_street, addr_apt, addr_city, addr_state, addr_zip, phone, email)
- 8. Branch(<u>brid</u>, name, addr_num, addr_street, addr_apt, addr_city, addr_state, addr_zip)

The following bridge entities are used to handle checking borrowed books in/out or placing/modifying hold requests, as well as any other many-to-many relationships:

- 1. Cardholder_Copy(<u>copy_id, cardholder_id, out</u>, in, due_date)
- 2. Book_Cardholder(timestamp, book_id, cardholder_id, status)
- 3. Author_Book(book id, author id)
- 4. Subject_Book(book_id, subject_id)
- 5. Language_Book(<u>book_id</u>, <u>language_id</u>)

Business Rules

- 1. An Author can write one or more Books; however, every Book is written by at least one Author.
- 2. One Genre can contain one or more Books; however, every Book belongs to exactly one Genre.
- 3. One or more Subjects may describe a Book. One or more Books may be described by a Subject.
- 4. One or more Languages can be used to write a Book; a Book must be written in at least one Language.
- 5. A Book may be requested for Hold by one or more Cardholder. A Cardholder may request a Hold for one or more Book.
- 6. A Book may have one or more Copy; however, every Copy has exactly one Book.
- 7. A Copy can have one or more Borrow records for one or more Cardholder. A Cardholder can have one or more Borrow records for one or more Copy.
- 8. A Copy must be located at exactly one Branch, however, a Branch may have one or more Copy.