Library Database

Business Rules

1. A publisher can publish many books, however, a book can be published by only one publisher

2. A book has one form shown by the form name and its form id

3. A book is written by only one author, yet an author can write many books

4. A user can borrow and reserve as many books as they want, but a book can only be reserved and borrowed once by a user

5. A user can go to a librarian to enroll in the library database, and each librarian can enroll many users in the library database

Relational Schema

Library_Member(<u>User_ID</u>, First_Name, Last _Name, Birthdate, Age, gender, email,address, *Work_ID*)

Librarian(<u>Work_ID</u>, First_Name, Last_Name, Email, Address, Gender)

Book(<u>Book_ID,</u> Book_Name, isBorrowed, Copies_available, Book_Edition, Genre, *Author_ID*, *publisher_ID*, *form_ID*)
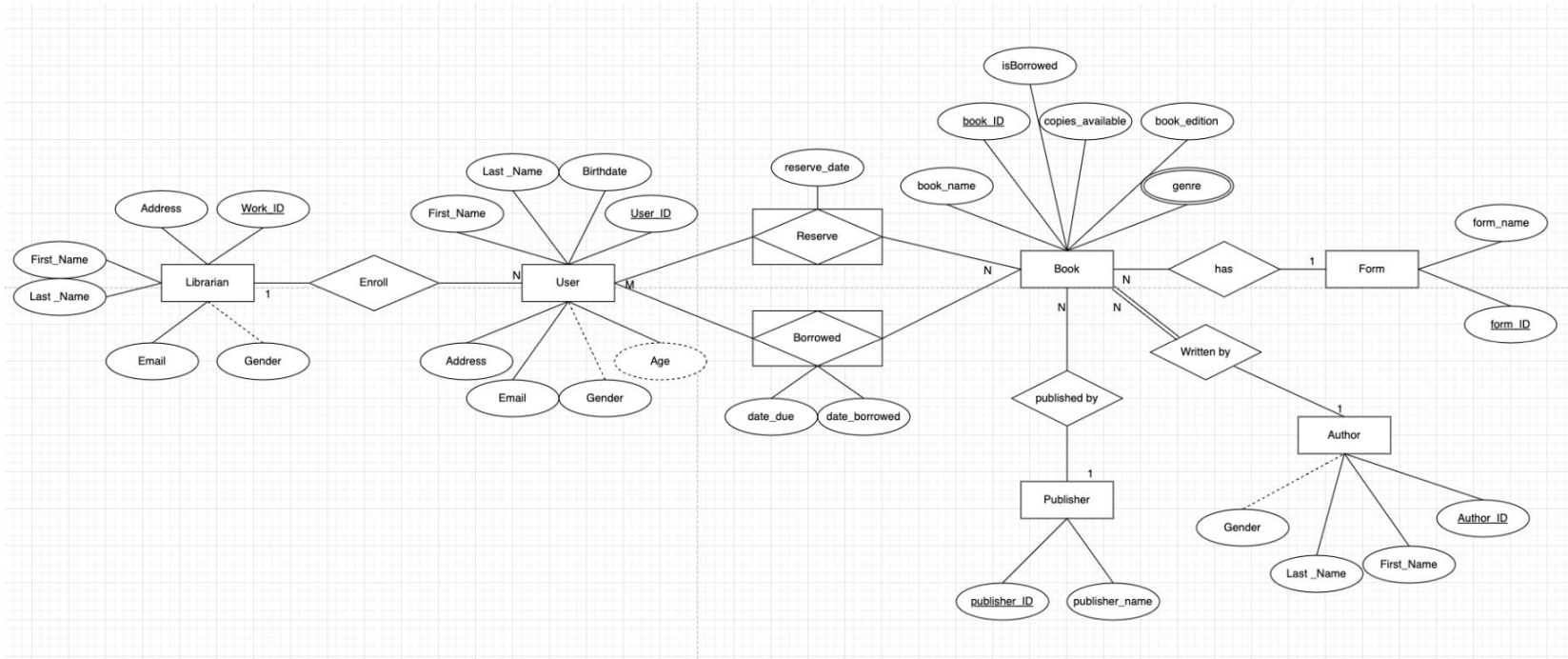
Publisher(<u>Publisher_ID</u>, Publisher_Name)

Form(Form_Name, <u>Form_ID.</u>)

Author(<u>Author_ID</u>, Gender, First_Name, Last_Name,)

Borrowed(<u>Book_ID+User_ID,</u> date_borrowed, date_due,Book_ID,User_ID)

Reserve(<u>Book_ID+User_ID,</u> reserve_date,Book_ID,User_ID)

ER Diagram

Queries

-- Average Age of Library Members

Select avg(Age) as average_age from library_member

average_age
▶ 16.6000

-- How many books are not being borrowed?

Select count(isBorrowed) from book where isBorrowed = "No"

count(isBorrowe...
▶ 14

-- What form of the book shows up in the database the most?

Select form_name as most_form from form as t where t.form_ID = (select max(distinct(form_ID)) from book);

most_form
▶ MP3

More Queries

-- What books are in genre "romance"?

Select book_name as Romance_Books from books where genre = "Romance";

Romance_Books	
▶ lorem	
amet	
consequat	
Praesent	
non	

-- Percentage of number of books in each genre in the database

Select genre, count(genre)/25 as percentage from book group by genre;

genre	percentage	
▶ Romance	0.2000	
Action	0.1600	
Drama	0.2000	
non-fiction	0.1200	
Horror	0.1600	
Educational	0.1600	

-- Total books available

Select sum(copies_available) from book

total_available	
592	

More Queries

-- **How many members are above 20 years of age**

Select count(Age) as Over_20 from library_member where Age > 20;

Over_20	
▶ 6	

-- **How many members are male**

Select count(Gender) as number_of_men from library_member where Gender = 'M';

number_of_men
▶ 13

-- **How many books did user 104275 borrow?**

Select count(Book_ID) as books_borrowed from borrowed where user_ID = 104275;

books_borrow...	
▶ 1	

Advanced Queries

Set Operation: Intersection between reserved and borrowed

SELECT DISTINCT user_ID,book_ID FROM reserved INNER JOIN borrowed USING (user_ID,book_ID);

SELECT distinct author_id, count(distinct publisher_ID) as publishers FROM book WHERE author_id = '4059';

author_id	publishers
4059	1

user_ID	book_ID
104275	4334
126698	4863
148838	3635
159629	4735
163463	3632
234695	4484
363683	4361
413147	4783
415616	3518
418132	4938
437224	4613
499263	3587
534953	4300
554655	4085
614367	4555
616514	4193
668621	3893
690218	4538
751687	4364
827075	3128
847914	4819
857971	3760
892585	3568
953368	3998
964843	4650

Group Contributions

OVERALL CONTRIBUTION			
1st Deliverable	Charles de Fiesta		25%
	Jeremy Cueva	25%	
	Ty Dwyer	25%	
	Vincent Richardo	25%	
2nd Deliverable	Charles de Fiesta		25%
	Jeremy Cueva	25%	
	Ty Dwyer	25%	
	Vincent Richardo	25%	
3rd Deliverable	Charles de Fiesta		25%
	Jeremy Cueva	25%	
	Ty Dwyer	25%	
	Vincent Richardo	25%	
4th Deliverable	Charles de Fiesta		25%
	Jeremy Cueva	25%	
	Ty Dwyer	25%	
	Vincent Richardo	25%	