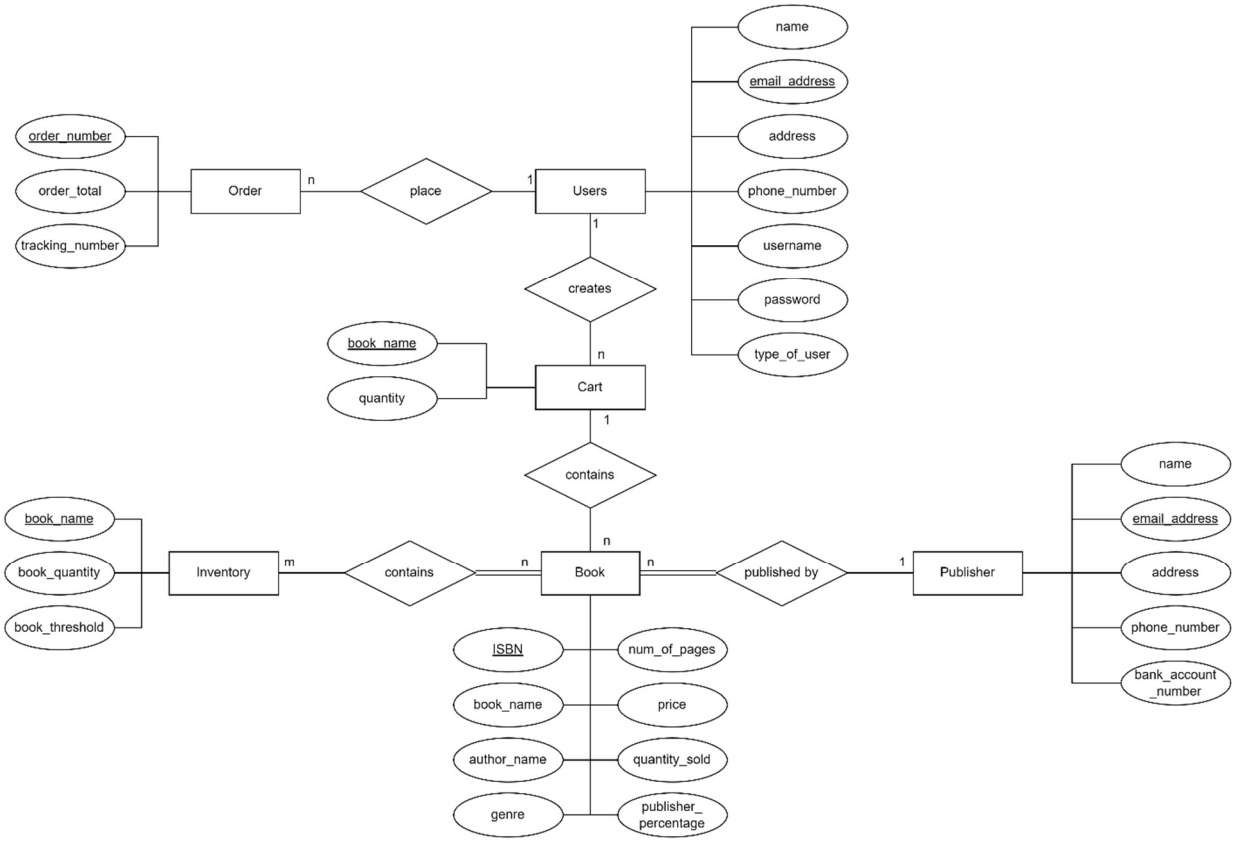
Online Bookstore (Look Inna Book)

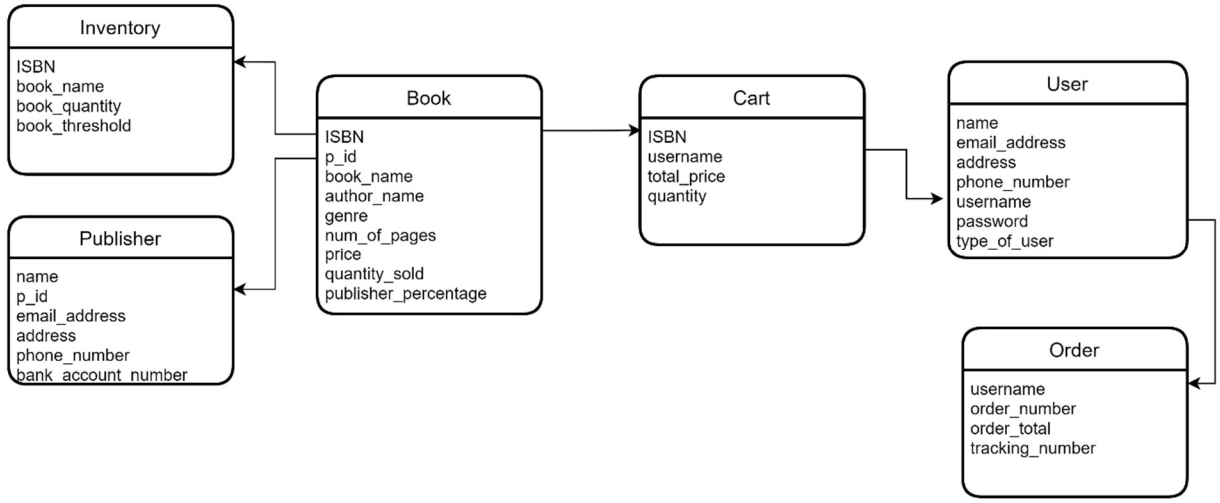
Conceptual Design

Assumptions

- One user can place many orders.
- Encapsulated both the customer and the owner under the “Users” entity since they can both place orders.
- A publisher can publish multiple books and one book is associated with one publisher.



Reduction to Relation Schemas



Primary Keys

Book: ISBN

Cart: ISBN

Users: username

Order: username

Publisher: p_id

Inventory: ISBN

Normalization of Relation Schemas

User

F = { username → name, email_address, address, phone_number, password, type_of_user }

Compute (username)$^+$

- username satisfies BCNF as it has all the attributes.

Card

F = { ISBN, username → total_price, quantity }

Since ISBN and username point to all attributes, it satisfies BCNF.

Order

F = { username → order_number,
order_number → order_total, tracking_number }

(username)$^+$ = order_number, order_total, tracking_number, username

(order_number)$^+$ = order_total, tracking_number

username satisfies BCNF but order_number does not. Breakdown order_number.

The resulting relations are

R_1 = username, order_number
R_2 = order_number, order_total, tracking_number.

Publisher

F = { P_id, email → name, address, phone_number, bank_account_number }

(P_id, email)$^+$ = P_id, email, name, address, phone_number, bank_account_number

Satisfies BCNF

Inventory

F = { ISBN → book_name, book_quantity, book_threshold }

(ISBN)$^+$ = ISBN, book_name, book_quantity, book_threshold

Satisfies BCNF

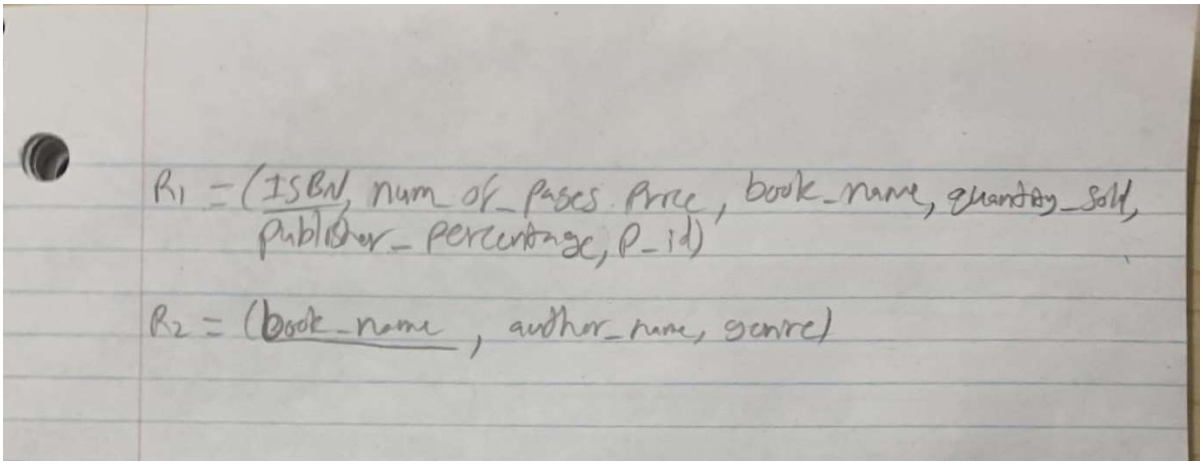
Book

F = { book_name → author_name, genre,
ISBN → book_name, P_id, num_of_pages, Price, quantity_sold, publisher_percentage }

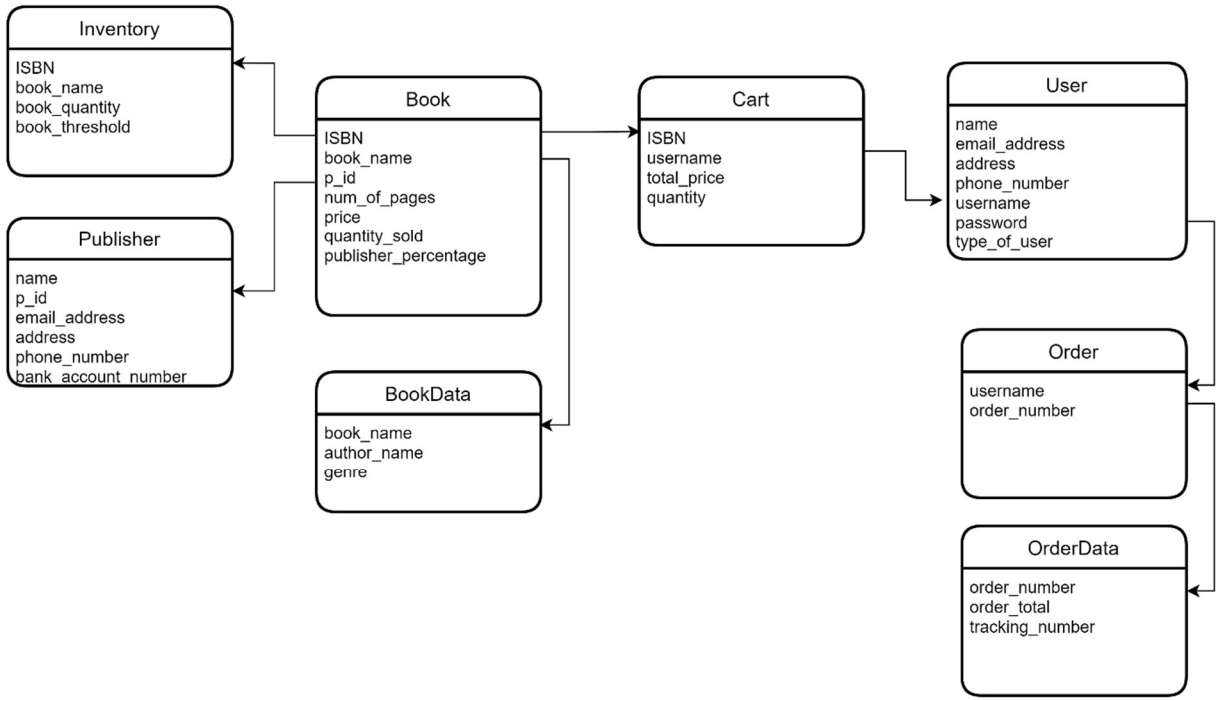
(book_name)$^+$ = author_name, book_name, genre

doesn't Satisfy BCNF

(ISBN)$^+$ = author_name, genre, book_name, P_id, num_of_pages, price, quantity_sold, publisher_Per



Database Schema Diagram



Primary Keys

Book: ISBN

BookData: book_name

Cart: ISBN, username

Users: username, email_address

Order: username

OrderData: order_number

Publisher: p_id

Inventory: ISBN

Bonus Feature

I added the functionality of approximate searching for a book via the title of a book and it will print out books with similar book titles.

GitHub Repository

The SQL and project files are present in the following GitHub repository link:
https://github.com/saadeid-sys/COMP3005Project