

COMP 3005 Project (Fall 2022)

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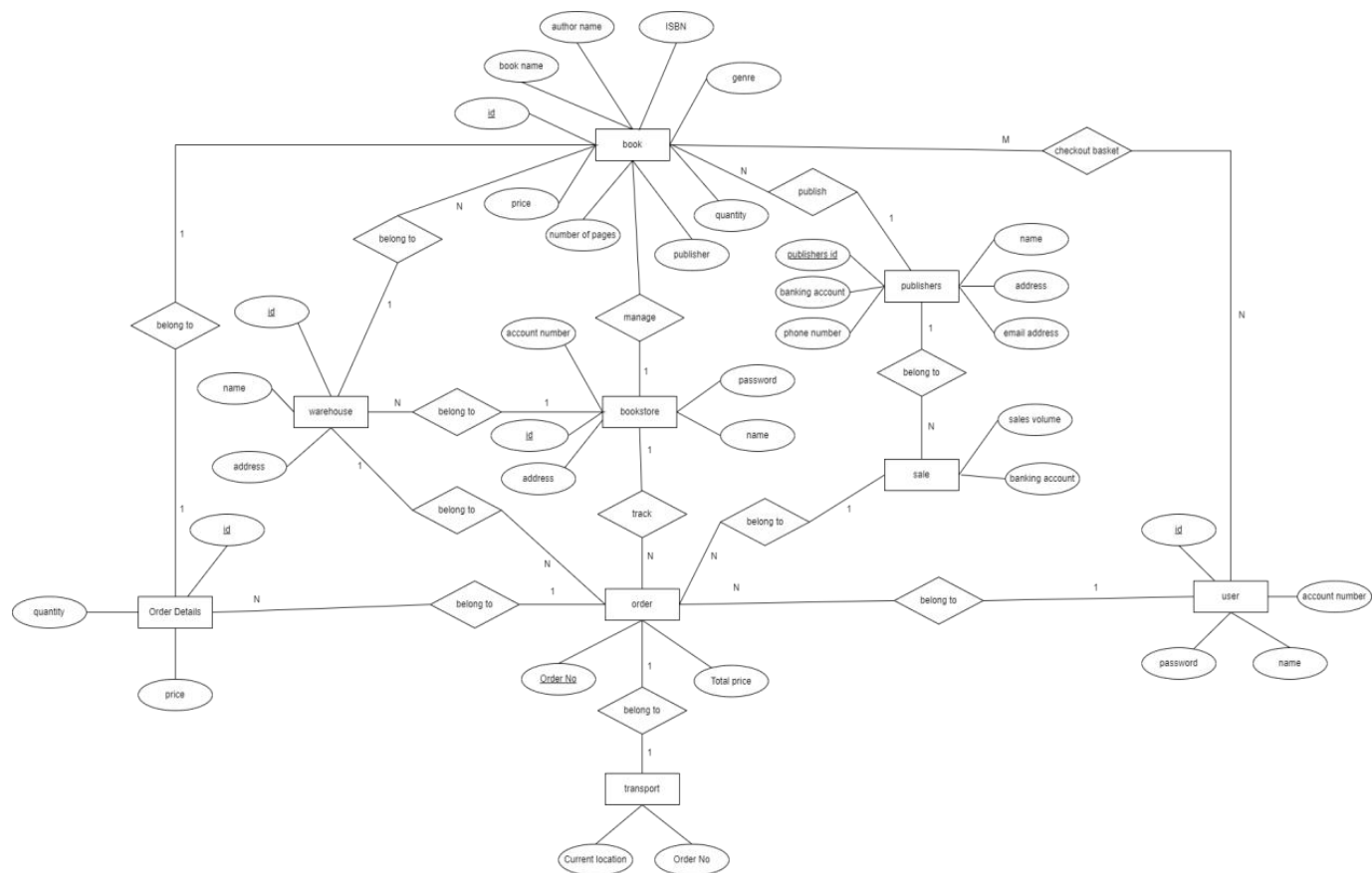
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1. Problem Statement

Design and implement an application for an online bookstore (Look Inna Book). This application lets users browse a collection of books that are available in the bookstore. A user can search the bookstore by book name, author name, ISBN, genre, etc.. When a book is selected, information on the author(s), genre(s), publisher, number of pages, price, etc. can be viewed. A user can select as many books as she likes to be added to the checkout basket. A user needs to be registered in the bookstore to be able to checkout. When checking out, the user inserts billing and shipping information (can be different than those used in registration), and completes the order. The bookstore has the feature of tracking an order via an order number. A user can use this order number to track where the order is currently. Although shipping is carried out by a third-party shipping service, the online bookstore should have the tracking information available for when the user inquires about an order using the order number. Assume all books are shipped from only one warehouse (no multiple order numbers for multiple books shipped from multiple warehouses). The bookstore owners can add new books to their collections, or remove books from their store. They also need to store information on the publishers of books such as name, address, email address, phone number(s), banking account, etc.. The banking account for publishers is used to transfer a percentage of the sales of books published by these publishers. This percentage is variable and changes from one book to another. The owners should have access to reports that show sales vs. expenditures, sales per genres, sales per author, etc.. The application should also be able to automatically place orders for new books if the remaining quantity is less than a given threshold (e.g., 10 books). This is done by sending an email to the publisher of the limited books to order a number of books equal to how many books were sold in the previous month (you do not have to implement the email sending component).

2.1、 Conceptual Design



2.2、 Reduction to Relation Schemas

```
book(id,book_name,author_name,isbn,genre,quantity,publisher_id,pages_number,price,books
tore id,
```

warehouse_id)

bookstore(id,account number,password,name,address,create time)

CheckoutBasket(id,user id,book id,create time,num)

```
order(id,order_no,total_price,bookstore_id,create_time,update_time,user_id,state)
```

```
orderDetails(id,order_id,book_id,quantity,price)
```

```
publishers(id,name,address,email_address,phone_number,banking_account,create_time,update_time,
```

bookstore id)

sale(id,banking account,sales volume,publishers id,order id)

```
transport(id,order_no,current_location)
```

```
user(id,account number,password,name,registration time)
```

warehouse(id,name,address,bookstore_id)

2.3、 Normalization of Relation Schemas

book(id,book_name,author_name,isbn,genre,quantity,publisher_id,pages_number,price,bookstore_id,

warehouse_id) The main code is(id,book_name,isbn)Conformity 3nf

bookstore(id,account_number,password,name,address,create_time)

The main code is(id,account_number)Conformity 3nf

CheckoutBasket(id,user_id,book_id,create_time,num)

The main code is(id)Conformity 3nf

order(id,order_no,total_price,bookstore_id,create_time,update_time,user_id,state)

The main code is(id,order_no)Conformity 3nf

orderDetails(id,order_id,book_id,quantity,price)

The main code is(id)Conformity 3nf

publishers(id,name,address,email_address,phone_number,banking_account,create_time,update_time,

bookstore_id) The main code is(id,name)Conformity 3nf

sale(id,banking_account,sales_volume,publishers_id,order_id)

The main code is(id,banking_account)Conformity 3nf

transport(id,order_no,current_location)

The main code is(id)Conformity 3nf

user(id,account_number,password,name,registration_time)

The main code is (id,account_number)Conformity 3nf

warehouse(id,name,address,bookstore_id)

The main code is (id,name)Conformity 3nf

2.4、 Database Schema Diagram

