Contents

1 Group members

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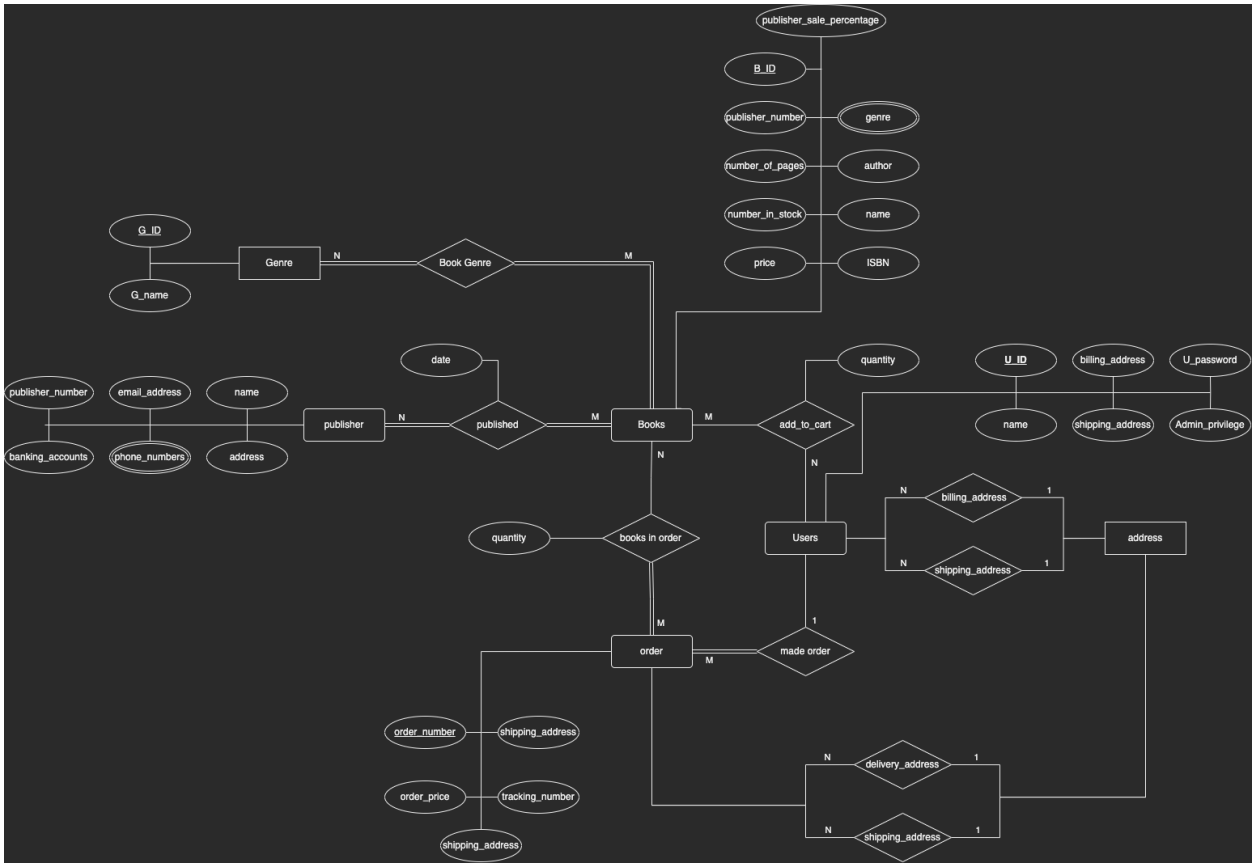
2 Concept diagram

2.1 ER Diagram



2.2 Assumptions

a. The owner is a user
b. A book can only be published by 1 publisher
c. Billing address and shipping address can be different
d. Multiple users and orders can share the same address
e.

3 Reduction to Relational Schema

a. books(ISBN, B_name, Author, publisher_number, number_of_pages, price, number_in_stock, publisher_sale_percentage, date_published)
b. users(U_ID, U_name, billing_address, address, U_password, Admin_privilege)
c. publishers(Publisher_number, P_name, address, email_address, bank_account)
d. orders(order_number, tracking_number, u_id, shipping_address, billing_address)
e. cart(U_ID, ISBN, quantity)
f. address(a_id,address)
g. genre(G_ID, G_name)
h. book_genra(G_ID, ISBN)
i. Books_in_order(ISBN, order_number, quantity)
j. phone_numbers(phone_numbers,publisher_number)

4 Normalization of Relational Scheme

1. Book

   Let:
   a. ISBN = A
   b. B_name = B
   c. Author = C
   d. Publisher_number = D
   e. Number_of_pages = E
   f. Price = F
   g. Number_in_stock = G
   h. Publisher_sales_percentage = H
   i. Date_published=I

   R=(A,B,C,D,E,F,G,H,I)
   F={
   A→BCDEFGHI
   B,C→ADEFGHI
   }

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

2. User

Let:

a. U_ID = A
b. U_name = B
c. Billing_address = C
d. Address = D
e. U_Password = E
f. Admin_privilages

R=(A,B,C,D,E,f)
F={
A→BCDEF
B,E→ACDF
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

3. Order

Let:

a. Order_number = A
b. Shipping_cost = C
c. Billing_address = D
d. Order_price = E
e. Tracking_number = F
f. U_ID = G

R=(A,B,C,D,E,F)
F={
A→BCDEF
F→ABCDE
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

4. Publisher

Let:

a. Publisher_number = A
b. P_name = B
c. Address = C
d. Email_address = D
e. Bank_Account = E
f.

R=(A,B,C,D,E)
F={

A→A
D→D
A→BCDE
D→ABCE

}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

5. Phone_number

Let:

a. Phone_number = A
b. Publisher_number = B

R=(A,B)
F={
A→A
A→B
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

6. Address

Let:

a. A_ID = A
b. Address = B

R=(A,B,C,D,E)
F={
A→A
A→B
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

7. Cart

Let:

a. U_ID = A
b. ISBN = B
c. Quantity = C

R=(A,B,C)
F={
AB→AB
AB→C
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

8. Books in Cart

Let:

a. ISBN = A
b. Order_number = B
c. Quantity = C

R=(A,B,C)
F={
AB→AB
AB→C
}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

9. Genre

Let:

a. G_ID = A
b. G_name = B

R=(A,B)
F={
A→A (trivial)
A→B

}

The Table is in BCNF dues to the fact that all α are super keys for R, meaning they are trivial and every β is dependent on them

10. Book Genre

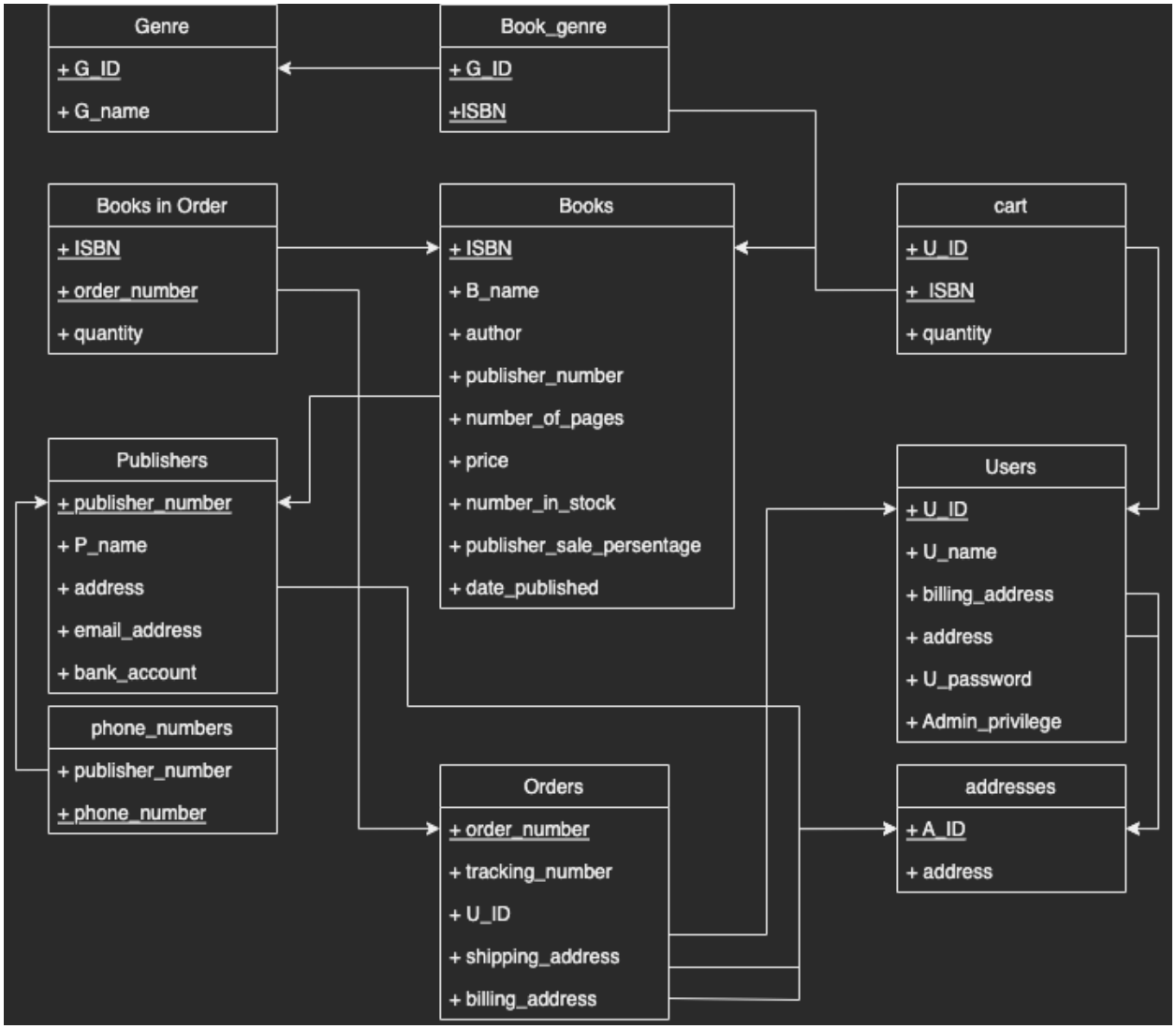
Let:

a. G_ID = A
b. ISBN = B

R=(A,B)
F={
AB→AB
}

The Table is in BCNF dues to the fact that all the dependencies are trivial

5 Database Schema Diagram



6 Implementation

The project is implemented using html and javascript . The user is first shown a login page in which they have the option to either login, move to the sign up page or move to the admin login page. If the user chooses to sign up they will then have the optionton go back to the login page and log in.

Store owner:
username:owner and password:admin
Test users:
username: edi password:12345
username: bob password: 54321

If the user logs in regularly they will be able to access 3 pages:

1. Profile: which has
    a. Order history
2. Search : which has
    a. Book search
    b. Cart
3. Home: which is a welcome page

If the user logs in as admin(store owner) they will be able to access 1 padge:

1. Admin search: which allows them to update the stock of books

The user can search for books based on either the ISBN, name, author or genre. The user can add the books to the cart which is displayed at the right hand side of the screen. When they are ready they will check out placing an order. The user can view their past orders in the profile page. When they are done they have the option to logout and login as a different user.

The owner will be able to search up specific books based on the author and/or name of the book and increase the stock of the books.

Sign up

Home Register Login

Username:

Password:

Confirm Password:

Address:

Billing Address:

Sign up

Already have an account?

Login

Login

Home Register Login

Username:

Password:

Login

Don't have an account?

Sign up

Admin

Home Home Register Login

Welcome to Database

Login

Home Register Login

Username:

Password:

Admin Login

MED BOOKSTORE

Home Register Login

Search: Search
ISBN **Name** **Author** **Genre**

ISBN: 5

Name: vampire fighters

Author: pete johnson

Publisher No: 1

Number of pages: 41

Price: 20

Number in stock: 1

Sale Percentage: 1

Date Published: 2012-12-03T05:00:00.000Z

Add to Cart

ISBN: 6

Name: the life of the apple guru 1.5

Author: jack black

Publisher No: 4

Number of pages: 5

Order #{data.isbn}

Cart

Admin Page

Home

book name: harry **Book author:** Search

ISBN: 6

Name: the life of the apple guru 1.5

Author: jack black

Publisher No: 4

Number of pages: 5

Price: 999

Number in stock: 16

Sale Percentage: 99

Date Published: 2017-11-06T05:00:00.000Z

+

ISBN: 2

Name: vampire hunters

Author: Pete Johnson

Publisher No: 1

Number of pages: 41

Price: 20

Number in stock: 0

Sale Percentage: 1

Date Published: 2012-12-03T05:00:00.000Z

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7 Github

https://github.com/damiolabisi1/3005-Project.git