

# Look Inna Book Project Report

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COMP 3005A

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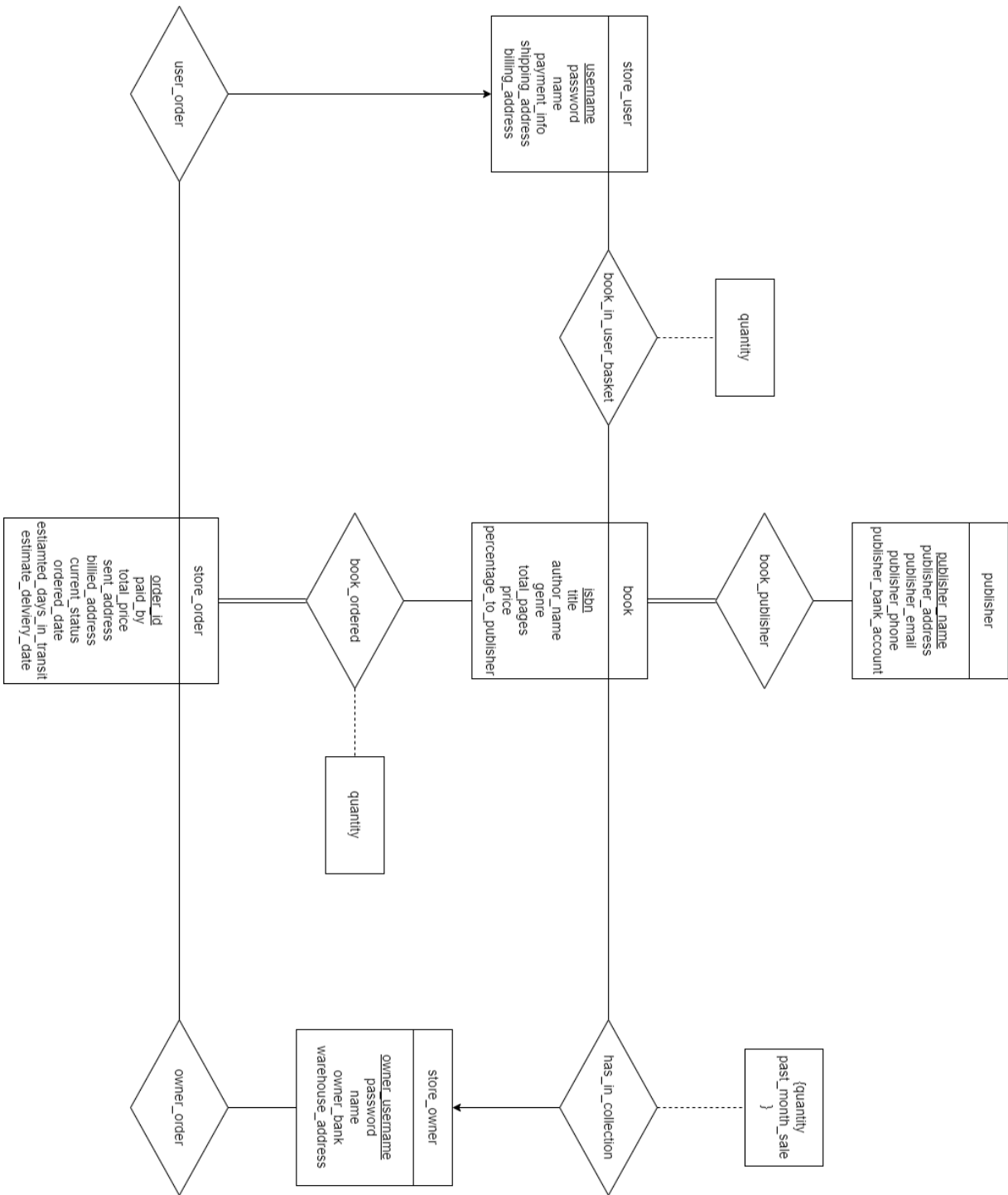
## Introduction

This application serves to function for an online bookstore (Look Inna Book) and was created for COMP 3005A final project.

Be sure to read the README for instructions on running the program, and important notes.

This project was completed by Richard Kim (101138475) only (did it alone).

1. Conceptual Design



All primary keys are underlined.

## Assumptions:

### 1. Store\_user

- A. Store\_users will have an unique username, and all other attributes are required, and not null.
- B. It will have many to many, partial relationship with book via book\_in\_user\_basket, since multiple users can have multiple books in their basket, and not all users will have books in their basket. Book\_in\_user\_basket will have a relational attribute of quantity.
- C. Store\_user also has a one to many relationship with store\_order via user\_order. Since a store\_user can make multiple orders, but each store\_order will be ordered from at most one store\_user. The relationship is partial from store\_user's side, since not all store\_user will have ordered a book.

### 2. Book

- A. Book will have a unique ISBN, and all other attributes are required, and not null.
- B. Book will have many to many, partial relationship with store\_user via book\_in\_user\_basket, since multiple books can be in multiple user's basket, and not all books will be inside a user's basket.
- C. Book has many to many relationship with publisher, and it will be total participation from the book's side. Since different books can have same / different publishers, and all books will be published from a publisher. So, book has total participation to book\_publisher
- D. Book has many to many relationship with store\_order, since multiple books can be in multiple store\_orders. Book will have partial participation to book\_ordered since not all books will be in a order. Book\_ordered will have a relational attribute of quantity.
- E. Book has many to one relationship with store\_owner, and has partial participation via has\_in\_collection. Since with current implementation, one book must have only one single owner, to allow editing of the book, and to remove confusion behind which owner gets to send their book for each order. Book has partial participation with has\_in\_collection since a book can be 'out of stock', then it will need to exist at a state where there is no owner, and so is not in any owner's collection. Has\_in\_collection has multiple relational attribute of quantity and past\_month\_sale (total quantity sold in past 30 days).

### 3. Publisher

- A. Only unique attribute in publisher will be their name. It is assumed that publishers can share same address, email, phone, and bank account. From what I have seen, it is quite common for amateur publishers to share the same office. Also, publishers sometimes keep a different name for each genre of books, when it is actually one company publishing all those books for marketing reasons.

- B. Publisher has many to many relationship with book via book\_publisher, and relationship is partial from the publisher's side. Since not all publishers registered in the database needs to have a book in the market. Also, the relationship is many to many, to allow collaborations of publishers to publish a single book.

#### 4. Store\_owner

- A. Owner\_username is the only unique value from store\_owner. I have assumed that same person may want to keep different accounts to organize their sales better, or small family businesses can keep different accounts while sharing the warehouse and bank account.
- B. Store\_owner has a one to many relationship with the book via has\_in\_collection. This allows a book to be in at most one store\_owner's collection, while a store\_owner to have multiple books in their collection. The relationship is partial from store\_owner's side, since not all store\_owners need to have a book in their collection.
- C. Store\_owner has many to many, partial relationship with store\_order via owner\_order. This is because not all store\_owners need to have an order (some will not be doing very well in business), and multiple store\_owner can have multiple store\_order.

#### 5. Store\_order

- A. Order\_id is the only unique key. Other attributes can be same depending on the situations, and it is very common to be same.
- B. Store\_order has many to many relation ship with book, since multiple store\_order can be based on multiple books. The relationship is total from store\_order's side, because this is a bookstore, all orders will be based on a book. Relational attribute of quantity is given to book\_ordered.
- C. Store\_order has many to many, partial relationship with store\_owner. Multiple store\_orders can have multiple store\_owners, based on the book user ordered. The relationship is partial, because even in case the store\_owner deletes their account, the store\_order needs to be remained so the user can view it.
- D. Store\_order has many to one relationship with store\_user via user\_order. This is because each store\_order can be made by maximum of on store\_user, but each store\_user can make multiple store\_orders. The relationship is partial due to similar reason as above. Even if the store\_user deletes their account, the store\_order must remain so that store\_owner can view the order in their reports.

## 2. Reduction to relation schemas

*store\_user* (username, password, name, payment\_info, shipping\_address, billing\_address)

*book* (isbn, title, author\_name, genre, total\_pages, price, percentage\_to\_publisher)

*book\_in\_user\_basket* (username, isbn, quantity)

*store\_order* (order\_id, paid\_by, total\_price, sent\_address, billed\_address, current\_status, ordered\_date, estimated\_days\_in\_transit, estimated\_delivery\_date)

*book\_ordered* (order\_id, isbn, quantity)

*user\_order* (username, order\_id)

*store\_owner* (owner\_username, password, name, owner\_ban, warehouse\_address)

*owner\_order* (owner\_username, order\_id)

*has\_in\_collection* (owner\_username, isbn, quantity, past\_month\_sale)

*publisher* (publisher\_name, publisher\_address, publisher\_email, publisher\_phone, publisher\_bank\_account)

*book\_publisher* (isbn, publisher\_name)

Note that primary key of *user\_order* is NOT username, but order\_id.

Note that primary key of *has\_in\_collection* is NOT owner\_username, but isbn.

I do understand that I should have had them listed first for better organizational purpose, but I had to make last minute changes.

### 3. Normalization of Relation Schemas

*store\_user (username, password, name, payment\_info, shipping\_address, billing\_address)*

Let A stand for username, B stand for password, ... F stand for billing\_address.

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

$F = (A \rightarrow B \ C \ D \ E \ F)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F)$

Remove trivial functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F)$

Minimize left side of each functional dependency:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F)$

Remove redundant functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F)$

Minimal cover:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F)$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{A\}$

Every candidate key must contain this attribute(s).

$\{A\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A\}$ , this table is in BCNF.



*book (isbn, title, author\_name, genre, total\_pages, price, percentage\_to\_publisher)*

Let A stand for isbn, B stand for title, ... G stand for percentage\_to\_publisher.

$R = (A, B, C, D, E, F, G)$

$F = (A \rightarrow B \ C \ D \ E \ F \ G)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G)$

Remove trivial functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G)$

Minimize left side of each functional dependency:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G)$

Remove redundant functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G)$

Minimal cover:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G)$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{A\}$

Every candidate key must contain this attribute(s).

$\{A\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A\}$ , this table is in BCNF.

*book\_in\_user\_basket (username, isbn, quantity)*

Let A stand for username, B stand for isbn, C stand for quantity.

$R = (A, B, C)$

$F = (A \ B \rightarrow C, A \ B \rightarrow A \ B)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$$F = (A B \rightarrow C, A B \rightarrow A B)$$

Remove trivial functional dependencies:

$$F = (A B \rightarrow C)$$

Minimize left side of each functional dependency:

$$F = (A B \rightarrow C)$$

Remove redundant functional dependencies:

$$F = (A B \rightarrow C)$$

Minimal cover:

$$F = (A B \rightarrow C)$$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$$\{A, B\}$$

Every candidate key must contain this attribute(s).

$\{A, B\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A, B\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A, B\}$ , this table is in BCNF.

*store\_order (order\_id, paid\_by, total\_price, sent\_address, billed\_address, current\_status, ordered\_date, estimated\_days\_in\_transit, estiamte\_delivery\_date)*

Let A stand for order\_id, B stand for paid\_by, ... I stand for estimate\_delivery\_date.

$$R = (A, B, C, D, E, F, G, H, I)$$

$$F = (A \rightarrow B C D E F G H I)$$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G, A \rightarrow H, A \rightarrow I)$$

Remove trivial functional dependencies:

$$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G, A \rightarrow H, A \rightarrow I)$$

Minimize left side of each functional dependency:

$$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G, A \rightarrow H, A \rightarrow I)$$

Remove redundant functional dependencies:

$$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G, A \rightarrow H, A \rightarrow I)$$

Minimal cover:

$$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E, A \rightarrow F, A \rightarrow G, A \rightarrow H, A \rightarrow I)$$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$$\{A\}$$

Every candidate key must contain this attribute(s).

$\{A\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A\}$ , this table is in BCNF.

*book\_ordered (order\_id, isbn, quantity)*

Let A stand for order\_id, B stand for isbn, C stand for quantity.

$$R = (A, B, C)$$

$$F = (A B \rightarrow C, A B \rightarrow A B)$$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$$F = (A B \rightarrow C, A B \rightarrow A B)$$

Remove trivial functional dependencies:

$$F = (A B \rightarrow C)$$

Minimize left side of each functional dependency:

$$F = (A B \rightarrow C)$$

Remove redundant functional dependencies:

$$F = (A B \rightarrow C)$$

Minimal cover:

$$F = (A B \rightarrow C)$$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$$\{A, B\}$$

Every candidate key must contain this attribute(s).

$\{A, B\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A, B\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A, B\}$ , this table is in BCNF.

*user\_order (username, order\_id)*

Let A stand for username, B stand for order\_id.

$$R = (A, B)$$

$$F = (B \rightarrow A)$$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$$F = (B \rightarrow A)$$

Remove trivial functional dependencies:

$$F = (B \rightarrow A)$$

Minimize left side of each functional dependency:

$$F = (B \rightarrow A)$$

Remove redundant functional dependencies:

$$F = (B \rightarrow A)$$

Minimal cover:

$$F = (B \rightarrow A)$$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{B\}$

Every candidate key must contain this attribute(s).

$\{B\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{B\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{B\}$ , this table is in BCNF.

*store\_owner (owner\_username, password, name, owner\_ban, warehouse\_address)*

Let A stand for owner\_username, B stand for password, ... E stand for warehouse\_address.

$R = (A, B, C, D, E)$

$F = (A \rightarrow B \ C \ D \ E)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Remove trivial functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Minimize left side of each functional dependency:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Remove redundant functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Minimal cover:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{A\}$

Every candidate key must contain this attribute(s).

{A} is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key, {A}, this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key {A}, this table is in BCNF.

*owner\_order (owner\_username, order\_id)*

Let A stand for owner\_username, B stand for order\_id.

R = (A, B)

F = (A B  $\rightarrow$  A B)

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

F = (AB  $\rightarrow$  A, AB  $\rightarrow$  B)

Remove trivial functional dependencies:

All functional dependencies are trivial.

Minimal cover:

DNE

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

{A, B}

Every candidate key must contain this attribute(s).

{A, B} is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since all functional dependencies are trivial, this table is in 3NF.

Since all functional dependencies are trivial, this table is in BCNF.

*has\_in\_collection (owner\_username, isbn, quantity, past\_month\_sale)*

Let A stand for owner\_username, B stand for isbn, C stand for quantity, and D stand for past\_month\_sale.

$R = (A, B, C, D)$

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Remove trivial functional dependencies:

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Minimize left side of each functional dependency:

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Remove redundant functional dependencies:

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Minimal cover:

$F = (B \rightarrow A, B \rightarrow C, B \rightarrow D)$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{B\}$

Every candidate key must contain this attribute(s).

$\{B\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{B\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{B\}$ , this table is in BCNF.

*publisher (publisher\_name, publisher\_address, publisher\_email, publisher\_phone, publisher\_bank\_account)*

Let A stand for publisher\_name, B stand for publisher\_address, ... E stand for publisher\_bank\_account.

$R = (A, B, C, D, E)$

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Remove trivial functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Minimize left side of each functional dependency:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Remove redundant functional dependencies:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Minimal cover:

$F = (A \rightarrow B, A \rightarrow C, A \rightarrow D, A \rightarrow E)$

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{A\}$

Every candidate key must contain this attribute(s).

$\{A\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since for all functional dependency, left hand side is a super key,  $\{A\}$ , this table is in 3NF.

Since for every non-trivial functional dependency, left hand side is a super key  $\{A\}$ , this table is in BCNF.



*book\_publisher (isbn, publisher\_name)*

Let A stand for isbn, B stand for publisher\_name.

$R = (A, B)$

$F = (A B \rightarrow A B)$

Find minimal cover:

Rewrite functional dependencies into those with only one attribute on the right:

$F = (AB \rightarrow A, AB \rightarrow B)$

Remove trivial functional dependencies:

All functional dependencies are trivial.

Minimal cover:

DNE

Find set of attributes not on the right side of any functional dependency:

From the minimal cover, find attributes that never goes on the right side:

$\{A, B\}$

Every candidate key must contain this attribute(s).

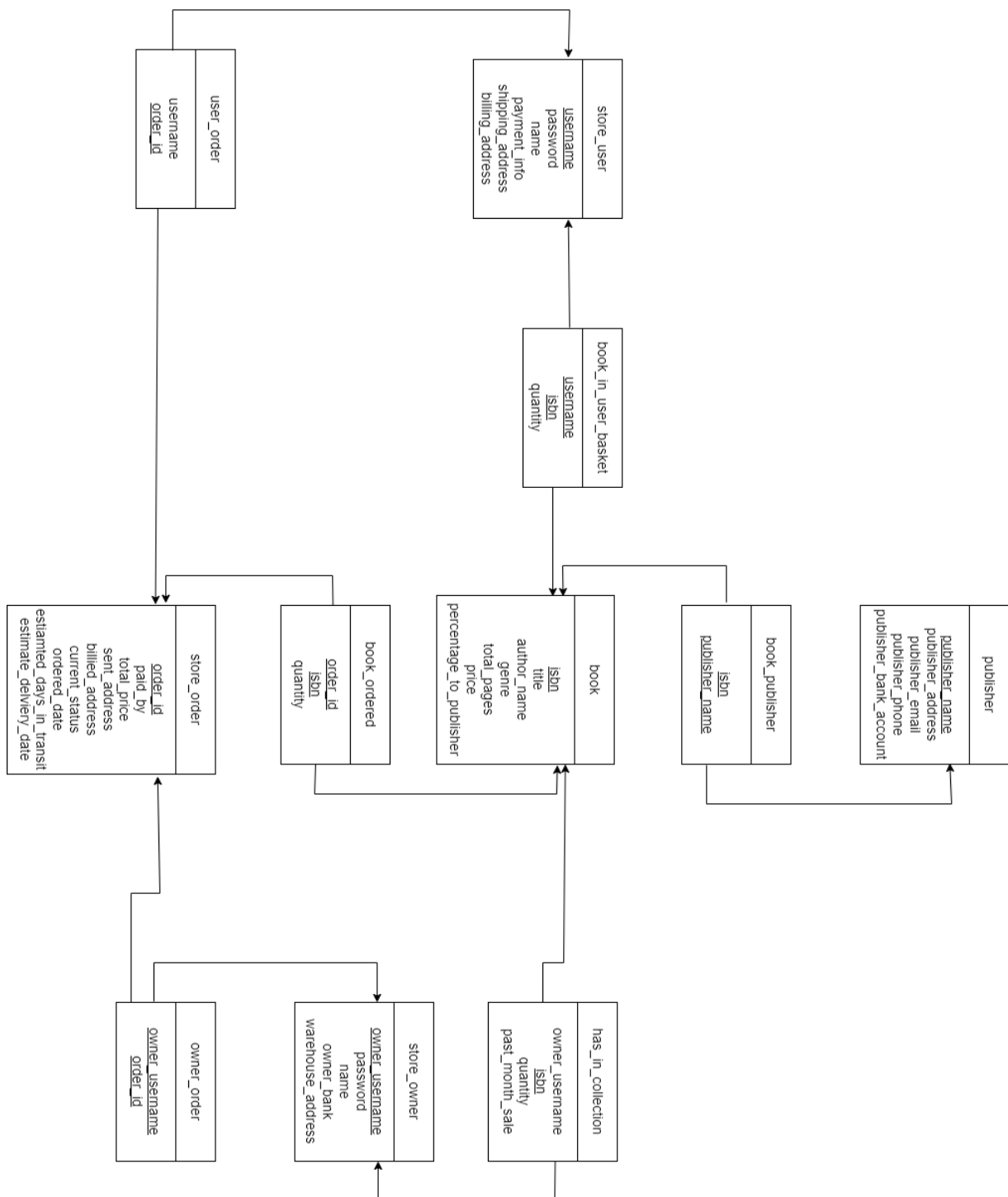
$\{A, B\}$  is a superkey, and so it is the only candidate key.

Test for 3NF, and BCNF:

Since all functional dependencies are trivial, this table is in 3NF.

Since all functional dependencies are trivial, this table is in BCNF.

#### 4. Database Schema Diagram



Note that primary key of user\_order is NOT username, but order\_id.

Note that primary key of has\_in\_collection is NOT owner\_username, but isbn.

I do understand that I should have had them listed first for better organizational purpose, but I had to make last minute changes.

## 5. Implementation (Functionalities)

Program was written in mainly python, using the psycopg2 extension to communicate with PostgreSQL as shown in class. pg\_trgm extension is also used to allow search for similar books (bonus feature). PrettyTable extension is used to create good looking reports.

Note: user – does not mean any person who uses this program, it means ‘store\_user’, the ones who purchase books on the bookstore. Normal people who use the program will just be called as ‘one’ or some other general name.

List of files with a brief description:

constants.py - defines the constants (database info)

guest.py - handles all action take by a guest

initializer.py - initialize the database to be used by this program

login.py - handles all action relating to logging in

main.py - main control file that routes out to all other files

owner.py - handles all actions taken by an owner

signup.py - handles all actions related to signing up

user.py - handles all actions taken by a user, and handles all actions while making an order (controlling owner's collection of books as well)

Inside 'SQL' directory:

\_\_init\_\_.py - needed to run the .sql files, not directly ran by the program

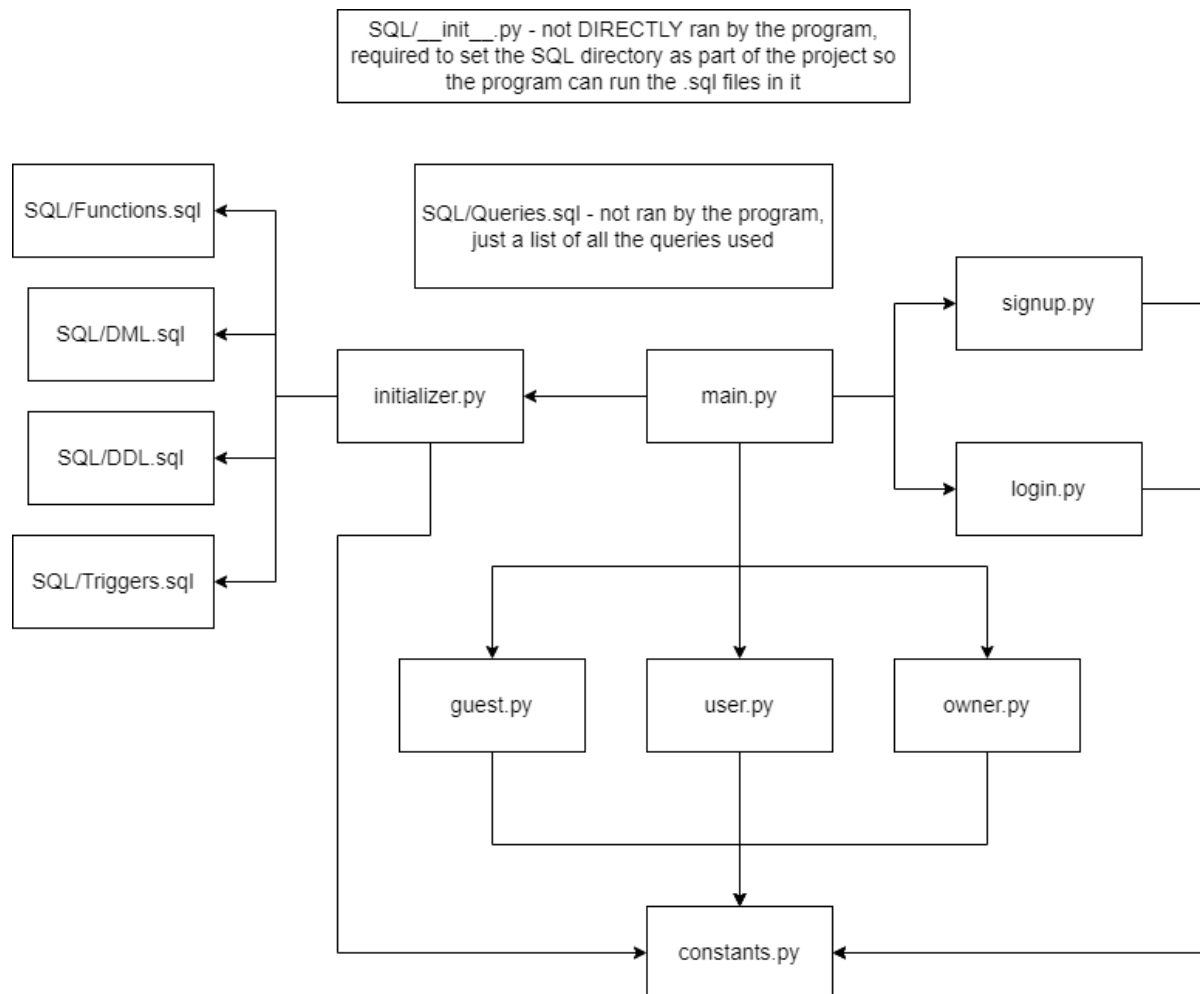
DDL.sql - set public schema to its natural state, then add tables needed

DML.sql - insert few relations

Functions.sql - inserts functions that will be used

Queries.sql - list of all queries used in this program and explanations (there are few redundancies), not ran by the program

Triggers.sql - inserts trigger that will be used



Simple diagram of how each files interact is shown above.

The program is ran when the main.py is called, then initializer.py is called right away to initialize the data. Constants.py is used to store constants required to access the database, and so it must be edited before running the program to fit your individual database (username, password, ect).

Signup.py and login.py are called when one needs to sign up or login.

Then one can go into one of the three interfaces, if the they are not logged in, they may only be a guest. Guest are only allowed to search the books using different criteria.

If one logs in as a 'store\_user', they are able to search for books, add them to basket, make an order, get books recommended based on their order history, track their orders, view all of their orders, edit/delete their account.

If one logs in as a 'store\_owner' they are able to add/remove/edit books in their collection, view reports, edit/delete their account, and view all the books in their collection.

Detailed information on each functionality will follow.

Now that I look back, my initial screen shots are quite small and so may be slightly difficult to read. Sorry about that.

## main.py

```
Tables added to the database
Relations inserted to the database
Functions added to the database
Triggers added to the database

COMP3005 Final Project
Richard Kim, 101138475

*****
Welcome to Look Inna Book!

    If you have an account, please enter: 1
    If you would like to search books as a guest or signup, please enter: 2
    0 to exit the program

Please note you will not be able to purchase books as a guest, you will only be able to search them.
We highly recommend that you sign up, and log in.

*****
PLEASE MAKE SURE YOU HAVE READ THE README FILE, IT CONSISTS OF INFORMATION NEEDED TO PROPERLY RUN THIS PROGRAM
*****
Enter in your choice: _
```

1. Initializer.py runs automatically to WIPE OUT ALL PREVIOUS 'PUBLIC' SCHEMA, then adds new tables, relations, functions, and triggers using the .sql files under /SQL directory.
2. Entering 0 just exits the program.
3. Entering 1 runs the login.py and opens up login page.
4. Entering 2 leads to:

```
*****
PLEASE MAKE SURE YOU HAVE READ THE README FILE, IT CONSISTS OF INFORMATION NEEDED TO PROPERLY RUN THIS PROGRAM
*****
Enter in your choice: 2

    If you would like to continue as a guest, please enter: 1
    If you would like to create an account, please enter: 2

Enter in your choice: _
```

1. Entering 1 runs the guest.py and opens up guest mode.
2. Entering 2 runs the signup.py and opens up signup page.

login.py

```
Login page
Please enter your username:
```

1. One can login using their correct login credentials. Program will automatically check if one is a 'store\_user' or 'store\_owner' then run user.py or owner.py depending on the result. Retrieve's user/owner 's actual name on the account while doing so.

Logged in successfully as user:

```
Enter in your choice: 1
Login page
Please enter your username: aa
Please enter your password: aaa
Login Success (User)

What is the day today?
Input in following format: YYYY-MM-DD. Once you make an order, you will not be able to set the date previous of the order.
Currently, the earliest date you may set into is any date
Input date here. MAKE SURE IT IS IN YYYY-MM-DD FORMAT:
```

Logged in successfully as owner:

```
Enter in your choice: 1
Login page
Please enter your username: cc
Please enter your password: ccc
Login Success (Owner)

Owner Front Page
Hello ccName!
```

2. If one attempts to login with false credentials, they are prompted with the error then have them try again
  - A. Wrong username
  - B. Wrong password (user or owner)

```
Enter in your choice: 1
Login page
Please enter your username: asdf
Please enter your password: qwetqte
Username does not exist, try again

Login page
Please enter your username: aa
Please enter your password: qwerqwet
Wrong password, try again (User)

Login page
Please enter your username: cc
Please enter your password: qwerqte
Wrong password, try again (Owner)

Login page
Please enter your username:
```

I do understand this is bad protection, as hackers can now try to guess which username actually works, but it was done to prove my understanding in using database.

signup.py

1. Program prompts to enter information required to create an account for either 'store\_user' or 'store\_owner'.
2. Program prompts SPECIFIC direction on the format of each criteria, it is assumed people will follow the directions, but error handling has been implemented.

```
Enter in your choice: 2
    If you would like to continue as a guest, please enter: 1
    If you would like to create an account, please enter: 2
Enter in your choice: 2
SignUp page
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): aaaaaaaaaaaaaaaaaa
Username test passed
Are you looking to purchase books or sell books? 0 to be a bookstore owner, 1 to be a user: 0
Please enter your password
(max 10 characters, if more than 10 characters are given, only first 10 will be taken): ddddddddddddddddddddddddddddddd
Please enter your name
(max 30 characters, if more than 30 characters are given, only first 30 will be taken): aldsjgfoillajdgoifjasdgoigjoadsfjgoiadfjgoidjfs
Please enter your banking information
(required field, 7 digit number to mimic bank account number): qqqqqqqqqqqqqqqq
Please enter your banking information
(required field, 7 digit number to mimic bank account number): 1234567
Please enter your warehouse address
(required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): lksdjgfliaigoiadsigoijsdfoigjdsfloikajldsifokjg asldfijasdoifjaosij asdfijasolij
store owner added
Congrats! Signup is complete! Now Please Login from the Welcome Page.
```

Above screenshot shows one signing up to be a 'store\_owner', it can be seen error handling for bank account number did not allow inputs of non-digits over length of 7 as bank account number.

```
Enter in your choice: 2
    If you would like to continue as a guest, please enter: 1
    If you would like to create an account, please enter: 2
Enter in your choice: 2
SignUp page
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): qwet
Username test passed
Are you looking to purchase books or sell books? 0 to be a bookstore owner, 1 to be a user: 1
ALL FIELDS ARE REQUIRED, DO NOT HAVE ANY EMPTY INPUTS
Please enter your password
(required field, max 10 characters, if more than 10 characters are given, only first 10 will be taken): sdfhg
Please enter your name
(required field, max 30 characters, if more than 30 characters are given, only first 30 will be taken): xcvb
Please enter your payment information
(required field, 8 digit number to mimic credit card number): rweydfgjhgfdjh
Please enter your payment information
(required field, 8 digit number to mimic credit card number): 12345678
Please enter your shipping address
(required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): qewrgfre
Enter 0 if your billing address is the same as shipping address, 1 if not: 1
Please enter your billing address
(required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): ghfjcvbnd
store user added
Congrats! Signup is complete! Now Please Login from the Welcome Page.
```

Above screenshot shows one signing up to be a 'store\_user' it can be seen error handling for payment information did not allow input of non-digits over length of 8 as payment information. It can also be seen that program gave the option to either enter in a new billing address or just use the already inputted shipping address as billing address.

3. Program makes sure the username input does not already exist in the database, as either 'store\_user' or 'store\_owner'.

```
SignUp page
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): aa
Username already exist, try another username
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): bb
Username already exist, try another username
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): cc
Username already exist, try another username
Please enter your desired username
(required field, needs to be unique, max 10 characters, if more than 10 characters are given, only first 10 will be taken): asdf
Username test passed
Are you looking to purchase books or sell books? 0 to be a bookstore owner, 1 to be a user:
```

guest.py

1. Guest mode only allows one to search for books in the database. The searching section is almost identical to the user.

```
Enter in your choice: 1
Entering Guest Mode

Hello GUEST!
Welcome to Look Inna Book!

How would you like to search for a book?
Enter:
    0 - by title
    1 - by author name
    2 - by ISBN
    3 - by genre
    4 - by pages
    5 - by multiple factors

    To go back to the first welcome page, enter any other integer.

Enter in your choice:
```

Guest can search the books using different criteria. The search supports searching by matching PREFIX, SUFFIX, and values that are over 40% similar to the search input. Similarity search was done using pg\_trgm extension.

All searches made using characters are case-INsensitive.

Below are examples of various searches done.



## 1) By title

```
Enter in your choice: 0

Searching by Title
Input title you want to search.
Books with similar title, books with input as a substring of their title will be shown as well: lord

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 4, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: 0
```

Searching lord gives all the Lord of The Rings series and Lord of The Flies, as demonstrated in project specification.

```
Enter in your choice: 0

Searching by Title
Input title you want to search.
Books with similar title, books with input as a substring of their title will be shown as well: rings

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0:
```

Searching for rings gives all the Lord of The Rings series.

```
Enter in your choice: 0

Searching by Title
Input title you want to search.
Books with similar title, books with input as a substring of their title will be shown as well: lord of fire

Index: 1, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: █
```

Searching for lord of fire gives Lord of the Flies.

## 2) By author's name

```
Enter in your choice: 1

Searching by Author
Input author you want to search.
Books with similar author names and books with input as a substring of their author will be shown as well: r. r. r. tolkin

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 4, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: 0
```

Searching for r. r. r. tolkin gives J. R. R. Tolkien

```
Enter in your choice: 1

Searching by Author
Input author you want to search.
Books with similar author names and books with input as a substring of their author will be shown as well: william good

Index: 1, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: █
```

Searching william good gives William Golding

```
Searching by Author
Input author you want to search.
Books with similar author names and books with input as a substring of their author will be shown as well: william

Index: 1, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0:
```

Searching william gives William Golding

### 3) By ISBN

```
Searching by ISBN
Input isbn you want to search.
Books with similar isbn will be shown as well: 9780007458333

Index: 1, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: █
```

Searching 9780007458333 gives, The Hobbit, with ISBN of 9780007458424.

### 4) By genre

```
Enter in your choice: 3

Searching by Genre
Input one genre you want to search.
Books with similar genre, books with input as a substring of their genre will be shown as well: class

Index: 1, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50
Index: 2, Title: testbook2, Author name: test authorname one, Genre: Classics, Price: $14.50
Index: 3, Title: testbook4, Author name: test authorname two, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: 0
```

Search for class gives classics

```
Enter in your choice: 3

Searching by Genre
Input one genre you want to search.
Books with similar genre, books with input as a substring of their genre will be shown as well: FAmTASY

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 4, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 5, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50
Index: 6, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: █
```

Searching FAmTASY gives fantasy

## 5) By total number of pages

```
Enter in your choice: 4

Searching by Pages
Input number of page to search for: 400
If you would like to search for books with greater or equal pages as your input, enter 0
If you would like to search for books with less or equal pages as your input, enter 1
Any other values will be counted as 0: 0

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: 0
```

Guest can search for books with 400 pages or greater

```
Enter in your choice: 4

Searching by Pages
Input number of page to search for: 400
If you would like to search for books with greater or equal pages as your input, enter 0
If you would like to search for books with less or equal pages as your input, enter 1
Any other values will be counted as 0: 1

Index: 1, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50
Index: 3, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50
Index: 4, Title: testbook2, Author name: test authorname one, Genre: Classics, Price: $14.50
Index: 5, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50
Index: 6, Title: testbook4, Author name: test authorname two, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0:
```

Or guest can search for books with 400 pages or less

## 6) By multiple factors combined

Now this is the interesting part, guest can enter for multiple criteria to search for books, the program will dynamically create a query that will search using inputs the guest provided.

This is basically a combination of all the searching methods shown above, prefix/suffix/similar search mechanism is still applied.

```
Enter in your choice: 5

Searching by Multiple Criteria
Enter in the values you want to search for when it gets prompted, if you do not want to search with the criteria mentioned, just press enter to skip it.
Title: lord
Author: r. r. r. tolkin
ISBN:
Genre:
Page to be greater than or equal to: 300
Page to be less than or equal to: 700

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0:
```

Guest searched for books with:

Title: lord, author: r. r. r. tolkin, pages  $\geq 300$ , pages  $\leq 700$ .

It returned The Lord of The Rings trilogy.

Guest can leave the criteria blank to not use it for the search.

```

Enter in your choice: 5

Searching by Multiple Criteria
Enter in the values you want to search for when it gets prompted, if you do not want to search with the criteria mentioned, just press enter to skip it.
Title: lord
Author: golding
ISBN:
Genre:
Page to be greater than or equal to: 200
Page to be less than or equal to: 900

Index: 1, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0:

```

Another example, guest searched for books with title including ‘lord’, author of golding, pages  $\geq 200$  and pages  $\leq 900$ . It returned Lord of the Flies.

In all the search results, program returns the title of the book, author name, genre, and price. It also returns an index and prompts the guest to enter the index.

```

Books with similar title, books with input as a substring of their title will be shown as well: lord

Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99
Index: 4, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Price: $14.50

Enter the index of the book you would like to see in detail.
If you want to go search for another book, enter 0: 1

Viewing Book

ISBN: 9780261102354
Title: The Lord of The Rings: The Fellowship of the Ring
Author name: J. R. R. Tolkien
Genre: Fantasy
Publisher: HARPERCOLLINS PUBLISHERS
Pages: 448
Price: $10.99

Check out other books written by J. R. R. Tolkien!

Index: 1, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102361
Index: 2, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102378
Index: 3, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780007458424

Check out other books in same genre!

Index: 4, Title: testbook1, Author name: test authornam one, Genre: Fantasy, Price: $14.50, ISBN: 2345134521534
Index: 5, Title: testbook3, Author name: test authornam two, Genre: Fantasy, Price: $14.50, ISBN: 1651455665133

You can navigate to the similar books suggested by entering their index.
Or you can go back to the search page by entering 0
Enter index to navigate or 0 to go back to search: 3

Viewing Book

ISBN: 2345134521534
Title: testbook1
Author name: test authornam one
Genre: Fantasy
Publisher: testpulisher
Pages: 240
Price: $14.50

Check out other books written by test authornam one!

Index: 1, Title: testbook2, Author name: test authornam one, Genre: Classics, Price: $14.50, ISBN: 3547654865748

Check out other books in same genre!

Index: 2, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102354
Index: 3, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102361
Index: 4, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102378
Index: 5, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780007458424
Index: 6, Title: testbook3, Author name: test authornam two, Genre: Fantasy, Price: $14.50, ISBN: 1651455665133

You can navigate to the similar books suggested by entering their index.
Or you can go back to the search page by entering 0
Enter index to navigate or 0 to go back to search:

```

Entering an index leads the guest to a ‘Viewing Book’ page, where a guest can view more details about the book they selected (shows all information of a book in the database)

More interestingly, the program also shows other books written by the same author as the book currently selected, and other books in the same genre as the book currently selected (maximum 5 of each). The current book selected does not show up in ‘Similar books’ section, and guest is able to input the index once again, to travel to the newly selected book’s individual page vis recursive function.

user.py

Users can perform the same searches the guest was able to, to reduce redundancy in this report, I will not be copying and pasting the search functionalities. Please refer to guest.py section for searching functionalities in detail.

List of functionalities of users:

1. Set today's date
2. Complex searching system the guest had as well
3. Add books to their basket (with quantity)
4. Make orders – can choose to input new information (address / payment)
5. View past orders (automatically updates current status on date changes)
6. Track orders (automatically updates current status on date changes)
7. Edit / delete their account

```
Login page
Please enter your username: aa
Please enter your password: aaa
Login Success (User)

What is the day today?
Input in following format: YYYY-MM-DD. Once you make an order, you will not be able to set the date previous of the order.
Currently, the earliest date you may set into is any date
Input date here. MAKE SURE IT IS IN YYYY-MM-DD FORMAT: ■
```

Once a user logs in, they are immediately prompted to enter today's date. I do understand this is unrealistic, but I wanted to mainly provide a way to demonstrate my use of database querying using dates, and this was the best method to go by. By allowing the user to set the date, so they can easily make orders on different dates, and check status of their orders on different dates.

Note that user will not be able to set the date previous of the most recent order they have made. Since that will cause very serious issues with the program. If they do not have any order made, they can set into any date was the prompt above shows.

```

What is the day today?
Input in following format: YYYY-MM-DD. Once you make an order, you will not be able to set the date previous of the order.
Currently, the earliest date you may set into is any date
Input date here. MAKE SURE IT IS IN YYYY-MM-DD FORMAT: 2021-01-01

User Front Page
    Hello afirst alast!
    Welcome to Look Inna Book!

    Would you like to search for a book?
    Enter:
        0 - by title
        1 - by author name
        2 - by ISBN
        3 - by genre
        4 - by pages
        5 - by multiple factors

    Or take other actions?
    Enter:
        6 - view recommended books based on order history
        7 - view your order history
        8 - view your basket and confirm order
        9 - track your orders
        10 - edit your account information or delete account
        11 - change today's date

    To logout and go back to the first welcome page, enter any other integers.

Enter in your choice: █

```

After entering the date IN THE CORRECT FORMAT AS MENTIONED, users are shown their main page, where they can select which action they would like to perform.

Options 0 ~ 5 are just the same searching functionality as the one explained in the guest, so it will not be repeated.

However, there is one difference that should be mentioned, and that is user can add the book into their basket after going inside a book's individual page:

```

Viewing Book
ISBN: 9780261102354
Title: The Lord of The Rings: The Fellowship of the Ring
Author name: J. R. R. Tolkien
Genre: Fantasy
Publisher: HARPERCOLLINS PUBLISHERS
Pages: 448
Price: $10.99

Check out other books written by J. R. R. Tolkien!

Index: 1, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102361
Index: 2, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102378
Index: 3, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780007458424

Check out other books in same genre!

Index: 4, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50, ISBN: 2345134521534
Index: 5, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50, ISBN: 1651455665133

Do you want to add this book to your basket?
Enter 1 to add to your basket, 0 to not:

```

User is asked if they would like to add the book into their basket.

```

Index: 4, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50, ISBN: 2345134521534
Index: 5, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50, ISBN: 1651455665133

Do you want to add this book to your basket?
Enter 1 to add to your basket, 0 to not: 1
How many would you like to add? 10

Adding Book to Basket
Complete! Book added to Basket

You can navigate to the similar books suggested by entering their index.

Enter index to navigate or input 0 to not navigate: █

```

After answering yes by inputting '1', they can also select quantity of the book to add into their basket. If they have answered no ('0') they will be prompted straight away to input an index.

```

Adding Book to Basket
Complete! Book added to Basket

You can navigate to the similar books suggested by entering their index.

Enter index to navigate or input 0 to not navigate: 3

Viewing Book
ISBN: 9780007458424
Title: The Hobbit
Author name: J. R. R. Tolkien
Genre: Fantasy
Publisher: HARPERCOLLINS PUBLISHERS
Pages: 368
Price: $10.99

Check out other books written by J. R. R. Tolkien!
Index: 1, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102354
Index: 2, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102361
Index: 3, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Price: $10.99, ISBN: 9780261102378

Check out other books in same genre!
Index: 4, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50, ISBN: 2345134521534
Index: 5, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50, ISBN: 1651455665133

Do you want to add this book to your basket?
Enter 1 to add to your basket, 0 to not: 1
How many would you like to add? 20

Adding Book to Basket
Complete! Book added to Basket

You can navigate to the similar books suggested by entering their index.

Enter index to navigate or input 0 to not navigate:

```

Of course, user may travel to other books by index, then they can add the new book into their basket as well.

User can then view their basket and take it to check out page.

```

User Front page

Would you like to search for a book?
Enter:
0 - by title
1 - by author name
2 - by ISBN
3 - by genre
4 - by pages
5 - by multiple factors

Or take other actions?
Enter:
6 - view recommended books based on order history
7 - view your order history
8 - view your basket and confirm order
9 - track your orders
10 - edit your account information or delete account
11 - change today's date

To logout and go back to the first welcome page, enter any other integers.

Enter in your choice: 8

Viewing Basket
Here are the books currently in your basket:
Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Publisher: HARPERCOLLINS PUBLISHERS, Pages: 448, Price: $10.99, IS
Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Publisher: HARPERCOLLINS PUBLISHERS, Pages: 368, Price: $10.99, ISBN: 9780007458424, Quantity: 20

Enter 0 if you would like to complete your order,
enter 1 if you would like to go back to user front page:

```

Purposely made the screen shot not include the entire line to make the characters look bigger.

```

Enter in your choice: 8

Viewing Basket
Here are the books currently in your basket:
Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, G
Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Publisher: HARPERCOLLIN

Enter 0 if you would like to complete your order,
enter 1 if you would like to go back to user front page: 0

Order Page
Here are the books currently in your basket:
Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, G
Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Publisher: HARPERCOLLIN

Subtotal: $ 329.7
Delivery: $5
Tax: $ 43.51

Final Total: $ 378.21

How would you like to pay?
Enter 0 - if you want to use the card in your account, ending with: 1111
Enter 1- if you would like to enter in new payment information
Enter in your choice: 1

```

Once in the ‘Order Page’, user gets information on the order as subtotal, delivery fee (flat \$5), tax, and the final total. User is then prompted to confirm their method of payment.

```

How would you like to pay?
Enter 0 - if you want to use the card in your account, ending with: 1111
Enter 1- if you would like to enter in new payment information
Enter in your choice: 1
Please enter your new payment information
(8 digit number to mimic credit card number): qwerasdggghb
Please enter your new payment information
(8 digit number to mimic credit card number): 12345678

Where should we ship it to?
Enter 0 - if you want to use the shipping address in your account:
testshipping address 1111
Enter 1- if you would like to enter in new shipping address
Enter in your choice: 1
Please enter your new shipping address
(max 60 characters, if more than 60 characters are given, only first 60 will be taken): qwerasdfgfb

Where should we send your bill to?
Enter 0 - if you want to use the billing address in your account:
test billing address asdifoj
Enter 1 - if you would like to use the new shipping address you just entered as the billing address.
Enter 2 - if you would like to enter in new billing address.
Enter in your choice: 0

All Information taken.
The estimated delivery date is: 2021-01-12 .
Enter 0 to confirm order using information above.
Enter 1 to cancel order: 1

```

User can either use payment information, shipping/ billing address on their account or just enter in a new one.

Estimated delivery date is computed using a random integer generated and today’s date the user has inputted earlier.



```
All Information taken.
The estimated delivery date is: 2021-01-12 .
Enter 0 to confirm order using information above.
Enter 1 to cancel order: 0

Placing Order...
A Book Added to Order.
A Book Added to Order.
Order Complete! Thank you  afirst alast !
Copy your Order ID onto another place: 07cba859-3aa4-42fb-afda-0647bb862087 .
This unique id can be used to track your order!
You can always review your order id by viewing your order history.
```

Order is successfully made, and order id is given for tracking purpose. Order id was created using uuid extension.

Now that the user has made an order, user can get recommended books based on their order history, view all their past orders, track a specific order.

```
Enter in your choice: 6

Viewing Recommended books (based on your favorite author and genre
If you do not see any, it means you already have ordered all the books written by the author / in the genre
Your favorite author is: J. R. R. Tolkien and your favorite genre is: Fantasy

Here are other books written by your favorite author:
Index: 1, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Pr
Index: 2, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fant

Here are other books in your favorite genre:
Index: 3, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Price: $14.50, ISBN: 165145
Index: 4, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Pr
Index: 5, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Price: $14.50, ISBN: 234513
Index: 6, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fant

You can navigate to the recommended books by entering their index.
Enter index to navigate or input 0 to not navigate: _
```

Program prompts the user's favorite author, and favorite genre. This is calculated from counting the most occurred author / genre among the orders this user has made.

Once again, user can navigate to the individual book's page right away by using indexes.

```

Enter in your choice: 7

Order History of: aa

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Payment Information: 11111111
Total Price: $378.21
Sent to: testshipping address 1111
Bill sent to: test billing address asdifo
Current Status: Preparing for Shipment.
Estimated to be delivered on: 2020-01-04

Books In the Order:

ISBN: 9780261102354
Title: The Lord of The Rings: The Fellowship of the Ring
Author name: J. R. R. Tolkien
Genre: Fantasy
Publisher: HARPERCOLLINS PUBLISHERS
Pages: 448
Price: $10.99
Quantity: 10

ISBN: 9780007458424
Title: The Hobbit
Author name: J. R. R. Tolkien
Genre: Fantasy
Publisher: HARPERCOLLINS PUBLISHERS
Pages: 368
Price: $10.99
Quantity: 20

End of Orders, going back to users front page.

```

User can view their order history, where it lists all the orders the user has made, and all the books inside each order. This page also shows all information about the order including estimated date delivery, and current status of the parcel.

```

Enter in your choice: 9

Order Tracking
Input unique ID of the order you wish to track: asdfgfdshzg
Can not find any order matchin the id.
Enter 0 if you want to try again.
Enter 1 to go back to user front page0
Input unique ID of the order you wish to track: 32dd3f15-0948-4fef-ac07-f966e190182f

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Current Stauts: Preparing for Shipment.
Total Price: $ 378.21
Being shipped to: testshipping address 1111
Estimated to be delivered on: 2020-01-04

```

User can track their order using the unique order-id provided. Only the order matching the id will be shown.

The status of the order changes automatically when user inputs a new date.

For example, the order above was ordered on 2020-01-01, and it will be delivered on 2020-01-04.

By default, it takes 1 day for the warehouse to ship the order, random many days for it to reach your local post office, then 1 day to for them to deliver it to your door.

So, status will be:

‘Preparing for shipment’ on 2020-01-01 and 2020-01-02 (2020-01-01 shown above),

```
Enter in your choice: 11
Input new date here.
MAKE SURE IT IS IN YYYY-MM-DD FORMAT AND IS NOT BEFORE 2020-01-01
Enter: 2020-01-02

User Front page

Would you like to search for a book?
Enter:
  0 - by title
  1 - by author name
  2 - by ISBN
  3 - by genre
  4 - by pages
  5 - by multiple factors

Or take other actions?
Enter:
  6 - view recommended books based on order history
  7 - view your order history
  8 - view your basket and confirm order
  9 - track your orders
 10 - edit your account information or delete account
 11 - change today's date

To logout and go back to the first welcome page, enter any other integers.
Enter in your choice: 9

Order Tracking
Input unique ID of the order you wish to track: 32dd3f15-0948-4fef-ac07-f966e190182f

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Current Status: Preparing for Shipment
Total Price: $ 378.21
Being shipped to: testshipping address 1111
Estimated to be delivered on: 2020-01-04
```

‘In Transit’ on 2020-01-03,

```
Enter in your choice: 11
Input new date here.
MAKE SURE IT IS IN YYYY-MM-DD FORMAT AND IS NOT BEFORE 2020-01-01
Enter: 2020-01-03

User Front page

Would you like to search for a book?
Enter:
  0 - by title
  1 - by author name
  2 - by ISBN
  3 - by genre
  4 - by pages
  5 - by multiple factors

Or take other actions?
Enter:
  6 - view recommended books based on order history
  7 - view your order history
  8 - view your basket and confirm order
  9 - track your orders
 10 - edit your account information or delete account
 11 - change today's date

To logout and go back to the first welcome page, enter any other integers.
Enter in your choice: 9

Order Tracking
Input unique ID of the order you wish to track: 32dd3f15-0948-4fef-ac07-f966e190182f

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Current Status: In Transit
Total Price: $ 378.21
Being shipped to: testshipping address 1111
Estimated to be delivered on: 2020-01-04
```

‘Out for Delivery’ on 2020-01-04,

```
Enter in your choice: 11
Input new date here.
MAKE SURE IT IS IN YYYY-MM-DD FORMAT AND IS NOT BEFORE 2020-01-01
Enter: 2020-01-04

User Front page

Would you like to search for a book?
Enter:
  0 - by title
  1 - by author name
  2 - by ISBN
  3 - by genre
  4 - by pages
  5 - by multiple factors

Or take other actions?
Enter:
  6 - view recommended books based on order history
  7 - view your order history
  8 - view your basket and confirm order
  9 - track your orders
  10 - edit your account information or delete account
  11 - change today's date

To logout and go back to the first welcome page, enter any other integers.

Enter in your choice: 9

Order Tracking
Input unique ID of the order you wish to track: 32dd3f15-0948-4fef-ac07-f966e190182f

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Current Status: Out for Delivery
Total Price: $ 378.21
Being shipped to: testshipping address 1111
Estimated to be delivered on: 2020-01-04
```

And finally ‘Delivery Complete’ on 2020-01-05 and onwards.

```
Enter in your choice: 11
Input new date here.
MAKE SURE IT IS IN YYYY-MM-DD FORMAT AND IS NOT BEFORE 2020-01-01
Enter: 2020-01-07

User Front page

Would you like to search for a book?
Enter:
  0 - by title
  1 - by author name
  2 - by ISBN
  3 - by genre
  4 - by pages
  5 - by multiple factors

Or take other actions?
Enter:
  6 - view recommended books based on order history
  7 - view your order history
  8 - view your basket and confirm order
  9 - track your orders
  10 - edit your account information or delete account
  11 - change today's date

To logout and go back to the first welcome page, enter any other integers.

Enter in your choice: 9

Order Tracking
Input unique ID of the order you wish to track: 32dd3f15-0948-4fef-ac07-f966e190182f

Order ID: 32dd3f15-0948-4fef-ac07-f966e190182f
Ordered On: 2020-01-01
Current Status: Delivery Complete
Total Price: $ 378.21
Being shipped to: testshipping address 1111
Delivered on: 2020-01-04
```

Final functionality for user.py is the ability to edit account information.

```
Enter in your choice: 10
Profile Edit / Delete Page
Enter 0 if you want edit your information.
Enter 1 to delete account
Enter 2 to go back to user front page: 0

Editing Information.
You can not change your username.
Would you like to change your password?
0 for yes, 1 for no: 1
Would you like to change your name?
0 for yes, 1 for no: 0
Please enter your name
(max 30 characters, if more than 30 characters are given, only first 30 will be taken): asdfasdf
Would you like to change your method of payment?
0 for yes, 1 for no: 0
Please enter your payment information
(8 digit number to mimic credit card number): 45678912
Would you like to change your shipping address?
0 for yes, 1 for no: 1
Would you like to change your billing address?
0 for yes, 1 for no: 0
Enter 0 if your billing address is the same as your NEW shipping address, 1 if not.
If you enter 0 when you did not enter in a new shipping address, your new billing address will be same as your old shipping address.
Enter input: 1
Please enter your billing address
(max 60 characters, if more than 60 characters are given, only first 60 will be taken): afdignoifdsagioasdjfg

Account Information Update Complete!
```

User can only edit the information they choose.

Also, user may delete their account. Screen shots below do also show that user’s information was successfully edited when compared to the input made just above.

1 select \* from store\_user;  
2  
3

Data Output	Explain	Messages	Notifications		
username character varying (10)	password character varying (10)	name character varying (30)	payment_info character varying (8)	shipping_address character varying (60)	billing_address character varying (60)
1 bb	bbb	bfirst blast	22222222	testshipping address 1324	test billing address zxcvzx...
2 aa	aaa	asdfasdf	45678912	testshipping address 1111	afdignoifdsagioasdjfg

```
Profile Edit / Delete Page
Enter 0 if you want edit your information.
Enter 1 to delete account
Enter 2 to go back to user front page: 1

Are you sure you want to delete your account?
Enter 0 again if you are sure: 0

Deleting account, good bye afirst alast
```

1 select \* from store\_user;  
2  
3

Data Output	Explain	Messages	Notifications		
username character varying (10)	password character varying (10)	name character varying (30)	payment_info character varying (8)	shipping_address character varying (60)	billing_address character varying (60)
1 bb	bbb	bfirst blast	22222222	testshipping address 1324	test billing address zxcvzx...

owner.py

While most functionalities for the owner is implemented within owner.py, a significant section is implemented on user.py, and that is all actions order related. Those functionalities will be explained in this section as well.

List of functionalities of owners:

1. View their collection
2. Increase quantity of books / add new books to their collection
3. Decrease quantity of books / remove books from their collection
4. Edit book in their collection
5. Edit / delete account
6. View reports
7. Order related features, including the trigger (auto stocking)

To begin, when an owner logs in, they are greeted by owner's front page.

```
Login page
Please enter your username: cc
Please enter your password: ccc
Login Success (Owner)

Owner Front Page
Hello ccName!
Welcome back to Look Inna Book!

What would you like to do?

Enter:
0 - add new books to your collection
1 - remove books from your collection
2 - edit books in your collection
3 - view reports
4 - edit account information (including warehouse information)
5 - view books in your collection

To logout and go back to the first welcome page, enter any other integers.
Enter in your choice: _
```

Note that they do not have the magical ability to travel in time, that was not necessary for the owners.

Owners can view all the books they have in their collection (the books they own).

```
Enter in your choice: 5

Viewing All Books in Collection

ISBN: 9780261102354, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien
ISBN: 9780261102361, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 240
ISBN: 9780261102378, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 240
ISBN: 9780007458424, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 368,
ISBN: 9780571084838, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Total pages: 240
ISBN: 2345134521534, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Total pages: 240
ISBN: 3547654865748, Title: testbook2, Author name: test authorname one, Genre: Classics, Total pages: 240
ISBN: 1651455665133, Title: testbook3, Author name: test authorname two, Genre: Fantasy, Total pages: 240
ISBN: 4981116484684, Title: testbook4, Author name: test authorname two, Genre: Classics, Total pages: 240
```

Quantity is shown in the end as well

```
l pages: 448, Price: $10.99, Percentage to publisher: 10.00, Quantity: 40
, Price: $10.99, Percentage to publisher: 20.00, Quantity: 50
ges: 464, Price: $10.99, Percentage to publisher: 30.00, Quantity: 50
ge to publisher: 40.00, Quantity: 30
percentage to publisher: 50.00, Quantity: 50
tage to publisher: 50.00, Quantity: 50
ntage to publisher: 50.00, Quantity: 50
tage to publisher: 50.00, Quantity: 50
ntage to publisher: 50.00, Quantity: 50
```

Default quantity was 50 for all books, but it can be seen two books have quantity of 40 and 30 from the order made above (first and fourth)

Owner can add more books into their collection. By that, it means they can increase the quantity of books they already have in their collection or add new books into their collection. Note that owners will not be able to add books that another owner already has in their collection. This was to keep the program nice and simple, and not create new issues such as who's book will be sent first, what happens if two competing owners play the chicken game on book's prices, ect.

```
Enter in your choice: 0
Book Adding Page
Enter isbn of the book you want to newly add or increase quantity to your collection: 9780007458424
How many more would you like to add? 20
Adding done!
```

Adding 20 to The Hobbit.

Things become slightly more complicated when trying to add a book that does not exist in the owner's collection yet.

```
Book Adding Page
Enter isbn of the book you want to newly add or increase quantity to your collection: 111111111111
How many would you like to add? 30
Book does not exist in our database, enter book data.
Enter title of the book (required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): test
Enter author of the book (required field, max 30 characters, if more than 30 characters are given, only first 30 will be taken): me
Enter genre of the book (required field, max 20 characters, if more than 20 characters are given, only first 20 will be taken): comedy
Enter total pages of the book (required field, integer, max 5 digits): 100
Enter price of the book (required field, decimal, 8 digits max, two decimal places): 12.99
Enter percentage given to publisher per sale of the book (required field, decimal, 5 digits max, two decimal places): 20.50
Enter publisher of the book (required field, max 30 characters, if more than 30 characters are given, only first 30 will be taken): newPublisher
Publisher mentioned does not exist in the database, input information about the new publisher
Enter address of the publisher (required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): new pub address
Enter email of the publisher (required field, max 60 characters, if more than 60 characters are given, only first 60 will be taken): new pub email
Enter phone number of the publisher (required field, max 15 digits): 123456789123456
Enter banking information of the publisher (required field, max 8 digits): 12345678
Adding done!
```

Owner is prompted to input all necessary info (IN THE CORRECT FORMAT) if ISBN does not exist in their collection. While inputting information, if it turns out the book is published by a publisher not in the database yet (judging from the publisher's name which is assumed to be unique), owner is prompted to give information about the publisher as well.

After making two adds above, here are the results:

Enter in your choice: 5

Viewing All Books in Collection

ISBN: 9780261102354	Title: The Lord of The Rings: The Fellowship of the Ring	Author name: J. R. R. Tolkien	Genre: Fantasy	Total pages: 448	Price: \$10.99	Percentage to publisher: 50.00	Quantity: 50
ISBN: 9780261102361	Title: The Lord of The Rings: The Two Towers	Author name: J. R. R. Tolkien	Genre: Fantasy	Total pages: 464	Price: \$10.99	Percentage to publisher: 50.00	Quantity: 50
ISBN: 9780261102378	Title: The Lord of The Rings: The Return of the King	Author name: J. R. R. Tolkien	Genre: Fantasy	Total pages: 464	Price: \$10.99	Percentage to publisher: 50.00	Quantity: 50
ISBN: 9780007458424	Title: The Hobbit	Author name: J. R. R. Tolkien	Genre: Fantasy	Total pages: 388	Price: \$10.99	Percentage to publisher: 40.00	Quantity: 50
ISBN: 9780571084838	Title: Lord of the Flies	Author name: William Golding	Genre: Classics	Total pages: 240	Price: \$14.50	Percentage to publisher: 50.00	Quantity: 50
ISBN: 9780571084844	Title: testbook1	Author name: test authorname one	Genre: Fantasy	Total pages: 240	Price: \$14.50	Percentage to publisher: 50.00	Quantity: 50
ISBN: 954765489548	Title: testbook2	Author name: test authorname one	Genre: Classics	Total pages: 240	Price: \$14.50	Percentage to publisher: 50.00	Quantity: 50
ISBN: 1651455655193	Title: testbook3	Author name: test authorname two	Genre: Fantasy	Total pages: 240	Price: \$14.50	Percentage to publisher: 50.00	Quantity: 50
ISBN: 43811116484684	Title: testbook4	Author name: test authorname two	Genre: Classics	Total pages: 240	Price: \$14.50	Percentage to publisher: 50.00	Quantity: 50
ISBN: 11111111111111	Title: test	Author name: me	Genre: comedy	Total pages: 100	Price: \$12.99	Percentage to publisher: 20.50	Quantity: 30

Owner has 50 of The Hobbit and the newly added book in their collection (fourth and last row)

1

select \* from publisher;

2

3

Data Output

Explain

Messages

Notifications

	<div><div>publisher_name</div><div>character varying (60)</div></div>	<div><div>publisher_address</div><div>character varying (60)</div></div>	<div><div>publisher_email</div><div>character varying (60)</div></div>	<div><div>publisher_phone</div><div>character varying (15)</div></div>	<div><div>publisher_bank_account</div><div>character varying (8)</div></div>
1	HARPERCOLLINS PUBLIS...	HARPERCOLLINS PUBLIS...	HARPERCOLLINS PUBLIS...	123456789123456	12345678
2	Faber & Faber	faber address	faber email	123456789123455	11111111
3	testpublisher	test address	tes email	123456789123444	22222222
4	newPublisher	new pub address	new pub email	123456789123456	12345678

And a new publisher has been added to the database.

Owner may decrease the quantity of a certain book in their collection or just remove it fully from their collection by making the quantity of it 0.

```
Book Removing Page
Enter isbn of the book you want to decrease quantity or remove fully from your collection: 999999999999
You do not have the book in your collection.
Unable to remove, going back to owner front page
```

Of course, they can only remove what they own.

```
Book Removing Page
Enter isbn of the book you want to decrease quantity or remove fully from your collection: 111111111111
How many would you like to remove? 15
Decreasing quantity of the book
```

```

Enter in your choice: 5
Viewing All Books in Collection

ISBN: 9780261102354, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 448, Price: $10.99,
ISBN: 9780261102361, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99,
ISBN: 9780261102378, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99,
ISBN: 9780007458424, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 368, Price: $10.99, Percentage to publisher: 4,
ISBN: 9780571084838, Title: Lord of the Flies, Author name: William Golding, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 4,
ISBN: 2345134521534, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Total pages: 240, Price: $14.50, Percentage to publisher: 4,
ISBN: 3547654865748, Title: testbook2, Author name: test authorname one, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 4,
ISBN: 4981116484684, Title: testbook4, Author name: test authorname two, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 4,
ISBN: 1111111111111, Title: test, Author name: me, Genre: comedy, Total pages: 100, Price: $12.99, Percentage to publisher: 20.50, Quantity: 15

```

After decreasing 15 of the book with ISBN = 111111111111 in the collection, we can see that we only have 15 left of it (last row).

```
Book Removing Page
Enter isbn of the book you want to decrease quantity or remove fully from your collection: 111111111111
How many would you like to remove? 15
You have entered to remove either all or more than all of the books you currently have in your collection.
Enter 1 if you are sure to remove, 0 if not: 1
```



```

Enter in your choice: 5
Viewing All Books in Collection
ISBN: 9780261102354, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 448, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780261102361, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780261102378, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780007458424, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 368, Price: $10.99, Percentage to publisher: 40.00, Quantity: 50
ISBN: 9780571084838, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 2345134521534, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 3547654865748, Title: testbook2, Author name: test authorname one, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 4981116484684, Title: testbook4, Author name: test authorname two, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50

```

Once the remaining 15 is deleted again, it can not be found from this owner's collection (last row).

Editing book takes on a very similar format to editing account information, owner can choose which information to edit, and only edit those.

```

Book Editing Page
Enter isbn of the book you want to edit: 1234567891234
You do not have the book in your collection.
Unable to edit, going back to owner front page

```

Again, of course, only the ones they have in their collection (own).

```

Book Editing Page
Enter isbn of the book you want to edit: 4981116484684

Editing Book Info.
You can not change book's isbn or Publisher name.
PLEASE FOLLOW THE INSTRUCTIONS PROMPTED WHEN INPUTING INFO.
Would you like to change the title?
0 for yes, 1 for no: 0
Please enter new title
(required field, max 60 characters): newTitle
Would you like to change the author name?
0 for yes, 1 for no: 1
Would you like to change the genre?
0 for yes, 1 for no: 0
Please enter new genre
(required field, max 20 characters): newGenre
Would you like to change the total pages?
0 for yes, 1 for no: 1
Would you like to change the price?
0 for yes, 1 for no: 0
Please enter new price
(required field, max 8 digits, with 2 decimal places): 50.99
Would you like to change the percentage to publisher?
0 for yes, 1 for no: 1

Book Information Update Complete!

```

```

Enter in your choice: 5
Viewing All Books in Collection
ISBN: 9780261102354, Title: The Lord of The Rings: The Fellowship of the Ring, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 448, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780261102361, Title: The Lord of The Rings: The Two Towers, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780261102378, Title: The Lord of The Rings: The Return of the King, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 464, Price: $10.99, Percentage to publisher: 50.00, Quantity: 50
ISBN: 9780007458424, Title: The Hobbit, Author name: J. R. R. Tolkien, Genre: Fantasy, Total pages: 368, Price: $10.99, Percentage to publisher: 40.00, Quantity: 50
ISBN: 9780571084838, Title: Lord of The Flies, Author name: William Golding, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 2345134521534, Title: testbook1, Author name: test authorname one, Genre: Fantasy, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 3547654865748, Title: testbook2, Author name: test authorname one, Genre: Classics, Total pages: 240, Price: $14.50, Percentage to publisher: 50.00, Quantity: 50
ISBN: 4981116484684, Title: newTitle, Author name: test authorname two, Genre: newGenre, Total pages: 240, Price: $50.99, Percentage to publisher: 50.00, Quantity: 50

```

After making the edit, it can be seen that the information has been updated (last row).

Editing their account information takes a very similar method as above.


Owner can select which information to update.

1

2

3

select \* from store\_owner;

Data Output	Explain	Messages	Notifications		
 owner_username character varying (10)	password character varying (10)	name character varying (30)	owner_bank character varying (7)	warehouse_address character varying (60)	
1	cc	ccc	ccName	1234567	test warehouse address 1...

```
Enter in your choice: 4
Profile Edit / Delete Page
Enter 0 if you want edit your information.
Enter 1 to delete account
Enter 2 to go back to owner front page: 0

Editing Information.
You can not change your username.
Would you like to change your password?
0 for yes, 1 for no: 0
Please enter your password
(required field, max 10 characters, if more than 10 characters are given, only first 10 will be taken): newpass
Would you like to change your name?
0 for yes, 1 for no: 0
Please enter your name
(required field, max 30 characters, if more than 30 characters are given, only first 30 will be taken): newnameee
Would you like to change your banking information?
0 for yes, 1 for no: 1
Would you like to change your warehouse address?
0 for yes, 1 for no: 1

Account Information Update Complete!
```

1

2

3

select \* from store\_owner;

Data Output	Explain	Messages	Notifications		
owner_username character varying (10)	password character varying (10)	name character varying (30)	owner_bank character varying (7)	warehouse_address character varying (60)	
1	cc	newnameee	1234567	test warehouse address 1...	

Now, most importantly is the reports feature. Owner may view reports on their sale between two dates provided, and have it organized into three different fashions: by date, by genre, and by author. Two more orders were made by a user to make the reports more full.

Owner is prompted to select how they want their report to be organized, then enter two dates.

Organized per date:

```
Report Page
Enter 0 to see sales per day, 1 to see sales per genre, 2 to see sales per author
Which report would you like to see: 0

Viewing Sales per Date
Input two dates to view sales in between.
total_sale_per_date is sales per date including tax, but not including delivery fees (they are sent to delivery company right away)
sent_to_publisher is the amount of money sent to publisher, calculated by percentage_to_publisher per book
profit is total sales - tax - sent_to_publisher
Input first date (the earlier one): 2019-12-30
Input second date (the later one): 2020-05-05

+-----+-----+-----+-----+-----+
| ordered_date | total_sale_per_date | tax | sent_to_publisher | profit |
+-----+-----+-----+-----+-----+
| 2020-01-01 | 372.56 | 42.86 | 98.91 | 230.79 |
| 2020-02-02 | 163.85 | 18.85 | 72.50 | 72.50 |
| 2020-03-03 | 163.85 | 18.85 | 72.50 | 72.50 |
+-----+-----+-----+-----+-----+
```

Organized per genre:

```
Report Page
Enter 0 to see sales per day, 1 to see sales per genre, 2 to see sales per author
Which report would you like to see: 1

Viewing Sales per Genre
Input two dates to view sales in between.
total_sale_per_date is sales per date including tax, but not including delivery fees (they are sent to delivery company right away)
sent_to_publisher is the amount of money sent to publisher, calculated by percentage_to_publisher per book
profit is total sales - tax - sent_to_publisher
Input first date (the earlier one): 2019-05-05
Input second date (the later one): 2020-06-20

+-----+-----+-----+-----+-----+
| genre | total_sale_per_date | tax | sent_to_publisher | profit |
+-----+-----+-----+-----+-----+
| Classics | 163.85 | 18.85 | 72.50 | 72.50 |
| Fantasy | 536.41 | 61.71 | 171.41 | 303.29 |
+-----+-----+-----+-----+-----+
```

Organized per author:

```
Report Page
Enter 0 to see sales per day, 1 to see sales per genre, 2 to see sales per author
Which report would you like to see: 2

Viewing Sales per Author
Input two dates to view sales in between.
total_sale_per_date is sales per date including tax, but not including delivery fees (they are sent to delivery company right away)
sent_to_publisher is the amount of money sent to publisher, calculated by percentage_to_publisher per book
profit is total sales - tax - sent_to_publisher
Input first date (the earlier one): 2019-01-01
Input second date (the later one): 2020-12-25

+-----+-----+-----+-----+-----+
| author_name | total_sale_per_date | tax | sent_to_publisher | profit |
+-----+-----+-----+-----+-----+
| J. R. R. Tolkien | 372.56 | 42.86 | 98.91 | 230.79 |
| test authorname one | 163.85 | 18.85 | 72.50 | 72.50 |
| William Golding | 163.85 | 18.85 | 72.50 | 72.50 |
+-----+-----+-----+-----+-----+
```

PrettyTable extension does indeed create pretty tables.

In the reports, owners are given the criteria, total\_sale\_per\_date, tax, sent\_to\_publisher, and profit.

As explained in the prompt, total\_sale\_per\_date is the TOTAL sale made, tax is the amount of tax within that sale, sent\_to\_publisher is amount of money that was sent to the publisher using the percentage\_to\_publisher, and profit is pure profit only for the owner calculated by subtracting the expenditures from the total sale.

Last but not least, functionalities that gets handled from user.py that relates to the owner must be discussed.

When a user makes an order, the quantity they ordered is removed from the book's owner's collection automatically. While doing so, if the quantity of the book being updated falls below 10, a trigger will run to "send an email" to the publisher and restock the book. The amount of restock is determined to be quantity of the book sold in last month (last 30 days). 'past\_month\_sale' attribute in has\_in\_collection relation is used for that purpose, it is also recalculated every time an order is made.

This all happens in the background, and does not show any messages to the interface of being completed, so it must be shown by using pgAdmin.

```
1 select * from has_in_collection;
2
3
```

	owner_username character varying (10)	isbn character varying (13)	quantity numeric (9)	past_month_sale numeric (9)
1	cc	9780261102361	50	0
2	cc	9780261102378	50	0
3	cc	3547654865748	50	0
4	cc	4981116484684	50	0
5	cc	9780261102354	40	10
6	cc	9780007458424	50	20
7	cc	9780571084838	40	10
8	cc	2345134521534	40	10

It can be seen that 'cc' has 40 of the book with ISBN of 2345134521534 (last row), and it was sold 10 in the past month (last 30 days).

A user 'bb' will order 35 of the book on 2020-05-05.

```
Order ID: 0cb9675b-f7a3-4f45-9ed0-27a86b72f0ad
Ordered On: 2020-05-05
Payment Information: 22222222
Total Price: $579.13
Sent to: testshipping address 1324
Bill sent to: test billing address zxcvxzcv
Current Status: Preparing for Shipment.
Estimated to be delivered on: 2020-05-16

Books In the Order:

ISBN: 2345134521534
Title: testbook1
Author name: test authername one
Genre: Fantasy
Publisher: testpublisher
Pages: 240
Price: $14.50
Quantity: 35
```

Query Editor

Query History

1

2

3

```
select * from has_in_collection;
```

Data Output

Explain

Messages

Notifications

	owner_username character varying (10)	isbn character varying (13)	quantity numeric (9)	past_month_sale numeric (9)
1	cc	9780261102361	50	0
2	cc	9780261102378	50	0
3	cc	3547654865748	50	0
4	cc	4981116484684	50	0
5	cc	9780261102354	40	10
6	cc	9780007458424	50	20
7	cc	9780571084838	40	10
8	cc	2345134521534	40	35

This is the result. Past\_month\_sale was updated to 35, and current quantity of the book (last row) is at 40. This is because 35 was taken from the original 40, leaving 5, then 35 (the new past\_month\_sale) was added to the 5, by “sending an email” to the publisher and getting it restocked immediately.

Now you might be wondering what happened to the original past\_month\_sale of 10?

```
Order ID: 10c4343c-4df4-4dac-bfbe-0e9a4204ab37
Ordered On: 2020-03-03
Payment Information: 22222222
Total Price: $169.50
Sent to: testshipping address 1324
Bill sent to: test billing address zxcvxcv
Current Status: Delivery Complete
Delivered on: 2020-03-11

Books In the Order:

ISBN: 2345134521534
Title: testbook1
Author name: test authername one
Genre: Fantasy
Publisher: testpulisher
Pages: 240
Price: $14.50
Quantity: 10
```

The user has actually ordered it on 2020-03-03, and so when the user set the date to 2020-05-05, and made the new order, it was not counted.

## 6. Bonus Features

I am not exactly too sure which functionalities were 'bonus', I will try my best to list them all, but may be incorrect. Since all functionalities were explained already in previous section, please refer to section 5 on detailed information /screenshot on the functionality listed here.

The ones listed on the project specification were implemented:

- a) Approximate search for books (prefix, suffix, similarity > 0.4 books)
  - A. Implemented in guest.py and user.py
- b) Showing similar books (books with same author, genre)
  - A. Implemented in guest.py and user.py

Ones mentioned in the project lecture:

- c) Basket entity set
  - A. Implemented in user.py
  - B. Since it was said to be optional, I am guessing it might be bonus.
- d) Editing books
  - A. Implemented in owner.py
  - B. Since it was said to be optional, I am guessing it might be bonus.

Others:

- e) Recommended books for user using order history
  - A. Implemented in user.py
- f) Editing account information
  - A. Implemented in user.py and owner.py
- g) Signing up / deleting account
  - A. Implemented in signup.py, user.py, and owner.py
- h) Dynamic book search – dynamic build of query in searching books
  - A. Implemented in user.py and guest.py
- i) Feel free to give me bonus marks for any other bonus features you find 😊

## 7. GitHub Repository

[https://github.com/richard-dh-kim/COMP3005A\\_Final\\_Project.git](https://github.com/richard-dh-kim/COMP3005A_Final_Project.git)

## 8. Appendix I

I am available any time 😊