COMP 3005: Database Management Systems **(Due: Friday Apr. 3, 2020 (11:59 PM))**

Look Inna Book

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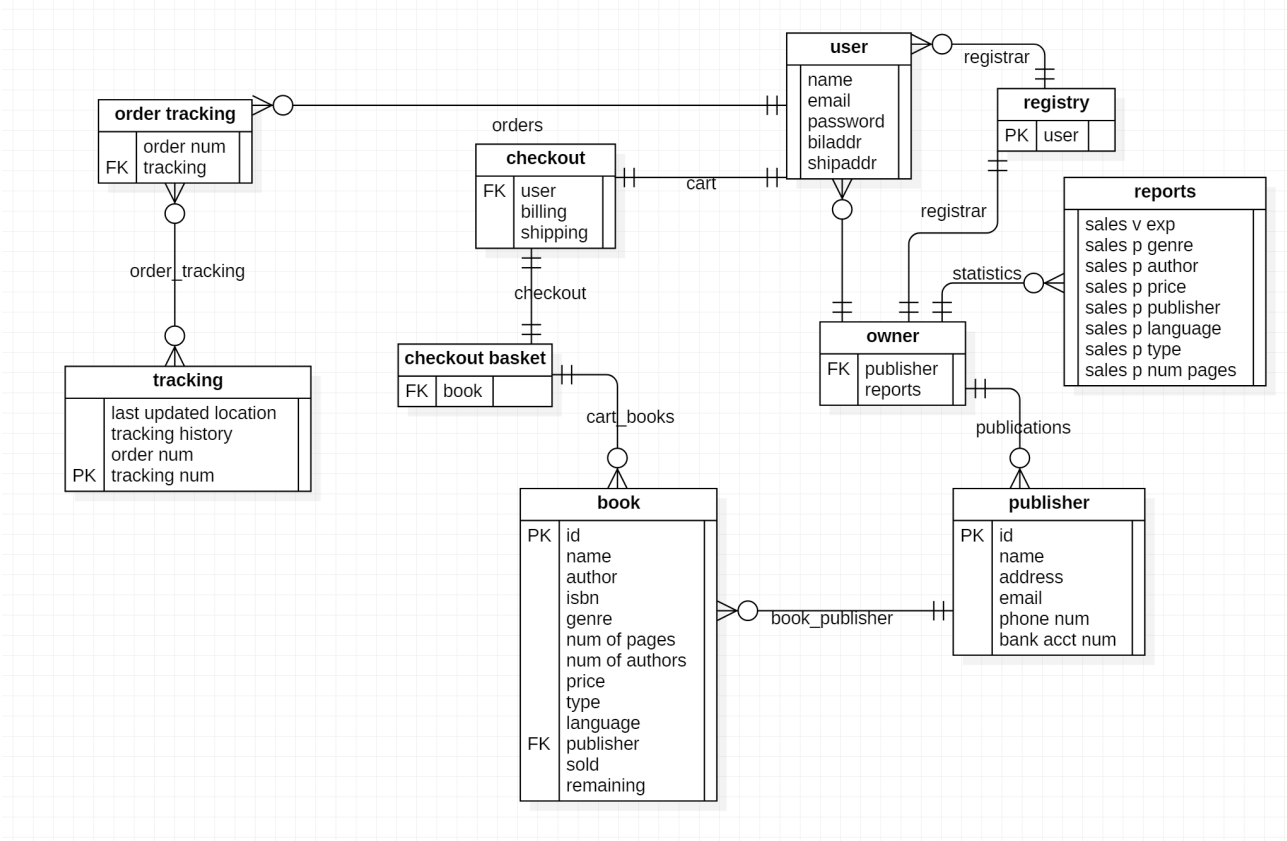
Contents

1 Conceptual Design

This section explains and demonstrates how the database uses the ER-Diagram to store and hold all neccessary information given in the project summary.

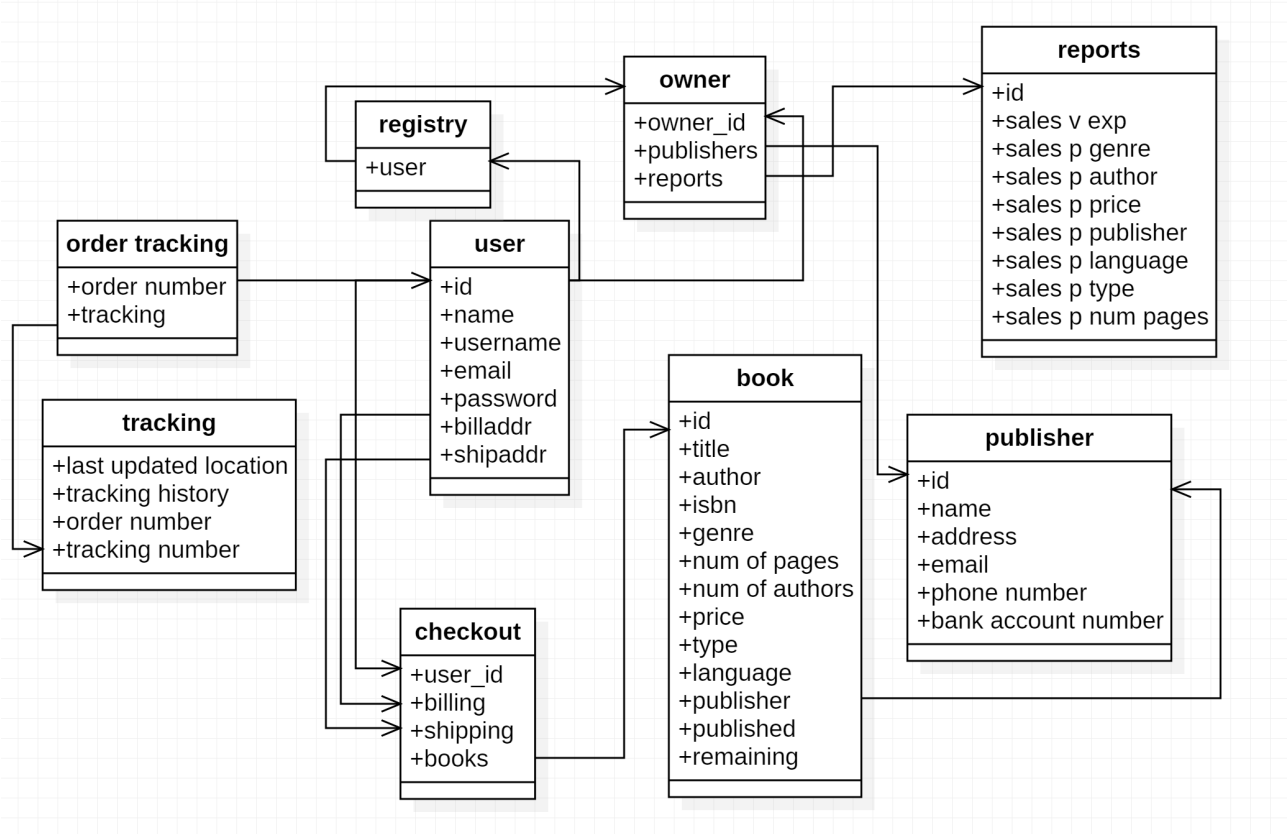
1.1 ER-Diagram



1.2 Explanation

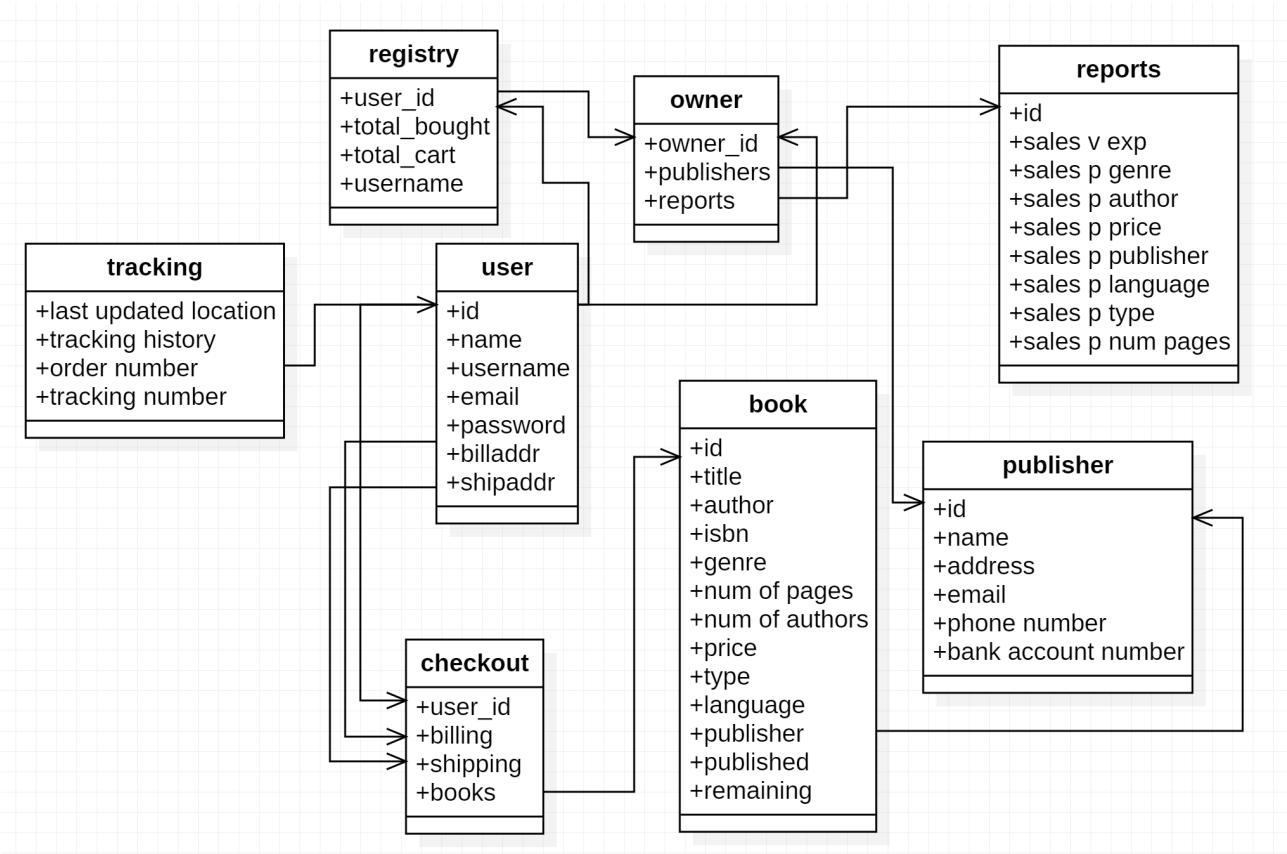
This diagram contains all of the necessary entities to store all necessary information created by and used by the user in the program during runtime. All user information is stored in the user entity when they are signed into the program, this way everything they need is easily accessible. All of the users cart and checkout information is stored in the entities checkout and checkout basket, checkout stores the user id, records their shipping and billing addresses, and checkout basket stores all of the books in the users cart, the book entity is a foreign key for the book entity. When the user goes to checkout their cart, and is successful, all tracking information for their order is stored in the order tracking entity and the final tracking information from the third party shipping company is given and stored in the tracking entity. The tracking entity is a foreign key for the order tracking entity. The publisher entity holds all information needed by the user and the owner of the store on each publisher, the user only needs a name whereas the owner can see all other information required. The owner entity holds all of the relevant information for the owner, such as the a foreign key for the publisher entity id. The reports entity holds all of the reports created by the program.

2 Reduction to Relation Schemas



3 Normalization of Relation Schemas

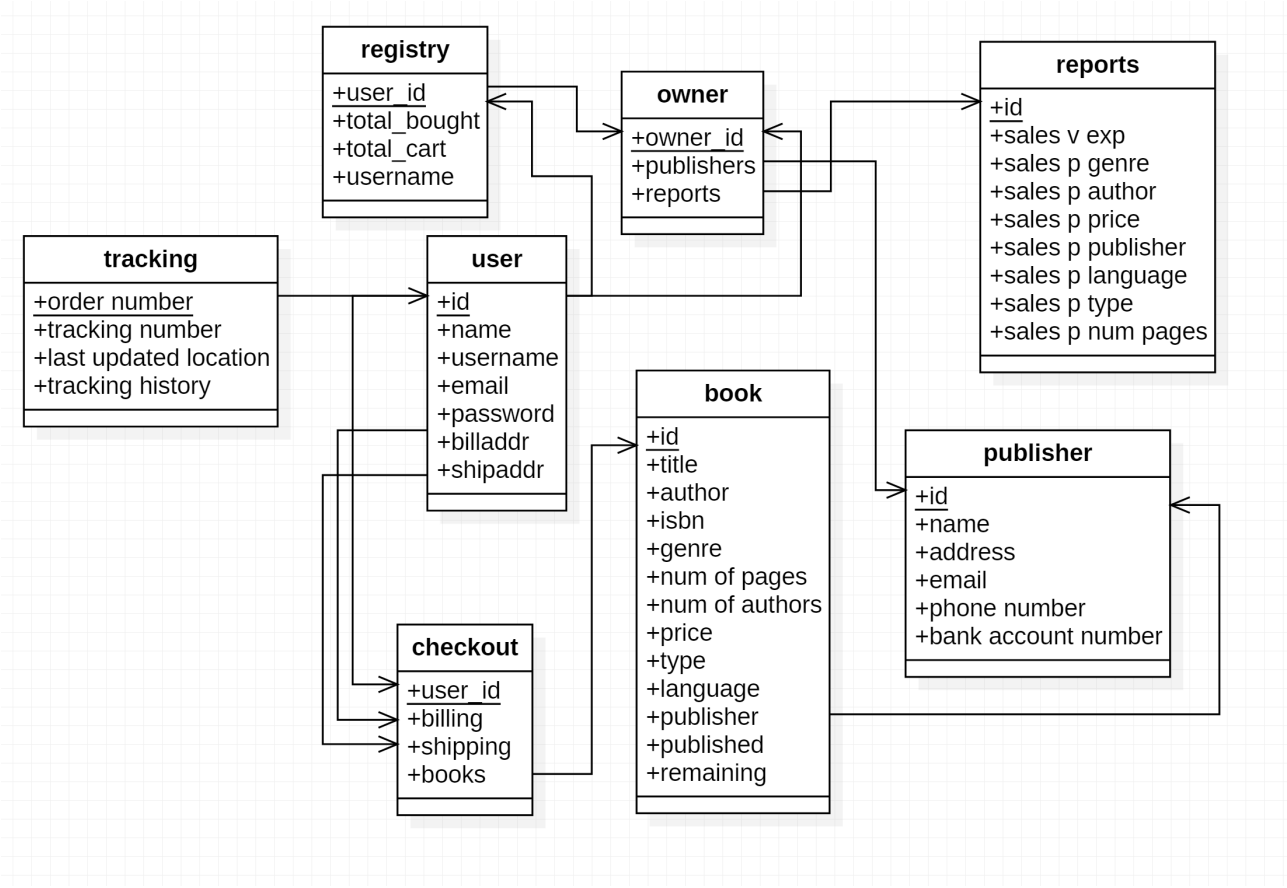
3.1 Normalization



3.2 Explanation

Every schema passes the 1NF test but the registry schema, this registry holds a user id, that is a unique string that contains the id of the user, a total of the books they have bought and the books in their cart. These three attributes in one string are usually well defined for each user and are not easily replicable. This could or could not pass the 1NF test, I personally would pass it, but if this was to be released globally, I would decompose it and reconstruct it into four or five defining attributes including the user_id, user_username, total_books, total_cart and or user_email. As for order tracking, I believe it passes the first test, 1NF, and the second, 2NF, as for the third one, it does have transitive functional properties, specifically the attribute tracking. To allow for all three tests, tracking could absorb order tracking, as they have similar attributes, and one of them is transitive, this was initially designed to create a layer of security, but ultimately does not work in a functioning practice.

4 Database Schema Diagram



5 Implementation

5.1 Overview

I tried to complete the user and owner front end with a node.js web client but I couldn't before the due date, instead I implemented most of the user features, excluding the checkout and tracking in a command line version. I have pushed all versions of my project, whether complete or incomplete, to my github attached below. The version that works the best is under the directory 'lib_app', it uses python to query and connect to the postgresql and as an interface with the user.

5.2 Scenarios

5.2.1 lib_app

These are stills of basic scenarios that have been imeplemented so far. Hopefully most if not all of the implementation is done before the due date, although this is a large program. The program is simple, its menu based, you select your options and give answers to questions like what book you want or which option number to choose. These basic scenarios contain stills of the main menu, signing in, browsing the books, displaying more information on a specific book, searching for a specific book, adding books to your cart and displaying you cart

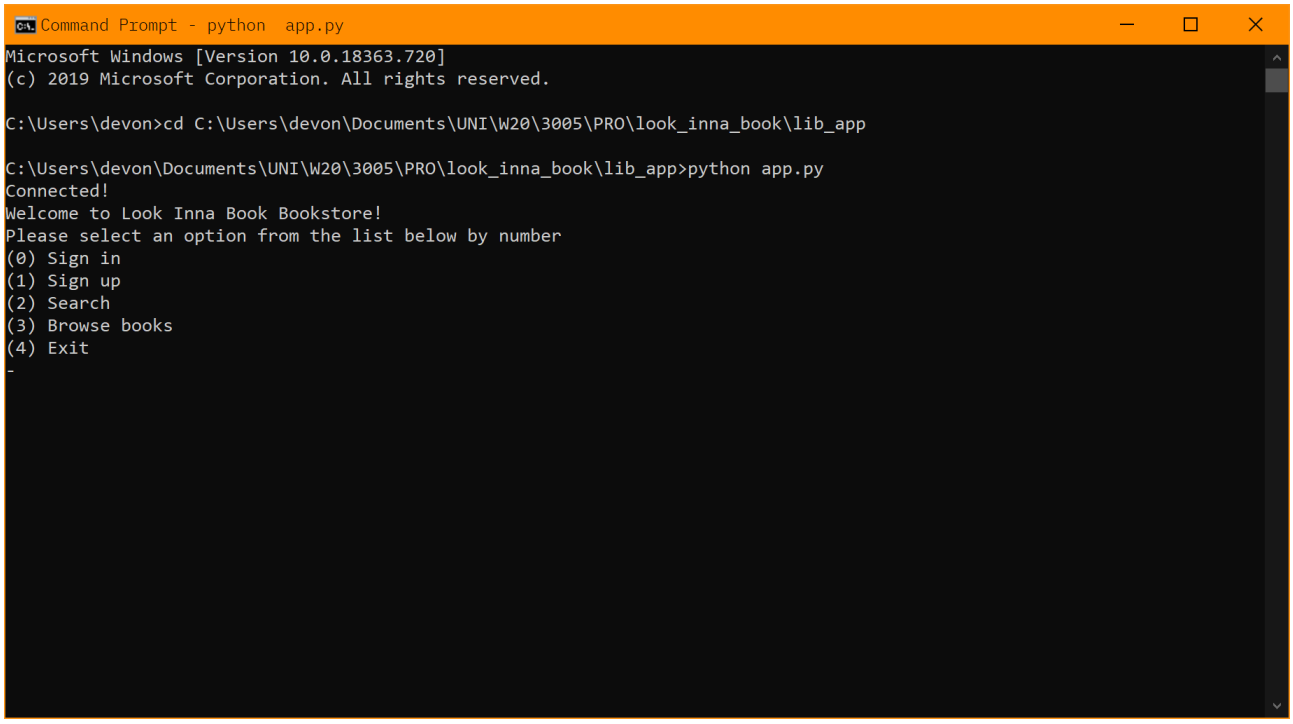


Figure 1: Main Menu

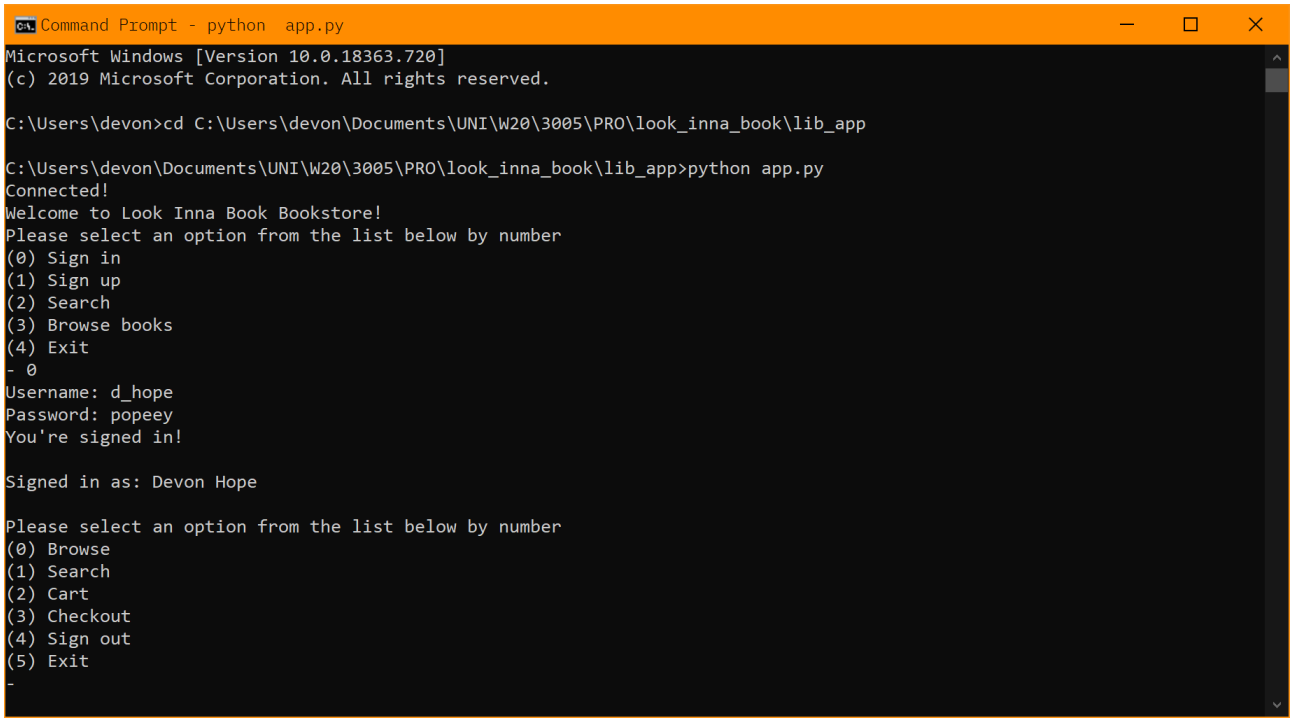


Figure 2: Signed in Menu

```
Please select an option from the list below by number
(0) Browse
(1) Search
(2) Cart
(3) Checkout
(4) Sign out
(5) Exit
- 0
Books on hand:
{'Name': 'Price'}
{'Do Androids Dream Of Electric Sheep': '$6',
 'Dune': '$7',
 'The Hitchhikers Guide To The Galaxy': '$25'}
(0) Add to cart
(1) More info on specific book
(2) Main menu
-
```

Figure 3: Browse the books

```
(0) Add to cart
(1) More info on specific book
(2) Main menu
- 1
Enter 'e' to exit
Name of book: dune

More info:
[({'Name': 'Dune'},
  {'Price': '$7'},
  {'Author': 'Frank Herbert'},
  {'ISBN-13': 9780240807720},
  {'Genre': 'Science Fiction'},
  {'Pages': 412},
  {'Type': 'Paperback'},
  {'Language': 'English'},
  {'Publisher': 'Chilton Books'},
  {'Published': 'August 1 1965'})]

(0) Add to cart
(1) More info on specific book
(2) Main menu
-
```

Figure 4: More information on a book

```
Please select an option from the list below by number
(0) Browse
(1) Search
(2) Cart
(3) Checkout
(4) Sign out
(5) Exit
- 1

Enter 'e' to exit
You can enter a book name, author, isbn, price, etc.
To enter more than one attribute, separate them by a ','

Search: dune
{'Dune': '$7'}
Please select an option from the list below by number
(0) Browse
(1) Search
(2) Cart
(3) Checkout
(4) Sign out
(5) Exit
-
```

Figure 5: Searching for a specific book

```
Books on hand:
{'Name': 'Price'}
{'Do Androids Dream Of Electric Sheep': '$6',
 'Dune': '$7',
 'The Hitchhikers Guide To The Galaxy': '$25'}
(0) Add to cart
(1) More info on specific book
(2) Main menu
- 0
Enter 'e' to exit
Enter the name of the book: dune
Dune added to cart
Thats not an option

(0) Add to cart
(1) More info on specific book
(2) Main menu
-
```

Figure 6: Adding books to your cart

```
Please select an option from the list below by number
(0) Browse
(1) Search
(2) Cart
(3) Checkout
(4) Sign out
(5) Exit
- 2

CART:
Dune

Please select an option from the list below by number
(0) Browse
(1) Search
(2) Cart
(3) Checkout
(4) Sign out
(5) Exit
-
```

Figure 7: Displaying your cart

6 Github Repostiory

Git Repo (Look Inna Book: Online Bookstore)

7 Instructions for Submission

1. Ensure that PostgreSQL is running on your machine, if not then install and run
2. Create a database called Bookstore under a postgrsql 12 server
3. Open a terminal or cmd for windows
4. Navigate to `C:\Program Files\PostgreSQL\12\bin` or the bin folder of the latest version of your postgresql folder installed on your machine
5. Open the folder `\lib_app\pgdb` under the `lib_app` inside the project folder and copy the directory to the file `lib_app\pgdb\latest_DB_BACK.sql` file
6. Change the command below to add your username and directory path to the file `latest_DB_BACK.sql`:
   `psql -U <username> Bookstore < ..\look_inna_book\lib_app\pgdb\latest_DB_BACK.sql`
7. Enter the password for your postgresql server

   NOTE: The command above, updates the currently running postgresql server with my database structure and data

7.1 lib_app

1. Esnure python3 or later is installed on your machine by opening a terminal and typing: `python --version`
2. Open the file `cred_pgsql.py`
3. Change the variables PGUSER and PGPASSWORD to your postgrsql username and password for the server
4. To run the program, navigate to the `lib_app` folder use the command: `python app.py`