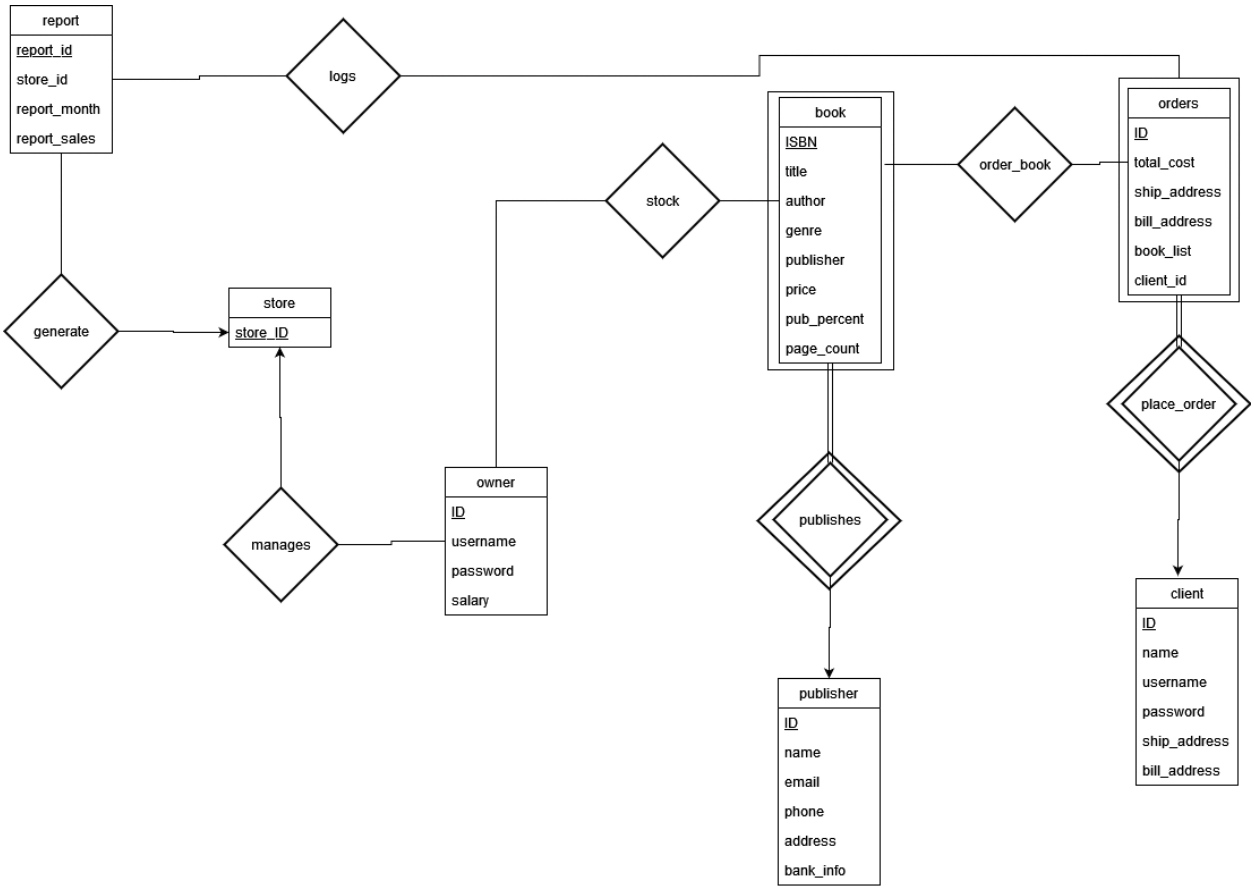
1 Conceptual Design



- store: A store is managed by an owner and keeps track of the current stock of each book as well as the sales made for each month
- owner: An owner can manage the inventory of the store as well as purchase more from the publishers should stock be running low
- book: A book has its stock managed through the store and is published by publishers who also get a percetage of the book's sale. The assumption for a book to exist is that it is first published and provided by the publisher. Books can also be added to orders by the client to be purchased
- publisher: A publisher publishes books and provides them to the store owner for their store. They peovide their banking information to receive their part of their book sale, and they have an address they can be reached at
- order: An order can be made by a client to buy books from the store and have them sent to the provided shipping address. The assumption for an order to exist is that a client must already exist who have placed the order.
- client: A client, who is registered with the store, can place an order of books to be sent to a provided shipping address, paied via their billing address. Assumption is that the addresses were added at time of registration.
- report: A report of the sale for the month. It keeps track of the orders made

2 Reduction to Relation Schemas

- store: (store_id)
- owner: (ID, username, password, salary)
- book: (ISBN, title, author, genre, publisher, price, pub_percent, page_count)
- publisher: (ID, name, email, phone, address, bank_info)
- order: (ID, total_cost, ship_address, bill_address, book_list, client_id)
- client: (ID, name, username, password, ship_address, bill_address)
- report: (report_id, store_id, report_month, report_sales)
- stock: (ISBN, quantity)
- manages: (owner_id, store_id)
- publishes: (ISBN, pub_id)
- order_book: (ISBN, order_id)
- place_order: (client_id, order_id)
- generate: (store_id, report_id)
- logs: (report_id, order_id)

3 Normalization of Relation Schemas

3.1 Relationship sets

3.1.1 stock

ISBN is the superkey
$ISBN \rightarrow quantity$

3.1.2 manages

owner_id and store_id are superkeys

Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

3.1.3 publishes

ISBN and pub_id are the superkeys

Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

3.1.4 order_book

ISBN and order_id are the superkeys

Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

3.1.5 place_order

client_id and order_id are the superkeys

Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

3.1.6 generate

report_id and store_id are the superkeys

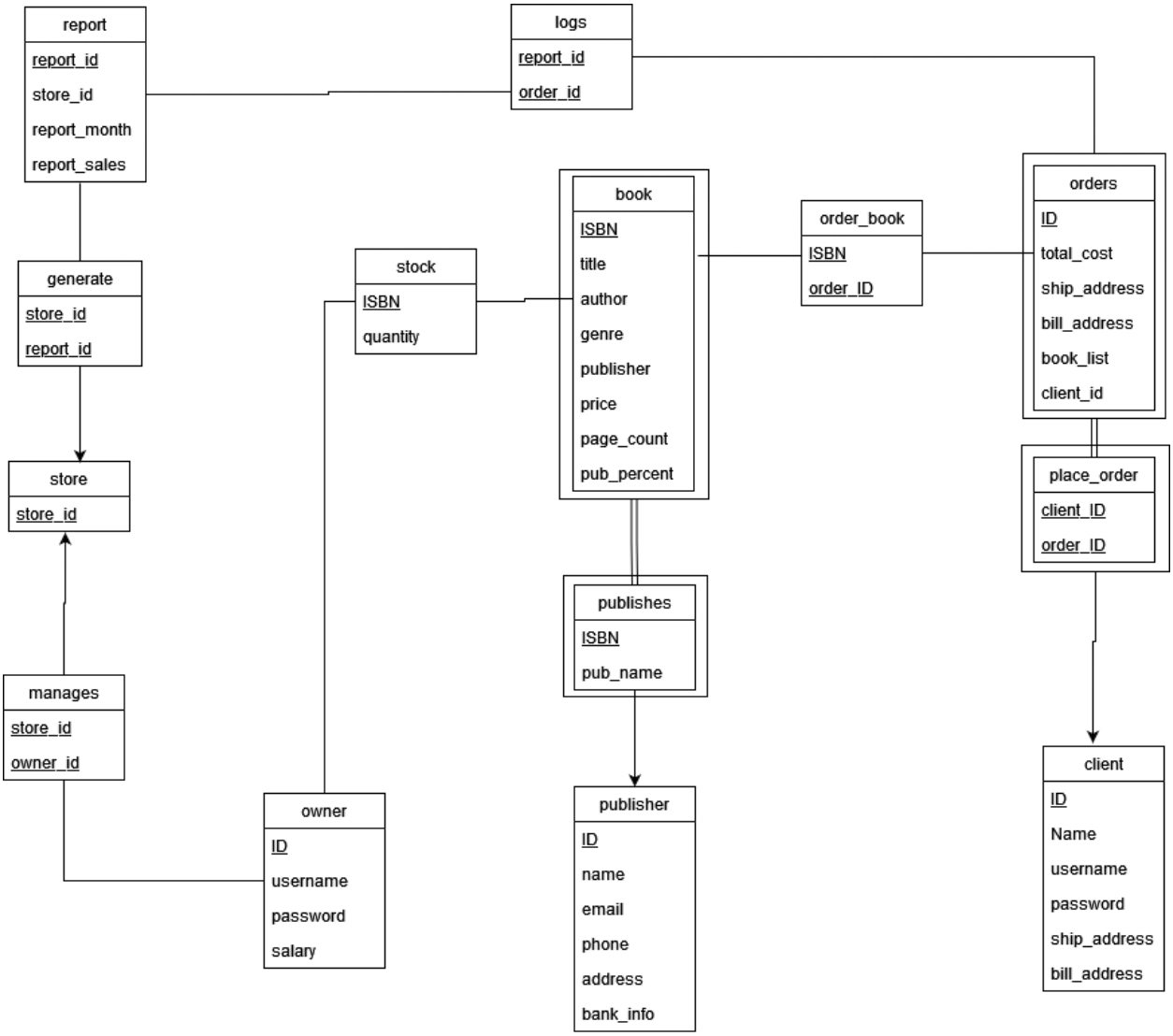
Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

3.1.7 logs

report_id and order_id are the superkeys

Since both attributes are part of the superkey, and they are the only values, then all rows are unique and therefore the relation is in normal form

4 Database Schema Design



5 Implementation

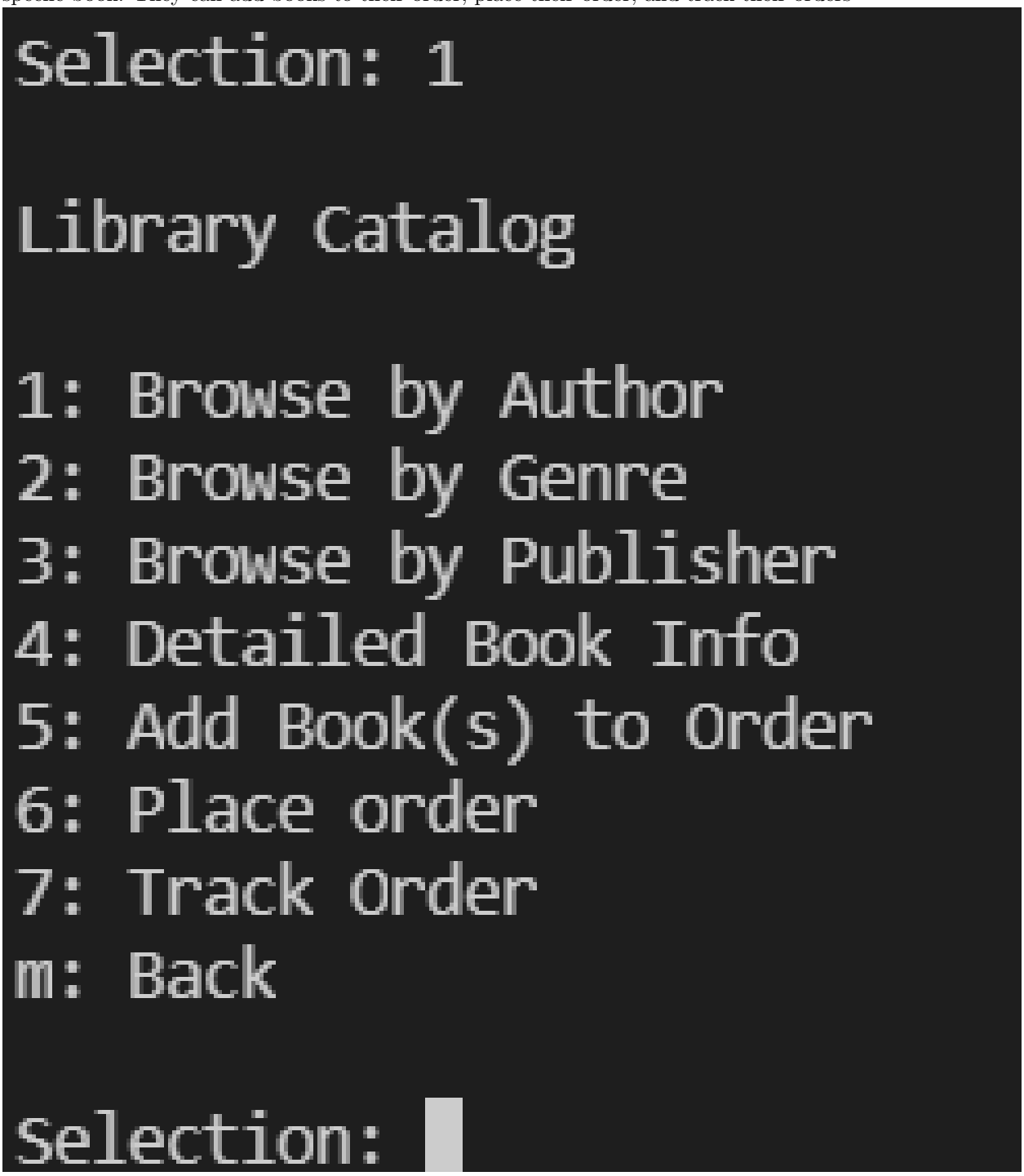
Mostly fully complete. Only things missing are the automatic trigger for restocking books (manual option for owners currently), as well as generating sales reports (tables and inserts are there but functionality is not).

Login and main menu for client and owners. They must be registered users in order to be authorized

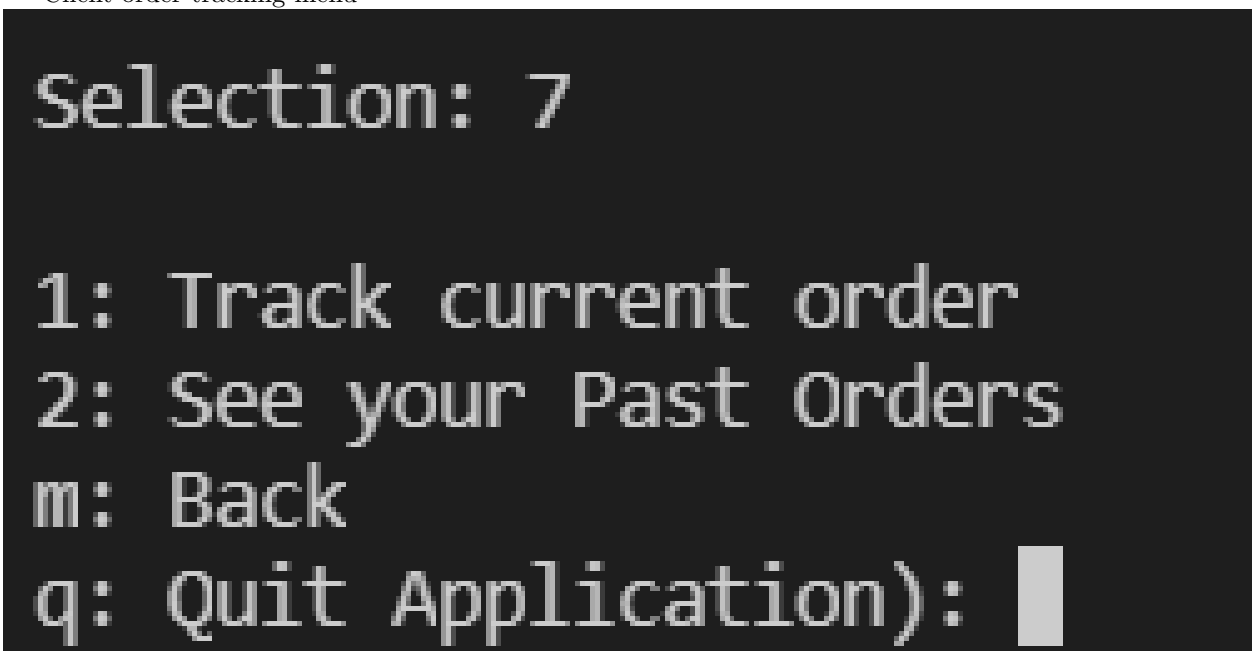
```
Welcome to the Bookstore!
-------------------------

Login
-------
1: Owner
2: Client
q: Quit

Selection: 2
Please enter username: HPotter
[Enter Password:]

Main Menu
---------
1: Browse/order Books
2: View current Order
m: Logout
q: Quit Application

Selection:
```

```
Welcome to the Bookstore!
-------------------------

Login
-------
1: Owner
2: Client
q: Quit

Selection: 1
Please enter username: APWBD
[Enter Password:]

Main Menu
---------
1: Manage Books
2: View Publisher Info
3: Store Sales Reports
m: Logout
q: Quit Application
```

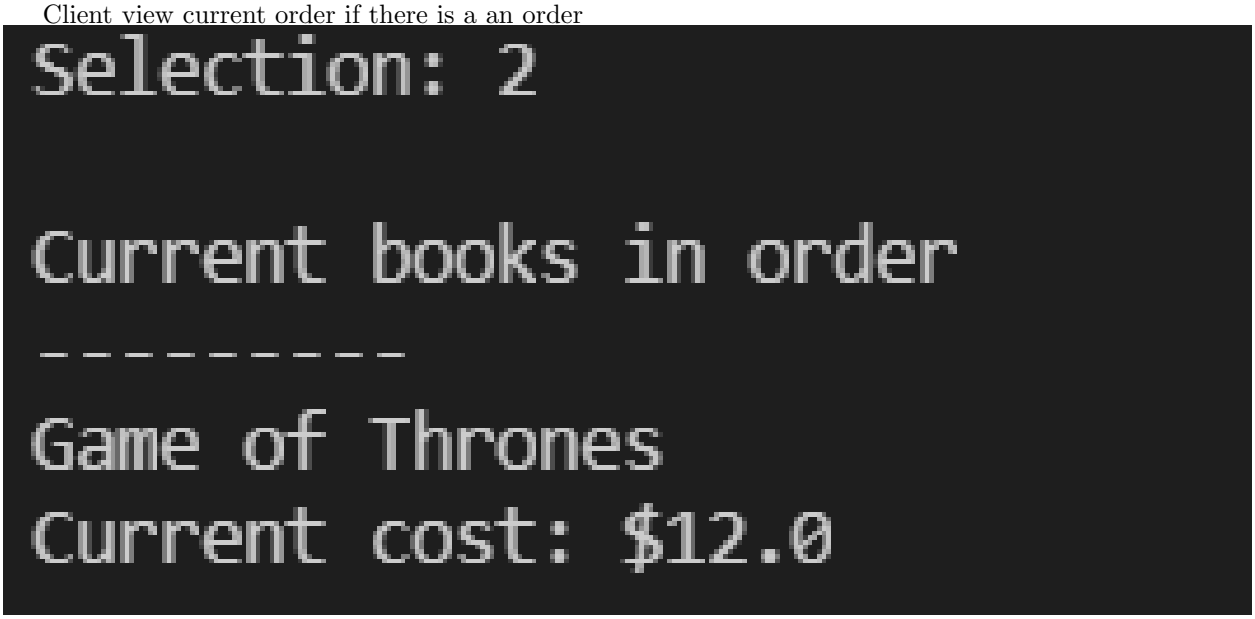
Client Catalog menu. User can browse for books by auther, genre, or publisher as well as details for a specfic book. They can add books to their order, place their order, and track their orders



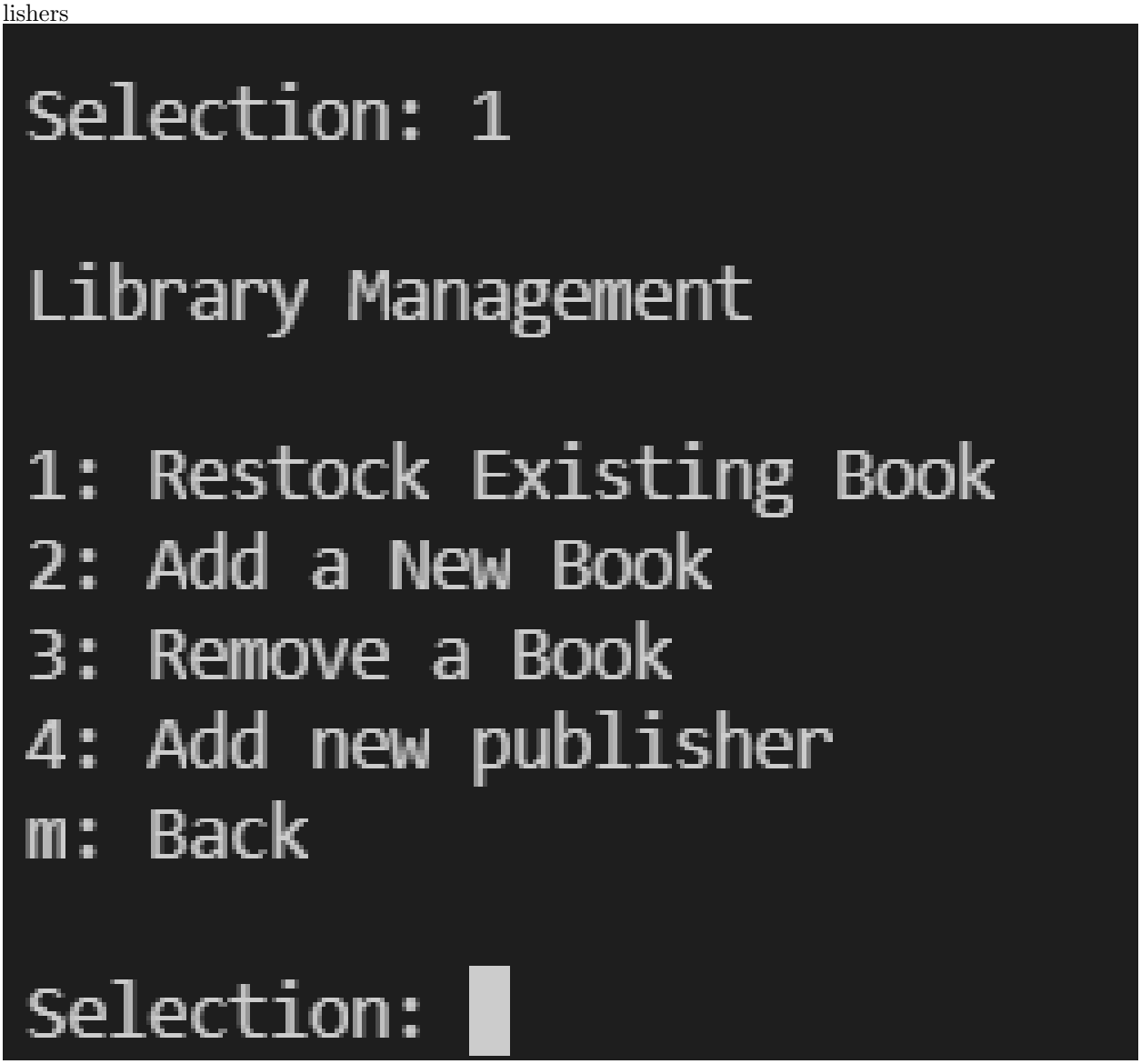
Client order tracking menu



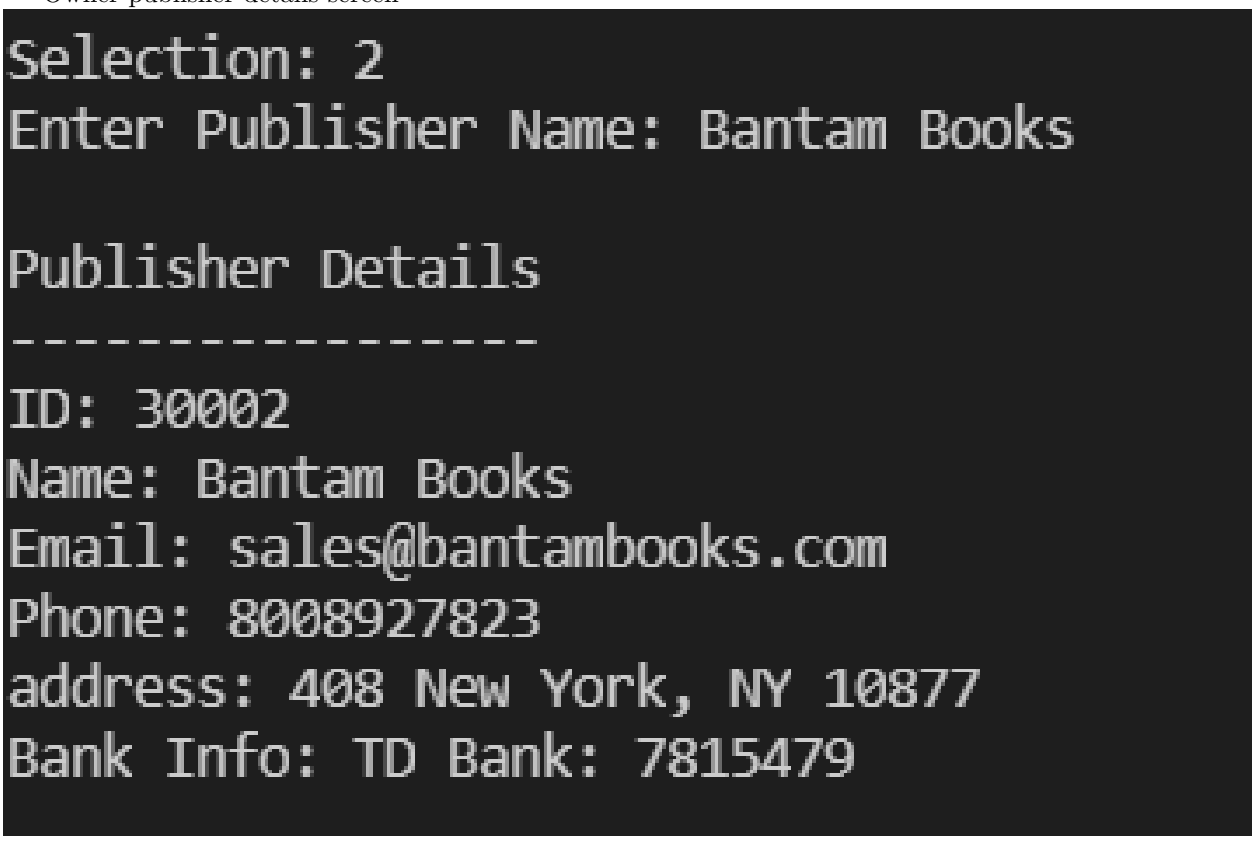
Client view current order if there is a an order



Owner management menu. Owner can restock books, add new books, remove books, and add new publishers



Owner publisher details screen



6 Bonus Features

No bonus features in project

7 GitHub Repository

`https://github.com/rayotte/COMP_3005_Project`

8 Appendix I (Availability)

Exempted from demonstrations based on prior conversation with Professor Roby due to scheduling conflicts