COMP 3005 Project Report

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I.　　Conceptual Design

Relations:

user
user_id
username
billing_addr
shipping_addr
password_u
email_u
phone_no_u

owner
owner_id
ownername
bookstore
password_o

purchases
user_id
owner_id
ISBN
publisher_id
order_no
inventory

book
ISBN
title
author
genre
publisher_id
inventory
cost
price

transfers
publisher_id
owner_id
banking_acc

orders
order_no
user_id
billing_addr
shipping_addr
status

publisher
publisher_id
publisher
publisher_addr
email_p
phone_no_p
banking_acc

tracks
order_no
user_id
status

reports
report_id
total_cost
total_sales
genre
publisher_id
author

** See additional resources at the end of the report for clarification of keys

ER Diagram:

Graphics were made on Canva
Ariane Roy, 101066109, Nov 2021
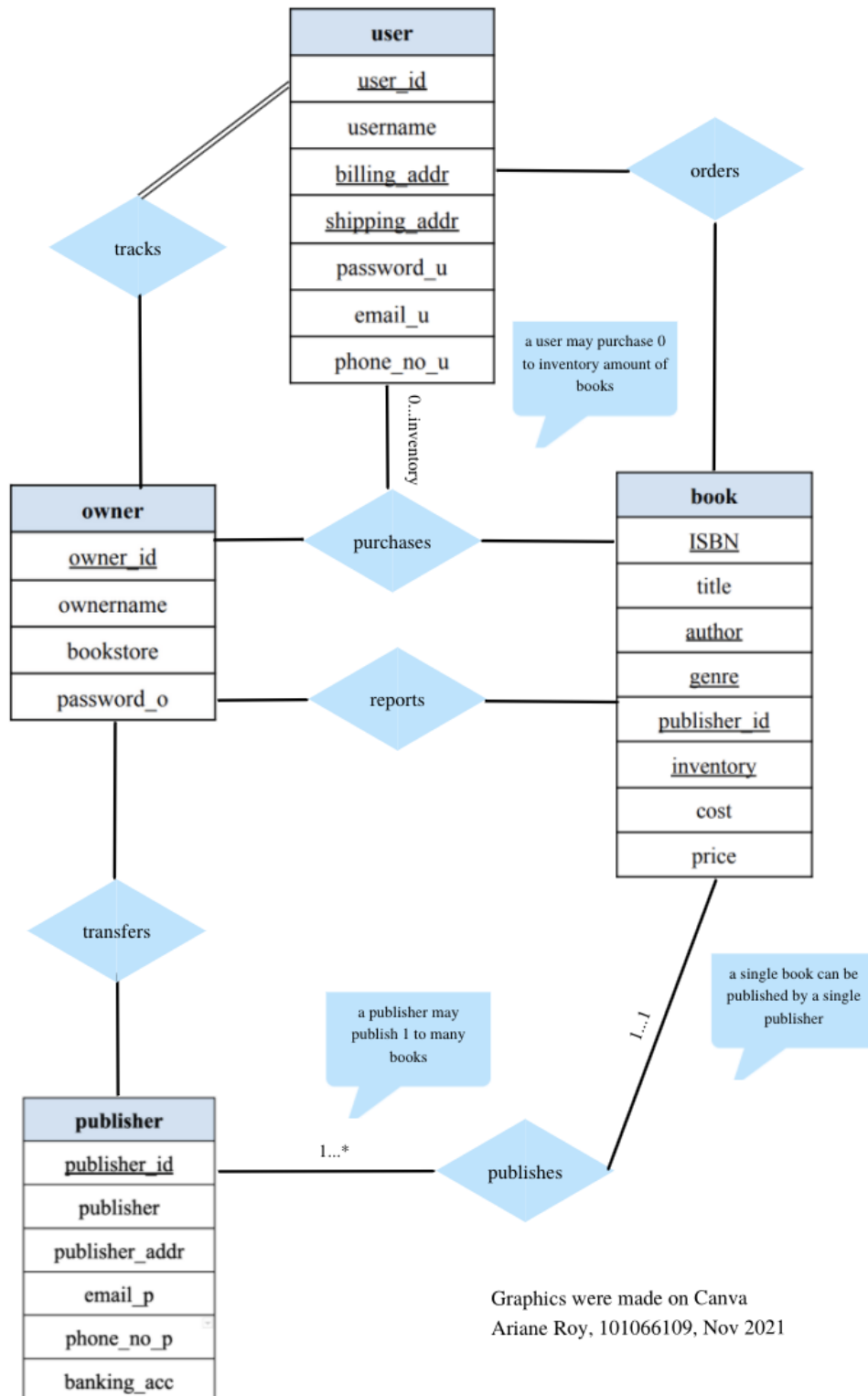
Assumptions:

The following are assumptions made about the bookstore:

- Transfers are made from the owner to the publisher
- A publisher can publish 1 to many books
- A book can only have 1 publisher
- A report can be requested by the owner using any of the book attributes
- Purchases of a book send proceeds to the owner
- A user may only make a purchase of 0 to inventory amount of books
- Orders take place between a user and the books
- The owner receives an order and provides the user with tracking information from the order

II.   Reduction to Relation Schemas

user(<u>user_id</u>, shipping_addr, billing_addr)
owner(<u>owner_id</u>)
book(<u>ISBN, publisher_id, author, genre, inventory</u>)
publisher(<u>publisher_id, banking_acc</u>)
orders(<u>order_no, user_id, inventory</u>)
reports(<u>report_id, ISBN</u>)
transfers(<u>owner_id, publisher_id, banking_acc</u>)
publishes(<u>ISBN, publisher_id</u>)
purchases(<u>user_id, owner_id, ISBN</u>)

III.   Normalization of Relation Schemas

Functional Dependencies:
user_id → username, shipping_addr, billing_addr
owner_id → ownername, bookstore
publisher_id → bank_acc, publisher
order_no → user_id, owner_id, ISBN, status
ISBN → title, author, genre, publisher_id, inventory
reports_id → total_cost, total_sales, order_no

A: user_id, username, shipping_addr, billing_addr, owner_id, ownername, bookstore, publisher_id, bank_acc, publisher, order_no, user_id, owner_id, ISBN, status, title, author, genre, publisher_id, inventory, reports_id, total_cost, total_sales, order_no

FD1:
R1: author, bank_acc, bookstore, genre, inventory, ISBN, order_no, owner_id, ownername, publisher, publisher_id, reports_id, status, title, total_cost, total_sales, user_id
**R2:** billing_addr, shipping_addr, user_id, username

FD2:
R3: author, bank_acc, billing_addr, genre, inventory, ISBN, order_no, owner_id, publisher, publisher_id, reports_id, shipping_addr, status, title, total_cost, total_sales, user_id, username
R4: overlap with R1

FD3:
R5: author, billing_addr, bookstore, genre, inventory, ISBN, order_no, owner_id, ownername, publisher_id, reports_id, shipping_addr, status, title, total_cost, total_sales, user_id, username
R6: overlap with R1, R3, R7

FD4:
R7: author, bank_acc, billing_addr, bookstore, genre, inventory, order_no, ownername, publisher, publisher_id, reports_id, shipping_addr, title, total_cost, total_sales, username
R8: overlap with R1, R3, R5

FD5:
R9: bank_acc, billing_addr, bookstore, ISBN, order_no, owner_id, ownername, publisher, reports_id, shipping_addr, status, total_cost, total_sales, user_id, username
**R10:** overlap with R1, R3, R5

FD6: Does not violate BCNF because reports_id is a key for R

Decomposition:

R1(author, bank_acc, bookstore, genre, inventory, ISBN, order_no, owner_id, ownername, publisher, publisher_id, reports_id, status, title, total_cost, total_sales, user_id**),**

R2(billing_addr, shipping_addr, user_id, username**),**

R3(author, bank_acc, billing_addr, genre, inventory, ISBN, order_no, owner_id, publisher, publisher_id, reports_id, shipping_addr, status, title, total_cost, total_sales, user_id, username**),**

R5(author, billing_addr, bookstore, genre, inventory, ISBN, order_no, owner_id, ownername, publisher_id, reports_id, shipping_addr, status, title, total_cost, total_sales, user_id, username**),**

R7(author, bank_acc, billing_addr, bookstore, genre, inventory, order_no, ownername, publisher, publisher_id, reports_id, shipping_addr, title, total_cost, total_sales, username**),**

R9(bank_acc, billing_addr, bookstore, ISBN, order_no, owner_id, ownername, publisher, reports_id, shipping_addr, status, total_cost, total_sales, user_id, username**)**

IV.   Database Schema Diagram

Graphics were made on Canva
Ariane Roy, 101066109, Nov 2021
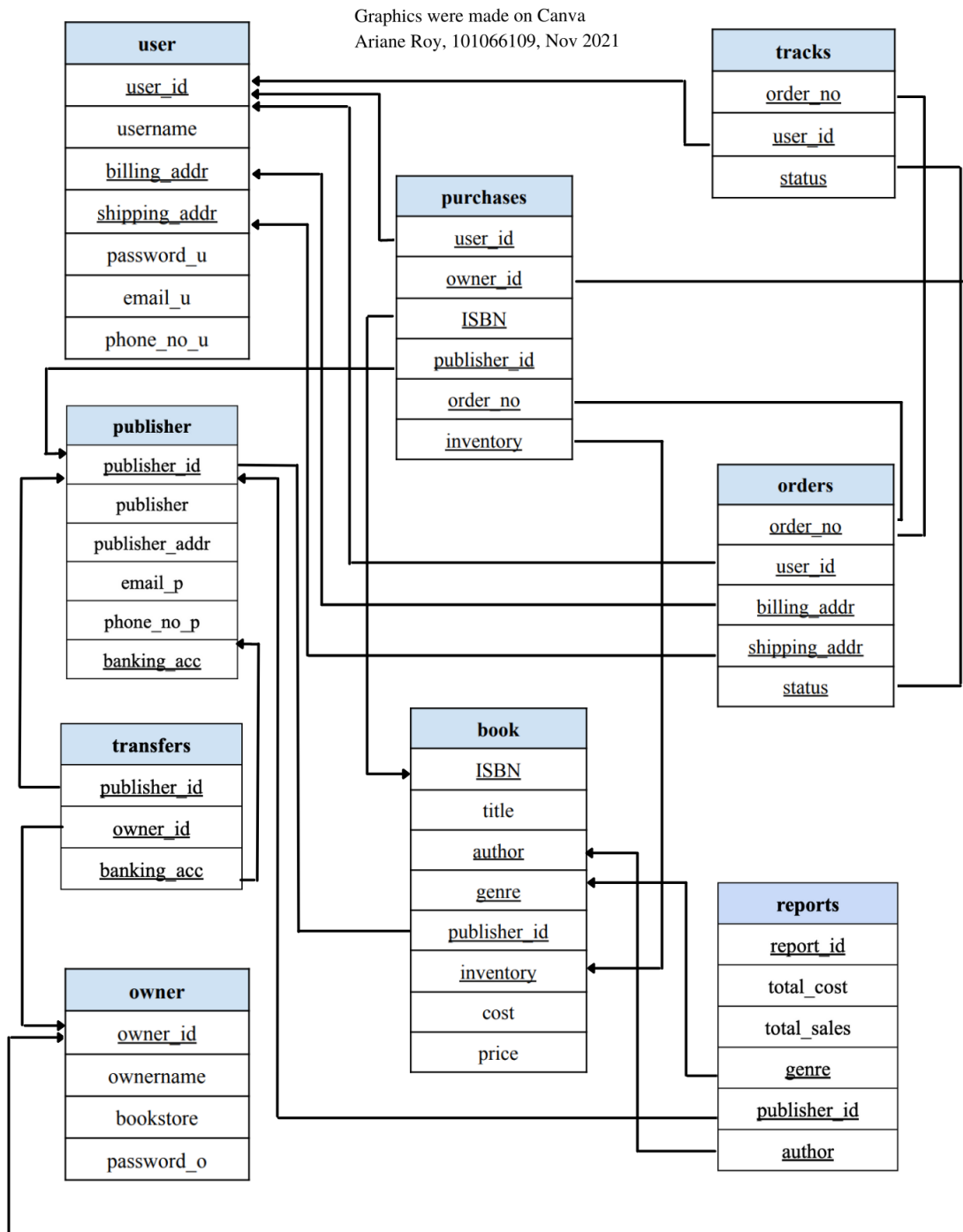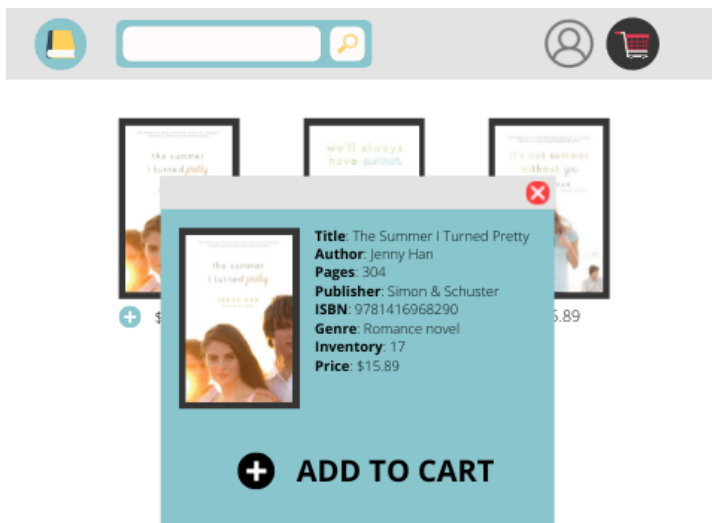
V.   Implementation

The following images are screenshots of the prototype for how I wanted to implement the application and were made by me on Canva

** To access the home page the user/owner selects the book icon in the top left **
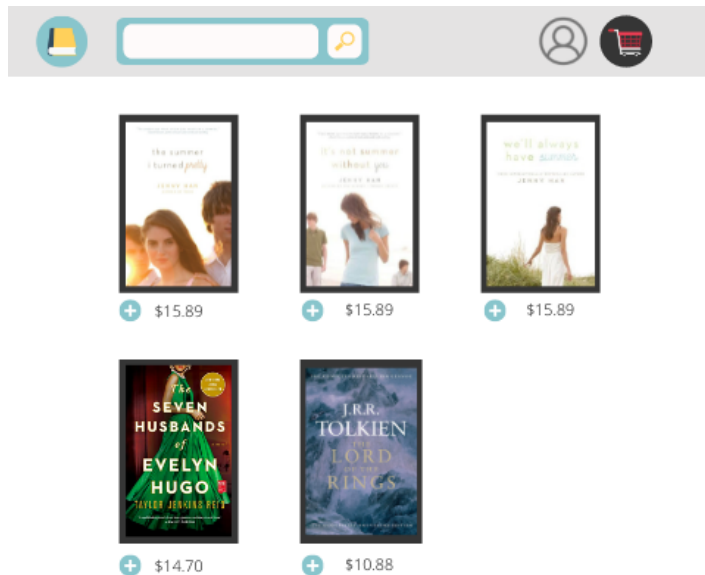
User home page once the user is logged in, the plus button will give an expanded view of the book as seen in the next screenshot


User has clicked the plus button and can view more details about the selected book, and can add to cart.

Title: The Summer I Turned Pretty
Author: Jenny Han
Pages: 304
Publisher: Simon & Schuster
ISBN: 9781416968290
Genre: Romance novel
Inventory: 17
Price: $15.89

➕ **ADD TO CART**

User has clicked the cart button in the menu tab and can view cart contents and see cumulative total and ready to pay button

User has clicked ready to pay button and pop-up with the order details are displayed
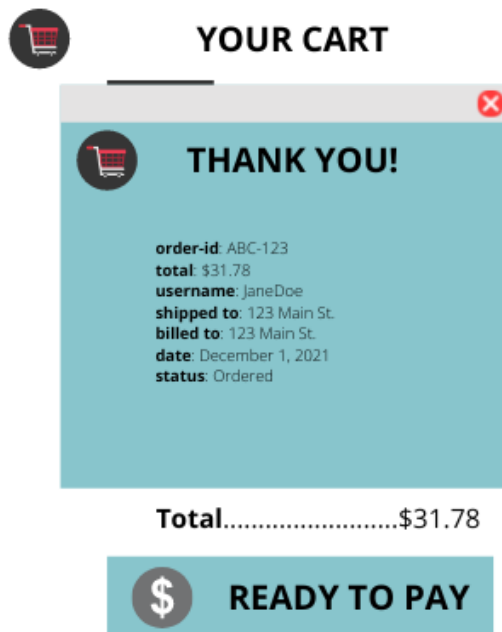
User has clicked the use profile button in the menu tab and the user can see all their details as well as view previous orders (where status is displayed)

User has selected previous orders where their last 3 orders are displayed and if shipped the status text is hyperlinked to tracking by a third-party website
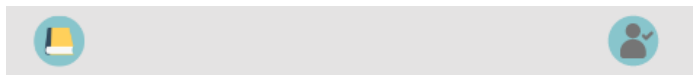
User opens the bookstore page and is required to login, if login is correct the user is brought to the home page otherwise the user is brought to the create new user page

User is prompted to create user account and can then click create (to create account) or exit which brings user back to user login page
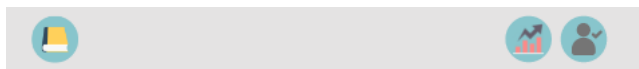
Owner opens the bookstore admin page and is required to login, if login is correct the user is brought to the admin home page otherwise

Admin homepage has buttons to send money to publishers, check inventory, reports and admin profile (which can also be clicked in menu tab)

Owner has selected admin profile where the owner can view their ownername and their password
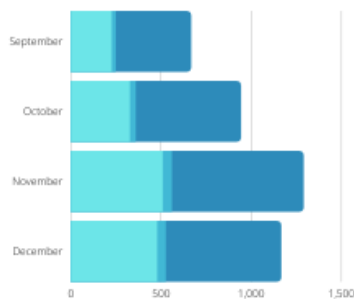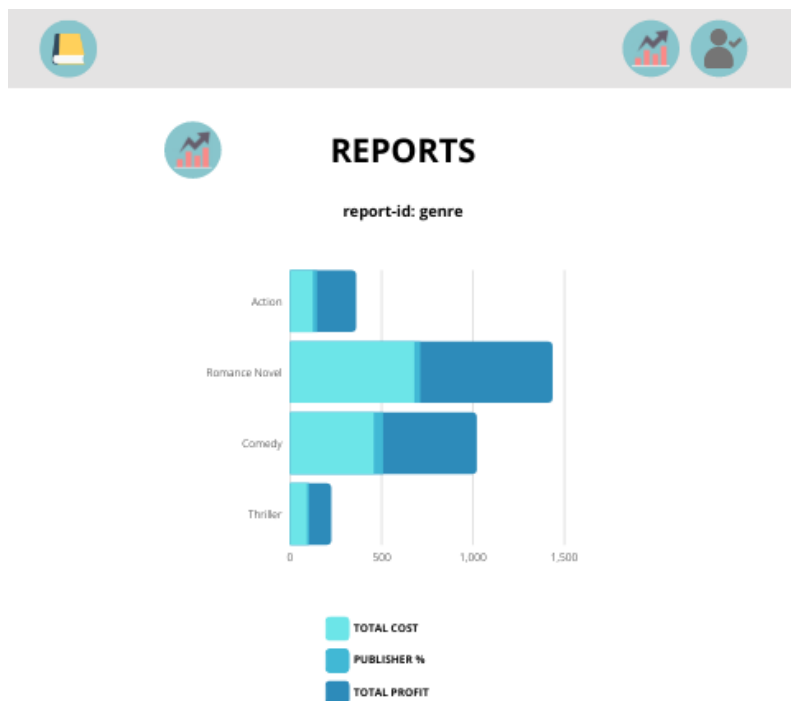

Owner has selected the reports button where they can view updated total sales and cost which generate a chart for recent sales for the last 4 months, and can click to create a new report with selected criteria

Owner has selected create report button where they can select what kind of report they would like (and select one or more criteria) and can then create report

Report is then generated where each criteria displays total cost, publisher %, and total profit and report-id corresponds to report type
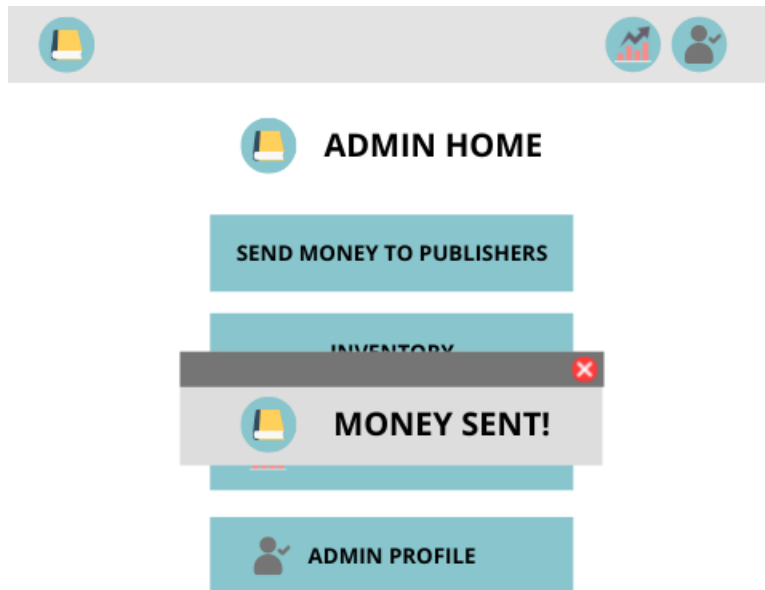
Owner send money to publishers based by clicking on the send money to publishers and a pop-up appears confirming the money is sent
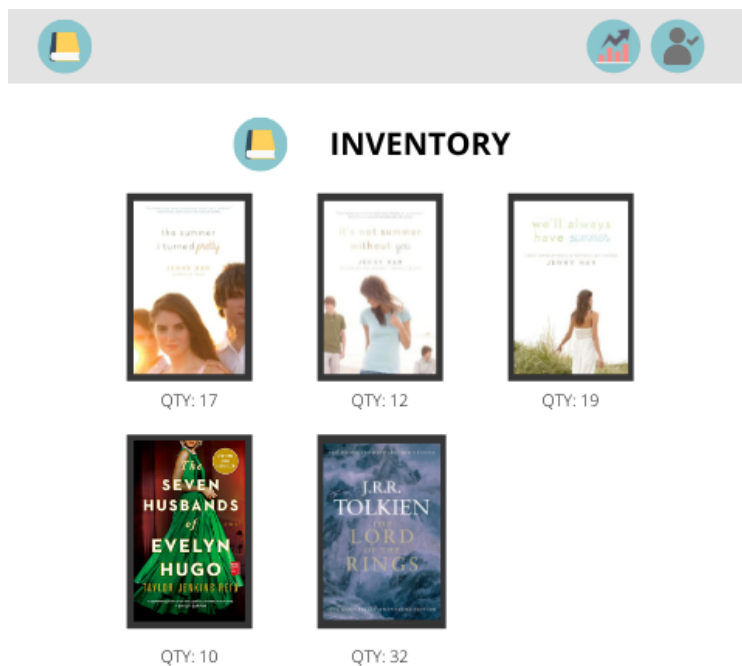
Owner clicked on inventory button where they can view the inventory of their bookstore

VI.   Bonus Features

N/A

VII.   GitHub Repository

GitHub Link: https://github.com/ari-roy/COMP3005Project

VIII.   Appendix I
- Available anytime between 9 AM and 5 PM on Dec. 11th
- Three possible time slots:
  - Dec. 11th 10:00 AM
  - Dec. 11th 10:20 AM
  - Dec. 11th 10:40 AM

IX.   Additional Resources

Key	Description
user_id	User's unique id marker -- primary key in user, foreign key in orders, tracks, and purchases
username	Username for user account login
billing_addr	User's billing address
shipping_addr	User's shipping address
password_u	User's password for user account login
email_u	User's email
phone_no_u	User's phone number
owner_id	Owner's unique id marker -- primary key in owner, foreign key in purchases
ownername	Username for admin/owner account login
bookstore	Bookstore name
password_o	Owner's password for admin/owner account login
ISBN	Book ISBN (unique to each book) -- primary key in book, foreign key in purchases
title	Book title
author	Book author

genre	Book genre
publisher_id	Publisher's unique id marker -- primary key in publisher, foreign key in book, purchases, reports
inventory	Up to date quantity of given book in stock
cost	Cost of given book
price	Price of given book
order_no	Order's unique number marker -- primary key in orders, foreign key in tracks
status	Order's present status (confirmed, shipped, location, cancelled, etc.)
publisher	Publisher's name
publisher_addr	Publisher's address
email_p	Publisher's email
phone_no_p	Publisher's phone number
banking_acc	Publisher's bank account
report_id	Report's unique number marker -- primary key in reports
total_cost	Total up to date cost of all inventory in bookstore
total_sales	Total up to date cost of all sales in bookstore