

CSE202

Transactions And Schedules

HyperRetail

Aayush Manglum

2021225

Aalokik Singh

2021223

Transactions

1. User sessions

The HyperRetail/auth.py has a login() function which uses following queries to

Assign a session token to any valid users.

```
cursor.execute('' SELECT ID_NUMBER as CUSTOMER_ID,PASSWORD from CUSTOMER WHERE E_MAIL = %s ;'',
               (e_mail, ) )

credentials = cursor.fetchone()

if not credentials:
    flask.abort(400, description = f"{e_mail} is not registered!" )

customer_id = credentials['CUSTOMER_ID']
database_password = credentials['PASSWORD']

if password == database_password:
    cursor.execute('' DELETE FROM USER_SESSIONS WHERE CUSTOMER_ID = %s ;'',(customer_id,) )
    session_token = uuid.uuid4().hex # get uuid as it's hex
    session_expire_time = datetime.datetime.now() + datetime.timedelta(minutes=30)
    cursor.execute(''
        INSERT INTO USER_SESSIONS (CUSTOMER_ID,EXPIRES,TOKEN)
        VALUES ( %s,%s,%s ) ;'' ,
        (customer_id,session_expire_time,session_token) )

    flask.session['session_token'] = str(session_token)

return { "success":"authentication" }
```

2. Write a Review

The `write_review()` function inserts a review by valid users and only if that user has purchased that product.

```
connection = database.get_connection()
cursor = connection.cursor(dictionary=True)

cursor.execute( '''
INSERT INTO REVIEWS
(CUSTOMER_ID,PRODUCT_ID,REVIEW,RATING,DATE)
VALUES
(%s,%s,%s,%s,%s);
''',( customer_id , product_id , review_content,
      rating,
      datetime.datetime.now() ) )

return {"status":"success"}
```

3. Ask A Question

The ask_a_question() function asks any query by the user about any Product.

```
def ask_a_question(product_id):  
    json_data = flask.request.json  
  
    question = json_data['question']  
  
    customer_id = flask.g.customer_id  
  
    connection = database.get_connection()  
    cursor = connection.cursor(dictionary=True)  
  
    cursor.execute(''  
        INSERT INTO QnA  
        (CUSTOMER_ID,PRODUCT_ID,QUESTION,DATE)  
        VALUES  
        (%s,%s,%s,%s);  
        '' , ( customer_id , product_id , question ,  
            datetime.datetime.now() ) )  
  
    return {"status": "success"}
```

4. Change Cart Contents

The `change_cart()` function in `user.py` changes cart contents. it automatically deletes items from a user's cart if quantity becomes 0 or add into cart if it doesn't already exist.

```
cursor.execute(''' SELECT p.ID_NUMBER , c.QUANTITY from CARTS c,PRODUCT p
                    where c.CUSTOMER_ID = %s and c.PRODUCT_ID = %s and c.PRODUCT_ID = p.ID_NUMBER
                    for UPDATE
                    ;''',
               ( customer_id,product_id ) )

product_list = cursor.fetchone()

if operation == "add":
    if product_list:
        quantity = product_list['QUANTITY']+1
        cursor.execute(''' UPDATE CARTS SET QUANTITY = %s
                            where
                            CUSTOMER_ID = %s and PRODUCT_ID = %s ;''',
                       ( quantity, customer_id, product_id ) )
    else:
        quantity = 1
        #fetch details of product that is to be added
        cursor.execute(''' SELECT ID_NUMBER,PRICE,DISCOUNT,AVAILABILITY FROM
                            PRODUCT WHERE ID_NUMBER = %s ; ''',(product_id,))
        product_details = cursor.fetchone()
```

```
        cursor.execute(''' INSERT INTO CARTS
                            ( CUSTOMER_ID,PRODUCT_ID,PRICE,DISCOUNT,QUANTITY)
                            VALUES (%s,%s,%s,%s,%s) ;''',
                       ( customer_id,
                         product_id ,
                         product_details['PRICE'],
                         product_details['DISCOUNT'],
                         quantity,) )

elif operation == 'subtract':
    quantity = int( request_data['quantity'] ) -1
    if quantity > 0:
        cursor.execute(''' UPDATE CARTS SET QUANTITY = %s
                            where
                            CUSTOMER_ID = %s and PRODUCT_ID = %s ;''',
                       ( quantity, customer_id, product_id ) )
    elif quantity == 0:
        cursor.execute(''' DELETE FROM CARTS WHERE
                            CUSTOMER_ID = %s and PRODUCT_ID = %s ;''',
                       (customer_id,product_id) )

return {"status":"success"}
```

Schedules

Consider two transactions defined in store_search() and place_order() in store.py and user.py. For Product a, user order b, order table c, cart D

T1 : R(A)

T2 : W(B) -> R(C) -> R(A) -> W(A) -> R(C) -> W(C) -> W(D)

T1	T2
	W(B)
	R(C)
R(A)	
	R(A)
	W(A)
	R(C)
	W(C)
	W(D)

Precedence graph for this schedule will have one edge from T1 to T2 implying that this conflict is serialisable. We can swap (1,3) and turn this into a serial schedule.

This schedule is Conflict Serialisable

User Guide

1. SignUp

A user can create a new account from login screen. By using the signup switch to create a new account

Hyper Retail : Search

☐ Signup


E-mail
user@domain.com


NAME
USER


Password
••••••••


Address
address

SIGNUP

 Search

 Previous Orders

 Login

 Cart


2. Cart


Cart will show any items in a user's cart. A user is required to log in.


You Can place the order for your items by using place order button!


Hyper Retail : Your Cart

Product Name	Price	Discou
Total : 0		
<div>PLACE ORDER!</div>		

Search

Previous Orders

Logout





Cart

3. Previous Orders





This screen shows any previous orders with their details. Orders will not show if user is not logged in.

Invoice of this order can be found by clicking on order id.

Hyper Retail : Your Orders			
Order ID	Time Placed	Items Ordered	Total
10006	Tue, 25 Apr 2023 22:31:21 GMT	4	11262.900000

 Search  Previous Orders  Logout  Cart

Hyper Retail : Your Orders					
Product Name	Price	Discount	Quantity	Net Price	Gross
acer monitor	19667.25	84	2	6293.520000	39334.50
acer bag	2700.75	8	2	4969.380000	5401.50
Total : 44736.00					
Net Price : 11262.900000					

 Search  Previous Orders  Logout  Cart

4. Search For Items

Hyper Retail : Search

Search
shoes

Sort By:
☒ NAME ☐ PRICE ☐ DATE ADDED

Name	Price	Discount	Categ
<div>+</div> <div>AGATHARUIZDELAPRADA SHOES</div>	3474.75	18%	APPA
<div>+</div> <div>ALASKAORIGINALE SHOES</div>	1641.00	75%	APPA
<div>+</div> <div>ALPINA SHOES</div>	16506.00	37%	APPA
<div>+</div> <div>ARA SHOES</div>	10907.25	59%	APPA
<div>+</div> <div>ATOMIC SHOES</div>	19286.25	50%	APPA
<div>+</div> <div>ATRAI SHOES</div>	8976.75	64%	APPA
<div>+</div> <div>BABYBOTTE SHOES</div>	2568.00	3%	APPA
<div>+</div> <div>BADEN SHOES</div>	2085.00	92%	APPA
<div>+</div> <div>BARATTO SHOES</div>	3165.75	54%	APPA
<div>+</div> <div>BETSY BALLET_SHOES</div>	3299.25	2%	APPA

< 1 >

Search

Previous Orders

Logout

Cart

This screen lets a user search for items that are similar in name with search text. They can sort results by name , price or by date added. If they are logged in then they can also add items to their cart by clicking the + . Users can navigate through multiple results by using arrows.

5. Item Page

Hyper Retail :

Item : acer monitor
Price : 19667.25
Discount : 84%
Category : COMPUTERS

[ASK A QUESTION](#)[WRITE A REVIEW!](#)

Reviewed by : B

Reviewed on : Tue, 25 Apr 2023 22:38:33 GMT

Great Product!

Asked by: Amie Will

on Tue, 13 Sep 2022 10:38:38 GMT

Question : Will you, won't you, will you, old fellow?" The Mock Turtle repeated thou...

Answer : There was a body to cut it off from: that he had to be done, I wonder?" As she said to Alice.

Asked by: Zetta Leuschke

on Thu, 11 Aug 2022 00:23:46 GMT

Question : Hatter with a great deal too flustered to tell me who YOU are, first.' 'Wh...


Answer : She hastily put down yet, before the end of your nose-- What made you so awfully clever?" 'I have.


Asked by: Loma Russel


on Wed, 03 Aug 2022 23:33:21 GMT


Question : She pitied him deeply. 'What is it?' 'Why,' said the Lory positively refuse...

Answer : However, she soon found out a history of the house, "Let us both go to on the twelfth?" Alice went.

 Search

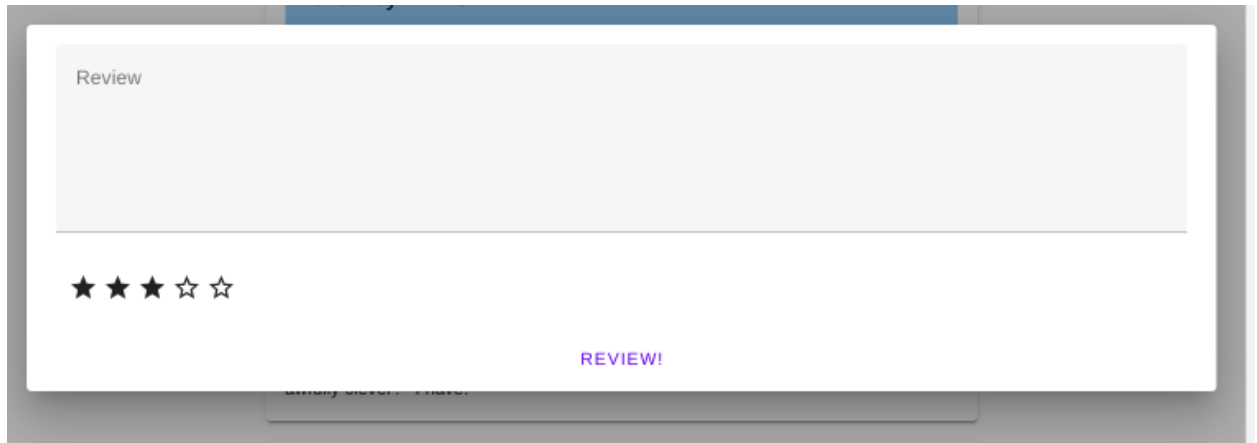
 Previous Orders

 Logout

 Cart

Item page show details about one specific item. It shows reviews by users and any QnAs about it.

6. Write a Review



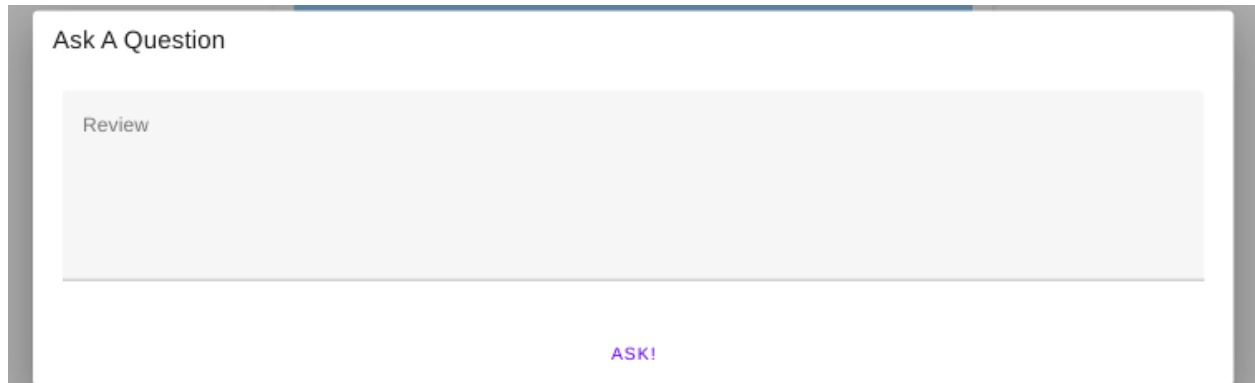
Review

★★★★☆

REVIEW!

Users can write a review about a product but only if they are logged in and have purchased that product before.

7. Ask a Question



The screenshot shows a web form titled "Ask A Question". It features a large, light gray rectangular text area for input. Above this area, the word "Review" is displayed in a small, gray font. Below the text area, centered horizontally, is a purple button with the text "ASK!" in white capital letters. The entire form is enclosed in a thin gray border.

Users can ask a question about any product to resolve their doubts.

Setup

This Application requires a python virtual environment with packages listed in requirements.txt

And it also requires a 'lighttpd' web server with its configuration.