

Project Functionality

InOrder project serves as the backend database of an application for managing products, inventory, customers and orders for an online store.

To simplify the project design, several assumptions are taken.

Assumption(1)

we limit business region of the e-commerce website to be North America only. If a customer enters an address outside Canada, United States or Mexico, it would be considered as invalid.

Assumption(2)

we limit the number of records per each order to 3, due to SQL's lacking of ability of handling parameters with variable length.

Assumption(3)

when calculating tax, we only take state tax rate into consideration (no county tax or category tax are considered). Fourthly, if the e-commerce website decided to do promotion, there is only one type of promotion: get \$50 off when spending \$300 more.

Assumption(4)

We introduced the function backorder, so that customers are still able to make orders of the popular sold-out products

InOrder project evolves 8 tables, which are Product, InventoryRecord, PriceHistory, Orders, OrderRecord, Promotion, Customer, NorthAmericaStates. Details for each table will be elaborated in project design section.

Functionality Summary

Our database provides functionality to both customers and the merchant.

For customers, the following functions are supported:

1. Create account
2. Search product by product name
3. View all listed products
4. View price history
5. Create order
6. Calculate order price
7. Apply promotion
8. Finalize order price
9. Cancel order
10. View history orders
11. View order details

For the merchant, the following functions are supported:

1. Create product
2. Update inventory units
3. Update pre order units
4. Update price
5. Update discount
6. List product
7. Unlist product
8. Unlist product if not available
9. Check inventory
10. Read all product inventory
11. Read inventory with inventory range

12. Update shipment date
13. Calculate total revenue

Customer Oriented Functionality

As a customer, he/she can do the following operations:

- (1) create an account on the e-commerce website. The createCustomer procedure will automatically check the input country and state with another NorthAmericaStates table, and make sure the input is valid.
- (2) Once logged in, the customer can search on the e-commerce website by product name. The backend will display the customer corresponding product, product description, price and discount.
- (3) If the customer does not have a specific shopping list, he/she can view all listed products.
- (4) View price history (with time range specified) is a feature customers can utilize to get better informed of product price.

Once the customer has moved his stage into placing order, functions about orders come into place.

- (5) The customer can create an order with several products. The procedure will help check product inventory first. If available inventory is less than the requested number, transaction will roll back.
- (6) Next follows calculate order price function.
- (7) If there is a promotion eligible, the promotion trigger will be invoked and the order id will be added to Promotion table.
- (8) Finally, finalize order price based on product price, promotion and state tax.

If the customer is not satisfied with the order,

- (9) he/she can also cancel the order.

A customer can also

- (10) view his/her history orders and
- (11) view each order details.

Merchant Oriented Functionality

On the merchant end, business logic starts with

- (1) creating a new product.
- The merchant also need to make modifications to the inventory table to
- (2) update inventory units
 - (3) update pre order units
 - (4) update price
 - (5) update discount

Once a product is successfully created,

- (6) listing the product is the next step to take to make it viewable to customers.
 - (7) The opposite function unlist product is also provided in case the merchant wants to hide some products.
- The unlist product procedure is also embedded in a trigger unlistProductIfNotAvailable.
- (8) If a product does not have inventory units or pre order units, the product will be unlisted.
 - (9) Merchant can also check inventory information by using readProductInventory(if listed) or (10) readAllProductInventory or
 - (11) readInventorySpecifyingUnit.

When an order is ready for shipping,

(12) the merchant is able to update shipment date.

If the merchant is interested in the website's total revenue in a given time period.

(13) Procedure calculateTotalRevenue can be utilized.