Online Shopping Project Requirement

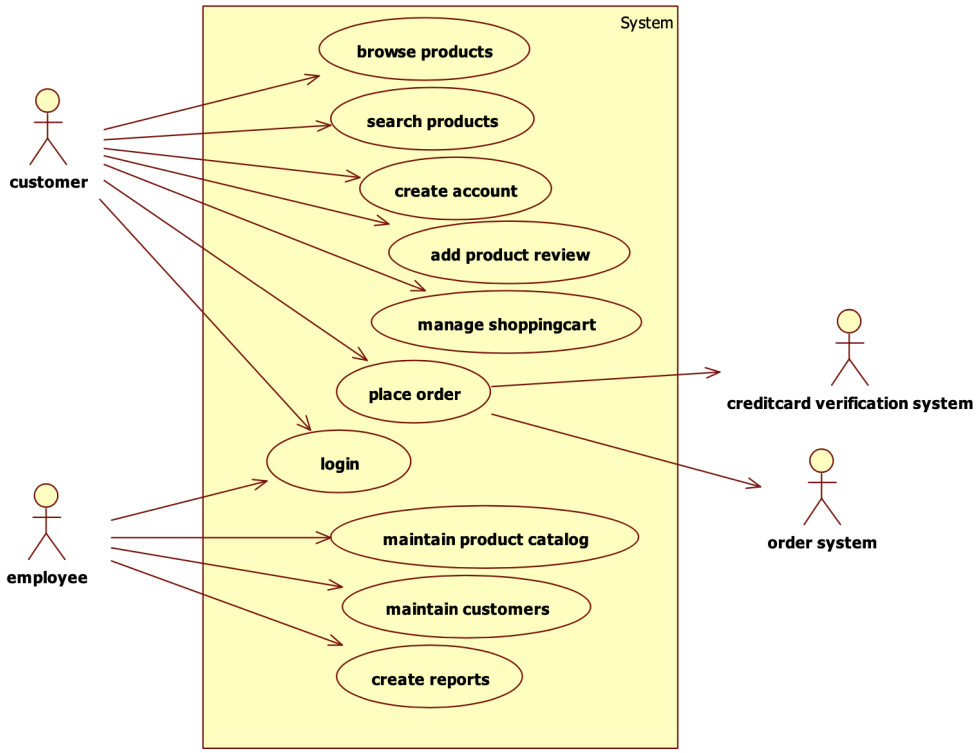
An online shopping system must be able to store information about the customers who register on the site and place orders. It must also store information about the products available for purchase, indicating price and stock data for each product. Customers must be able to have a shopping cart, where the products they choose from the catalog are stored before the customer is ready to place their order. In turn, each customer should be able to maintain a wish list (i.e. a list of products that they are interested in purchasing) without having yet included them in a shopping cart. When the customer confirms an order, the data model must be able to record the order data as well as payment and shipping information.

- **The majority of online shopping data models, the following entities can be found:**
  - Customer: This entity represents the customers who create an account to place orders on the online shopping platform.
  - Product: Represents the set of products available for purchase on the platform.
  - Category: Categories in which the products are grouped.
  - Order: Product orders placed by customers.
  - Order_item: Each item that is part of an order.
  - Payment: The payment made by the customer once the order is completed.
  - Shipment: Shipping information associated with an order, including delivery address and tracking information.
  - Cart: The customer's virtual basket or shopping cart, which stores items before they are purchased and become part of an order.
  - Wishlist: Stores items chosen by the customer for possible future purchases.

- **The relationships between the entities are as follows:**
  - A customer can place several orders. Therefore, between Customer and Order there must be a one-to-many relationship.
  - An order can contain one or several items, each of which represents a single product. Order_Item is a dependent entity of Order, since it has no reason to exist if an order does not exist. In addition, Order_Item is related to Product through a one-to-many relationship: each Order_Item is related to one Product, and a Product can be related to multiple Order_item
  - An order is associated with one payment and one shipment, but each payment and each shipment can include multiple orders. For this reason, there are one-to-many relationships between Payment and Order and between Shipment and Order.
  - A product can belong to a single category: there is a one-to-many relationship between Product and Category.

- The shopping cart and the wish list are dependent entities of Customer, so both Cart and Wishlist maintain a dependency relationship with Customer. In turn, each instance of Cart and of Wishlist is related to a product, so both entities have many-to-one relationships with Product.

Use case diagram:



Use case scenarios

Manage shopping cart

Add product

1. The system shows a product
2. The customer adds the product to shoppingcart
3. The system shows the current shoppingcart

Remove product

1. The system shows the shoppingcart
2. The customer removes a product from the shoppingcart

3. The system shows the updated shoppingcart

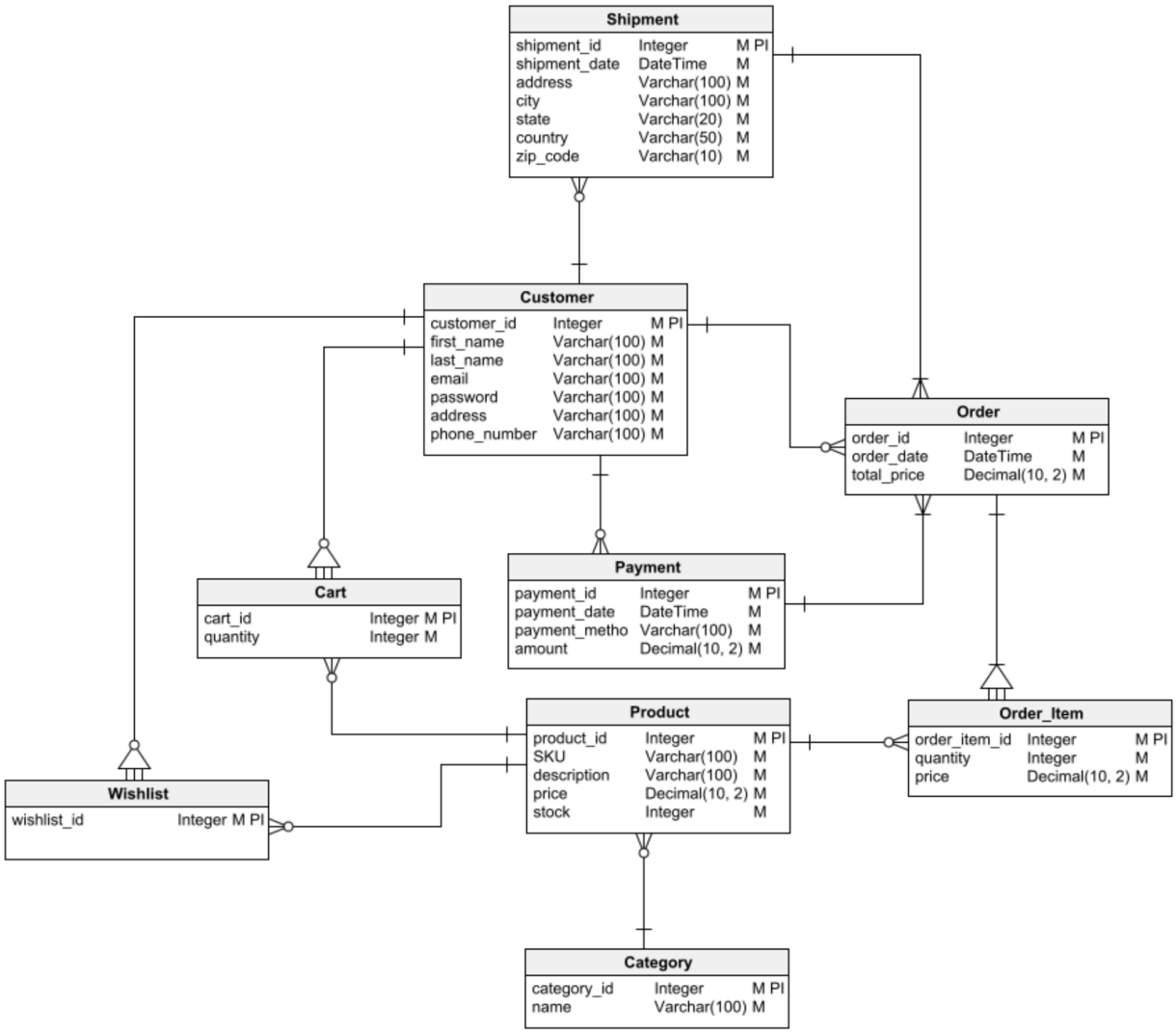
Change quantity

1. The system shows the shoppingcart
2. The customer changes the quantity of a certain product
3. The system shows the updated shoppingcart

Place an order

1. The system shows the current shoppingcart
2. The customer checks-out the shoppingcart
3. The system shows the order
4. The customer confirms the order
5. The system shows the address details
6. The customer confirms the address
7. The system shows the shipping options
8. The customer selects a shipping option
9. The system shows the available payment options
10. The customer chooses the creditcard payment option
11. The system sends the creditcard information for verification to the creditcard verification system
12. The creditcard verification system notifies that the creditcard information is correct
13. The system shows the complete order
14. The customer confirms the order
15. The system sends the order to the ordersystem
16. The system sends a confirmation email to the customer

ERD Diagram:


Shipment
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state Varchar(20) M
country Varchar(50) M
zip_code Varchar(10) M
Customer
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last_name Varchar(100) M
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password Varchar(100) M
address Varchar(100) M
phone_number Varchar(100) M
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Product
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quantity Integer M
price Decimal(10, 2) M
Wishlist
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Category
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name Varchar(100) M