

Worksheet 2.4

Student Name: Rahul Maurya

Branch: CSE

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Subject Name: Software Engineering LAB

UID: 20BCS7260

Section/Group: 716 B

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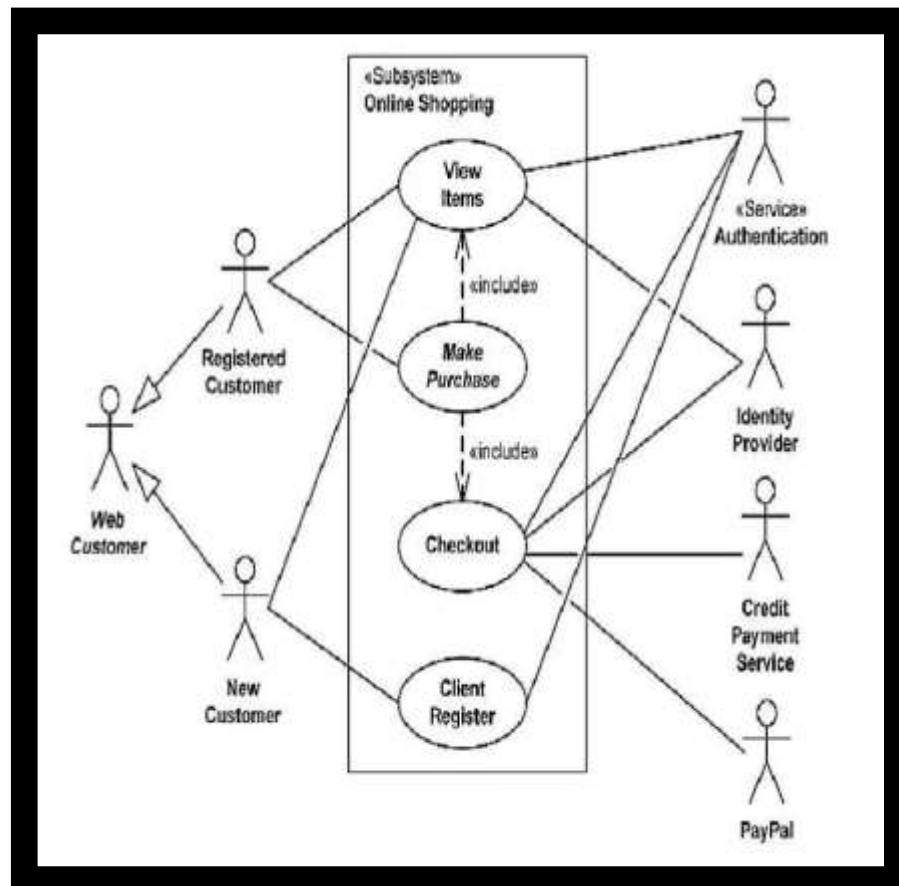
Q2. Design a class diagram for following scenario

Online shopping domain model

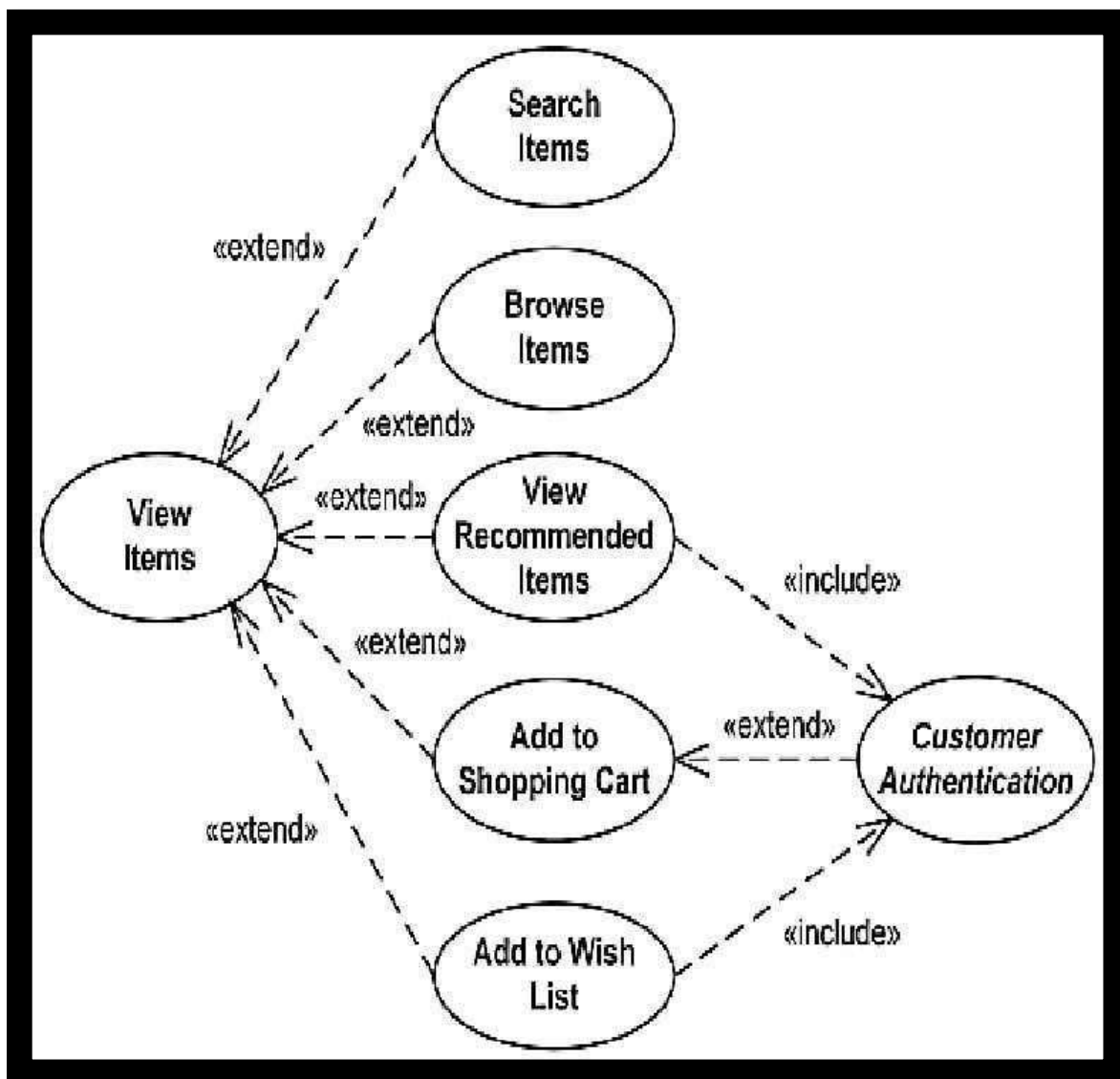
Purpose: Show some domain model for online shopping - Customer, Account, Shopping Cart, Product, Order, Payment.

Summary: Example of a UML class diagram representing online shopping domain. Each customer could have some web user identity. Web user could be in one of several states and could be linked to a shopping cart.

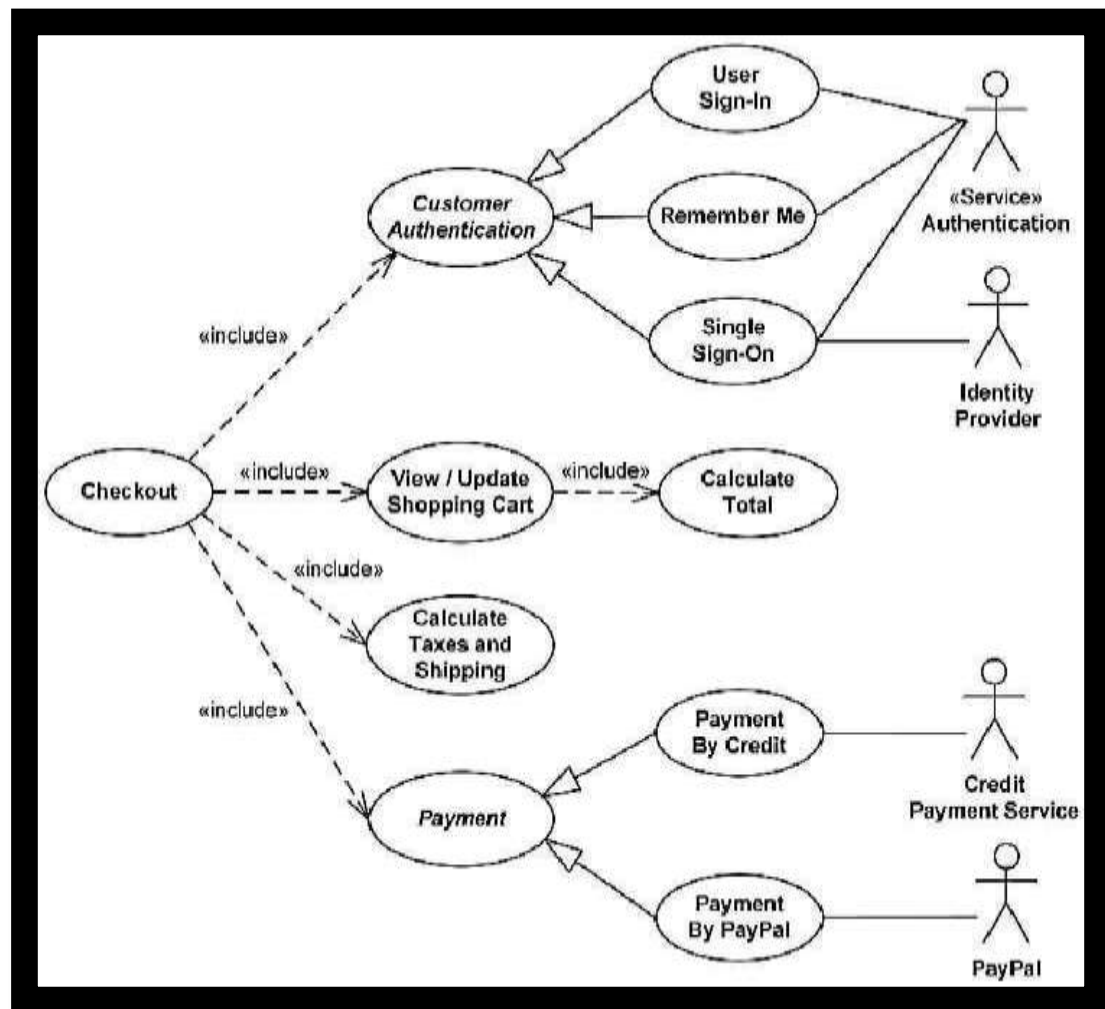
Ans: - Web Customer actor uses some web site to make purchases online. Top level use cases are View Items, Make Purchase and Client Register. View Items use case could be used by customer as top-level use case if customer only wants to find and see some products. This use case could also be used as a part of Make Purchase use case. Client Register use case allows customer to register on the web site, for example to get some coupons or be invited to private sales. Note, that Checkout use case is included use case not available by itself - checkout is part of making purchase. Except for the Web Customer actor there are several other actors which will be described below with detailed use cases.



View Items use case is extended by several optional use cases – customer may search for items, browse catalog, view items recommended for him/her, add items to shopping cart or wish list. All these use cases are extending use cases because they provide some optional functions allowing customer to find item. Customer Authentication use case is included in View Recommended Items and Add to Wish List because both require the customer to be authenticated. At the same time, item could be added to the shopping cart without user authentication.

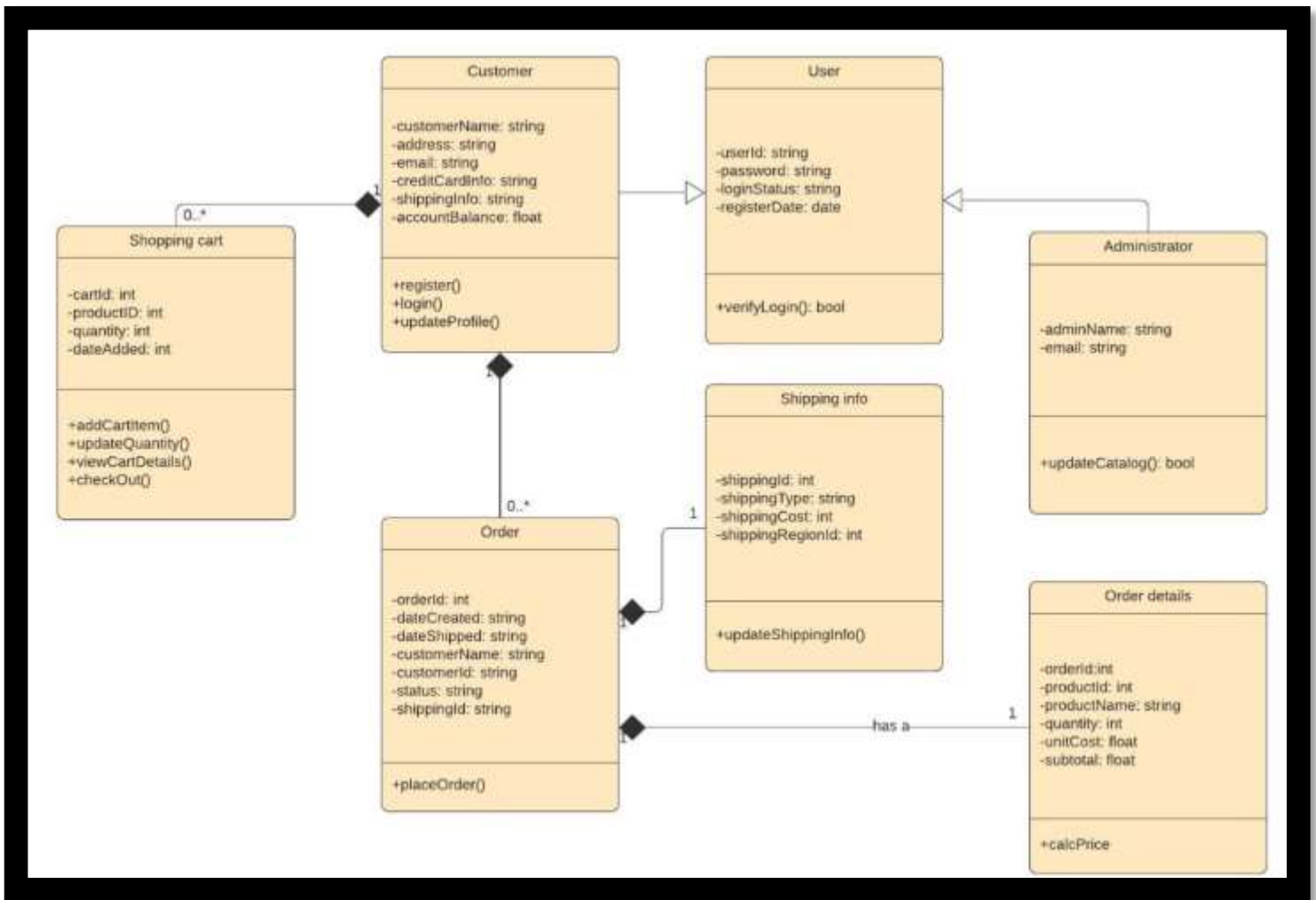


Checkout use case includes several required uses cases. Web customer should be authenticated. It could be done through user login page, user authentication cookie ("Remember me") or Single SignOn (SSO). Web site authentication service is used in all these use cases, while SSO also requires participation of external identity provider. Checkout use case also includes Payment use case which could be done either by using credit card and external credit payment service or with PayPal.



Here we provide an example of UML class diagram which shows a domain model for online shopping. The purpose of the diagram is to introduce some common terms, "dictionary" for online shopping - Customer, Web User, Account, Shopping Cart, Product, Order, Payment, etc. and relationships between. It could be used as a common ground between business analysts and software developers.

Each customer has unique id and is linked to exactly one account. Account owns shopping cart and orders. Customer could register as a web user to be able to buy items online. Customer is not required to be a web user because purchases could also be made by phone or by ordering from catalogues. Web user has login name which also serves as unique id. Web user could be in several states - new, active, temporary blocked, or banned, and be linked to a shopping cart. Shopping cart belongs to account.



This figure shows Online Shopping domain UML Class Diagram: -

Account owns customer orders. Customer may have no orders. Customer orders are sorted and unique. Each order could refer to several payments, possibly none. Every payment has unique id and is related to exactly one account.

Each order has current order status. Both order and shopping cart have line items linked to a specific product. Each line item is related to exactly one product. A product could be associated to many line items or no item at all.

