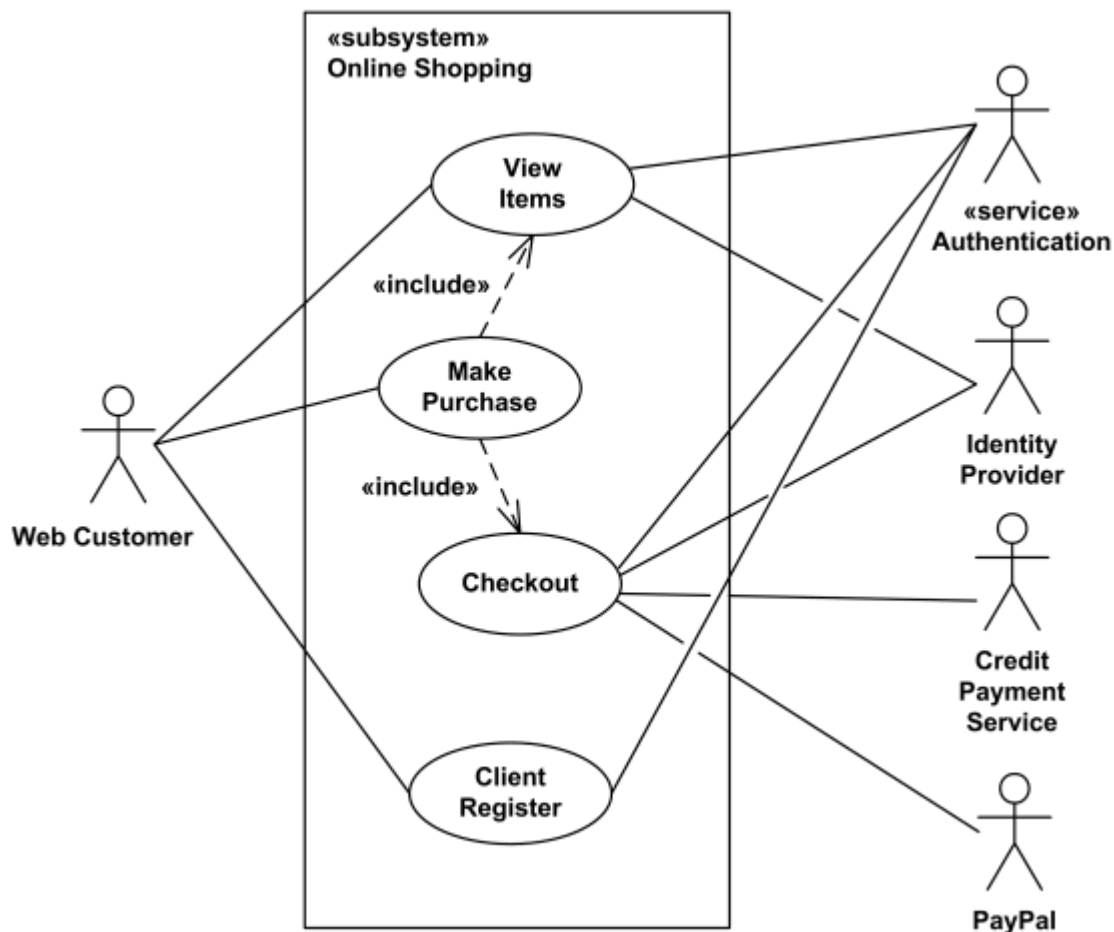


# Online Shopping UML Examples

## 1 Use Cases

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.

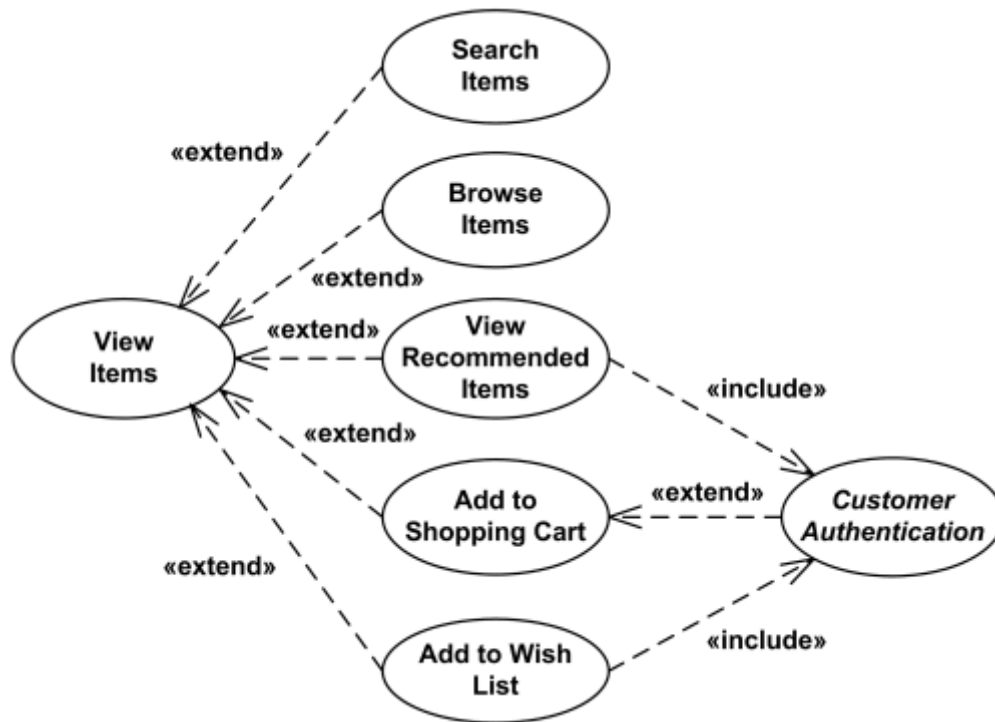
Except for the **Web Customer** actor there are several other actors which will be described below with detailed use cases.



Online Shopping - Top Level 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.

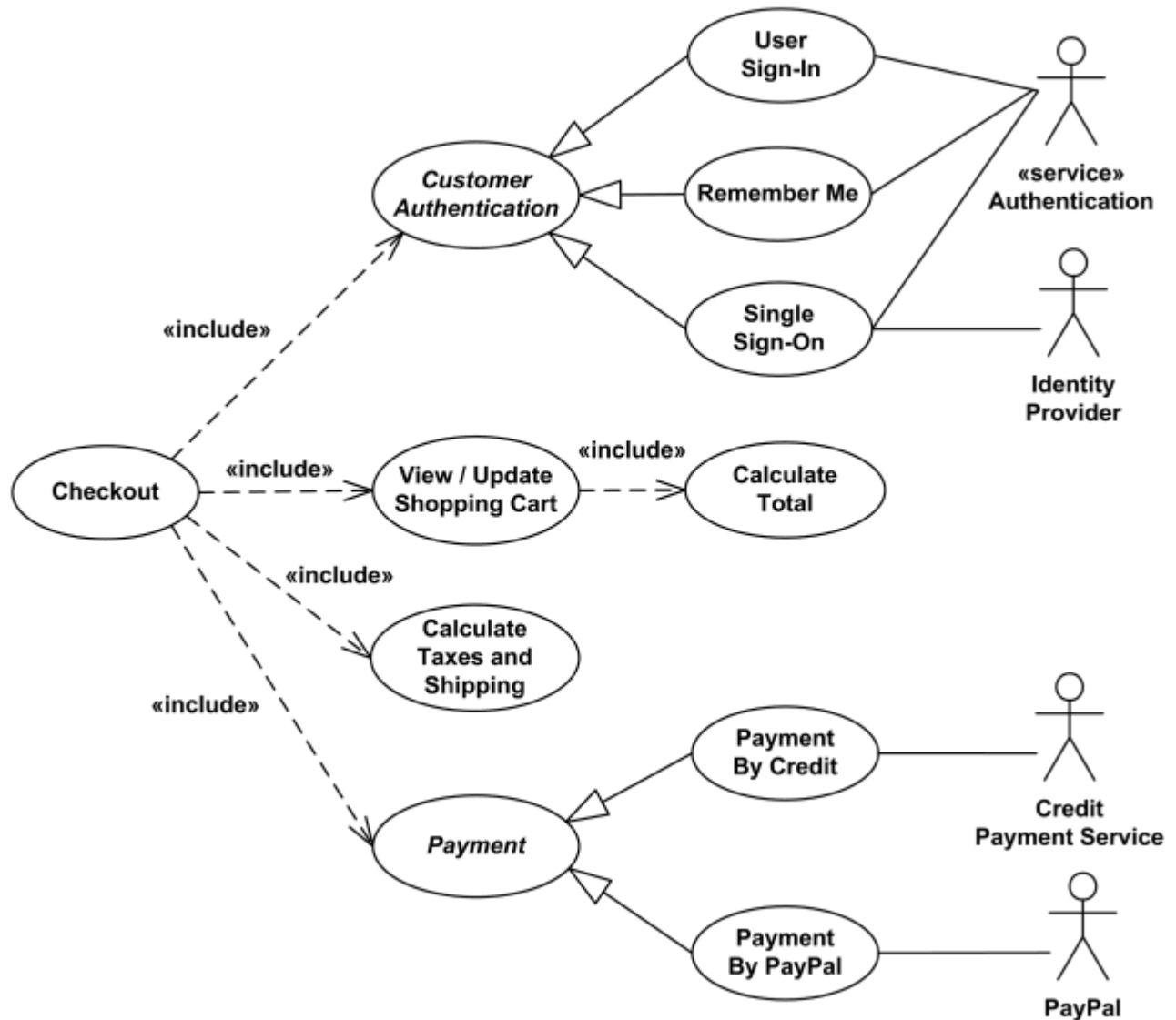
Customer Authentication use case is included in View Recommended Items and Add to Wish List because both require customer to be authenticated. At the same time, item could be added to the shopping cart without user authentication.



Online Shopping - View Items Use Case

**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 Sign-On (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.



Online Shopping - Checkout, Authentication and Payment Use Cases

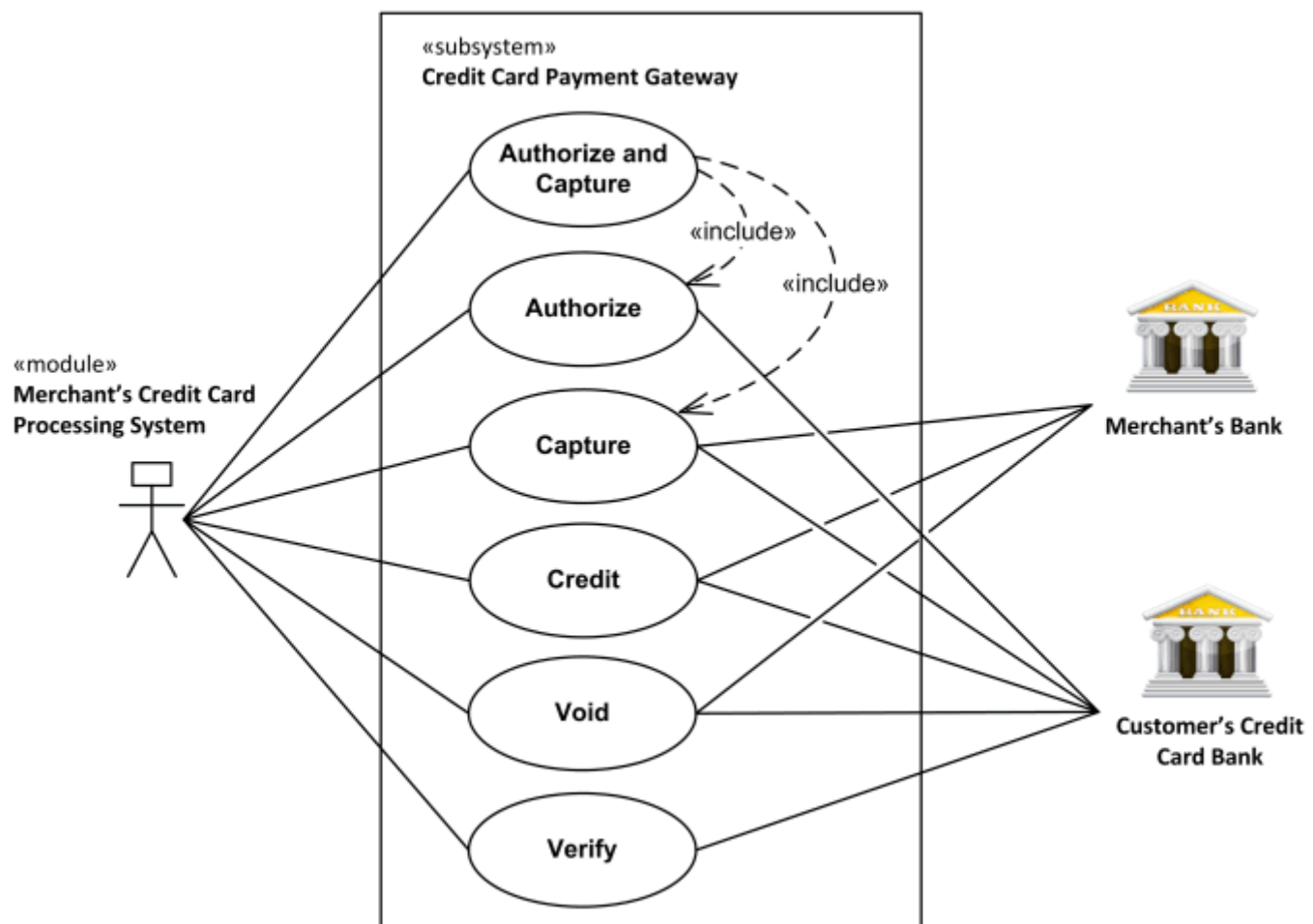
## 1.1 Credit Card Processing System Use Cases

In this use cases example, Credit Card Processing System (Credit Card Payment Gateway) is a subject, i.e. system under design or consideration. Primary actor of the system is the Merchant's Credit Card Processing System. The merchant submits a credit card transaction request to the credit card payment gateway on behalf of a customer. Bank which issued customer's credit card is actor which could approve or reject the transaction. If transaction is approved, funds will be transferred to merchant's bank account.

Authorize and Capture use case is the most common type of credit card transaction. The requested amount of money should be first authorized by Customer's Credit Card Bank, and if approved, is further submitted for settlement. During the settlement funds approved for the credit card transaction are deposited into the Merchant's Bank account.

In some cases, only authorization is requested and the transaction will not be sent for settlement. In this case, usually if no further action is taken within some number of days, the authorization expires. Merchants can submit this request if they want to verify the availability of funds on the customer's credit card, if item is not currently in stock, or if merchant wants to review orders before shipping.

Capture (request to capture funds that were previously authorized) use case describes several scenarios when merchant needs to complete some previously authorized transaction - either submitted through the payment gateway or requested without using the system, e.g. using voice authorization.



Credit Card Processing System Use Cases.

**Credit** use case describes situations when customer should receive a refund for a transaction that was either successfully processed and settled through the system or for some transaction that was not originally submitted through the payment gateway.

**Void** use case describes cases when it is needed to cancel one or several related transactions that were not yet settled. If possible, the transactions will not be sent for settlement. If the Void transaction fails, the original transaction is likely already settled.

**Verify** use case describes zero or small amount verification transactions which could also include verification of some client's data such as address.