

# FINAL PROJECT

## Design Elements Review Report



FACULTY OF ENGINEERING AND APPLIED SCIENCE

**SOFE 2720U**

**Principles of Software & Requirements**

**Ontario Tech University**

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### III. INTRODUCTION

The purpose of this report is to review the behavioral models of the online shopping system for ADJ Tech Shop. The models created for this project include a class diagram, two sequence diagrams with different scopes (system and class level), and a state diagram of the principal class.

## IV. CLASS DIAGRAM

Use cases are a powerful tool in helping construct the system architecture. The extraction of noun phrases, objects, attributes, and actors can allow one to recognize the components involved in the system and how they relate to one another. Below is a sample class model extraction featuring the customer review use case.

### Customer Review

Users with a registered account are able to place reviews for products that they have purchased. Prior to a customer posting a review for a particular product it is made certain that the user has successfully received the product. This authenticates the review being posted.

Attributes included within the review include:

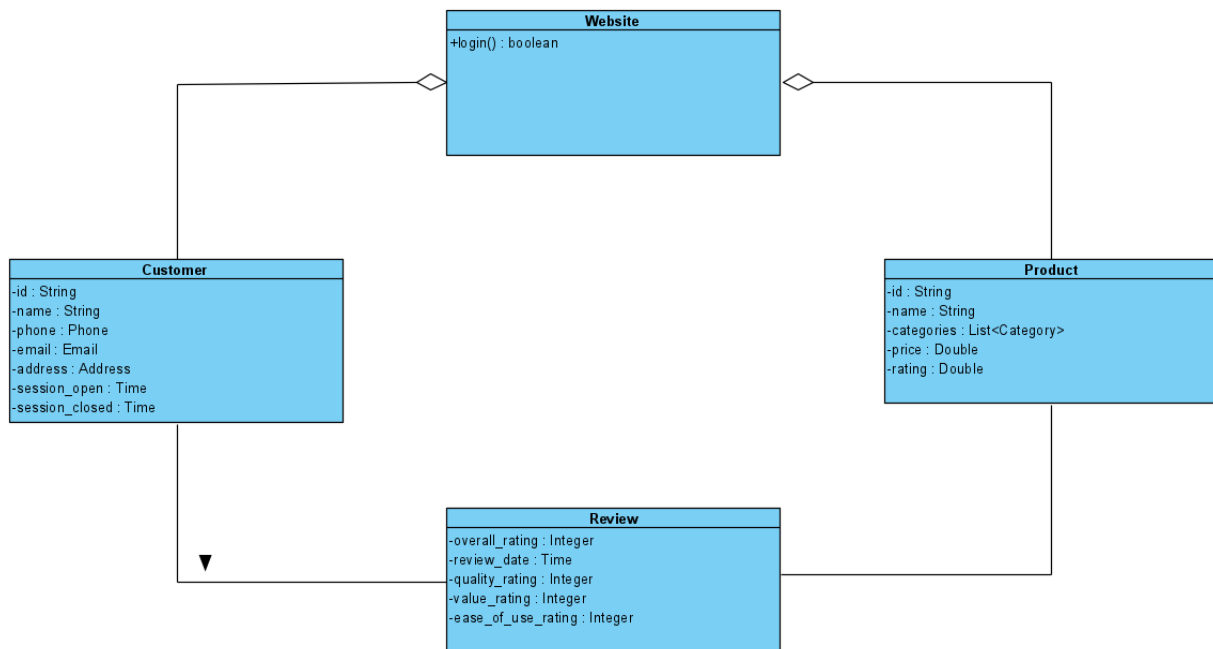
- Customer name — the name that is associated with the account being used
- Customer ID — the ID that is associated with the account being used
- Product name — the name of the product that the review is being written for
- Product ID — the ID of the product that the review is being written for
- Date of review — the date that the review is posted
- Product review — opinions the user has to offer about the product
- Product rating — overall rating from one to five regarding the product.
  - Customers can specify parameter values for:
    - Quality — the measurement of a product's standards
    - Value — benefit that a customer gets by using a product
    - Ease-of-Use — overall usability of a product

The customer has access to delete any reviews that they have posted.

Noun Phrases	Object	Attribute	Actors	Irrelevant
Website, Product, Account, Review	Important Concepts			
Customer			Important Actor	
Customer name, Customer ID		Attributes of Account		
Product Name, Product		Attributes of		

ID, Product Review		Product		
Overall Rating, Date of Review, Quality Rating, Value Rating, Ease of Use Rating		Attributes of Review		
Registered Account		Attribute of Website		
opinions, date, access, measurement, usability, standard, benefit				Irrelevant Terms

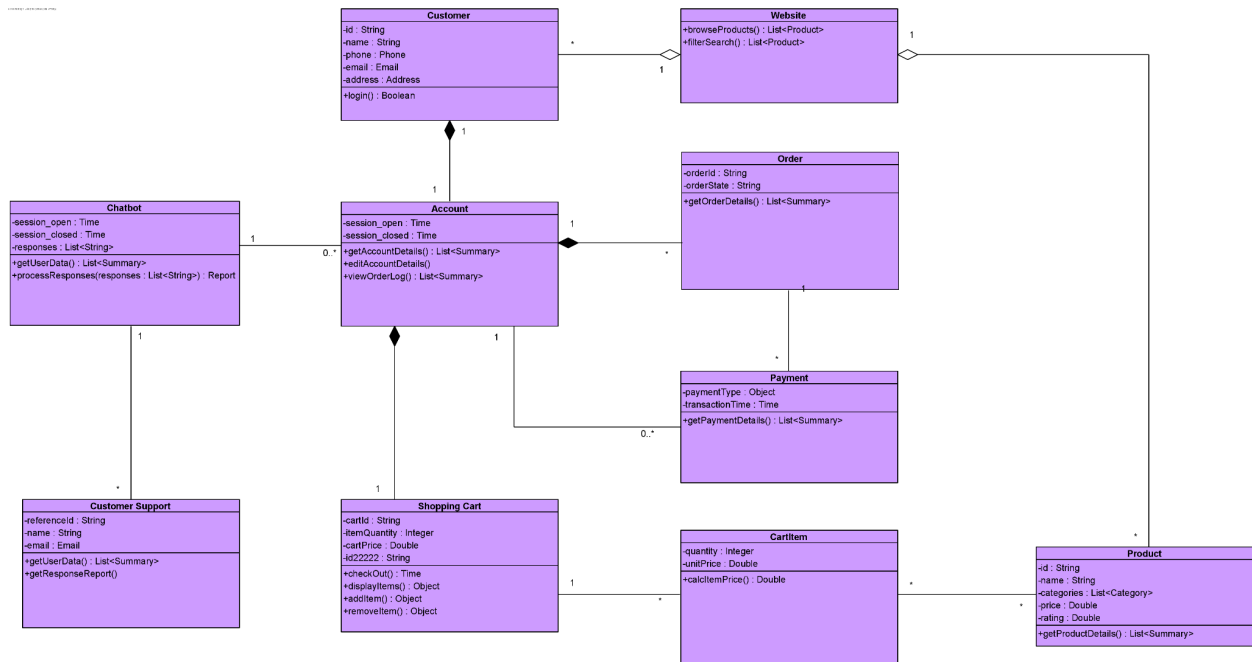
Attribute	Primitive/Object	Corresponding Classes
Customer Name	Primitive	Account
Customer ID	Primitive	Account
Product Name	Primitive	Product
Product Review	Object	Product
Overall Rating	Primitive	Review
Date of Review	Primitive	Review
Quality Rating	Primitive	Review
Value Rating	Primitive	Review
Ease-of-Use Rating	Primitive	Review
Registered Account	Object	Website



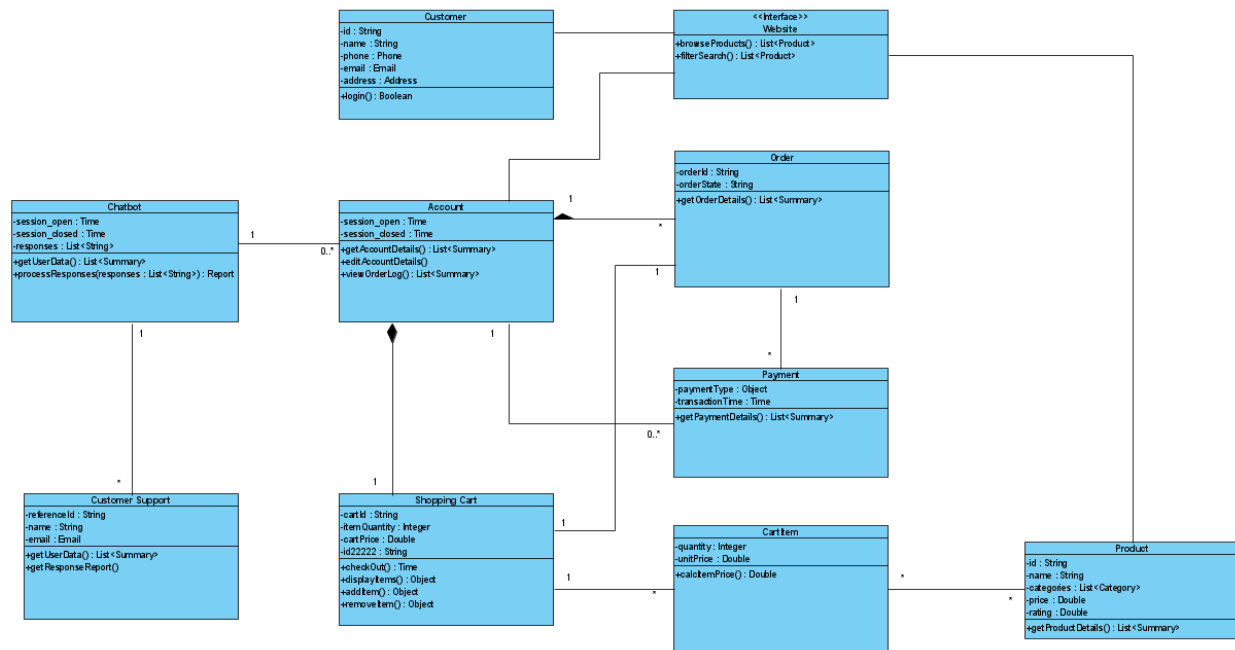
A brief description of the classes is provided:

Class	Description
Website	A system that allows for a user to purchase and review physical goods and services.
Account	A component of the website that is used to store and maintain user data and records.
Product	A component of the website that contains specifications of physical goods.
Review	A customer-created rating of a particular product purchased on the website.

By analyzing use cases, one is able to derive most of the required classes that capture the system's features. The figure below is a representation of the system after analyzing all the use cases that were created.



Some constructive criticism was provided after the project presentation regarding the class diagram, after which the relationships between classes were carefully reviewed and modified.



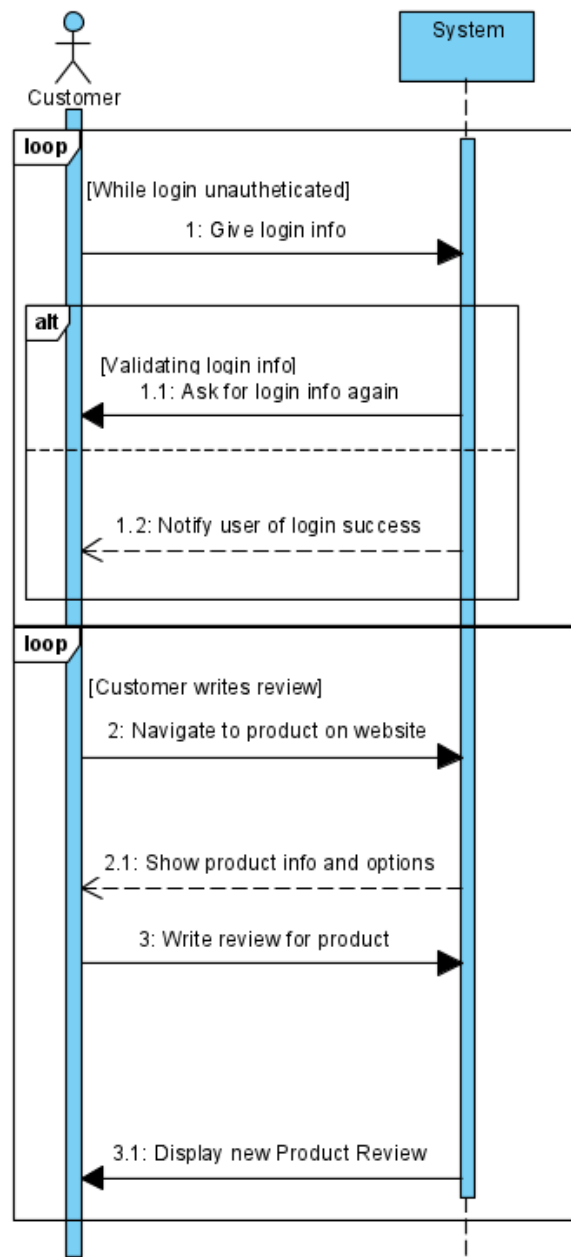
(See “Conceptual Data Architecture Class Diagram.png” in the Design folder for easier readability)



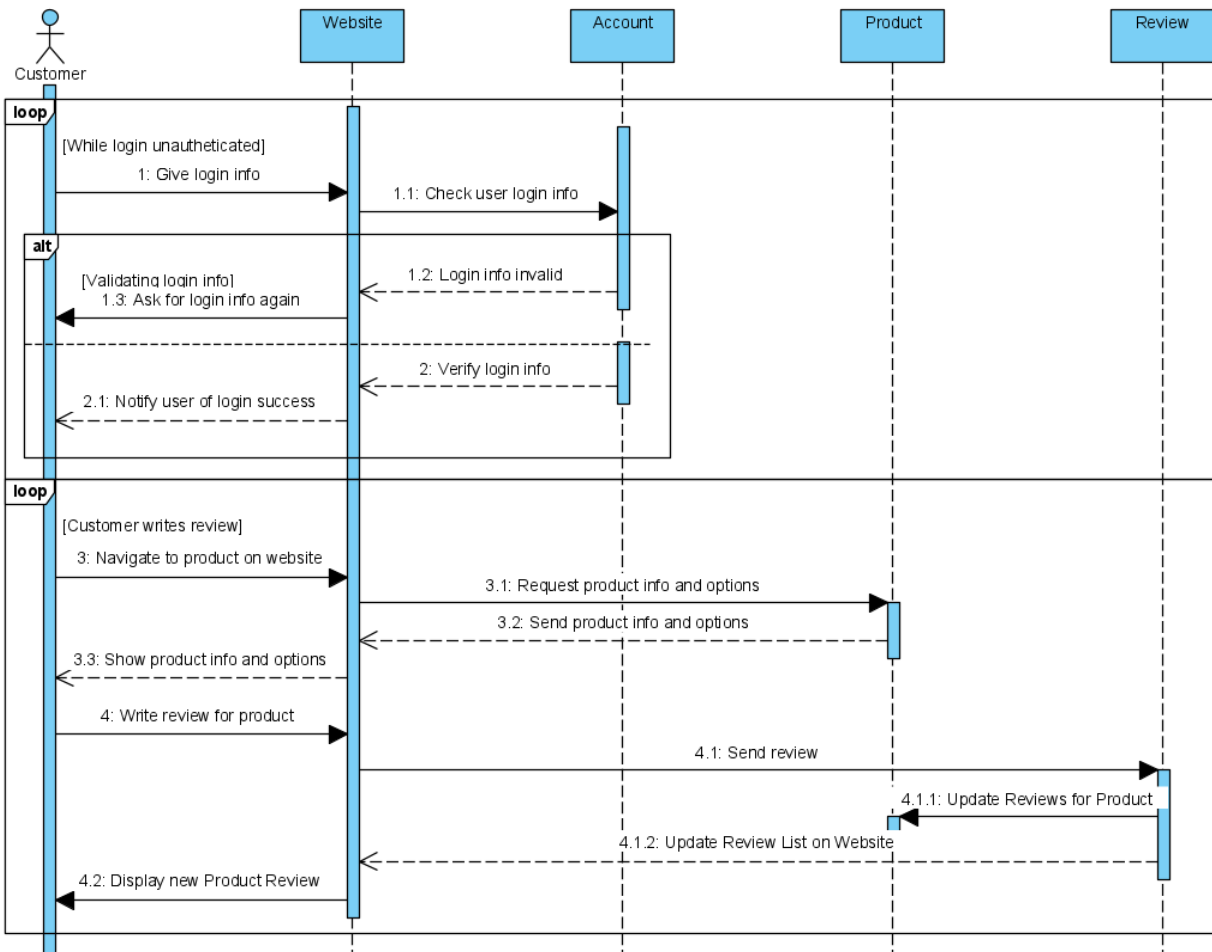
## V. SEQUENCE DIAGRAM

The figures below are the sequence diagrams used to feature the user's interaction with the system. The first figure is a system-level design whose structure represents that of a “black-box” system, while the second figure is a class-level design that shows how classes interact to complete an event.

### A. System Level Sequence Diagram

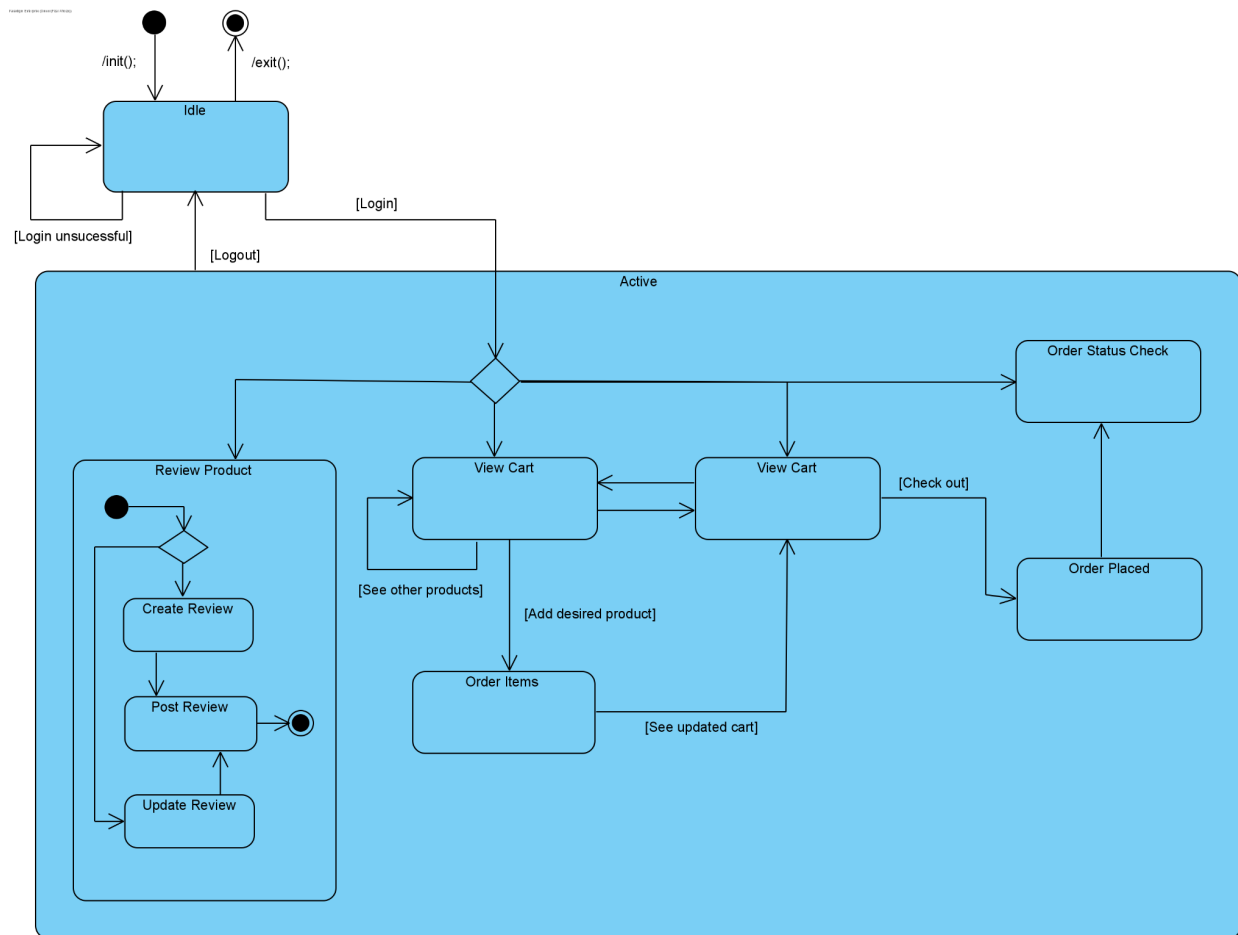


## B. Class Level Sequence Diagram



## VI. PRINCIPAL CLASS STATE DIAGRAM

The following figure is the state diagram for the principal class of the online shopping system, the Account class. When initialized, the account is in an idle state, since the user has not logged in yet. Once login is successful, the account state becomes active, and the user can perform operations on the account. The diagram below shows some of the states that the user can reach while in the active state.



The following diagram is an updated state diagram that captures most of the states that could occur for the Account class and how defining how states transition between one another.

