Report-Assignment 2

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Introduction

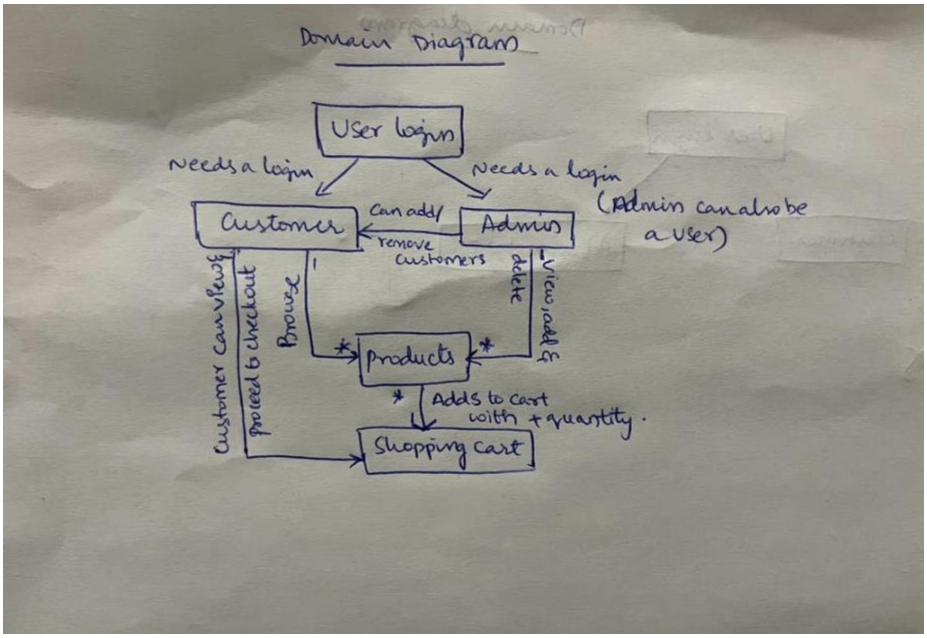
This report is to detail the design and implementation of a basic online store that meets the requirements specified by the client by using JavaRMI. The online store has browsing items, updating items, removing items, adding items, and purchasing items. Additionally, it supports user and administrator login and registration.

The system is constructed in Java, and it provides a customer-facing view as well as an administrator view.

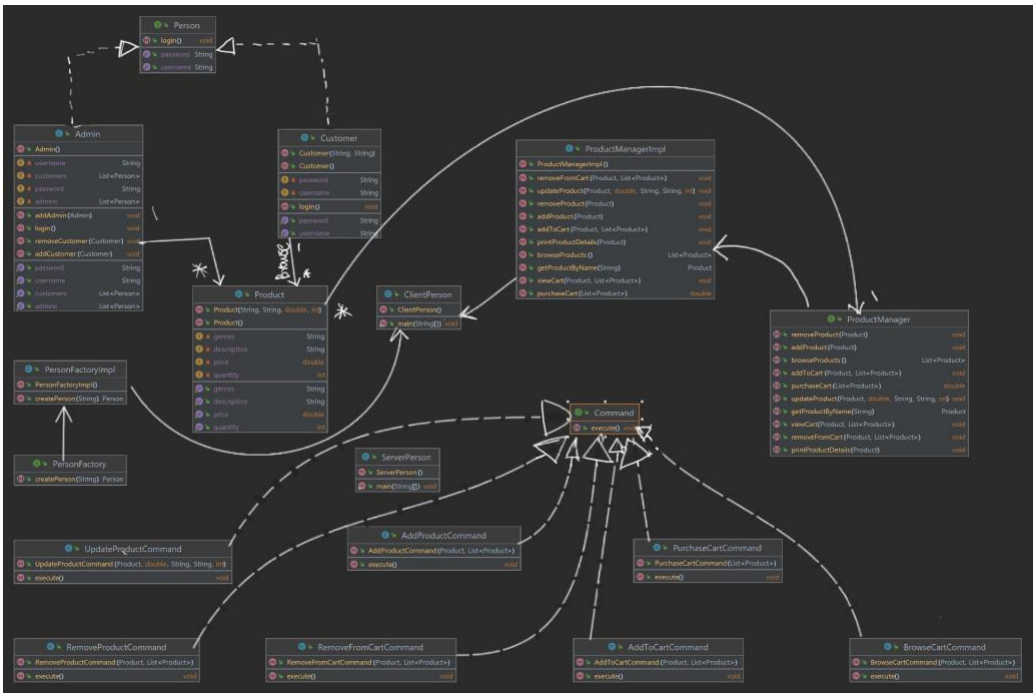
The purpose of this assignment is to familiarize ourselves with translating customer requirements to a domain model and identifying the classes, class responsibilities, and operations.

Domain Model and Class Diagram

The domain model is a conceptual representation of real-world entities and their relationships within the system.



The class diagram represents the classes, their attributes, and their relationships with one another.



Design
The design of this online store system consists of three main components: the server, the client, and the common objects.

Server
The server component is responsible for maintaining the state of the system and providing the business logic for the online store. The server is implemented using Java RMI, which allowed the client to communicate with the server and make remote method invocations.

The "PersonFactoryImpl" and "ProductManagerImpl" classes implement the "PersonFactory" and "ProductManager" interfaces respectively, which are defined in the "common" package.

Client
The client communicates with a remote server that provides access to a list of products and allows customers to browse through the products, add them to a cart, remove them from the cart, and purchase the items in the cart. This has both customer and Admin interfaces to manage.
Here, I used the PersonFactory and ProductManager interfaces, which are defined in the common package, to interact with the remote server.
PersonFactory- is used to create instances of the Customer and Admin classes.

ProductManager- is used to access and manage the product list.

Here, in the end, I have also created a JAR file.

Use Cases

1. User/Administrator: The user and administrator both will be able to register for an account and log in to their account. However, Administrators will also be able to add and remove customer and administrator accounts.

2. Browsing: The customer will be able to browse items in the store.

3. Updating: Administrators will be able to change the description, price, and quantity of an item in the system.

4. Delete: Administrators can delete items from the system.

5. Adding: Administrators can add new items to the system.

6. Purchasing: Customers can purchase items from the shopping cart. The system will prevent the customer from buying more items than are currently available.

Implementation

It is tested by running the program on JavaRMI by making a connection between Server and the Client.
Once, the connection is established, Select the desired option, and continue shopping.
Happy Shopping!

Results

Please find the below-attached screenshots of the results after securing the Client-Server connection:

1. Starting the server

```
scirimo@in-csci-rrpc02:~/assign2$ make server
java Server.ServerPerson
Server started
PersonFactory Object Created
Rebind Done!
ProductManager Object Created
Rebind Done!
Server running...
```

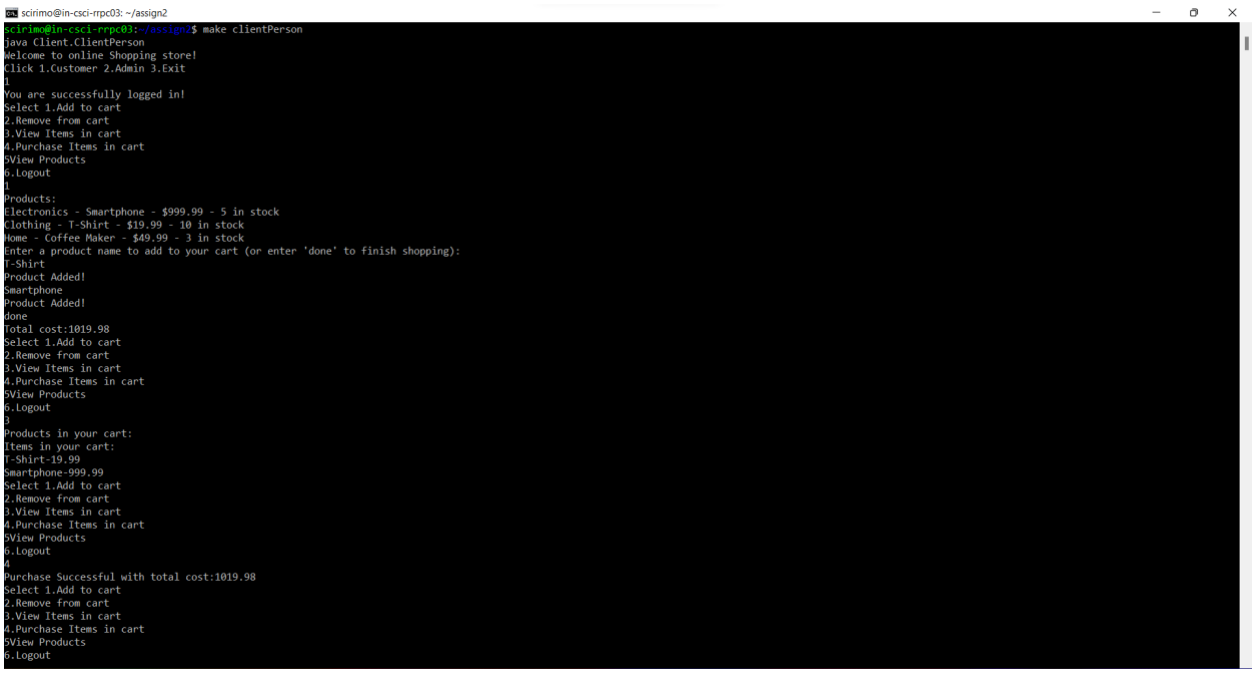
2. Testing on Client

```
scirimo@in-csci-rrpc03:~/assign2$ make clientPerson
java Client.ClientPerson
Welcome to online Shopping store!
Click 1.Customer 2.Admin 3.Exit
3
Thanks for visiting!
```

3. Test runs for all the options.

```
scirimo@in-csci-rrpc03:~/assign2$ make clientPerson
java Client.ClientPerson
Welcome to online Shopping store!
Click 1.Customer 2.Admin 3.Exit
1
You are successfully logged in!
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
```

```
scirimo@in-csci-rrpc03:~/assign2$ make clientPerson
java Client.ClientPerson
Welcome to online Shopping store!
Click 1.Customer 2.Admin 3.Exit
1
You are successfully logged in!
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
5
Products:
Electronics - Smartphone - $999.99 - 5 in stock
Clothing - T-Shirt - $19.99 - 10 in stock
Home - Coffee Maker - $49.99 - 3 in stock
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
```




```
Products in your cart:
Your cart is empty.
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
1
Products:
Electronics - Smartphone - $999.99 - 5 in stock
Clothing - T-Shirt - $19.99 - 10 in stock
Home - Coffee Maker - $49.99 - 3 in stock
Enter a product name to add to your cart (or enter 'done' to finish shopping):
T-Shirt
Product Added!
done
Total cost:19.99
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
2
Enter a product name to remove from the cart (or enter 'done' to finish shopping):
Product not found in cart.
T-Shirt
Product removed from cart.
done
Total cost:0.0
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
3
Products in your cart:
Your cart is empty.
Select 1.Add to cart
2.Remove from cart
3.View Items in cart
4.Purchase Items in cart
5View Products
6.Logout
```

```
scirimo@in-csci-rrpc03:~/assign2$ make clientPerson
java Client.ClientPerson
Welcome to online Shopping store!
Click 1.Customer 2.Admin 3.Exit
2
You are successfully logged in!
Select 1.view products
2.Add product
3.Remove product
4.Update product
5.Add admin
6.Add customer
7.Remove customer
8.Logout
1
Products:
Electronics - Smartphone - $999.99 - 5 in stock
Clothing - T-Shirt - $19.99 - 10 in stock
Home - Coffee Maker - $49.99 - 3 in stock
Select 1.view products
2.Add product
3.Remove product
4.Update product
5.Add admin
6.Add customer
7.Remove customer
8.Logout
2
Product Added
List of products:
Smartphone - 999.99
T-Shirt - 19.99
Coffee Maker - 49.99
des - 22.99
Select 1.view products
2.Add product
3.Remove product
4.Update product
5.Add admin
6.Add customer
7.Remove customer
8.Logout
3
Enter the product name to remove:
product name is not valid.
Select 1.view products
2.Add product
3.Remove product
```

Conclusion:

In conclusion, I designed and implemented a basic online store that meets the client's specifications. I identified the domain-level classes and attributes, created a domain model and class diagram, and developed the classes and use cases required to demonstrate a working Java RMI application. I've also included a client application that allows the user to interact with the system.