CSCI 4448 Project Final Report

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Project Name: Grocery Store Register

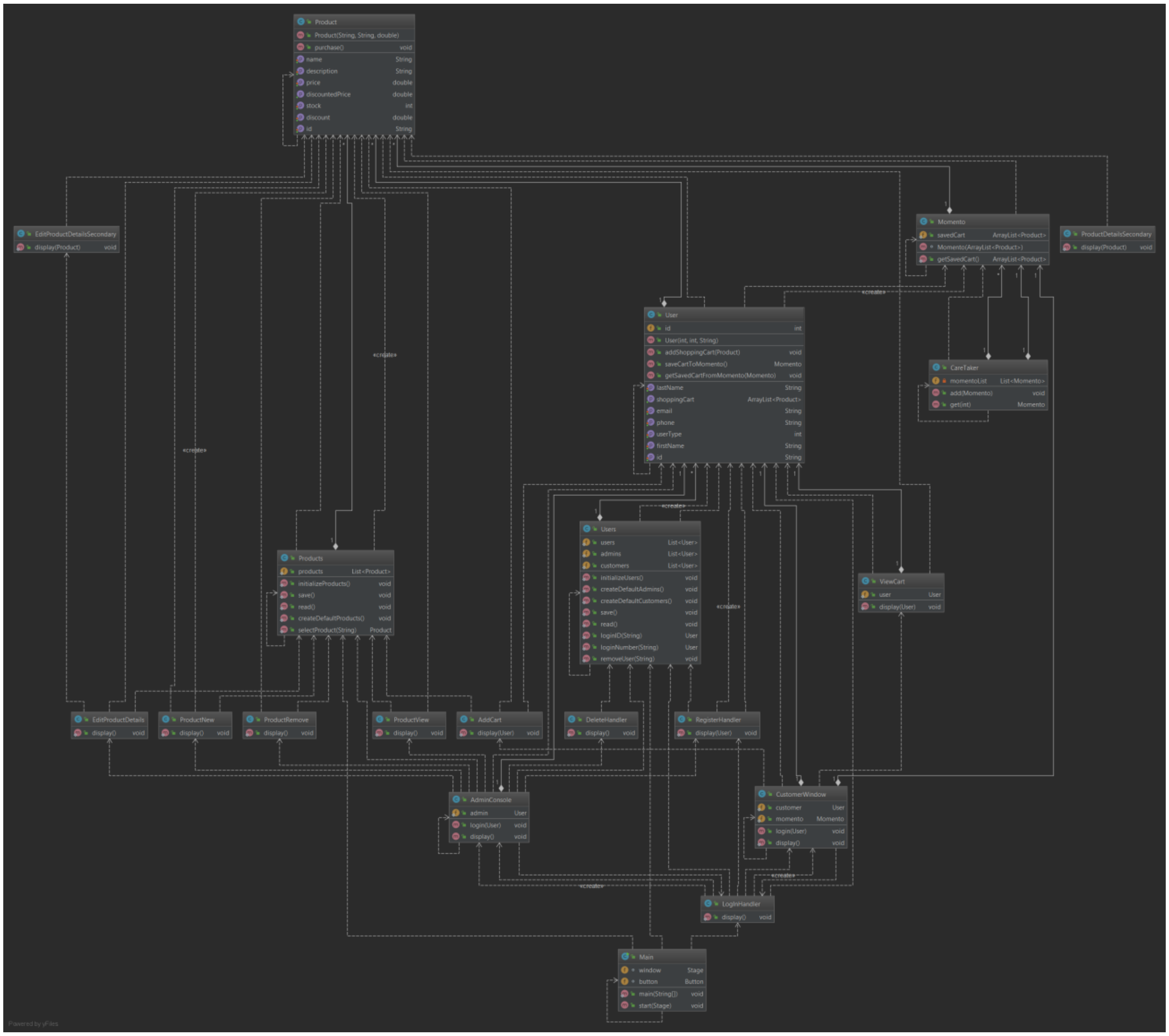
Features implemented:

UR-001	As a User, I want to be able to create a new User Profile
UR-002	As an Admin, I want to be able to create a new customer profile
UR-003	As an Admin, I want to be able to create a new admin profile
UR-004	As an Admin, I want to be able to delete users
UR-005	As an Admin, I want to be able to save the users even after the program is shut down
UR-006	As an Admin, I want to be able to view products
UR-007	As an Admin, I want to be able to edit products
UR-008	As an Admin, I want to be able to save the products, even after program shut down
PR-001	Products with discounts will have their final prices modified in accordance to the discount
UR-009	As a User, I can log in with my user ID
UR-010	As a User, I can log in with my phone number
UR-011	As an Admin, I can add a new product
UR-012	As an Admin, I can remove products
UR-013	As a Customer, I want to be able to edit my profile
UR-014	As a Customer, I want to be able to look up products and their details
UR-015	As a Customer, I want to be able to add items to my shopping cart
UR-016	As a Customer, I want to be able to view my shopping cart
UR-017	As a Customer, I want to be able to view the price of my shopping cart
UR-018	As a Customer, I want to be able to save my shopping cart for later
UR-019	As a Customer, I want to be able to check out, which clears my shopping cart
UR-020	As a User, I want to be able to log out and go back to the login screen
UR-021	As a Customer, I want to be able to load a previously saved shopping cart

Features I did not implement ☹

UR-022	As a Customer, I want to be able to easily remove single items from my shopping cart
UR-023	As a Customer, I want to be able to add items to my shopping cart using Product Look-up
UR-024	As a Customer, I want to be able to remove items from my shopping cart from the shopping cart view
UR-025	As an Admin, I want to be able to manipulate products from the product list view

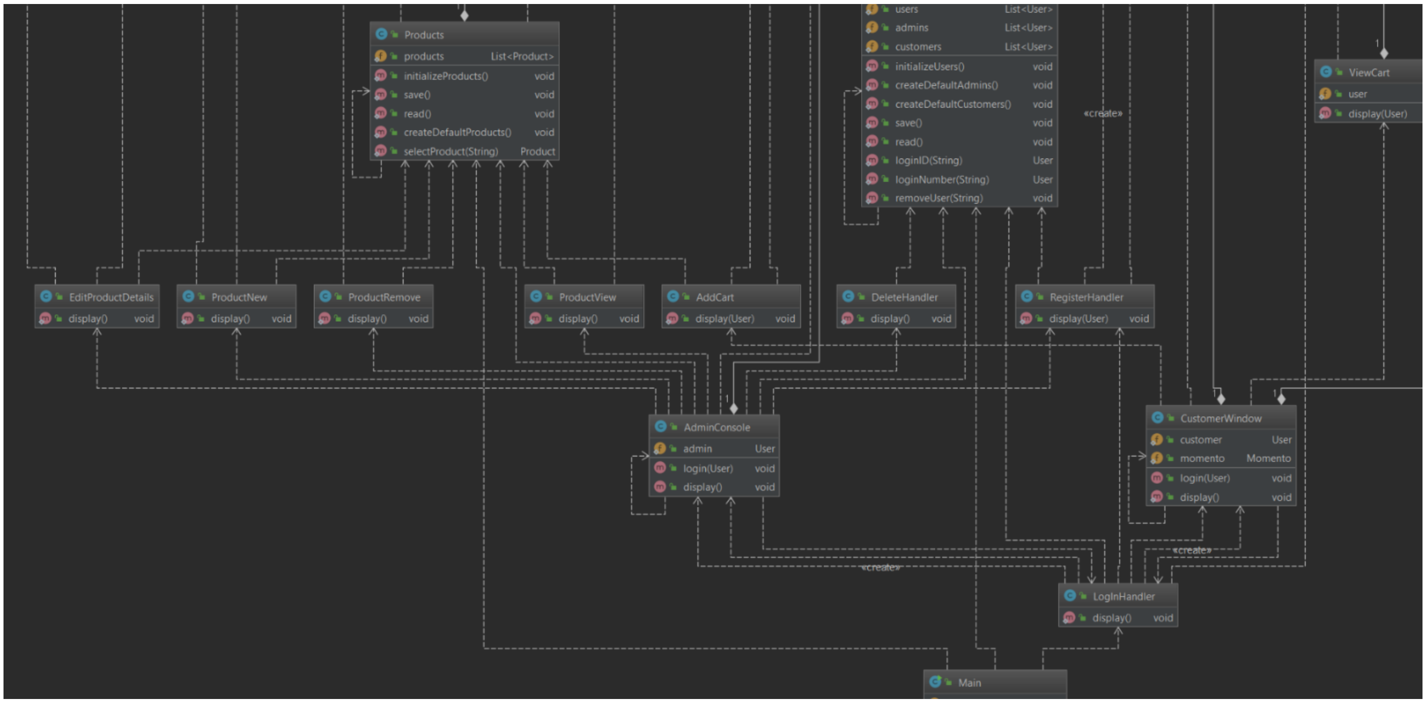
FINAL CLASS DIAGRAM



Everything changed because I didn’t even know JavaFX before starting this project, and I ended up learning it and using it to create this entire project.

I used a lot of classes to create the user interface and I ended up changing my classes for users, customers, and admins so that I could change their properties easier.

I ended up adding a lot more functionality than I was expecting at first, but I am happy with the results

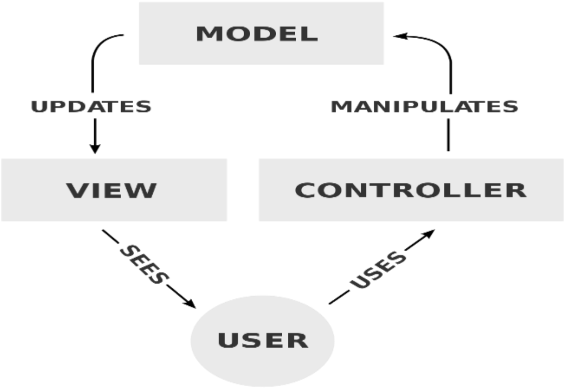


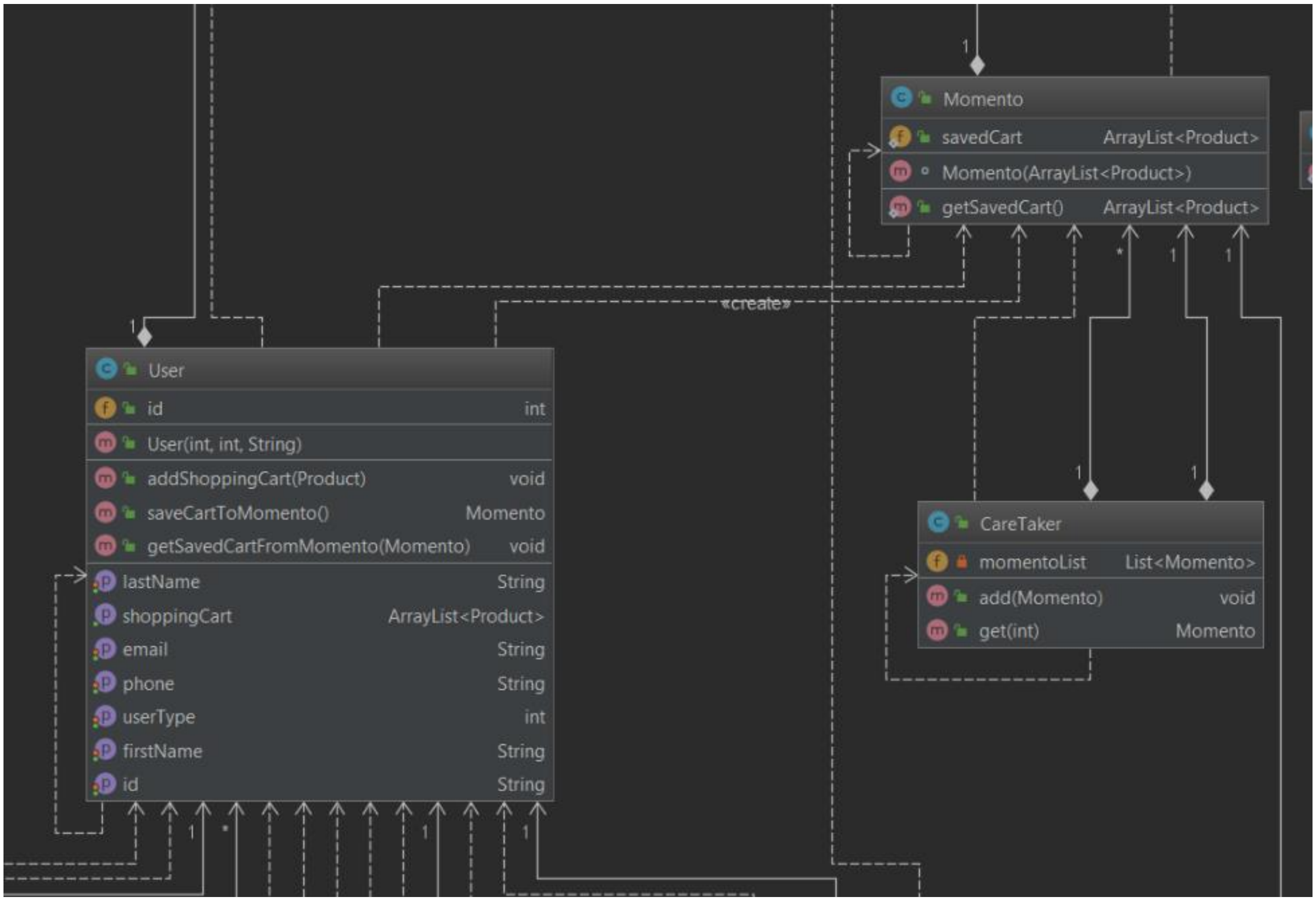
I used Model View Controller Design Pattern to control what the user can do within my program, allowing me to create a program that has few bugs, if any. The program is also easy to manage and easy to follow

All of the classes with display() methods create windows which allows the user to execute actions. Some methods require object parameters, which is to let the program know who is using the window, and whose properties are going to relevant for the use cases

Using JavaFX naturally implements the Model View Controller because the user's functions depend on what buttons and actions are programmed into the UI. This allows the developer to control what the user can do.

Learning JavaFX and using it for this project was fun and I found JavaFX to be very useful for this application. I could look at what functions I wanted in my program, and I would create windows and buttons which perform those actions. Coding was straightforward and bugs were easy to find and easy to squish.

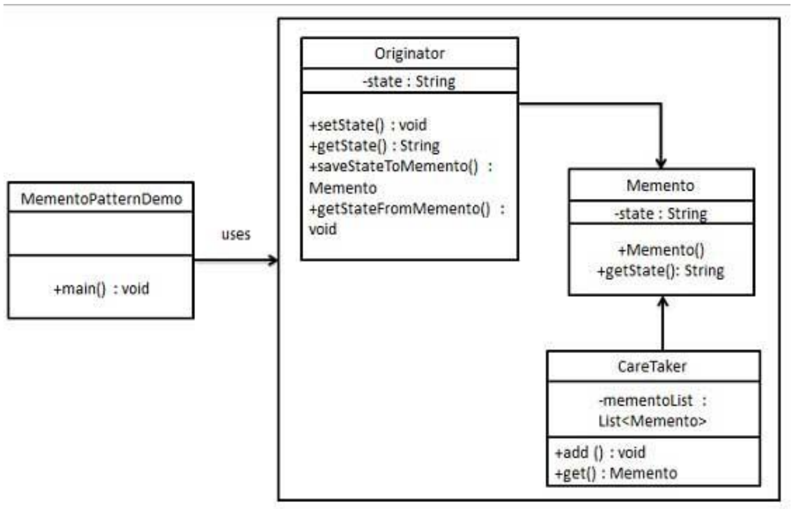



Momento
savedCart ArrayList<Product>
Momento(ArrayList<Product>)
getSavedCart() ArrayList<Product>
«create»
User
id int
User(int, int, String)
addShoppingCart(Product) void
saveCartToMomento() Momento
getSavedCartFromMomento(Momento) void
lastName String
shoppingCart ArrayList<Product>
email String
phone String
userType int
firstName String
id String
CareTaker
momentoList List<Momento>
add(Momento) void
get(int) Momento
1
*

I used a Memento design pattern to save the user's shopping cart, to be loaded up later. This pattern was a huge headache to implement but it was one of my required functions so I had to tough it out.

This pattern allows the User to save a snapshot of what their shopping cart ArrayList looks like, and allows it to be loaded up again later, even after other items have been added or removed from the cart.

Here is the memento class diagram



One of the biggest things I learned was how to code effectively in java, and how to use javaFX to create functional programs. I enjoyed using the UI to implement functionality into my program. I learned how to use Memento design pattern to save instances of objects, which can be loaded later on. Memento was giving me a lot of problems at first and debugging the issues gave me a lot of insight on how the Memento design pattern works. In doing this project, I became more comfortable with using Java, and how I could use classes, objects, and whatnot to design whatever I want.

I also learned how to use serialization to save lists of users and products, which could be loaded the next time the program is executed, even after the program is fully closed because it saves a permanent file of the lists of objects to the harddrive to be pulled up later. My system also checked if there was no file already in place for these objects and would create default ones so the system would function normally

Designing, creating, and implementing a system was daunting at first but the more I worked on it the more comfortable I was with it.

I learned that programming a system could be done in many different ways and that design patterns can solve a lot of issues that I may face while creating complex systems.

I am glad I took on this project and I am proud of what I managed to accomplish.