

## **EECS 3311 Project Report**

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### **Problems with initial design**

One of the problems I found with my initial design is that my classes contained attributes that I did not need. Because this project was entirely based on retrieving and modifying User, Movie, and Order information that was being stored in database '.txt' files, I realised while creating this project is that for example, my Customer, Movie, or Order class did not need to actually have any attribute fields within the class to store their respective information that makes up that object. This is because that information was to be stored in a database anyway. Therefore the purpose of creating these classes was to use it's respective methods to modify and retrieve information from the databases. In other words, read and write to them. For example I did not need to include name, email, username and password attributes in the Customer class because they were being directly written to the database anyway. The database is accessible from anywhere and keeps information even when the program is not running. Therefore my setters and getters of a class were setters and getters for database information and NOT the Object information itself. One advantage of this technique was that I did not need to have any parameters when creating instances of a class as there was nothing to initialize or set. My classes were basically used as utility classes.

Hence, you will notice my classes only have attributes that aid in accessing database information. An example of an attribute that does this, is a static String that stores the relative file path to the databases. Another example is a Scanner tool that reads information from the database.

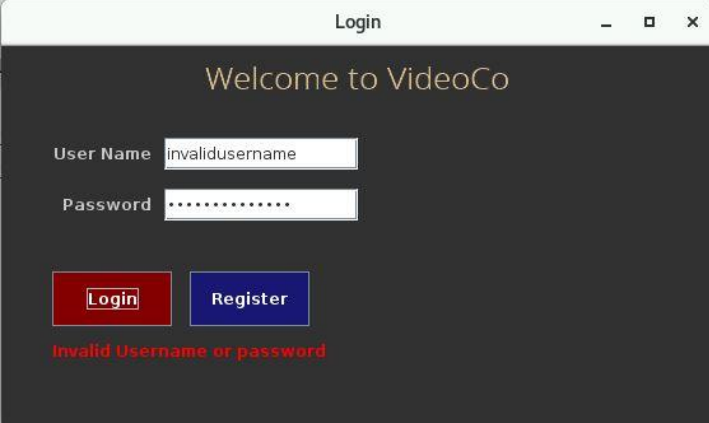
### **Differences between initial and final designs of class diagrams**

The difference between the initial and final designs are mainly what is described above, which is the removal of many of the attributes from the model classes from the initial design. But another huge difference is that the initial design did not take into account the GUI aspect

of the project and how it would interact with the Model classes. The initial design did not take into consideration how much the Model would rely on databases and how all the functions would be related to reading and writing to the database. I also noticed a more easier to understand Class diagram from the final design as you could imagine how things would run with GUI and the backend functions connected to them.

## System Features

**REQ-1:** Users must login to the system with valid and existing credentials. Invalid credentials will result in a login error.



The screenshot shows a window titled "Login" with a dark background. At the top, it says "Welcome to VideoCo". Below this, there are two input fields: "User Name" with the text "invalidusername" and "Password" with masked characters. There are two buttons: a red "Login" button and a blue "Register" button. At the bottom, a red error message reads "Invalid Username or password".

**REQ-2:** Users must be able to register to the system with a unique username and email. Invalid credentials will result in a registration error.

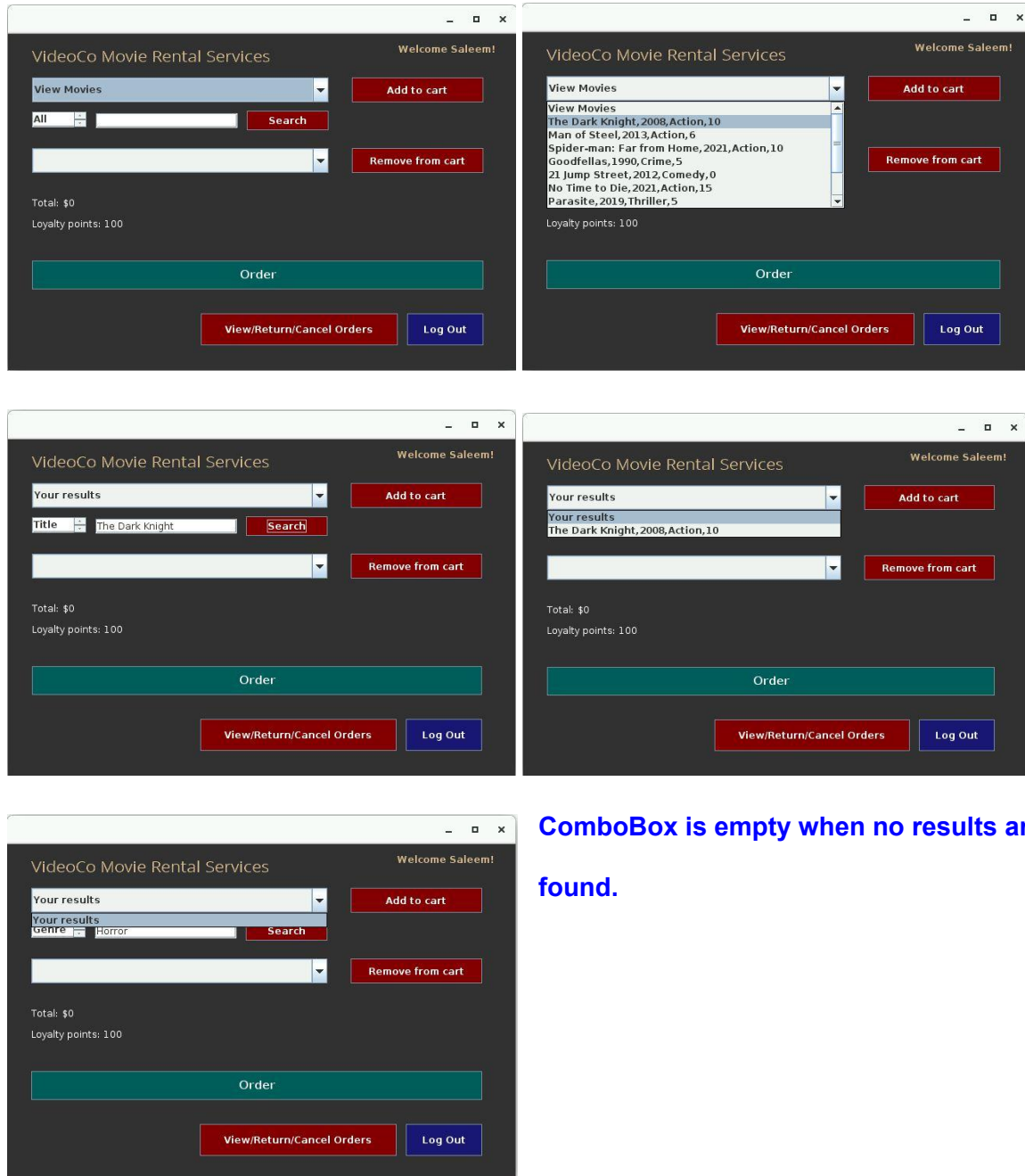


The screenshot shows a window titled "Register" with a dark background. It contains several input fields: "First Name" (Saleem), "Last Name" (Qureshi), "Email" (ss@hotmail.com), "User Name" (empty), "Password" (empty), and "User Type" (a dropdown menu set to "Customer"). There are two buttons: a red "Register" button and a blue "Back to Login" button. At the bottom, a message says "Fill in all entries!".



The screenshot shows the same "Register" window, but with different data: "First Name" (Song), "Last Name" (Wang), "Email" (song@yorku.ca), "User Name" (songw), "Password" (swpassword), and "User Type" (Customer). The "Register" button is highlighted in red. At the bottom, a message says "You are now a registered Customer!".

**REQ-3:** Users will be able to search for movies by name, category, or all movies. If no movies match the selected search, a message is displayed indicating no movies match the desired search.



**ComboBox is empty when no results are found.**

**REQ-4:** Users must be able to create an order by adding a movie to their order. Users will not be able to add a movie which is not in stock.

The screenshot shows a web application window titled "VideoCo Movie Rental Services" with a "Welcome Saleem!" message. The interface includes a "View Movies" dropdown menu, a search bar with "All" selected, and a "Search" button. Below the search bar, "The Dark Knight" is selected in the dropdown, and an "Add to cart" button is visible. A "Remove from cart" button is also present. The total price is \$5, and loyalty points are 100. A message states "The Dark Knight added to cart". An "Order" button is at the bottom, along with "View/Return/Cancel Orders" and "Log Out" buttons.

**Notice:** The total price and stock of movie adjusts live as you add and remove movies to cart.

The screenshot shows the same web application window. The "View Movies" dropdown now shows "21 Jump Street, 2012, Comedy, 0". The "Add to cart" button is still visible, but the "Remove from cart" button is disabled. The total price is now \$0, and loyalty points remain 100. A message states "Sorry, selected movie out of stock". The "Order" button and "View/Return/Cancel Orders" and "Log Out" buttons are still present.

**The stock of the movie can be seen '0'**

**REQ-5:** Users must be able to review a tentative order, removing items from or cancelling the order as needed.

The screenshot shows the same web application window. The "View Movies" dropdown is empty, and the "Add to cart" button is disabled. The "Remove from cart" button is now visible. The total price is \$0, and loyalty points remain 100. A message states "The Dark Knight removed from cart". The "Order" button and "View/Return/Cancel Orders" and "Log Out" buttons are still present.

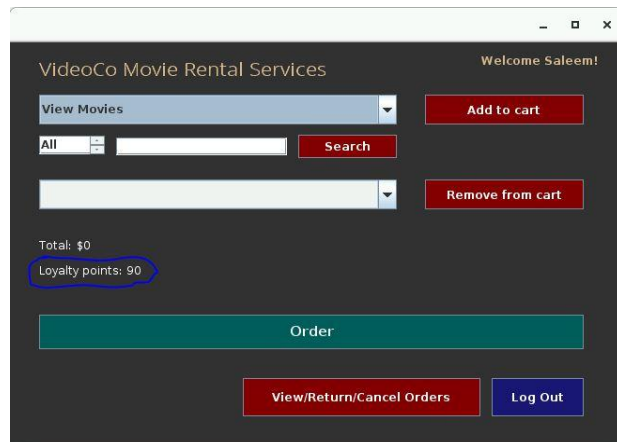
**REQ-6:** Users must be able to pay for an order using a payment service or loyalty points if they have enough. Invalid shipping or payment information will show the user an error respective of the invalid credential.

The figure displays four screenshots of a web form titled "Complete your order". Each screenshot shows a different state of the form's validation and payment options.

- Top Left:** The form has "Address" (100 Keele st) and "Postal code" (L9T7V3) filled. The "Pay with Credit Card" dropdown is selected. A text box for the credit card number is visible, with the error message "Invalid card number" displayed below it. The "Loyalty points" are 100. A "Place order" button is present, along with a "Back to Home" button.
- Top Right:** The "Postal code" field is empty, with the error message "Fill in all entries!" displayed below it. The "Pay with Credit Card" dropdown is selected. The "Loyalty points" are 100. A "Place order" button is present, along with a "Back to Home" button.
- Bottom Left:** The "Pay with Loyalty Poi..." dropdown is selected. The "Loyalty points" are 0, with the error message "Not enough loyalty points" displayed below it. A "Place order" button is present, along with a "Back to Home" button.
- Bottom Right:** The "Pay with Loyalty Poi..." dropdown is selected. The "Loyalty points" are 100. A "Place order" button is present, along with a "Back to Home" button and a "View/Return/Cancel Orders" button. The message "Your order is complete!" is displayed above the "Place order" button.

The text box for card number only becomes visible when the "Pay with Credit Card" option is selected. Otherwise it is hidden for a cleaner and interactive UI experience. Also the "View/Return/Cancel/Orders" button in this page is only visible after a successful order as seen above. It is hidden otherwise for an interactive UI experience.

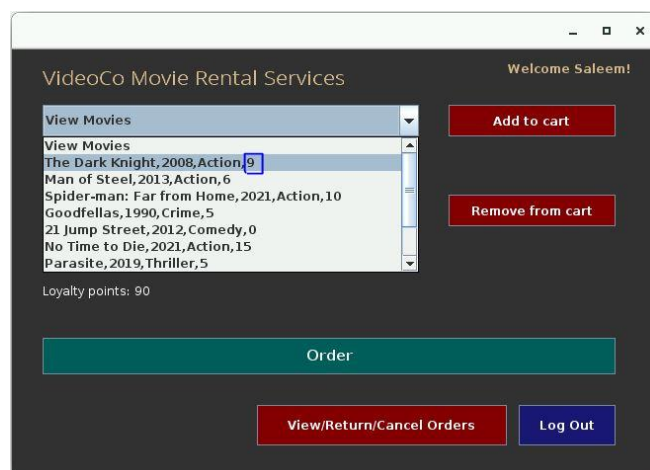
**REQ-7:** Users will be rewarded 1 loyalty point per order. 10 loyalty points are applicable toward a free movie rental.



After completing the above order and then returning to the Homepage, we now have 90 points (-10 points).

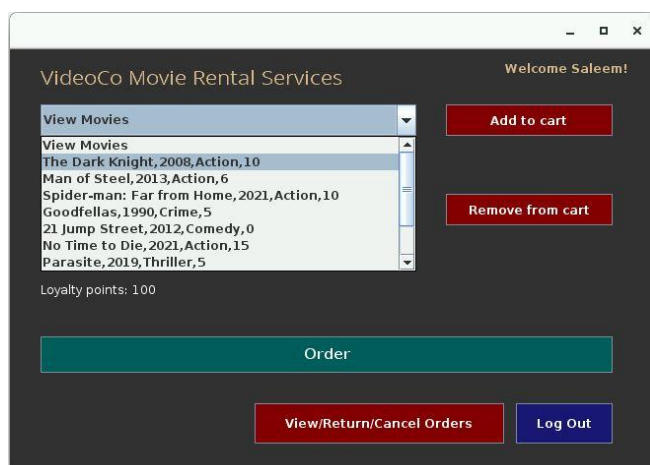
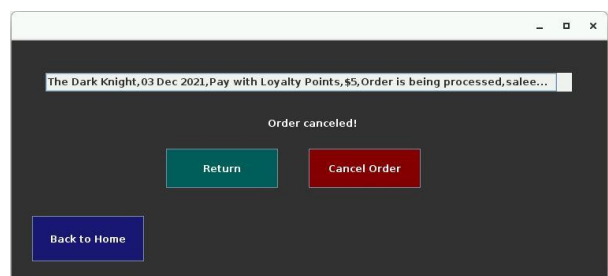
Customer will receive 1 loyalty point when warehouse employees confirm and ship the order. When this happens this customer will have a total of 91 points.

**REQ-9:** The system will update the available movie stock according to the corresponding user action (placed order, cancelled order).



After the above order of "The Dark Knight" we can see the stock is now ← '9' units. (Stock is updated live every time you add or remove items to cart for interactive experience).

Order canceled ----->

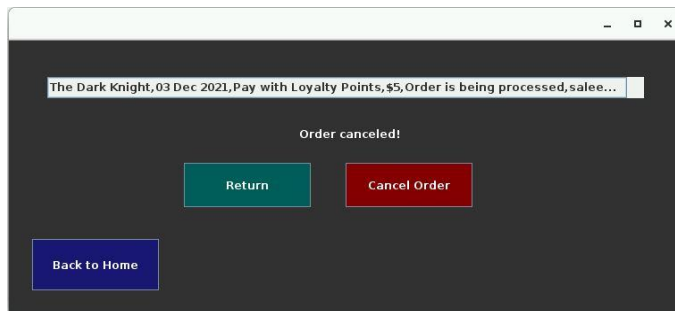


Stock for 'The Dark Knight' is back to ← '10' units after canceling order.

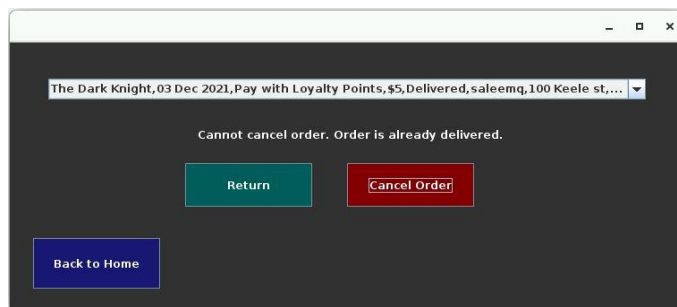
Loyalty points are also refunded. Points are now back at 100.

In the case of returning orders, movie stock is also updated.

**REQ-13:** Users must be able to cancel their movie rental order given that the order status is not “delivered”.



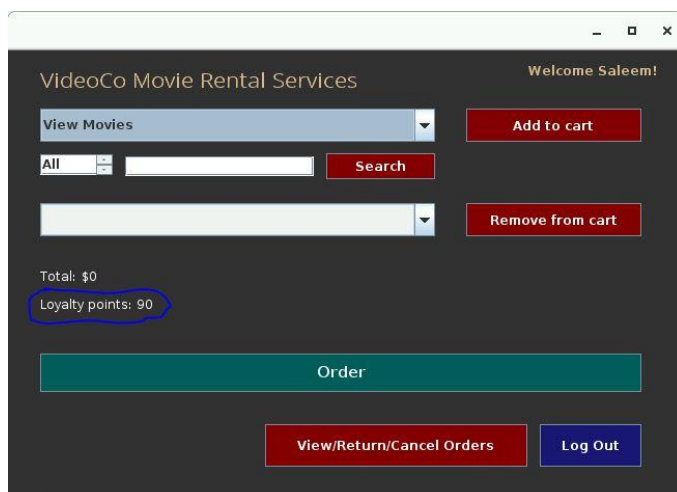
**Note:** Order is usually removed from combobox upon successful cancelling or returning. I kept Order in combobox temporarily for better visualization in screenshots.



**REQ-14:** Users must be able to manage their account/profile. This includes changing any of the following: password, name, email.

**This REQ is satisfied by asking Admin to delete their account via REQ-19. Then the user registers a new account with the desired changes.**

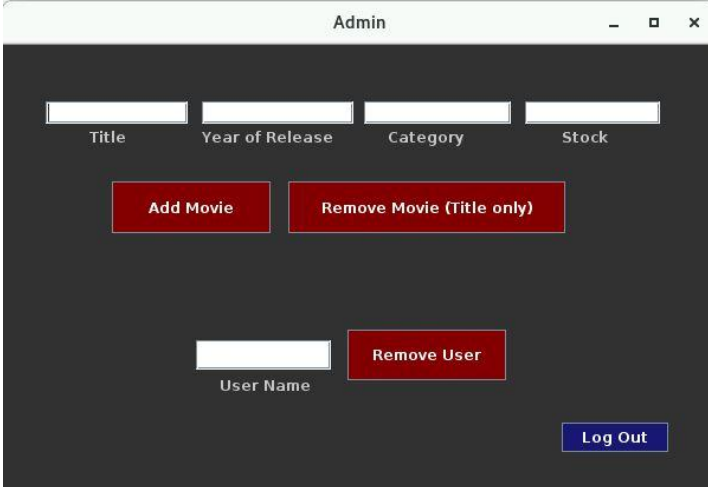
**REQ-15:** Users must be able to view their collected loyalty points while managing their account.



**Can be viewed on Homepage.**



**REQ-16:** The System Admin is able to add/remove a movie from the system.



The screenshot shows a web application window titled "Admin". It features four input fields at the top labeled "Title", "Year of Release", "Category", and "Stock". Below these fields are two red buttons: "Add Movie" and "Remove Movie (Title only)". Further down, there is a "User Name" input field and a red "Remove User" button. At the bottom right, there is a blue "Log Out" button.

**REQ-17:** The System Admin is able to update movie information (title, actors, directors, date of release, description).

**This REQ is satisfied by the Admin removing the movie to be updated, and then re adding the movie with the desired changes. See image under REQ-16.**

**REQ-18:** A system admin will be able to retrieve and update customer account information including: name, email, password, username, order information, order status.

**This REQ is satisfied by the Admin removing the user to be updated, and then re registering the user with the desired changes. See image under REQ-16.**

**REQ-19:** A system admin will be able to delete existing customer accounts.

**See image under REQ-16.**

**REQ-20:** The system can add admin accounts to the system using the administrator's name and email address. An admin must be an employee of the company.



The screenshot shows a web application window titled "Register". It contains several input fields: "First Name", "Last Name", "Email", "User Name", and "Password". There is also a "User Type" dropdown menu currently set to "Admin". Below these fields are two buttons: "Register" (red) and "Back to Login" (blue). At the bottom, there is a text prompt: "Enter existing Admin credentials". A blue hand-drawn rectangle highlights the "User Name" and "Password" input fields.

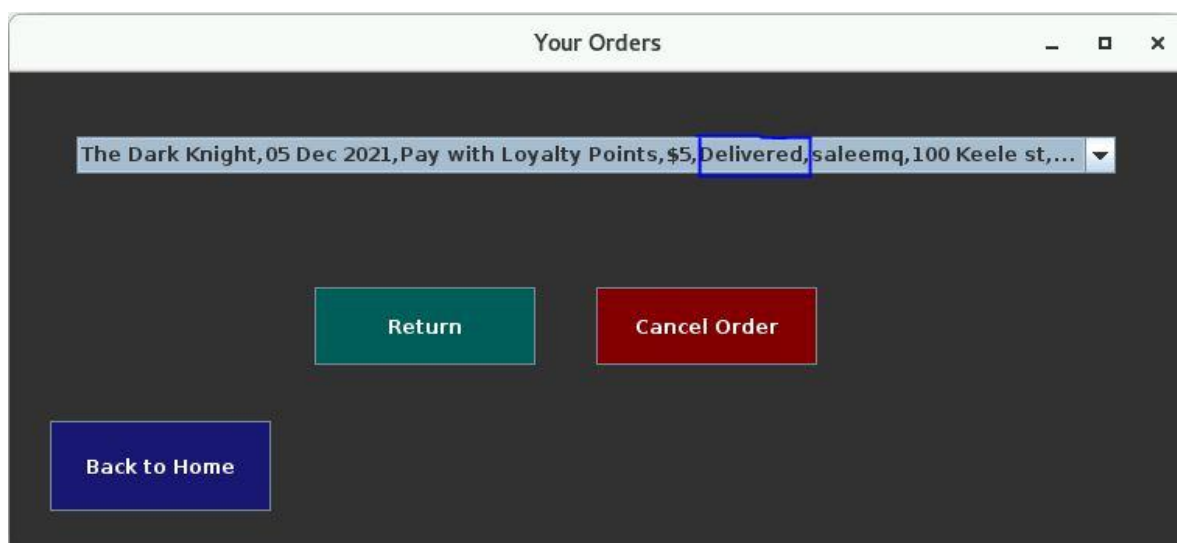
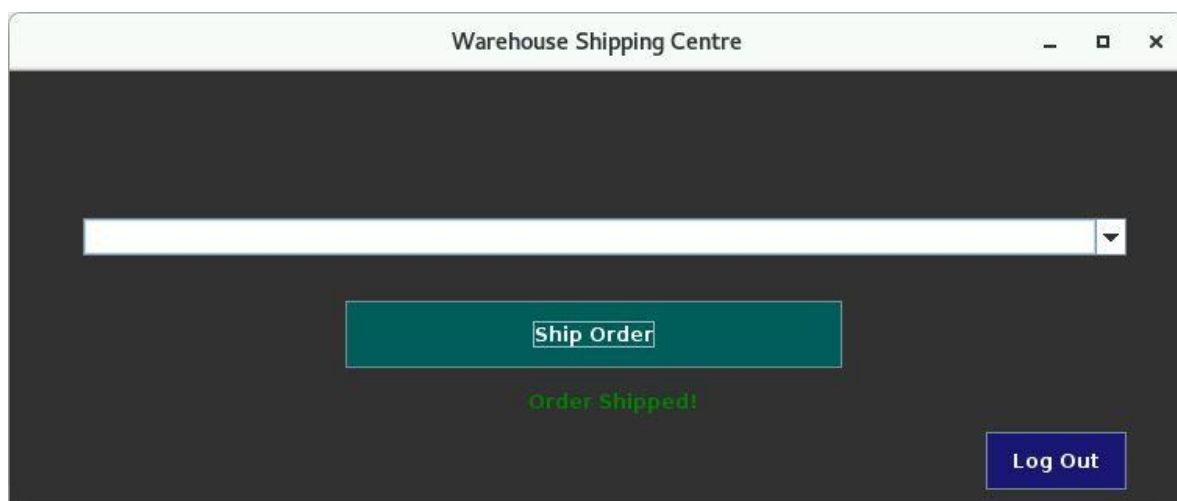
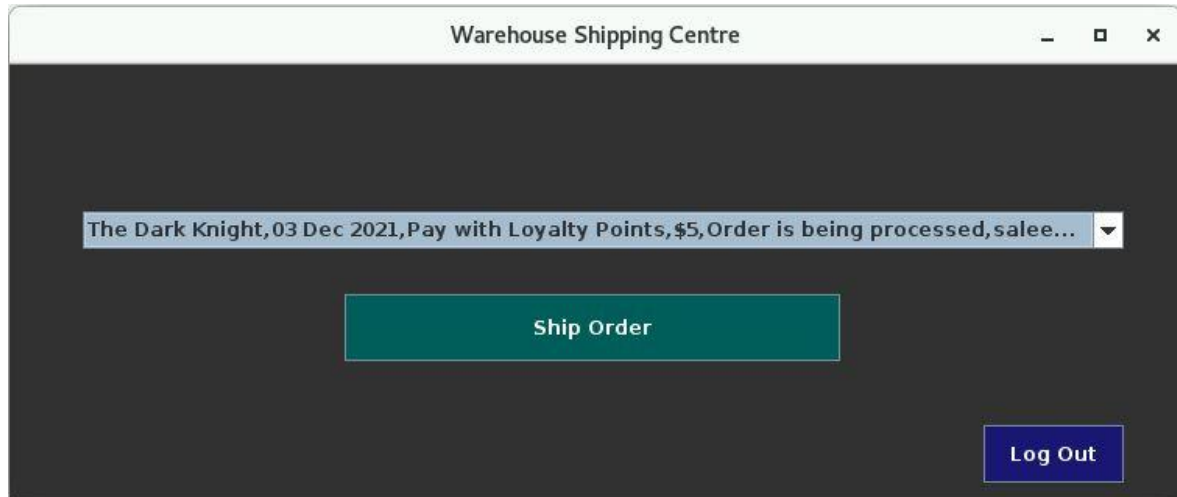
**When registering an Admin account you must enter existing Admin credentials (username and password).**

← Textboxes only appear when 'Admin' or 'Employee' are selected in User Type.

**REQ-21:** The system can remove admin accounts from the system.

See image under REQ-16. **'Remove User'** removes any user.

**REQ-22:** The system will be able to update the customer's order shipping status.



When an order is shipped by an employee, the status of the order is changed to 'Delivered' as seen above from the customer view orders page (third image). Order is then removed from the ComboBox of the warehouse employee as seen in the second image.

**REQ-25:** The system will send customer orders to the warehouse after they have been placed.

See images under REQ-22.

**Note:** Frame titles sometimes did not appear for some reason when running the app even though all frames have a title. Not sure why.