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E-Store Database System

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Introduction

This E-Store Database System project is meant to replicate the core functionalities of what an owner of a small online shop would need. Functionalities boil down to storing, retrieving, and updating info. The project uses a database to store that info. For a more user-friendly experience, database operations (inserting, viewing, updating, and deleting info in the database) will be done using a GUI rather than a database management system. Both the database, including its relationships, and the GUI will be made from scratch. As the database is intended to be managed by the owner, the owner will have admin privileges (making the database operations) that will need to be verified by the GUI as well.

Project Specifications

Database:

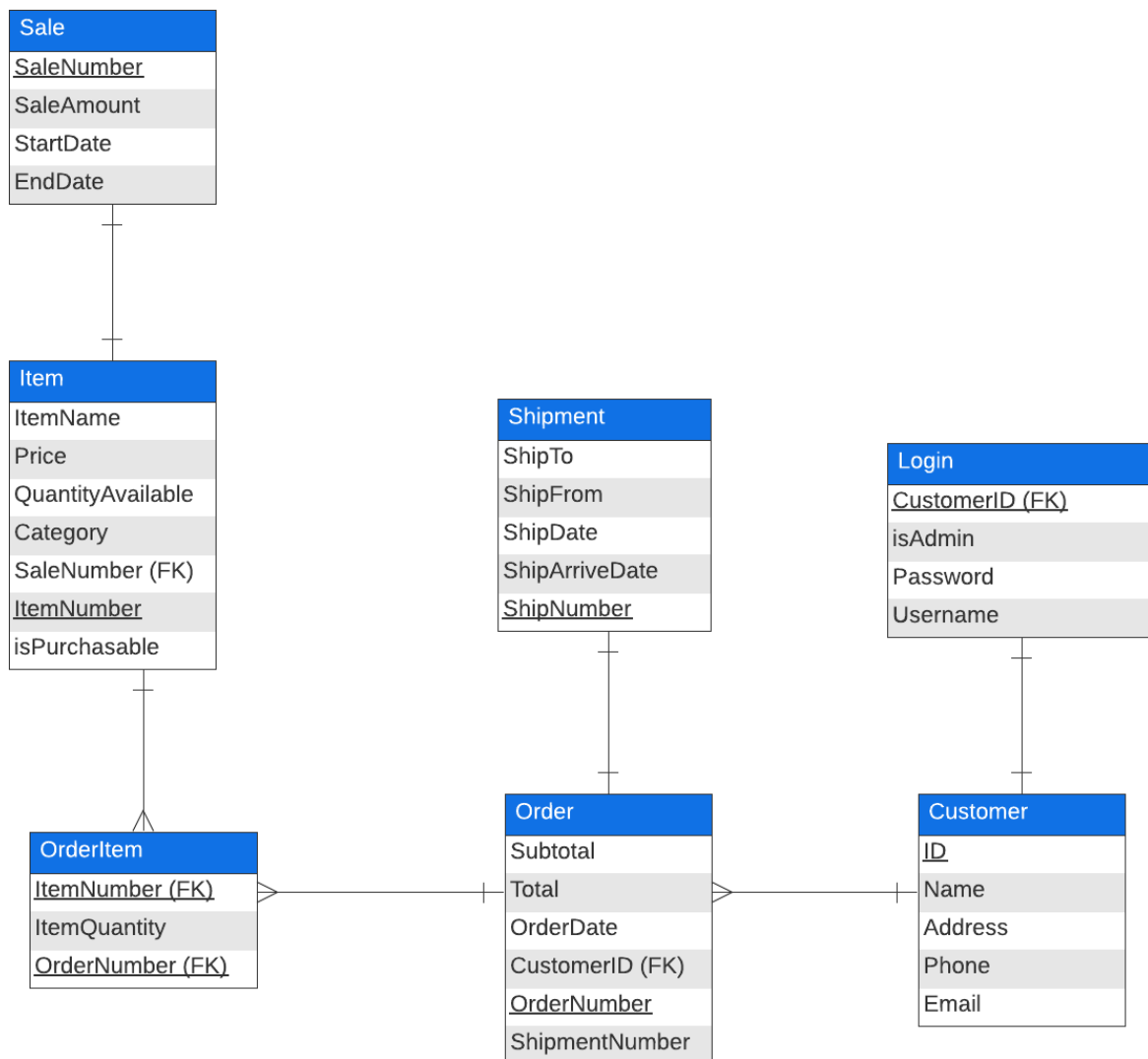
- Requirements
 - The store consists of different items. Each item has a unique item number, a price, the quantity available, and category.
 - The store holds information about each of its customers including their name, email, a unique phone number, address, and a unique customer ID.
 - Orders are stored with an item name, item number, item quantity, the subtotal, total, order date, customer ID, and the unique order number.
 - Shipments are tracked and each shipment contains a ship-to address, a ship-from address, an order number, shipment date, shipment arrival date, and a unique shipment number.
 - The store may also provide discounts to its items. Each discount has an item number reference, discount amount, discount type, a start date, and an end date.
 - Each customer will need to login into their e-store account to make orders. The account is linked to their customer ID.
 - For security purposes, the clients will have admin logins which consist of a unique username and a unique password.
- Tasks
 - Contains the following entities: CUSTOMER, ORDER, ORDERITEM, ITEM, SHIPMENT, LOGIN, DISCOUNT
 - Utilize SQL queries for retrieving, inserting, updating, adding, and deleting data from database

GUI:

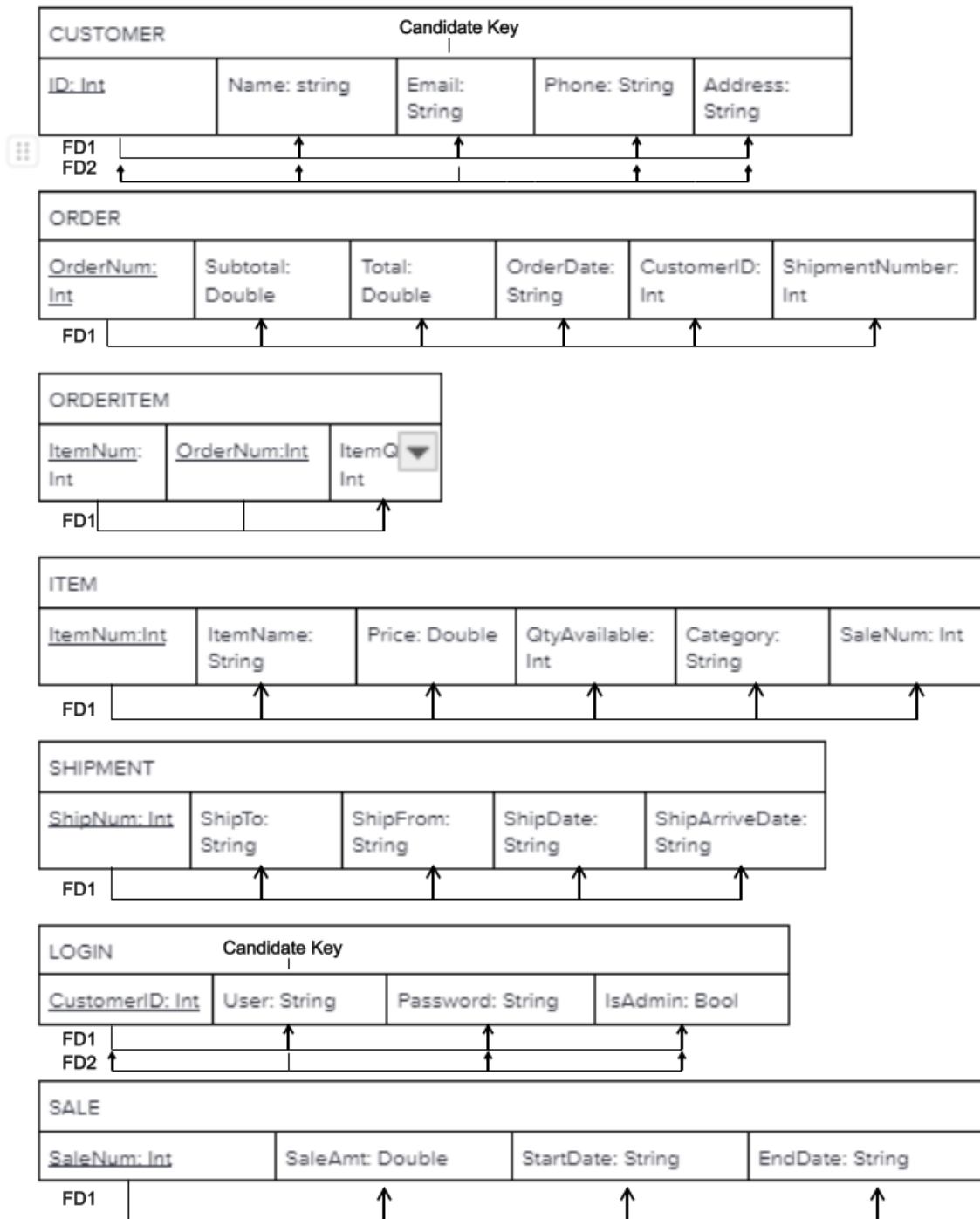
- First form will be a login page so owner can log into the system
- User will be able to add, delete, and update items that are currently available to the store
- The user can track customer information such as their address, email, phone number, etc.
- Other functions to implement include:
 - item search with filter by category
 - order/transaction history for customers

Design

ERD



Functional Dependencies



Database Schema

CUSTOMER				
Name: String	Email: String	Phone: String	Address: String	<u>ID: Int</u>

ORDER					
Subtotal: Double	Total: Double	OrderDate: String	CustomerID: Int (FK)	<u>OrderNum: Int</u>	ShipmentNumber: Int

ORDERITEM		
<u>ItemNum: Int</u> (FK)	ItemQty: Int	<u>OrderNum: Int</u> (FK)

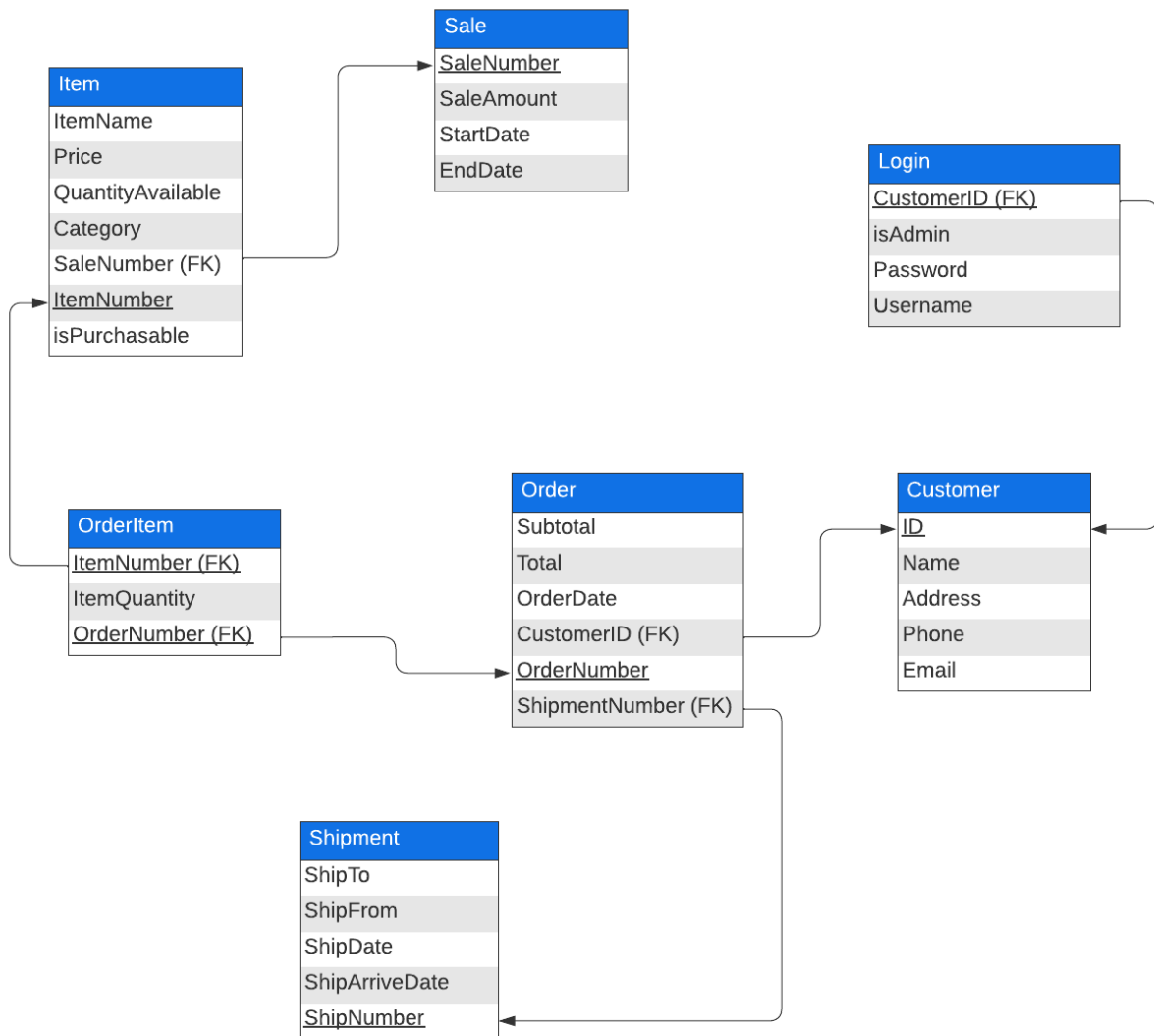
ITEM					
ItemName: String	<u>ItemNum: Int</u>	Price: Double	QtyAvailable: Int	Category: String	SaleNum: Int (FK)

SHIPMENT					
ShipTo: String	ShipFrom: String	OrderNum: Int (FK)	ShipDate: String	ShipArriveDate: String	<u>ShipNum: Int</u>

LOGIN			
User: String	Password: String	IsAdmin: Bool	<u>CustomerID: Int</u> (FK)

SALE			
<u>SaleNum: Int</u>	SaleAmt: Double	StartDate: String	EndDate: String

Database Schema with Key Relationships

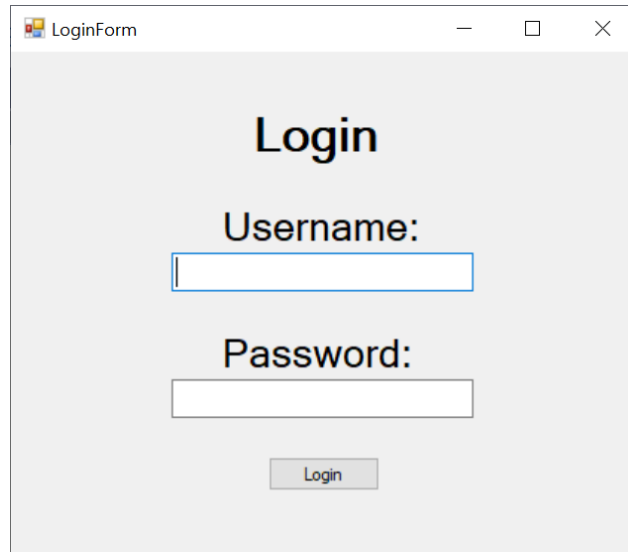


- 1 CUSTOMER can have Many ORDERS
- Many ORDERS can have Many ORDERITEMS
- 1 ORDERITEM contains 1 ITEM
- 1 CUSTOMER has 1 LOGIN
- 1 SHIPMENT contains 1 ORDER
- 1 SALE can affect Many ITEMS

User Manual

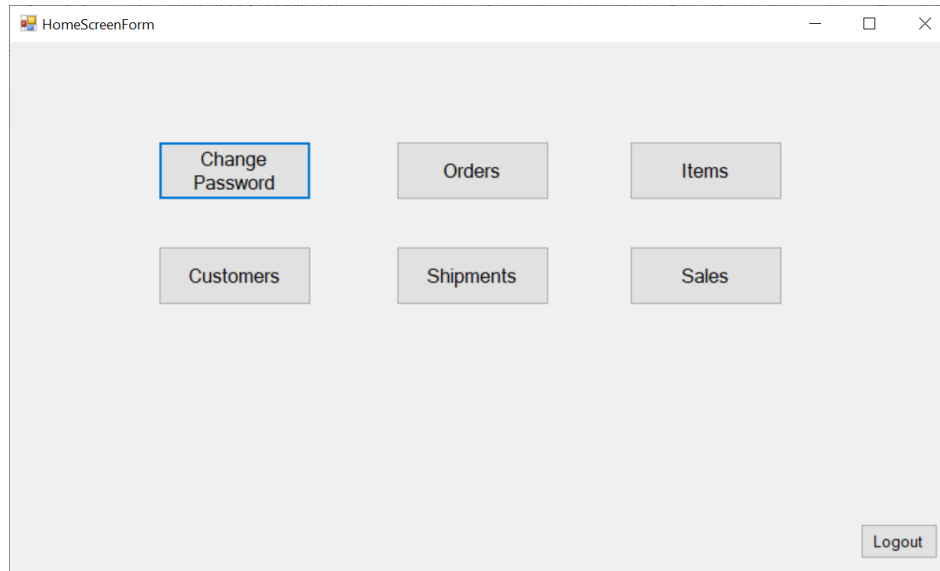
This section is meant to guide users of the eStore Database System GUI how to use it, as well as give an idea of what it should look like and be able to do. Additionally, this section will explain how the program works on the GUI and database sides.

Login Screen

The image shows a screenshot of a Windows application window titled "LoginForm". The window has a standard title bar with minimize, maximize, and close buttons. The main content area has a light gray background. At the top, the word "Login" is displayed in a large, bold, black font. Below it, the label "Username:" is followed by a text input field. Further down, the label "Password:" is followed by another text input field. At the bottom center, there is a button labeled "Login".

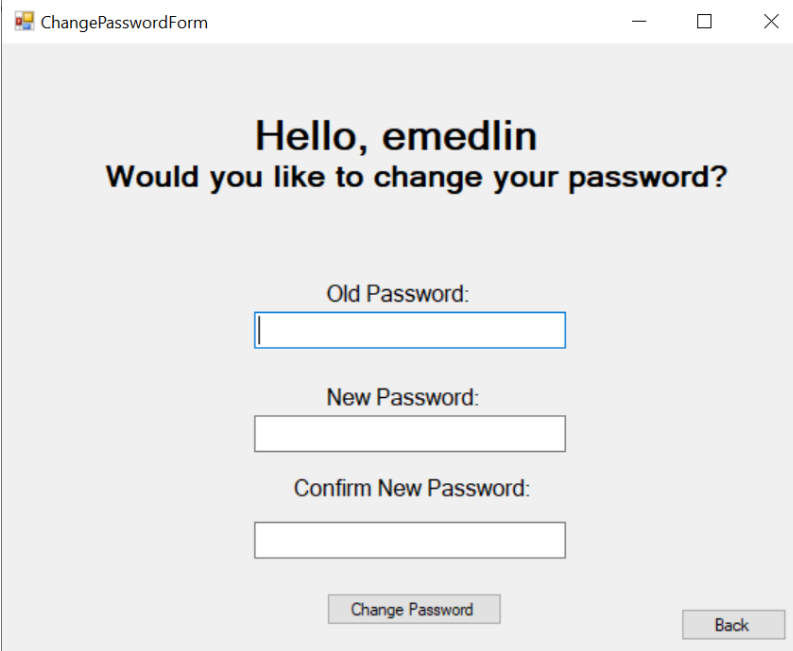
Upon launching the program, users will be greeted with a login screen that prompts users to log into the system. After entering a username and a password and clicking the “Login” button before saving, the GUI has the database check if it has the given username and password stored in its Login table, and if so, if they are associated with an admin account (the “IsAdmin” attribute of the table is true). If those conditions are true, then the user, who should be an admin, will be able to log into the system and see the home screen. If the conditions fail, a message will be displayed on the screen telling the user that their login is invalid and to try again.

Home Screen



Once an admin has logged in, they will see the home screen, which has seven buttons: “Change Password/Login,” “Orders,” “Items,” “Customers,” “Shipments,” “Sales,” and “Logout.” Clicking the “Change Password” button will take the admin to a screen where they can change their password; clicking the “Orders” button will take the admin to a screen where they can manage (view, add, edit, or delete) their customers’ orders; the “Items” button takes the admin to a screen where they can manage their store items; “Customers” goes to a screen where they can manage their customers’ info; “Shipments” to a screen where they can manage the shipments for customer orders; “Sales” to where they can manage their sales and what items are on that sale. Clicking the “Logout” button will log the admin out of the system and bring them back to the login screen.

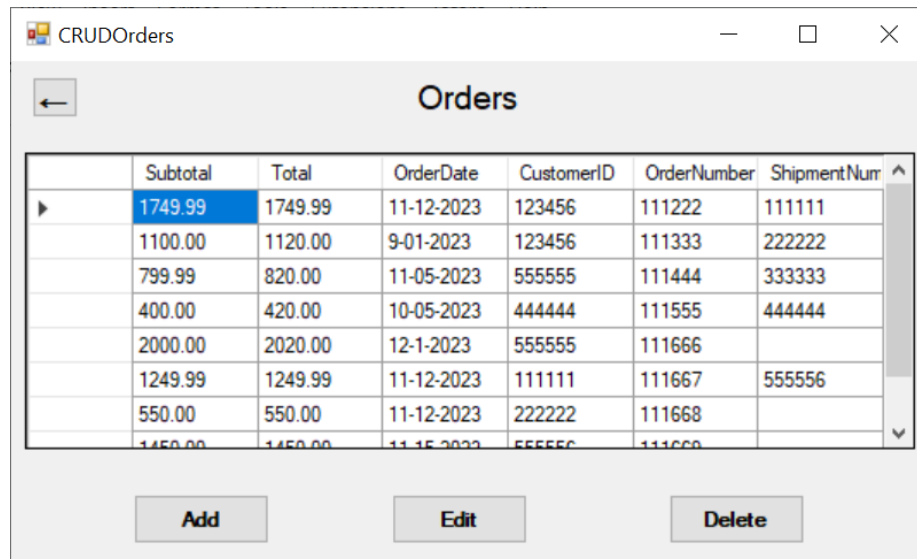
Change Password Screen

A screenshot of a web application window titled "ChangePasswordForm". The window has a light gray background and contains the following elements: a greeting "Hello, emedlin" in bold black text, followed by the question "Would you like to change your password?" in bold black text. Below this, there are three input fields: "Old Password:", "New Password:", and "Confirm New Password:". Each field is a simple white rectangle with a thin border. At the bottom of the form, there are two buttons: "Change Password" and "Back". The "Change Password" button is on the left and the "Back" button is on the right. The window also has standard OS window controls (minimize, maximize, close) in the top right corner.

The change password screen is where the admin can change their password. To do so, the admin enters their old password) and the new password they want to replace the old one. To make sure that the admin knows their new password, they will have to confirm their new password by typing their password again the exact same way it was typed earlier. Finally, the admin must click the “Change Password” button for the password change to take effect. Before the change takes effect, the GUI checks that the old password is the same password that was used to log into the system and that the new password was typed in the same way both times. If all is correct, then the database will find the record in the Login table whose username is the same as the one that was used to log into the database system, then update its password value to the new password. Once that is done, the GUI will display a message to the admin that the update was successful. If something was wrong with the old or new password, then a message will be displayed that states the problem (the value of the old password was wrong or the new password wasn’t confirmed correctly) and asks the user to try again. Clicking the “Back” button will take the admin back to the home screen; if the admin clicks it without clicking the “Change Password” button first, then regardless of what info has been entered, the password will not change.

Note that clicking “Change Password” will only change the password of the admin currently logged in; it will not affect other admin logins stored in the database system.

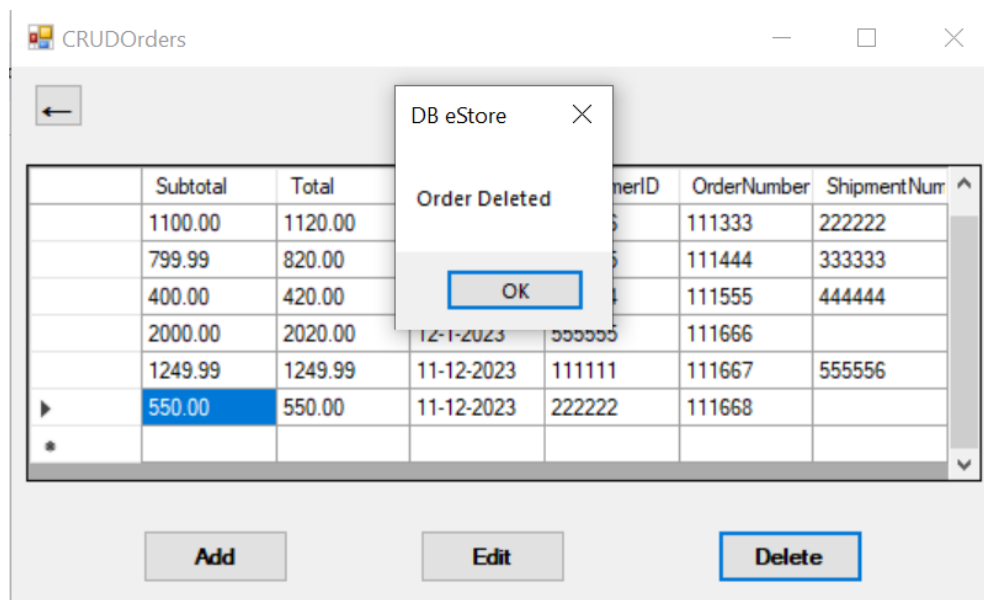
Orders Screen



	Subtotal	Total	OrderDate	CustomerID	OrderNumber	ShipmentNum
▶	1749.99	1749.99	11-12-2023	123456	111222	111111
	1100.00	1120.00	9-01-2023	123456	111333	222222
	799.99	820.00	11-05-2023	555555	111444	333333
	400.00	420.00	10-05-2023	444444	111555	444444
	2000.00	2020.00	12-1-2023	555555	111666	
	1249.99	1249.99	11-12-2023	111111	111667	555556
	550.00	550.00	11-12-2023	222222	111668	
	1450.00	1450.00	11-15-2023	555556	111669	

Buttons: Add, Edit, Delete

The Order Screen is where the admin can see all of the orders placed by customers. Each order has its own separate order number, which distinguishes one order from another. The order also contains the date it was placed, the subtotal, and the total amount the customer paid after tax and shipping costs. The 'Customer ID' field is a foreign key from the Customer table which tells the admin who the order was placed by. When an order has been shipped, the order will be updated with a shipment number, which is a foreign key from the Shipment table. The orders can be sorted in ascending or descending order based on the date the order was placed, clicking the 'OrderDate' field on the data grid. Clicking the back button (the button with an arrow) will take the admin back to the home screen.



A user can delete an order directly on the order screen by selecting the whole row or a cell in the row of the order they would like to delete, and clicking the 'Delete' button. A message box will pop up showing that the order has been deleted, and the screen will automatically refresh.

The screenshot shows the CUOrder application window. At the top, there are buttons for 'Cancel Order/Go Back' and 'Create New Order'. Below these, the 'Order#' is displayed as 111669. There is a 'CustomerID' field with a dropdown arrow and a 'Customer Name' label. A 'Save Order' button is located on the right. The main area is divided into two sections: 'Store's In-Stock Items' on the left and 'Items Currently in Order' on the right. The 'Store's In-Stock Items' section contains a table with columns: Item#, Name, Price, Qty, and Category. The first row is highlighted in blue.

Item#	Name	Price	Qty	Category
111111	IPad Pro	799.99	8	Tablet
112233	iPhone 11	450.00	21	Phone
123123	iPhone 12	550.00	27	Phone
123456	iPhone X	400.00	14	Phone

Below the table is a search bar with 'Item Name:' and a dropdown arrow, and a 'qty.' field with the value '1'. There is an 'Add To Order' button. The 'Items Currently in Order' section is currently empty. At the bottom, there is a 'Subtotal: \$0.00' label, an 'Item Name:' dropdown, and a 'Remove From Order' button.

If the admin clicks the “Add” button on the orders screen, they will be presented with a new screen where they can make new customer orders. The program determines the order# for the new order by retrieving the latest order in the database’s number and incrementing it. The admin can choose the customer whose order they want to make either by typing the customer’s unique ID number into the combobox or by clicking the arrow and selecting the customer’s ID from the dropdown menu; the dropdown menu will contain all of the customers currently in the database. Once a customer ID is chosen, the customer’s name is fetched from the database using the selected ID as a filter. On the left side of the screen, the admin will see a list of items they offer that are available for purchase and not out of stock (the stock list). Information that’s shown in the stock list for each item is its number, name, price, stock quantity, category type, and the sale number of the sale it’s currently a part of. On the right side of the screen is another list that contains the items that are currently in the order (the order list). Information that’s shown in the order list for each item is its number, name, order quantity, and total price.

CUOrder

Cancel Order/Go Back

Create New Order

Order#: 111669

CustomerID: 55556

Customer Name: maden wa

Save Order

Store's In-Stock Items

	Item#	Name	Price	Qty	Ca
	111111	IPad Pro	799.99	8	Ta
▶	112233	iPhone 11	450.00	19	Ph
	123123	iPhone 12	550.00	26	Ph
	123456	iPhone X	400.00	14	Ph

Item Name: iPhone 11

qty. 2

Add To Order

Items Currently in Order

	Item#	Name	Qty	Price
▶	123123	iPhone 12	1	550.00
	112233	iPhone 11	2	900.00

Subtotal: \$1450.00

Item Name:

Remove From Order

To add an item to the current order, the admin must select an item from the stock list, type in the quantity of the item to add—by default the quantity number is 1—and click the “Add To Order” button. To select an item, the admin can select or type a name from the combobox located under the stocklist, or click any cell in the row that contains the item they wish to add to the order. If the latter method is done, the selected item in the combobox will automatically match the item that was clicked in the list. If the admin tries to insert more quantity of an item than is available, what will be added to the order is the remaining stock, the now out of stock item will be removed from the stock list, and a message will be displayed stating that there was not enough item stock to add the requested quantity to the order, and instead what was added was the remaining stock. Removing an item from an order works in a similar fashion as adding an item, except the admin needs to click the “Remove From Order” button instead. Once an item is added to or removed from the order, the stock quantity for that item will automatically change to reflect the quantity that was added to/removed from the order. Additionally, the order’s subtotal will also automatically change as the order list changes.

The screenshot shows the 'CUOrder' application window. At the top, there's a 'Cancel Order/Go Back' button and a 'Create New Order' title. Below the title, the 'Order#' is 111669 and the 'CustomerID' is 555556. A 'Save Order' button is on the right. A modal dialog box in the center says 'order 111669 has been added to database' with an 'OK' button. Below the dialog, there are two tables: 'Store's In-Stock Items' and a table for the current order items.

Item#	Name	Price
111111	IPad Pro	799.99
112233	iPhone 11	450.00
123123	iPhone 12	550.00
123456	iPhone X	400.00

Qty	Price	
12	1	550.00
11	2	900.00

At the bottom, there's an 'Item Name' dropdown set to 'iPhone 11' and a 'qty' input set to '2'. The 'Subtotal' is \$1450.00. There are 'Add To Order' and 'Remove From Order' buttons.

Once the admin is satisfied with how the order looks, they can save it by clicking the “Save Order” button, which will save information about the order into two of the database’s tables: Order and OrderItem. For Order, a new record is inserted, the values for the order#, customer ID, and subtotal coming from the corresponding values in the GUI when the button was clicked; the order date is assumed to be the same day the order was made, and the shipment# is null; currently the total is the same as the subtotal. For OrderItem, a new record is added for each item in the order list, the values for the order#, item#, and the item’s quantity also coming from the corresponding values in the GUI at the time the order was saved. Afterwards, the database table Item will update to reflect the changes to stock quantity. When the “Save Order” is clicked, if at that time the customerID, item to add, or item quantity to add is left blank, the order will not be saved into the database and an error message will be displayed to the admin informing them of the problem. Otherwise, a message is displayed saying that the order was successfully created, and the screen will refresh to a blank state for the next order to be added. If the admin clicks the “Cancel Order/Go Back” button before saving, the current order will not be saved in the database and the admin will be taken back to the orders screen.

CUOrder

Cancel Order/Go Back

Update Order

Order#: 111669

CustomerID: 555556

Customer Name: maden wa

Save Order

Store's In-Stock Items

	Item#	Name	Price	Qty	Ca
▶	111111	IPad Pro	799.99	8	Ta
	112233	iPhone 11	450.00	19	Ph
	123123	iPhone 12	550.00	26	Ph
	123456	iPhone X	400.00	14	Ph

Items Currently in Order

	Item#	Name	Qty	Price
▶	112233	iPhone 11	2	900.00
	123123	iPhone 12	1	550.00

Item Name:

qty: 1

Add To Order

Subtotal: \$1450.00

Item Name:

Remove From Order

If the admin clicks the “Edit” button on the orders screen, they will be presented with a new screen where they can update customer orders. This screen will function the same as when an order is being created, including displaying a message telling the admin of the order’s successful update, except here the information about the order that was selected when the admin clicked the “Edit” button in the orders screen will be fetched from the database and loaded instead. As the admin is editing an existing order, the combobox for the customer ID will be disabled, meaning the admin will not be able to choose an ID as they are able to when making a new order. Additionally, if the order is updated such that items that were in the order previously are no longer there now, the records in OrderItem containing those items will be deleted.

Items Screen

CRUDItems

Items

Search By

	ItemName	Price	QuantityAvailable	Category	SaleNumber	ItemNumber	isPurchasable
▶	iPad Pro	799.99	8	Tablet	444	111111	<input checked="" type="checkbox"/>
	iPhone 11	450.00	17	Phone	111	112233	<input checked="" type="checkbox"/>
	iPhone 12	550.00	25	Phone		123123	<input checked="" type="checkbox"/>
	iPhone X	400.00	14	Phone		123456	<input checked="" type="checkbox"/>
	Galaxy Tab S9	799.99	5	Tablet		222222	<input type="checkbox"/>
	Samsung S9	20.00	3	Phone	111	222223	<input type="checkbox"/>
	Nokia	200.00	5	Phone		222224	<input checked="" type="checkbox"/>
*							<input type="checkbox"/>

The Items Screen is where the admin can view the store inventory. Each item has a name, price, the quantity available, category, and its own separate item number. If the item is currently on sale, it will have a 'Sale Number' which is a foreign key that indicates which sale the item is falling under. Lastly, the 'IsPurchasable' field is used to indicate whether or not customers are able to purchase this item, or if it is currently sold out or unavailable.

CRUDItems

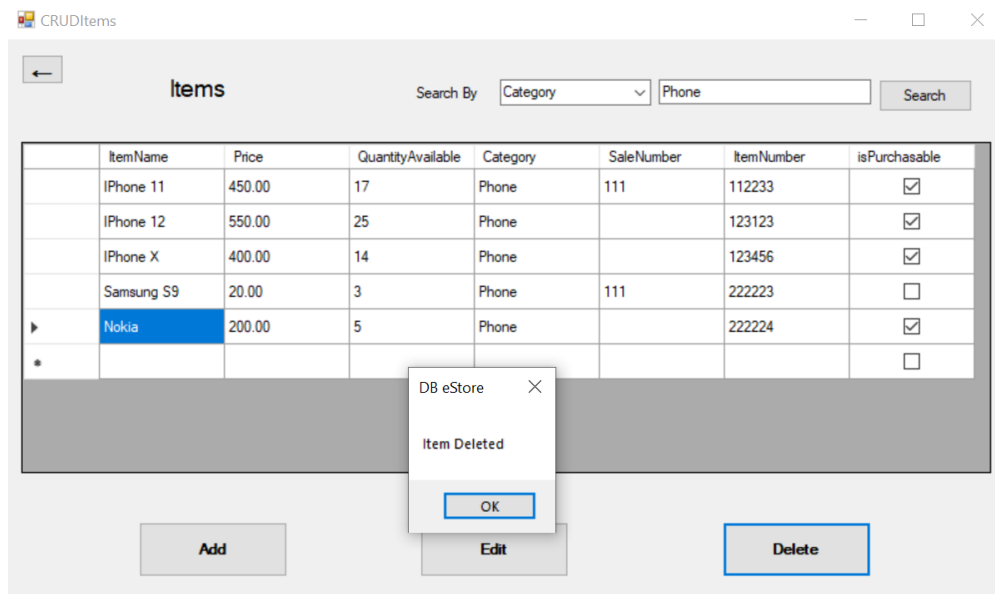
Items

Search By

	ItemName	Price	QuantityAvailable	Category	SaleNumber	ItemNumber	isPurchasable
▶	iPhone 11	450.00	17	Phone	111	112233	<input checked="" type="checkbox"/>
	iPhone 12	550.00	25	Phone		123123	<input checked="" type="checkbox"/>
	iPhone X	400.00	14	Phone		123456	<input checked="" type="checkbox"/>
	Samsung S9	20.00	3	Phone	111	222223	<input type="checkbox"/>
	Nokia	200.00	5	Phone		222224	<input checked="" type="checkbox"/>
*							<input type="checkbox"/>

The admin can also search for a specific item by clicking the 'search by' combo box, choosing which field they would like to search by (Item Name, Item Number, Sale Number, or Category), typing in the keyword into the search box and clicking the search button. To clear the search, the admin will need to clear the textbox containing the search term and click the "Search" button

again. Clicking the back button (the button with an arrow) will take the admin back to the home screen.



A user can delete an item directly on the item screen by selecting the row of the item they would like to delete, and clicking the 'Delete' button. A message box will pop up showing that the item has been deleted, and the screen will automatically refresh.

The screenshot shows a web application window titled 'NewItem'. The main content area is titled 'Add Item' and contains the following form fields:

- Item Name:
- Item Price: Qty Available:
- Item Category:
- Item Description:
- Available to Purchase: ☐ Yes ☐ No
- Is on Sale: ☐ Yes ☐ No

An 'Add' button is located at the bottom right of the form.

If the admin clicks the "Add" button on the items screen, they will be presented with a new screen where they can list new items that they sell.

The 'NewItem' window contains the following elements:

- Item Name:** A text input field.
- Item Price:** A text input field.
- Qty Available:** A text input field.
- Item Category:** A text input field.
- Item Description:** A large text area.
- Available to Purchase:** Radio buttons for 'Yes' and 'No'.
- Is on Sale:** Radio buttons for 'Yes' and 'No', followed by a combobox.
- Add:** A button at the bottom right.

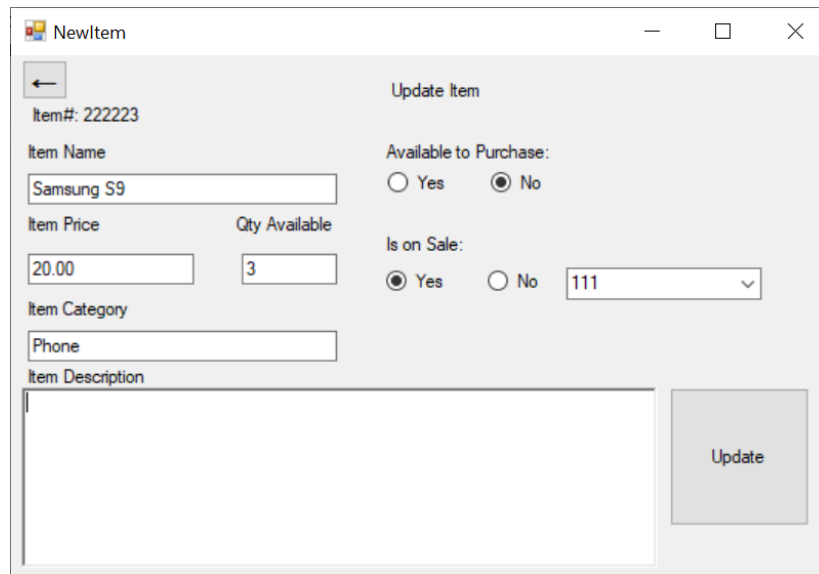
To add an item, the admin will need to fill in all the textboxes and check one of each group of radio buttons. If the admin decides to put an item on sale by checking the “Yes” radio button under the “Is on Sale” section, then a combobox will be unhidden. The combobox contains all the sales in the database that aren’t expired. They can choose which sale to put the item in by either typing in the sale number or clicking by clicking the arrow and selecting a sale from the dropdown menu. If the admin checks “No,” then the combobox will be hidden again.

The 'NewItem' window shows the following state:

- Item Name:** Stylus
- Item Price:** 10
- Qty Available:** 30
- Item Category:** Accessories
- Item Description:** (Empty)
- Available to Purchase:** ☒ Yes
- Is on Sale:** ☐ Yes, ☒ No
- Add:** A button with a blue border.
- Dialog Box:** A small window with the text 'item has been added.' and an 'OK' button.

To save the item the admin must click the “Add” button. Each section corresponds to a column in the database table Item, and the values of each section the moment the button is clicked is what is saved into a new Item record. If any section except the item description is left empty, the item will not be saved into the database and an error message will be displayed to the admin

informing them of the problem. Otherwise, a message is displayed saying that the item was successfully created. If the admin clicks the back button before saving, the new item will not be saved in the database and the admin will be taken back to the items screen.

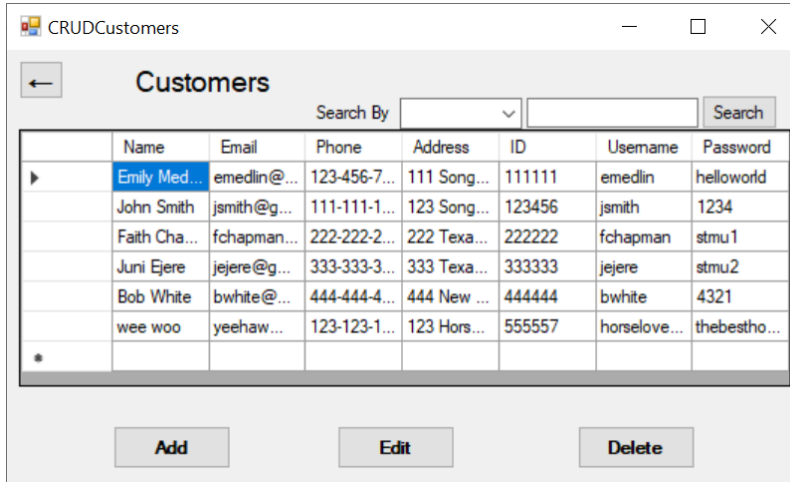


The screenshot shows a window titled "NewItem" with a standard Windows-style title bar (minimize, maximize, close buttons). Inside the window, there is a back button (left arrow) in the top left corner. The main content area is titled "Update Item". It contains several form fields and controls:

- Item#:** 222223
- Item Name:** A text box containing "Samsung S9".
- Item Price:** A text box containing "20.00".
- Qty Available:** A text box containing "3".
- Item Category:** A text box containing "Phone".
- Item Description:** A large text area.
- Available to Purchase:** Two radio buttons, "Yes" and "No". The "No" button is selected.
- Is on Sale:** Two radio buttons, "Yes" and "No". The "Yes" button is selected.
- Dropdown Menu:** A dropdown menu showing "111".
- Update Button:** A button labeled "Update" located at the bottom right of the form.

If the admin clicks the “Edit” button on the items screen, they will be presented with a new screen where they can update item information. This screen will function the same as when an item is being added to the store inventory, including displaying a message telling the admin of the order’s successful update, except here the information about the item that was selected when the admin clicked the “Edit” button in the items screen will be fetched from the database and loaded instead. The item’s number will be displayed as well.

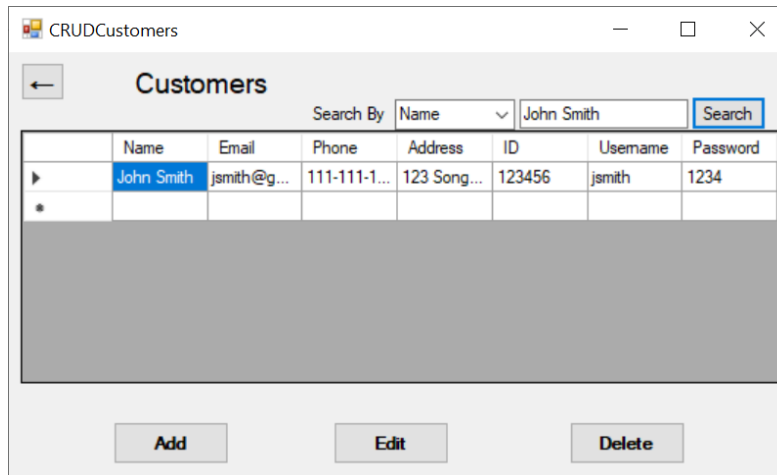
Customers Screen



The screenshot shows a web application window titled "CRUDCustomers". Inside, there's a section titled "Customers" with a back arrow button on the left. To the right of the title is a "Search By" dropdown menu and a search input field with a "Search" button. Below this is a table with 8 columns: Name, Email, Phone, Address, ID, Username, and Password. The table contains 6 rows of customer data. At the bottom of the window are three buttons: "Add", "Edit", and "Delete".

	Name	Email	Phone	Address	ID	Username	Password
▶	Emily Med...	emedlin@...	123-456-7...	111 Song...	111111	emedlin	helloworld
	John Smith	jsmith@g...	111-111-1...	123 Song...	123456	jsmith	1234
	Faith Cha...	fchapman...	222-222-2...	222 Texa...	222222	fchapman	stmu1
	Juni Ejere	jejere@g...	333-333-3...	333 Texa...	333333	jejere	stmu2
	Bob White	bwhite@...	444-444-4...	444 New ...	444444	bwhite	4321
	wee woo	yeehaw...	123-123-1...	123 Hors...	555557	horselove...	thebestho...

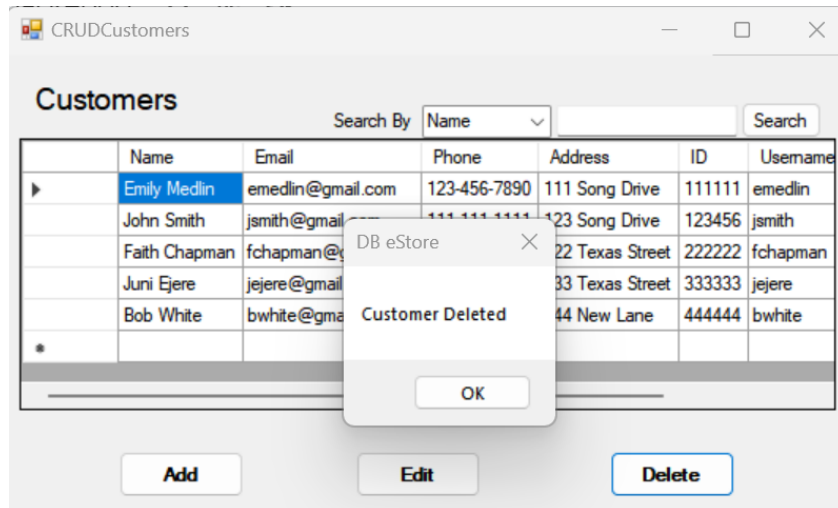
The Customer Screen is where the admin can see all the customers that have a store account, along with the customer's login information. Each customer account stores a name, email, phone number, address, and a distinct ID.



This screenshot shows the same "Customers" screen, but with search filters applied. The "Search By" dropdown is set to "Name", and the search input field contains "John Smith". The "Search" button is highlighted. The table now only displays one row for "John Smith". The rest of the interface, including the back arrow, table headers, and "Add", "Edit", "Delete" buttons, remains the same.

	Name	Email	Phone	Address	ID	Username	Password
▶	John Smith	jsmith@g...	111-111-1...	123 Song...	123456	jsmith	1234

The admin can also search for a customer by clicking the 'search by' combo box, choosing which field they would like to search by (Name, ID, or Username), typing in the keyword into the search box and clicking the search button. Clicking the back button (the button with an arrow) will take the admin back to the home screen.



A user can delete a customer directly on the customer screen by selecting the row of the customer they would like to delete, and clicking the ‘Delete’ button. A message box will pop up showing that the customer has been deleted, and the screen will automatically refresh.

Add Customer

First Name:

Last Name:

Email:

Phone Number:

Username:

Password:

Address:

ex: 1234 Random St., TX, 12345

Add

If the admin clicks the “Add” button on the customers screen, they will be presented with a new screen where they can create a customer. To add a customer, the admin will need to fill in all the textboxes, then click the “Add” button. Each section corresponds to a column in a database table—specifically, the Username and Password sections relate to the Login table, while the rest of the sections relate to the Customer table. The values of each section the moment the button is clicked is what is saved into the respective database tables. If any section is left blank an error message will be displayed to the admin informing them of the problem. An error message will also display in the following cases: a phone number, ignoring spaces, is entered in any other format other than ‘#####’, ‘(###) ###-####’, and ‘###-###-###’; an email is entered in a way that does not follow the pattern ‘string@string.string’. Otherwise, a message is displayed saying that the customer was successfully created. If the admin clicks the back button before

saving, the customer will not be saved in the database and the admin will be taken back to the customers screen.

Update Customer

First Name: Last Name:

Email: Phone Number:

Username: Password:

Address:
ex: 1234 Random St., TX, 12345

If the admin clicks the “Edit” button on the customers screen, they will be presented with a new screen where they can update customer information. This screen will function the same as when a customer is being added to the store database, including displaying a message telling the admin of the customer’s successful update. The only difference is that the customer who was selected in the customers screen to edit’s information will be loaded into the textboxes.

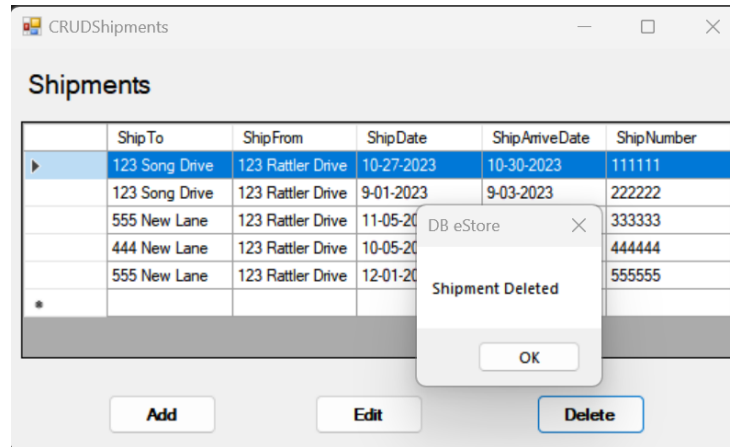
Shipments Screen

Shipments

	ShipTo	ShipFrom	ShipDate	ShipArriveDate	ShipNumber
▶	123 Song Drive	123 Rattler Drive	10-27-2023	10-30-2023	111111
	123 Song Drive	123 Rattler Drive	9-01-2023	9-03-2023	222222
	555 New Lane	123 Rattler Drive	11-05-2023	11-08-2023	333333
	444 New Lane	123 Rattler Drive	10-05-2023	10-08-2023	444444
	555 New Lane	123 Rattler Drive	12-01-2023	12-04-2023	555555
	111 Song Drive	12312 not son...	11-13-2023	12-13-2023	555556
*					

The Shipments Screen is where the admin can see all of the shipments that have been sent. Each shipment has its own separate shipment number, which distinguishes one shipment from another. The shipment also contains the date it was shipped, the address the shipment is going to, the address the shipment was sent from, and the date the shipment is estimated to arrive. The shipments can be sorted in ascending or descending order based on the date the shipment was

sent by clicking the 'ShipDate' field on the data grid. Clicking the back button (the button with an arrow) will take the admin back to the home screen.



A user can delete a shipment directly on the shipment screen by selecting the row of the shipment they would like to delete, and clicking the 'Delete' button. A message box will pop up showing that the shipment has been deleted, and the screen will automatically refresh.

The screenshot shows a window titled 'CUShipment' with a 'Create New Shipment' section. It contains a form with the following fields: Shipment# (a dropdown menu showing '555557'), Order# (a dropdown menu), CustomerID (a dropdown menu), Customer Name (a text field), Shipping To (a text field), Shipping From (a text field), Date Shipped (a text field), and Date Shipment Arrived (a text field). A 'Create Shipment' button is located at the bottom right of the form.

If the admin clicks the "Add" button on the shipments screen, they will be presented with a new screen where they can create a shipment. The program determines the shipment# for the new shipment by retrieving the latest shipment in the database's number and incrementing it. The customer ID combobox is loaded with customer IDs from the database who have orders that don't have shipments. After the customer ID combobox is loaded, the order# combobox is loaded with orders belonging to the selected customer—done by either choosing a customer ID from the customer ID dropdown menu or typing an ID directly into the combobox—that don't have a shipment#. Alternatively, if the admin knows the number of the order they're creating the shipment for, they can type the order# into the order# combobox; this will automatically select the customer ID the order belongs to. Once a customer ID has been chosen, the GUI will display the

customer's name, and the "Shipping To" section will be filled with the customer's stored address. Each section except customer ID and order#, corresponds to a column in the database table Shipment.

The screenshot shows a web application window titled "CUShipment" with a sub-header "Create New Shipment". The form includes the following fields and values:

- Shipment#: 555557
- Order#: 111666
- CustomerID: 555555
- Customer Name: Joyce Green
- Shipping To: 555 New Lane
- Shipping From: Battler Drive
- Date Shipped: (blank)
- Shipment Arrived: 024

A modal dialog box is displayed in the center with the text "shipment has been added." and an "OK" button. A "Create Shipment" button is located at the bottom right of the form.

To create a shipment, the order#, customerID, Shipping To, and Shipping From sections cannot be blank when the "Create Shipment" button is clicked; if any of those sections are blank, an error message will be displayed to the admin asking them to fix it. The values that will be saved into the database are the values of the corresponding sections when the button was clicked. If the admin's input is valid, the database will first make a new Shipment record with the section values related to it; if the "Date Shipped" section is left blank, then the shipment date will be the same date the shipment is being created; if the "Date Shipment Arrived" section is blank, then the shipment arrived date will be one month after the shipment date. After the Shipment table has been created, the database will update the shipment# of the record in the Order table with the chosen order# to the shipment# that was just created. Once the values are saved, a message is displayed saying that the shipment was successfully created. If the admin clicks the back button before saving, the shipment will not be saved in the database and the admin will be taken back to the shipments screen.

CUShipment

← Update Shipment

Shipment#: 555557 Order#: 111666

CustomerID: 555555 Customer Name: Joyce Green

Shipping To: 555 New Lane Shipping From: 123 Rattler Drive

Date Shipped: 11-16-2023 Date Shipment Arrived: 1-13-2024

Update Shipment

If the admin clicks the “Edit” button on the shipments screen, they will be presented with a new screen where they can update shipment information. This screen will function the same as when an item is being added to the store inventory, including displaying a message telling the admin of the order’s successful update, except here the information about the item that was selected when the admin clicked the “Edit” button in the items screen will be fetched from the database and loaded instead. Additionally, the shipment# combobox will be enabled.

Sales Screen

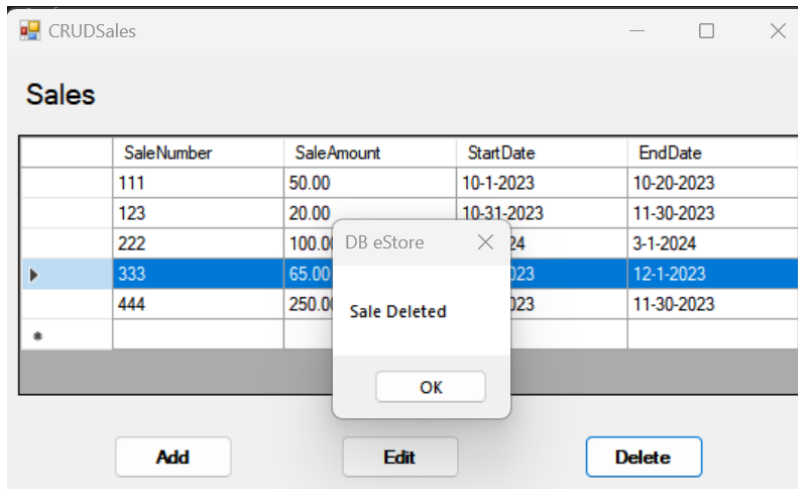
CRUDSales

← Sales

	SaleNumber	SaleAmount	StartDate	EndDate
▶	111	50.00	10-1-2023	10-20-2023
	123	20.00	10-31-2023	11-30-2023
	222	100.00	1-1-2024	3-1-2024
	333	65.00	10-1-2023	12-1-2023
	444	250.00	11-1-2023	11-30-2023
	445	41.32	11-26-2023	12-01-2023
*				

Add Edit Delete

The Sales Screen is where the admin can see all of the sales that the store has held. Each sale has its own separate sale number, which distinguishes one sale from another. The ‘Sale Amount’ field indicates the amount that is taken off the price of the item. This screen also displays the day the sale started and ended. Clicking the back button (the button with an arrow) will take the admin back to the home screen.



A user can delete a sale directly on the sale screen by selecting the row of the sale they would like to delete, and clicking the 'Delete' button. A message box will pop up showing that the sale has been deleted, and the screen will automatically refresh.

Add Sale

Sale#: 446

Sale Amount:

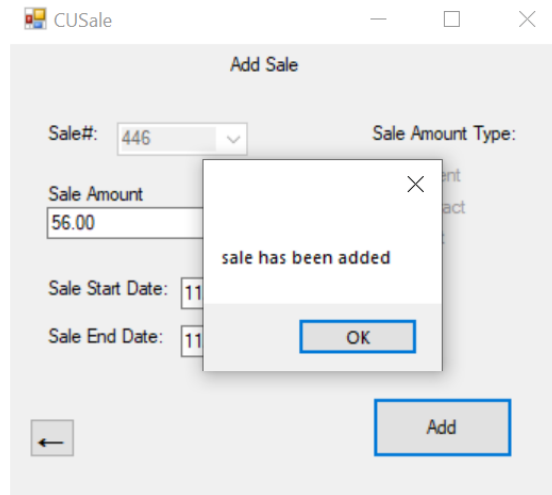
Sale Start Date: 11/16/2023

Sale End Date: 11/16/2023

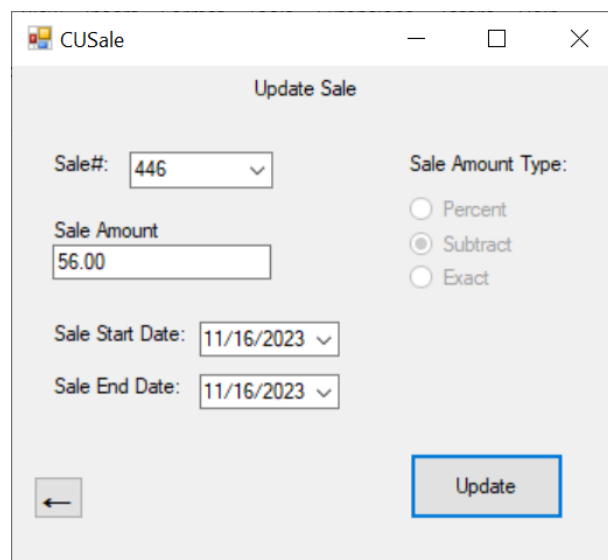
Sale Amount Type:

- ☐ Percent
- ☒ Subtract
- ☐ Exact

If the admin clicks the "Add" button on the sales screen, they will be presented with a new screen where they can create a sale. The program determines the sale# for the new sale by retrieving the latest sale in the database's number and incrementing it.



To make a sale, the admin will need to enter a sale amount, sale start date, and sale end date (by default, the sale start and end date will be the same day the sale is being made), then click the “Add” button. Each section corresponds to a column in the Sale database table. The values of each section the moment the button is clicked is what is saved into the table. If the admin clicks the back button before saving, the sale will not be saved in the database and the admin will be taken back to the sales screen.



If the admin clicks the “Edit” button on the sales screen, they will be presented with a new screen where they can update a sale’s information. This screen will function the same as when a sale is being created, including displaying a message telling the admin of the sale’s successful update. The only difference is that the sale that was selected in the sales screen’s information will be loaded.

CRDItemsOnSale

Add/Remove Items with Sale
Sale#: 333

Items in Store Add Store Item to Sale Items with Sale# Remove Item From Sale

Item#	Name
123123	iPhone 12
123456	iPhone X
222222	Galaxy Tab S9
*	

Item#	Name
*	

Selected Store Item: Selected Sale Item:

Save

If the admin double clicks on any cell in a row on the sales screen, they will be presented with a new screen where they can add items that aren't already part of a sale. On the left side of the screen, the admin will see a list of items that currently aren't part of a sale (the no-sale list). On the right side of the screen is another list that contains the items that are currently in the sale that was selected on the sales screen (the has-sale list). Information that's shown for each item in both lists is its number, name, and category type.

CRDItemsOnSale

Add/Remove Items with Sale
Sale#: 444

Items in Store Add Store Item to Sale Items with Sale# Remove Item From Sale

Item#	Name
123123	iPhone 12
123456	iPhone X
222222	Galaxy Tab S9
222224	Stylus

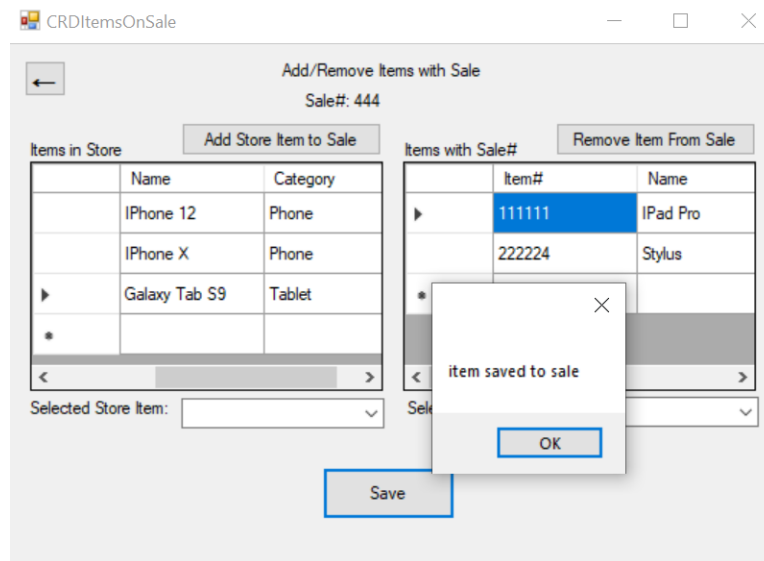
Item#	Name
111111	iPad Pro
*	

Selected Store Item: Selected Sale Item:

Save

To add an item to the current sale, whose sale# is displayed near the top, the admin must select an item from the no-sale list and click the "Add Store Item to Sale" button. To select an item, the admin can select or type a name from the combobox located under the stocklist, or click any cell in the row that contains the item they wish to add to the sale. If the latter method is done, the selected item in the combobox will automatically match the item that was clicked in the list.

Removing an item from a sale works the same way as adding an item does, except the admin needs to click the “Remove Item From Sale” button instead.



To save the items currently on the selected sale, the admin needs to click the “Save” button. For each item added to the has-sale list, the database will update the Item record with the same item# and set the sale# to the selected sale. Afterwards, for each item currently in the no-sale list, the database will update it’s corresponding record in the database and set the sale# to null if it’s sale# isn’t already (such would be the case when an item was removed from the has-sale list). Once the items on the selected sale have been updated in the database, a message will be displayed to the admin of the successful update. If the admin clicks the back button before saving, the items will not be saved under the sale in the database and the admin will be taken back to the sales screen.

CRDItemsOnSale

Add/Remove Items with Sale
Sale#: 111

Items in Store Add Store Item to Sale Items with Sale# Remove Item From Sale

Item#	Name
123123	iPhone 12
123456	iPhone X
222222	Galaxy Tab S9
*	

Item#	Name
112233	iPhone 11
222223	Samsung S9
*	

Selected Store Item: Selected Sale Item:

Save

***NOTICE* Current Sale# has expired; items with Sale# cannot be modified.**

If the selected sale has already ended, then the admin won't be able to add items to the sale or remove them, a note will be displayed on the bottom of the screen informing the admin of this, and all the buttons except the back button will be disabled.

Summary and Conclusions

The E-Store Database System project aims to replicate functions an online shop owner would need to at least function satisfactorily. This means being able to add/update/delete items, orders, and shipments. To track which order belongs to who, a way to manage customers was needed as well. Additionally, making it so that admins can have sales was an extra thing we wanted to do. This data (the customers, items, orders, shipments, and sales) would be stored in database, meaning a database schema had to be drawn up, as well as creating the actual database in a database management server. Furthermore, the admin would interact with the database through a GUI, which also needed to be designed and coded. To accomplish all of the aforementioned, MS SQL Server Management Studio 19 DBMS was used to create, store, and manage the database, C# and MS Visual Studios 2022 IDE with .NET Framework was used to create and code the GUI, and database modifications were done using SQL queries. We decided to design the GUI to run on machines using Windows 10/11 OS, as those were the machines we had access to. The database was normalized up to 3NF.

In conclusion, the project was done by a group of three computer science majors, two of which had never coded in C# before. Doing this project earned us valuable experience in not just going through the database development life cycle, but C# software development as well, both of which are applicable to our resumes.

Future Work

For future work, we would like to implement a better system for storing our passwords. Currently, our passwords are saved to the database as plain strings with the password text. For security purposes we should instead hash our passwords and store it in the database so that it is not clear what exactly the password contains. By doing so, if an unknown user gets access to the database, they will see the hashed password. In addition to this, the following functionalities:

- saving/updating item pictures
- saving/updating item descriptions (currently this is not a thing that's actually saved in the database)
- sale type - determines how the sale amount will be applied to items (percent, e.g. 25% off, 50% off, etc.; subtract, e.g. \$5 off, \$15 off, etc.; or exact, e.g. the item will be X amount for the duration of the sale)
- add items to multiple sales that don't have overlapping time frames
- a restock screen - admin would be able to order restocks and/or know what items need to be restocked
- an order case screen - admin would be able to see open cases (as in a customer had an issue with their order)

References

Aurelius Anugrah Sugianto, and Kerry H. “Rows Cannot Be Programmatically Added to the DataGridView’s Row Collection When the Control Is Data-Bound.” *Stack Overflow*, 3 Jan. 2012, stackoverflow.com/questions/8708057/rows-cannot-be-programmatically-added-to-the-datagridviews-row-collection-when.

Barsoum, Ayad. Project guidance. 08 Nov. 2023.

Boris, and Hans Passant. “How to Configure an App to Run Correctly on a Machine with a High Dpi Setting (e.g. 150%)?” *Stack Overflow*, 5 Nov. 2012, stackoverflow.com/questions/13228185/how-to-configure-an-app-to-run-correctly-on-a-machine-with-a-high-dpi-setting-e.

GuidoG, and M. Wiśnicki. “Why Is the DataGridViewrow.Cells[1].Value Returns Null While It Is Not Null?” *Stack Overflow*, 14 Dec. 2016, stackoverflow.com/questions/41144567/why-is-the-datagridviewrow-cells1-value-returns-null-while-it-is-not-null.

Gus Yorke. “How to Connect SQL Server Express Database to VS 2017.” *Stack Overflow*, 2017, stackoverflow.com/questions/43012701/how-to-connect-sql-server-express-database-to-vs-2017.

Manjot, and Aaron Bertrand. “Update a Table Using Join in SQL Server?” *Stack Overflow*, 21 Oct. 2009, stackoverflow.com/questions/1604091/update-a-table-using-join-in-sql-server.

Nightforce2, and Mark Byers. “How to Exit A Method without Exiting the Program?” *Stack Overflow*, 22 July 2010, stackoverflow.com/questions/3314305/how-to-exit-a-method-without-exiting-the-program.

seth127, and Aaron Dietz. “In SQL, Why Is This Join Returning the Key Column Twice?” *Stack Overflow*, 25 July 2017, stackoverflow.com/questions/45311834/in-sql-why-is-this-join-returning-the-key-column-twice.

user1298925, et al. “DataGridView’s Column Name Not Found.” *Stack Overflow*, 20 Feb. 2014, stackoverflow.com/questions/21913653/datagridviews-column-name-not-found.

Code Listing

Program.cs

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace eStore
{
    internal static class Program
    {
        /// <summary>
        /// The main entry point for the application.
        /// </summary>
        [STAThread]
        static void Main()
        {
            Application.EnableVisualStyles();

            Application.SetCompatibleTextRenderingDefault(false);

            Application.Run(new LoginForm());
        }
    }
}
```

```
    }  
}
```

Globals.cs

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Text;  
using System.Threading.Tasks;  
  
namespace eStore  
{  
    public static class Globals  
    {  
        public static string username;  
    }  
}
```

Login Form

```
using System;  
using System.Data.Common;  
using System.Data.SqlClient;  
using System.Windows.Forms;  
using static System.Windows.Forms.VisualStyles.VisualStyleElement;
```

```
namespace eStore
{
    public partial class LoginForm : Form
    {
        public LoginForm()
        {
            InitializeComponent();
            Console.WriteLine("hello world");
        }

        private void LoginButton_Click(object sender, EventArgs e)
        {
            string usernameBox = UsernameTextbox.Text;
            string passwordBox = PasswordTextbox.Text;

            SqlCommand command = new SqlCommand("SELECT Username, Password FROM Login WHERE Username =
@username AND Password = @password", sqlConnection1);

            command.Parameters.AddWithValue("@Username", usernameBox);
            command.Parameters.AddWithValue("@Password", passwordBox);

            sqlConnection1.Open(); // open

            SqlDataReader reader = command.ExecuteReader();
```

```
    if (reader.Read())
    {
        // Successful login, go to home screen
        HomeScreenForm homeScreen = new HomeScreenForm();

        //moving DB connection to the next form
        homeScreen.DBConnection = sqlConnection1;

        //using global variable to establish username
        Globals.username = usernameBox;

        //homeScreen
        homeScreen.Show();
        this.Hide();
        reader.Close();
    }
    else
    {
        MessageBox.Show("Invalid username or password. Please try again.");
    }
    sqlConnection1.Close(); // close
}
```

```
private void LoginForm_FormClosing(object sender, FormClosingEventArgs e)
{
    if (e.CloseReason == CloseReason.UserClosing)
    {
        Application.Exit(); // Close the entire application
    }
}
}
```

```
namespace eStore
{
    partial class LoginForm
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>

        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
```

```
/// </summary>

/// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>

protected override void Dispose(bool disposing)

{

    if (disposing && (components != null))

    {

        components.Dispose();

    }

    base.Dispose(disposing);

}


#region Windows Form Designer generated code

/// <summary>

/// Required method for Designer support - do not modify

/// the contents of this method with the code editor.

/// </summary>

private void InitializeComponent()

{
```

```
this.sqlConnection1 = new System.Data.SqlClient.SqlConnection();

this.LoginLabel = new System.Windows.Forms.Label();

this.UsernameLabel = new System.Windows.Forms.Label();

this.PasswordLabel = new System.Windows.Forms.Label();

this.UsernameTextbox = new System.Windows.Forms.TextBox();

this.PasswordTextbox = new System.Windows.Forms.TextBox();

this.LoginButton = new System.Windows.Forms.Button();

this.SuspendLayout();

//

// sqlConnection1

//

this.sqlConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +

"ue";

this.sqlConnection1.FireInfoMessageEventOnUserErrors = false;

//

// LoginLabel

//

this.LoginLabel.AutoSize = true;
```

```
        this.LoginLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 24F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.LoginLabel.Location = new System.Drawing.Point(156, 38);

        this.LoginLabel.Name = "LoginLabel";

        this.LoginLabel.Size = new System.Drawing.Size(101, 37);

        this.LoginLabel.TabIndex = 0;

        this.LoginLabel.Text = "Login";

        //

        // UsernameLabel

        //

        this.UsernameLabel.AutoSize = true;

        this.UsernameLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 20.25F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.UsernameLabel.Location = new System.Drawing.Point(136, 101);

        this.UsernameLabel.Name = "UsernameLabel";

        this.UsernameLabel.Size = new System.Drawing.Size(154, 31);

        this.UsernameLabel.TabIndex = 1;

        this.UsernameLabel.Text = "Username: ";

        //

        // PasswordLabel
```

```
//  
  
this.PasswordLabel.AutoSize = true;  
  
this.PasswordLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 20.25F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));  
  
this.PasswordLabel.Location = new System.Drawing.Point(136, 186);  
  
this.PasswordLabel.Name = "PasswordLabel";  
  
this.PasswordLabel.Size = new System.Drawing.Size(149, 31);  
  
this.PasswordLabel.TabIndex = 2;  
  
this.PasswordLabel.Text = "Password: ";  
  
this.PasswordLabel.TextAlign = System.Drawing.ContentAlignment.MiddleCenter;  
  
//  
  
// UsernameTextbox  
  
//  
  
this.UsernameTextbox.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));  
  
this.UsernameTextbox.Location = new System.Drawing.Point(108, 135);  
  
this.UsernameTextbox.Name = "UsernameTextbox";  
  
this.UsernameTextbox.Size = new System.Drawing.Size(203, 26);  
  
this.UsernameTextbox.TabIndex = 3;  
  
//
```

```
// PasswordTextbox

//

this.PasswordTextbox.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.PasswordTextbox.Location = new System.Drawing.Point(108, 220);

this.PasswordTextbox.Name = "PasswordTextbox";

this.PasswordTextbox.Size = new System.Drawing.Size(203, 26);

this.PasswordTextbox.TabIndex = 4;

//

// LoginButton

//

this.LoginButton.Location = new System.Drawing.Point(173, 272);

this.LoginButton.Name = "LoginButton";

this.LoginButton.Size = new System.Drawing.Size(75, 23);

this.LoginButton.TabIndex = 5;

this.LoginButton.Text = "Login";

this.LoginButton.UseVisualStyleBackColor = true;

this.LoginButton.Click += new System.EventHandler(this.LoginButton_Click);

//

// LoginForm
```

```
//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(421, 338);

this.Controls.Add(this.LoginButton);

this.Controls.Add(this.PasswordTextbox);

this.Controls.Add(this.UsernameTextbox);

this.Controls.Add(this.PasswordLabel);

this.Controls.Add(this.UsernameLabel);

this.Controls.Add(this.LoginLabel);

this.Name = "LoginForm";

this.Text = "LoginForm";

this.Load += new System.EventHandler(this.LoginForm_Load);

this.FormClosing += LoginForm_FormClosing; // Attach the event handler

this.ResumeLayout(false);

this.PerformLayout();

}
```

```
#endregion
```

```
private System.Data.SqlClient.SqlConnection sqlConnection1;
```

```
private System.Windows.Forms.Label LoginLabel;
```

```
private System.Windows.Forms.Label UsernameLabel;
```

```
private System.Windows.Forms.Label PasswordLabel;
```

```
private System.Windows.Forms.TextBox UsernameTextbox;
```

```
private System.Windows.Forms.TextBox PasswordTextbox;
```

```
private System.Windows.Forms.Button LoginButton;
```

```
}
```

```
}
```

Home Screen Form

```
using System;
```

```
using System.Collections.Generic;
```

```
using System.ComponentModel;
```

```
using System.Data;
```

```
using System.Data.SqlClient;
```

```
using System.Drawing;
```

```
using System.Linq;
```

```
using System.Text;
```

```
using System.Threading.Tasks;
```

```
using System.Windows.Forms;

namespace eStore
{
    public partial class HomeScreenForm : Form
    {
        public HomeScreenForm()
        {
            InitializeComponent();
        }

        public SqlConnection DBConnection;

        private void LogoutBtn_Click(object sender, EventArgs e)
        {
            // Log out and go back to login screen

            LoginForm loginPage = new LoginForm();

            loginPage.Show();

            this.Close();
        }

        private void PasswordBtn_Click(object sender, EventArgs e)
        {
            // Go to change password page

            ChangePasswordForm changePasswordForm = new ChangePasswordForm();
```

```
//moving DB connection to the next form
changePasswordForm.DBConnection = DBConnection;

//homeScreen is hidden, changePassword form is shown
changePasswordForm.Show();

this.Hide();
}

private void CustomerBtn_Click(object sender, EventArgs e)
{
    CRUDCustomers CRUDCustomers = new CRUDCustomers();
    CRUDCustomers.Show();
    this.Close();
}

private void OrderBtn_Click(object sender, EventArgs e)
{
    CRUDOrders CRUDOrders = new CRUDOrders();
    CRUDOrders.Show();
    this.Close();
}
```

```
private void ShipmentBtn_Click(object sender, EventArgs e)
{
    CRUDShipments CRUDShipments = new CRUDShipments();
    CRUDShipments.Show();
    this.Close();
}

private void ItemBtn_Click(object sender, EventArgs e)
{
    CRUDItems CRUDItems = new CRUDItems();
    CRUDItems.Show();
    this.Close();
}

private void SaleBtn_Click(object sender, EventArgs e)
{
    CRUDSales Sales = new CRUDSales();
    Sales.Show();
    this.Close();
}
}

namespace eStore
```

```
{  
    partial class HomeScreenForm  
    {  
        /// <summary>  
        /// Required designer variable.  
        /// </summary>  
        private System.ComponentModel.IContainer components = null;  
  
        /// <summary>  
        /// Clean up any resources being used.  
        /// </summary>  
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>  
        protected override void Dispose(bool disposing)  
        {  
            if (disposing && (components != null))  
            {  
                components.Dispose();  
            }  
            base.Dispose(disposing);  
        }  
  
        #region Windows Form Designer generated code
```

```
/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.PasswordBtn = new System.Windows.Forms.Button();
    this.CustomerBtn = new System.Windows.Forms.Button();
    this.OrderBtn = new System.Windows.Forms.Button();
    this.ShipmentBtn = new System.Windows.Forms.Button();
    this.ItemBtn = new System.Windows.Forms.Button();
    this.SaleBtn = new System.Windows.Forms.Button();
    this.LogoutBtn = new System.Windows.Forms.Button();
    this.SuspendLayout();

    //
    // PasswordBtn
    //

    this.PasswordBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

    this.PasswordBtn.Location = new System.Drawing.Point(126, 84);

    this.PasswordBtn.Name = "PasswordBtn";

    this.PasswordBtn.Size = new System.Drawing.Size(130, 50);

    this.PasswordBtn.TabIndex = 0;
```

```
this.PasswordBtn.Text = "Change Password";

this.PasswordBtn.UseVisualStyleBackColor = true;

this.PasswordBtn.Click += new System.EventHandler(this.PasswordBtn_Click);

//

// CustomerBtn

//

this.CustomerBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.CustomerBtn.Location = new System.Drawing.Point(126, 173);

this.CustomerBtn.Name = "CustomerBtn";

this.CustomerBtn.Size = new System.Drawing.Size(130, 50);

this.CustomerBtn.TabIndex = 1;

this.CustomerBtn.Text = "Customers";

this.CustomerBtn.UseVisualStyleBackColor = true;

this.CustomerBtn.Click += new System.EventHandler(this.CustomerBtn_Click);

//

// OrderBtn

//

this.OrderBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.OrderBtn.Location = new System.Drawing.Point(328, 84);

this.OrderBtn.Name = "OrderBtn";

this.OrderBtn.Size = new System.Drawing.Size(130, 50);

this.OrderBtn.TabIndex = 2;
```

```
this.OrderBtn.Text = "Orders";

this.OrderBtn.UseVisualStyleBackColor = true;

this.OrderBtn.Click += new System.EventHandler(this.OrderBtn_Click);

//

// ShipmentBtn

//

this.ShipmentBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.ShipmentBtn.Location = new System.Drawing.Point(328, 173);

this.ShipmentBtn.Name = "ShipmentBtn";

this.ShipmentBtn.Size = new System.Drawing.Size(130, 50);

this.ShipmentBtn.TabIndex = 3;

this.ShipmentBtn.Text = "Shipments";

this.ShipmentBtn.UseVisualStyleBackColor = true;

this.ShipmentBtn.Click += new System.EventHandler(this.ShipmentBtn_Click);

//

// ItemBtn

//

this.ItemBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.ItemBtn.Location = new System.Drawing.Point(526, 84);

this.ItemBtn.Name = "ItemBtn";

this.ItemBtn.Size = new System.Drawing.Size(130, 50);

this.ItemBtn.TabIndex = 4;
```

```
this.ItemBtn.Text = "Items";

this.ItemBtn.UseVisualStyleBackColor = true;

this.ItemBtn.Click += new System.EventHandler(this.ItemBtn_Click);

//

// SaleBtn

//

this.SaleBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.SaleBtn.Location = new System.Drawing.Point(526, 173);

this.SaleBtn.Name = "SaleBtn";

this.SaleBtn.Size = new System.Drawing.Size(130, 50);

this.SaleBtn.TabIndex = 5;

this.SaleBtn.Text = "Sales";

this.SaleBtn.UseVisualStyleBackColor = true;

this.SaleBtn.Click += new System.EventHandler(this.SaleBtn_Click);

//

// LogoutBtn

//

this.LogoutBtn.Font = new System.Drawing.Font("Microsoft Sans Serif", 9.75F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.LogoutBtn.Location = new System.Drawing.Point(722, 408);

this.LogoutBtn.Name = "LogoutBtn";

this.LogoutBtn.Size = new System.Drawing.Size(66, 30);

this.LogoutBtn.TabIndex = 6;
```

```
this.LogoutBtn.Text = "Logout";

this.LogoutBtn.UseVisualStyleBackColor = true;

this.LogoutBtn.Click += new System.EventHandler(this.LogoutBtn_Click);

//

// HomeScreenForm

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(800, 450);

this.Controls.Add(this.LogoutBtn);

this.Controls.Add(this.SaleBtn);

this.Controls.Add(this.ItemBtn);

this.Controls.Add(this.ShipmentBtn);

this.Controls.Add(this.OrderBtn);

this.Controls.Add(this.CustomerBtn);

this.Controls.Add(this.PasswordBtn);

this.Name = "HomeScreenForm";

this.Text = "HomeScreenForm";

this.Load += new System.EventHandler(this.HomeScreenForm_Load);

this.ResumeLayout(false);

}
```

```
#endregion
```

```
private System.Windows.Forms.Button PasswordBtn;  
private System.Windows.Forms.Button CustomerBtn;  
private System.Windows.Forms.Button OrderBtn;  
private System.Windows.Forms.Button ShipmentBtn;  
private System.Windows.Forms.Button ItemBtn;  
private System.Windows.Forms.Button SaleBtn;  
private System.Windows.Forms.Button LogoutBtn;  
}
```

```
}
```

ChangePassword Form

```
using System;  
using System.Collections.Generic;  
using System.ComponentModel;  
using System.Data;  
using System.Drawing;  
using System.Linq;  
using System.Text;  
using System.Threading.Tasks;  
using System.Windows.Forms;  
using System.Data.SqlClient;
```

```
using System.Diagnostics.Eventing.Reader;

namespace eStore
{
    public partial class ChangePasswordForm : Form
    {
        public SqlConnection DBConnection;
        public string username = Globals.username;
        private HomeScreenForm homeScreen = new HomeScreenForm();

        public ChangePasswordForm()
        {
            InitializeComponent();
        }

        private void ChangePasswordForm_Load(object sender, EventArgs e)
        {
            helloLabel.Text = "Hello, " + this.username;
        }

        private void submitButton_Click(object sender, EventArgs e)
        {
            string oldPasswordBox = OldPasswordBox.Text;
```

```
string newPasswordBox = NewPasswordBox.Text;

string confirmBox = ConfirmBox.Text;

SqlCommand command = new SqlCommand("SELECT Username, Password FROM Login WHERE Username =
@username AND Password = @password", DBConnection);

command.Parameters.AddWithValue("@Username", username);
command.Parameters.AddWithValue("@Password", oldPasswordBox);

DBConnection.Open(); // open

SqlDataReader reader = command.ExecuteReader();

if (reader.Read())
{
    if(newPasswordBox == confirmBox && newPasswordBox != "")
    {
        reader.Close();

        SqlCommand command2 = new SqlCommand("UPDATE Login SET Password = @newPassword WHERE
Username = @Username", DBConnection);

        command2.Parameters.AddWithValue("@Username", username);
        command2.Parameters.AddWithValue("@newPassword", confirmBox);
        command2.ExecuteNonQuery();

        MessageBox.Show("Password has been updated.");

        homeScreen.Show();

        this.Close();
    }
}
```

```
        }
        else
        {
            MessageBox.Show("New password does not match. Please try again.");
        }
    }
    else
    {
        MessageBox.Show("Incorrect old password. Please try again.");
    }

    reader.Close();
    DBConnection.Close();

}

private void BackButton_Click(object sender, EventArgs e)
{
    homeScreen.Show();
    this.Close();
}

}
```

```
}  
  
namespace eStore  
  
{  
  
    partial class ChangePasswordForm  
    {  
  
        /// <summary>  
        /// Required designer variable.  
        /// </summary>  
  
        private System.ComponentModel.IContainer components = null;  
  
        /// <summary>  
        /// Clean up any resources being used.  
        /// </summary>  
  
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>  
        protected override void Dispose(bool disposing)  
        {  
            if (disposing && (components != null))  
            {  
                components.Dispose();  
            }  
        }  
    }  
}
```

```
    }

    base.Dispose(disposing);
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.helloLabel = new System.Windows.Forms.Label();

    this.label1 = new System.Windows.Forms.Label();

    this.OldPasswordBox = new System.Windows.Forms.TextBox();

    this.label2 = new System.Windows.Forms.Label();

    this.label3 = new System.Windows.Forms.Label();

    this.NewPasswordBox = new System.Windows.Forms.TextBox();

    this.label4 = new System.Windows.Forms.Label();
}
```

```
this.ConfirmBox = new System.Windows.Forms.TextBox();

this.submitButton = new System.Windows.Forms.Button();

this.BackButton = new System.Windows.Forms.Button();

this.SuspendLayout();

//

// helloLabel

//

this.helloLabel.AutoSize = true;

this.helloLabel.Font = new System.Drawing.Font("Microsoft Sans Serif", 21.75F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.helloLabel.Location = new System.Drawing.Point(172, 48);

this.helloLabel.Name = "helloLabel";

this.helloLabel.Size = new System.Drawing.Size(96, 33);

this.helloLabel.TabIndex = 0;

this.helloLabel.Text = "Hello!";

//

// label1

//

this.label1.AutoSize = true;
```

```
        this.label1.Font = new System.Drawing.Font("Microsoft Sans Serif", 15.75F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.label1.Location = new System.Drawing.Point(68, 81);

        this.label1.Name = "label1";

        this.label1.Size = new System.Drawing.Size(451, 25);

        this.label1.TabIndex = 1;

        this.label1.Text = "Would you like to change your password?";

        //

        // OldPasswordBox

        //

        this.OldPasswordBox.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.OldPasswordBox.Location = new System.Drawing.Point(178, 189);

        this.OldPasswordBox.Name = "OldPasswordBox";

        this.OldPasswordBox.Size = new System.Drawing.Size(220, 26);

        this.OldPasswordBox.TabIndex = 2;

        //

        // label2

        //

        this.label2.AutoSize = true;
```

```
        this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.label2.Location = new System.Drawing.Point(225, 166);

        this.label2.Name = "label2";

        this.label2.Size = new System.Drawing.Size(110, 20);

        this.label2.TabIndex = 3;

        this.label2.Text = "Old Password:";

//

// label3

//

        this.label3.AutoSize = true;

        this.label3.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.label3.Location = new System.Drawing.Point(225, 239);

        this.label3.Name = "label3";

        this.label3.Size = new System.Drawing.Size(117, 20);

        this.label3.TabIndex = 5;

        this.label3.Text = "New Password:";

//

// NewPasswordBox
```

```
//  
  
    this.NewPasswordBox.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));  
  
    this.NewPasswordBox.Location = new System.Drawing.Point(178, 262);  
  
    this.NewPasswordBox.Name = "NewPasswordBox";  
  
    this.NewPasswordBox.Size = new System.Drawing.Size(220, 26);  
  
    this.NewPasswordBox.TabIndex = 4;  
  
//  
  
// label4  
  
//  
  
    this.label4.AutoSize = true;  
  
    this.label4.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));  
  
    this.label4.Location = new System.Drawing.Point(202, 303);  
  
    this.label4.Name = "label4";  
  
    this.label4.Size = new System.Drawing.Size(176, 20);  
  
    this.label4.TabIndex = 7;  
  
    this.label4.Text = "Confirm New Password:";  
  
//  
  
// ConfirmBox
```

```
//  
  
    this.ConfirmBox.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));  
  
    this.ConfirmBox.Location = new System.Drawing.Point(178, 337);  
  
    this.ConfirmBox.Name = "ConfirmBox";  
  
    this.ConfirmBox.Size = new System.Drawing.Size(220, 26);  
  
    this.ConfirmBox.TabIndex = 6;  
  
//  
  
// submitButton  
  
//  
  
    this.submitButton.Location = new System.Drawing.Point(229, 387);  
  
    this.submitButton.Name = "submitButton";  
  
    this.submitButton.Size = new System.Drawing.Size(124, 23);  
  
    this.submitButton.TabIndex = 8;  
  
    this.submitButton.Text = "Change Password";  
  
    this.submitButton.UseVisualStyleBackColor = true;  
  
    this.submitButton.Click += new System.EventHandler(this.submitButton_Click);  
  
//  
  
// BackButton  
  
//
```

```
this.BackButton.Location = new System.Drawing.Point(479, 398);

this.BackButton.Name = "BackButton";

this.BackButton.Size = new System.Drawing.Size(75, 23);

this.BackButton.TabIndex = 9;

this.BackButton.Text = "Back";

this.BackButton.UseVisualStyleBackColor = true;

this.BackButton.Click += new System.EventHandler(this.BackButton_Click);

//

// ChangePasswordForm

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(566, 433);

this.Controls.Add(this.BackButton);

this.Controls.Add(this.submitButton);

this.Controls.Add(this.label4);

this.Controls.Add(this.ConfirmBox);

this.Controls.Add(this.label3);

this.Controls.Add(this.NewPasswordBox);
```

```
        this.Controls.Add(this.label2);

        this.Controls.Add(this.OldPasswordBox);

        this.Controls.Add(this.label1);

        this.Controls.Add(this.helloLabel);

        this.Name = "ChangePasswordForm";

        this.Text = "ChangePasswordForm";

        this.Load += new System.EventHandler(this.ChangePasswordForm_Load);

        this.ResumeLayout(false);

        this.PerformLayout();

    }

#endregion


private System.Windows.Forms.Label helloLabel;

private System.Windows.Forms.Label label1;

private System.Windows.Forms.TextBox OldPasswordBox;

private System.Windows.Forms.Label label2;

private System.Windows.Forms.Label label3;
```

```
        private System.Windows.Forms.TextBox NewPasswordBox;

        private System.Windows.Forms.Label label4;

        private System.Windows.Forms.TextBox ConfirmBox;

        private System.Windows.Forms.Button submitButton;

        private System.Windows.Forms.Button BackButton;

    }

}
```

CRUD Customers

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Common;

using System.Data.Odbc;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;
```

```
namespace eStore
{
    public partial class CRUDCustomers : Form
    {
        public HomeScreenForm homeScreen = new HomeScreenForm();

        public CRUDCustomers()
        {
            InitializeComponent();
        }

        private void CRUDCustomers_Load(object sender, EventArgs e)
        {
            try
            {
                DatabaseConnection1.Open();

                SqlCommand cmdItems = DatabaseConnection1.CreateCommand();

                cmdItems.CommandText = @"SELECT Name, Email, Phone, Address, ID, Username, Password
                                        FROM Customer JOIN Login ON ID = CustomerID";

                SqlDataReader reader = cmdItems.ExecuteReader();

                DataTable tempTable = new DataTable();
```

```
tempTable.Load(reader);

dgvItems.DataSource = tempTable;

reader.Close();

//fill combo box with possible search by attributes

string[] searchBy = { "Name", "ID", "Username" };
searchByBox.Items.AddRange(searchBy);
}
catch (Exception ex)
{
    MessageBox.Show(ex.Message);
}
}

//addButtonClick
private void button1_Click(object sender, EventArgs e)
{
    CUCustomer frm = new CUCustomer(); //create instance of that form's object
    frm.Show();
    this.Close();
}
```

```
}
```

```
private void editButton_Click(object sender, EventArgs e)
```

```
{
```

```
    int customerID = (int)(dgvItems.CurrentRow.Cells["ID"].Value);
```

```
    CUCustomer frm = new CUCustomer(customerID); //create instance of that form's object
```

```
    frm.Show();
```

```
    this.Close();
```

```
}
```

```
private void searchButton_Click(object sender, EventArgs e)
```

```
{
```

```
    string cust = searchBox1.Text;
```

```
    if (cust == "")
```

```
    {
```

```
        SqlCommand cmdSearchCust = DatabaseConnection1.CreateCommand();
```

```
        cmdSearchCust.CommandText = @"SELECT Name, Email, Phone, Address, ID, Username, Password
```

```
            FROM Customer JOIN Login ON ID = CustomerID";
```

```
        SqlDataReader reader = cmdSearchCust.ExecuteReader();
```

```
        DataTable tempTable = new DataTable();

        tempTable.Load(reader);

        dgvItems.DataSource = tempTable;

        reader.Close();
    }
    else
    {
        string searchBy = searchByBox.Text;

        SqlCommand cmdSearchedItem = DatabaseConnection1.CreateCommand();

        //change query based on which attribute we are searching for
        switch (searchBy)
        {
            case "Name":
                cmdSearchedItem.CommandText = @"SELECT Name, Email, Phone, Address, ID,
                                                Username, Password
                                                FROM Customer JOIN Login ON ID = CustomerID
                                                WHERE Name = @br";

                break;
            case "ID":
                cmdSearchedItem.CommandText = @"SELECT Name, Email, Phone, Address, ID,
```

```
                                Username, Password
                                FROM Customer JOIN Login ON ID = CustomerID
                                WHERE ID = @br";

        break;
    case "Username":
        cmdSearchedItem.CommandText = @"SELECT Name, Email, Phone, Address, ID,
                                Username, Password
                                FROM Customer JOIN Login ON ID = CustomerID
                                WHERE Username = @br";

        break;
    }

    cmdSearchedItem.Parameters.AddWithValue("@br", cust);

    SqlDataReader reader = cmdSearchedItem.ExecuteReader();

    DataTable tempTable = new DataTable();
    tempTable.Load(reader);

    dgvItems.DataSource = tempTable;

    reader.Close();
}
```

```
}

private void backButton_Click(object sender, EventArgs e)
{
    homeScreen.Show();
    this.Close();
}

private void deleteButton_Click(object sender, EventArgs e)
{
    //string Row = dgvItems.CurrentCell.Value.ToString();

    string Row = dgvItems.CurrentRow.Cells["ID"].Value.ToString();

    SqlCommand cmdDel = DatabaseConnection1.CreateCommand();

    cmdDel.CommandText = @"DELETE

FROM Customer

WHERE ID = @br";

    cmdDel.Parameters.AddWithValue("@br", Row);
```

```
SqlDataReader reader1 = cmdDel.ExecuteReader();

reader1.Close();

//show that the item has been deleted

MessageBox.Show("Customer Deleted", "DB eStore");

//refresh the data grid view

SqlCommand cmdRefresh = DatabaseConnection1.CreateCommand();

cmdRefresh.CommandText = @"SELECT Name, Email, Phone, Address, ID, Username, Password

FROM Customer JOIN Login ON ID = CustomerID";

SqlDataReader reader2 = cmdRefresh.ExecuteReader();

DataTable tempTable = new DataTable();

tempTable.Load(reader2);

dgvItems.DataSource = tempTable;
```

```
        reader2.Close();
    }
}

namespace eStore
{
    partial class CRUDCustomers
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
        }
    }
}
```

```
    }

    base.Dispose(disposing);
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.deleteButton = new System.Windows.Forms.Button();
    this.editButton = new System.Windows.Forms.Button();
    this.addButton = new System.Windows.Forms.Button();
    this.lblItems = new System.Windows.Forms.Label();
    this.dgvItems = new System.Windows.Forms.DataGridView();
    this.label3 = new System.Windows.Forms.Label();
    this.searchByBox = new System.Windows.Forms.ComboBox();
    this.searchButton = new System.Windows.Forms.Button();
    this.searchBox1 = new System.Windows.Forms.TextBox();
    this.DatabaseConnection1 = new System.Data.SqlClient.SqlConnection();
    this.backButton = new System.Windows.Forms.Button();
```

```
((System.ComponentModel.ISupportInitialize)(this.dgvItems)).BeginInit();

this.SuspendLayout();

//

// deleteButton

//

this.deleteButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.deleteButton.Location = new System.Drawing.Point(382, 251);

this.deleteButton.Margin = new System.Windows.Forms.Padding(2);

this.deleteButton.Name = "deleteButton";

this.deleteButton.Size = new System.Drawing.Size(79, 29);

this.deleteButton.TabIndex = 9;

this.deleteButton.Text = "Delete";

this.deleteButton.UseVisualStyleBackColor = true;

this.deleteButton.Click += new System.EventHandler(this.deleteButton_Click);

//

// editButton

//

this.editButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.editButton.Location = new System.Drawing.Point(221, 251);

this.editButton.Margin = new System.Windows.Forms.Padding(2);

this.editButton.Name = "editButton";

this.editButton.Size = new System.Drawing.Size(79, 29);
```

```
this.editButton.TabIndex = 8;

this.editButton.Text = "Edit";

this.editButton.UseVisualStyleBackColor = true;

this.editButton.Click += new System.EventHandler(this.editButton_Click);

//

// addButton

//

this.addButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.addButton.Location = new System.Drawing.Point(71, 251);

this.addButton.Margin = new System.Windows.Forms.Padding(2);

this.addButton.Name = "addButton";

this.addButton.Size = new System.Drawing.Size(79, 29);

this.addButton.TabIndex = 7;

this.addButton.Text = "Add";

this.addButton.UseVisualStyleBackColor = true;

this.addButton.Click += new System.EventHandler(this.button1_Click);

//

// lblItems

//

this.lblItems.AutoSize = true;

this.lblItems.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.lblItems.Location = new System.Drawing.Point(82, 9);
```

```
this.lblItems.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblItems.Name = "lblItems";
this.lblItems.Size = new System.Drawing.Size(100, 24);
this.lblItems.TabIndex = 6;
this.lblItems.Text = "Customers";
//
// dgvItems
//
this.dgvItems.AutoSizeColumnsMode = System.Windows.Forms.DataGridViewAutoSizeColumnsMode.Fill;
this.dgvItems.AutoSizeRowsMode = System.Windows.Forms.DataGridViewAutoSizeRowsMode.AllCells;
this.dgvItems.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;
this.dgvItems.Location = new System.Drawing.Point(8, 53);
this.dgvItems.Margin = new System.Windows.Forms.Padding(2);
this.dgvItems.Name = "dgvItems";
this.dgvItems.RowHeadersWidth = 62;
this.dgvItems.RowTemplate.Height = 28;
this.dgvItems.Size = new System.Drawing.Size(517, 172);
this.dgvItems.TabIndex = 5;
this.dgvItems.CellContentClick += new
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvItems_CellContentClick);
//
// label3
//
```

```
this.label3.AutoSize = true;

this.label3.Location = new System.Drawing.Point(204, 35);

this.label3.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.label3.Name = "label3";

this.label3.Size = new System.Drawing.Size(56, 13);

this.label3.TabIndex = 13;

this.label3.Text = "Search By";

//

// searchByBox

//

this.searchByBox.FormattingEnabled = true;

this.searchByBox.Location = new System.Drawing.Point(263, 32);

this.searchByBox.Margin = new System.Windows.Forms.Padding(2);

this.searchByBox.Name = "searchByBox";

this.searchByBox.Size = new System.Drawing.Size(82, 21);

this.searchByBox.TabIndex = 12;

//

// searchButton

//

this.searchButton.AutoSize = true;

this.searchButton.Location = new System.Drawing.Point(465, 30);

this.searchButton.Margin = new System.Windows.Forms.Padding(2);

this.searchButton.Name = "searchButton";
```

```
this.searchButton.Size = new System.Drawing.Size(51, 23);

this.searchButton.TabIndex = 11;

this.searchButton.Text = "Search";

this.searchButton.UseVisualStyleBackColor = true;

this.searchButton.Click += new System.EventHandler(this.searchButton_Click);

//

// searchBox1

//

this.searchBox1.Location = new System.Drawing.Point(348, 32);

this.searchBox1.Margin = new System.Windows.Forms.Padding(2);

this.searchBox1.Name = "searchBox1";

this.searchBox1.Size = new System.Drawing.Size(115, 20);

this.searchBox1.TabIndex = 10;

//

// DatabaseConnection1

//

this.DatabaseConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
"ue";

this.DatabaseConnection1.FireInfoMessageEventOnUserErrors = false;

//

// backButton

//
```

```
        this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte) 0));

        this.backButton.Location = new System.Drawing.Point(8, 7);

        this.backButton.Name = "backButton";

        this.backButton.Size = new System.Drawing.Size(30, 26);

        this.backButton.TabIndex = 14;

        this.backButton.Text = "←";

        this.backButton.UseVisualStyleBackColor = true;

        this.backButton.Click += new System.EventHandler(this.backButton_Click);

        //

        // CRUDCustomers

        //

        this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

        this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

        this.AutoSize = true;

        this.ClientSize = new System.Drawing.Size(533, 292);

        this.Controls.Add(this.backButton);

        this.Controls.Add(this.label3);

        this.Controls.Add(this.searchByBox);

        this.Controls.Add(this.searchButton);

        this.Controls.Add(this.searchBox1);

        this.Controls.Add(this.deleteButton);

        this.Controls.Add(this.editButton);
```

```
this.Controls.Add(this.addButton);

this.Controls.Add(this.lblItems);

this.Controls.Add(this.dgvItems);

this.Margin = new System.Windows.Forms.Padding(2);

this.Name = "CRUDCustomers";

this.Text = "CRUDCustomers";

this.Load += new System.EventHandler(this.CRUDCustomers_Load);

((System.ComponentModel.ISupportInitialize)(this.dgvItems)).EndInit();

this.ResumeLayout(false);

this.PerformLayout();

}

#endregion

private System.Windows.Forms.Button deleteButton;

private System.Windows.Forms.Button editButton;

private System.Windows.Forms.Button addButton;

private System.Windows.Forms.Label lblItems;

private System.Windows.Forms.DataGridView dgvItems;

private System.Windows.Forms.Label label3;

private System.Windows.Forms.ComboBox searchByBox;

private System.Windows.Forms.Button searchButton;
```

```
        private System.Windows.Forms.TextBox searchBox1;

        private System.Data.SqlClient.SqlConnection DatabaseConnection1;

        private System.Windows.Forms.Button backButton;
    }
}
```

CRUD Items

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Data.SqlClient;

using System.Data.Common;

namespace eStore

{

    public partial class CRUDItems : Form

    {
```

```
public CRUDItems()
{
    InitializeComponent();
}

private void CRUDItems_Load_1(object sender, EventArgs e)
{
    try
    {
        DBConnection1.Open();

        SqlCommand cmdItems = DBConnection1.CreateCommand();
        cmdItems.CommandText = @"SELECT *
                                FROM Item";

        SqlDataReader reader = cmdItems.ExecuteReader();

        DataTable tempTable = new DataTable();
        tempTable.Load(reader);

        dgvItems1.DataSource = tempTable;

        reader.Close();
    }
}
```

```
//fill combo box with possible search by attributes

string[] searchBy = { "ItemName", "ItemNumber", "Category", "SaleNumber" };
searchByBox.Items.AddRange(searchBy);

}

catch (Exception ex)
{
    MessageBox.Show(ex.Message);
}

}

private void addButton_Click(object sender, EventArgs e)
{
    CUIItem frm = new CUIItem();
    frm.Show();
    this.Close();
}

private void editButton_Click(object sender, EventArgs e)
{
    int itemNum = (int)dgvItems1.CurrentRow.Cells["ItemNumber"].Value;
    CUIItem frm = new CUIItem(itemNum);
```

```
        frm.Show();  
        this.Close();  
    }  
  
    private void deleteButton_Click(object sender, EventArgs e)  
    {  
        //string Row = dgvItems1.CurrentCell.Value.ToString();  
  
        string Row = dgvItems1.CurrentRow.Cells["ItemNumber"].Value.ToString();  
  
        SqlCommand cmdDel = DBConnection1.CreateCommand();  
  
        cmdDel.CommandText = @"DELETE  
  
FROM Item  
  
WHERE ItemNumber = @br";  
  
        cmdDel.Parameters.AddWithValue("@br", Row);  
  
        SqlDataReader reader1 = cmdDel.ExecuteReader();  
  
        reader1.Close();
```

```
//show that the item has been deleted

MessageBox.Show("Item Deleted", "DB eStore");

//refresh the data grid view

SqlCommand cmdRefresh = DBConnection1.CreateCommand();

cmdRefresh.CommandText = @"SELECT *

FROM Item";

SqlDataReader reader2 = cmdRefresh.ExecuteReader();

DataTable tempTable = new DataTable();

tempTable.Load(reader2);

dgvItems1.DataSource = tempTable;

reader2.Close();
```

```
}

private void searchButton_Click(object sender, EventArgs e)
{
    string it = searchBox1.Text;

    if (it == "")
    {
        SqlCommand cmdSearchedItem = DBConnection1.CreateCommand();
        cmdSearchedItem.CommandText = @"SELECT *
                                        FROM Item";

        SqlDataReader reader = cmdSearchedItem.ExecuteReader();

        DataTable tempTable = new DataTable();
        tempTable.Load(reader);

        dgvItems1.DataSource = tempTable;

        reader.Close();
    }
    else
    {
        string searchBy = searchByBox.Text;
```

```
SqlCommand cmdSearchedItem = DBConnection1.CreateCommand();

//change query based on which attribute we are searching for
switch (searchBy)
{
    case "ItemName":
        cmdSearchedItem.CommandText = @"SELECT *
                                        FROM Item
                                        WHERE ItemName = @item";

        break;
    case "ItemNumber":
        cmdSearchedItem.CommandText = @"SELECT *
                                        FROM Item
                                        WHERE ItemNumber = @item";

        break;
    case "Category":
        cmdSearchedItem.CommandText = @"SELECT *
                                        FROM Item
                                        WHERE Category = @item";

        break;
    case "SaleNumber":
        cmdSearchedItem.CommandText = @"SELECT *
                                        FROM Item
```

```
                WHERE ItemNumber = @item";

                break;
            }

            cmdSearchedItem.Parameters.AddWithValue("@item", it);

            SqlDataReader reader = cmdSearchedItem.ExecuteReader();

            DataTable tempTable = new DataTable();
            tempTable.Load(reader);

            dgvItems1.DataSource = tempTable;

            reader.Close();
        }
    }

    private void backButton_Click(object sender, EventArgs e)
    {
        HomeScreenForm frm = new HomeScreenForm();
        frm.Show();
        this.Close();
    }
}
```

```
    }
}
namespace eStore
{
    partial class CRUDItems
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
            base.Dispose(disposing);
        }
    }
}
```

```
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.dgvItems1 = new System.Windows.Forms.DataGridView();
    this.label2 = new System.Windows.Forms.Label();
    this.addButton = new System.Windows.Forms.Button();
    this.editButton = new System.Windows.Forms.Button();
    this.deleteButton = new System.Windows.Forms.Button();
    this.DBConnection1 = new System.Data.SqlClient.SqlConnection();
    this.searchBox1 = new System.Windows.Forms.TextBox();
    this.searchButton = new System.Windows.Forms.Button();
    this.searchByBox = new System.Windows.Forms.ComboBox();
    this.label3 = new System.Windows.Forms.Label();
    this.backButton = new System.Windows.Forms.Button();
    ((System.ComponentModel.ISupportInitialize)(this.dgvItems1)).BeginInit();
    this.SuspendLayout();
}
```

```
//  
// dgvItems1  
//  
this.dgvItems1.AllowUserToOrderColumns = true;  
  
this.dgvItems1.ColumnHeadersHeightSizeMode =  
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;  
  
this.dgvItems1.Location = new System.Drawing.Point(12, 82);  
  
this.dgvItems1.Name = "dgvItems1";  
  
this.dgvItems1.RowHeadersWidth = 62;  
  
this.dgvItems1.RowTemplate.Height = 28;  
  
this.dgvItems1.Size = new System.Drawing.Size(776, 265);  
  
this.dgvItems1.TabIndex = 0;  
  
this.dgvItems1.CellContentClick += new  
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvItems1_CellContentClick);  
  
//  
// label2  
//  
this.label2.AutoSize = true;  
  
this.label2.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,  
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));  
  
this.label2.Location = new System.Drawing.Point(127, 27);  
  
this.label2.Name = "label2";  
  
this.label2.Size = new System.Drawing.Size(54, 24);  
  
this.label2.TabIndex = 1;
```

```
this.label2.Text = "Items";

this.label2.Click += new System.EventHandler(this.label2_Click);

//

// addButton

//

this.addButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.addButton.Location = new System.Drawing.Point(106, 386);

this.addButton.Name = "addButton";

this.addButton.Size = new System.Drawing.Size(119, 44);

this.addButton.TabIndex = 2;

this.addButton.Text = "Add";

this.addButton.UseVisualStyleBackColor = true;

this.addButton.Click += new System.EventHandler(this.addButton_Click);

//

// editButton

//

this.editButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.editButton.Location = new System.Drawing.Point(331, 386);

this.editButton.Name = "editButton";

this.editButton.Size = new System.Drawing.Size(119, 44);

this.editButton.TabIndex = 3;

this.editButton.Text = "Edit";
```

```
this.editButton.UseVisualStyleBackColor = true;

this.editButton.Click += new System.EventHandler(this.editButton_Click);

//

// deleteButton

//

this.deleteButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.deleteButton.Location = new System.Drawing.Point(573, 386);

this.deleteButton.Name = "deleteButton";

this.deleteButton.RightToLeft = System.Windows.Forms.RightToLeft.Yes;

this.deleteButton.Size = new System.Drawing.Size(119, 44);

this.deleteButton.TabIndex = 4;

this.deleteButton.Text = "Delete";

this.deleteButton.UseVisualStyleBackColor = true;

this.deleteButton.Click += new System.EventHandler(this.deleteButton_Click);

//

// DBConnection1

//

this.DBConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +

"ue";

this.DBConnection1.FireInfoMessageEventOnUserErrors = false;

//

// searchBox1
```

```
//  
this.searchBox1.Location = new System.Drawing.Point(522, 32);  
this.searchBox1.Name = "searchBox1";  
this.searchBox1.Size = new System.Drawing.Size(170, 20);  
this.searchBox1.TabIndex = 5;  
  
//  
// searchButton  
//  
this.searchButton.Location = new System.Drawing.Point(698, 32);  
this.searchButton.Name = "searchButton";  
this.searchButton.Size = new System.Drawing.Size(75, 26);  
this.searchButton.TabIndex = 6;  
this.searchButton.Text = "Search";  
this.searchButton.UseVisualStyleBackColor = true;  
this.searchButton.Click += new System.EventHandler(this.searchButton_Click);  
  
//  
// searchByBox  
//  
this.searchByBox.FormattingEnabled = true;  
this.searchByBox.Location = new System.Drawing.Point(395, 32);  
this.searchByBox.Name = "searchByBox";  
this.searchByBox.Size = new System.Drawing.Size(121, 21);  
this.searchByBox.TabIndex = 7;
```

```
//  
// label3  
//  
this.label3.AutoSize = true;  
this.label3.Location = new System.Drawing.Point(325, 36);  
this.label3.Name = "label3";  
this.label3.Size = new System.Drawing.Size(56, 13);  
this.label3.TabIndex = 8;  
this.label3.Text = "Search By";  
//  
// backButton  
//  
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));  
this.backButton.Location = new System.Drawing.Point(12, 12);  
this.backButton.Name = "backButton";  
this.backButton.Size = new System.Drawing.Size(34, 24);  
this.backButton.TabIndex = 9;  
this.backButton.Text = "←";  
this.backButton.UseVisualStyleBackColor = true;  
this.backButton.Click += new System.EventHandler(this.backButton_Click);  
//  
// CRUDItems
```

```
//
this.ClientSize = new System.Drawing.Size(800, 450);
this.Controls.Add(this.backButton);
this.Controls.Add(this.label3);
this.Controls.Add(this.searchByBox);
this.Controls.Add(this.searchButton);
this.Controls.Add(this.searchBox1);
this.Controls.Add(this.deleteButton);
this.Controls.Add(this.editButton);
this.Controls.Add(this.addButton);
this.Controls.Add(this.label2);
this.Controls.Add(this.dgvItems1);
this.Name = "CRUDItems";
this.Text = "CRUDItems";
this.Load += new System.EventHandler(this.CRUDItems_Load_1);
((System.ComponentModel.ISupportInitialize)(this.dgvItems1)).EndInit();
this.ResumeLayout(false);
this.PerformLayout();

}

#endregion
```

```
private System.Windows.Forms.DataGridView dgvItems;
private System.Windows.Forms.Label lblItems;
private System.Windows.Forms.Button addBtn;
private System.Windows.Forms.Button button2;
private System.Windows.Forms.Button button3;
private System.Data.SqlClient.SqlConnection DatabaseConnection1;
private System.Windows.Forms.Button button1;
private System.Windows.Forms.Label label1;
private System.Windows.Forms.DataGridView dgvItems1;
private System.Windows.Forms.Label label2;
private System.Windows.Forms.Button addButton;
private System.Windows.Forms.Button editButton;
private System.Windows.Forms.Button deleteButton;
private System.Data.SqlClient.SqlConnection DBConnection1;
private System.Windows.Forms.TextBox searchBox1;
private System.Windows.Forms.Button searchButton;
private System.Windows.Forms.ComboBox searchByBox;
private System.Windows.Forms.Label label3;
private System.Windows.Forms.Button backButton;
}
}
```

CRUD Orders

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Common;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace eStore

{

    public partial class CRUDOrders : Form

    {

        public CRUDOrders()

        {

            InitializeComponent();

        }

        private void dgvItems_CellContentClick(object sender, DataGridViewCellEventArgs e)
```

```
{  
  
}
```

```
private void CRUDOrders_Load(object sender, EventArgs e)  
{  
    try  
    {  
        DBConnection1.Open();  
  
        SqlCommand cmdOrders = DBConnection1.CreateCommand();  
        cmdOrders.CommandText = @"SELECT *  
                                FROM [Order]";  
  
        SqlDataReader reader = cmdOrders.ExecuteReader();  
  
        DataTable tempTable = new DataTable();  
        tempTable.Load(reader);  
  
        dgvItems.DataSource = tempTable;  
  
        reader.Close();  
    }  
}
```

```
    }

    catch (Exception ex)
    {
        MessageBox.Show(ex.Message);
    }
}

private void addButton_Click(object sender, EventArgs e)
{
    CUOrder frm = new CUOrder();
    frm.Show();
    this.Close();
}

private void editButton_Click(object sender, EventArgs e)
{
    int orderNum = (int)(dgvItems.CurrentRow.Cells["OrderNumber"].Value);
    CUOrder frm = new CUOrder(orderNum);
    frm.Show();
    this.Close();
}

private void deleteButton_Click(object sender, EventArgs e)
```

```
{  
    //string Row = dgvItems.CurrentCell.Value.ToString();  
  
    string Row = dgvItems.CurrentRow.Cells["OrderNumber"].Value.ToString();  
  
    SqlCommand cmdDel = DBConnection1.CreateCommand();  
  
    cmdDel.CommandText = @"DELETE  
  
FROM [Order]  
  
WHERE OrderNumber = @br";  
  
    cmdDel.Parameters.AddWithValue("@br", Row);  
  
    SqlDataReader reader1 = cmdDel.ExecuteReader();  
  
    reader1.Close();  
  
    //show that the item has been deleted  
  
    MessageBox.Show("Order Deleted", "DB eStore");
```

```
//refresh the data grid view

SqlCommand cmdRefresh = DBConnection1.CreateCommand();

cmdRefresh.CommandText = @"SELECT *

FROM [Order]";

SqlDataReader reader2 = cmdRefresh.ExecuteReader();

DataTable tempTable = new DataTable();

tempTable.Load(reader2);

dgvItems.DataSource = tempTable;

reader2.Close();

}

private void backButton_Click(object sender, EventArgs e)

{

    HomeScreenForm frm = new HomeScreenForm();

    frm.Show();

    this.Close();

}
```

```
    }
}

namespace eStore
{
    partial class CRUDOrders
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
        }
    }
}
```

```
        base.Dispose(disposing);
    }

    #region Windows Form Designer generated code

    /// <summary>
    /// Required method for Designer support - do not modify
    /// the contents of this method with the code editor.
    /// </summary>
    private void InitializeComponent()
    {
        this.deleteButton = new System.Windows.Forms.Button();
        this.editButton = new System.Windows.Forms.Button();
        this.addButton = new System.Windows.Forms.Button();
        this.lblItems = new System.Windows.Forms.Label();
        this.dgvItems = new System.Windows.Forms.DataGridView();
        this.DBConnection1 = new System.Data.SqlClient.SqlConnection();
        this.backButton = new System.Windows.Forms.Button();
        ((System.ComponentModel.ISupportInitialize)(this.dgvItems)).BeginInit();
        this.SuspendLayout();
        //
        // deleteButton
        //
    }
```

```
        this.deleteButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.deleteButton.Location = new System.Drawing.Point(382, 251);

        this.deleteButton.Margin = new System.Windows.Forms.Padding(2);

        this.deleteButton.Name = "deleteButton";

        this.deleteButton.Size = new System.Drawing.Size(79, 29);

        this.deleteButton.TabIndex = 9;

        this.deleteButton.Text = "Delete";

        this.deleteButton.UseVisualStyleBackColor = true;

        this.deleteButton.Click += new System.EventHandler(this.deleteButton_Click);

//

// editButton

//

        this.editButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.editButton.Location = new System.Drawing.Point(221, 251);

        this.editButton.Margin = new System.Windows.Forms.Padding(2);

        this.editButton.Name = "editButton";

        this.editButton.Size = new System.Drawing.Size(79, 29);

        this.editButton.TabIndex = 8;

        this.editButton.Text = "Edit";

        this.editButton.UseVisualStyleBackColor = true;

        this.editButton.Click += new System.EventHandler(this.editButton_Click);

//
```

```
// addButton

//
    this.addButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

    this.addButton.Location = new System.Drawing.Point(71, 251);

    this.addButton.Margin = new System.Windows.Forms.Padding(2);

    this.addButton.Name = "addButton";

    this.addButton.Size = new System.Drawing.Size(79, 29);

    this.addButton.TabIndex = 7;

    this.addButton.Text = "Add";

    this.addButton.UseVisualStyleBackColor = true;

    this.addButton.Click += new System.EventHandler(this.addButton_Click);

//

// lblItems

//

    this.lblItems.AutoSize = true;

    this.lblItems.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

    this.lblItems.Location = new System.Drawing.Point(232, 9);

    this.lblItems.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

    this.lblItems.Name = "lblItems";

    this.lblItems.Size = new System.Drawing.Size(68, 24);

    this.lblItems.TabIndex = 6;

    this.lblItems.Text = "Orders";
```

```
//  
// dgvItems  
//  
this.dgvItems.AutoSizeColumnsMode = System.Windows.Forms.DataGridViewAutoSizeColumnsMode.Fill;  
this.dgvItems.AutoSizeRowsMode = System.Windows.Forms.DataGridViewAutoSizeRowsMode.AllCells;  
this.dgvItems.ColumnHeadersHeightSizeMode =  
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;  
this.dgvItems.Location = new System.Drawing.Point(8, 53);  
this.dgvItems.Margin = new System.Windows.Forms.Padding(2);  
this.dgvItems.Name = "dgvItems";  
this.dgvItems.RowHeadersWidth = 62;  
this.dgvItems.RowTemplate.Height = 28;  
this.dgvItems.Size = new System.Drawing.Size(517, 172);  
this.dgvItems.TabIndex = 5;  
this.dgvItems.CellContentClick += new  
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvItems_CellContentClick);  
//  
// DBConnection1  
//  
this.DBConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial  
Catalog=eStoreDatabase;Integrated Security=Tr" +  
"ue";  
this.DBConnection1.FireInfoMessageEventOnUserErrors = false;  
//
```

```
// backButton

//
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.backButton.Location = new System.Drawing.Point(12, 9);

this.backButton.Name = "backButton";

this.backButton.Size = new System.Drawing.Size(27, 24);

this.backButton.TabIndex = 10;

this.backButton.Text = "←";

this.backButton.UseVisualStyleBackColor = true;

this.backButton.Click += new System.EventHandler(this.backButton_Click);

//

// CRUDOrders

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(533, 292);

this.Controls.Add(this.backButton);

this.Controls.Add(this.deleteButton);

this.Controls.Add(this.editButton);

this.Controls.Add(this.addButton);

this.Controls.Add(this.lblItems);

this.Controls.Add(this.dgvItems);
```

```
        this.Margin = new System.Windows.Forms.Padding(2);

        this.Name = "CRUDOrders";

        this.Text = "CRUDOrders";

        this.Load += new System.EventHandler(this.CRUDOrders_Load);

        ((System.ComponentModel.ISupportInitialize)(this.dgvItems)).EndInit();

        this.ResumeLayout(false);

        this.PerformLayout();

    }

    #endregion
```

```
    private System.Windows.Forms.Button deleteButton;

    private System.Windows.Forms.Button editButton;

    private System.Windows.Forms.Button addButton;

    private System.Windows.Forms.Label lblItems;

    private System.Windows.Forms.DataGridView dgvItems;

    private System.Data.SqlClient.SqlConnection DBConnection1;

    private System.Windows.Forms.Button backButton;
```

```
    }
```

```
}
```

CRUD Sales

```
using System;
```

```
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.Common;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace eStore
{
    public partial class CRUDSales : Form
    {
        public CRUDSales()
        {
            InitializeComponent();
        }

        private void CRUDSales_Load(object sender, EventArgs e)
        {
            try
```

```
{  
    DBConnection1.Open();  
  
    SqlCommand cmdSales = DBConnection1.CreateCommand();  
    cmdSales.CommandText = @"SELECT *  
                               FROM Sale";  
  
    SqlDataReader reader = cmdSales.ExecuteReader();  
  
    DataTable tempTable = new DataTable();  
    tempTable.Load(reader);  
  
    dgvItems.DataSource = tempTable;  
  
    reader.Close();  
}  
catch (Exception ex)  
{  
    MessageBox.Show(ex.Message);  
}  
}  
  
private void addButton_Click(object sender, EventArgs e)
```

```
{
    CUSale CUSale = new CUSale();
    CUSale.Show();
    this.Close();
}

private void editButton_Click(object sender, EventArgs e)
{
    int saleNum = (int)dgvItems.CurrentRow.Cells["SaleNumber"].Value;
    CUSale CUSale = new CUSale(saleNum);
    CUSale.Show();
    this.Close();
}

private void deleteButton_Click(object sender, EventArgs e)
{
    //string Row = dgvItems.CurrentCell.Value.ToString();
    string Row = dgvItems.CurrentRow.Cells["SaleNumber"].Value.ToString();

    SqlCommand cmdDel = DBConnection1.CreateCommand();

    cmdDel.CommandText = @"DELETE
```

FROM Sale

WHERE SaleNumber = @br";

```
cmdDel.Parameters.AddWithValue("@br", Row);
```

```
SqlDataReader reader1 = cmdDel.ExecuteReader();
```

```
reader1.Close();
```

```
//show that the item has been deleted
```

```
MessageBox.Show("Sale Deleted", "DB eStore");
```

```
//refresh the data grid view
```

```
SqlCommand cmdRefresh = DBConnection1.CreateCommand();
```

```
cmdRefresh.CommandText = @"SELECT *
```

```
FROM Sale";
```

```
SqlDataReader reader2 = cmdRefresh.ExecuteReader();
```

```
DataTable tempTable = new DataTable();
```

```
        tempTable.Load(reader2);

        dgvItems.DataSource = tempTable;

        reader2.Close();
    }

    private void backButton_Click(object sender, EventArgs e)
    {
        HomeScreenForm frm = new HomeScreenForm();

        frm.Show();

        this.Close();
    }

    private void CRUDSales_DoubleClick(object sender, EventArgs e)
    {
        int saleNum = (int)dgvItems.CurrentRow.Cells["SaleNumber"].Value;

        CRDItemsOnSale frm = new CRDItemsOnSale(saleNum);

        frm.Show();

        this.Close();
    }
}
```

```
}  
  
namespace eStore  
{  
    partial class CRUDSales  
    {  
        /// <summary>  
        /// Required designer variable.  
        /// </summary>  
        private System.ComponentModel.IContainer components = null;  
  
        /// <summary>  
        /// Clean up any resources being used.  
        /// </summary>  
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>  
        protected override void Dispose(bool disposing)  
        {  
            if (disposing && (components != null))  
            {  
                components.Dispose();  
            }  
            base.Dispose(disposing);  
        }  
    }  
}
```

```
#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.deleteButton = new System.Windows.Forms.Button();
    this.editButton = new System.Windows.Forms.Button();
    this.addButton = new System.Windows.Forms.Button();
    this.lblItems = new System.Windows.Forms.Label();
    this.dgvItems = new System.Windows.Forms.DataGridView();
    this.DBConnection1 = new System.Data.SqlClient.SqlConnection();
    this.backButton = new System.Windows.Forms.Button();
    ((System.ComponentModel.ISupportInitialize)(this.dgvItems)).BeginInit();
    this.SuspendLayout();
    //
    // deleteButton
    //

    this.deleteButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
    this.deleteButton.Location = new System.Drawing.Point(382, 251);
```

```
this.deleteButton.Margin = new System.Windows.Forms.Padding(2);
this.deleteButton.Name = "deleteButton";
this.deleteButton.Size = new System.Drawing.Size(79, 29);
this.deleteButton.TabIndex = 14;
this.deleteButton.Text = "Delete";
this.deleteButton.UseVisualStyleBackColor = true;
this.deleteButton.Click += new System.EventHandler(this.deleteButton_Click);
//
// editButton
//
this.editButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
this.editButton.Location = new System.Drawing.Point(221, 251);
this.editButton.Margin = new System.Windows.Forms.Padding(2);
this.editButton.Name = "editButton";
this.editButton.Size = new System.Drawing.Size(79, 29);
this.editButton.TabIndex = 13;
this.editButton.Text = "Edit";
this.editButton.UseVisualStyleBackColor = true;
this.editButton.Click += new System.EventHandler(this.editButton_Click);
//
// addButton
//
```

```
        this.addButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.addButton.Location = new System.Drawing.Point(71, 251);

        this.addButton.Margin = new System.Windows.Forms.Padding(2);

        this.addButton.Name = "addButton";

        this.addButton.Size = new System.Drawing.Size(79, 29);

        this.addButton.TabIndex = 12;

        this.addButton.Text = "Add";

        this.addButton.UseVisualStyleBackColor = true;

        this.addButton.Click += new System.EventHandler(this.addButton_Click);

//

// lblItems

//

        this.lblItems.AutoSize = true;

        this.lblItems.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

        this.lblItems.Location = new System.Drawing.Point(229, 9);

        this.lblItems.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

        this.lblItems.Name = "lblItems";

        this.lblItems.Size = new System.Drawing.Size(56, 24);

        this.lblItems.TabIndex = 11;

        this.lblItems.Text = "Sales";

//

// dgvItems
```

```
//
this.dgvItems.AutoSizeColumnsMode = System.Windows.Forms.DataGridViewAutoSizeColumnsMode.Fill;
this.dgvItems.AutoSizeRowsMode = System.Windows.Forms.DataGridViewAutoSizeRowsMode.AllCells;

this.dgvItems.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

this.dgvItems.Location = new System.Drawing.Point(8, 53);
this.dgvItems.Margin = new System.Windows.Forms.Padding(2);
this.dgvItems.Name = "dgvItems";
this.dgvItems.RowHeadersWidth = 62;
this.dgvItems.RowTemplate.Height = 28;
this.dgvItems.Size = new System.Drawing.Size(517, 172);
this.dgvItems.TabIndex = 10;

//
// DBConnection1
//

this.DBConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
"ue";

this.DBConnection1.FireInfoMessageEventOnUserErrors = false;

//
// backButton
//

this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
```

```
this.backButton.Location = new System.Drawing.Point(12, 12);
this.backButton.Name = "backButton";
this.backButton.Size = new System.Drawing.Size(29, 25);
this.backButton.TabIndex = 15;
this.backButton.Text = "←";
this.backButton.UseVisualStyleBackColor = true;
this.backButton.Click += new System.EventHandler(this.backButton_Click);
//
// CRUDSales
//
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
this.ClientSize = new System.Drawing.Size(533, 292);
this.Controls.Add(this.backButton);
this.Controls.Add(this.deleteButton);
this.Controls.Add(this.editButton);
this.Controls.Add(this.addButton);
this.Controls.Add(this.lblItems);
this.Controls.Add(this.dgvItems);
this.Margin = new System.Windows.Forms.Padding(2);
this.Name = "CRUDSales";
this.Text = "CRUDSales";
this.Load += new System.EventHandler(this.CRUDSales_Load);
```

```
        this.dgvItems.DoubleClick += new System.EventHandler(this.CRUDSales_DoubleClick);

        ((System.ComponentModel.ISupportInitialize)(this.dgvItems)).EndInit();

        this.ResumeLayout(false);

        this.PerformLayout();

    }
}
```

```
#endregion
```

```
private System.Windows.Forms.Button deleteButton;
private System.Windows.Forms.Button editButton;
private System.Windows.Forms.Button addButton;
private System.Windows.Forms.Label lblItems;
private System.Windows.Forms.DataGridView dgvItems;
private System.Data.SqlClient.SqlConnection DBConnection1;
private System.Windows.Forms.Button backButton;
}
}
```

CRUD Shipments

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Data.SqlClient;
using System.Data.Common;

namespace eStore
{
    public partial class CRUDShipments : Form
    {
        public CRUDShipments()
        {
            InitializeComponent();
        }

        private void CRUDShipments_Load(object sender, EventArgs e)
        {
            try
            {
                DBConnection1.Open();
            }
        }
    }
}
```

```
SqlCommand cmdOrders = DBConnection1.CreateCommand();

cmdOrders.CommandText = @"SELECT *
                            FROM Shipment";

SqlDataReader reader = cmdOrders.ExecuteReader();

DataTable tempTable = new DataTable();
tempTable.Load(reader);

dgvItems.DataSource = tempTable;

reader.Close();

}

catch (Exception ex)
{
    MessageBox.Show(ex.Message);
}

}

private void addButton_Click(object sender, EventArgs e)
{
    CUShipment frm = new CUShipment();
```

```
        frm.Show();

        this.Close();
    }

    private void editButton_Click(object sender, EventArgs e)
    {
        int shipNum = (int)dgvItems.CurrentRow.Cells["ShipNumber"].Value;
        CUShipment frm = new CUShipment(shipNum);
        frm.Show();
        this.Close();
    }

    private void button1_Click(object sender, EventArgs e)
    {
        HomeScreenForm frm = new HomeScreenForm();
        frm.Show();
        this.Close();
    }

    private void deleteButton_Click(object sender, EventArgs e)
    {
        //string Row = dgvItems.CurrentCell.Value.ToString();
```

```
string Row = dgvItems.CurrentRow.Cells["ShipNumber"].Value.ToString();

SqlCommand cmdDel = DBConnection1.CreateCommand();

cmdDel.CommandText = @"DELETE

FROM Shipment

WHERE ShipNumber = @br";

cmdDel.Parameters.AddWithValue("@br", Row);

SqlDataReader reader1 = cmdDel.ExecuteReader();

reader1.Close();

//show that the item has been deleted

MessageBox.Show("Shipment Deleted", "DB eStore");

//refresh the data grid view

SqlCommand cmdRefresh = DBConnection1.CreateCommand();
```

```
cmdRefresh.CommandText = @"SELECT *  
  
FROM Shipment";  
  
SqlDataReader reader2 = cmdRefresh.ExecuteReader();  
  
DataTable tempTable = new DataTable();  
  
tempTable.Load(reader2);  
  
dgvItems.DataSource = tempTable;  
  
reader2.Close();  
}  
}  
}  
  
namespace eStore  
{  
    partial class CRUDShipments  
    {  
        /// <summary>
```

```
/// Required designer variable.
/// </summary>
private System.ComponentModel.IContainer components = null;

/// <summary>
/// Clean up any resources being used.
/// </summary>
/// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
protected override void Dispose(bool disposing)
{
    if (disposing && (components != null))
    {
        components.Dispose();
    }
    base.Dispose(disposing);
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
```

```
private void InitializeComponent()
{
    this.deleteButton = new System.Windows.Forms.Button();
    this.editButton = new System.Windows.Forms.Button();
    this.addButton = new System.Windows.Forms.Button();
    this.lblItems = new System.Windows.Forms.Label();
    this.dgvItems = new System.Windows.Forms.DataGridView();
    this.DBConnection1 = new System.Data.SqlClient.SqlConnection();
    this.button1 = new System.Windows.Forms.Button();

    ((System.ComponentModel.ISupportInitialize)(this.dgvItems)).BeginInit();
    this.SuspendLayout();
    //
    // deleteButton
    //

    this.deleteButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

    this.deleteButton.Location = new System.Drawing.Point(382, 251);
    this.deleteButton.Margin = new System.Windows.Forms.Padding(2);
    this.deleteButton.Name = "deleteButton";
    this.deleteButton.Size = new System.Drawing.Size(79, 29);
    this.deleteButton.TabIndex = 9;
    this.deleteButton.Text = "Delete";
    this.deleteButton.UseVisualStyleBackColor = true;
```

```
this.deleteButton.Click += new System.EventHandler(this.deleteButton_Click);

//

// editButton

//

this.editButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.editButton.Location = new System.Drawing.Point(221, 251);

this.editButton.Margin = new System.Windows.Forms.Padding(2);

this.editButton.Name = "editButton";

this.editButton.Size = new System.Drawing.Size(79, 29);

this.editButton.TabIndex = 8;

this.editButton.Text = "Edit";

this.editButton.UseVisualStyleBackColor = true;

this.editButton.Click += new System.EventHandler(this.editButton_Click);

//

// addButton

//

this.addButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.addButton.Location = new System.Drawing.Point(71, 251);

this.addButton.Margin = new System.Windows.Forms.Padding(2);

this.addButton.Name = "addButton";

this.addButton.Size = new System.Drawing.Size(79, 29);

this.addButton.TabIndex = 7;
```

```
this.addButton.Text = "Add";

this.addButton.UseVisualStyleBackColor = true;

this.addButton.Click += new System.EventHandler(this.addButton_Click);

//

// lblItems

//

this.lblItems.AutoSize = true;

this.lblItems.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.lblItems.Location = new System.Drawing.Point(201, 9);

this.lblItems.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblItems.Name = "lblItems";

this.lblItems.Size = new System.Drawing.Size(99, 24);

this.lblItems.TabIndex = 6;

this.lblItems.Text = "Shipments";

//

// dgvItems

//

this.dgvItems.AutoSizeColumnsMode = System.Windows.Forms.DataGridViewAutoSizeColumnsMode.Fill;

this.dgvItems.AutoSizeRowsMode = System.Windows.Forms.DataGridViewAutoSizeRowsMode.AllCells;

this.dgvItems.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

this.dgvItems.Location = new System.Drawing.Point(8, 53);

this.dgvItems.Margin = new System.Windows.Forms.Padding(2);
```

```
this.dgvItems.Name = "dgvItems";

this.dgvItems.RowHeadersWidth = 62;

this.dgvItems.RowTemplate.Height = 28;

this.dgvItems.Size = new System.Drawing.Size(517, 172);

this.dgvItems.TabIndex = 5;

//

// DBConnection1

//

this.DBConnection1.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
"ue";

this.DBConnection1.FireInfoMessageEventOnUserErrors = false;

//

// button1

//

this.button1.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.button1.Location = new System.Drawing.Point(12, 12);

this.button1.Name = "button1";

this.button1.Size = new System.Drawing.Size(29, 24);

this.button1.TabIndex = 10;

this.button1.Text = "←";

this.button1.UseVisualStyleBackColor = true;

this.button1.Click += new System.EventHandler(this.button1_Click);
```

```
//  
// CRUDShipments  
//  
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);  
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;  
this.ClientSize = new System.Drawing.Size(533, 292);  
this.Controls.Add(this.button1);  
this.Controls.Add(this.deleteButton);  
this.Controls.Add(this.editButton);  
this.Controls.Add(this.addButton);  
this.Controls.Add(this.lblItems);  
this.Controls.Add(this.dgvItems);  
this.Margin = new System.Windows.Forms.Padding(2);  
this.Name = "CRUDShipments";  
this.Text = "CRUDShipments";  
this.Load += new System.EventHandler(this.CRUDShipments_Load);  
( (System.ComponentModel.ISupportInitialize) (this.dgvItems) ).EndInit();  
this.ResumeLayout(false);  
this.PerformLayout();  
  
}  
  
#endregion
```

```
private System.Windows.Forms.Button deleteButton;
private System.Windows.Forms.Button editButton;
private System.Windows.Forms.Button addButton;
private System.Windows.Forms.Label lblItems;
private System.Windows.Forms.DataGridView dgvItems;
private System.Data.SqlClient.SqlConnection DBConnection1;
private System.Windows.Forms.Button button1;
}
}
```

CU Customer

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.Common;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
```

```
namespace eStore
{
    public partial class CUCustomer : Form
    {
        int custID;

        public CUCustomer(int custID = -1)
        {
            InitializeComponent();

            this.custID = custID;

            if (custID > 0)
            {
                lblAddCustomer.Visible = false;
                btnAddUpdate.Text = "Update";
                LoadCustInfo();
            }
            else
            {
                lblUpdateCustomer.Visible = false;
            }

            private void GetCustID()
            {
```

```
        dbConnection.Open();

        SqlCommand cmdGetCustID = dbConnection.CreateCommand();

        cmdGetCustID.CommandText = @"SELECT max(ID) + 1 FROM dbo.Customer";

        SqlDataReader reader = cmdGetCustID.ExecuteReader();

        if (reader.Read())

            custID = reader.GetInt32(0);

        else

            MessageBox.Show("Error: unable to get current customer's #", "Error");

        reader.Close();

        dbConnection.Close();
    }

    private void LoadCustInfo()
    {

        string fullName = "", email = "", phone = "", address = "";

        dbConnection.Open();

        SqlCommand cmdGetCustomerInfo = dbConnection.CreateCommand();

        cmdGetCustomerInfo.CommandText = @"SELECT dbo.[Customer].*, UserName, Password FROM dbo.[Customer]
JOIN dbo.Login ON ID = CustomerID WHERE ID = @id";

        cmdGetCustomerInfo.Parameters.AddWithValue("id", custID);

        SqlDataReader reader = cmdGetCustomerInfo.ExecuteReader();

        if (reader.Read())
```

```
{
    // full name, email, phone, address
    fullName = reader[0].ToString();
    email = reader[1].ToString();
    phone = reader[2].ToString();
    address = reader[3].ToString();
    txtUser.Text = reader[5].ToString();
    txtPass.Text = reader[6].ToString();
}

reader.Close();
dbConnection.Close();

int firstSpace = fullName.IndexOf(' ');
txtFname.Text = fullName.Substring(0, firstSpace);
txtLName.Text = fullName.Substring(firstSpace + 1);
txtPhone.Text = phone;
txtAddress.Text = address;
txtEmail.Text = email;
}

private void btnAddUpdate_Click(object sender, EventArgs e)
{
    string phone = "", email, address, name;
```

```
string message = "added.";

name = txtFname.Text + " " + txtLName.Text;
address = txtAddress.Text;

string[] phoneParts = txtPhone.Text.Split("(" - ").ToCharArray());
foreach (string part in phoneParts)
{
    phone += part;
}

if (phone.IndexOfAny("abcdefghijklmnopqrstuvwxyz".ToCharArray()) != -1 || phone.Length != 10)
{
    MessageBox.Show("invalid phone number");
    return;
}

phone = phone.Substring(0, 3) + "-" + phone.Substring(3, 3) + "-" + phone.Substring(6);

email = txtEmail.Text.Trim();

if (!email.Contains("@") || !email.Contains(".") || email.IndexOf('@') > email.LastIndexOf('.') ||
email.LastIndexOf('.') == email.IndexOf('@') + 1)
{
    MessageBox.Show("invalid email");
    return;
}
```

```
    }

    string emailFirstPart = email.Substring(0, email.IndexOf('@'));
    string emailLastPart = email.Substring(email.LastIndexOf('.'));
    if (emailFirstPart.Length == 0 || emailLastPart.Length == 0)
    {
        MessageBox.Show("invalid email");
        return;
    }

    dbConnection.Open();

    SqlCommand cmdSaveCustomer1 = dbConnection.CreateCommand();
    SqlCommand cmdSaveCustomer2 = dbConnection.CreateCommand();

    if (custID > 0)
    {
        cmdSaveCustomer1.CommandText = @"UPDATE dbo.Customer SET Name = @name, Email = @email, Phone =
@phone, Address = @addr WHERE ID = @id";

        cmdSaveCustomer2.CommandText = @"UPDATE dbo.Login SET Username = @user, Password = @pass WHERE
CustomerID = @id";

        message = "updated.";
    }
    else
    {
        dbConnection.Close();
    }
}
```

```
        GetCustID();

        cmdSaveCustomer1.CommandText = @"INSERT INTO dbo.Customer VALUES (@name, @email, @phone,
@addr, @id)";

        cmdSaveCustomer2.CommandText = @"INSERT INTO dbo.Login VALUES (@user, @pass, 0, @id)";

        dbConnection.Open();

    }

    cmdSaveCustomer1.Parameters.AddWithValue("name", name);
    cmdSaveCustomer1.Parameters.AddWithValue("email", email);
    cmdSaveCustomer1.Parameters.AddWithValue("phone", phone);
    cmdSaveCustomer1.Parameters.AddWithValue("addr", address);
    cmdSaveCustomer1.Parameters.AddWithValue("id", custID);
    cmdSaveCustomer2.Parameters.AddWithValue("user", txtUser.Text);
    cmdSaveCustomer2.Parameters.AddWithValue("pass", txtPass.Text);
    cmdSaveCustomer2.Parameters.AddWithValue("id", custID);
    cmdSaveCustomer1.ExecuteNonQuery();
    cmdSaveCustomer2.ExecuteNonQuery();

    dbConnection.Close();

    MessageBox.Show("customer has been " + message);
}

private void backButton_Click_1(object sender, EventArgs e)
```

```
        {  
            CRUDCustomers frm = new CRUDCustomers();  
            frm.Show();  
            this.Close();  
        }  
    }  
}
```

```
namespace eStore
```

```
{  
    partial class CUCustomer  
    {  
        /// <summary>  
        /// Required designer variable.  
        /// </summary>  
        private System.ComponentModel.IContainer components = null;  
  
        /// <summary>  
        /// Clean up any resources being used.  
        /// </summary>  
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>  
        protected override void Dispose(bool disposing)  
        {
```

```
        if (disposing && (components != null))
        {
            components.Dispose();
        }
        base.Dispose(disposing);
    }

    #region Windows Form Designer generated code

    /// <summary>
    /// Required method for Designer support - do not modify
    /// the contents of this method with the code editor.
    /// </summary>
    private void InitializeComponent()
    {
        this.btnAddUpdate = new System.Windows.Forms.Button();
        this.lblAddCustomer = new System.Windows.Forms.Label();
        this.txtFname = new System.Windows.Forms.TextBox();
        this.lblFname = new System.Windows.Forms.Label();
        this.txtEmail = new System.Windows.Forms.TextBox();
        this.lblEmail = new System.Windows.Forms.Label();
        this.txtAddress = new System.Windows.Forms.TextBox();
        this.lblAddress = new System.Windows.Forms.Label();
    }
}
```

```
this.txtLName = new System.Windows.Forms.TextBox();
this.lblLName = new System.Windows.Forms.Label();
this.txtPhone = new System.Windows.Forms.TextBox();
this.lblPhone = new System.Windows.Forms.Label();
this.lblUpdateCustomer = new System.Windows.Forms.Label();
this.lblAddressExample = new System.Windows.Forms.Label();
this.dbConnection = new System.Data.SqlClient.SqlConnection();
this.txtPass = new System.Windows.Forms.TextBox();
this.lblPass = new System.Windows.Forms.Label();
this.txtUser = new System.Windows.Forms.TextBox();
this.lblUser = new System.Windows.Forms.Label();
this.backButton = new System.Windows.Forms.Button();
this.SuspendLayout();
//
// btnAddUpdate
//
this.btnAddUpdate.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
this.btnAddUpdate.Location = new System.Drawing.Point(211, 256);
this.btnAddUpdate.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
this.btnAddUpdate.Name = "btnAddUpdate";
this.btnAddUpdate.Size = new System.Drawing.Size(79, 29);
this.btnAddUpdate.TabIndex = 9;
```

```
this.btnAddUpdate.Text = "Add";

this.btnAddUpdate.UseVisualStyleBackColor = true;

this.btnAddUpdate.Click += new System.EventHandler(this.btnAddUpdate_Click);

//

// lblAddCustomer

//

this.lblAddCustomer.AutoSize = true;

this.lblAddCustomer.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.lblAddCustomer.Location = new System.Drawing.Point(196, 14);

this.lblAddCustomer.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblAddCustomer.Name = "lblAddCustomer";

this.lblAddCustomer.Size = new System.Drawing.Size(131, 24);

this.lblAddCustomer.TabIndex = 8;

this.lblAddCustomer.Text = "Add Customer";

//

// txtFname

//

this.txtFname.Location = new System.Drawing.Point(11, 70);

this.txtFname.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.txtFname.Name = "txtFname";

this.txtFname.Size = new System.Drawing.Size(201, 20);

this.txtFname.TabIndex = 11;
```

```
//  
// lblFname  
//  
this.lblFname.AutoSize = true;  
this.lblFname.Location = new System.Drawing.Point(8, 49);  
this.lblFname.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblFname.Name = "lblFname";  
this.lblFname.Size = new System.Drawing.Size(57, 13);  
this.lblFname.TabIndex = 10;  
this.lblFname.Text = "First Name";  
//  
// txtEmail  
//  
this.txtEmail.Location = new System.Drawing.Point(11, 122);  
this.txtEmail.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
this.txtEmail.Name = "txtEmail";  
this.txtEmail.Size = new System.Drawing.Size(201, 20);  
this.txtEmail.TabIndex = 13;  
//  
// lblEmail  
//  
this.lblEmail.AutoSize = true;  
this.lblEmail.Location = new System.Drawing.Point(8, 100);
```

```
this.lblEmail.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblEmail.Name = "lblEmail";
this.lblEmail.Size = new System.Drawing.Size(32, 13);
this.lblEmail.TabIndex = 12;
this.lblEmail.Text = "Email";

//

// txtAddress

//

this.txtAddress.Location = new System.Drawing.Point(11, 214);
this.txtAddress.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
this.txtAddress.Name = "txtAddress";
this.txtAddress.Size = new System.Drawing.Size(473, 20);
this.txtAddress.TabIndex = 15;

//

// lblAddress

//

this.lblAddress.AutoSize = true;
this.lblAddress.Location = new System.Drawing.Point(8, 193);
this.lblAddress.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblAddress.Name = "lblAddress";
this.lblAddress.Size = new System.Drawing.Size(45, 13);
this.lblAddress.TabIndex = 14;
this.lblAddress.Text = "Address";
```

```
//  
// txtLName  
//  
this.txtLName.Location = new System.Drawing.Point(282, 70);  
this.txtLName.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
this.txtLName.Name = "txtLName";  
this.txtLName.Size = new System.Drawing.Size(201, 20);  
this.txtLName.TabIndex = 17;  
//  
// lblLName  
//  
this.lblLName.AutoSize = true;  
this.lblLName.Location = new System.Drawing.Point(279, 49);  
this.lblLName.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblLName.Name = "lblLName";  
this.lblLName.Size = new System.Drawing.Size(58, 13);  
this.lblLName.TabIndex = 16;  
this.lblLName.Text = "Last Name";  
//  
// txtPhone  
//  
this.txtPhone.Location = new System.Drawing.Point(282, 122);  
this.txtPhone.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
```

```
this.txtPhone.Name = "txtPhone";

this.txtPhone.Size = new System.Drawing.Size(201, 20);

this.txtPhone.TabIndex = 19;

//

// lblPhone

//

this.lblPhone.AutoSize = true;

this.lblPhone.Location = new System.Drawing.Point(279, 100);

this.lblPhone.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblPhone.Name = "lblPhone";

this.lblPhone.Size = new System.Drawing.Size(78, 13);

this.lblPhone.TabIndex = 18;

this.lblPhone.Text = "Phone Number";

//

// lblUpdateCustomer

//

this.lblUpdateCustomer.AutoSize = true;

this.lblUpdateCustomer.Font = new System.Drawing.Font("Microsoft Sans Serif", 14F,
System.Drawing.FontStyle.Regular, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.lblUpdateCustomer.Location = new System.Drawing.Point(196, 14);

this.lblUpdateCustomer.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblUpdateCustomer.Name = "lblUpdateCustomer";

this.lblUpdateCustomer.Size = new System.Drawing.Size(156, 24);
```

```
this.lblUpdateCustomer.TabIndex = 21;

this.lblUpdateCustomer.Text = "Update Customer";

//

// lblAddressExample

//

this.lblAddressExample.AutoSize = true;

this.lblAddressExample.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Italic, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.lblAddressExample.Location = new System.Drawing.Point(11, 236);

this.lblAddressExample.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblAddressExample.Name = "lblAddressExample";

this.lblAddressExample.Size = new System.Drawing.Size(163, 13);

this.lblAddressExample.TabIndex = 22;

this.lblAddressExample.Text = "ex: 1234 Random St., TX, 12345";

//

// dbConnection

//

this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +

"ue";

this.dbConnection.FireInfoMessageEventOnUserErrors = false;

//

// txtPass

//
```

```
this.txtPass.Location = new System.Drawing.Point(282, 172);  
this.txtPass.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
this.txtPass.Name = "txtPass";  
this.txtPass.Size = new System.Drawing.Size(201, 20);  
this.txtPass.TabIndex = 26;  
  
//  
// lblPass  
//  
this.lblPass.AutoSize = true;  
this.lblPass.Location = new System.Drawing.Point(279, 151);  
this.lblPass.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblPass.Name = "lblPass";  
this.lblPass.Size = new System.Drawing.Size(53, 13);  
this.lblPass.TabIndex = 25;  
this.lblPass.Text = "Password";  
  
//  
// txtUser  
//  
this.txtUser.Location = new System.Drawing.Point(11, 172);  
this.txtUser.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
this.txtUser.Name = "txtUser";  
this.txtUser.Size = new System.Drawing.Size(201, 20);  
this.txtUser.TabIndex = 24;
```

```
//  
// lblUser  
//  
this.lblUser.AutoSize = true;  
this.lblUser.Location = new System.Drawing.Point(8, 151);  
this.lblUser.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblUser.Name = "lblUser";  
this.lblUser.Size = new System.Drawing.Size(55, 13);  
this.lblUser.TabIndex = 23;  
this.lblUser.Text = "Username";  
//  
// backButton  
//  
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,  
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));  
  
this.backButton.Location = new System.Drawing.Point(12, 12);  
  
this.backButton.Name = "backButton";  
  
this.backButton.Size = new System.Drawing.Size(30, 26);  
  
this.backButton.TabIndex = 44;  
  
this.backButton.Text = "←";  
  
this.backButton.UseVisualStyleBackColor = true;  
  
this.backButton.Click += new System.EventHandler(this.backButton_Click_1);  
//
```

```
// CUCustomer
//
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;
this.ClientSize = new System.Drawing.Size(533, 292);
this.Controls.Add(this.backButton);
this.Controls.Add(this.txtPass);
this.Controls.Add(this.lblPass);
this.Controls.Add(this.txtUser);
this.Controls.Add(this.lblUser);
this.Controls.Add(this.lblAddressExample);
this.Controls.Add(this.lblUpdateCustomer);
this.Controls.Add(this.txtPhone);
this.Controls.Add(this.lblPhone);
this.Controls.Add(this.txtLName);
this.Controls.Add(this.lblLName);
this.Controls.Add(this.txtAddress);
this.Controls.Add(this.lblAddress);
this.Controls.Add(this.txtEmail);
this.Controls.Add(this.lblEmail);
this.Controls.Add(this.txtFname);
this.Controls.Add(this.lblFname);
this.Controls.Add(this.btnAddUpdate);
```

```
        this.Controls.Add(this.lblAddCustomer);

        this.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

        this.Name = "CUCustomer";

        this.Text = "CUCustomer";

        this.ResumeLayout(false);

        this.PerformLayout();

    }
```

```
#endregion
```

```
private System.Windows.Forms.Button btnAddUpdate;
private System.Windows.Forms.Label lblAddCustomer;
private System.Windows.Forms.TextBox txtFname;
private System.Windows.Forms.Label lblFname;
private System.Windows.Forms.TextBox txtEmail;
private System.Windows.Forms.Label lblEmail;
private System.Windows.Forms.TextBox txtAddress;
private System.Windows.Forms.Label lblAddress;
private System.Windows.Forms.TextBox txtLName;
private System.Windows.Forms.Label lblLName;
private System.Windows.Forms.TextBox txtPhone;
private System.Windows.Forms.Label lblPhone;
```

```
private System.Windows.Forms.Label lblUpdateCustomer;

private System.Windows.Forms.Label lblAddressExample;

private System.Data.SqlClient.SqlConnection dbConnection;

private System.Windows.Forms.TextBox txtPass;

private System.Windows.Forms.Label lblPass;

private System.Windows.Forms.TextBox txtUser;

private System.Windows.Forms.Label lblUser;

private System.Windows.Forms.Button backButton;

}

}
```

CU Item

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Common;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

using System.Xml.Linq;
```

```
namespace eStore
{
    public partial class CUIItem : Form
    {
        int itemNum;

        public CUIItem(int itemNum = -1)
        {
            InitializeComponent();
            cmbSales.Visible = false;

            LoadCmbSales();

            this.itemNum = itemNum;

            if (itemNum > 0)
            {
                lblAddItem.Visible = false;
                btnSaveItem.Text = "Update";
                LoadItemInfo();
            }
            else
```

```
        {
            lblUpdateItem.Visible = false;
            lblNumber.Visible = false;
        }
    }

private void GetItemNum()
{
    dbConnection.Open();

    SqlCommand cmdGetItemNum = dbConnection.CreateCommand();

    cmdGetItemNum.CommandText = @"SELECT max(ItemNumber) + 1 FROM dbo.Item";

    SqlDataReader reader = cmdGetItemNum.ExecuteReader();

    if (reader.Read())
        itemNum = reader.GetInt32(0);
    else
        MessageBox.Show("Error: unable to get current item's #", "Error");

    reader.Close();

    dbConnection.Close();
}

private void LoadItemInfo()
{
    dbConnection.Open();
```

```
SqlCommand cmdGetItemInfo = dbConnection.CreateCommand();

cmdGetItemInfo.CommandText = @"SELECT * FROM dbo.Item WHERE ItemNumber = @itemNum";
cmdGetItemInfo.Parameters.AddWithValue("itemNum", itemNum);

SqlDataReader reader = cmdGetItemInfo.ExecuteReader();

if (reader.Read())
{
    // name, price, qty, category, sale#, item#, buyable
    txtName.Text = reader[0].ToString();
    txtPrice.Text = reader[1].ToString();
    txtQty.Text = reader[2].ToString();
    txtCategory.Text = reader[3].ToString();
    //rbOnSaleNo.Checked = true;
    if (!reader[4].ToString().Equals(""))
    {
        rbOnSaleYes.Checked = true;
        cmbSales.Text = reader[4].ToString();
    }
    else
        rbOnSaleNo.Checked = true;
    lblNumber.Text += reader[5].ToString();
    string isBuyable = reader[6].ToString();
    if (reader.GetBoolean(6))
        rbBuyableYes.Checked = true;
```

```
        else
            rbBuyableNo.Checked = true;
    }

    reader.Close();
    dbConnection.Close();
}

private void LoadCmbSales()
{
    dbConnection.Open();

    SqlCommand cmdGetSales = dbConnection.CreateCommand();
    cmdGetSales.CommandText = @"SELECT SaleNumber from dbo.Sale";
    SqlDataReader reader = cmdGetSales.ExecuteReader();
    while (reader.Read())
    {
        cmbSales.Items.Add(reader.GetInt32(0));
    }

    reader.Close();
    dbConnection.Close();
}
```

```
private void rbBuyableYes_CheckedChanged(object sender, EventArgs e)
{
    if (rbBuyableYes.Focused)
        rbBuyable_CheckedChanged(true);
}

private void rbBuyableNo_CheckedChanged(object sender, EventArgs e)
{
    if (rbBuyableNo.Focused)
        rbBuyable_CheckedChanged(false);
}

private void rbBuyable_CheckedChanged(bool yesChecked)
{
    rbBuyableNo.Checked = !yesChecked;
    rbBuyableYes.Checked = yesChecked;
}

private void rbOnSaleYes_CheckedChanged(object sender, EventArgs e)
{
    if (rbOnSaleYes.Focused)
        rbOnSale_CheckedChanged(true);
    cmbSales.Visible = true;
}
```

```
}

private void rbOnSaleNo_CheckedChanged(object sender, EventArgs e)
{
    if (rbOnSaleNo.Focused)
        rbOnSale_CheckedChanged(false);
    cmbSales.Visible = false;
}

private void rbOnSale_CheckedChanged(bool yesChecked)
{
    rbOnSaleNo.Checked = !yesChecked;
    rbOnSaleYes.Checked = yesChecked;
}

private void btnSaveItem_Click(object sender, EventArgs e)
{
    // name, price, qty, category, sale#, item#, buyable
    string message = "added.";

    dbConnection.Open();
    SqlCommand cmdSaveItem = dbConnection.CreateCommand();
    if (itemNum > 0)
```

```

        {
            cmdSaveItem.CommandText = @"UPDATE dbo.Item SET ItemName = @name, Price = @price,
QuantityAvailable = @qty, Category = @cat,

                                                                    SaleNumber = @sale, isPurchasable = @canBuy WHERE ItemNumber =
@itemNum";

            message = "updated.";
        }
        else
        {
            dbConnection.Close();

            GetItemNum();

            cmdSaveItem.CommandText = @"INSERT INTO dbo.Item VALUES (@name, @price, @qty, @cat, @sale,
@itemNum, @canBuy)";

            dbConnection.Open();
        }

        cmdSaveItem.Parameters.AddWithValue("name", txtName.Text);

        cmdSaveItem.Parameters.AddWithValue("price",
decimal.Parse(txtPrice.Text.Substring(txtPrice.Text.IndexOfAny("0123456789".ToCharArray()))));

        cmdSaveItem.Parameters.AddWithValue("qty", int.Parse(txtQty.Text));

        cmdSaveItem.Parameters.AddWithValue("cat", txtCategory.Text);

        if (rbOnSaleYes.Checked)

            cmdSaveItem.Parameters.AddWithValue("sale", int.Parse(cmbSales.Text));
        else

            cmdSaveItem.Parameters.AddWithValue("sale", DBNull.Value);

```

```
        cmdSaveItem.Parameters.AddWithValue("itemNum", itemNum);

        if (rbBuyableYes.Checked)
            cmdSaveItem.Parameters.AddWithValue("canBuy", 1);
        else
            cmdSaveItem.Parameters.AddWithValue("canBuy", 0);

        cmdSaveItem.ExecuteNonQuery();

        dbConnection.Close();

        MessageBox.Show("item has been " + message);
    }

    private void backButton_Click(object sender, EventArgs e)
    {
        CRUDItems frm = new CRUDItems();

        frm.Show();

        this.Close();
    }
}

namespace eStore
{
    partial class CUIItem
```

```
{

    /// <summary>
    /// Required designer variable.
    /// </summary>
    private System.ComponentModel.IContainer components = null;


    /// <summary>
    /// Clean up any resources being used.
    /// </summary>
    /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
    protected override void Dispose(bool disposing)
    {
        if (disposing && (components != null))
        {
            components.Dispose();
        }
        base.Dispose(disposing);
    }


    #region Windows Form Designer generated code

    /// <summary>
    /// Required method for Designer support - do not modify
```

```
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.txtDesc = new System.Windows.Forms.RichTextBox();
    this.lblDesc = new System.Windows.Forms.Label();
    this.lblName = new System.Windows.Forms.Label();
    this.lblPrice = new System.Windows.Forms.Label();
    this.txtName = new System.Windows.Forms.TextBox();
    this.txtPrice = new System.Windows.Forms.TextBox();
    this.lblIsBuyable = new System.Windows.Forms.Label();
    this.txtQty = new System.Windows.Forms.TextBox();
    this.lblQty = new System.Windows.Forms.Label();
    this.rbBuyableYes = new System.Windows.Forms.RadioButton();
    this.rbBuyableNo = new System.Windows.Forms.RadioButton();
    this.rbOnSaleNo = new System.Windows.Forms.RadioButton();
    this.rbOnSaleYes = new System.Windows.Forms.RadioButton();
    this.lblIsOnSale = new System.Windows.Forms.Label();
    this.cmbSales = new System.Windows.Forms.ComboBox();
    this.lblAddItem = new System.Windows.Forms.Label();
    this.lblUpdateItem = new System.Windows.Forms.Label();
    this.btnSaveItem = new System.Windows.Forms.Button();
    this.lblNumber = new System.Windows.Forms.Label();
}
```

```
this.dbConnection = new System.Data.SqlClient.SqlConnection();
this.txtCategory = new System.Windows.Forms.TextBox();
this.lblCategory = new System.Windows.Forms.Label();
this.flowLayoutPanel1 = new System.Windows.Forms.FlowLayoutPanel();
this.backButton = new System.Windows.Forms.Button();
this.flowLayoutPanel1.SuspendLayout();
this.SuspendLayout();
//
// txtDesc
//
this.txtDesc.Location = new System.Drawing.Point(7, 216);
this.txtDesc.Margin = new System.Windows.Forms.Padding(2);
this.txtDesc.Name = "txtDesc";
this.txtDesc.Size = new System.Drawing.Size(413, 117);
this.txtDesc.TabIndex = 0;
this.txtDesc.Text = "";
//
// lblDesc
//
this.lblDesc.AutoSize = true;
this.lblDesc.Location = new System.Drawing.Point(8, 202);
this.lblDesc.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblDesc.Name = "lblDesc";
```

```
this.lblDesc.Size = new System.Drawing.Size(83, 13);  
this.lblDesc.TabIndex = 1;  
this.lblDesc.Text = "Item Description";  
  
//  
  
// lblName  
  
//  
  
this.lblName.AutoSize = true;  
this.lblName.Location = new System.Drawing.Point(8, 56);  
this.lblName.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblName.Name = "lblName";  
this.lblName.Size = new System.Drawing.Size(58, 13);  
this.lblName.TabIndex = 2;  
this.lblName.Text = "Item Name";  
  
//  
  
// lblPrice  
  
//  
  
this.lblPrice.AutoSize = true;  
this.lblPrice.Location = new System.Drawing.Point(8, 103);  
this.lblPrice.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblPrice.Name = "lblPrice";  
this.lblPrice.Size = new System.Drawing.Size(54, 13);  
this.lblPrice.TabIndex = 3;  
this.lblPrice.Text = "Item Price";
```

```
//  
// txtName  
//  
this.txtName.Location = new System.Drawing.Point(11, 77);  
this.txtName.Margin = new System.Windows.Forms.Padding(2);  
this.txtName.Name = "txtName";  
this.txtName.Size = new System.Drawing.Size(201, 20);  
this.txtName.TabIndex = 4;  
//  
// txtPrice  
//  
this.txtPrice.Location = new System.Drawing.Point(11, 129);  
this.txtPrice.Margin = new System.Windows.Forms.Padding(2);  
this.txtPrice.Name = "txtPrice";  
this.txtPrice.Size = new System.Drawing.Size(108, 20);  
this.txtPrice.TabIndex = 5;  
//  
// lblIsBuyable  
//  
this.lblIsBuyable.AutoSize = true;  
this.lblIsBuyable.Location = new System.Drawing.Point(241, 56);  
this.lblIsBuyable.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblIsBuyable.Name = "lblIsBuyable";
```

```
this.lblIsBuyable.Size = new System.Drawing.Size(113, 13);  
this.lblIsBuyable.TabIndex = 6;  
this.lblIsBuyable.Text = "Available to Purchase:";  
//  
// txtQty  
//  
this.txtQty.Location = new System.Drawing.Point(150, 129);  
this.txtQty.Margin = new System.Windows.Forms.Padding(2);  
this.txtQty.Name = "txtQty";  
this.txtQty.Size = new System.Drawing.Size(62, 20);  
this.txtQty.TabIndex = 8;  
//  
// lblQty  
//  
this.lblQty.AutoSize = true;  
this.lblQty.Location = new System.Drawing.Point(144, 103);  
this.lblQty.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblQty.Name = "lblQty";  
this.lblQty.Size = new System.Drawing.Size(69, 13);  
this.lblQty.TabIndex = 7;  
this.lblQty.Text = "Qty Available";  
//  
// rbBuyableYes
```

```
//
this.rbBuyableYes.AutoSize = true;
this.rbBuyableYes.Location = new System.Drawing.Point(2, 2);
this.rbBuyableYes.Margin = new System.Windows.Forms.Padding(2);
this.rbBuyableYes.Name = "rbBuyableYes";
this.rbBuyableYes.Padding = new System.Windows.Forms.Padding(0, 0, 20, 0);
this.rbBuyableYes.Size = new System.Drawing.Size(63, 17);
this.rbBuyableYes.TabIndex = 9;
this.rbBuyableYes.TabStop = true;
this.rbBuyableYes.Text = "Yes";
this.rbBuyableYes.UseVisualStyleBackColor = true;
this.rbBuyableYes.CheckedChanged += new System.EventHandler(this.rbBuyableYes_CheckedChanged);
//
// rbBuyableNo
//
this.rbBuyableNo.AutoSize = true;
this.rbBuyableNo.Location = new System.Drawing.Point(69, 2);
this.rbBuyableNo.Margin = new System.Windows.Forms.Padding(2);
this.rbBuyableNo.Name = "rbBuyableNo";
this.rbBuyableNo.Size = new System.Drawing.Size(39, 17);
this.rbBuyableNo.TabIndex = 10;
this.rbBuyableNo.TabStop = true;
this.rbBuyableNo.Text = "No";
```

```
this.rbBuyableNo.UseVisualStyleBackColor = true;

this.rbBuyableNo.CheckedChanged += new System.EventHandler(this.rbBuyableNo_CheckedChanged);

//

// rbOnSaleNo

//

this.rbOnSaleNo.AutoSize = true;

this.rbOnSaleNo.Location = new System.Drawing.Point(310, 138);

this.rbOnSaleNo.Margin = new System.Windows.Forms.Padding(2);

this.rbOnSaleNo.Name = "rbOnSaleNo";

this.rbOnSaleNo.Size = new System.Drawing.Size(39, 17);

this.rbOnSaleNo.TabIndex = 13;

this.rbOnSaleNo.TabStop = true;

this.rbOnSaleNo.Text = "No";

this.rbOnSaleNo.UseVisualStyleBackColor = true;

this.rbOnSaleNo.CheckedChanged += new System.EventHandler(this.rbOnSaleNo_CheckedChanged);

//

// rbOnSaleYes

//

this.rbOnSaleYes.AutoSize = true;

this.rbOnSaleYes.Location = new System.Drawing.Point(244, 138);

this.rbOnSaleYes.Margin = new System.Windows.Forms.Padding(2);

this.rbOnSaleYes.Name = "rbOnSaleYes";

this.rbOnSaleYes.Size = new System.Drawing.Size(43, 17);
```

```
this.rbOnSaleYes.TabIndex = 12;

this.rbOnSaleYes.TabStop = true;

this.rbOnSaleYes.Text = "Yes";

this.rbOnSaleYes.UseVisualStyleBackColor = true;

this.rbOnSaleYes.CheckedChanged += new System.EventHandler(this.rbOnSaleYes_CheckedChanged);

//

// lblIsOnSale

//

this.lblIsOnSale.AutoSize = true;

this.lblIsOnSale.Location = new System.Drawing.Point(241, 116);

this.lblIsOnSale.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblIsOnSale.Name = "lblIsOnSale";

this.lblIsOnSale.Size = new System.Drawing.Size(57, 13);

this.lblIsOnSale.TabIndex = 11;

this.lblIsOnSale.Text = "Is on Sale:";

//

// cmbSales

//

this.cmbSales.FormattingEnabled = true;

this.cmbSales.Location = new System.Drawing.Point(361, 138);

this.cmbSales.Margin = new System.Windows.Forms.Padding(2);

this.cmbSales.Name = "cmbSales";

this.cmbSales.Size = new System.Drawing.Size(127, 21);
```

```
this.cmbSales.TabIndex = 14;

//

// lblAddItem

//

this.lblAddItem.AutoSize = true;

this.lblAddItem.Location = new System.Drawing.Point(178, 16);

this.lblAddItem.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblAddItem.Name = "lblAddItem";

this.lblAddItem.Size = new System.Drawing.Size(49, 13);

this.lblAddItem.TabIndex = 15;

this.lblAddItem.Text = "Add Item";

//

// lblUpdateItem

//

this.lblUpdateItem.AutoSize = true;

this.lblUpdateItem.Location = new System.Drawing.Point(244, 16);

this.lblUpdateItem.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblUpdateItem.Name = "lblUpdateItem";

this.lblUpdateItem.Size = new System.Drawing.Size(65, 13);

this.lblUpdateItem.TabIndex = 16;

this.lblUpdateItem.Text = "Update Item";

//

// btnSaveItem
```

```
//  
this.btnSaveItem.Location = new System.Drawing.Point(428, 216);  
this.btnSaveItem.Margin = new System.Windows.Forms.Padding(2);  
this.btnSaveItem.Name = "btnSaveItem";  
this.btnSaveItem.Size = new System.Drawing.Size(91, 90);  
this.btnSaveItem.TabIndex = 17;  
this.btnSaveItem.Text = "Add";  
this.btnSaveItem.UseVisualStyleBackColor = true;  
this.btnSaveItem.Click += new System.EventHandler(this.btnSaveItem_Click);  
//  
// lblNumber  
//  
this.lblNumber.AutoSize = true;  
this.lblNumber.Location = new System.Drawing.Point(11, 32);  
this.lblNumber.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblNumber.Name = "lblNumber";  
this.lblNumber.Size = new System.Drawing.Size(40, 13);  
this.lblNumber.TabIndex = 18;  
this.lblNumber.Text = "Item#: ";  
//  
// dbConnection  
//
```

```
        this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
        "ue";

        this.dbConnection.FireInfoMessageEventOnUserErrors = false;

        //
        // txtCategory
        //
        this.txtCategory.Location = new System.Drawing.Point(11, 179);
        this.txtCategory.Margin = new System.Windows.Forms.Padding(2);
        this.txtCategory.Name = "txtCategory";
        this.txtCategory.Size = new System.Drawing.Size(201, 20);
        this.txtCategory.TabIndex = 20;
        //
        // lblCategory
        //
        this.lblCategory.AutoSize = true;
        this.lblCategory.Location = new System.Drawing.Point(8, 158);
        this.lblCategory.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
        this.lblCategory.Name = "lblCategory";
        this.lblCategory.Size = new System.Drawing.Size(72, 13);
        this.lblCategory.TabIndex = 19;
        this.lblCategory.Text = "Item Category";
        //
```

```
// flowLayoutPanel1
//
this.flowLayoutPanel1.Controls.Add(this.rbBuyableYes);
this.flowLayoutPanel1.Controls.Add(this.rbBuyableNo);
this.flowLayoutPanel1.Location = new System.Drawing.Point(243, 72);
this.flowLayoutPanel1.Margin = new System.Windows.Forms.Padding(2);
this.flowLayoutPanel1.Name = "flowLayoutPanel1";
this.flowLayoutPanel1.Size = new System.Drawing.Size(133, 23);
this.flowLayoutPanel1.TabIndex = 21;
//
// backButton
//
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
this.backButton.Location = new System.Drawing.Point(7, 3);
this.backButton.Name = "backButton";
this.backButton.Size = new System.Drawing.Size(30, 26);
this.backButton.TabIndex = 24;
this.backButton.Text = "←";
this.backButton.UseVisualStyleBackColor = true;
this.backButton.Click += new System.EventHandler(this.backButton_Click);
//
// CUIItem
```

```
//  
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);  
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;  
this.ClientSize = new System.Drawing.Size(533, 341);  
this.Controls.Add(this.backButton);  
this.Controls.Add(this.flowLayoutPanel1);  
this.Controls.Add(this.txtCategory);  
this.Controls.Add(this.lblCategory);  
this.Controls.Add(this.lblNumber);  
this.Controls.Add(this.btnSaveItem);  
this.Controls.Add(this.lblUpdateItem);  
this.Controls.Add(this.lblAddItem);  
this.Controls.Add(this.cmbSales);  
this.Controls.Add(this.rbOnSaleNo);  
this.Controls.Add(this.rbOnSaleYes);  
this.Controls.Add(this.lblIsOnSale);  
this.Controls.Add(this.txtQty);  
this.Controls.Add(this.lblQty);  
this.Controls.Add(this.lblIsBuyable);  
this.Controls.Add(this.txtPrice);  
this.Controls.Add(this.txtName);  
this.Controls.Add(this.lblPrice);  
this.Controls.Add(this.lblName);
```

```
        this.Controls.Add(this.lblDesc);  
        this.Controls.Add(this.txtDesc);  
        this.Margin = new System.Windows.Forms.Padding(2);  
        this.Name = "CUIItem";  
        this.Text = "NewItem";  
        this.flowLayoutPanel1.ResumeLayout(false);  
        this.flowLayoutPanel1.PerformLayout();  
        this.ResumeLayout(false);  
        this.PerformLayout();  
    }  
  
#endregion
```

```
private System.Windows.Forms.RichTextBox txtDesc;  
private System.Windows.Forms.Label lblDesc;  
private System.Windows.Forms.Label lblName;  
private System.Windows.Forms.Label lblPrice;  
private System.Windows.Forms.TextBox txtName;  
private System.Windows.Forms.TextBox txtPrice;  
private System.Windows.Forms.Label lblIsBuyable;  
private System.Windows.Forms.TextBox txtQty;  
private System.Windows.Forms.Label lblQty;
```

```
private System.Windows.Forms.RadioButton rbBuyableYes;
private System.Windows.Forms.RadioButton rbBuyableNo;
private System.Windows.Forms.RadioButton rbOnSaleNo;
private System.Windows.Forms.RadioButton rbOnSaleYes;
private System.Windows.Forms.Label lblIsOnSale;
private System.Windows.Forms.ComboBox cmbSales;
private System.Windows.Forms.Label lblAddItem;
private System.Windows.Forms.Label lblUpdateItem;
private System.Windows.Forms.Button btnSaveItem;
private System.Windows.Forms.Label lblNumber;
private System.Data.SqlClient.SqlConnection dbConnection;
private System.Windows.Forms.TextBox txtCategory;
private System.Windows.Forms.Label lblCategory;
private System.Windows.Forms.FlowLayoutPanel flowLayoutPanel1;
private System.Windows.Forms.Button backButton;
}
}
```

CU Order

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Data.Common;
```

```
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace eStore
{
    public partial class CUOrder : Form
    {
        private bool setup = true;

        public CUOrder(int orderNum = -1)
        {
            InitializeComponent();

            // fill form with initial relevant data
            LoadData(orderNum);
        }

        private void LoadData(int orderNumber)
        {

```

```
// make a new order# or get order# of order to be edited
int orderNum = LoadOrderNum(orderNumber);

// fill combobox with known customers
LoadCmbCustomerID();

// fill datagridview with items in db that aren't out of stock
LoadDgvCmbItemsInStock();

txtAddItemQty.Text = "1";

// if updating an order, fill 2nd datagridview with items in that order
if (orderNumber > 0)
{
    LoadDgvCmbItemsInOrderAndLblSubtotal(orderNumber);
    GetCustomerInfo(orderNumber);
    lblAddOrder.Visible = false;
}
else
{
    SetupDgvItemsInOrderAndSubtotal();
    lblUpdateOrder.Visible = false;
}
```

```
        setup = false;
    }

    private void GetCustomerInfo(int orderNumber)
    {
        dbConnection.Open();

        SqlCommand cmdGetCustomerInfo = dbConnection.CreateCommand();

        cmdGetCustomerInfo.CommandText = @"SELECT ID, Name FROM dbo.[Customer] JOIN dbo.[Order] ON ID =
CustomerID WHERE OrderNumber = @ordNum";

        cmdGetCustomerInfo.Parameters.AddWithValue("ordNum", orderNumber);

        SqlDataReader reader = cmdGetCustomerInfo.ExecuteReader();

        if (reader.Read())
        {
            cmbCustomerID.SelectedIndex = cmbCustomerID.Items.IndexOf(reader[0].ToString());

            cmbCustomerID.Enabled = false;

            lblCustomerName.Text += reader[1].ToString();
        }

        dbConnection.Close();
    }

    private void SetupDgvItemsInOrderAndSubtotal()
    {
```

```

        string[] columnNames = { "Item#", "Name", "Qty", "Price" };

        for (int i = 0; i < columnNames.Length; i++)
        {
            dgvItemsInOrder.Columns.Add(new DataGridViewTextBoxColumn());
            dgvItemsInOrder.Columns[i].HeaderText = columnNames[i];
            dgvItemsInOrder.Columns[i].Name = columnNames[i];
        }

        lblSubtotal.Text = "Subtotal: $0.00";
    }

    private void LoadDgvCmbItemsInOrderAndLblSubtotal(int orderNum)
    {
        lblAddOrder.Visible = false;
        lblOrderNum.Text = "Order#: " + orderNum;
        dbConnection.Open();
        SqlCommand cmdGetOrderItems = dbConnection.CreateCommand();
        cmdGetOrderItems.CommandText = @"SELECT dbo.[OrderItem].ItemNumber as 'Item#', ItemName as 'Name',
ItemQuantity as 'Qty', Price * ItemQuantity as 'Price'
                                     FROM dbo.[OrderItem] JOIN dbo.Item ON dbo.Item.ItemNumber =
dbo.[OrderItem].ItemNumber
                                     WHERE OrderNumber = @ordNum";
        cmdGetOrderItems.Parameters.AddWithValue("ordNum", orderNum);
    }

```

```
        SqlDataReader reader = cmdGetOrderItems.ExecuteReader();

        DataTable dt = new DataTable();

        dt.Load(reader);

        dgvItemsInOrder.DataSource = dt;

        reader = cmdGetOrderItems.ExecuteReader();

        while (reader.Read())

            cmbRemoveSelectedItem.Items.Add(reader[1].ToString());

        SqlCommand cmdGetSubtotal = dbConnection.CreateCommand();

        cmdGetSubtotal.CommandText = @"SELECT Subtotal FROM dbo.[Order] WHERE OrderNumber = @ordNum";

        cmdGetSubtotal.Parameters.AddWithValue("ordNum", orderNum);

        reader.Close();

        reader = cmdGetSubtotal.ExecuteReader();

        if (reader.Read())

            lblSubtotal.Text = "Subtotal: $" + reader[0].ToString();

        reader.Close();

        dbConnection.Close();

    }

    private void LoadDgvCmbItemsInStock()

    {
```

```
        dbConnection.Open();

        SqlCommand cmdGetItems = dbConnection.CreateCommand();

        cmdGetItems.CommandText = @"SELECT ItemNumber as 'Item#', ItemName as 'Name', Price,
QuantityAvailable as 'Qty', Category, SaleNumber as 'Sale#'

                                FROM dbo.Item WHERE QuantityAvailable > 0 AND isPurchasable = 1";

        SqlDataReader reader = cmdGetItems.ExecuteReader();

        DataTable dt = new DataTable();

        dt.Load(reader);

        dgvItemsInStock.DataSource = dt;

        reader = cmdGetItems.ExecuteReader();

        while (reader.Read())

            cmbAddSelectedItem.Items.Add(reader[1].ToString());

        reader.Close();

        dbConnection.Close();
    }

    private void LoadCmbCustomerID()
    {

        dbConnection.Open();

        SqlCommand cmdGetCustomerIDs = dbConnection.CreateCommand();

        cmdGetCustomerIDs.CommandText = @"SELECT ID FROM dbo.Customer";
```

```
        SqlDataReader reader = cmdGetCustomerIDs.ExecuteReader();

        while (reader.Read())
            cmbCustomerID.Items.Add(reader[0].ToString());

        reader.Close();

        dbConnection.Close();
    }

    private int LoadOrderNum(int orderNumber)
    {
        int orderNum = orderNumber;

        if (orderNum < 0)
        {
            dbConnection.Open();

            SqlCommand cmdGetOrderNum = dbConnection.CreateCommand();

            cmdGetOrderNum.CommandText = @"SELECT max(OrderNumber) + 1 FROM dbo.[Order]";

            SqlDataReader reader = cmdGetOrderNum.ExecuteReader();

            if (reader.Read())
                orderNum = reader.GetInt32(0);

            else
                MessageBox.Show("Error: unable to get current order's #", "Error");

            reader.Close();

            dbConnection.Close();
        }
    }
}
```

```
    }

    lblOrderNum.Text += orderNum.ToString();

    return orderNum;
}

private void cmbCustomerID_TextChanged(object sender, EventArgs e)
{
    if (!setup && cmbCustomerID.Items.Contains(cmbCustomerID.Text))
    {
        dbConnection.Open();

        SqlCommand cmdGetCustomerName = dbConnection.CreateCommand();

        cmdGetCustomerName.CommandText = @"SELECT Name FROM dbo.Customer WHERE ID = @id";

        cmdGetCustomerName.Parameters.AddWithValue("id", cmbCustomerID.Text);

        SqlDataReader reader = cmdGetCustomerName.ExecuteReader();

        if (reader.Read())
        {
            lblCustomerName.Text = "Customer Name: " + reader[0].ToString();
        }
        else
        {
            MessageBox.Show("Error: unable to get name for selected customer #", "Error");
        }
        reader.Close();
    }
}
```

```
        dbConnection.Close();
    }
    else
        lblCustomerName.Text = "Customer Name: ";
}

private decimal CalculateOrderSubtotal()
{
    decimal subtotal = 0;

    foreach (DataGridViewRow row in dgvItemsInOrder.Rows)
        subtotal += (decimal)(row.Cells["Price"].Value);

    lblSubtotal.Text = "Subtotal: $" + subtotal.ToString();

    return subtotal;
}

private void btnSaveOrder_Click(object sender, EventArgs e)
{
    int orderNum =
int.Parse(lblOrderNum.Text.Substring(lblOrderNum.Text.IndexOfAny("0123456789".ToCharArray())));

    int custID;

    string orderResult = "updated in";
```

```
try
{
    custID = int.Parse(cmbCustomerID.Text);
}
catch
{
    MessageBox.Show("customer # not selected, order not saved");
    return; // custID = 100000;
}

decimal subtotal, total, shippingFee = 0, taxes = 0;

subtotal = CalculateOrderSubtotal();
total = subtotal + shippingFee + taxes;
dbConnection.Open();

SqlCommand cmdSaveOrder1 = dbConnection.CreateCommand();
if (lblAddOrder.Visible)
{
    cmdSaveOrder1.CommandText = @"INSERT INTO dbo.[Order] VALUES (@subtot, @tot, @date, @custID,
@ordNum, @shipNum)";

    orderResult = "added to";

    cmdSaveOrder1.Parameters.AddWithValue("shipNum", DBNull.Value);
    cmdSaveOrder1.Parameters.AddWithValue("custID", custID);
```

```

    }

    else

        cmdSaveOrder1.CommandText = @"UPDATE dbo.[Order] SET Subtotal = @subtot, Total = @tot,
OrderDate = @date, OrderNumber = @ordNum

                                WHERE OrderNumber = @ordNum";

        cmdSaveOrder1.Parameters.AddWithValue("subtot", subtotal);
        cmdSaveOrder1.Parameters.AddWithValue("tot", total);
        cmdSaveOrder1.Parameters.AddWithValue("date", DateTime.Now.ToString("M-dd-yyyy"));
        cmdSaveOrder1.Parameters.AddWithValue("ordNum", orderNum);
        cmdSaveOrder1.ExecuteNonQuery();


        SqlCommand cmdGetItemsInOrder = dbConnection.CreateCommand();
        cmdGetItemsInOrder.CommandText = @"SELECT ItemNumber FROM dbo.[OrderItem] WHERE OrderNumber =
@ordNum";

        cmdGetItemsInOrder.Parameters.AddWithValue("ordNum", orderNum);
        SqlDataReader reader = cmdGetItemsInOrder.ExecuteReader();

        List<int> itemsInOrder = new List<int>();
        while (reader.Read())
            itemsInOrder.Add(reader.GetInt32(0));
        reader.Close();


        foreach (DataGridViewRow row in dgvItemsInOrder.Rows)
        {
            int qty = (int)(row.Cells["Qty"].Value), itemNum = (int)(row.Cells["Item#"].Value);

```

```
SqlCommand cmdSaveOrder2 = dbConnection.CreateCommand();

if (lblAddOrder.Visible || !itemsInOrder.Contains(itemNum))
    cmdSaveOrder2.CommandText = @"INSERT INTO dbo.[OrderItem] VALUES (@itemNum, @qty,
@ordNum) ";
else
{
    cmdSaveOrder2.CommandText = @"UPDATE dbo.[OrderItem] SET ItemNumber = @itemNum,
ItemQuantity = @qty, OrderNumber = @ordNum
                                WHERE OrderNumber = @ordNum AND ItemNumber = @itemNum";

    itemsInOrder.Remove(itemNum);
}

cmdSaveOrder2.Parameters.AddWithValue("itemNum", itemNum);
cmdSaveOrder2.Parameters.AddWithValue("qty", qty);
cmdSaveOrder2.Parameters.AddWithValue("ordNum", orderNum);
cmdSaveOrder2.ExecuteNonQuery();

//update item inventory

SqlCommand cmdUpdateItemStock = dbConnection.CreateCommand();

cmdUpdateItemStock.CommandText = @"UPDATE dbo.Item SET QuantityAvailable = QuantityAvailable -
@qty WHERE ItemNumber = @itemNum";

cmdUpdateItemStock.Parameters.AddWithValue("qty", qty);
cmdUpdateItemStock.Parameters.AddWithValue("itemNum", itemNum);
cmdUpdateItemStock.ExecuteNonQuery();
}
```

```
if (itemsInOrder.Count != 0)
{
    SqlCommand cmdUpdateItemStock = dbConnection.CreateCommand();

    cmdUpdateItemStock.CommandText = @"UPDATE dbo.Item SET QuantityAvailable = QuantityAvailable +
@qty WHERE ItemNumber = @itemNum";

    SqlCommand cmdGetItemQty = dbConnection.CreateCommand();

    cmdGetItemQty.CommandText = @"SELECT ItemQuantity FROM dbo.[OrderItem] WHERE ItemNumber =
@itemNum";

    SqlCommand cmdRemoveItems = dbConnection.CreateCommand();

    cmdRemoveItems.CommandText = @"DELETE FROM dbo.[OrderItem] WHERE OrderNumber = @ordNum AND
ItemNumber = @itemNum";

    foreach (int itemNumber in itemsInOrder)
    {
        cmdGetItemQty.Parameters.AddWithValue("itemNum", itemNumber);

        reader = cmdGetItemQty.ExecuteReader();

        int qty = 0;

        if (reader.Read())

            qty = reader.GetInt32(0);

        reader.Close();

        cmdGetItemQty.Parameters.Clear();
    }
}
```

```
cmdUpdateItemStock.Parameters.AddWithValue("qty", qty);
cmdUpdateItemStock.Parameters.AddWithValue("itemNum", itemNumber);
cmdUpdateItemStock.ExecuteNonQuery();
cmdUpdateItemStock.Parameters.Clear();

cmdRemoveItems.Parameters.AddWithValue("ordNum", orderNum);
cmdRemoveItems.Parameters.AddWithValue("itemNum", itemNumber);
cmdRemoveItems.ExecuteNonQuery();
cmdRemoveItems.Parameters.Clear();
}
}

dbConnection.Close();

string message = "order " + orderNum + " has been " + orderResult + " database";
MessageBox.Show(message);

if (lblAddOrder.Visible)
{
    orderNum += 1;
    lblOrderNum.Text = "Order#: " + orderNum;
    cmbCustomerID.Text = "";
    dgvItemsInOrder.Rows.Clear();
}
```

```
    }
}

private void btnAddItem_Click(object sender, EventArgs e)
{
    bool addItem = false;

    if (cmbAddSelectedItem.Text.Equals(""))
        MessageBox.Show("error: item not selected");
    else if (!cmbAddSelectedItem.Items.Contains(cmbAddSelectedItem.Text))
        MessageBox.Show("error: item doesn't exist");
    else if (int.Parse(txtAddItemQty.Text.Trim()) < 1 ||
txtAddItemQty.Text.Trim().IndexOfAny("0123456789".ToCharArray()) == -1)
        MessageBox.Show("error: qty must be 1 or greater");
    else
        addItem = true;

    if (addItem)
    {
        int itemNum = -1, itemQty = int.Parse(txtAddItemQty.Text);
        decimal itemPrice = -1;
        bool emptyStock = false;
        foreach (DataGridViewRow row in dgvItemsInStock.Rows)
```

```
{
    if (row.Cells["Name"].Value.ToString().Equals(cmbAddSelectedItem.Text))
    {
        itemNum = (int)(row.Cells["Item#"].Value);
        itemPrice = (decimal)(row.Cells["Price"].Value);

        int qtyInStock = (int)(row.Cells["Qty"].Value);
        if (qtyInStock < itemQty)
        {
            MessageBox.Show("item qty to add is more than what's available. adding remainder
of stock to order instead.");
            itemQty = qtyInStock;
        }

        row.Cells["Qty"].Value = qtyInStock - itemQty;

        if ((int)(row.Cells["Qty"].Value) == 0)
        {
            dgvItemsInStock.Rows.Remove(row);
            emptyStock = true;
        }
        break;
    }
}
```

```
    }

    if (lblAddOrder.Visible)
    {
        int i = dgvItemsInOrder.Rows.Count - 1;

        while (i >= 0 &&
!dgvItemsInOrder.Rows[i].Cells["Name"].Value.ToString().Equals(cmbAddSelectedItem.Text))

            i--;

        if (i < 0)

            dgvItemsInOrder.Rows.Add(itemNum, cmbAddSelectedItem.Text, itemQty, itemPrice *
itemQty);

        else

        {

            dgvItemsInOrder.Rows[i].Cells["Qty"].Value =
(int) (dgvItemsInOrder.Rows[i].Cells["Qty"].Value) + itemQty;

            dgvItemsInOrder.Rows[i].Cells["Price"].Value =
(decimal) (dgvItemsInOrder.Rows[i].Cells["Price"].Value) + itemPrice * itemQty;

        }

    }

    else

    {

        DataTable dt = (DataTable) (dgvItemsInOrder.DataSource);

        object[] rowInfo = { itemNum, cmbAddSelectedItem.Text, itemQty, itemPrice * itemQty };

        DataRow dr = dt.NewRow();

        int i = dgvItemsInOrder.Rows.Count - 1;
```

```
        while (i >= 0 &&
!dgvItemsInOrder.Rows[i].Cells["Name"].Value.ToString().Equals(cmbAddSelectedItem.Text))

            i--;

        if (i >= 0)
        {
            rowInfo[2] = (int)(rowInfo[2]) + (int)(dgvItemsInOrder.Rows[i].Cells["Qty"].Value);

            rowInfo[3] = (decimal)(rowInfo[3]) +
(decimal)(dgvItemsInOrder.Rows[i].Cells["Price"].Value);

            dt.Rows.RemoveAt(i);
        }

        dr.ItemArray = rowInfo;

        dt.Rows.Add(dr);
    }

    CalculateOrderSubtotal();

    if (!cmbRemoveSelectedItem.Items.Contains(cmbAddSelectedItem.Text))

        cmbRemoveSelectedItem.Items.Add(cmbAddSelectedItem.Text);

    if (emptyStock)
    {
        cmbAddSelectedItem.Items.Remove(cmbAddSelectedItem.Text);

        cmbAddSelectedItem.Text = "";
    }
}
```

```
    }
}

private void dgvItemsInStock_CellClick(object sender, DataGridViewCellEventArgs e)
{
    cmbAddSelectedItem.Text = dgvItemsInStock.CurrentRow.Cells["Name"].Value.ToString();
}

private void dgvItemsInOrder_CellClick(object sender, DataGridViewCellEventArgs e)
{
    cmbRemoveSelectedItem.Text = dgvItemsInOrder.CurrentRow.Cells["Name"].Value.ToString();
}

private void btnRemoveItem_Click(object sender, EventArgs e)
{
    foreach (DataGridViewRow orderRow in dgvItemsInOrder.Rows)
    {
        if (orderRow.Cells["Name"].Value.ToString().Equals(cmbRemoveSelectedItem.Text))
        {
            bool stockItemExists = false;

            int itemQty = (int)(orderRow.Cells["Qty"].Value);

            foreach (DataGridViewRow stockRow in dgvItemsInStock.Rows)
            {
```

```
        if (stockRow.Cells["Name"].Value.ToString().Equals(cmbRemoveSelectedItem.Text))
        {
            stockRow.Cells["Qty"].Value = (int)(stockRow.Cells["Qty"].Value) + itemQty;
            stockItemExists = true;
            break;
        }
    }
    if (!stockItemExists)
    {
        dbConnection.Open();

        SqlCommand cmdGetItem = dbConnection.CreateCommand();

        cmdGetItem.CommandText = @"SELECT ItemNumber as 'Item#', ItemName as 'Name', Price,
QuantityAvailable as 'Qty', Category, SaleNumber as 'Sale#'

                                FROM dbo.Item WHERE ItemNumber = @itemNum";

        cmdGetItem.Parameters.AddWithValue("itemNum", (int)(orderRow.Cells["Item#"].Value));

        SqlDataReader reader = cmdGetItem.ExecuteReader();

        if (reader.Read())
        {
            DataTable dt = (DataTable)(dgvItemsInStock.DataSource);

            DataRow dr = dt.NewRow();

            for (int i = 0; i < 5; i++)
                dr[i] = reader[i].ToString();

            if (reader[5].ToString().Equals(""))
```

```
        dr[5] = System.DBNull.Value;
    else
        dr[5] = reader[5].ToString();
    dt.Rows.Add(dr);
}
reader.Close();
dbConnection.Close();

cmbAddSelectedItem.Items.Add(cmbRemoveSelectedItem.Text);
}

dgvItemsInOrder.Rows.Remove(orderRow);
cmbRemoveSelectedItem.Items.Remove(cmbRemoveSelectedItem.Text);
cmbRemoveSelectedItem.Text = "";
break;
}
}
CalculateOrderSubtotal();
}

private void btnCancel_Click(object sender, EventArgs e)
{
    CRUDOrders frm = new CRUDOrders();
```

```
        frm.Show();

        this.Close();

    }

}

namespace eStore
{
    partial class CUOrder
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
```

```
        components.Dispose();
    }
    base.Dispose(disposing);
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
{
    this.lblAddOrder = new System.Windows.Forms.Label();
    this.lblOrderNum = new System.Windows.Forms.Label();
    this.lblCustomerID = new System.Windows.Forms.Label();
    this.cmbCustomerID = new System.Windows.Forms.ComboBox();
    this.lblCustomerName = new System.Windows.Forms.Label();
    this.dgvItemsInStock = new System.Windows.Forms.DataGridView();
    this.dgvItemsInOrder = new System.Windows.Forms.DataGridView();
    this.cmbAddSelectedItem = new System.Windows.Forms.ComboBox();
    this.txtAddItemQty = new System.Windows.Forms.TextBox();
    this.lblItemToAdd = new System.Windows.Forms.Label();
}
```

```
this.lblItemQtyToAdd = new System.Windows.Forms.Label();
this.btnAddItem = new System.Windows.Forms.Button();
this.btnRemoveItem = new System.Windows.Forms.Button();
this.lblItemToRemove = new System.Windows.Forms.Label();
this.cmbRemoveSelectedItem = new System.Windows.Forms.ComboBox();
this.lblInStockItems = new System.Windows.Forms.Label();
this.lblItemsInOrder = new System.Windows.Forms.Label();
this.btnSaveOrder = new System.Windows.Forms.Button();
this.btnCancel = new System.Windows.Forms.Button();
this.dbConnection = new System.Data.SqlClient.SqlConnection();
this.lblSubtotal = new System.Windows.Forms.Label();
this.lblUpdateOrder = new System.Windows.Forms.Label();
((System.ComponentModel.ISupportInitialize)(this.dgvItemsInStock)).BeginInit();
((System.ComponentModel.ISupportInitialize)(this.dgvItemsInOrder)).BeginInit();
this.SuspendLayout();
//
// lblAddOrder
//
this.lblAddOrder.AutoSize = true;
this.lblAddOrder.Location = new System.Drawing.Point(280, 20);
this.lblAddOrder.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblAddOrder.Name = "lblAddOrder";
this.lblAddOrder.Size = new System.Drawing.Size(92, 13);
```

```
this.lblAddOrder.TabIndex = 0;

this.lblAddOrder.Text = "Create New Order";

//

// lblOrderNum

//

this.lblOrderNum.AutoSize = true;

this.lblOrderNum.Location = new System.Drawing.Point(40, 68);

this.lblOrderNum.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblOrderNum.Name = "lblOrderNum";

this.lblOrderNum.Size = new System.Drawing.Size(46, 13);

this.lblOrderNum.TabIndex = 1;

this.lblOrderNum.Text = "Order#: ";

//

// lblCustomerID

//

this.lblCustomerID.AutoSize = true;

this.lblCustomerID.Location = new System.Drawing.Point(40, 99);

this.lblCustomerID.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblCustomerID.Name = "lblCustomerID";

this.lblCustomerID.Size = new System.Drawing.Size(68, 13);

this.lblCustomerID.TabIndex = 2;

this.lblCustomerID.Text = "CustomerID: ";

//
```

```
// cmbCustomerID
//
this.cmbCustomerID.FormattingEnabled = true;
this.cmbCustomerID.Location = new System.Drawing.Point(139, 99);
this.cmbCustomerID.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
this.cmbCustomerID.Name = "cmbCustomerID";
this.cmbCustomerID.Size = new System.Drawing.Size(82, 21);
this.cmbCustomerID.TabIndex = 3;
this.cmbCustomerID.TextChanged += new System.EventHandler(this.cmbCustomerID_TextChanged);
//
// lblCustomerName
//
this.lblCustomerName.AutoSize = true;
this.lblCustomerName.Location = new System.Drawing.Point(298, 99);
this.lblCustomerName.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblCustomerName.Name = "lblCustomerName";
this.lblCustomerName.Size = new System.Drawing.Size(88, 13);
this.lblCustomerName.TabIndex = 4;
this.lblCustomerName.Text = "Customer Name: ";
//
// dgvItemsInStock
//
this.dgvItemsInStock.AllowUserToAddRows = false;
```

```
this.dgvItemsInStock.AllowUserToDeleteRows = false;

this.dgvItemsInStock.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

this.dgvItemsInStock.Location = new System.Drawing.Point(8, 180);

this.dgvItemsInStock.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.dgvItemsInStock.Name = "dgvItemsInStock";

this.dgvItemsInStock.ReadOnly = true;

this.dgvItemsInStock.RowHeadersWidth = 62;

this.dgvItemsInStock.RowTemplate.Height = 28;

this.dgvItemsInStock.Size = new System.Drawing.Size(325, 225);

this.dgvItemsInStock.TabIndex = 5;

this.dgvItemsInStock.CellClick += new
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvItemsInStock_CellClick);

//

// dgvItemsInOrder

//

this.dgvItemsInOrder.AllowUserToAddRows = false;

this.dgvItemsInOrder.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

this.dgvItemsInOrder.Location = new System.Drawing.Point(348, 180);

this.dgvItemsInOrder.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.dgvItemsInOrder.Name = "dgvItemsInOrder";

this.dgvItemsInOrder.RowHeadersWidth = 62;

this.dgvItemsInOrder.RowTemplate.Height = 28;
```

```
this.dgvItemsInOrder.Size = new System.Drawing.Size(325, 225);

this.dgvItemsInOrder.TabIndex = 6;

this.dgvItemsInOrder.CellClick += new
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvItemsInOrder_CellClick);

//

// cmbAddSelectedItem

//

this.cmbAddSelectedItem.FormattingEnabled = true;

this.cmbAddSelectedItem.Location = new System.Drawing.Point(76, 410);

this.cmbAddSelectedItem.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.cmbAddSelectedItem.Name = "cmbAddSelectedItem";

this.cmbAddSelectedItem.Size = new System.Drawing.Size(82, 21);

this.cmbAddSelectedItem.TabIndex = 7;

//

// txtAddItemQty

//

this.txtAddItemQty.Location = new System.Drawing.Point(289, 410);

this.txtAddItemQty.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.txtAddItemQty.Name = "txtAddItemQty";

this.txtAddItemQty.Size = new System.Drawing.Size(45, 20);

this.txtAddItemQty.TabIndex = 8;

//

// lblItemToAdd
```

```
//
this.lblItemToAdd.AutoSize = true;
this.lblItemToAdd.Location = new System.Drawing.Point(9, 409);
this.lblItemToAdd.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblItemToAdd.Name = "lblItemToAdd";
this.lblItemToAdd.Size = new System.Drawing.Size(64, 13);
this.lblItemToAdd.TabIndex = 9;
this.lblItemToAdd.Text = "Item Name: ";
//
// lblItemQtyToAdd
//
this.lblItemQtyToAdd.AutoSize = true;
this.lblItemQtyToAdd.Location = new System.Drawing.Point(263, 407);
this.lblItemQtyToAdd.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblItemQtyToAdd.Name = "lblItemQtyToAdd";
this.lblItemQtyToAdd.Size = new System.Drawing.Size(24, 13);
this.lblItemQtyToAdd.TabIndex = 10;
this.lblItemQtyToAdd.Text = "qty.";
//
// btnAddItem
//
this.btnAddItem.Location = new System.Drawing.Point(11, 434);
this.btnAddItem.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
```

```
this.btnAddItem.Name = "btnAddItem";

this.btnAddItem.Size = new System.Drawing.Size(321, 30);

this.btnAddItem.TabIndex = 11;

this.btnAddItem.Text = "Add To Order";

this.btnAddItem.UseVisualStyleBackColor = true;

this.btnAddItem.Click += new System.EventHandler(this.btnAddItem_Click);

//

// btnRemoveItem

//

this.btnRemoveItem.Location = new System.Drawing.Point(443, 434);

this.btnRemoveItem.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.btnRemoveItem.Name = "btnRemoveItem";

this.btnRemoveItem.Size = new System.Drawing.Size(231, 30);

this.btnRemoveItem.TabIndex = 16;

this.btnRemoveItem.Text = "Remove From Order";

this.btnRemoveItem.UseVisualStyleBackColor = true;

this.btnRemoveItem.Click += new System.EventHandler(this.btnRemoveItem_Click);

//

// lblItemToRemove

//

this.lblItemToRemove.AutoSize = true;

this.lblItemToRemove.Location = new System.Drawing.Point(440, 411);

this.lblItemToRemove.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
```

```
this.lblItemToRemove.Name = "lblItemToRemove";

this.lblItemToRemove.Size = new System.Drawing.Size(64, 13);

this.lblItemToRemove.TabIndex = 14;

this.lblItemToRemove.Text = "Item Name: ";

//

// cmbRemoveSelectedItem

//

this.cmbRemoveSelectedItem.FormattingEnabled = true;

this.cmbRemoveSelectedItem.Location = new System.Drawing.Point(593, 411);

this.cmbRemoveSelectedItem.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);

this.cmbRemoveSelectedItem.Name = "cmbRemoveSelectedItem";

this.cmbRemoveSelectedItem.Size = new System.Drawing.Size(82, 21);

this.cmbRemoveSelectedItem.TabIndex = 12;

//

// lblInStockItems

//

this.lblInStockItems.AutoSize = true;

this.lblInStockItems.Location = new System.Drawing.Point(5, 159);

this.lblInStockItems.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblInStockItems.Name = "lblInStockItems";

this.lblInStockItems.Size = new System.Drawing.Size(110, 13);

this.lblInStockItems.TabIndex = 17;

this.lblInStockItems.Text = "Store\'s In-Stock Items";
```

```
//  
// lblItemsInOrder  
//  
this.lblItemsInOrder.AutoSize = true;  
this.lblItemsInOrder.Location = new System.Drawing.Point(348, 159);  
this.lblItemsInOrder.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblItemsInOrder.Name = "lblItemsInOrder";  
this.lblItemsInOrder.Size = new System.Drawing.Size(116, 13);  
this.lblItemsInOrder.TabIndex = 18;  
this.lblItemsInOrder.Text = "Items Currently in Order";  
//  
// btnSaveOrder  
//  
this.btnSaveOrder.Location = new System.Drawing.Point(523, 116);  
this.btnSaveOrder.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
this.btnSaveOrder.Name = "btnSaveOrder";  
this.btnSaveOrder.Size = new System.Drawing.Size(142, 56);  
this.btnSaveOrder.TabIndex = 19;  
this.btnSaveOrder.Text = "Save Order";  
this.btnSaveOrder.UseVisualStyleBackColor = true;  
this.btnSaveOrder.Click += new System.EventHandler(this.btnSaveOrder_Click);  
//  
// btnCancel
```

```
//
this.btnCancel.Location = new System.Drawing.Point(8, 8);
this.btnCancel.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);
this.btnCancel.Name = "btnCancel";
this.btnCancel.Size = new System.Drawing.Size(121, 42);
this.btnCancel.TabIndex = 20;
this.btnCancel.Text = "Cancel Order/Go Back";
this.btnCancel.UseVisualStyleBackColor = true;
this.btnCancel.Click += new System.EventHandler(this.btnCancel_Click);
//
// dbConnection
//
this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
    "ue";

this.dbConnection.FireInfoMessageEventOnUserErrors = false;
//
// lblSubtotal
//
this.lblSubtotal.AutoSize = true;
this.lblSubtotal.Location = new System.Drawing.Point(348, 416);
this.lblSubtotal.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblSubtotal.MaximumSize = new System.Drawing.Size(67, 0);
```

```
this.lblSubtotal.Name = "lblSubtotal";

this.lblSubtotal.Size = new System.Drawing.Size(49, 13);

this.lblSubtotal.TabIndex = 21;

this.lblSubtotal.Text = "Subtotal:";

//

// lblUpdateOrder

//

this.lblUpdateOrder.AutoSize = true;

this.lblUpdateOrder.Location = new System.Drawing.Point(280, 37);

this.lblUpdateOrder.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblUpdateOrder.Name = "lblUpdateOrder";

this.lblUpdateOrder.Size = new System.Drawing.Size(71, 13);

this.lblUpdateOrder.TabIndex = 22;

this.lblUpdateOrder.Text = "Update Order";

//

// CUOrder

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleModeMode.Font;

this.AutoSize = true;

this.AutoSizeMode = System.Windows.Forms.AutoSizeMode.GrowAndShrink;

this.ClientSize = new System.Drawing.Size(681, 471);

this.Controls.Add(this.lblUpdateOrder);
```

```
this.Controls.Add(this.lblSubtotal);  
this.Controls.Add(this.btnCancel);  
this.Controls.Add(this.btnSaveOrder);  
this.Controls.Add(this.lblItemsInOrder);  
this.Controls.Add(this.lblInStockItems);  
this.Controls.Add(this.btnRemoveItem);  
this.Controls.Add(this.lblItemToRemove);  
this.Controls.Add(this.cmbRemoveSelectedItem);  
this.Controls.Add(this.btnAddItem);  
this.Controls.Add(this.lblItemQtyToAdd);  
this.Controls.Add(this.lblItemToAdd);  
this.Controls.Add(this.txtAddItemQty);  
this.Controls.Add(this.cmbAddSelectedItem);  
this.Controls.Add(this.dgvItemsInOrder);  
this.Controls.Add(this.dgvItemsInStock);  
this.Controls.Add(this.lblCustomerName);  
this.Controls.Add(this.cmbCustomerID);  
this.Controls.Add(this.lblCustomerID);  
this.Controls.Add(this.lblOrderNum);  
this.Controls.Add(this.lblAddOrder);  
  
this.Margin = new System.Windows.Forms.Padding(2, 2, 2, 2);  
  
this.Name = "CUOrder";  
  
this.Text = "CUOrder";
```

```
        ((System.ComponentModel.ISupportInitialize)(this.dgvItemsInStock)).EndInit();
        ((System.ComponentModel.ISupportInitialize)(this.dgvItemsInOrder)).EndInit();
        this.ResumeLayout(false);
        this.PerformLayout();

    }

#endregion

private System.Windows.Forms.Label lblAddOrder;
private System.Windows.Forms.Label lblOrderNum;
private System.Windows.Forms.Label lblCustomerID;
private System.Windows.Forms.ComboBox cmbCustomerID;
private System.Windows.Forms.Label lblCustomerName;
private System.Windows.Forms.DataGridView dgvItemsInStock;
private System.Windows.Forms.DataGridView dgvItemsInOrder;
private System.Windows.Forms.ComboBox cmbAddSelectedItem;
private System.Windows.Forms.TextBox txtAddItemQty;
private System.Windows.Forms.Label lblItemToAdd;
private System.Windows.Forms.Label lblItemQtyToAdd;
private System.Windows.Forms.Button btnAddItem;
private System.Windows.Forms.Button btnRemoveItem;
private System.Windows.Forms.Label lblItemToRemove;
private System.Windows.Forms.ComboBox cmbRemoveSelectedItem;
```

```
        private System.Windows.Forms.Label lblInStockItems;

        private System.Windows.Forms.Label lblItemsInOrder;

        private System.Windows.Forms.Button btnSaveOrder;

        private System.Windows.Forms.Button btnCancel;

        private System.Data.SqlClient.SqlConnection dbConnection;

        private System.Windows.Forms.Label lblSubtotal;

        private System.Windows.Forms.Label lblUpdateOrder;

    }
}
```

CU Sale

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Common;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace eStore
```

```
{  
    public partial class CUSale : Form  
    {  
        int saleNum;  
        public CUSale(int saleNum = -1)  
        {  
            InitializeComponent();  
  
            rbChange.Enabled = false;  
            rbMultiply.Enabled = false;  
            rbSubtract.Enabled = false;  
            rbSubtract.Checked = true;  
  
            this.saleNum = saleNum;  
  
            if (saleNum >= 0)  
            {  
                lblSale.Text = "Update Sale";  
                btnSaveSale.Text = "Update";  
                LoadSaleInfo();  
            }  
            else  
            {
```

```
        lblSale.Text = "Add Sale";
        btnSaveSale.Text = "Add";
        GetSaleNum(false);
        cmbSaleNum.Enabled = false;
    }
}

private void GetSaleNum(bool forSaleNum)
{
    dbConnection.Open();
    SqlCommand cmdGetSaleNum = dbConnection.CreateCommand();
    cmdGetSaleNum.CommandText = @"SELECT max(SaleNumber)+1 FROM dbo.Sale";
    SqlDataReader reader = cmdGetSaleNum.ExecuteReader();
    if (reader.Read())
    {
        if (forSaleNum)
        {
            saleNum = reader.GetInt32(0);
        }
        else
        {
            cmbSaleNum.Text = reader[0].ToString();
        }
    }
    else
    {
        MessageBox.Show("Error: unable to get current shipment's #", "Error");
    }
    reader.Close();
    dbConnection.Close();
}
```

```
private void LoadSaleInfo()
{
    cmbSaleNum.Text = "";
    cmbSaleNum.Items.Clear();
    txtSaleAmount.Text = "";
    dtpStart.Value = DateTime.Now;
    dtpEnd.Value = DateTime.Now;

    dbConnection.Open();
    SqlCommand cmdGetSaleInfo = dbConnection.CreateCommand();
    cmdGetSaleInfo.CommandText = @"SELECT * FROM dbo.Sale WHERE SaleNumber = @saleNum";
    cmdGetSaleInfo.Parameters.AddWithValue("saleNum", saleNum);
    SqlDataReader reader = cmdGetSaleInfo.ExecuteReader();
    if (reader.Read())
    {
        cmbSaleNum.Text = reader[0].ToString();
        cmbSaleNum.Items.Add(reader[0].ToString());
        txtSaleAmount.Text = reader[1].ToString();
        dtpStart.Value = DateTime.Parse(reader[2].ToString());
        dtpEnd.Value = DateTime.Parse(reader[3].ToString());
    }
    reader.Close();
}
```

```

        dbConnection.Close();
    }
    private void btnSaveSale_Click(object sender, EventArgs e)
    {
        string message = "updated.";

        dbConnection.Open();
        SqlCommand cmdSaveSale = dbConnection.CreateCommand();
        if (saleNum < 0)
        {
            message = "added";
            dbConnection.Close();
            GetSaleNum(true);
            dbConnection.Open();

            cmdSaveSale.CommandText = @"INSERT INTO dbo.Sale VALUES (@saleNum, @saleAmount, @start,
@end) ";
        }
        else
            cmdSaveSale.CommandText = @"UPDATE dbo.Sale SET SaleAmount = @saleAmount, StartDate = @start,
EndDate = @end

                                WHERE SaleNumber = @saleNum";

        cmdSaveSale.Parameters.AddWithValue("saleNum", saleNum);

        cmdSaveSale.Parameters.AddWithValue("saleAmount",
decimal.Parse(txtSaleAmount.Text.Substring(txtSaleAmount.Text.IndexOfAny("0123456789".ToCharArray()))));

```

```
        cmdSaveSale.Parameters.AddWithValue("start", dtpStart.Value.ToString("M-dd-yyyy"));
        cmdSaveSale.Parameters.AddWithValue("end", dtpEnd.Value.ToString("M-dd-yyyy"));
        cmdSaveSale.ExecuteNonQuery();
        dbConnection.Close();

        MessageBox.Show("sale has been " + message);
    }

    private void backButton_Click(object sender, EventArgs e)
    {
        CRUDSales frm = new CRUDSales();
        frm.Show();
        this.Close();
    }
}

namespace eStore
{
    partial class CUSale
    {
        /// <summary>
        /// Required designer variable.
```

```
/// </summary>

private System.ComponentModel.IContainer components = null;

/// <summary>
/// Clean up any resources being used.
/// </summary>
/// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
protected override void Dispose(bool disposing)
{
    if (disposing && (components != null))
    {
        components.Dispose();
    }
    base.Dispose(disposing);
}

#region Windows Form Designer generated code

/// <summary>
/// Required method for Designer support - do not modify
/// the contents of this method with the code editor.
/// </summary>
private void InitializeComponent()
```

```
{

    this.btnSaveSale = new System.Windows.Forms.Button();

    this.dtpStart = new System.Windows.Forms.DateTimePicker();

    this.dtpEnd = new System.Windows.Forms.DateTimePicker();

    this.lblSale = new System.Windows.Forms.Label();

    this.cmbSaleNum = new System.Windows.Forms.ComboBox();

    this.lblStart = new System.Windows.Forms.Label();

    this.lblEnd = new System.Windows.Forms.Label();

    this.lblSaleNum = new System.Windows.Forms.Label();

    this.lblSaleAmount = new System.Windows.Forms.Label();

    this.txtSaleAmount = new System.Windows.Forms.TextBox();

    this.lblSaleType = new System.Windows.Forms.Label();

    this.rbMultiply = new System.Windows.Forms.RadioButton();

    this.rbSubtract = new System.Windows.Forms.RadioButton();

    this.rbChange = new System.Windows.Forms.RadioButton();

    this.dbConnection = new System.Data.SqlClient.SqlConnection();

    this.backButton = new System.Windows.Forms.Button();

    this.SuspendLayout();

    //

    // btnSaveSale

    //

    this.btnSaveSale.Location = new System.Drawing.Point(227, 221);

    this.btnSaveSale.Margin = new System.Windows.Forms.Padding(2);
```

```
this.btnSaveSale.Name = "btnSaveSale";

this.btnSaveSale.Size = new System.Drawing.Size(88, 38);

this.btnSaveSale.TabIndex = 0;

this.btnSaveSale.Text = "Sale";

this.btnSaveSale.UseVisualStyleBackColor = true;

this.btnSaveSale.Click += new System.EventHandler(this.btnSaveSale_Click);

//

// dtpStart

//

this.dtpStart.Format = System.Windows.Forms.DateTimePickerFormat.Short;

this.dtpStart.Location = new System.Drawing.Point(107, 146);

this.dtpStart.Margin = new System.Windows.Forms.Padding(2);

this.dtpStart.Name = "dtpStart";

this.dtpStart.Size = new System.Drawing.Size(80, 20);

this.dtpStart.TabIndex = 1;

//

// dtpEnd

//

this.dtpEnd.Format = System.Windows.Forms.DateTimePickerFormat.Short;

this.dtpEnd.Location = new System.Drawing.Point(107, 176);

this.dtpEnd.Margin = new System.Windows.Forms.Padding(2);

this.dtpEnd.Name = "dtpEnd";

this.dtpEnd.Size = new System.Drawing.Size(80, 20);
```

```
this.dtpEnd.TabIndex = 2;

//

// lblSale

//

this.lblSale.AutoSize = true;

this.lblSale.Location = new System.Drawing.Point(135, 6);

this.lblSale.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblSale.Name = "lblSale";

this.lblSale.Size = new System.Drawing.Size(28, 13);

this.lblSale.TabIndex = 3;

this.lblSale.Text = "Sale";

//

// cmbSaleNum

//

this.cmbSaleNum.FormattingEnabled = true;

this.cmbSaleNum.Location = new System.Drawing.Point(67, 49);

this.cmbSaleNum.Margin = new System.Windows.Forms.Padding(2);

this.cmbSaleNum.Name = "cmbSaleNum";

this.cmbSaleNum.Size = new System.Drawing.Size(82, 21);

this.cmbSaleNum.TabIndex = 4;

//

// lblStart

//
```

```
this.lblStart.AutoSize = true;

this.lblStart.Location = new System.Drawing.Point(21, 146);

this.lblStart.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblStart.Name = "lblStart";

this.lblStart.Size = new System.Drawing.Size(82, 13);

this.lblStart.TabIndex = 5;

this.lblStart.Text = "Sale Start Date:";

//

// lblEnd

//

this.lblEnd.AutoSize = true;

this.lblEnd.Location = new System.Drawing.Point(21, 176);

this.lblEnd.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblEnd.Name = "lblEnd";

this.lblEnd.Size = new System.Drawing.Size(79, 13);

this.lblEnd.TabIndex = 6;

this.lblEnd.Text = "Sale End Date:";

//

// lblSaleNum

//

this.lblSaleNum.AutoSize = true;

this.lblSaleNum.Location = new System.Drawing.Point(21, 49);

this.lblSaleNum.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
```

```
this.lblSaleNum.Name = "lblSaleNum";

this.lblSaleNum.Size = new System.Drawing.Size(38, 13);

this.lblSaleNum.TabIndex = 7;

this.lblSaleNum.Text = "Sale#:";

//

// lblSaleAmount

//

this.lblSaleAmount.AutoSize = true;

this.lblSaleAmount.Location = new System.Drawing.Point(21, 87);

this.lblSaleAmount.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblSaleAmount.Name = "lblSaleAmount";

this.lblSaleAmount.Size = new System.Drawing.Size(67, 13);

this.lblSaleAmount.TabIndex = 8;

this.lblSaleAmount.Text = "Sale Amount";

//

// txtSaleAmount

//

this.txtSaleAmount.Location = new System.Drawing.Point(23, 102);

this.txtSaleAmount.Margin = new System.Windows.Forms.Padding(2);

this.txtSaleAmount.Name = "txtSaleAmount";

this.txtSaleAmount.Size = new System.Drawing.Size(125, 20);

this.txtSaleAmount.TabIndex = 9;

//
```

```
// lblSaleType
//
this.lblSaleType.AutoSize = true;
this.lblSaleType.Location = new System.Drawing.Point(224, 49);
this.lblSaleType.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblSaleType.Name = "lblSaleType";
this.lblSaleType.Size = new System.Drawing.Size(97, 13);
this.lblSaleType.TabIndex = 10;
this.lblSaleType.Text = "Sale Amount Type:";
//
// rbMultiply
//
this.rbMultiply.AutoSize = true;
this.rbMultiply.Location = new System.Drawing.Point(227, 73);
this.rbMultiply.Margin = new System.Windows.Forms.Padding(2);
this.rbMultiply.Name = "rbMultiply";
this.rbMultiply.Size = new System.Drawing.Size(62, 17);
this.rbMultiply.TabIndex = 11;
this.rbMultiply.TabStop = true;
this.rbMultiply.Text = "Percent";
this.rbMultiply.UseVisualStyleBackColor = true;
//
// rbSubtract
```

```
//
this.rbSubtract.AutoSize = true;
this.rbSubtract.Location = new System.Drawing.Point(227, 93);
this.rbSubtract.Margin = new System.Windows.Forms.Padding(2);
this.rbSubtract.Name = "rbSubtract";
this.rbSubtract.Size = new System.Drawing.Size(65, 17);
this.rbSubtract.TabIndex = 12;
this.rbSubtract.TabStop = true;
this.rbSubtract.Text = "Subtract";
this.rbSubtract.UseVisualStyleBackColor = true;
//
// rbChange
//
this.rbChange.AutoSize = true;
this.rbChange.Location = new System.Drawing.Point(227, 112);
this.rbChange.Margin = new System.Windows.Forms.Padding(2);
this.rbChange.Name = "rbChange";
this.rbChange.Size = new System.Drawing.Size(52, 17);
this.rbChange.TabIndex = 13;
this.rbChange.TabStop = true;
this.rbChange.Text = "Exact";
this.rbChange.UseVisualStyleBackColor = true;
//
```

```
// dbConnection
//
this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
    "ue";

this.dbConnection.FireInfoMessageEventOnUserErrors = false;
//
// backButton
//
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte) 0));

this.backButton.Location = new System.Drawing.Point(12, 234);

this.backButton.Name = "backButton";

this.backButton.Size = new System.Drawing.Size(29, 25);

this.backButton.TabIndex = 16;

this.backButton.Text = "←";

this.backButton.UseVisualStyleBackColor = true;

this.backButton.Click += new System.EventHandler(this.backButton_Click);
//
// CUSale
//
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(347, 286);
```

```
        this.Controls.Add(this.backButton);
        this.Controls.Add(this.rbChange);
        this.Controls.Add(this.rbSubtract);
        this.Controls.Add(this.rbMultiply);
        this.Controls.Add(this.lblSaleType);
        this.Controls.Add(this.txtSaleAmount);
        this.Controls.Add(this.lblSaleAmount);
        this.Controls.Add(this.lblSaleNum);
        this.Controls.Add(this.lblEnd);
        this.Controls.Add(this.lblStart);
        this.Controls.Add(this.cmbSaleNum);
        this.Controls.Add(this.lblSale);
        this.Controls.Add(this.dtpEnd);
        this.Controls.Add(this.dtpStart);
        this.Controls.Add(this.btnSaveSale);
        this.Margin = new System.Windows.Forms.Padding(2);
        this.Name = "CUSale";
        this.Text = "CUSale";
        this.ResumeLayout(false);
        this.PerformLayout();

    }
```

```
#endregion
```

```
private System.Windows.Forms.Button btnSaveSale;
private System.Windows.Forms.DateTimePicker dtpStart;
private System.Windows.Forms.DateTimePicker dtpEnd;
private System.Windows.Forms.Label lblSale;
private System.Windows.Forms.ComboBox cmbSaleNum;
private System.Windows.Forms.Label lblStart;
private System.Windows.Forms.Label lblEnd;
private System.Windows.Forms.Label lblSaleNum;
private System.Windows.Forms.Label lblSaleAmount;
private System.Windows.Forms.TextBox txtSaleAmount;
private System.Windows.Forms.Label lblSaleType;
private System.Windows.Forms.RadioButton rbMultiply;
private System.Windows.Forms.RadioButton rbSubtract;
private System.Windows.Forms.RadioButton rbChange;
private System.Data.SqlClient.SqlConnection dbConnection;
private System.Windows.Forms.Button backButton;
}
```

```
}
```

CRD ItemsOnSale

```
using System;
```

```
using System.Collections.Generic;
```

```
using System.ComponentModel;
using System.Data;
using System.Data.Common;
using System.Data.SqlClient;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;

namespace eStore
{
    public partial class CRDItemsOnSale : Form
    {
        int saleNum;

        public CRDItemsOnSale(int saleNum)
        {
            InitializeComponent();

            this.saleNum = saleNum;

            lblSaleNum.Text += saleNum.ToString();

            LoadDgvCmbStoreItems();
        }
    }
}
```

```
        LoadDgvCmbSaleItems();
        CheckSaleExpiration();
    }

private void CheckSaleExpiration()
{
    dbConnection.Open();
    SqlCommand cmdCheck = dbConnection.CreateCommand();
    cmdCheck.CommandText = @"SELECT EndDate FROM dbo.Sale WHERE SaleNumber = @saleNum";
    cmdCheck.Parameters.AddWithValue("saleNum", saleNum);
    SqlDataReader reader = cmdCheck.ExecuteReader();
    if (reader.Read())
    {
        if (reader[0].ToString().CompareTo(DateTime.Now.ToString("M-dd-yyyy")) < 0)
        {
            btnAdd.Enabled = false;
            btnRemove.Enabled = false;
            btnSave.Enabled = false;
        }
        else
            lblNotice.Visible = false;
    }
    reader.Close();
}
```

```
        dbConnection.Close();
    }

    private void LoadDgvCmbStoreItems()
    {
        dbConnection.Open();

        SqlCommand cmdGetItems = dbConnection.CreateCommand();

        cmdGetItems.CommandText = @"SELECT ItemNumber as 'Item#', ItemName as 'Name', Category FROM
dbo.Item WHERE SaleNumber IS NULL";

        SqlDataReader reader = cmdGetItems.ExecuteReader();

        DataTable dt = new DataTable();

        dt.Load(reader);

        dgvStoreItems.DataSource = dt;

        reader = cmdGetItems.ExecuteReader();

        while (reader.Read())
            cmbStoreItem.Items.Add(reader[1].ToString());

        reader.Close();

        dbConnection.Close();
    }

    private void LoadDgvCmbSaleItems()
```

```
{
    dbConnection.Open();

    SqlCommand cmdGetItems = dbConnection.CreateCommand();

    cmdGetItems.CommandText = @"SELECT ItemNumber as 'Item#', ItemName as 'Name', Category FROM
dbo.Item WHERE SaleNumber = @saleNum";

    cmdGetItems.Parameters.AddWithValue("saleNum", saleNum);

    SqlDataReader reader = cmdGetItems.ExecuteReader();

    DataTable dt = new DataTable();

    dt.Load(reader);

    dgvSaleItems.DataSource = dt;

    reader = cmdGetItems.ExecuteReader();

    while (reader.Read())
        cmbSaleItem.Items.Add(reader[1].ToString());

    reader.Close();

    dbConnection.Close();
}

private void dgvStoreItems_CellClick(object sender, DataGridViewCellEventArgs e)
{
    cmbStoreItem.Text = dgvStoreItems.CurrentRow.Cells["Name"].Value.ToString();
}
```

```
private void dgvSaleItems_CellClick(object sender, DataGridViewCellEventArgs e)
{
    cmbSaleItem.Text = dgvSaleItems.CurrentRow.Cells["Name"].Value.ToString();
}
```

```
private void btnAdd_Click(object sender, EventArgs e)
{
    DataTable dt = (DataTable) (dgvSaleItems.DataSource);
    DataRow dr = dt.NewRow();
    for (int i = 0; i < dt.Columns.Count; i++)
    {
        dr[i] = dgvStoreItems.CurrentRow.Cells[i].Value;
    }
    dt.Rows.Add(dr);
    cmbSaleItem.Items.Add(cmbStoreItem.Text);

    dgvStoreItems.Rows.Remove(dgvStoreItems.CurrentRow);
    cmbStoreItem.Items.Remove(cmbStoreItem.Text);
}
```

```
private void btnRemove_Click(object sender, EventArgs e)
{

```

```
        DataTable dt = (DataTable) (dgvStoreItems.DataSource);
        DataRow dr = dt.NewRow();
        for (int i = 0; i < dt.Columns.Count; i++)
        {
            dr[i] = dgvSaleItems.CurrentRow.Cells[i].Value;
        }
        dt.Rows.Add(dr);
        cmbStoreItem.Items.Add(cmbSaleItem.Text);

        dgvSaleItems.Rows.Remove(dgvSaleItems.CurrentRow);
        cmbStoreItem.Items.Remove(cmbSaleItem.Text);
    }

    private void btnSave_Click(object sender, EventArgs e)
    {
        dbConnection.Open();

        SqlCommand cmdSave = dbConnection.CreateCommand();

        cmdSave.CommandText = @"UPDATE dbo.Item SET SaleNumber = @saleNum WHERE ItemNumber = @itemNum AND
SaleNumber IS NULL";

        foreach (DataGridViewRow row in dgvSaleItems.Rows)
        {
            if (row.Cells["Item#"].Value != null)
            {
```

```
        cmdSave.Parameters.AddWithValue("itemNum", (int)(row.Cells["Item#"].Value));

        cmdSave.Parameters.AddWithValue("saleNum", saleNum);

        cmdSave.ExecuteNonQuery();

        cmdSave.Parameters.Clear();

    }

}

cmdSave.CommandText = @"UPDATE dbo.Item SET SaleNumber = Null WHERE ItemNumber = @itemNum AND
SaleNumber IS NOT NULL";

foreach (DataGridViewRow row in dgvStoreItems.Rows)
{
    if (row.Cells["Item#"].Value != null)
    {
        cmdSave.Parameters.AddWithValue("itemNum", (int)(row.Cells["Item#"].Value));

        cmdSave.Parameters.AddWithValue("saleNum", saleNum);

        cmdSave.ExecuteNonQuery();

        cmdSave.Parameters.Clear();

    }
}

dbConnection.Close();

MessageBox.Show("item saved to sale");
}
```

```
private void backButton_Click(object sender, EventArgs e)
{
    CRUDSales frm = new CRUDSales();
    frm.Show();
    this.Close();
}
}

namespace eStore
{
    partial class CRDItemsOnSale
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
```

```
        if (disposing && (components != null))
        {
            components.Dispose();
        }
        base.Dispose(disposing);
    }

    #region Windows Form Designer generated code

    /// <summary>
    /// Required method for Designer support - do not modify
    /// the contents of this method with the code editor.
    /// </summary>
    private void InitializeComponent()
    {
        this.dgvStoreItems = new System.Windows.Forms.DataGridView();
        this.lblTitle = new System.Windows.Forms.Label();
        this.dgvSaleItems = new System.Windows.Forms.DataGridView();
        this.lblStoreItemHeader = new System.Windows.Forms.Label();
        this.lblSaleItemHeader = new System.Windows.Forms.Label();
        this.lblNotice = new System.Windows.Forms.Label();
        this.btnAdd = new System.Windows.Forms.Button();
        this.lblSaleItem = new System.Windows.Forms.Label();
    }
}
```

```
this.lblStoreItem = new System.Windows.Forms.Label();
this.cmbStoreItem = new System.Windows.Forms.ComboBox();
this.cmbSaleItem = new System.Windows.Forms.ComboBox();
this.btnRemove = new System.Windows.Forms.Button();
this.lblSaleNum = new System.Windows.Forms.Label();
this.dbConnection = new System.Data.SqlClient.SqlConnection();
this.btnSave = new System.Windows.Forms.Button();
this.backButton = new System.Windows.Forms.Button();

((System.ComponentModel.ISupportInitialize)(this.dgvStoreItems)).BeginInit();
((System.ComponentModel.ISupportInitialize)(this.dgvSaleItems)).BeginInit();
this.SuspendLayout();

//
// dgvStoreItems
//

this.dgvStoreItems.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

this.dgvStoreItems.Location = new System.Drawing.Point(16, 82);
this.dgvStoreItems.Margin = new System.Windows.Forms.Padding(2);
this.dgvStoreItems.Name = "dgvStoreItems";
this.dgvStoreItems.RowHeadersWidth = 62;
this.dgvStoreItems.RowTemplate.Height = 28;
this.dgvStoreItems.Size = new System.Drawing.Size(245, 159);
this.dgvStoreItems.TabIndex = 0;
```

```
        this.dgvStoreItems.CellClick += new
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvStoreItems_CellClick);

        //
        // lblTitle
        //

        this.lblTitle.AutoSize = true;
        this.lblTitle.Location = new System.Drawing.Point(188, 12);
        this.lblTitle.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
        this.lblTitle.Name = "lblTitle";
        this.lblTitle.Size = new System.Drawing.Size(145, 13);
        this.lblTitle.TabIndex = 3;
        this.lblTitle.Text = "Add/Remove Items with Sale";

        //
        // dgvSaleItems
        //

        this.dgvSaleItems.ColumnHeadersHeightSizeMode =
System.Windows.Forms.DataGridViewColumnHeadersHeightSizeMode.AutoSize;

        this.dgvSaleItems.Location = new System.Drawing.Point(275, 82);
        this.dgvSaleItems.Margin = new System.Windows.Forms.Padding(2);
        this.dgvSaleItems.Name = "dgvSaleItems";
        this.dgvSaleItems.RowHeadersWidth = 62;
        this.dgvSaleItems.RowTemplate.Height = 28;
        this.dgvSaleItems.Size = new System.Drawing.Size(245, 159);
        this.dgvSaleItems.TabIndex = 4;
```

```
        this.dgvSaleItems.CellClick += new
System.Windows.Forms.DataGridViewCellEventHandler(this.dgvSaleItems_CellClick);

        //
        // lblStoreItemHeader
        //

        this.lblStoreItemHeader.AutoSize = true;
        this.lblStoreItemHeader.Location = new System.Drawing.Point(13, 67);
        this.lblStoreItemHeader.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
        this.lblStoreItemHeader.Name = "lblStoreItemHeader";
        this.lblStoreItemHeader.Size = new System.Drawing.Size(71, 13);
        this.lblStoreItemHeader.TabIndex = 5;
        this.lblStoreItemHeader.Text = "Items in Store";
        //
        // lblSaleItemHeader
        //

        this.lblSaleItemHeader.AutoSize = true;
        this.lblSaleItemHeader.Location = new System.Drawing.Point(273, 67);
        this.lblSaleItemHeader.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
        this.lblSaleItemHeader.Name = "lblSaleItemHeader";
        this.lblSaleItemHeader.Size = new System.Drawing.Size(88, 13);
        this.lblSaleItemHeader.TabIndex = 6;
        this.lblSaleItemHeader.Text = "Items with Sale# ";
        //
```

```
// lblNotice
//
this.lblNotice.AutoSize = true;

this.lblNotice.Font = new System.Drawing.Font("Microsoft Sans Serif", 8F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.lblNotice.Location = new System.Drawing.Point(13, 350);
this.lblNotice.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblNotice.Name = "lblNotice";
this.lblNotice.Size = new System.Drawing.Size(431, 13);
this.lblNotice.TabIndex = 7;
this.lblNotice.Text = "*NOTICE* Current Sale# has expired; items with Sale# cannot be modified.";
//
// btnAdd
//
this.btnAdd.Location = new System.Drawing.Point(121, 55);
this.btnAdd.Margin = new System.Windows.Forms.Padding(2);
this.btnAdd.Name = "btnAdd";
this.btnAdd.Size = new System.Drawing.Size(139, 23);
this.btnAdd.TabIndex = 8;
this.btnAdd.Text = "Add Store Item to Sale";
this.btnAdd.UseVisualStyleBackColor = true;
this.btnAdd.Click += new System.EventHandler(this.btnAdd_Click);
//
```

```
// lblSaleItem
//
this.lblSaleItem.AutoSize = true;
this.lblSaleItem.Location = new System.Drawing.Point(275, 246);
this.lblSaleItem.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblSaleItem.Name = "lblSaleItem";
this.lblSaleItem.Size = new System.Drawing.Size(99, 13);
this.lblSaleItem.TabIndex = 10;
this.lblSaleItem.Text = "Selected Sale Item:";
//
// lblStoreItem
//
this.lblStoreItem.AutoSize = true;
this.lblStoreItem.Location = new System.Drawing.Point(13, 246);
this.lblStoreItem.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblStoreItem.Name = "lblStoreItem";
this.lblStoreItem.Size = new System.Drawing.Size(103, 13);
this.lblStoreItem.TabIndex = 11;
this.lblStoreItem.Text = "Selected Store Item:";
//
// cmbStoreItem
//
this.cmbStoreItem.FormattingEnabled = true;
```

```
this.cmbStoreItem.Location = new System.Drawing.Point(121, 246);
this.cmbStoreItem.Margin = new System.Windows.Forms.Padding(2);
this.cmbStoreItem.Name = "cmbStoreItem";
this.cmbStoreItem.Size = new System.Drawing.Size(141, 21);
this.cmbStoreItem.TabIndex = 12;

//

// cmbSaleItem

//

this.cmbSaleItem.FormattingEnabled = true;
this.cmbSaleItem.Location = new System.Drawing.Point(381, 245);
this.cmbSaleItem.Margin = new System.Windows.Forms.Padding(2);
this.cmbSaleItem.Name = "cmbSaleItem";
this.cmbSaleItem.Size = new System.Drawing.Size(141, 21);
this.cmbSaleItem.TabIndex = 13;

//

// btnRemove

//

this.btnRemove.Location = new System.Drawing.Point(381, 55);
this.btnRemove.Margin = new System.Windows.Forms.Padding(2);
this.btnRemove.Name = "btnRemove";
this.btnRemove.Size = new System.Drawing.Size(139, 23);
this.btnRemove.TabIndex = 14;
this.btnRemove.Text = "Remove Item From Sale";
```

```
this.btnRemove.UseVisualStyleBackColor = true;

this.btnRemove.Click += new System.EventHandler(this.btnRemove_Click);

//

// lblSaleNum

//

this.lblSaleNum.AutoSize = true;

this.lblSaleNum.Location = new System.Drawing.Point(204, 33);

this.lblSaleNum.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblSaleNum.Name = "lblSaleNum";

this.lblSaleNum.Size = new System.Drawing.Size(41, 13);

this.lblSaleNum.TabIndex = 9;

this.lblSaleNum.Text = "Sale#: ";

//

// dbConnection

//

this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial
Catalog=eStoreDatabase;Integrated Security=Tr" +
    "ue";

this.dbConnection.FireInfoMessageEventOnUserErrors = false;

//

// btnSave

//

this.btnSave.Location = new System.Drawing.Point(219, 294);
```

```
this.btnSave.Margin = new System.Windows.Forms.Padding(2);
this.btnSave.Name = "btnSave";
this.btnSave.Size = new System.Drawing.Size(92, 36);
this.btnSave.TabIndex = 15;
this.btnSave.Text = "Save";
this.btnSave.UseVisualStyleBackColor = true;
this.btnSave.Click += new System.EventHandler(this.btnSave_Click);
//
// backButton
//
this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));
this.backButton.Location = new System.Drawing.Point(12, 12);
this.backButton.Name = "backButton";
this.backButton.Size = new System.Drawing.Size(29, 25);
this.backButton.TabIndex = 16;
this.backButton.Text = "←";
this.backButton.UseVisualStyleBackColor = true;
this.backButton.Click += new System.EventHandler(this.backButton_Click);
//
// CRDItemsOnSale
//
this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);
```

```
this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(538, 369);

this.Controls.Add(this.backButton);

this.Controls.Add(this.btnSave);

this.Controls.Add(this.btnRemove);

this.Controls.Add(this.cmbSaleItem);

this.Controls.Add(this.cmbStoreItem);

this.Controls.Add(this.lblStoreItem);

this.Controls.Add(this.lblSaleItem);

this.Controls.Add(this.lblSaleNum);

this.Controls.Add(this.btnAdd);

this.Controls.Add(this.lblNotice);

this.Controls.Add(this.lblSaleItemHeader);

this.Controls.Add(this.lblStoreItemHeader);

this.Controls.Add(this.dgvSaleItems);

this.Controls.Add(this.lblTitle);

this.Controls.Add(this.dgvStoreItems);

this.Margin = new System.Windows.Forms.Padding(2);

this.Name = "CRDItemsOnSale";

this.Text = "CRDItemsOnSale";

((System.ComponentModel.ISupportInitialize)(this.dgvStoreItems)).EndInit();

((System.ComponentModel.ISupportInitialize)(this.dgvSaleItems)).EndInit();

this.ResumeLayout(false);
```

```
        this.PerformLayout();

    }

#endregion

private System.Windows.Forms.DataGridView dgvStoreItems;
private System.Windows.Forms.Label lblTitle;
private System.Windows.Forms.DataGridView dgvSaleItems;
private System.Windows.Forms.Label lblStoreItemHeader;
private System.Windows.Forms.Label lblSaleItemHeader;
private System.Windows.Forms.Label lblNotice;
private System.Windows.Forms.Button btnAdd;
private System.Windows.Forms.Label lblSaleItem;
private System.Windows.Forms.Label lblStoreItem;
private System.Windows.Forms.ComboBox cmbStoreItem;
private System.Windows.Forms.ComboBox cmbSaleItem;
private System.Windows.Forms.Button btnRemove;
private System.Windows.Forms.Label lblSaleNum;
private System.Data.SqlClient.SqlConnection dbConnection;
private System.Windows.Forms.Button btnSave;
private System.Windows.Forms.Button backButton;
}
```

```
}
```

CU Shipment

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.Common;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace eStore

{

    public partial class CUShipment : Form

    {

        int shipNum, ordNum;

        bool setup = true;

        object[] original = new object[3];

        public CUShipment(int shipNum = -1)
```

```
{  
    InitializeComponent();  
  
    txtOrderNum.Visible = false;  
  
    this.shipNum = shipNum;  
  
    if (shipNum > 0)  
    {  
        lblAddShipment.Visible = false;  
        btnSaveShipment.Text = "Update Shipment";  
        LoadShipmentInfo();  
    }  
    else  
    {  
        lblUpdateShipment.Visible = false;  
        cmbShipNum.Enabled = false;  
        GetShipNum();  
        cmbShipNum.Text = this.shipNum.ToString();  
    }  
    LoadCmbCustomerID();  
  
    setup = false;
```

```
}

private void LoadShipmentInfo()
{
    dbConnection.Open();

    SqlCommand cmdGetShipmentInfo = dbConnection.CreateCommand();

    cmdGetShipmentInfo.CommandText = @"SELECT dbo.Shipment.*, OrderNumber, CustomerID, Name
                                     FROM dbo.Shipment JOIN dbo.[Order] ON
dbo.[Order].ShipmentNumber = dbo.Shipment.ShipNumber
                                     JOIN dbo.Customer ON dbo.[Order].CustomerID =
dbo.Customer.ID
                                     WHERE dbo.Shipment.ShipNumber = @shipNum";

    cmdGetShipmentInfo.Parameters.AddWithValue("shipNum", shipNum);

    SqlDataReader reader = cmdGetShipmentInfo.ExecuteReader();

    if (reader.Read())
    {
        // shipto, shipfrom, shipdate, shiparrive, ship#, ordnum, id, name
        txtShipTo.Text = reader[0].ToString();
        txtShipFrom.Text = reader[1].ToString();
        txtShipDate.Text = reader[2].ToString();
        txtShipArriveDate.Text = reader[3].ToString();
        cmbShipNum.Text = reader[4].ToString();
        cmbShipNum.Items.Add(cmbShipNum.Text);
        cmbOrderNum.Text = reader[5].ToString();
    }
}
```

```

        ordNum = int.Parse(cmbOrderNum.Text);

        cmbOrderNum.Items.Add(ordNum);

        cmbCustomerID.Text = reader[6].ToString();

        cmbCustomerID.Items.Add(cmbCustomerID.Text);

        lblCustomerName.Text += reader[7].ToString();

        for (int i = 0; i < 3; i++)
            original[i] = reader[i + 4].ToString();
    }

    reader.Close();

    dbConnection.Close();

    LoadCmbOrderNum();
}

private void LoadShipmentInfo(int ordNum)
{
    dbConnection.Open();

    SqlCommand cmdGetShipmentInfo = dbConnection.CreateCommand();

    cmdGetShipmentInfo.CommandText = @"SELECT dbo.Shipment.*
                                     FROM dbo.Shipment JOIN dbo.[Order] ON
dbo.[Order].ShipmentNumber = dbo.Shipment.ShipNumber
                                     WHERE dbo.[Order].OrderNumber = @ordNum";

```

```
cmdGetShipmentInfo.Parameters.AddWithValue("ordNum", ordNum);

SqlDataReader reader = cmdGetShipmentInfo.ExecuteReader();

if (reader.Read())
{
    // shipto, shipfrom, shipdate, shiparrive, ship#
    txtShipTo.Text = reader[0].ToString();
    txtShipFrom.Text = reader[1].ToString();
    txtShipDate.Text = reader[2].ToString();
    txtShipArriveDate.Text = reader[3].ToString();
    cmbShipNum.Text = reader[4].ToString();
}

reader.Close();
dbConnection.Close();
}

private void GetShipNum()
{
    dbConnection.Open();
    SqlCommand cmdGetShipNum = dbConnection.CreateCommand();
    cmdGetShipNum.CommandText = @"SELECT max(ShipNumber) + 1 FROM dbo.Shipment";
    SqlDataReader reader = cmdGetShipNum.ExecuteReader();
    if (reader.Read())
        shipNum = reader.GetInt32(0);
}
```

```
        else
            MessageBox.Show("Error: unable to get current shipment's #", "Error");
        reader.Close();
        dbConnection.Close();
    }

    private void LoadCmbShipNum(int custID)
    {
        bool connectionOpen = false;
        cmbShipNum.Items.Clear();
        cmbShipNum.Text = "";
        if (dbConnection.State != ConnectionState.Closed)
        {
            dbConnection.Close();
            connectionOpen = true;
        }
        dbConnection.Open();

        SqlCommand cmdGetShipNums = dbConnection.CreateCommand();
        cmdGetShipNums.CommandText = @"SELECT ShipmentNumber FROM dbo.[Order] WHERE CustomerID = @custID
AND ShipmentNumber IS NOT NULL";

        cmdGetShipNums.Parameters.AddWithValue("custID", custID);

        SqlDataReader reader = cmdGetShipNums.ExecuteReader();
        while (reader.Read())
```

```
        cmbShipNum.Items.Add(reader[0].ToString());

reader.Close();

dbConnection.Close();

//if (cmbShipNum.Items.Count == 0)

//{

//    GetShipNum();

//    lblUpdateShipment.Text = shipNum.ToString();

//    cmbShipNum.Text = shipNum.ToString();

//    cmbShipNum.Items.Add(cmbShipNum);

//}

if (connectionOpen)

{

    dbConnection.Open();

}

}

private void LoadCmbCustomerID()

{

    dbConnection.Open();

    SqlCommand cmdGetCustomerIDs = dbConnection.CreateCommand();

    if (lblUpdateShipment.Visible)
```

```
        cmdGetCustomerIDs.CommandText = @"SELECT DISTINCT(ID) FROM dbo.Customer JOIN dbo.[Order] ON ID
= CustomerID WHERE ShipmentNumber IS NOT NULL";

        else

            cmdGetCustomerIDs.CommandText = @"SELECT DISTINCT(ID) FROM dbo.Customer JOIN dbo.[Order] ON ID
= CustomerID WHERE ShipmentNumber IS NULL";

        SqlDataReader reader = cmdGetCustomerIDs.ExecuteReader();

        if (lblUpdateShipment.Visible)

            reader.Read(); //bug: reader in loop returns first(?) ID in db without this line

        while (reader.Read())

        {

            //lblUpdateShipment.Text += reader[0].ToString();

            cmbCustomerID.Items.Add(reader[0].ToString());

        }

        reader.Close();

        dbConnection.Close();

    }

    private void LoadCmbOrderNum()

    {

        if (!setup)

        {

            cmbOrderNum.Items.Clear();

            cmbOrderNum.Text = "";

        }

    }
```

```
        dbConnection.Open();

        SqlCommand cmdGetCustomerOrders = dbConnection.CreateCommand();

        if (lblUpdateShipment.Visible)

            cmdGetCustomerOrders.CommandText = @"SELECT OrderNumber FROM dbo.[Order] WHERE CustomerID =
@custID AND ShipmentNumber IS NOT NULL";

        else

            cmdGetCustomerOrders.CommandText = @"SELECT OrderNumber FROM dbo.[Order] WHERE CustomerID =
@custID AND ShipmentNumber IS NULL";

        cmdGetCustomerOrders.Parameters.AddWithValue("custID", int.Parse(cmbCustomerID.Text));

        SqlDataReader reader = cmdGetCustomerOrders.ExecuteReader();

        while (reader.Read())

            cmbOrderNum.Items.Add(reader[0].ToString());

        reader.Close();

        dbConnection.Close();

    }

private void cmbCustomerID_TextChanged(object sender, EventArgs e)

{

    bool connectionOpen = false;

    if (!setup && cmbCustomerID.Items.Contains(cmbCustomerID.Text))

    {

        if (dbConnection.State != ConnectionState.Closed)
```

```
{
    dbConnection.Close();
    connectionOpen = true;
}

dbConnection.Open();

SqlCommand cmdGetCustomerName = dbConnection.CreateCommand();
cmdGetCustomerName.CommandText = @"SELECT Name, Address FROM dbo.Customer WHERE ID = @id";
cmdGetCustomerName.Parameters.AddWithValue("id", cmbCustomerID.Text);
SqlDataReader reader = cmdGetCustomerName.ExecuteReader();
if (reader.Read())
{
    lblCustomerName.Text = "Customer Name: " + reader[0].ToString();
    txtShipTo.Text = reader[1].ToString();
}
else if (cmbCustomerID.Focused)
    MessageBox.Show("Error: unable to get customer name for selected customer #", "Error");
reader.Close();
dbConnection.Close();
}

else
    lblCustomerName.Text = "Customer Name: ";
```

```
        if (!setup && !lblCustomerName.Text.Equals(""))
        {
            if (lblUpdateShipment.Visible)
                LoadCmbShipNum(int.Parse(cmbCustomerID.Text));
            LoadCmbOrderNum();
        }

        if (connectionOpen)
            dbConnection.Open();
    }

    private void cmbShipNum_TextChanged(object sender, EventArgs e)
    {
        bool connectionOpen = false;

        if (!setup && cmbShipNum.Items.Contains(cmbShipNum.Text))
        {
            shipNum = int.Parse(cmbShipNum.Text);

            if (dbConnection.State != ConnectionState.Closed)
            {
                dbConnection.Close();
                connectionOpen = true;
            }
        }
    }
}
```

```

    }

    dbConnection.Open();

    SqlCommand cmdGetCustomerName = dbConnection.CreateCommand();

    cmdGetCustomerName.CommandText = @"SELECT ID, Name FROM dbo.Customer JOIN dbo.[Order] ON ID =
CustomerID

                                JOIN dbo.Shipment ON

ShipmentNumber = ShipNumber

                                WHERE ShipNumber =

@shipNum";

    cmdGetCustomerName.Parameters.AddWithValue("shipNum", shipNum);

    SqlDataReader reader = cmdGetCustomerName.ExecuteReader();

    if (reader.Read())
    {
        cmbCustomerID.Text = reader[0].ToString();

        lblCustomerName.Text = "Customer Name: " + reader[1].ToString();
    }

    else if (cmbShipNum.Focused)
        MessageBox.Show("Error: unable to get customer info for selected ship #", "Error");

    reader.Close();

    dbConnection.Close();
}

else

    lblCustomerName.Text = "Customer Name: ";

```

```
        if (!setup && !lblCustomerName.Text.Equals("") && !cmbShipNum.Focused)
            LoadCmbShipNum(int.Parse(cmbCustomerID.Text));

        if (connectionOpen)
            dbConnection.Open();
    }

    private void cmbOrderNum_LostFocus(object sender, EventArgs e)
    {
        if (!setup && cmbOrderNum.Text.Length >= 6 && !ordNum.ToString().Equals(cmbOrderNum.Text))
        {
            ordNum = int.Parse(cmbOrderNum.Text);

            dbConnection.Open();

            SqlCommand cmdGetCustomerInfo = dbConnection.CreateCommand();

            cmdGetCustomerInfo.CommandText = @"SELECT ID, Name FROM dbo.Customer JOIN dbo.[Order] ON ID =
CustomerID WHERE OrderNumber = @ordNum";

            cmdGetCustomerInfo.Parameters.AddWithValue("ordNum", ordNum);

            SqlDataReader reader = cmdGetCustomerInfo.ExecuteReader();

            if (reader.Read())
            {
                cmbCustomerID.Text = reader[0].ToString();
            }
        }
    }
}
```

```
        //lblCustomerName.Text = "Customer Name: " + reader[1].ToString();
    }
    else
        MessageBox.Show("Error: unable to get customer info for typed order #", "Error");
    reader.Close();
    dbConnection.Close();

    LoadCmbOrderNum();
    cmbOrderNum.Text = "" + ordNum;
    LoadShipmentInfo(ordNum);
}
}

private void btnSaveShipment_Click(object sender, EventArgs e)
{
    // shipto, shipfrom, shipdate, shiparrive, ship#
    string message = "added.";

    dbConnection.Open();
    SqlCommand cmdSaveShipment = dbConnection.CreateCommand();
    if (lblUpdateShipment.Visible)
    {
        cmdSaveShipment.CommandText = @"UPDATE dbo.Shipment
```

```

                                SET ShipTo = @to, ShipFrom = @from, ShipDate = @date,
ShipArriveDate = @arrive, ShipNumber = @shipNum
                                FROM dbo.Shipment JOIN dbo.[Order] ON ShipNumber =
ShipmentNumber
                                WHERE ShipNumber = @oldShipNum";

    cmdSaveShipment.Parameters.AddWithValue("oldShipNum", original[0]);
    message = "updated.";
}
else
{
    //dbConnection.Close();

    //GetShipNum();

    cmdSaveShipment.CommandText = @"INSERT INTO dbo.Shipment VALUES (@to, @from, @date, @arrive,
@shipNum)";

    //dbConnection.Open();
}

cmdSaveShipment.Parameters.AddWithValue("to", txtShipTo.Text);
cmdSaveShipment.Parameters.AddWithValue("from", txtShipFrom.Text);
if (txtShipArriveDate.Text.Equals(""))
    cmdSaveShipment.Parameters.AddWithValue("arrive",
DateTime.Now.AddMonths(1).ToString("M-dd-yyyy"));
else
    cmdSaveShipment.Parameters.AddWithValue("arrive", txtShipArriveDate.Text);
if (txtShipDate.Text.Equals(""))

```

```
        cmdSaveShipment.Parameters.AddWithValue("date", DateTime.Now.ToString("M-dd-yyyy"));
    else
        cmdSaveShipment.Parameters.AddWithValue("date", txtShipDate.Text);
    cmdSaveShipment.Parameters.AddWithValue("shipNum", shipNum);

    if (lblUpdateShipment.Visible)
    {
        if (!original[0].Equals(shipNum) || !original[1].Equals(ordNum + "") ||
!original[2].Equals(cmbCustomerID.Text))
            UpdateOrder();
    }

    cmdSaveShipment.ExecuteNonQuery();

    if (lblAddShipment.Visible)
    {
        UpdateOrder();
    }

    dbConnection.Close();

    MessageBox.Show("shipment has been " + message);
```

```
    }

    private void UpdateOrder()
    {
        SqlCommand cmdUpdateOrder = dbConnection.CreateCommand();

        cmdUpdateOrder.CommandText = @"UPDATE dbo.[Order] SET CustomerID = @custID, ShipmentNumber =
@shipNum WHERE OrderNumber = @ordNum";

        cmdUpdateOrder.Parameters.AddWithValue("custID", int.Parse(cmbCustomerID.Text));
        cmdUpdateOrder.Parameters.AddWithValue("shipNum", shipNum);
        cmdUpdateOrder.Parameters.AddWithValue("ordNum", ordNum);

        cmdUpdateOrder.ExecuteNonQuery();
    }

    private void backButton_Click(object sender, EventArgs e)
    {
        CRUDShipments frm = new CRUDShipments();

        frm.Show();

        this.Close();
    }

    private void Form_Clicked(object sender, EventArgs e)
    {
        cmbShipNum.Focus();
    }
}
```

```
        //lblUpdateShipment.Text = "" + txtOrderNum.Focused;
    }
}

namespace eStore
{
    partial class CUShipment
    {
        /// <summary>
        /// Required designer variable.
        /// </summary>
        private System.ComponentModel.IContainer components = null;

        /// <summary>
        /// Clean up any resources being used.
        /// </summary>
        /// <param name="disposing">true if managed resources should be disposed; otherwise, false.</param>
        protected override void Dispose(bool disposing)
        {
            if (disposing && (components != null))
            {
                components.Dispose();
            }
        }
    }
}
```

```
        base.Dispose(disposing);
    }

    #region Windows Form Designer generated code

    /// <summary>
    /// Required method for Designer support - do not modify
    /// the contents of this method with the code editor.
    /// </summary>
    private void InitializeComponent()
    {
        this.lblUpdateShipment = new System.Windows.Forms.Label();
        this.lblCustomerName = new System.Windows.Forms.Label();
        this.cmbCustomerID = new System.Windows.Forms.ComboBox();
        this.lblCustomerID = new System.Windows.Forms.Label();
        this.lblOrderNum = new System.Windows.Forms.Label();
        this.lblAddShipment = new System.Windows.Forms.Label();
        this.txtShipTo = new System.Windows.Forms.TextBox();
        this.lblShipTo = new System.Windows.Forms.Label();
        this.txtShipDate = new System.Windows.Forms.TextBox();
        this.lblShipDate = new System.Windows.Forms.Label();
        this.txtShipFrom = new System.Windows.Forms.TextBox();
        this.lblShipFrom = new System.Windows.Forms.Label();
    }
}
```

```
this.txtShipArriveDate = new System.Windows.Forms.TextBox();
this.lblShipArriveDate = new System.Windows.Forms.Label();
this.txtOrderNum = new System.Windows.Forms.TextBox();
this.btnSaveShipment = new System.Windows.Forms.Button();
this.dbConnection = new System.Data.SqlClient.SqlConnection();
this.lblShipNum = new System.Windows.Forms.Label();
this.cmbShipNum = new System.Windows.Forms.ComboBox();
this.cmbOrderNum = new System.Windows.Forms.ComboBox();
this.backButton = new System.Windows.Forms.Button();
this.SuspendLayout();
//
// lblUpdateShipment
//
this.lblUpdateShipment.AutoSize = true;
this.lblUpdateShipment.Location = new System.Drawing.Point(184, 23);
this.lblUpdateShipment.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblUpdateShipment.Name = "lblUpdateShipment";
this.lblUpdateShipment.Size = new System.Drawing.Size(89, 13);
this.lblUpdateShipment.TabIndex = 28;
this.lblUpdateShipment.Text = "Update Shipment";
//
// lblCustomerName
//
```

```
this.lblCustomerName.AutoSize = true;

this.lblCustomerName.Location = new System.Drawing.Point(243, 92);

this.lblCustomerName.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblCustomerName.Name = "lblCustomerName";

this.lblCustomerName.Size = new System.Drawing.Size(88, 13);

this.lblCustomerName.TabIndex = 27;

this.lblCustomerName.Text = "Customer Name: ";

//

// cmbCustomerID

//

this.cmbCustomerID.FormattingEnabled = true;

this.cmbCustomerID.Location = new System.Drawing.Point(107, 90);

this.cmbCustomerID.Margin = new System.Windows.Forms.Padding(2);

this.cmbCustomerID.Name = "cmbCustomerID";

this.cmbCustomerID.Size = new System.Drawing.Size(82, 21);

this.cmbCustomerID.TabIndex = 26;

this.cmbCustomerID.TextChanged += new System.EventHandler(this.cmbCustomerID_TextChanged);

//

// lblCustomerID

//

this.lblCustomerID.AutoSize = true;

this.lblCustomerID.Location = new System.Drawing.Point(8, 90);

this.lblCustomerID.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
```

```
this.lblCustomerID.Name = "lblCustomerID";

this.lblCustomerID.Size = new System.Drawing.Size(68, 13);

this.lblCustomerID.TabIndex = 25;

this.lblCustomerID.Text = "CustomerID: ";

//

// lblOrderNum

//

this.lblOrderNum.AutoSize = true;

this.lblOrderNum.Location = new System.Drawing.Point(243, 57);

this.lblOrderNum.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblOrderNum.Name = "lblOrderNum";

this.lblOrderNum.Size = new System.Drawing.Size(46, 13);

this.lblOrderNum.TabIndex = 24;

this.lblOrderNum.Text = "Order#: ";

//

// lblAddShipment

//

this.lblAddShipment.AutoSize = true;

this.lblAddShipment.Location = new System.Drawing.Point(184, 6);

this.lblAddShipment.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);

this.lblAddShipment.Name = "lblAddShipment";

this.lblAddShipment.Size = new System.Drawing.Size(110, 13);

this.lblAddShipment.TabIndex = 23;
```

```
this.lblAddShipment.Text = "Create New Shipment";

//
// txtShipTo
//
this.txtShipTo.Location = new System.Drawing.Point(11, 151);
this.txtShipTo.Margin = new System.Windows.Forms.Padding(2);
this.txtShipTo.Name = "txtShipTo";
this.txtShipTo.Size = new System.Drawing.Size(201, 20);
this.txtShipTo.TabIndex = 30;
//
// lblShipTo
//
this.lblShipTo.AutoSize = true;
this.lblShipTo.Location = new System.Drawing.Point(8, 129);
this.lblShipTo.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblShipTo.Name = "lblShipTo";
this.lblShipTo.Size = new System.Drawing.Size(67, 13);
this.lblShipTo.TabIndex = 29;
this.lblShipTo.Text = "Shipping To:";
//
// txtShipDate
//
this.txtShipDate.Location = new System.Drawing.Point(11, 209);
```

```
this.txtShipDate.Margin = new System.Windows.Forms.Padding(2);
this.txtShipDate.Name = "txtShipDate";
this.txtShipDate.Size = new System.Drawing.Size(201, 20);
this.txtShipDate.TabIndex = 32;
//
// lblShipDate
//
this.lblShipDate.AutoSize = true;
this.lblShipDate.Location = new System.Drawing.Point(8, 187);
this.lblShipDate.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblShipDate.Name = "lblShipDate";
this.lblShipDate.Size = new System.Drawing.Size(75, 13);
this.lblShipDate.TabIndex = 31;
this.lblShipDate.Text = "Date Shipped:";
//
// txtShipFrom
//
this.txtShipFrom.Location = new System.Drawing.Point(247, 151);
this.txtShipFrom.Margin = new System.Windows.Forms.Padding(2);
this.txtShipFrom.Name = "txtShipFrom";
this.txtShipFrom.Size = new System.Drawing.Size(201, 20);
this.txtShipFrom.TabIndex = 34;
//
```

```
// lblShipFrom
//
this.lblShipFrom.AutoSize = true;
this.lblShipFrom.Location = new System.Drawing.Point(244, 129);
this.lblShipFrom.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
this.lblShipFrom.Name = "lblShipFrom";
this.lblShipFrom.Size = new System.Drawing.Size(77, 13);
this.lblShipFrom.TabIndex = 33;
this.lblShipFrom.Text = "Shipping From:";
//
// txtShipArriveDate
//
this.txtShipArriveDate.Location = new System.Drawing.Point(245, 209);
this.txtShipArriveDate.Margin = new System.Windows.Forms.Padding(2);
this.txtShipArriveDate.Name = "txtShipArriveDate";
this.txtShipArriveDate.Size = new System.Drawing.Size(201, 20);
this.txtShipArriveDate.TabIndex = 36;
//
// lblShipArriveDate
//
this.lblShipArriveDate.AutoSize = true;
this.lblShipArriveDate.Location = new System.Drawing.Point(243, 187);
this.lblShipArriveDate.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);
```

```
this.lblShipArriveDate.Name = "lblShipArriveDate";
this.lblShipArriveDate.Size = new System.Drawing.Size(116, 13);
this.lblShipArriveDate.TabIndex = 35;
this.lblShipArriveDate.Text = "Date Shipment Arrived:";
//
// txtOrderNum
//
this.txtOrderNum.Location = new System.Drawing.Point(291, 38);
this.txtOrderNum.Margin = new System.Windows.Forms.Padding(2);
this.txtOrderNum.Name = "txtOrderNum";
this.txtOrderNum.Size = new System.Drawing.Size(156, 20);
this.txtOrderNum.TabIndex = 38;
//
// btnSaveShipment
//
this.btnSaveShipment.Location = new System.Drawing.Point(316, 237);
this.btnSaveShipment.Margin = new System.Windows.Forms.Padding(2);
this.btnSaveShipment.Name = "btnSaveShipment";
this.btnSaveShipment.Size = new System.Drawing.Size(129, 48);
this.btnSaveShipment.TabIndex = 39;
this.btnSaveShipment.Text = "Create Shipment";
this.btnSaveShipment.UseVisualStyleBackColor = true;
this.btnSaveShipment.Click += new System.EventHandler(this.btnSaveShipment_Click);
```

```
//  
// dbConnection  
//  
this.dbConnection.ConnectionString = "Data Source=LAPTOP-6I9UIRQJ;Initial  
Catalog=eStoreDatabase;Integrated Security=Tr" +  
"ue";  
  
this.dbConnection.FireInfoMessageEventOnUserErrors = false;  
//  
// lblShipNum  
//  
this.lblShipNum.AutoSize = true;  
this.lblShipNum.Location = new System.Drawing.Point(8, 58);  
this.lblShipNum.Margin = new System.Windows.Forms.Padding(2, 0, 2, 0);  
this.lblShipNum.Name = "lblShipNum";  
this.lblShipNum.Size = new System.Drawing.Size(64, 13);  
this.lblShipNum.TabIndex = 40;  
this.lblShipNum.Text = "Shipment#: ";  
//  
// cmbShipNum  
//  
this.cmbShipNum.FormattingEnabled = true;  
this.cmbShipNum.Location = new System.Drawing.Point(75, 57);  
this.cmbShipNum.Margin = new System.Windows.Forms.Padding(2);
```

```
this.cmbShipNum.Name = "cmbShipNum";

this.cmbShipNum.Size = new System.Drawing.Size(82, 21);

this.cmbShipNum.TabIndex = 41;

this.cmbShipNum.TextChanged += new System.EventHandler(this.cmbShipNum_TextChanged);

//

// cmbOrderNum

//

this.cmbOrderNum.FormattingEnabled = true;

this.cmbOrderNum.Location = new System.Drawing.Point(291, 55);

this.cmbOrderNum.Margin = new System.Windows.Forms.Padding(2);

this.cmbOrderNum.Name = "cmbOrderNum";

this.cmbOrderNum.Size = new System.Drawing.Size(82, 21);

this.cmbOrderNum.TabIndex = 42;

this.cmbOrderNum.LostFocus += new System.EventHandler(this.cmbOrderNum_LostFocus);

//

// backButton

//

this.backButton.Font = new System.Drawing.Font("Microsoft Sans Serif", 12F,
System.Drawing.FontStyle.Bold, System.Drawing.GraphicsUnit.Point, ((byte)0));

this.backButton.Location = new System.Drawing.Point(11, 6);

this.backButton.Name = "backButton";

this.backButton.Size = new System.Drawing.Size(30, 26);

this.backButton.TabIndex = 43;
```

```
this.backButton.Text = "←";

this.backButton.UseVisualStyleBackColor = true;

this.backButton.Click += new System.EventHandler(this.backButton_Click);

//

// CUShipment

//

this.AutoScaleDimensions = new System.Drawing.SizeF(6F, 13F);

this.AutoScaleMode = System.Windows.Forms.AutoScaleMode.Font;

this.ClientSize = new System.Drawing.Size(465, 292);

this.Controls.Add(this.backButton);

this.Controls.Add(this.cmbOrderNum);

this.Controls.Add(this.cmbShipNum);

this.Controls.Add(this.lblShipNum);

this.Controls.Add(this.btnSaveShipment);

this.Controls.Add(this.txtOrderNum);

this.Controls.Add(this.txtShipArriveDate);

this.Controls.Add(this.lblShipArriveDate);

this.Controls.Add(this.txtShipFrom);

this.Controls.Add(this.lblShipFrom);

this.Controls.Add(this.txtShipDate);

this.Controls.Add(this.lblShipDate);

this.Controls.Add(this.txtShipTo);

this.Controls.Add(this.lblShipTo);
```

```
        this.Controls.Add(this.lblUpdateShipment);
        this.Controls.Add(this.lblCustomerName);
        this.Controls.Add(this.cmbCustomerID);
        this.Controls.Add(this.lblCustomerID);
        this.Controls.Add(this.lblOrderNum);
        this.Controls.Add(this.lblAddShipment);
        this.Margin = new System.Windows.Forms.Padding(2);
        this.Name = "CUShipment";
        this.Text = "CUShipment";
        this.Click += new System.EventHandler(this.Form_Clicked);
        this.ResumeLayout(false);
        this.PerformLayout();

    }

#endregion

private System.Windows.Forms.Label lblUpdateShipment;
private System.Windows.Forms.Label lblCustomerName;
private System.Windows.Forms.ComboBox cmbCustomerID;
private System.Windows.Forms.Label lblCustomerID;
private System.Windows.Forms.Label lblOrderNum;
private System.Windows.Forms.Label lblAddShipment;
```

```
private System.Windows.Forms.TextBox txtShipTo;
private System.Windows.Forms.Label lblShipTo;
private System.Windows.Forms.TextBox txtShipDate;
private System.Windows.Forms.Label lblShipDate;
private System.Windows.Forms.TextBox txtShipFrom;
private System.Windows.Forms.Label lblShipFrom;
private System.Windows.Forms.TextBox txtShipArriveDate;
private System.Windows.Forms.Label lblShipArriveDate;
private System.Windows.Forms.TextBox txtOrderNum;
private System.Windows.Forms.Button btnSaveShipment;
private System.Data.SqlClient.SqlConnection dbConnection;
private System.Windows.Forms.Label lblShipNum;
private System.Windows.Forms.ComboBox cmbShipNum;
private System.Windows.Forms.ComboBox cmbOrderNum;
private System.Windows.Forms.Button backButton;
}
}
```
