**Test Cases:**

Most testing was done by hand, as Visual Studio shows current errors or possible problems within the program as you write the code, which allows for error detection to be easier to notice while checking each piece of code.

Testing for Log-In Form:

The Log-In form is used to log into the system, using a unique username and password. Incorrect entries will show an error message of “Invalid Credentials”.

Example of incorrect password:

Graphical user interface, text, application, email

Description automatically generated

To test the Log-In form, we started by creating a few users with different usernames and passwords, then manually entered them. The following are the tests we done by hand to check the Log-in form:

1. Enter correct user & correct password.
2. Enter incorrect user & correct password.
3. Enter correct user & incorrect password.
4. Enter incorrect user & incorrect password.

There is also the test of exiting out of the Log-in screen using the “x” exit button located in the top right corner. This button can be used both before log-in credentials are typed or after an incorrect login occurs. Therefore, the following are the tests done by hand to test the exit button feature on the Log-in Form:

1. Exit before user & password are entered.
2. Exit after typing user but not password.
3. Exit after typing password but not user.
4. Exit after incorrect user & incorrect password are entered.

Testing for Main Form:

The Main form is the window that will appear after a user has logged in correctly. There are three sections to the Main form: text input boxes, buttons, and toolstrip. For these parts, each was tested immediately after implementation to maintain consistency and to maintain usability while adding in other features. The following are some of the tests performed on the Main form:

*Test(s) for text boxes:*

Text boxes on the Main page are used for both user input and displaying item information. Therefore, there are a few different tests for each different textbox. Textbox1 is for user input, where an item ID or item name can be typed in order to search for an item in the system. When an incorrect ID or Name is entered, or an item doesn’t exist, an error message should display. Textbox2 through Textbox6 are Item ID, Item Name, Quantity, Price, Shipping Date, and Inventory Space respectively. These textboxes are for both user input, in order to add or update an item, and to display the information of a searched or double-clicked item. The following are the tests done by hand to test each text box:

1. Textbox1
   1. Enter correct item ID and press search button.
   2. Enter incorrect item ID and press search button.
   3. Enter correct item Name and press search button.
   4. Enter incorrect item Name and press search button.
   5. Enter information that is neither an ID nor a Name and press search button.

Example of an invalid search:

Graphical user interface, application

Description automatically generated

1. Textbox2 - Textbox6
   1. Double click an item in the data grid and item information is displayed.
   2. Double click an item in the data grid and item information is displayed, then click the delete item button.
   3. Type in a new: ID, Name, Quantity, Price, Shipping Date, and/or Inventory Space and click add item button.
   4. Type in a new: ID, Name, Quantity, Price, Shipping Date, and/or Inventory Space and click update item button.
   5. Double click an item in the data grid and item information is displayed, then type in a different: ID, Name, Quantity, Price, Shipping Date, and/or Inventory Space and click update item button.

*Test(s) for buttons:*

There are a few different buttons on the Main form for users to take different actions. Button 4 is Search Item, which is used in conjunction with Textbox1 in order to search an item-by-item ID or item name. Button1 through Button3 are the Add Item, Update Item, and Delete buttons respectively. The tests for these buttons are described above, as they directly correlate with the textboxes. The logout button, located on the toolstrip, is used to close the Main form and reopen the Log-in form. This button was tested manually after implementation.

*Test(s) for data grid view:*

The data grid views show the item information and inventory space name categories from the internal system. These data grid views allow users to double click items to select them, double click categories to show different items, and order columns of information. The following are the tests done by hand to test the data grid views:

1. Double click an item in the data grid and item information is displayed.
2. Double click an Inventory Space Name category and the items listed under it are displayed.
3. Double click the column header to change the order of items in that column between ascending and descending.
4. Click and drag columns to the left or right to reorder them.

There is also the test of exiting out of the Log-in screen using the “x” exit button located in the top right corner. This button should be allowed usage at any point on the main form. Therefore, the exit button was manually tested after each feature’s implementation.