

CNT 4714 – Project 1 – Spring 2025

Title: “Program Assignment 1: Event-Driven Programming”

Points: 100 points

Due Date: **Sunday January 26, 2025 by 11:59 pm (WebCourses time)**

Objectives: (1) To practice event-driven programming using Java-based GUIs. (2) To refresh your basic Java skills. (3) To simulate (albeit at a very high-level) an enterprise application.

Description: Develop a Java application that creates a standalone GUI application that simulates an e-store. We’ll call our store Nile Dot Com... we’re not quite as big as Amazon.com!¹ The application will allow the user to place in stock items into a shopping cart and once all items are included, total all costs (including tax), produce an invoice, and append a transaction log file.

Your program development must include the following steps:

1. Create a main GUI containing the following components:
 - a. An area that allows the user to input data into the application along with the descriptive text that describes each input area.
 - b. An area that shows the current contents of the shopping cart.
 - c. A total of six buttons as shown below with functionality as described below. The various input fields and buttons on the interface are only accessible at certain points during a user’s interaction with the e-store.
2. An input file named “inventory.csv”. This is a comma separated file which contains the data that will be read by the application when the user makes a selection. Each line in this file contains five entries: an item id (a string), a quoted string containing the description of the item, an in stock status (a string), the quantity on hand (an integer), and the unit price for one of the item (a double). A sample file is provided for you on WebCourses. Feel free to create your own input file for testing purposes or augment the provided input file.
3. An output file (append only) named “transactions.csv” must be created that uniquely identifies and logs each user transaction with the e-store. The unique transaction id will be generated as a permutation of the current date/time when the transaction occurred (see below).

Restrictions:

- Your source file shall begin with comments containing the following information:

```
/* Name: <your name goes here>
   Course: CNT 4714 – Spring 2025
   Assignment title: Project 1 – An Event-driven Enterprise Simulation
   Date: Sunday January 26, 2025
*/
```
- We’ll assume that a shopping cart can hold at most 5 separate items. You don’t need to worry about handling more than 5 separate items/transaction.

¹ Source = <https://www.wonderslist.com/top-10-largest-rivers/>

- We'll assume that our client's know the sequence of events that need to occur. This will reduce the amount of error detection/correction that you need to implement (see more below).
- Assume the tax rate is 6%. Discount rates as shown below on page X.

Input Specification: The file “inventory.csv” as described above (see example below as well).

Output Specification: Output is to appear in the specified components of the GUI and various message boxes that appear, plus the contents of the “transactions.csv” log file that will be generated.

Deliverables:

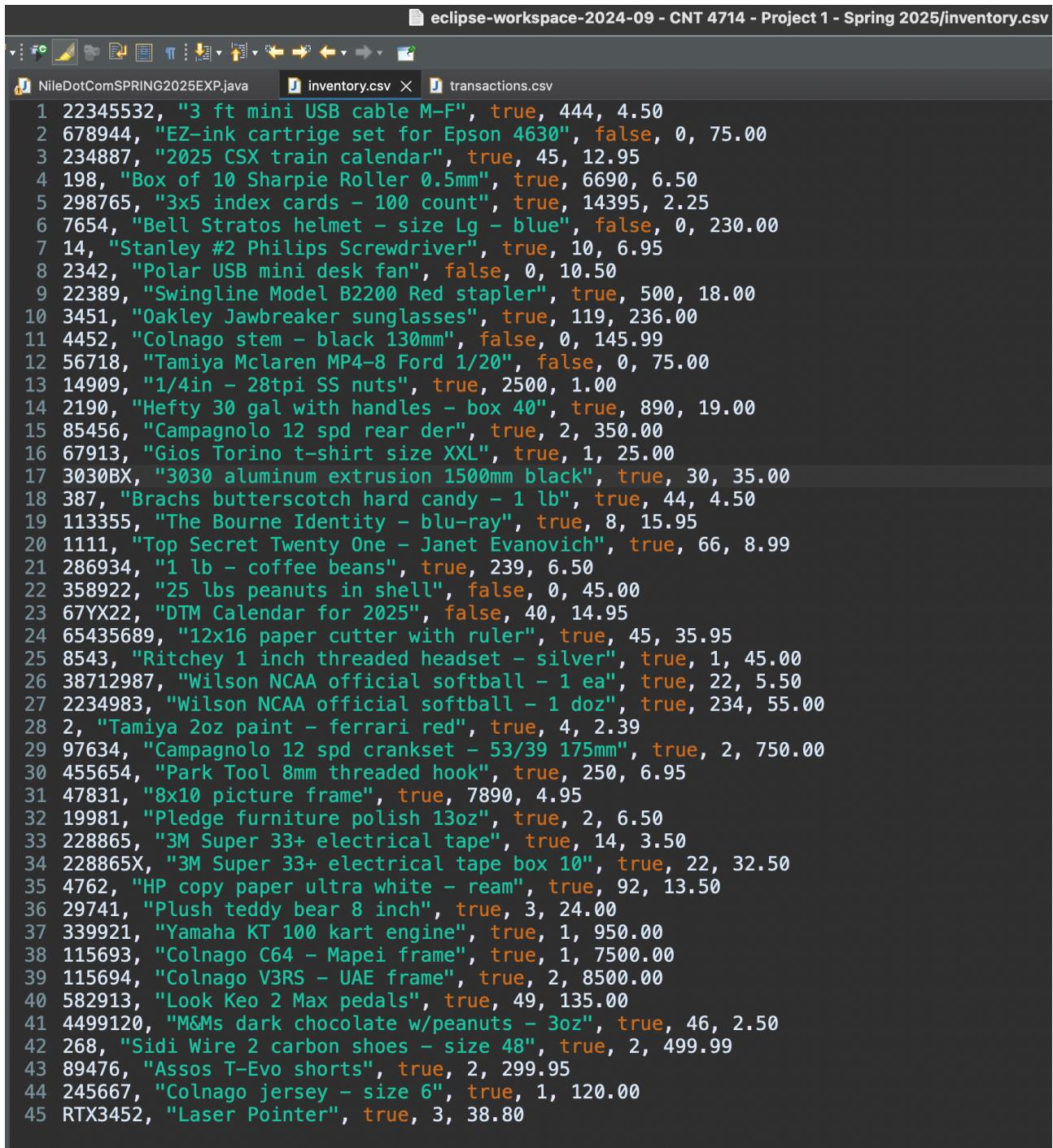
Submit all of the following via WebCourses no later than 11:59pm Sunday January 26, 2025. Zip everything into a single folder.

- (1) A working copy of your source code (all .java files) and any necessary supporting libraries.
- (2) Include a file that contains (**at least**) the following nine screen shots. All of these are taken from the perspective of your executing application (i.e., from your GUI).
 - a. The initial GUI instance (like number 2 in Additional Information below).
 - b. The GUI after the user has entered an item number (ID) and quantity and clicked the “Search For Item #X” button (like number 4 below).
 - c. The GUI after the user has added an item from screenshot (b) above but before searching for the next item (like numbers 7 and 9 below).
 - d. The GUI after the user has searched for the next item after the one in (b) above was added to the cart, but before adding this new item to the cart (like number 8 below).
 - e. The message dialog box (the invoice) when the user clicks the “Check Out” button for an order containing multiple items (like number 12 below).
 - f. The GUI and the message dialog box when the user has entered an item number (ID) and quantity where the quantity is greater than the number in stock (like number 17 below).
 - g. The GUI and the message dialog box when the item the user has selected is out of stock (like number 14 below).
 - h. The GUI and the message dialog box when the item the user has selected is not contained in the inventory file (like 6 below).
 - i. A pair of screenshots (like 9 and 10 below) that show the last item in the cart being deleted and the interface being reset after the deletion.
- You may include more screenshots than the nine listed above if you think they will illustrate additional features of your application than those already listed above.
- (3) Include your “transactions.csv” file as it stands after several different transactions have been recorded. You should have at least **5** different transactions in the file spanning a time period of at least **two hours** with at least **three** of these

transactions having **four or five** items in the transaction. (similar to the one shown on the last page of this document).

Additional Information:

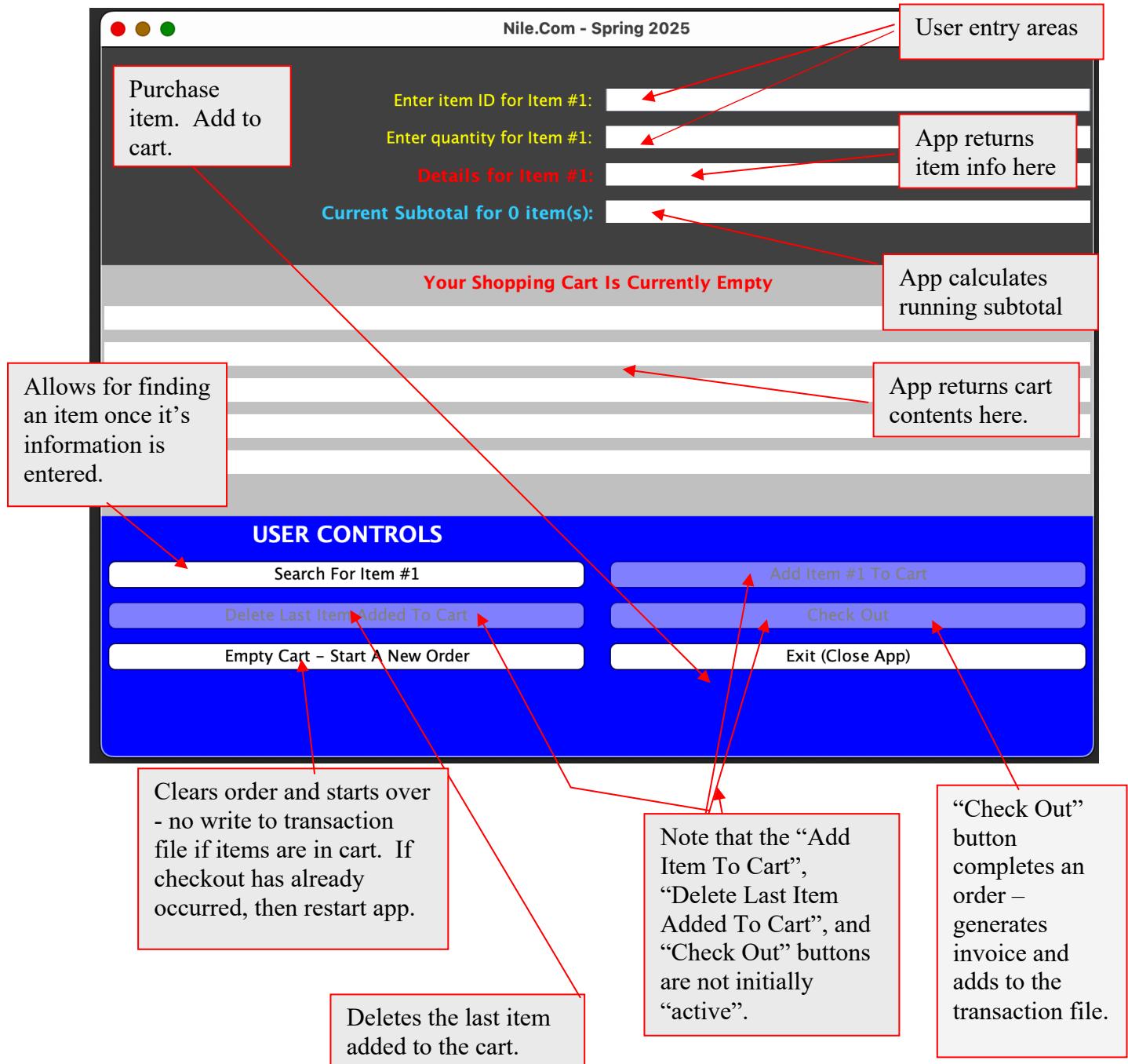
1. Screen shot of the contents of an example inventory.csv file.



The screenshot shows the Eclipse IDE interface with the title bar "eclipse-workspace-2024-09 - CNT 4714 - Project 1 - Spring 2025/inventory.csv". The left sidebar lists files: "NileDotComSPRING2025EXP.java", "inventory.csv" (which is currently selected), and "transactions.csv". The main editor area displays the contents of the "inventory.csv" file, which is a list of 45 items, each consisting of a line number, product ID, name, quantity, unit price, and other attributes. The data is color-coded for readability.

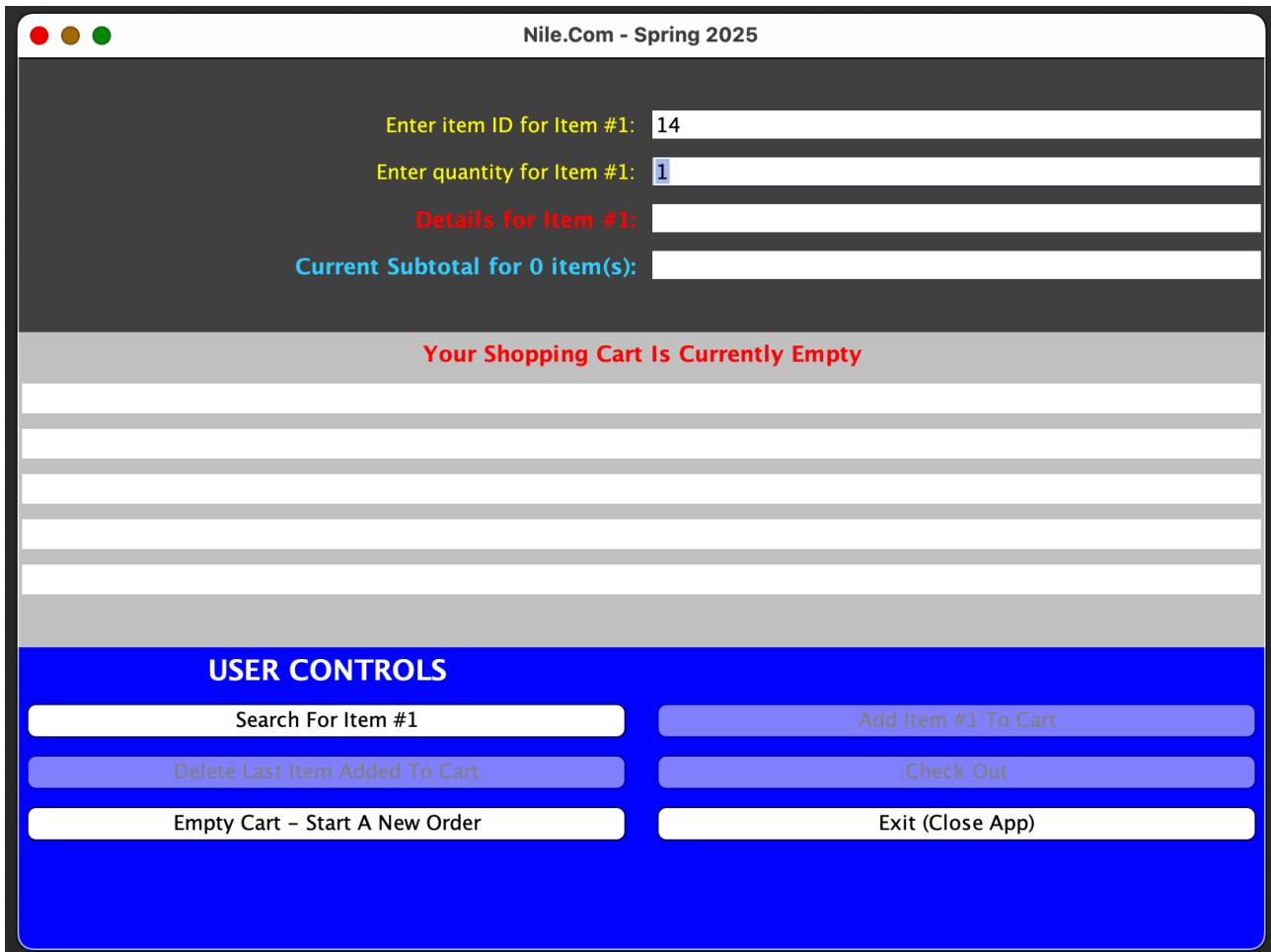
Line	ID	Description	Quantity	Unit Price	Other
1	22345532	"3 ft mini USB cable M-F"	true	444	4.50
2	678944	"EZ-ink cartridge set for Epson 4630"	false	0	75.00
3	234887	"2025 CSX train calendar"	true	45	12.95
4	198	"Box of 10 Sharpie Roller 0.5mm"	true	6690	6.50
5	298765	"3x5 index cards - 100 count"	true	14395	2.25
6	7654	"Bell Stratos helmet - size Lg - blue"	false	0	230.00
7	14	"Stanley #2 Philips Screwdriver"	true	10	6.95
8	2342	"Polar USB mini desk fan"	false	0	10.50
9	22389	"Swingline Model B2200 Red stapler"	true	500	18.00
10	3451	"Oakley Jawbreaker sunglasses"	true	119	236.00
11	4452	"Colnago stem - black 130mm"	false	0	145.99
12	56718	"Tamiya McLaren MP4-8 Ford 1/20"	false	0	75.00
13	14909	"1/4in - 28tpi SS nuts"	true	2500	1.00
14	2190	"Hefty 30 gal with handles - box 40"	true	890	19.00
15	85456	"Campagnolo 12 spd rear der"	true	2	350.00
16	67913	"Gios Torino t-shirt size XXL"	true	1	25.00
17	3030BX	"3030 aluminum extrusion 1500mm black"	true	30	35.00
18	387	"Brachs butterscotch hard candy - 1 lb"	true	44	4.50
19	113355	"The Bourne Identity - blu-ray"	true	8	15.95
20	1111	"Top Secret Twenty One - Janet Evanovich"	true	66	8.99
21	286934	"1 lb - coffee beans"	true	239	6.50
22	358922	"25 lbs peanuts in shell"	false	0	45.00
23	67YX22	"DTM Calendar for 2025"	false	40	14.95
24	65435689	"12x16 paper cutter with ruler"	true	45	35.95
25	8543	"Ritchey 1 inch threaded headset - silver"	true	1	45.00
26	38712987	"Wilson NCAA official softball - 1 ea"	true	22	5.50
27	2234983	"Wilson NCAA official softball - 1 doz"	true	234	55.00
28	2	"Tamiya 2oz paint - ferrari red"	true	4	2.39
29	97634	"Campagnolo 12 spd crankset - 53/39 175mm"	true	2	750.00
30	455654	"Park Tool 8mm threaded hook"	true	250	6.95
31	47831	"8x10 picture frame"	true	7890	4.95
32	19981	"Pledge furniture polish 13oz"	true	2	6.50
33	228865	"3M Super 33+ electrical tape"	true	14	3.50
34	228865X	"3M Super 33+ electrical tape box 10"	true	22	32.50
35	4762	"HP copy paper ultra white - ream"	true	92	13.50
36	29741	"Plush teddy bear 8 inch"	true	3	24.00
37	339921	"Yamaha KT 100 kart engine"	true	1	950.00
38	115693	"Colnago C64 - Mapei frame"	true	1	7500.00
39	115694	"Colnago V3RS - UAE frame"	true	2	8500.00
40	582913	"Look Keo 2 Max pedals"	true	49	135.00
41	4499120	"M&Ms dark chocolate w/peanuts - 3oz"	true	46	2.50
42	268	"Sidi Wire 2 carbon shoes - size 48"	true	2	499.99
43	89476	"Assos T-Evo shorts"	true	2	299.95
44	245667	"Colnago jersey - size 6"	true	1	120.00
45	RTX3452	"Laser Pointer"	true	3	38.80

2. Initial GUI:

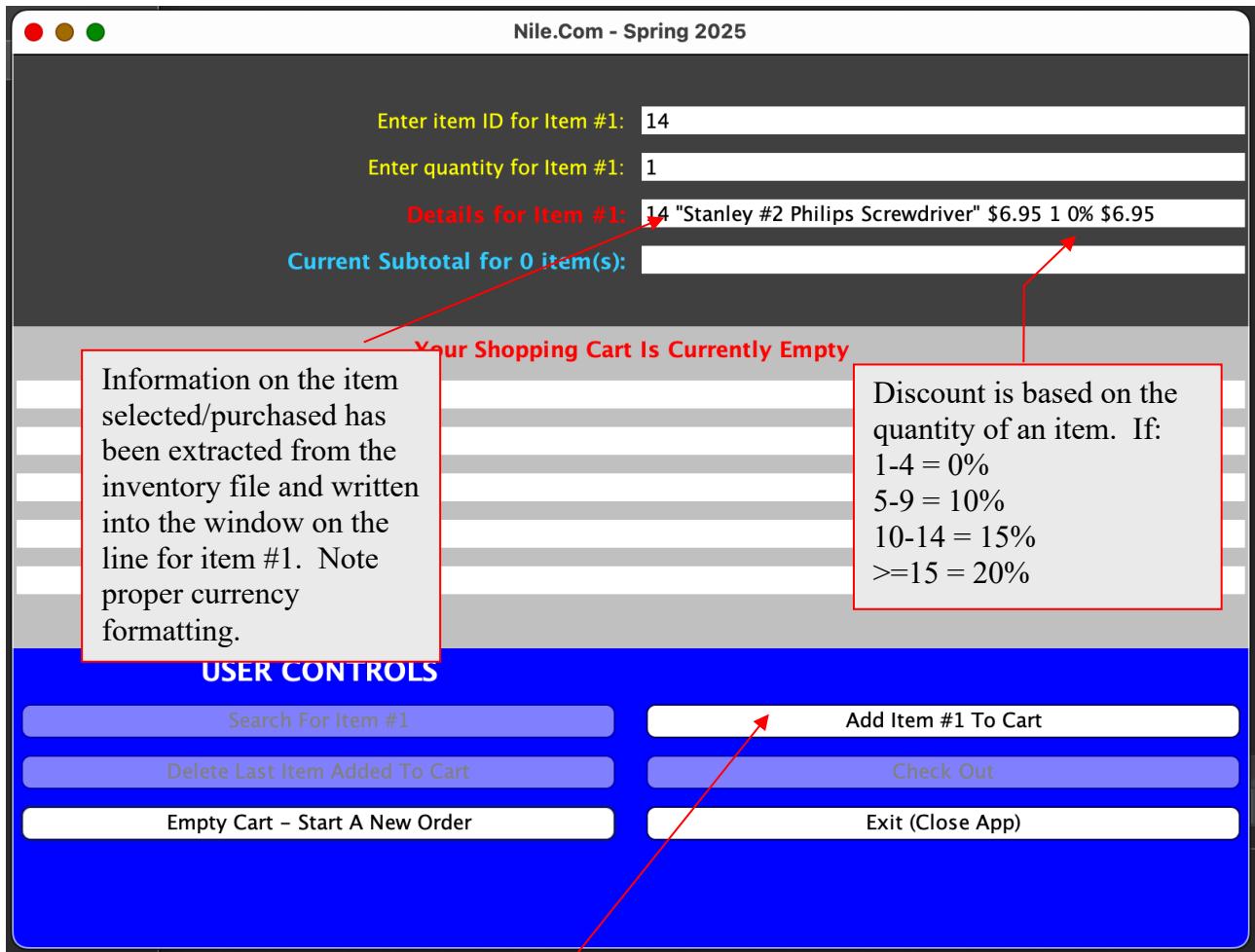


Notice the current status of the various labels, input fields, and output areas in the initial GUI and notice how they change over the following pages as the user interacts with the application.

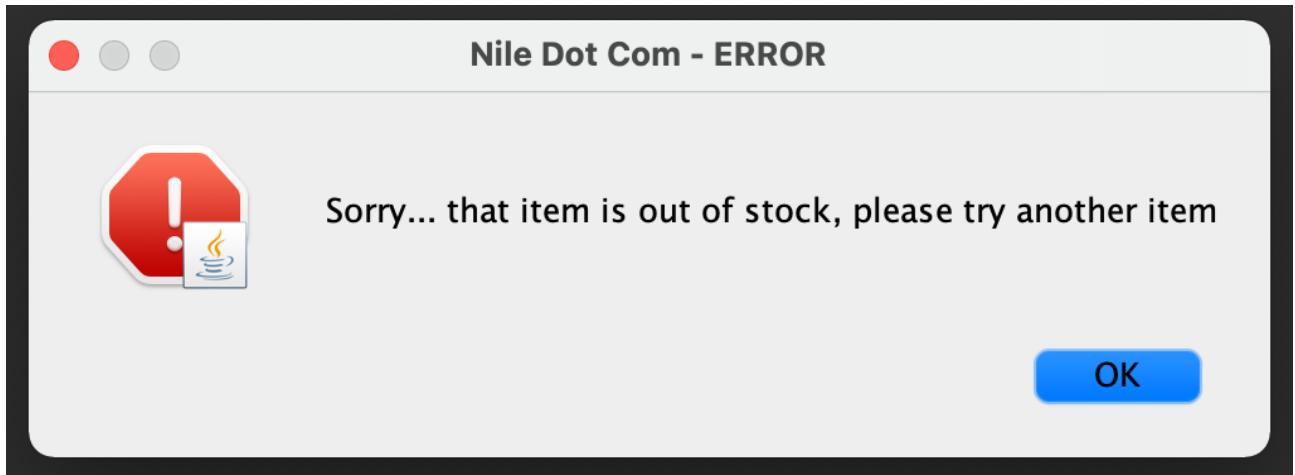
3. GUI after user has entered first item number and the quantity of the item they want to purchase, but before clicking the “Search For Item #X” button.



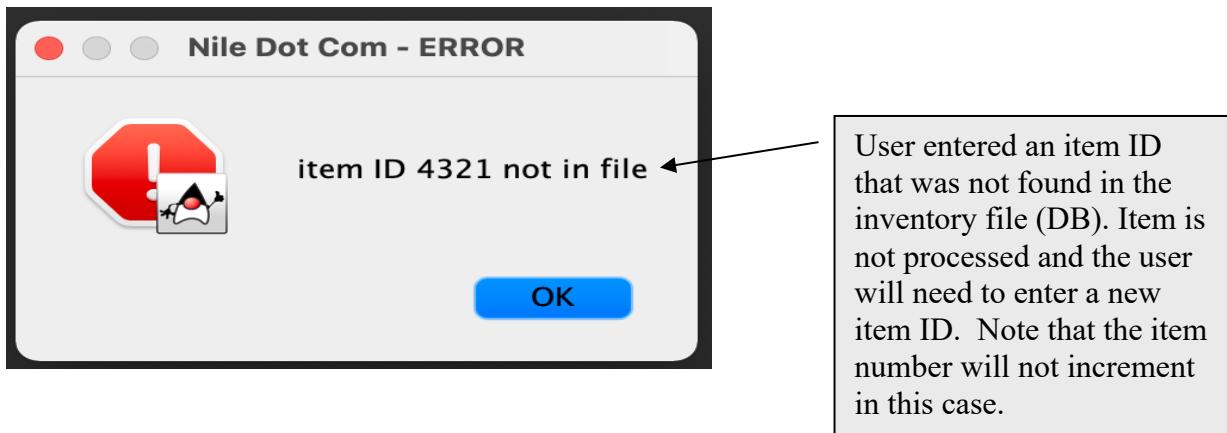
4. GUI after user has selected the first item and clicked the “Search For Item #1” button.



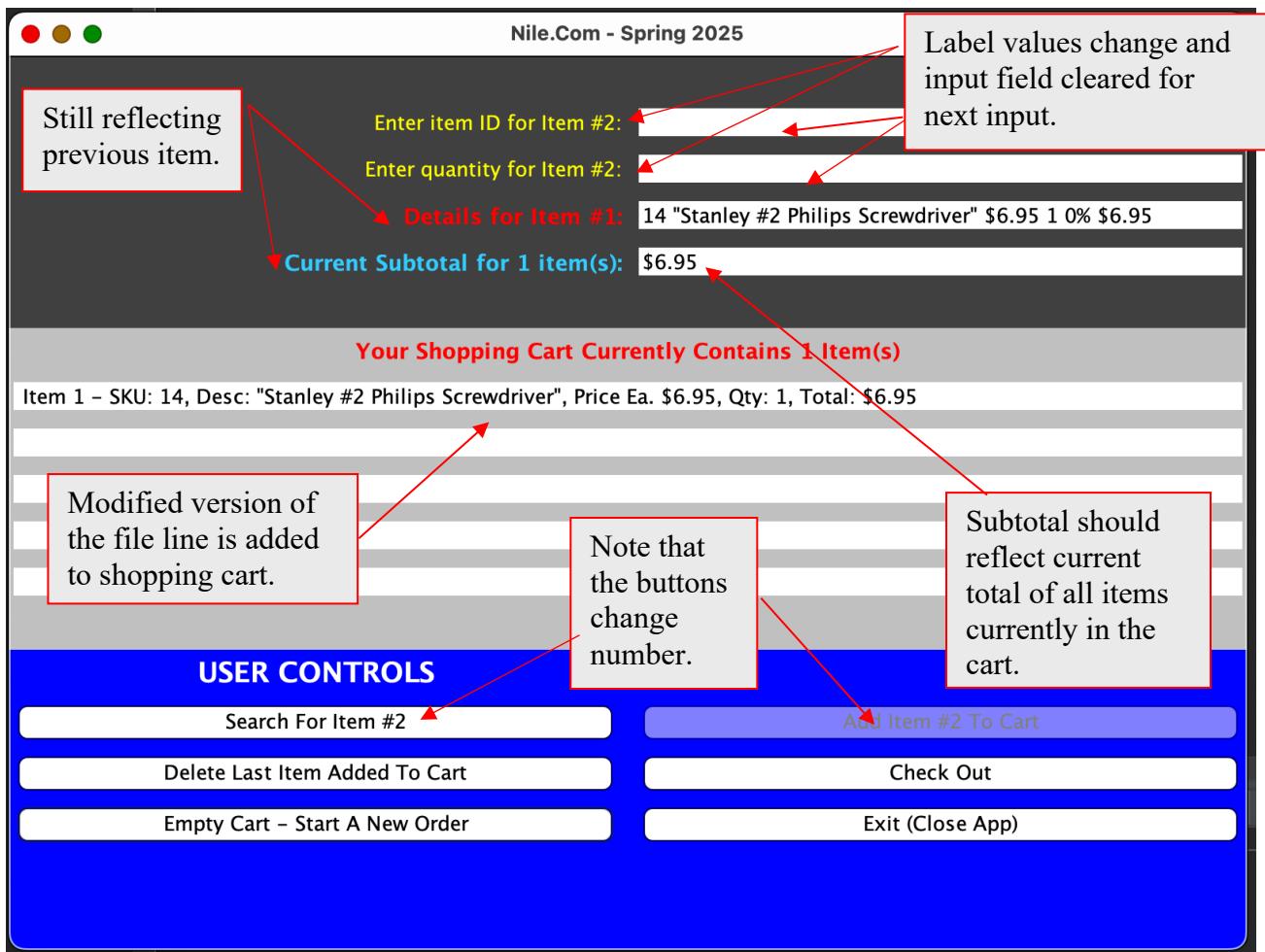
- When the user clicks on the “Search For Item #X” button and the item is found in the inventory, but the item is not in stock, then the following message would appear and the user is prompted to enter another product id. (see below as well)



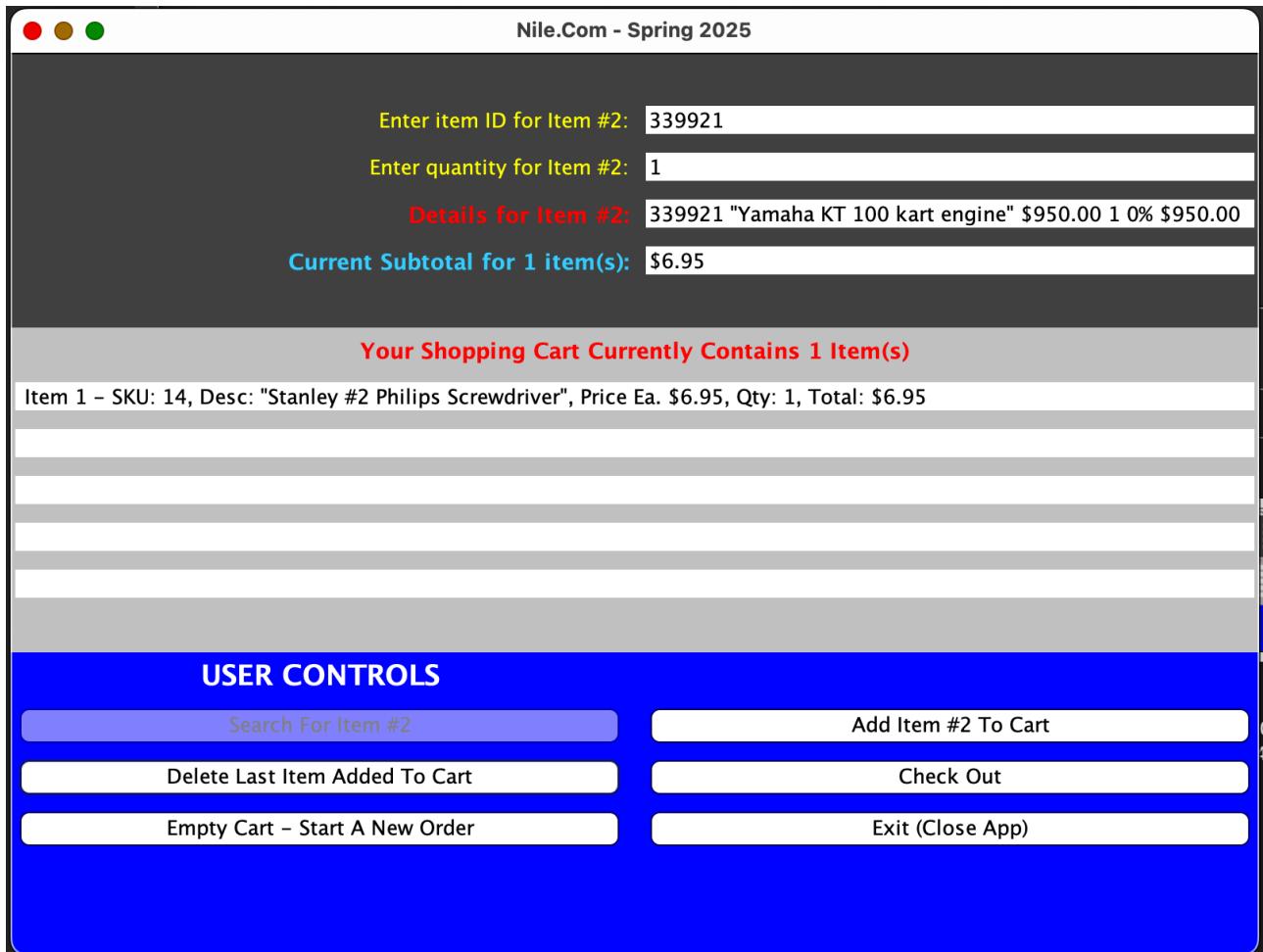
- When the user clicks on the “Search For Item #X” button, if the item is not found in the inventory, then the following message would appear on the user’s screen.



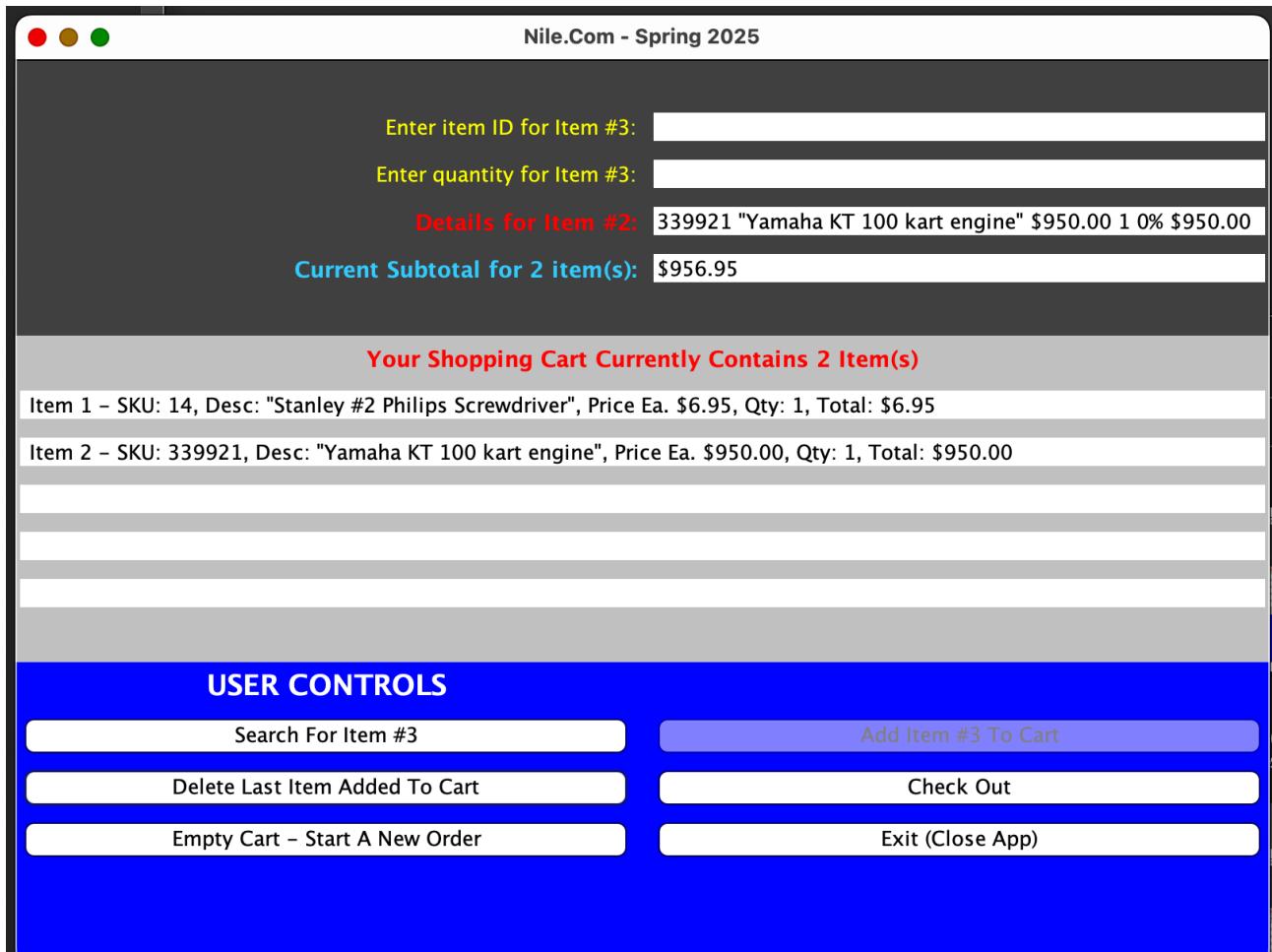
7. When the user clicks the “Add Item #1 To Cart” button, the GUI will be updated as shown:



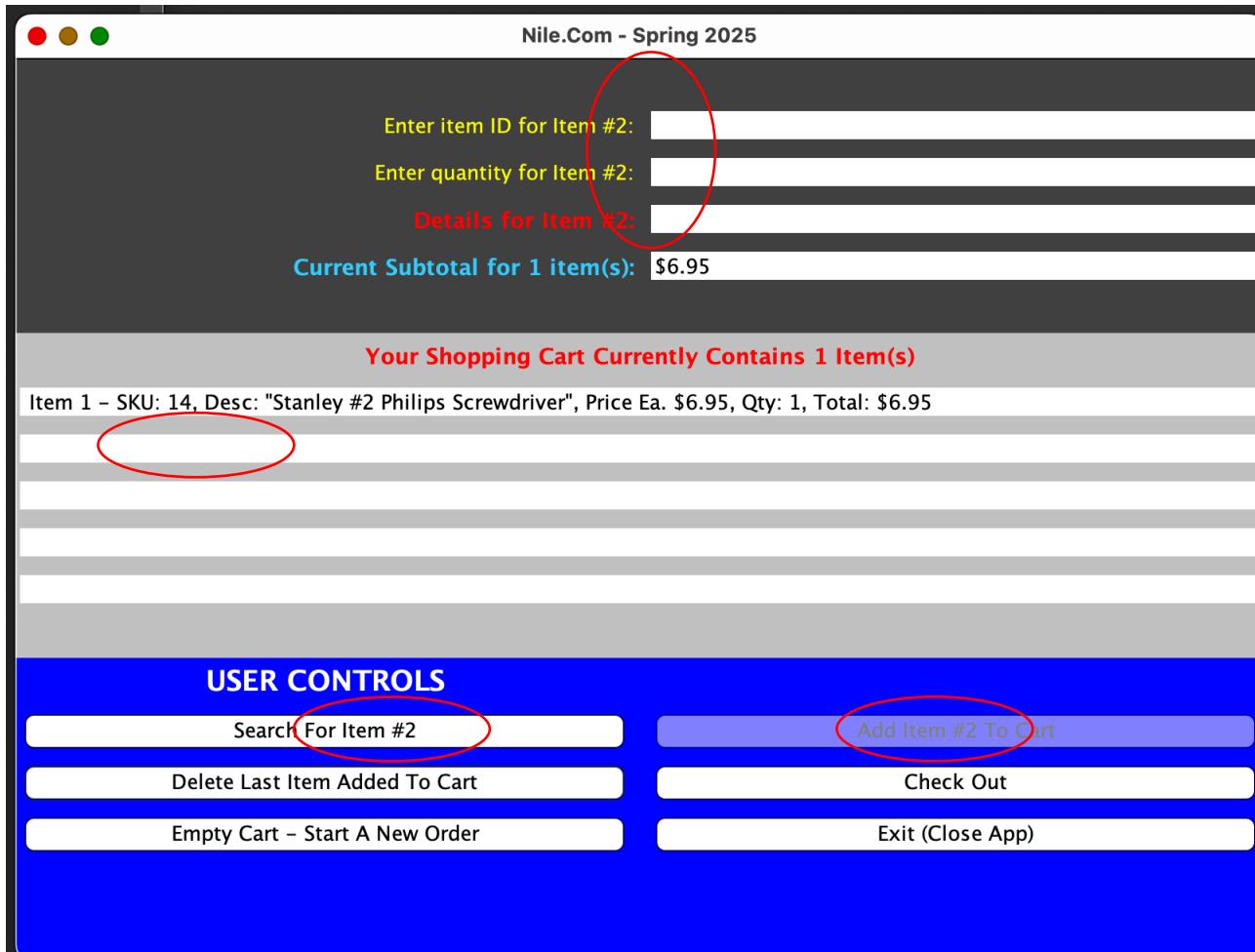
8. User enters and finds (but has not yet added it to the cart) the next item in the order (which we'll make the last one for this order).



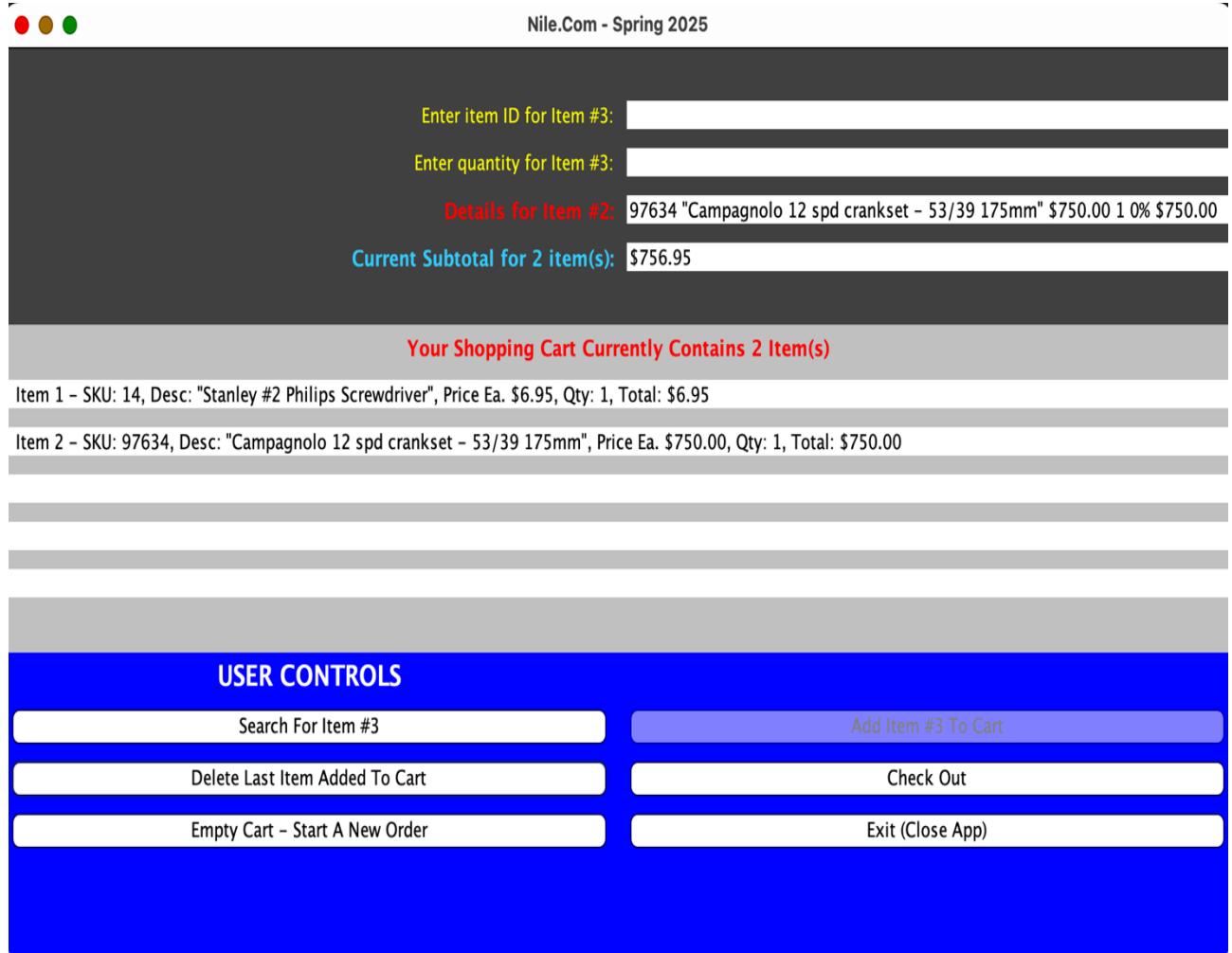
9. The GUI after the user has entered the information for all the items and purchased the last item they wish to order.



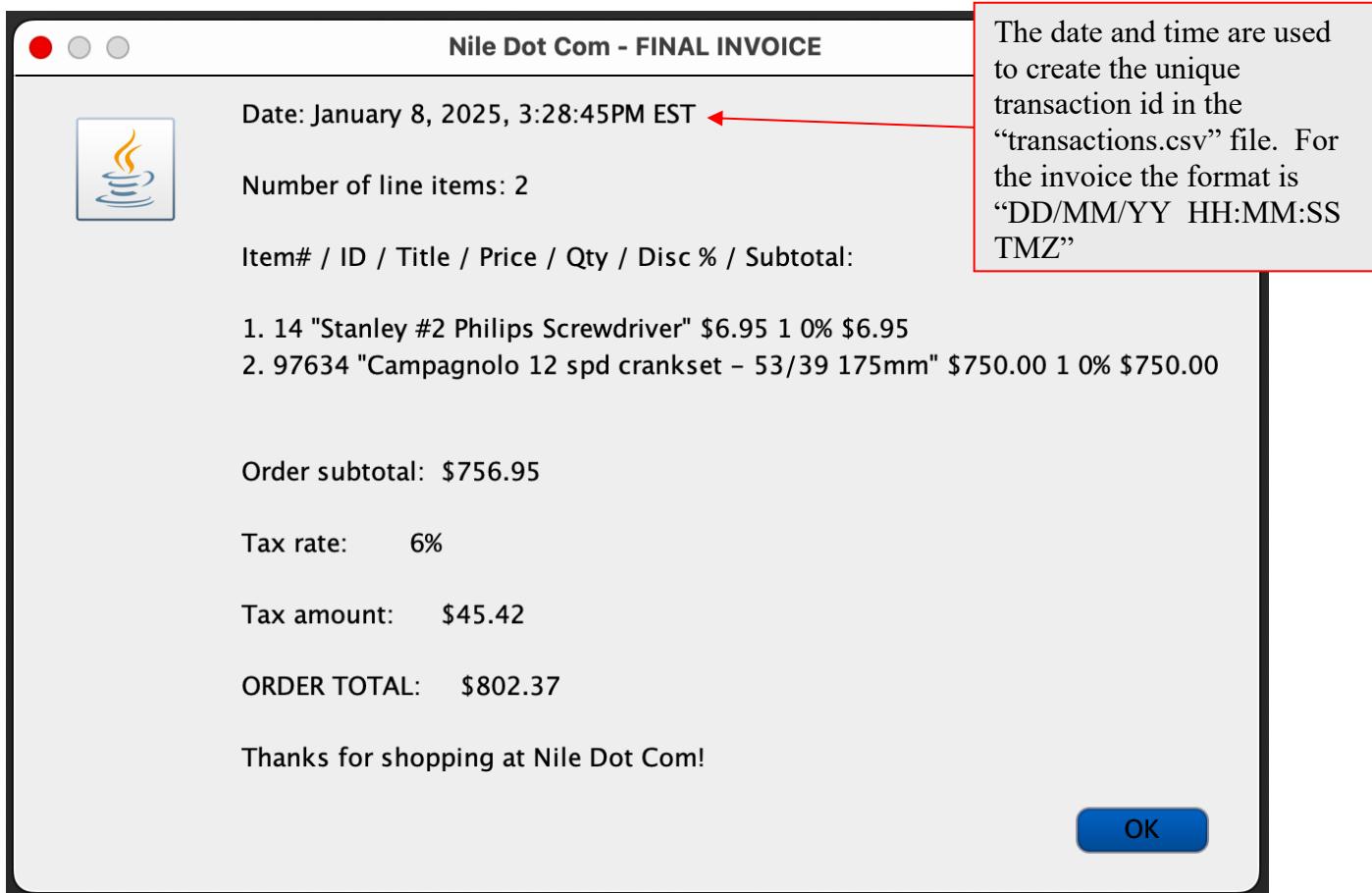
10. When the user clicks the “Delete Last Item Added To Cart” button, the state of the GUI will change as shown below. Notice that Item #2 was removed from the shopping cart, the input area labels have been reset and the subtotal has been adjusted.



11. Let's add a second item to our shopping cart before checking out.



12. When the user clicks the “Check Out” button, the final invoice message should be generated and displayed. In addition, the order details are added to the `transaction.csv` file.



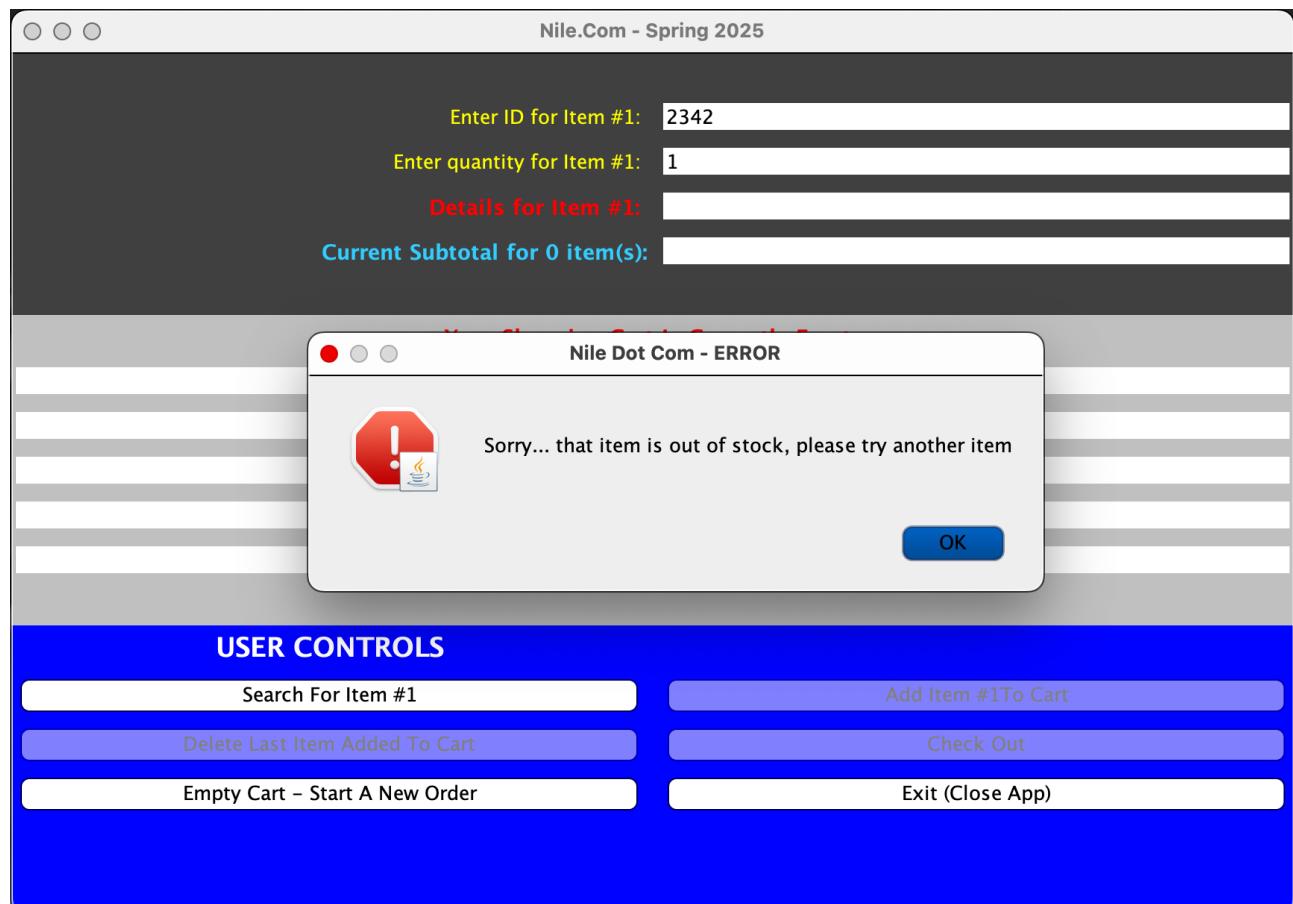
13. The transaction file after order shown above was finished. Note the unique transaction ids based on the date and time.

eclipse-workspace-2024-09 - CNT 4714 - Project 1 - Spring 2025/transactions.csv - Eclipse IDE

1	08012025152845, 14, "Stanley #2 Philips Screwdriver", 6.95, 1, 0.0, \$6.95, January 8, 2025, 3:28:45 PM EST		
2	08012025152845, 97634, "Campagnolo 12 spd crankset – 53/39 175mm", 750.0, 1, 0.0, \$750.00, January 8, 2025, 3:28:45 PM EST		
3			
4			

The transaction occurred on 25/01/08 at 15:28:45 (3:28:45pm). See the invoice message above. Permutation used here is: DDMMYYYYHHMMSS.

14. If the user enters an item number for an item that is not in stock (it is in the inventory – just not in stock – see number 5 above), the following message dialog should appear. Once the user clicks OK in the dialog box, then they would enter a new item number for another item and continue processing their current transaction. Notice below, that after clicking ok in the dialog box, the GUI is reset to the original item number and the input fields are empty.



Nile.Com - Spring 2025

Enter ID for Item #1:

Enter quantity for Item #1:

Details for Item #1:

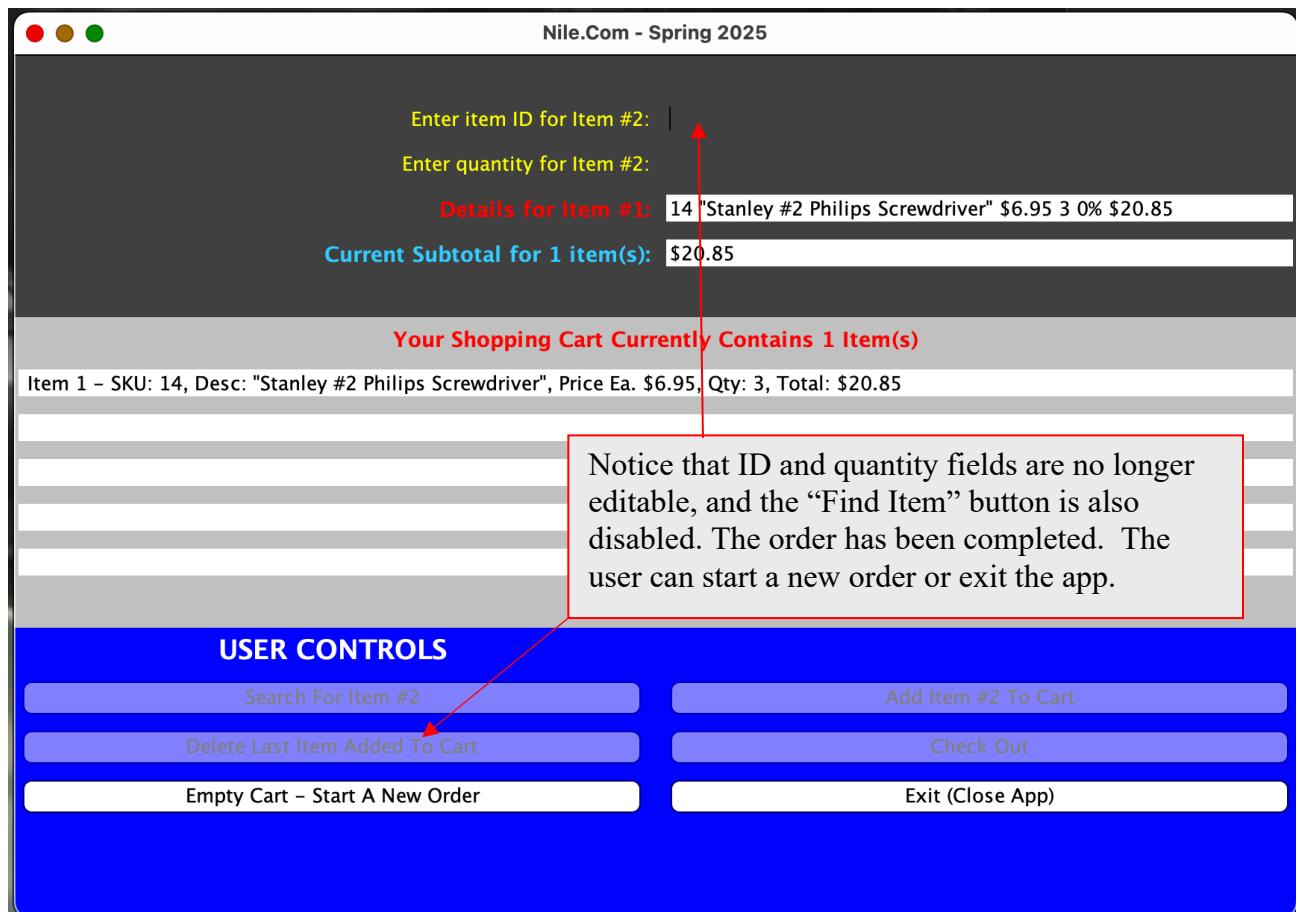
Current Subtotal for 0 item(s):

Your Shopping Cart Is Currently Empty

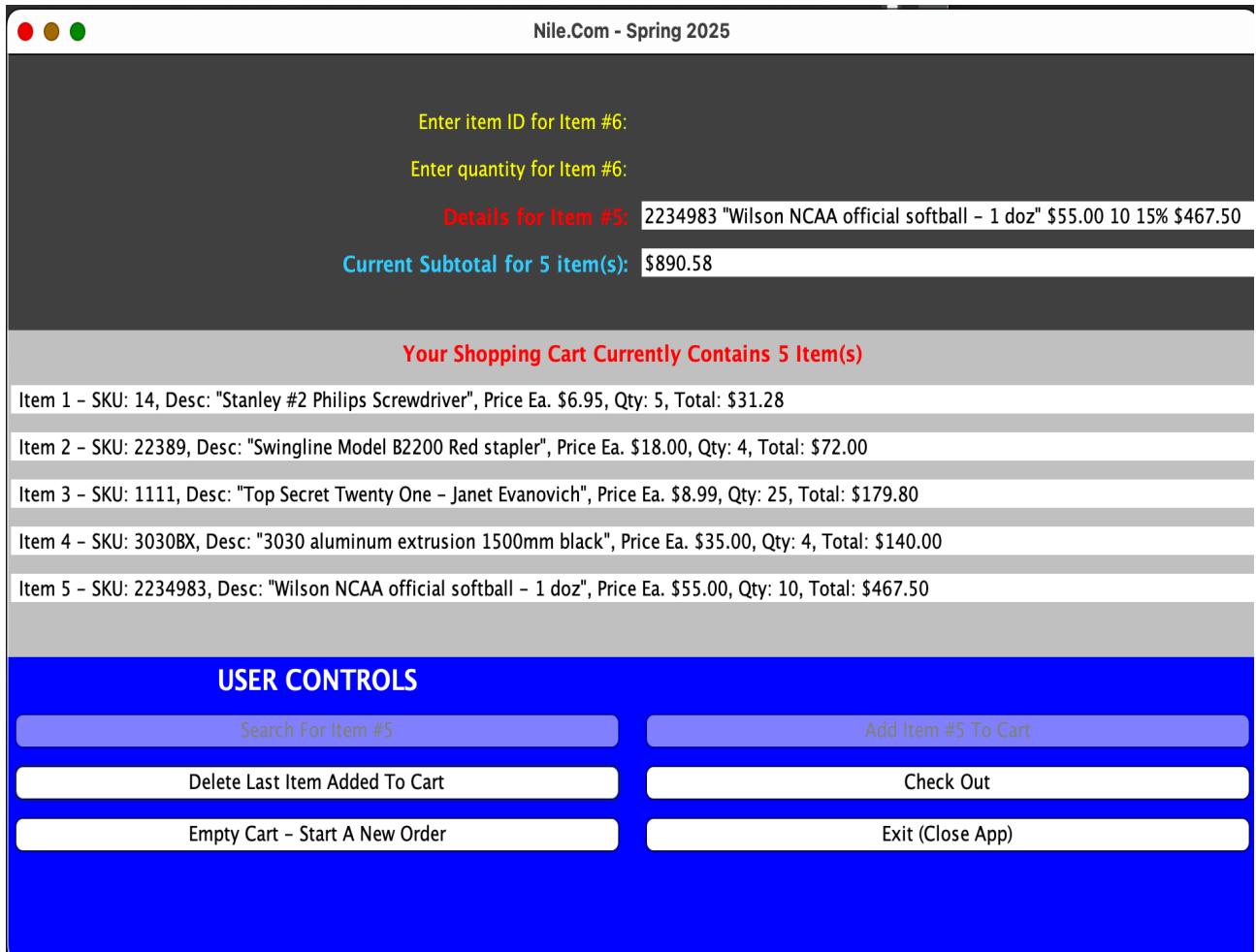
Notice that after the “Not In Stock” error has occurred, the GUI has cleared the user entries in the two input fields and has not incremented the item count. User can now search again

USER CONTROLS

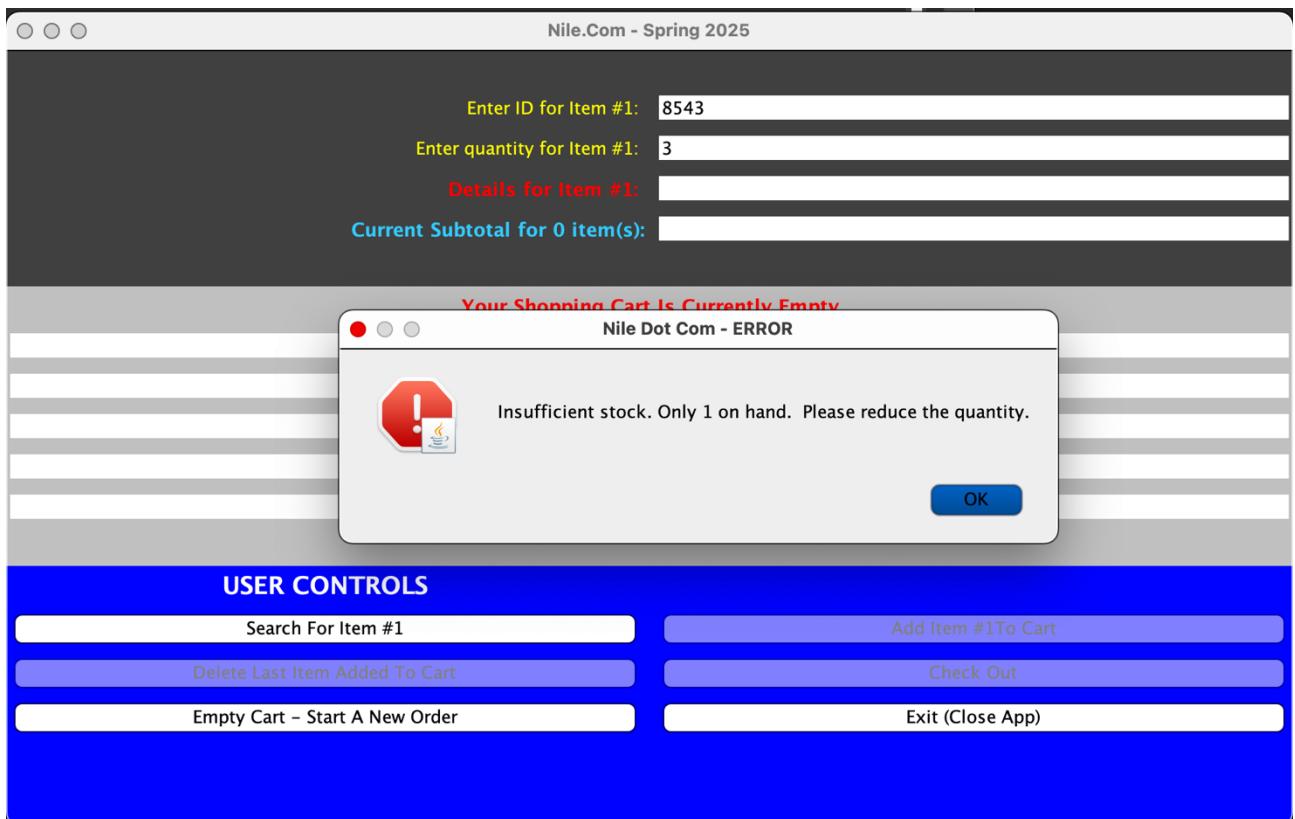
15. The GUI after the user has clicked the “Check Out” button and also clicked “OK” on the invoice dialog box.



16. User has added 5 items to their shopping cart at this point. Cart is now full, so no more items can be added and the user must either delete the last item in the cart, check out or start a new order.



17. The situation may also arise where there is not a sufficient quantity in stock of an item that the user would like to add to the cart. When this situation arises, you should print the following message to the user.



Once the user click the OK button on the dialog box, the GUI will clear the quantity field for a new quantity to be entered, but leave the item number intact (see cropped image below).



18. The transaction file after several orders have been completed. Note the unique transaction ids based on the date and time for every separate transaction. Note that the very first transaction in this file (from the first part of this document, does not include the item that we deleted from our cart, only the items that were in the cart at the time of the checkout. This file shows seven separate transactions.

eclipse-workspace-2024-09 - CNT 4714 - Project 1 - Spring 2025/transactions.csv - Eclipse IDE

NleDotComSPRING2025EXP.java inventory.csv transactions.csv X SearchForItemInInventoryFile.java

Line	Transaction ID	Quantity	Product Name	Price	Date	Time			
1	08012025152845	14	"Stanley #2 Philips Screwdriver"	6.95	1	0.0	\$6.95	January 8, 2025	3:28:45 PM EST
2	08012025152845	97634	"Campagnolo 12 spd crankset - 53/39 175mm"	750.0	1	0.0	\$750.00	January 8, 2025	3:28:45 PM EST
3									
4	08012025155533	14	"Stanley #2 Philips Screwdriver"	6.95	3	0.0	\$20.85	January 8, 2025	3:55:33 PM EST
5									
6	08012025160217	14	"Stanley #2 Philips Screwdriver"	6.95	5	0.1	\$31.28	January 8, 2025	4:02:17 PM EST
7	08012025160217	22389	"Swingline Model B2200 Red stapler"	18.0	4	0.0	\$72.00	January 8, 2025	4:02:17 PM EST
8	08012025160217	1111	"Top Secret Twenty One - Janet Evanovich"	8.99	25	0.2	\$179.80	January 8, 2025	4:02:17 PM EST
9	08012025160217	3030BX	"3030 aluminum extrusion 1500mm black"	35.0	4	0.0	\$140.00	January 8, 2025	4:02:17 PM EST
10	08012025160217	2234983	"Wilson NCAA official softball - 1 doz"	55.0	10	0.15	\$467.50	January 8, 2025	4:02:17 PM EST
11									
12	08012025160636	14909	"1/4in - 28tpi SS nuts"	1.0	100	0.2	\$80.00	January 8, 2025	4:06:36 PM EST
13	08012025160636	387	"Brachs butterscotch hard candy - 1 lb"	4.5	2	0.0	\$9.00	January 8, 2025	4:06:36 PM EST
14	08012025160636	198	"Box of 10 Sharpie Roller 0.5mm"	6.5	1	0.0	\$6.50	January 8, 2025	4:06:36 PM EST
15									
16	08012025160737	47831	"8x10 picture frame"	4.95	8	0.1	\$35.64	January 8, 2025	4:07:37 PM EST
17	08012025160737	228865	"3M Super 33+ electrical tape"	3.5	3	0.0	\$10.50	January 8, 2025	4:07:37 PM EST
18	08012025160737	29741	"Plush teddy bear 8 inch"	24.0	1	0.0	\$24.00	January 8, 2025	4:07:37 PM EST
19									
20	08012025161259	67913	"Gios Torino t-shirt size XXL"	25.0	1	0.0	\$25.00	January 8, 2025	4:12:59 PM EST
21	08012025161259	234887	"2025 CSX train calendar"	12.95	1	0.0	\$12.95	January 8, 2025	4:12:59 PM EST
22	08012025161259	85456	"Campagnolo 12 spd rear der"	350.0	2	0.0	\$700.00	January 8, 2025	4:12:59 PM EST
23	08012025161259	115693	"Colnago C64 - Mapei frame"	7500.0	1	0.0	\$7,500.00	January 8, 2025	4:12:59 PM EST
24									
25	08012025193249	3451	"Oakley Jawbreaker sunglasses"	236.0	1	0.0	\$236.00	January 8, 2025	7:32:49 PM EST
26	08012025193249	RTX3452	"Laser Pointer"	38.8	2	0.0	\$77.60	January 8, 2025	7:32:49 PM EST
27									
28									