

CNT 4714 – Project 1 – Fall 2023

Title: “Program Assignment 1: An Event-Driven Application”

Points: 100 points

Due Date: **Sunday September 17, 2023 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 which allows the user to add in stock items to a shopping cart and once all items are included, total all costs (including tax), produces an invoice, and append a transaction log file.

Your application development must include the following components:

1. 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. (See below.)
 - b. A total of six buttons as shown below with functionality as described below.
 - c. As illustrated below, the various 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 of the item 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 logs each user transaction with the e-store. The unique transaction id will be generated as a permutation of the date/time string 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 – Fall 2023
Assignment title: Project 1 – Event-driven Enterprise Simulation
Date: Sunday September 17, 2023
*/
```

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

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

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:

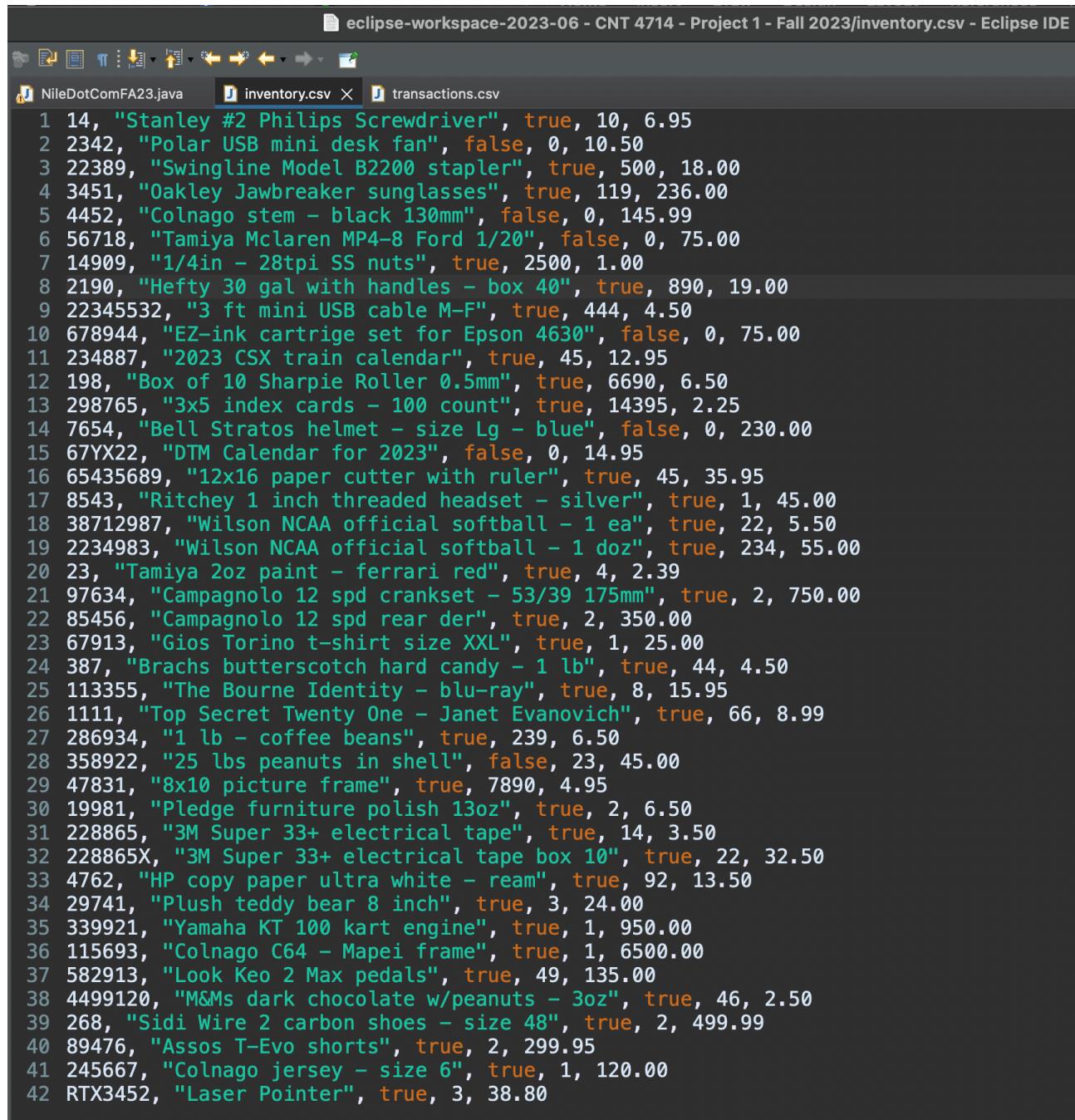
Submit the following via WebCourses no later than 11:59pm Sunday September 17, 2023.

You can zip everything into a single folder if you would like.

- (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 ten screen shots.
 - a. The initial GUI (like number 2 in Additional Information below).
 - b. The GUI after the user has entered an item number (ID) and quantity and clicked the "Find Item #" button (like number 4 below).
 - c. The pop-up message box when the user has purchased the selected item (like number 7 below).
 - d. The pop-up message box when the user has entered an item number (ID) that was not found in the inventory file (like number 6 below).
 - e. The GUI after the user has purchased the selected item (like number 8 below).
 - f. The GUI after the user has purchased an item and has entered another item and found it, but not yet confirmed it (like number 9 below).
 - g. The message dialog box when the user clicks the "View Current Order" button with multiple items in the order (like number 11 below).
 - h. The message dialog box when the user clicks the "Complete Order - Check Out" button for an order containing multiple items (like number 12 below).
 - i. The message dialog box when the user has entered an item number (ID) for an item that is out of stock (like numbers 5 and 14 below).
 - j. The sequence of three screenshots as shown in number 17 below. The GUI showing an item and quantity that are greater than the quantity on hand, followed by the message dialog box that tells the user to reduce the quantity, and finally, the GUI showing that only the "Enter quantity for item #x" is blanked.
 - k. You may include more screenshots than the ten 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 with at least **three** of these transactions having **four or more** items in the transaction. (similar to the one shown on the last page of this document).

Additional Information:

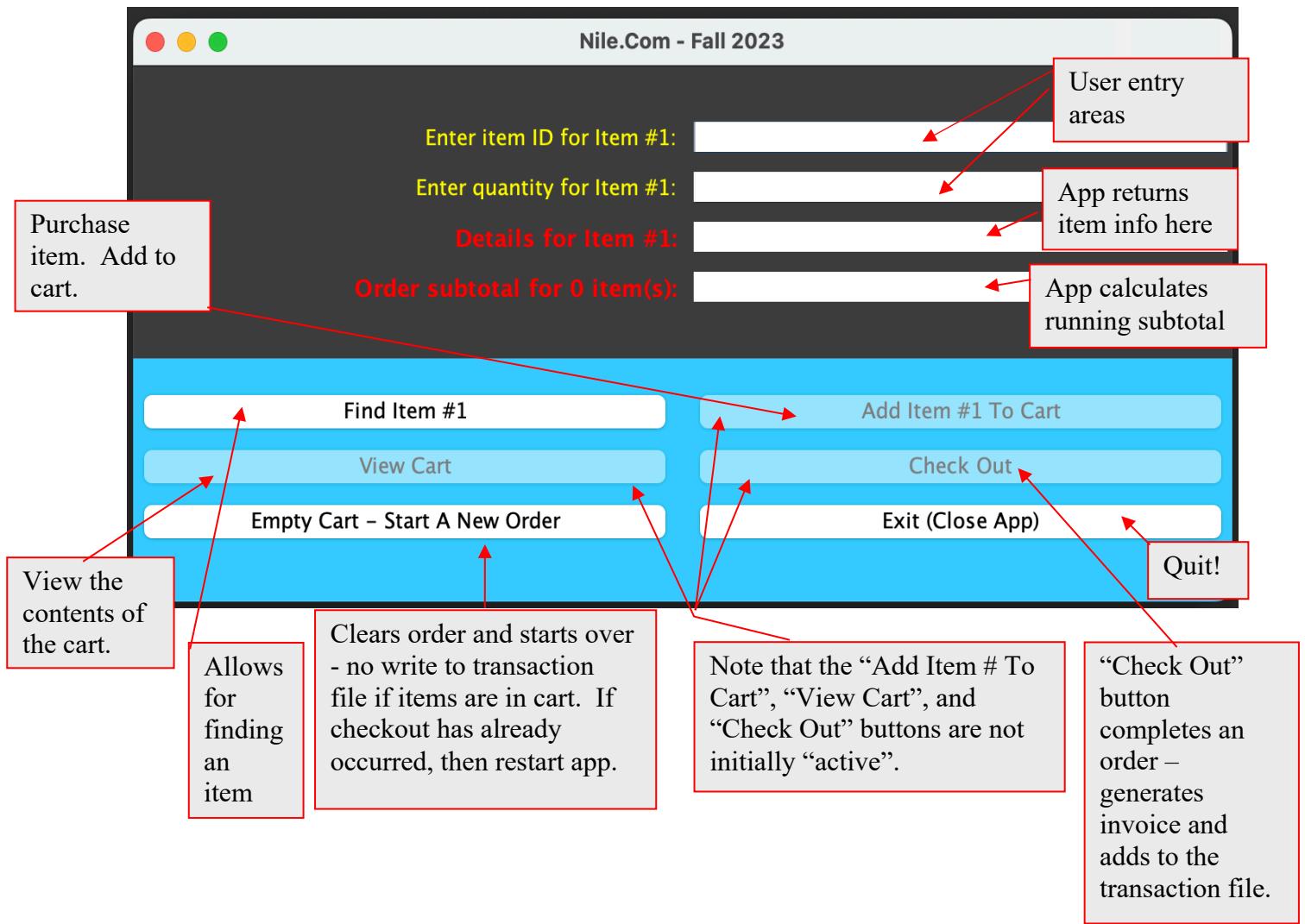
1. Screen shot of the contents of an example “inventory.csv” file.



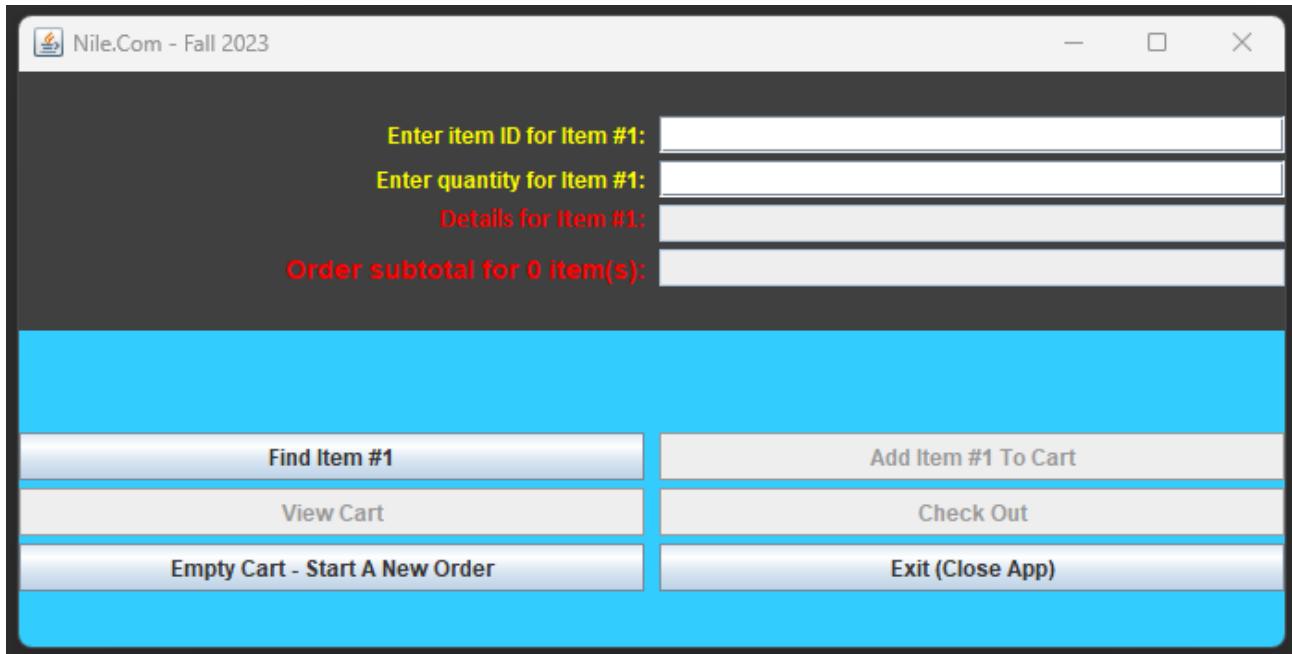
The screenshot shows the Eclipse IDE interface with the title bar "eclipse-workspace-2023-06 - CNT 4714 - Project 1 - Fall 2023/inventory.csv - Eclipse IDE". The toolbar has various icons for file operations. Below the toolbar, there are three tabs: "NileDotComFA23.java", "inventory.csv", and "transactions.csv". The "inventory.csv" tab is selected and contains the following CSV data:

Line Number	Description	Quantity	Unit Price
1	Stanley #2 Philips Screwdriver	10	6.95
2	Polar USB mini desk fan	0	10.50
3	Swingline Model B2200 stapler	500	18.00
4	Oakley Jawbreaker sunglasses	119	236.00
5	Colnago stem - black 130mm	0	145.99
6	Tamiya McLaren MP4-8 Ford 1/20	0	75.00
7	1/4in - 28tpi SS nuts	2500	1.00
8	Hefty 30 gal with handles - box 40	890	19.00
9	3 ft mini USB cable M-F	444	4.50
10	EZ-ink cartridge set for Epson 4630	0	75.00
11	2023 CSX train calendar	45	12.95
12	Box of 10 Sharpie Roller 0.5mm	6690	6.50
13	3x5 index cards - 100 count	14395	2.25
14	Bell Stratos helmet - size Lg - blue	0	230.00
15	DTM Calendar for 2023	0	14.95
16	12x16 paper cutter with ruler	45	35.95
17	Ritchey 1 inch threaded headset - silver	1	45.00
18	Wilson NCAA official softball - 1 ea	22	5.50
19	Wilson NCAA official softball - 1 doz	234	55.00
20	Tamiya 2oz paint - ferrari red	4	2.39
21	Campagnolo 12 spd crankset - 53/39 175mm	2	750.00
22	Campagnolo 12 spd rear der	2	350.00
23	Gios Torino t-shirt size XXL	1	25.00
24	Brachs butterscotch hard candy - 1 lb	44	4.50
25	The Bourne Identity - blu-ray	8	15.95
26	Top Secret Twenty One - Janet Evanovich	66	8.99
27	1 lb - coffee beans	239	6.50
28	25 lbs peanuts in shell	23	45.00
29	8x10 picture frame	7890	4.95
30	Pledge furniture polish 13oz	2	6.50
31	3M Super 33+ electrical tape	14	3.50
32	3M Super 33+ electrical tape box 10	22	32.50
33	HP copy paper ultra white - ream	92	13.50
34	Plush teddy bear 8 inch	3	24.00
35	Yamaha KT 100 kart engine	1	950.00
36	Colnago C64 - Mapei frame	1	6500.00
37	Look Keo 2 Max pedals	49	135.00
38	M&Ms dark chocolate w/peanuts - 3oz	46	2.50
39	Sidi Wire 2 carbon shoes - size 48	2	499.99
40	Assos T-Evo shorts	2	299.95
41	Colnago jersey - size 6	1	120.00
42	Laser Pointer	3	38.80

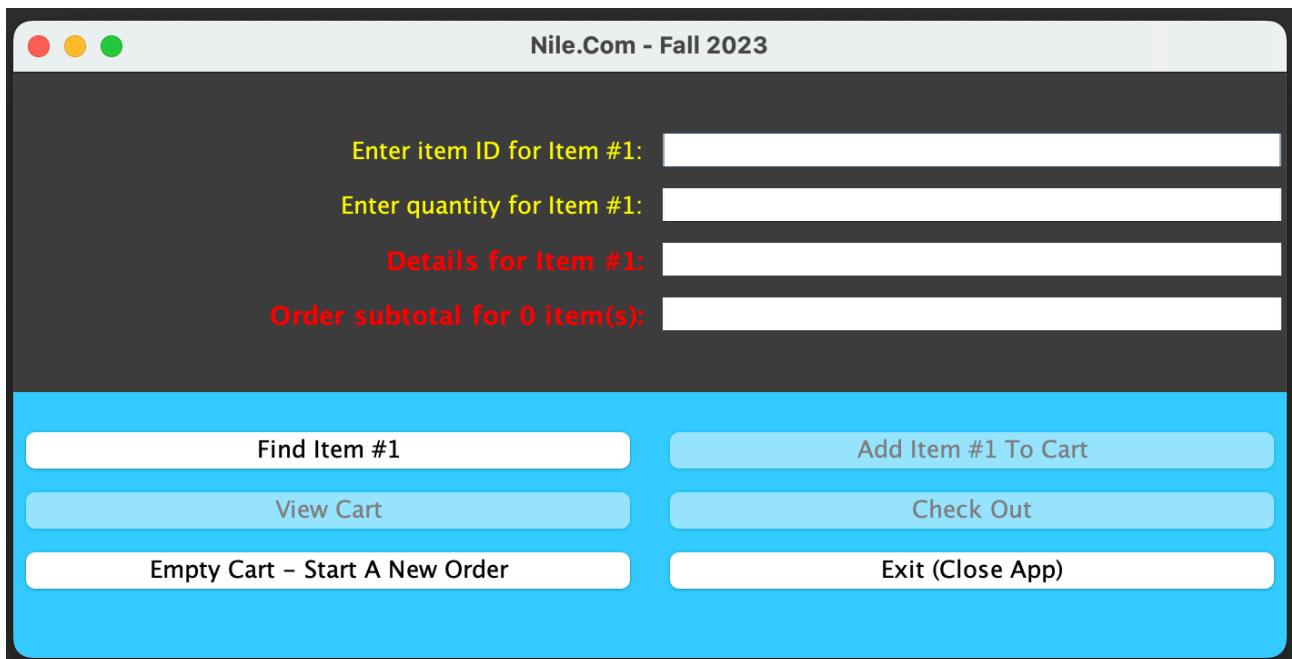
2. Initial GUI:



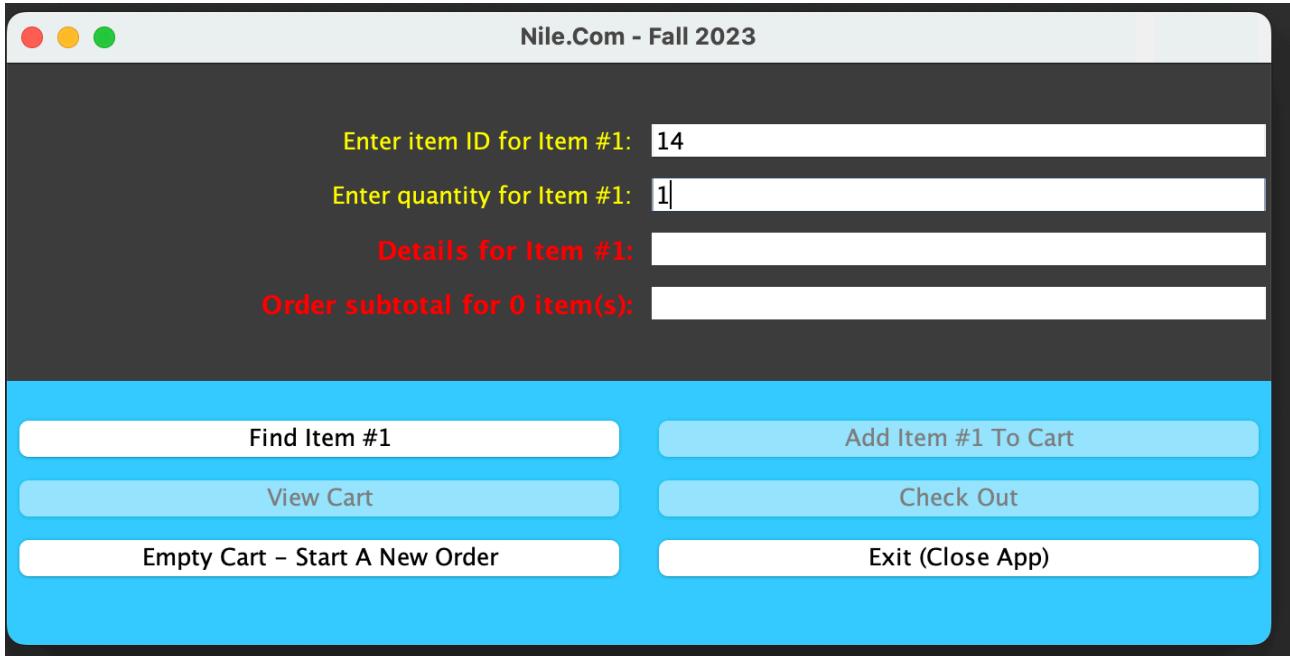
Note that GUIs in Java will render slightly differently on Windows compared to Macs. This is due to the look&feel. Mac OS X uses a proprietary look&feel, where Windows and Linux use a cross-platform look&feel for more compatibility, still not perfect though. The version shown above is on a Mac running Ventura 13.4. The version of the GUI is shown below running on Windows 11.



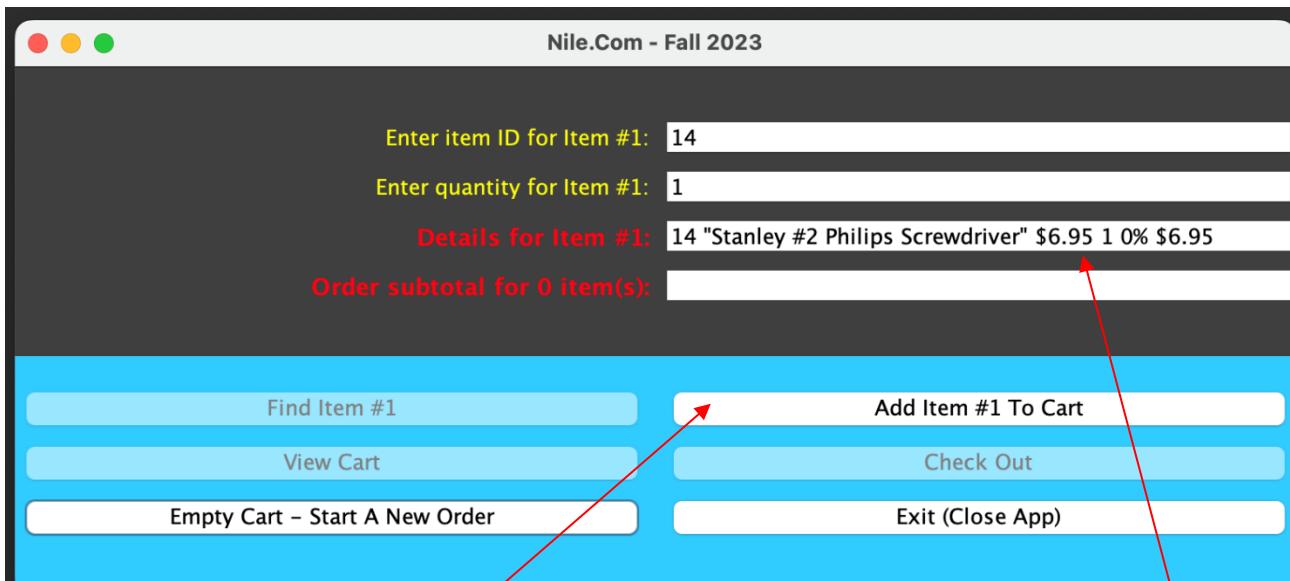
A clearer shot of the GUI without all the annotation.



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



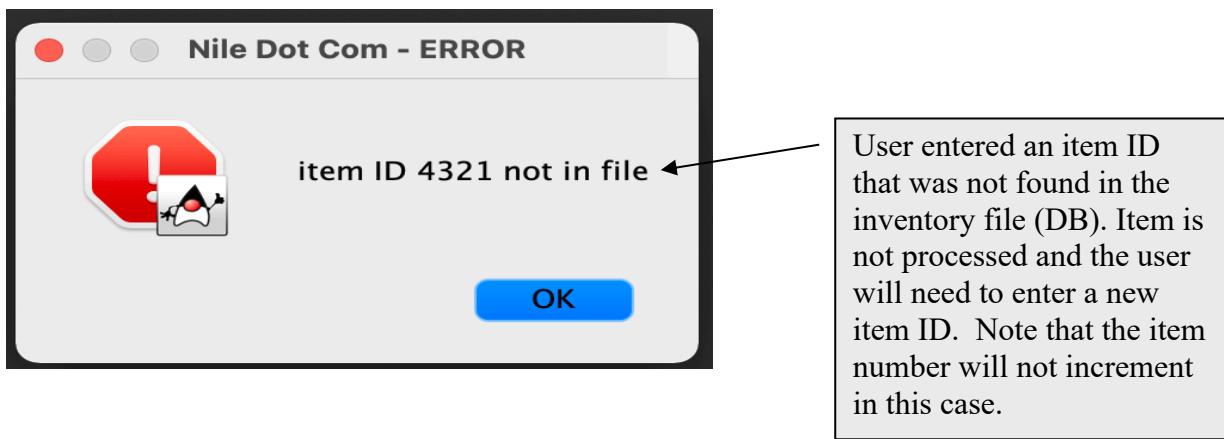
4. GUI after user has selected the first item and clicked the “Find Item #1” button.



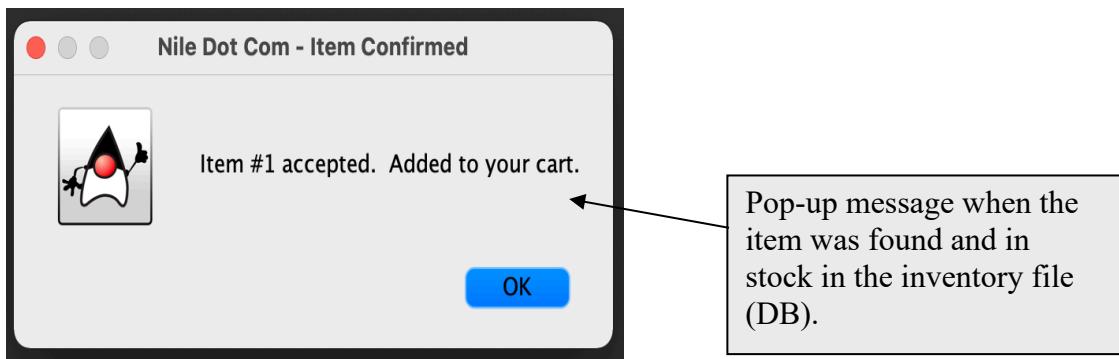
- When the user clicks on the “Find Item #1” button and the item is found in the inventory, but the item is not in stock, then the following message would appear and the user is prompted to enter another product id. The item number will not be incremented in this case. (See below as well.)



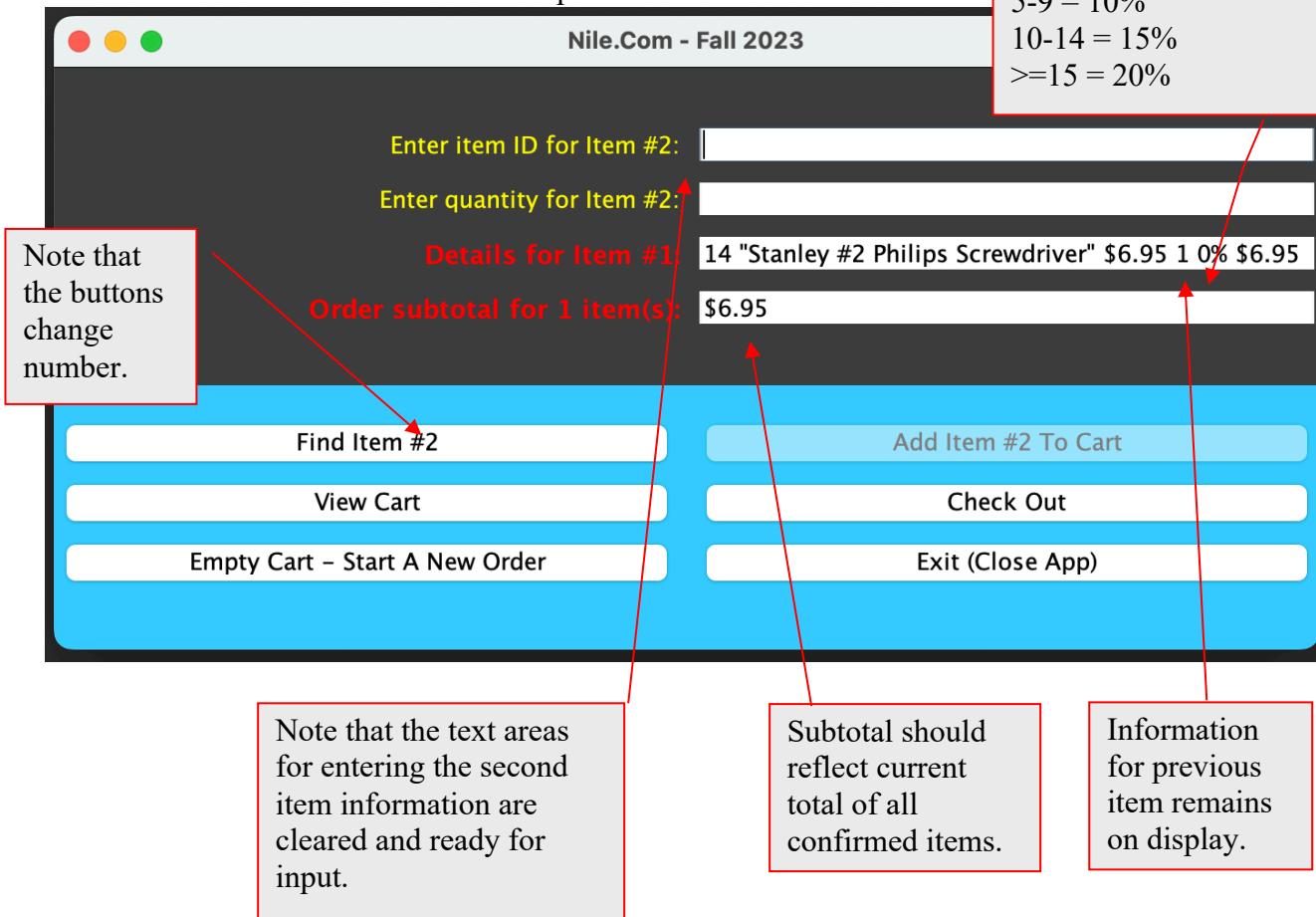
- When the user clicks on the “Find Item #1” button, if the item is not found in the inventory, then the following message would appear on the user’s screen.



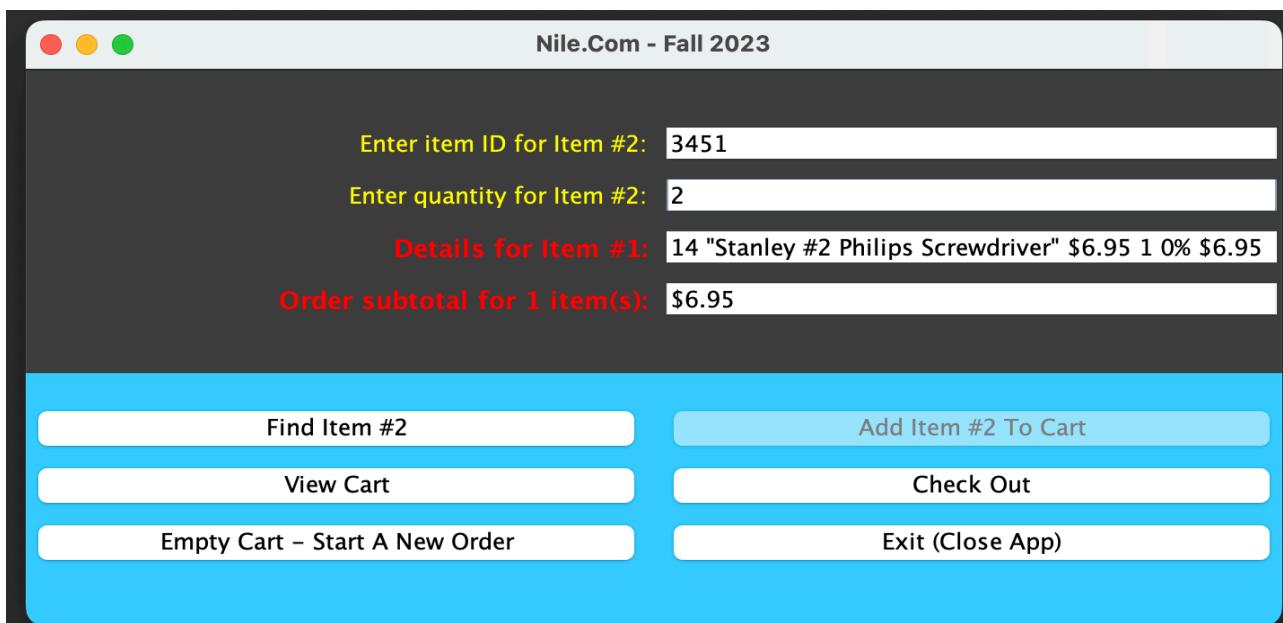
- When the user clicks the “Add Item #1 To Cart” button, the following message would appear on their screen.



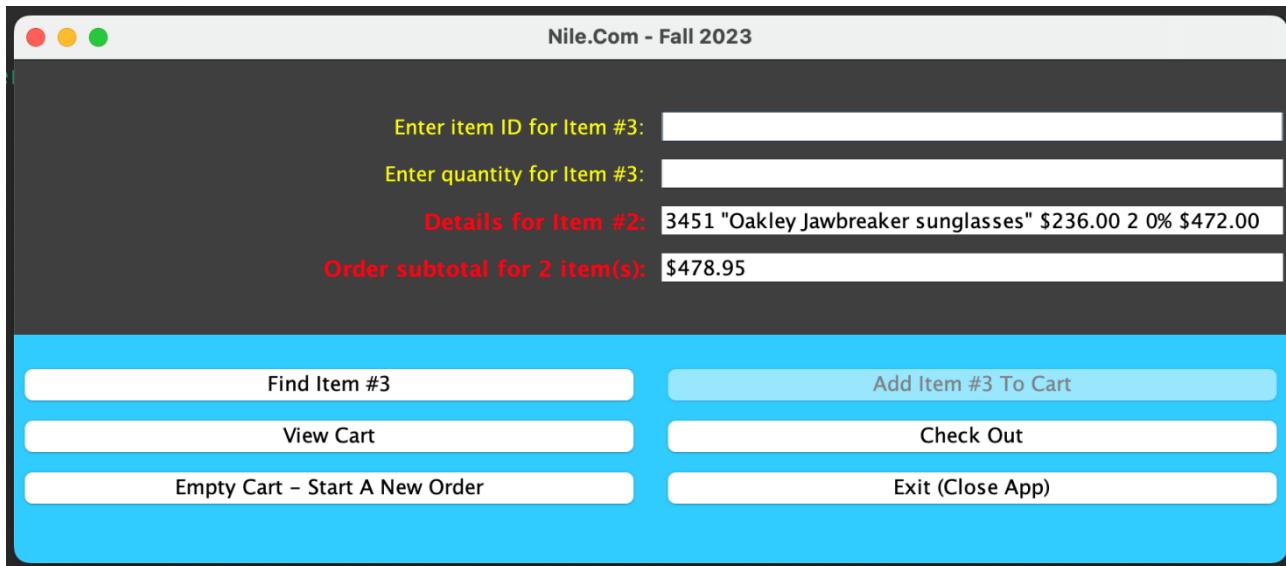
8. The main GUI after the user has purchased the first item.



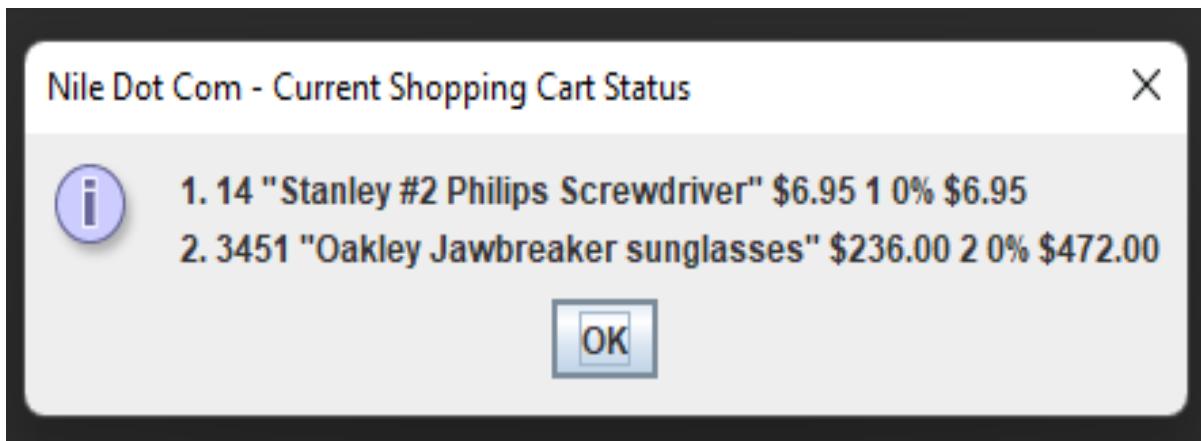
9. User enters and finds (but has not yet added to the cart) the next item in the order (which we'll make the last one for this order).



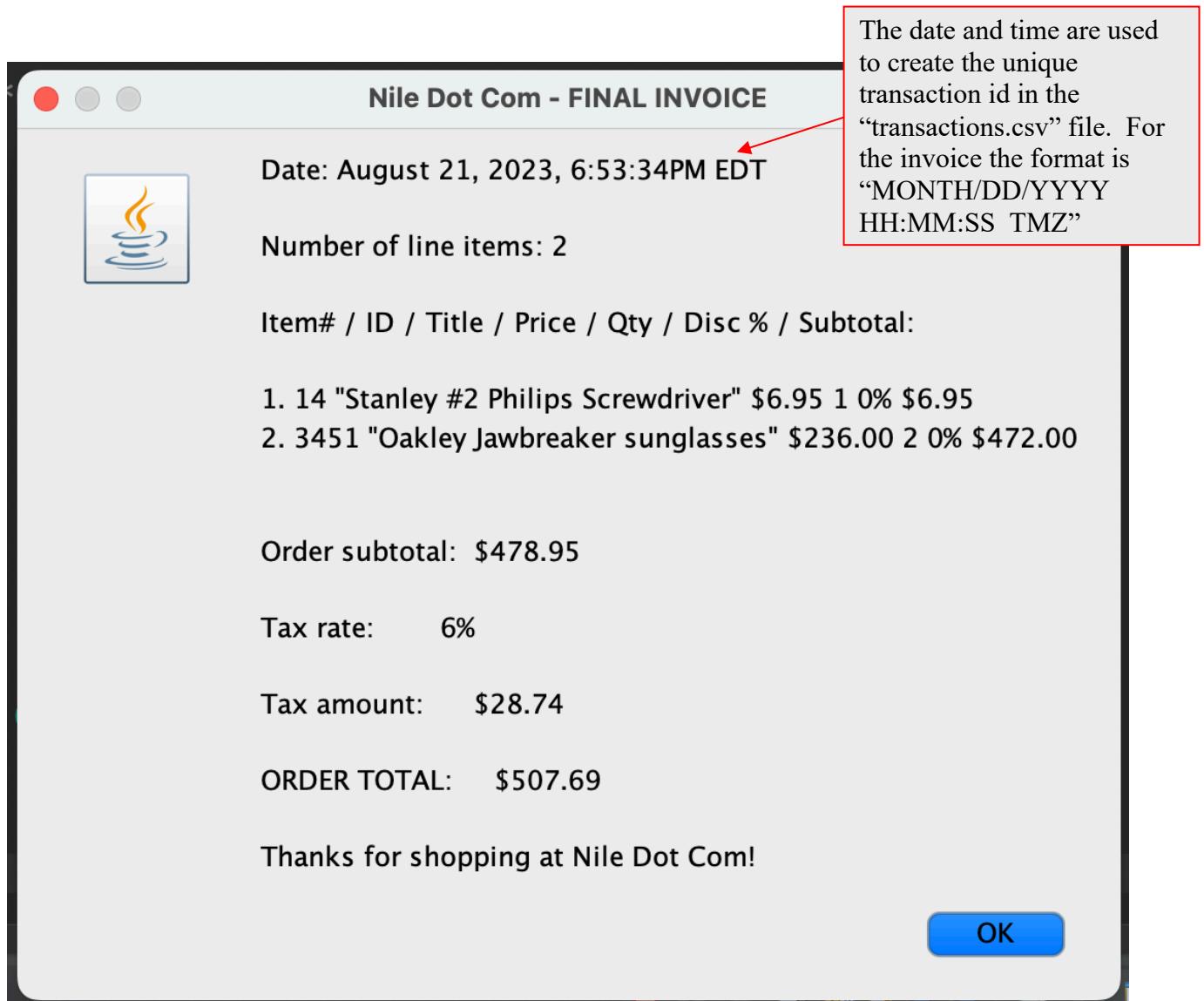
10. The GUI after the user has entered the information for all the items and added to the cart the last item they wish to purchase.



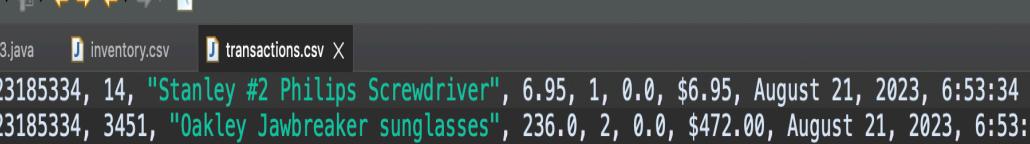
11. When the user clicks the “View Cart” button, the following message box should appear.



12. When the user clicks the “Check Out” button, the invoice message should be generated and displayed.

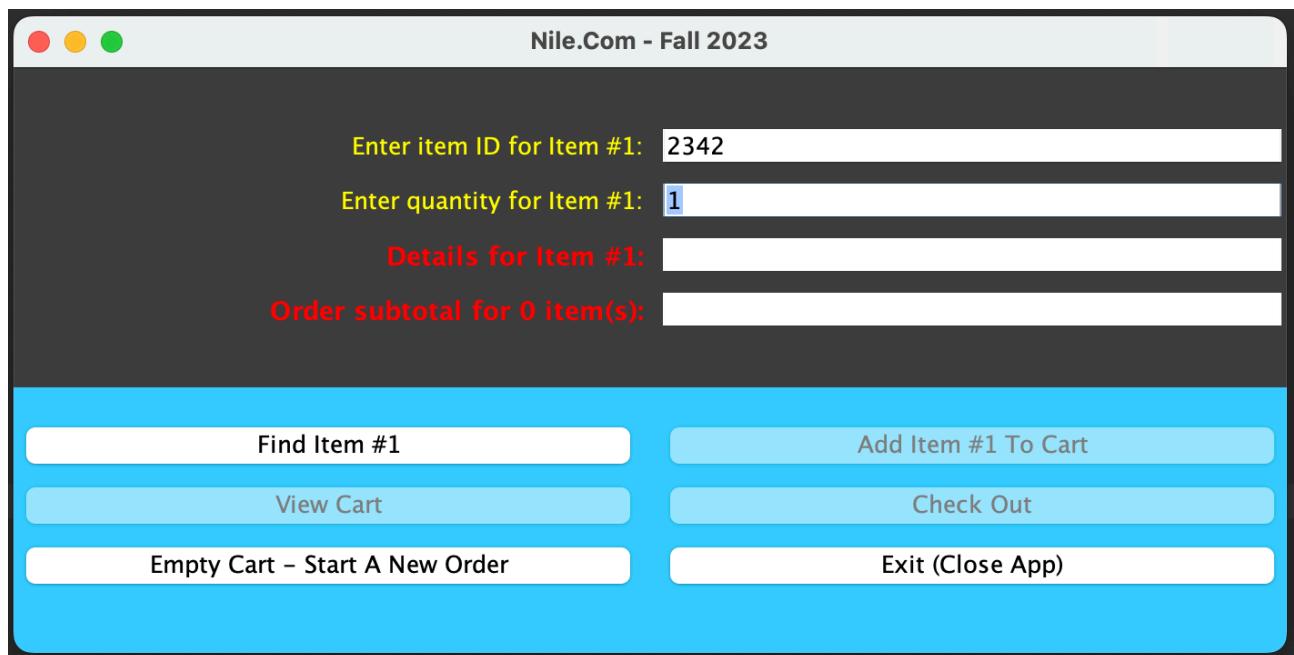


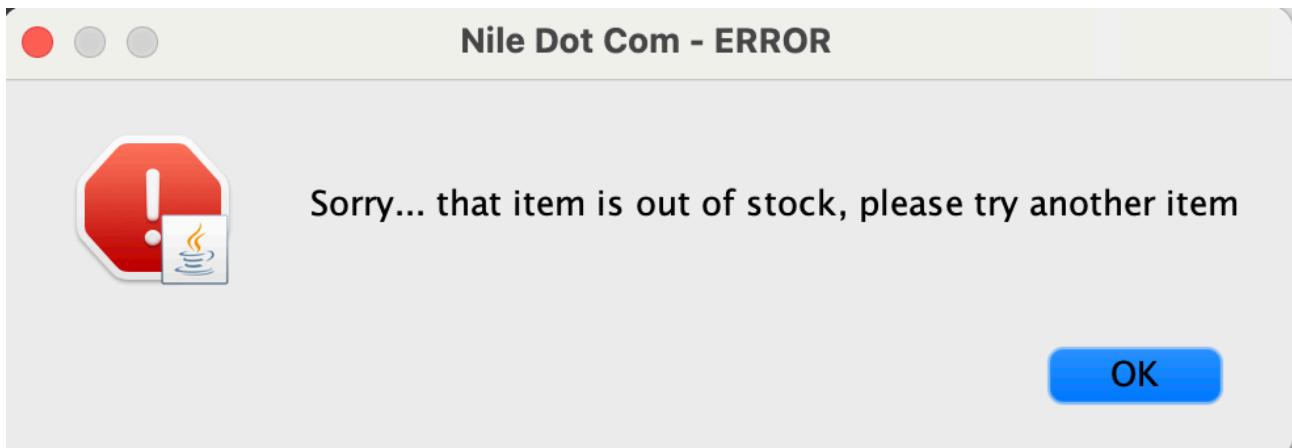
13. The transactions.csv file after order shown above was finished. Note the unique transaction id is based on the date and time.



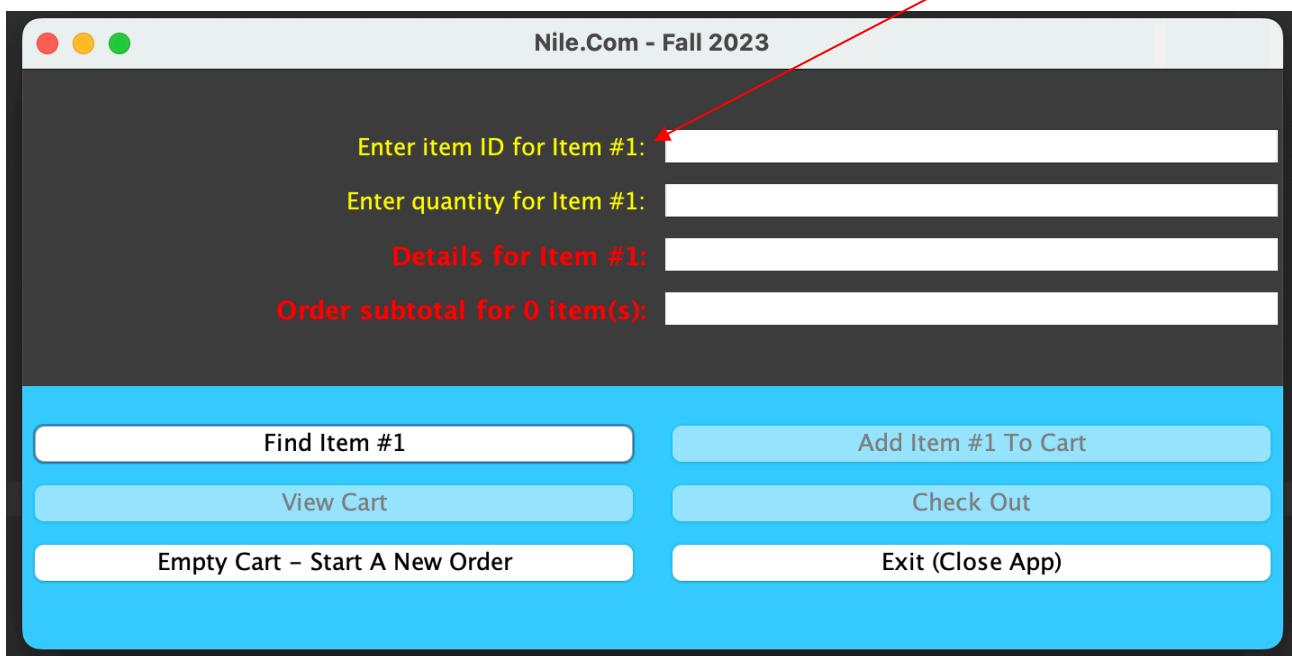
The transaction occurred on 08/21/2023 at 18:53:34 (6:53:34pm). See the invoice message above. Permutation used here is: DDMMYYYYHHMMSS.

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), 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.





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.

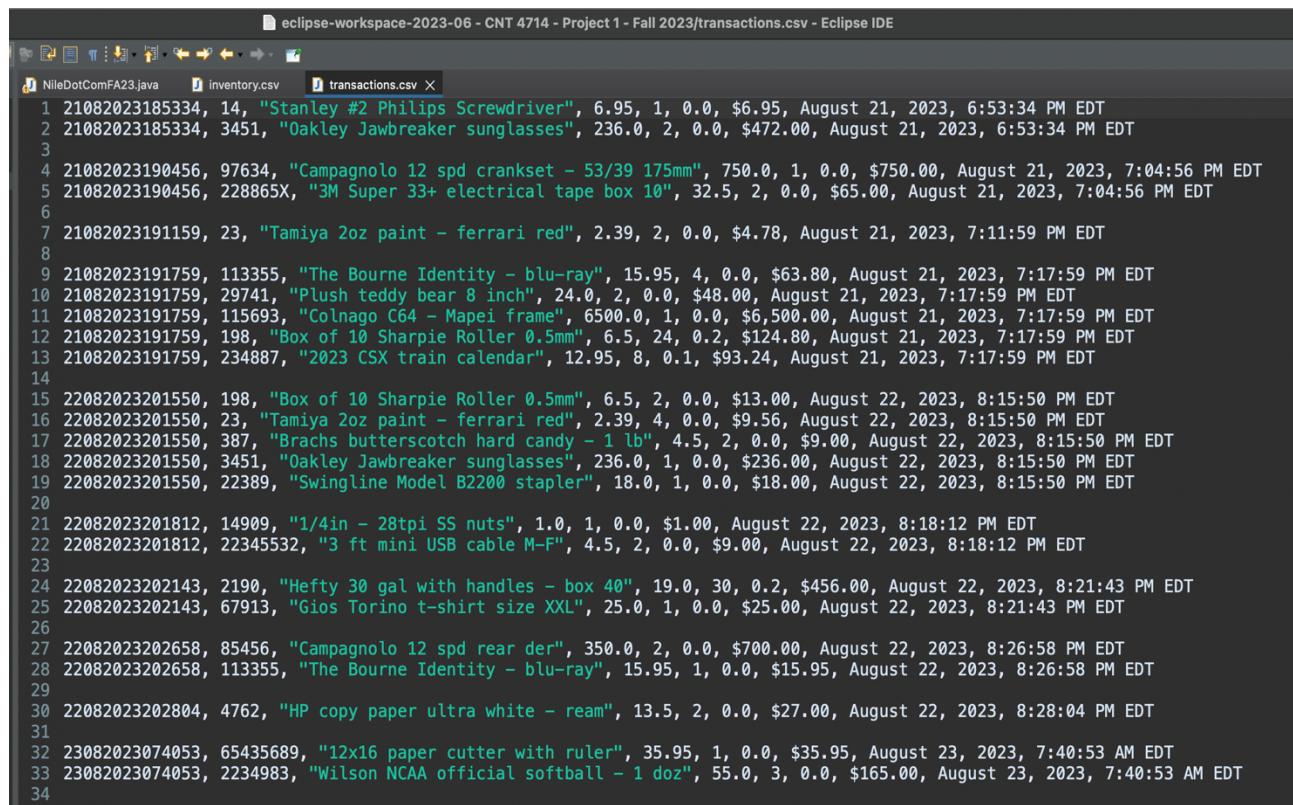


15. The GUI after the user has clicked the “Check Out” button and also clicked “OK” on the invoice dialog box.



Notice that ID and quantity fields are no longer editable, since the order has been completed. Thus a new order must be started.(A little hard to see here, but the fields are greyed out and not editable – stands out more on a Windows OS. I will live-demo this during Q&A sessions.)

16. The transaction file after several orders have been completed. Note the unique transaction ids based on the date and time for every separate transaction. This file shows ten separate transactions.

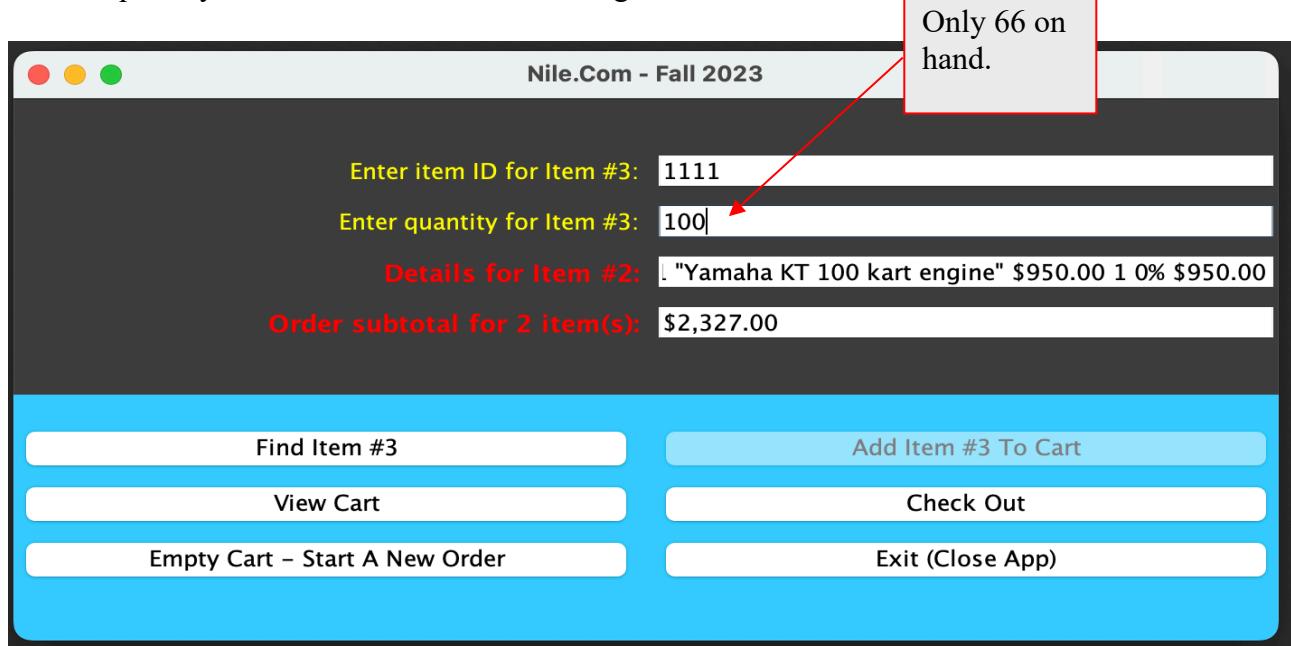


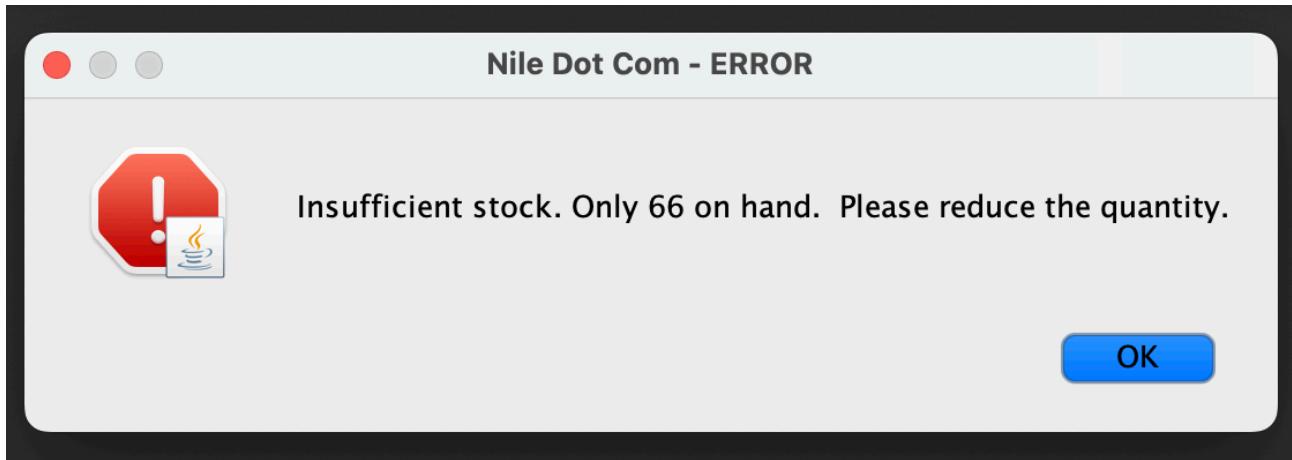
```

eclipse-workspace-2023-06 - CNT 4714 - Project 1 - Fall 2023/transactions.csv - Eclipse IDE
NileDotComFA23.java inventory.csv transactions.csv
1 21082023185334, 14, "Stanley #2 Philips Screwdriver", 6.95, 1, 0.0, $6.95, August 21, 2023, 6:53:34 PM EDT
2 21082023185334, 3451, "Oakley Jawbreaker sunglasses", 236.0, 2, 0.0, $472.00, August 21, 2023, 6:53:34 PM EDT
3
4 21082023190456, 97634, "Campagnolo 12 spd crankset - 53/39 175mm", 750.0, 1, 0.0, $750.00, August 21, 2023, 7:04:56 PM EDT
5 21082023190456, 228865X, "3M Super 33+ electrical tape box 10", 32.5, 2, 0.0, $65.00, August 21, 2023, 7:04:56 PM EDT
6
7 21082023191159, 23, "Tamiya 2oz paint - ferrari red", 2.39, 2, 0.0, $4.78, August 21, 2023, 7:11:59 PM EDT
8
9 21082023191759, 113355, "The Bourne Identity - blu-ray", 15.95, 4, 0.0, $63.80, August 21, 2023, 7:17:59 PM EDT
10 21082023191759, 29741, "Plush teddy bear 8 inch", 24.0, 2, 0.0, $48.00, August 21, 2023, 7:17:59 PM EDT
11 21082023191759, 115693, "Colnago C64 - Mapei frame", 6500.0, 1, 0.0, $6,500.00, August 21, 2023, 7:17:59 PM EDT
12 21082023191759, 198, "Box of 10 Sharpie Roller 0.5mm", 6.5, 24, 0.2, $124.80, August 21, 2023, 7:17:59 PM EDT
13 21082023191759, 234887, "2023 CSX train calendar", 12.95, 8, 0.1, $93.24, August 21, 2023, 7:17:59 PM EDT
14
15 22082023201550, 198, "Box of 10 Sharpie Roller 0.5mm", 6.5, 2, 0.0, $13.00, August 22, 2023, 8:15:50 PM EDT
16 22082023201550, 23, "Tamiya 2oz paint - ferrari red", 2.39, 4, 0.0, $9.56, August 22, 2023, 8:15:50 PM EDT
17 22082023201550, 387, "Brachs butterscotch hard candy - 1 lb", 4.5, 2, 0.0, $9.00, August 22, 2023, 8:15:50 PM EDT
18 22082023201550, 3451, "Oakley Jawbreaker sunglasses", 236.0, 1, 0.0, $236.00, August 22, 2023, 8:15:50 PM EDT
19 22082023201550, 22389, "Swingline Model B2200 stapler", 18.0, 1, 0.0, $18.00, August 22, 2023, 8:15:50 PM EDT
20
21 22082023201812, 14909, "1/4in - 28tpi SS nuts", 1.0, 1, 0.0, $1.00, August 22, 2023, 8:18:12 PM EDT
22 22082023201812, 22345532, "3 ft mini USB cable M-F", 4.5, 2, 0.0, $9.00, August 22, 2023, 8:18:12 PM EDT
23
24 22082023202143, 2190, "Hefty 30 gal with handles - box 40", 19.0, 30, 0.2, $456.00, August 22, 2023, 8:21:43 PM EDT
25 22082023202143, 67913, "Gios Torino t-shirt size XXL", 25.0, 1, 0.0, $25.00, August 22, 2023, 8:21:43 PM EDT
26
27 22082023202658, 85456, "Campagnolo 12 spd rear der", 350.0, 2, 0.0, $700.00, August 22, 2023, 8:26:58 PM EDT
28 22082023202658, 113355, "The Bourne Identity - blu-ray", 15.95, 1, 0.0, $15.95, August 22, 2023, 8:26:58 PM EDT
29
30 22082023202804, 4762, "HP copy paper ultra white - ream", 13.5, 2, 0.0, $27.00, August 22, 2023, 8:28:04 PM EDT
31
32 23082023074053, 65435689, "12x16 paper cutter with ruler", 35.95, 1, 0.0, $35.95, August 23, 2023, 7:40:53 AM EDT
33 23082023074053, 2234983, "Wilson NCAA official softball - 1 doz", 55.0, 3, 0.0, $165.00, August 23, 2023, 7:40:53 AM EDT
34

```

17. If the user selects an item that is in stock but they select a quantity to purchase that is larger than the quantity of the item on hand, the message shown below should be displayed to the user.





Nile.Com - Fall 2023

Enter item ID for Item #3: 1111

Enter quantity for Item #3:

Details for Item #2: "Yamaha KT 100 kart engine" \$950.00 1 0% \$950.00

Order subtotal for 2 item(s): \$2,327.00

Find Item #3

Add Item #3 To Cart

View Cart

Check Out

Empty Cart – Start A New Order

Exit (Close App)

Only the quantity field is cleared, the item id remains intact. User should now enter a quantity <= 66.