

CNT 4714 – Project 1 – Fall 2021

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

Points: 100 points

Due Date: **Sunday September 12, 2021 by 11:59 pm (WebCourses time)**

Objectives:

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

Description: Develop a Java program 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 appends 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. 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.txt`”. 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 four entries; an item id (a string), a quoted string containing the description of the item, in stock status (a string), 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.txt`” 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 2021  
   Assignment title: Project 1 – Event-driven Enterprise Simulation  
   Date: Sunday September 12, 2021  
*/
```

Input Specification: The file “`inventory.txt`” 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.txt" log file that will be generated.

Deliverables:

- (1) Submit a working copy of your source code (all .java files), including your `inventory.txt` file and your `transaction.txt` file, via WebCourses no later than 11:59pm Sunday September 12, 2021.
- (2) Include a file that contains screen shots, similar to those illustrated below, that shows your application in action as a user interacts with your e-store to purchase items. Provide screenshots that show each step in a "normal successful" purchasing session with multiple products as well as some of the typical error conditions (e.g., product not in stock, and product not found.)
- (3) Include a screen shot of your "transactions.txt" file showing at least the last few transactions (similar to the one shown on the last page of this document). There should be a minimum of five different transactions represented in the transaction file.
- (4) You can zip all of the above into a single folder.

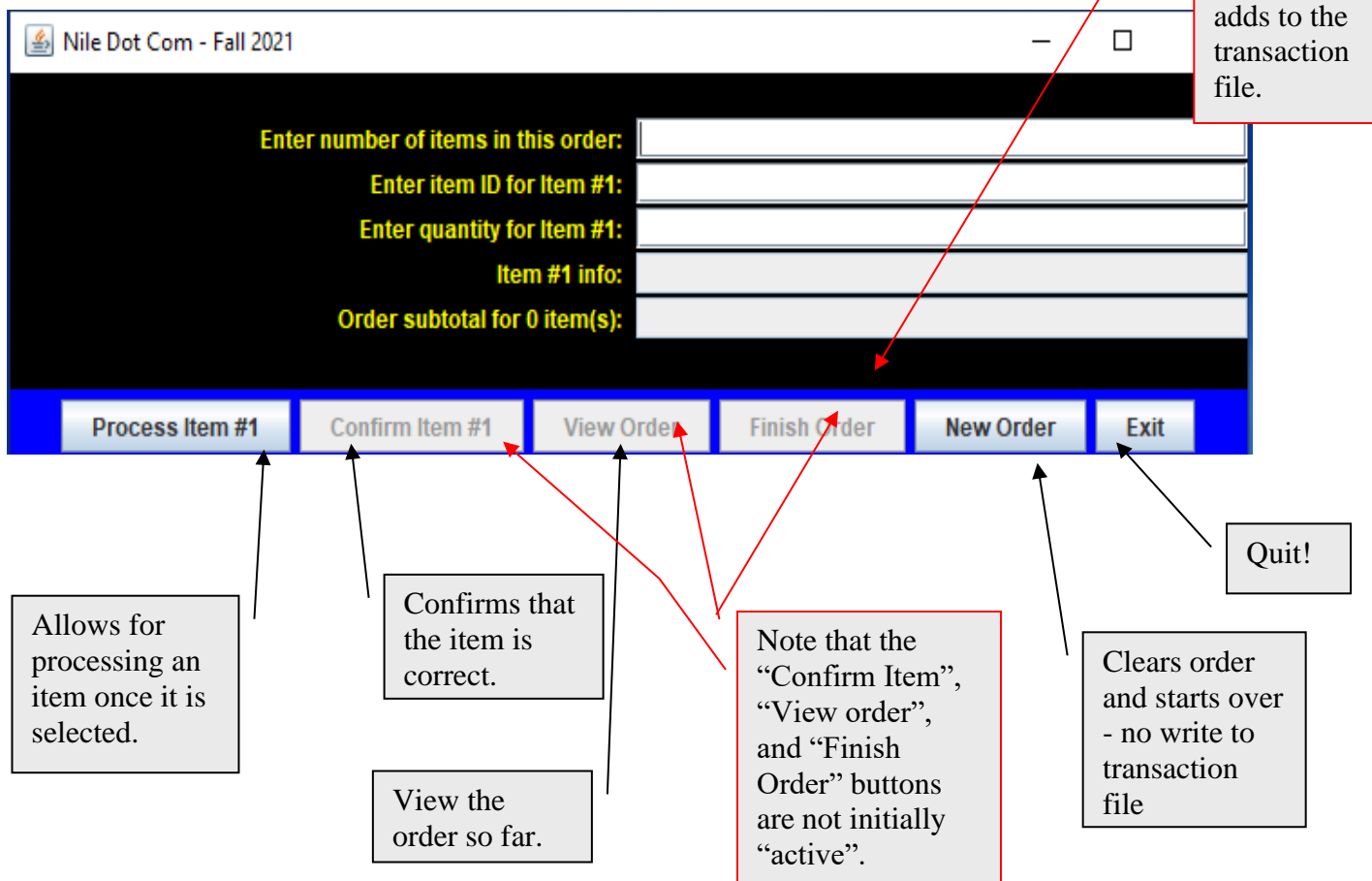
Additional Information:

Shown below are example screen shots of the GUI to help illustrate how your application is to operate.

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

```
1 114, "Stanley #2 Philips Screwdriver", true, 6.95
2 22342, "Polar USB mini desk fan", false, 10.50
3 322389, "Swingline Model B2200 stapler", true, 18.00
4 43451, "Oakley Jawbreaker sunglasses", true, 236.00
5 54452, "Colnago stem - black 130mm", false, 145.99
6 656718, "Tamiya McLaren MP4-8 Ford 1/20", false, 75.00
7 714909, "1/4in - 28tpi SS nuts", true, 1.00
8 82190, "Hefty 30 gal with handles - box 40", true, 19.00
9 922345532, "3 ft mini USB cable M-F", true, 4.50
10 10678944, "EZ-ink cartridge set for Epson 4630", false, 75.00
11 11234887, "2021 CSX train calendar", true, 12.95
12 12198, "Box of 10 Sharpie Roller 0.5mm", true, 6.50
13 13298765, "3x5 index cards - 100 count", true, 2.25
14 147654, "Bell Stratos helmet - size lg - blue", false, 230.00
15 1565435689, "12x16 paper cutter with ruler", true, 35.95
16 168543, "Ritchey 1 inch threaded headset - silver", true, 45.00
17 1738712987, "Wilson NCAA official softball - 1 ea", true, 5.50
18 182234983, "Wilson NCAA official softball - 1 doz", true, 55.00
19 1923, "Tamiya 2oz paint - ferrari red", true, 2.39
20 2097634, "Campagnolo 12 spd crankset - 53/39 175mm", true, 750.00
21 2185456, "Campagnolo 12 spd rear der", true, 350.00
22 2267913, "Gios Torino t-shirt size XXL", true, 25.00
23 23387, "Brachs butterscotch hard candy - 1 lb", true, 4.50
24 24113355, "The Bourne Identity - blu-ray", true, 15.95
25 251111, "Top Secret Twenty One - Janet Evanovich", true, 8.99
26 26286934, "1 lb - coffee beans", true, 6.50
27 27358922, "25 lbs peanuts in shell", false, 45.00
28 2847831, "8x10 picture frame", true, 4.95
29 2919981, "Pledge furniture polish 13oz", true, 6.50
30 30228865, "3M Super 33+ electrical tape", true, 3.50
31 31228865X, "3M Super 33+ electrical tape box 10", true, 32.50
32 324762, "HP copy paper ultra white - ream", true, 13.50
33 3329741, "Plush teddy bear 8 inch", true, 24.00
34 34339921, "Yamaha KT 100 kart engine", true, 950.00
35 35115693, "Colnago C64 - Mapei frame", true, 6500.00
36 36582913, "Look Keo 2 Max pedals", true, 135.00
37 374499120, "M&Ms dark chocolate w/peanuts - 3oz", true, 2.50
38 38268, "Sidi Wire 2 carbon shoes", true, 499.99
39 3989476, "Assos T-Evo shorts", true, 299.95
40 40245667, "Colnago jersey - size 6", true, 120.00
41
```

2. Initial GUI:

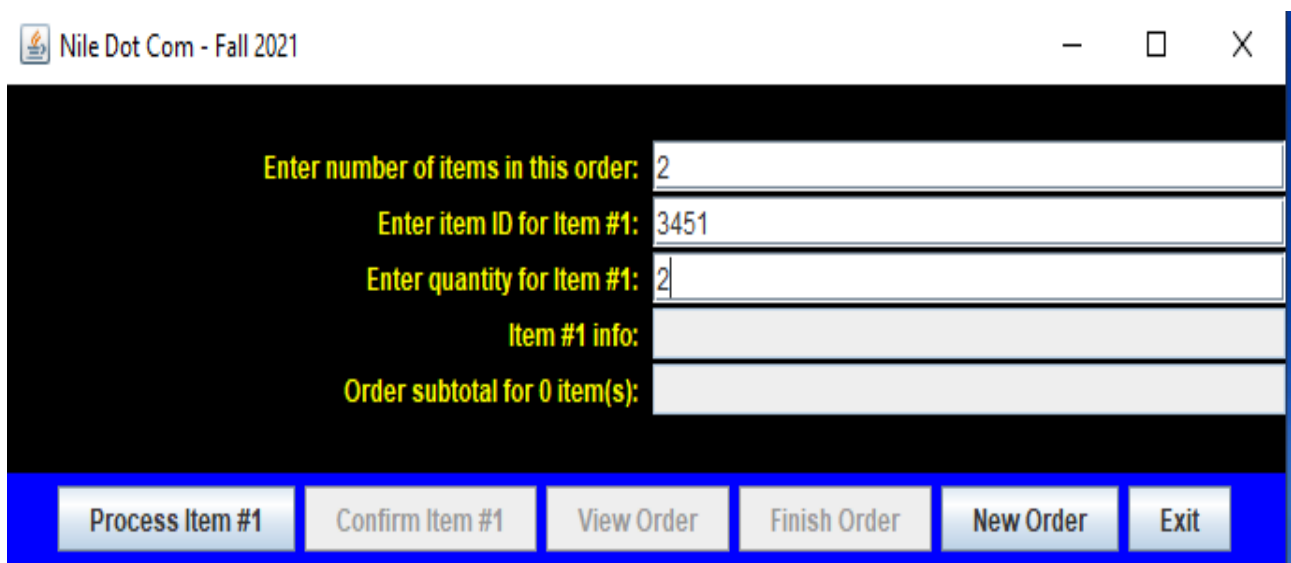


The initial GUI of the application is titled "Nile Dot Com - Fall 2021". It features a dark blue background with yellow text for labels. The labels are: "Enter number of items in this order:", "Enter item ID for Item #1:", "Enter quantity for Item #1:", "Item #1 info:", and "Order subtotal for 0 item(s):". Each label is followed by a white input field. Below the input fields is a blue bar containing six buttons: "Process Item #1", "Confirm Item #1", "View Order", "Finish Order", "New Order", and "Exit".

Annotations for the initial GUI:

- Process Item #1:** Allows for processing an item once it is selected.
- Confirm Item #1:** Confirms that the item is correct.
- View Order:** View the order so far.
- Finish Order:** Note that the "Confirm Item", "View order", and "Finish Order" buttons are not initially "active".
- New Order:** Clears order and starts over - no write to transaction file.
- Exit:** Quit!
- Order subtotal for 0 item(s):** Completes an order – generates invoice and adds to the transaction file.

3. GUI after user specifies total number of items in the order and makes a selection for item #1, but before clicking the "Process Item" button.



The GUI after user input shows the following values in the input fields:

- Enter number of items in this order: 2
- Enter item ID for Item #1: 3451
- Enter quantity for Item #1: 2
- Item #1 info: (empty)
- Order subtotal for 0 item(s): (empty)

The buttons at the bottom remain the same: "Process Item #1", "Confirm Item #1", "View Order", "Finish Order", "New Order", and "Exit".

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

The screenshot shows a window titled "Nile Dot Com - Fall 2021". The main area has a black background with yellow text prompts and white input fields. The prompts and their corresponding values are:

- Enter number of items in this order: 2
- Enter item ID for Item #1: 3451
- Enter quantity for Item #1: 2
- Item #1 info: 3451 "Oakley Jawbreaker sunglasses" \$236.00 2 0% \$472.00
- Order subtotal for 0 item(s):

At the bottom, there is a blue bar with several buttons: "Process Item #1", "Confirm Item #1", "View Order", "Finish Order", "New Order", and "Exit". The "Confirm Item #1" button is highlighted in blue, indicating it is active, while the "Process Item #1" button is grey, indicating it is inactive. Two callout boxes provide additional information:

- A box pointing to the "Confirm Item #1" button states: "Note that the “Confirm Item #1” button is now active and the “Process Item #1” button is inactive."
- A box pointing to the "Item #1 info" field states: "Information on the item selected/purchased has been extracted from the inventory file and written into the window on the line for item #1. Note proper currency formatting."

5. When the user clicks on the “Confirm Item #1” button, a confirmation information message appears on the screen.

The first screenshot shows a window titled "Nile Dot Com - Item Confirmed" with a close button (X). It contains an information icon (i) and the text "Item #1 accepted. Added to your cart." with an "OK" button below it.

The second screenshot shows a window titled "Nile Dot Com - ERROR" with a close button (X). It contains an error icon (X) and the text "item ID 3 not in file" with an "OK" button below it. An arrow points from this window to a callout box.

User entered an incorrect item ID. This message would be displayed when user pressed the Process Item button. This is the only “error” you will need to catch.

6. The main GUI after the user has confirmed the first item.

Nile Dot Com - Fall 2021

Enter number of items in this order: 2

Enter item ID for Item #2:

Enter quantity for Item #2:

Item #1 info: 3451 "Oakley Jawbreaker sunglasses" \$236.00 2 0% \$472.00

Order subtotal for 1 item(s): \$472.00

Buttons: Process Item #2, Confirm Item #2, View Order, Finish Order, New Order, Exit

Discount is based on the quantity of a item. If:
 1-4 = 0%
 5-9 = 10%
 10-14 = 15%
 >=15 = 20%

Note that the buttons change number.

Note that the text areas for entering the second item information are cleared and ready for input.

Subtotal should reflect current total of all confirmed items.

Information for previous item remains on display.

7. User enters and processes (but has not yet confirmed) the next item in the order (which is the last one for this order).

Nile Dot Com - Fall 2021

Enter number of items in this order: 2

Enter item ID for Item #2: 23

Enter quantity for Item #2: 5

Item #2 info: 23 "Tamiya 2oz paint - ferrari red" \$2.39 5 10% \$10.76

Order subtotal for 1 item(s): \$472.00

Buttons: Process Item #2, Confirm Item #2, View Order, Finish Order, New Order, Exit

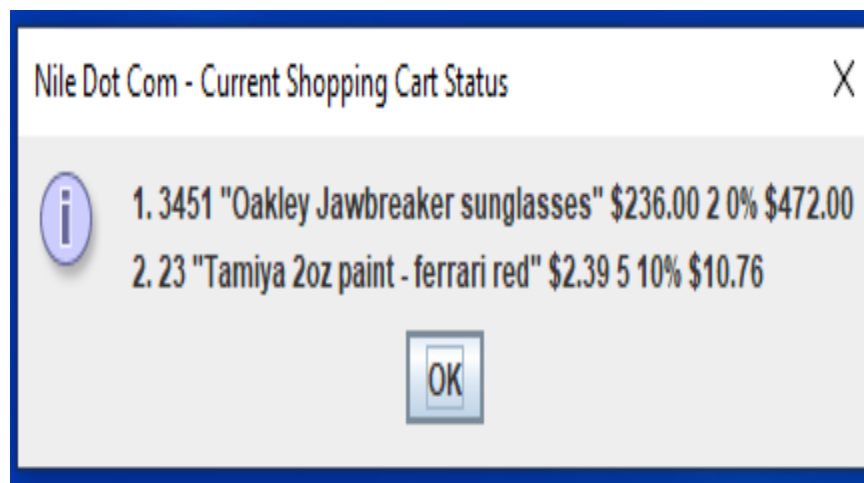
8. The GUI after the user has entered the information for all the items and confirmed the last item.

The screenshot shows a window titled "Nile Dot Com - Fall 2021". The main area has a black background with yellow text labels and white input fields. The labels and their corresponding values are:

- Number of items in this order:** 2
- Item #2 info:** 23 "Tamiya 2oz paint - ferrari red" \$2.39 5 10% \$10.76
- Order subtotal for 2 item(s):** \$482.75


At the bottom, there is a blue bar containing six buttons: "Process Item", "Confirm Item", "View Order", "Finish Order", "New Order", and "Exit".

9. When the user clicks the "View Order" button, the following message box should appear.



10. When the user clicks the “Finish Order” button, the invoice message should be generated and displayed.

Nile Dot Com - Final Invoice

 **Date:** 8/24/21, 7:55:59 PM EDT

Number of line items: 2

Item# / ID / Title / Price / Qty / Disc % / Subtotal:

1.	3451	"Oakley Jawbreaker sunglasses"	\$236.00	2	0%	\$472.00
2.	23	"Tamiya 2oz paint - ferrari red"	\$2.39	5	10%	\$10.76

Order subtotal: \$482.75

Tax rate: 6%

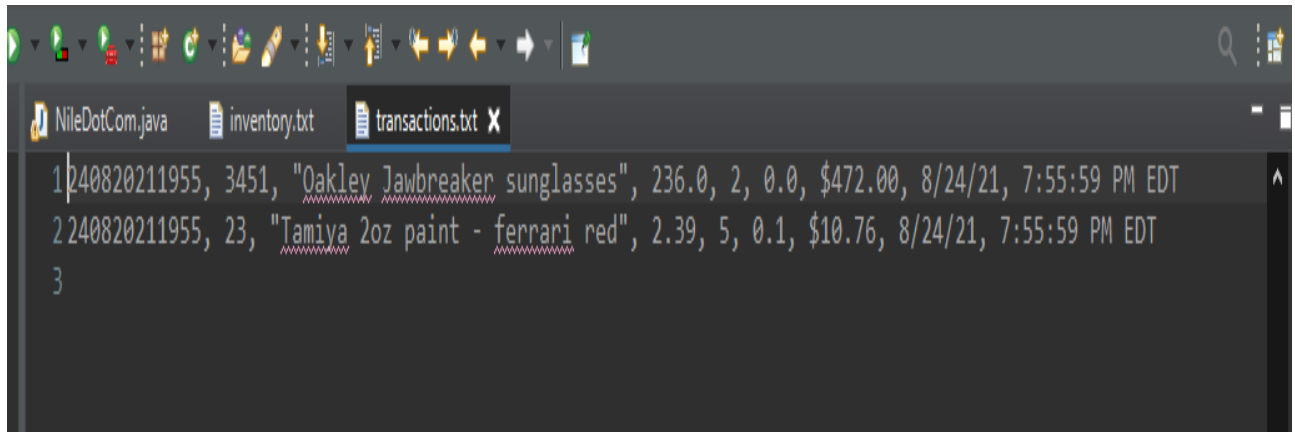
Tax amount: \$28.97

Order total: \$511.72

Thanks for shopping at Nile Dot Com!

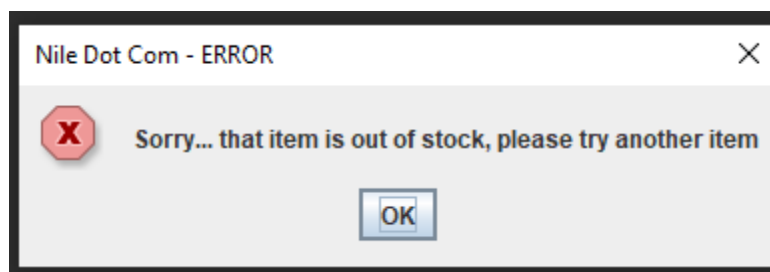
The date and time are used to create the unique transaction id in the “transactions.txt” file. For the invoice the format is “DD/MM/YY HH:MM:SS TMZ”

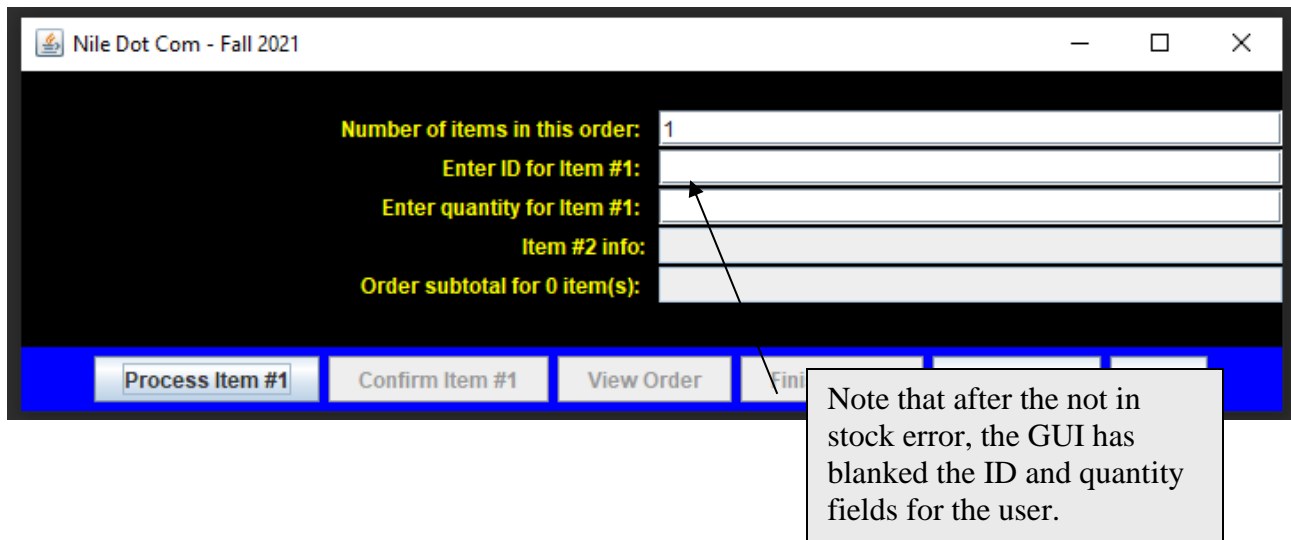
11. The transaction file after order shown above was finished. Note the unique transaction ids based on the date and time.



12. If the user enters an item number for an item that is not in stock, the following message will appear. The user must then enter a new item number for an in-stock item to continue processing the current transaction.

A screenshot of the 'Nile Dot Com - Fall 2021' application window. The window has a black background with yellow text. It contains several input fields and labels: 'Number of items in this order:' with a value of '1', 'Enter ID for Item #1:' with a value of '2342', 'Enter quantity for Item #1:' with a value of '1', 'Item #2 info:', and 'Order subtotal for 0 item(s):'. At the bottom, there is a blue bar with six buttons: 'Process Item #1', 'Confirm Item #1', 'View Order', 'Finish Order', 'New Order', and 'Exit'.





13. 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 seven separate transactions.

```

NileDotCom.java  inventory.txt  transactions.txt X
1240820211955, 3451, "Oakley Jawbreaker sunglasses", 236.0, 2, 0.0, $472.00, 8/24/21, 7:55:59 PM EDT
2240820211955, 23, "Tamiya 2oz paint - ferrari red", 2.39, 5, 0.1, $10.76, 8/24/21, 7:55:59 PM EDT
3240820212004, 113355, "The Bourne Identity - blu-ray", 15.95, 2, 0.0, $31.90, 8/24/21, 8:04:45 PM EDT
4240820212005, 115693, "Colnago C64 - Mapei frame", 6500.0, 1, 0.0, $6,500.00, 8/24/21, 8:05:43 PM EDT
5240820212005, 85456, "Campagnolo 12 spd rear der", 350.0, 1, 0.0, $350.00, 8/24/21, 8:05:43 PM EDT
6240820212007, 339921, "Yamaha KT 100 kart engine", 950.0, 2, 0.0, $1,900.00, 8/24/21, 8:07:15 PM EDT
7240820212007, 14909, "1/4in - 28tpi SS nuts", 1.0, 50, 0.2, $40.00, 8/24/21, 8:07:15 PM EDT
8240820212007, 38712987, "Wilson NCAA official softball - 1 ea", 5.5, 5, 0.1, $24.75, 8/24/21, 8:07:15 PM EDT
9240820212007, 268, "Sidi Wire 2 carbon shoes", 499.99, 1, 0.0, $499.99, 8/24/21, 8:07:40 PM EDT
10240820212009, 14, "Stanley #2 Philips Screwdriver", 6.95, 3, 0.0, $20.85, 8/24/21, 8:09:08 PM EDT
11240820212009, 67913, "Gios Torino t-shirt size XXL", 25.0, 1, 0.0, $25.00, 8/24/21, 8:09:08 PM EDT
12240820212009, 228865X, "3M Super 33+ electrical tape box 10", 32.5, 1, 0.0, $32.50, 8/24/21, 8:09:08 PM EDT
13240820212010, 4762, "HP copy paper ultra white - ream", 13.5, 1, 0.0, $13.50, 8/24/21, 8:10:21 PM EDT
14240820212010, 22345532, "3 ft mini USB cable M-F", 4.5, 1, 0.0, $4.50, 8/24/21, 8:10:21 PM EDT
15240820212012, 1111, "Top Secret Twenty One - Janet Evanovich", 8.99, 10, 0.15, $76.42, 8/24/21, 8:12:06 PM EDT
16

```