

CNT 4714 – Programming Assignment #1 – Fall 2019

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

Points: 100 points

Due Date: **Sunday September 15, 2019 by 11:59 pm (WebCourses time)**

Objectives: To practice event-driven programming using Java-based GUIs. To refresh your basic Java skills.

Description: Develop a Java program that creates a standalone GUI application (not an applet) that simulates an e-store which allows the user to add items (books) 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 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 three items; a book id, a quoted string containing the book title and author’s name, and the price for one copy of the book. A sample file is provided for you on WebCourses.
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.

Restrictions:

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

```
/* Name: <your name goes here>  
   Course: CNT 4714 – Fall 2019  
   Assignment title: Program 1 – Event-driven Programming  
   Date: Sunday September 15, 2019  
*/
```

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

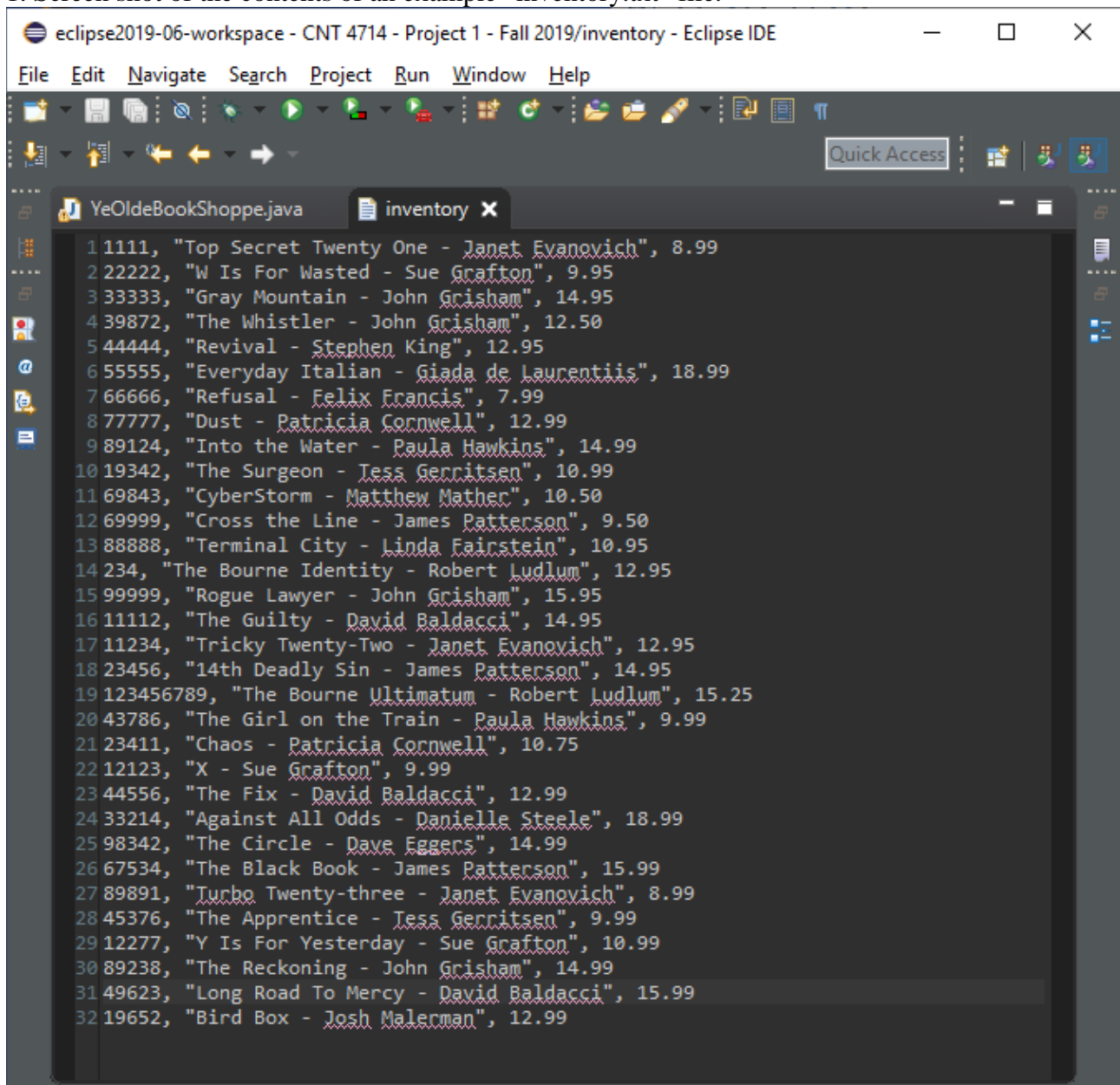
Deliverables:

- (1) Submit a working copy of your source code (all .java files), including your inventory.txt file, via WebCourses no later than 11:59pm Sunday September 15, 2019.
- (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 books.
- (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).

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 1111, "Top Secret Twenty One - Janet Evanovich", 8.99
2 22222, "W Is For Wasted - Sue Grafton", 9.95
3 33333, "Gray Mountain - John Grisham", 14.95
4 39872, "The Whistler - John Grisham", 12.50
5 44444, "Revival - Stephen King", 12.95
6 55555, "Everyday Italian - Giada de Laurentiis", 18.99
7 66666, "Refusal - Felix Francis", 7.99
8 77777, "Dust - Patricia Cornwell", 12.99
9 89124, "Into the Water - Paula Hawkins", 14.99
10 19342, "The Surgeon - Tess Gerritsen", 10.99
11 69843, "CyberStorm - Matthew Mather", 10.50
12 69999, "Cross the Line - James Patterson", 9.50
13 88888, "Terminal City - Linda Fairstein", 10.95
14 234, "The Bourne Identity - Robert Ludlum", 12.95
15 99999, "Rogue Lawyer - John Grisham", 15.95
16 11112, "The Guilty - David Baldacci", 14.95
17 11234, "Tricky Twenty-Two - Janet Evanovich", 12.95
18 23456, "14th Deadly Sin - James Patterson", 14.95
19 123456789, "The Bourne Ultimatum - Robert Ludlum", 15.25
20 43786, "The Girl on the Train - Paula Hawkins", 9.99
21 23411, "Chaos - Patricia Cornwell", 10.75
22 12123, "X - Sue Grafton", 9.99
23 44556, "The Fix - David Baldacci", 12.99
24 33214, "Against All Odds - Danielle Steele", 18.99
25 98342, "The Circle - Dave Eggers", 14.99
26 67534, "The Black Book - James Patterson", 15.99
27 89891, "Turbo Twenty-three - Janet Evanovich", 8.99
28 45376, "The Apprentice - Tess Gerritsen", 9.99
29 12277, "Y Is For Yesterday - Sue Grafton", 10.99
30 89238, "The Reckoning - John Grisham", 14.99
31 49623, "Long Road To Mercy - David Baldacci", 15.99
32 19652, "Bird Box - Josh Malerman", 12.99
```

2. Initial GUI:

The initial GUI of 'Ye Olde Book Shoppe' features a black background with yellow text for labels and a blue bar at the bottom for buttons. The labels and their corresponding input fields are:

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

The bottom bar contains six buttons: 'Process Item #1', 'Confirm Item #1', 'View Order', 'Finish Order', 'New Order', and 'Exit'. A 'Quit!' button is also present to the right of the bar.

Callouts explaining the buttons:

- 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 these buttons are not initially "active".
- New Order:** Clears order and starts over - no write to transaction file.
- Exit:** Completes an order – generates invoice and adds to the transaction file.
- Quit!:** Quit!

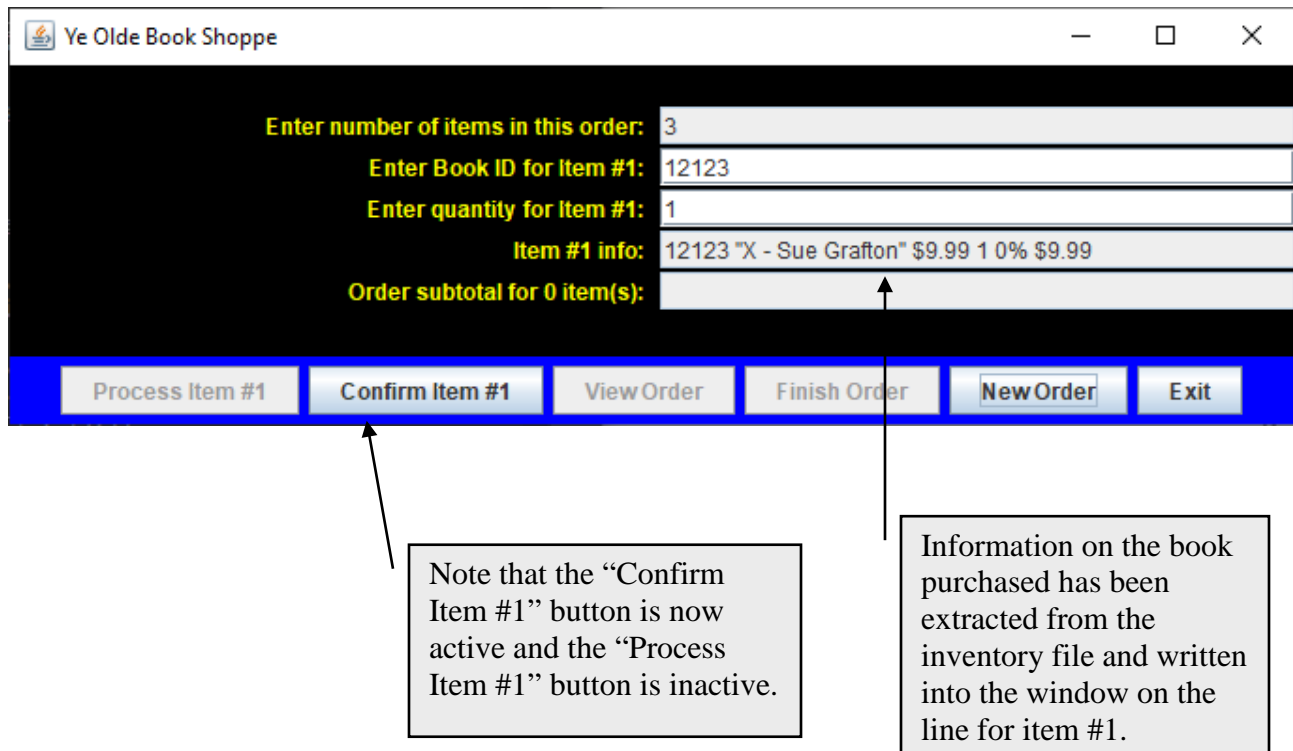
3. GUI after user specifies total number of items in the order and makes a selection for item #1.

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

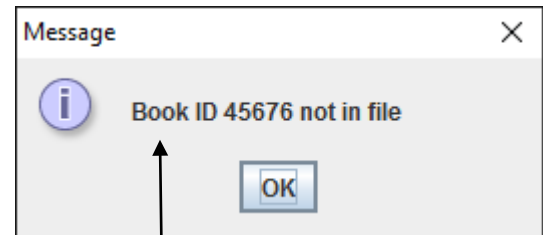
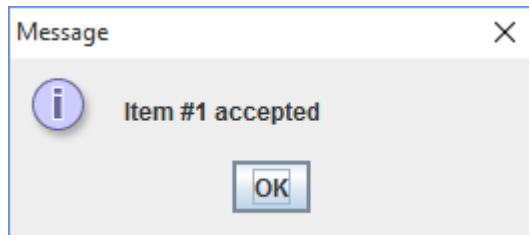
- Enter number of items in this order: 3
- Enter Book ID for Item #1: 12123
- Enter quantity for Item #1: 1
- Item #1 info:
- Order subtotal for 0 item(s):

The bottom bar contains the same six buttons: '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.



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



User entered an incorrect book 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.

Note that the buttons change number.

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

Ye Olde Book Shoppe

Enter number of items in this order: 3

Enter Book ID for Item #2:

Enter quantity for Item #2:

Item #1 info: 12123 "X - Sue Grafton" \$9.99 1 0% \$9.99

Order subtotal for 1 item(s): \$9.99

Process Item #2 Confirm Item #2 View Order Finish Order New Order Exit

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 next item in the order.

Ye Olde Book Shoppe

Enter number of items in this order: 3

Enter Book ID for Item #2: 88888

Enter quantity for Item #2: 2

Item #2 info: 88888 "Terminal City - Linda Fairstein" \$10.95 2 0% \$21.90

Order subtotal for 1 item(s): \$9.99

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 "Ye Olde Book Shoppe". The main area has a black background with yellow text. It displays the number of items in the order as 3, followed by two empty input fields. Below this, it shows "Item #3 info:" as "Tricky Twenty-Two - Janet Evanovich" with a price of \$12.95, an 8% discount, and a subtotal of \$93.24. The "Order subtotal for 3 item(s):" is \$125.13. At the bottom, there is a blue bar with six buttons: "Process Item", "Confirm Item", "View Order", "Finish Order", "New Order", and "Exit".

Number of items in this order:	3
Item #3 info:	"Tricky Twenty-Two - Janet Evanovich" \$12.95 8 10% \$93.24
Order subtotal for 3 item(s):	\$125.13

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

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


The screenshot shows a "Message" dialog box with a close button (X) in the top right corner. It contains a list of three items, each with a number, a description, a price, a discount, and a subtotal. An "OK" button is at the bottom.

1.	12123 "X - Sue Grafton"	\$9.99	1 0%	\$9.99
2.	88888 "Terminal City - Linda Fairstein"	\$10.95	2 0%	\$21.90
3.	11234 "Tricky Twenty-Two - Janet Evanovich"	\$12.95	8 10%	\$93.24

OK

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

Message

 **Date: 8/27/19, 1:37:54 PM EDT**

Number of line items: 3

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

1.	12123	"X - Sue Grafton"	\$9.99	1	0%	\$9.99
2.	88888	"Terminal City - Linda Fairstein"	\$10.95	2	0%	\$21.90
3.	11234	"Tricky Twenty-Two - Janet Evanovich"	\$12.95	8	10%	\$93.24

Order subtotal: \$125.13

Tax rate: 6%

Tax amount: \$7.51

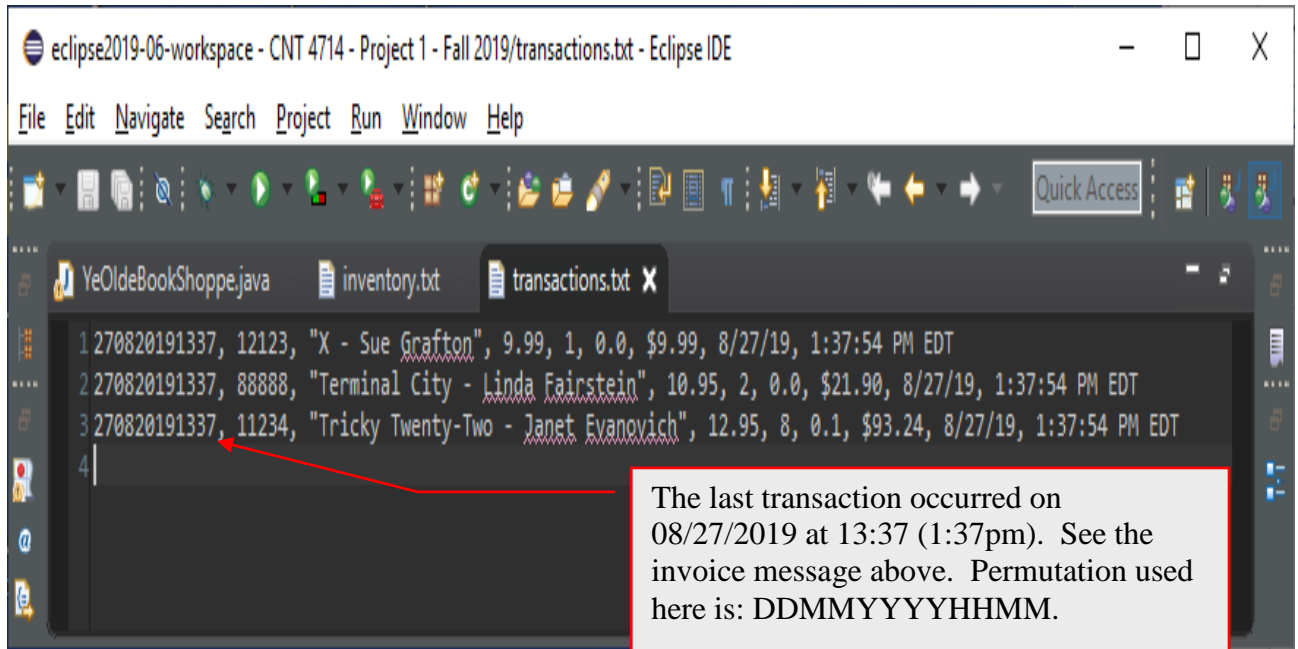
Order total: \$132.64

Thanks for shopping at the Ye Olde Book Shoppe!

OK

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.

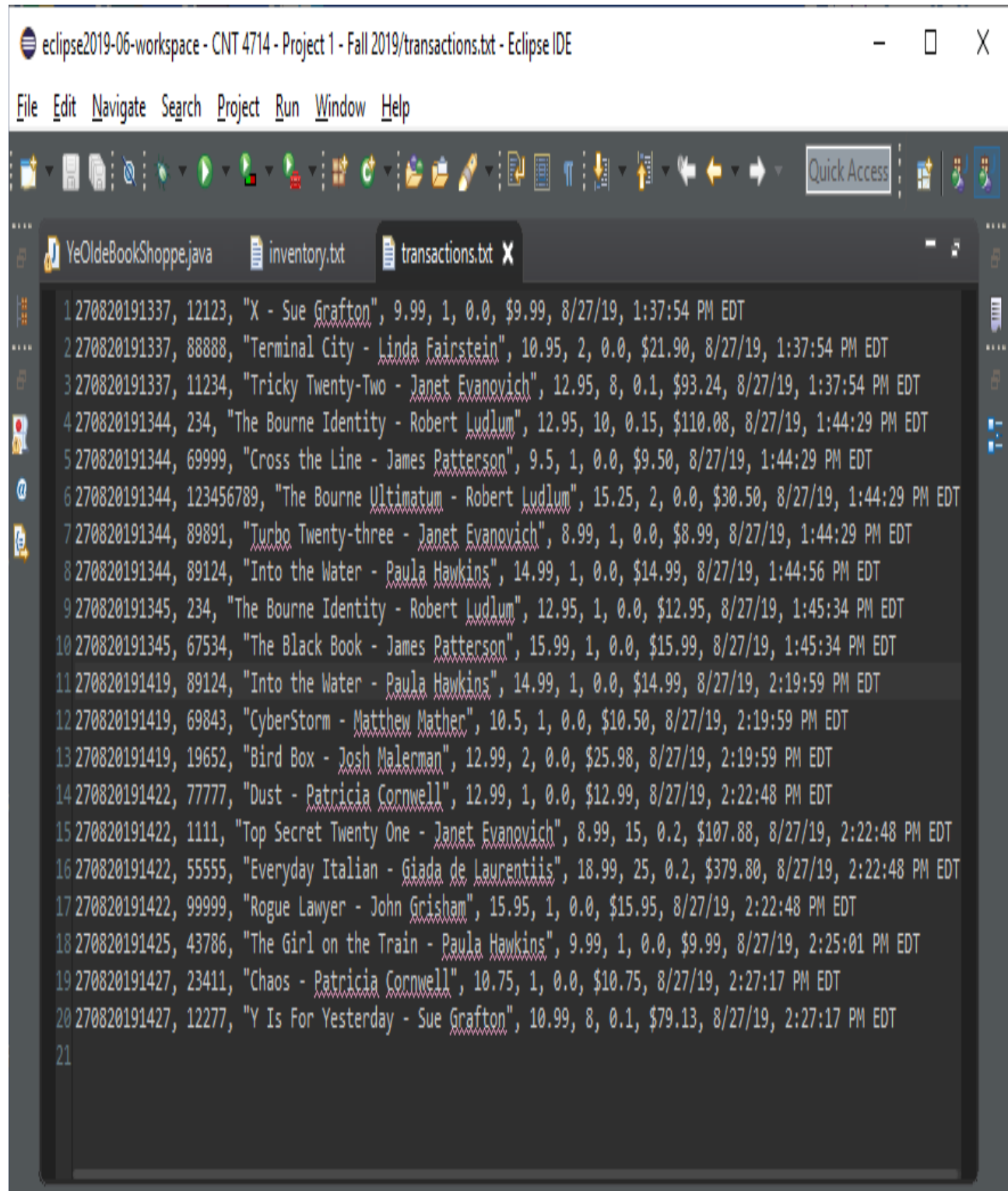


The screenshot shows the Eclipse IDE interface with the file 'transactions.txt' open. The file contains three lines of transaction data, each with a unique ID, item details, and a timestamp. A red arrow points to the third line, and a text box explains the date and time format.

```
1 270820191337, 12123, "X - Sue Grafton", 9.99, 1, 0.0, $9.99, 8/27/19, 1:37:54 PM EDT
2 270820191337, 88888, "Terminal City - Linda Fairstein", 10.95, 2, 0.0, $21.90, 8/27/19, 1:37:54 PM EDT
3 270820191337, 11234, "Tricky Twenty-Two - Janet Evanovich", 12.95, 8, 0.1, $93.24, 8/27/19, 1:37:54 PM EDT
4
```

The last transaction occurred on 08/27/2019 at 13:37 (1:37pm). See the invoice message above. Permutation used here is: DDMMYYYYHHMM.

12. 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.



The screenshot shows the Eclipse IDE interface. The title bar reads "eclipse2019-06-workspace - CNT 4714 - Project 1 - Fall 2019/transactions.txt - Eclipse IDE". The menu bar includes File, Edit, Navigate, Search, Project, Run, Window, and Help. The toolbar contains various icons for file operations and development tools. The editor window has three tabs: "YeOldeBookShope.java", "inventory.txt", and "transactions.txt". The "transactions.txt" tab is active, displaying a list of 20 transactions. Each line represents a transaction with a unique ID, a book title, author, price, quantity, and timestamp. The transactions are as follows:

ID	Book Title	Author	Price	Quantity	Timestamp
1270820191337	"X - Sue Grafton"	Sue Grafton	9.99	1	0.0, \$9.99, 8/27/19, 1:37:54 PM EDT
2270820191337	"Terminal City - Linda Fairstein"	Linda Fairstein	10.95	2	0.0, \$21.90, 8/27/19, 1:37:54 PM EDT
3270820191337	"Tricky Twenty-Two - Janet Evanovich"	Janet Evanovich	12.95	8	0.1, \$93.24, 8/27/19, 1:37:54 PM EDT
4270820191344	"The Bourne Identity - Robert Ludlum"	Robert Ludlum	12.95	10	0.15, \$110.08, 8/27/19, 1:44:29 PM EDT
5270820191344	"Cross the Line - James Patterson"	James Patterson	9.5	1	0.0, \$9.50, 8/27/19, 1:44:29 PM EDT
6270820191344	"The Bourne Ultimatum - Robert Ludlum"	Robert Ludlum	15.25	2	0.0, \$30.50, 8/27/19, 1:44:29 PM EDT
7270820191344	"Turbo Twenty-three - Janet Evanovich"	Janet Evanovich	8.99	1	0.0, \$8.99, 8/27/19, 1:44:29 PM EDT
8270820191344	"Into the Water - Paula Hawkins"	Paula Hawkins	14.99	1	0.0, \$14.99, 8/27/19, 1:44:56 PM EDT
9270820191345	"The Bourne Identity - Robert Ludlum"	Robert Ludlum	12.95	1	0.0, \$12.95, 8/27/19, 1:45:34 PM EDT
10270820191345	"The Black Book - James Patterson"	James Patterson	15.99	1	0.0, \$15.99, 8/27/19, 1:45:34 PM EDT
11270820191419	"Into the Water - Paula Hawkins"	Paula Hawkins	14.99	1	0.0, \$14.99, 8/27/19, 2:19:59 PM EDT
12270820191419	"CyberStorm - Matthew Mather"	Matthew Mather	10.5	1	0.0, \$10.50, 8/27/19, 2:19:59 PM EDT
13270820191419	"Bird Box - Josh Malerman"	Josh Malerman	12.99	2	0.0, \$25.98, 8/27/19, 2:19:59 PM EDT
14270820191422	"Dust - Patricia Cornwell"	Patricia Cornwell	12.99	1	0.0, \$12.99, 8/27/19, 2:22:48 PM EDT
15270820191422	"Top Secret Twenty One - Janet Evanovich"	Janet Evanovich	8.99	15	0.2, \$107.88, 8/27/19, 2:22:48 PM EDT
16270820191422	"Everyday Italian - Giada de Laurentiis"	Giada de Laurentiis	18.99	25	0.2, \$379.80, 8/27/19, 2:22:48 PM EDT
17270820191422	"Rogue Lawyer - John Grisham"	John Grisham	15.95	1	0.0, \$15.95, 8/27/19, 2:22:48 PM EDT
18270820191425	"The Girl on the Train - Paula Hawkins"	Paula Hawkins	9.99	1	0.0, \$9.99, 8/27/19, 2:25:01 PM EDT
19270820191427	"Chaos - Patricia Cornwell"	Patricia Cornwell	10.75	1	0.0, \$10.75, 8/27/19, 2:27:17 PM EDT
20270820191427	"Y Is For Yesterday - Sue Grafton"	Sue Grafton	10.99	8	0.1, \$79.13, 8/27/19, 2:27:17 PM EDT

