

**GIT Department of Computer Engineering**

**CSE 222/505 - Spring 2021  
Homework 6 # Report**

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## 1) PROBLEM SOLUTION APPROACH

At first I passed the data in the "e-commerce-samples" file to the ArrayList data structure. I sort the products in the ArrayList with QuickSort according to the traderName. The reason I use QuickSort is that it makes a difference because there is a lot of data. The reason I prefer ArrayList is that it performs set operations in a fast and fixed time. Then I transferred the data I sorted into new.csv file.

Then I had to create a membership for traders, while reading the "e-commerce-samples" file, I saved each trader in the TreeSet data structure. The reason I used TreeSet was that it did not take more than one of the same data and made it sequenced.

I kept the Trader and customer users I registered in separate HashTables. The reason I use HashTable is because searches are fixed time and each user has their own id.

I used LinkedList in user searches because while filtering, deletion of the linked list is fixed time. But since we cannot delete it while iterating, I store the data I want to delete in another linkedList and edit the old linkedList with the removeAll method.

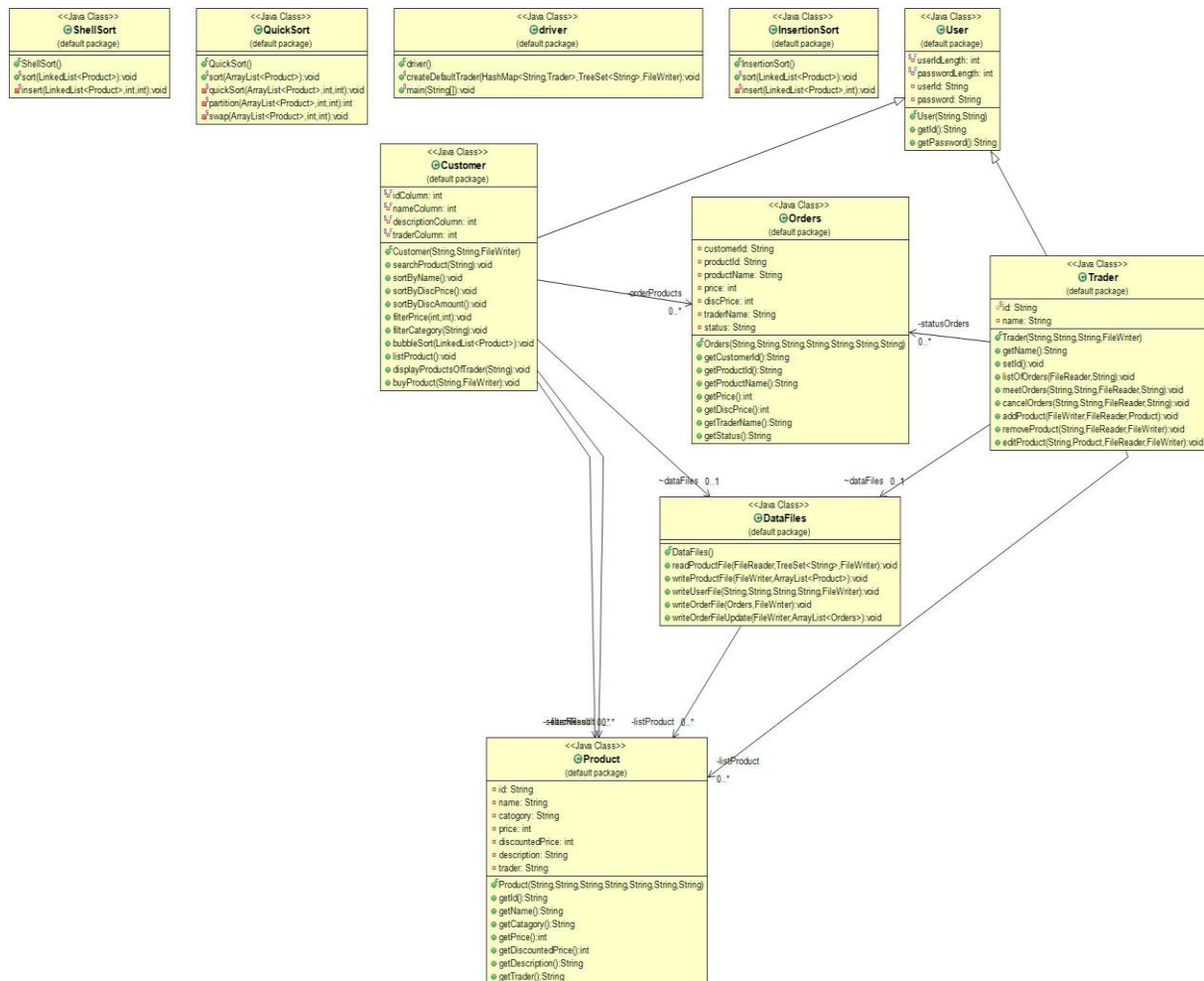
I used bubbleSort to sort search results by name, ShellSort to sort by price, and insertonSort to sort by discount rate.

I used the Deque data structure for ordering operations, because I thought it could be done with a constant time since the first order is more likely to come out first.

I used arraylist to keep the data when the trader confirms orders or add deletions, because after adding elements, there was no need for any action and it did each transaction at constant time.

For meet and cancel transactions, I assigned null to the order status while the user was placing an order. When the trader calls the transactions he wants to do, this assignment changes to meeted or canceled.

## 2)CLASS DIAGRAMS



### 3)TEST CASES

-User Registered

```
customerRecords.put("11111111", new Customer("11111111", "123456", csvWriterUser));
```

-User buy product.

```
customerRecords.get("22222222").buyProduct("SHTEHUY55ARGYFJS", new FileWriter("Order.csv", true));
```

-User search operation

```
customerRecords.get("11111111").searchProduct("shorts");
```

-Sort by Name

```
customerRecords.get("11111111").sortByName();
```

-Sort by discounted price

```
customerRecords.get("11111111").sortByDiscPrice();
```

-Sort by discount amount

```
customerRecords.get("11111111").sortByDiscAmount();
```

-Filter by Discounted Price

```
customerRecords.get("11111111").filterPrice(400, 600);
```

-Filter by category

```
customerRecords.get("11111111").filterCategory("Kids' Clothing");
```

-Display all products of trader

```
customerRecords.get("11111111").displayProductsOfTrader("Alisha");
```

- All orders to the trader

```
traderRecords.get("10000000").listOfOrders(csvReaderOrder, traderRecords.get("10000000").getName());
```

- Adding a new product by determining all the features of the product

```
traderRecords.get("10000007").addProduct(new FileWriter("new.csv", true), new FileReader("new.csv"),  
    new Product("bbbbbb", "Woman->shoes", "sport shoes", "1000", "700", "New product", traderRecords.get("10000007").getName()));
```

- Delete the product by entering the id of the product you want to delete

```
traderRecords.get("10000000").removeProduct("SHEHUY55ARGYFJS", new FileReader("new.csv"), new FileWriter("new.csv", true));
```

- Enter the id of the product you want to edit and the new information of the product

```
traderRecords.get("10000000").editProduct("SHEHUY4DGTGAYBS", new Product("SHEHUY4DGTGAYBS", "10AK Women's Floral Print Casual Shirt", "abc", "1000", "480", "abc", "10AK" ),  
new FileReader("new.csv"), new FileWriter("new.csv", true));
```

- Enter the id of the product you want to meet and the id of the user

```
traderRecords.get("10000000").meetOrders("SHEHUY4DGTGAYBS", "11111111", new FileReader("Order.csv"), "Order.csv");
```

- Enter the id of the product you want to cancel and the id of the user.

```
traderRecords.get("10000000").cancelOrders("SHEHUY55ARGYFJS", "22222222", new FileReader("Order.csv"), "Order.csv");
```

## 4)RUNNING AND RESULTS

### -Trader Register

1	Trader	10000000	123456	10AK	
2	Trader	10000001	123456	3D Mat	
3	Trader	10000002	123456	3a AUTOCARE	
4	Trader	10000003	123456	3a Autocare	
5	Trader	10000004	123456	3kFactory	
6	Trader	10000005	123456	4D	
7	Trader	10000006	123456	4D Mats	
8	Trader	10000007	123456	5 FEELINGS	
9	Trader	10000008	123456	612 League	
10	Trader	10000009	123456	69th Avenue	

### -Customer Register

3181	Customer	11111111	123456	null
3182	Customer	22222222	123456	null

## -Orders

11111111	SHTEHUY4	10AK Wor	899	675	10AK	null
22222222	SHTEHUY5	10AK Wor	799	599	10AK	null
11111111	CRTE4DY4	5 FEELING	3250	3200	5 FEELING	null

## -List of Orders for Trader

-----List of orders for Trader 10AK-----

11111111--SHTEHUY4DGTGAYBS--10AK Women's Floral Print Casual Shirt--675 10AK

22222222--SHTEHUY5ARGYFJS--10AK Women's Polka Print Casual Shirt--599 10AK

-----List of orders for Trader 5 FEELINGS-----

11111111--CRTE4DY4YV6KZCSK--5 FEELINGS wagon R 2010 small Car Mat Maruti WagonR--3200 5 FEELINGS

## -Add Product

19921	aaaaaaaa	Man->sho	sport shoe	1000	700	New produ	10AK	
19922	bbbbbbbbb	Woman->	sport shoe	1000	700	New produ	5 FEELINGS	

## -Before Remove Product

1	SHTEHUY4	10AK Wor	["Clothing	899	675	Key Featur	10AK		
2	SHTEHUY5	10AK Wor	["Clothing	799	599	Key Featur	10AK		
3	CRTE8ZZW	3D Mat Flc	["Automot	7250	6999	Buy 3D Ma	3D Mat		

## -After Remove Product

1	SHTEHUY4	10AK Wor	["Clothing	899	675	Key Featur	10AK		
2	CRTE8ZZW	3D Mat Flc	["Automot	7250	6999	Buy 3D Ma	3D Mat		
3	CRTEA7HA	3a AUTOC	["Automot	2600	1790	Buy 3a AU	3a AUTOCARE		

## -Before Edit Prodcut

1	SHTEHUY4	10AK Wor	["Clothing	899	675	Key Featur	10AK	
---	----------	----------	------------	-----	-----	------------	------	--

## -After Edit Product

1	SHTEHUY4	10AK Wor	abc	1000	480	abc	10AK
---	----------	----------	-----	------	-----	-----	------

## -Meeted Order

1	11111111	SHTEHUY4	10AK Wor	899	675	10AK	Meeted
2	22222222	SHTEHUY5	10AK Wor	799	599	10AK	null
3	11111111	CRTE4DY4	5 FEELING	3250	3200	5 FEELING	null

## -Cancelled Order

1	11111111	SHTEHUY4	10AK Wor	899	675	10AK	Meeted
2	22222222	SHTEHUY5	10AK Wor	799	599	10AK	Canceled
3	11111111	CRTE4DY4	5 FEELING	3250	3200	5 FEELING	null



## -Search and Filter by Category

-----All products with "shorts" in their name or description-----

AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--699--267--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
FS Mini Klub Printed Baby Girl's Basic Shorts--549--549--FS Mini Klub  
FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
HRX by Hrithik Roshan Full Sleeve Printed Men's Jacket--2599--1819--HRX by Hrithik Roshan  
L'appel Du vide Men's Vest--1598--699--L'appel Du vide  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
Leading lady Women's Camisole--380--315--Leading lady  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Niremo Loafers--999--499--Niremo  
Riot Jeans Casual Sleeveless Printed Women's Top--899--629--Riot Jeans  
Speedo Logo Panel Aquashort Graphic Print Men's--1399--1399--Speedo  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Texco Girl's Vest--1099--499--Texco  
YK Striped Baby Boy's Round Neck T-Shirt--399--399--YK  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK

-----Filter by "Kids' Clothing" category-----

AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Texco Girl's Vest--1099--499--Texco  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK



## -Search and filter by Disc. Price 400-600

-----All products with "shorts" in their name or description-----

AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--699--267--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
FS Mini Klub Printed Baby Girl's Basic Shorts--549--549--FS Mini Klub  
FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
HRX by Hrithik Roshan Full Sleeve Printed Men's Jacket--2599--1819--HRX by Hrithik Roshan  
L'appel Du vide Men's Vest--1598--699--L'appel Du vide  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
Leading lady Women's Camisole--380--315--Leading lady  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Niremo Loafers--999--499--Niremo  
Riot Jeans Casual Sleeveless Printed Women's Top--899--629--Riot Jeans  
Speedo Logo Panel Aquashort Graphic Print Men's--1399--1399--Speedo  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Texco Girl's Vest--1099--499--Texco  
YK Striped Baby Boy's Round Neck T-Shirt--399--399--YK  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK

-----Filter Disc. price range 400 and 600-----

Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
FS Mini Klub Printed Baby Girl's Basic Shorts--549--549--FS Mini Klub  
FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
Niremo Loafers--999--499--Niremo  
Texco Girl's Vest--1099--499--Texco  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK

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## -Sort By Name

-----Sort By Name-----

AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--699--267--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
FS Mini Klub Printed Baby Girl's Basic Shorts--549--549--FS Mini Klub  
FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
HRX by Hrithik Roshan Full Sleeve Printed Men's Jacket--2599--1819--HRX by Hrithik Roshan  
L'appel Du vide Men's Vest--1598--699--L'appel Du vide  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
Leading lady Women's Camisole--380--315--Leading lady  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Niremo Loafers--999--499--Niremo  
Riot Jeans Casual Sleeveless Printed Women's Top--899--629--Riot Jeans  
Speedo Logo Panel Aquashort Graphic Print Men's--1399--1399--Speedo  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Texco Girl's Vest--1099--499--Texco  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK  
YK Striped Baby Boy's Round Neck T-Shirt--399--399--YK

## -Sort by Disc. Price

-----Sort By Disc. Price-----

HRX by Hrithik Roshan Full Sleeve Printed Men's Jacket--2599--1819--HRX by Hrithik Roshan  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
Speedo Logo Panel Aquashort Graphic Print Men's--1399--1399--Speedo  
AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Lilliput Top Baby Girl's Combo--895--805--Lilliput  
L'appel Du vide Men's Vest--1598--699--L'appel Du vide  
Riot Jeans Casual Sleeveless Printed Women's Top--899--629--Riot Jeans  
FS Mini Klub Printed Baby Girl's Basic Shorts--549--549--FS Mini Klub  
FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
Texco Girl's Vest--1099--499--Texco  
Niremo Loafers--999--499--Niremo  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK  
YK Striped Baby Boy's Round Neck T-Shirt--399--399--YK  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Leading lady Women's Camisole--380--315--Leading lady  
Alisha Solid Women's Cycling Shorts--699--267--Alisha



## -Sort by Disc. Amaount

-----Sort By Disc. Amount-----

Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--699--267--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
L'appel Du vide Men's Vest--1598--699--L'appel Du vide  
Starsy Printed Girl's Round Neck White T-Shirt--799--359--Starsy  
Naughty Ninos Girl's White, Pink Dungaree--2199--999--Naughty Ninos  
Texco Girl's Vest--1099--499--Texco  
Niremo Loafers--999--499--Niremo  
AJ Dezines Boy's Pathani Suit Set--2149--1299--AJ Dezines  
HRX by Hrithik Roshan Full Sleeve Printed Men's Jacket--2599--1819--HRX by Hrithik Roshan  
Riot Jeans Casual Sleeveless Printed Women's Top--899--629--Riot Jeans  
Lilliput Girl's Blue Dungaree--2195--1646--Lilliput  
LITTLE FEETZ Baby Girl's Solid Top & Skirt Set--615--489--LITTLE FEETZ  
YK Printed Boy's Round Neck Dark Blue T-Shirt--549--439--YK  
Leading lady Women's Camisole--380--315--Leading lady  
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Lilliput Top Baby Girl's Combo--895--805--Lilliput  
Speedo Logo Panel Aquashort Graphic Print Men's--1399--1399--Speedo  
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FS Mini Klub Printed Baby Girl's Basic Shorts--499--499--FS Mini Klub  
YK Striped Baby Boy's Round Neck T-Shirt--399--399--YK

## -List All Prodcuts of Trader

-----All products of the trader Alisha-----

Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--1199--479--Alisha  
Alisha Solid Women's Cycling Shorts--699--267--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha  
Alisha Solid Women's Cycling Shorts--999--379--Alisha