Homework #6 - 1801042634

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Problem solutions approach

First of all I try to figure out, how can I store data's well organized.
After a long thinking and discussing ideas with my collagues, I solved doing this with sorting

I sorted all given data by their names ascending. Also I change they place, So sorting will gives both trader location, name and ID as well.

After that I have to use given data sturctures.

I use `hashMap` as Traders name as key and passwords as value.

I use `LinkedList` for sorting all values when first interacting with file

I use `queue` for `prioraityQueue` for keeping Customers Orders.

I use `ArrayList` too much. I think this data sturcture is easy to understnad.

I can not use a `Tree` because my time is finished while doing this homework.

But I could use tree structure while using sorting.

Another hard thing for this hw was using sort methods. So I use most of time `Selection sort` because it is easy to implement and easy to understand.
Java is a bit harder for sorting. Because I want to write a swap method but java native do not allows using referances as `C++` .

I handled this too using `set` methods as well.

Test Cases

In my `test.java` class, I use this intro

```
try {
    System.out.println("1-Sign Up Trader");
    System.out.println("2-Login Trader (Hint for test, All Passwords are 1234, Try @Home and 1234");
    System.out.println("3-Sign Up Customer");
    System.out.println("4-Exit");
```

Trader Menu

Trader menu has the following choices

```
public static void traderMenu(Company company, Trader trader) {
    System.out.println("Welcome to board " + trader.getName());
    while (true) {
    try {
        System.out.println("\nChose the following");
        System.out.println("1-See all your Products");
        System.out.println("2-Add Products");
        System.out.println("3-Edit Products");
        System.out.println("4-Remove Products");
        System.out.println("5-See Order List");
        System.out.println("6-Exit Trader Panel");
        System.out.println("7-Show Description info for products");
        System.out.println("8-Show Category info for products");
```

Customer Menu

Customer menu has the following choices

```
public static void CustomerMenu(Customer customer) {
    System.out.println("Welcome board + " + customer.getName());
    boolean showC = false, showD = false;
    while (true)
    {
    try
    {
        System.out.println("0-Search products by name and description");
        System.out.println("1-See Search Results (You should use after all search actions to see result)");
        System.out.println("2-Sort search results by name ascending");
        System.out.println("3-Sort search results by name descending");
        System.out.println("4-Sort search results by price ascending");
        System.out.println("5-Sort search results by price descending");
        System.out.println("6-Sort search results by discount percentage ascending");
        System.out.println("7-Sort search results by discount percentage descending");
        System.out.println("8-See a trader's products");
        System.out.println("9-Order Product from select search results");
        System.out.println("10-Open Category info");
        System.out.println("11-Open Description info");
        System.out.println("12-See orders");
        System.out.println("13-Exit to upper menu");
        int choice = getInt("Choice:");
```

Disgusted in Running Commands and Test Results section with more details

> 💡 I use boolean values for keeping to showing or not showing for description and category infos. They were too long and when writing to Terminal, They looks very bad. So I leave this option to user.

Running Command and Results

First Opening After typing make

```
> make
javac  CSE222_hw06/interface_oguz/*.java CSE222_hw06/src_oguz/*.java Test.java  -d cla
java -cp classfiles Test
1-Sign Up Trader
2-Login Trader (Hint for test, All Passwords are 1234, Try @home and 1234
3-Sign Up Customer
4-Exit
CHoice:
```

I gave a hint for loggining as a trader. All traders are have same passwords, So choisng randomly and entering 1234 to easy to allwos starting to test.
So we just listten to tip and type @home and 1234.

```
Name = @home
Login State + true
Name = @home
Welcome to board @home

Chose the following
1-See all your Products
2-Add Products
3-Edit Products
4-Remove Products
5-See Order List
6-Exit Trader Panel
7-Show Description info for products
8-Show Category info for products
Choice:Q
```

We logined as trader @home

Trader Menu

1- See all products

```
1
ID - Name - Price - Discount

Product ----1----
DTBE9ZHVEFSHKRGG        @home Annulus Solid Wood Dressing Table 22900    17745

Product ----2----
VASEJDBZMRZTZVS7        @home Earthy Wine Net Ceramic Vase        1499    1350

Product ----3----
VASEJDBZDNPPUFEK        @home Enchanted Cushion Ceramic Vase      1299    1170

Product ----4----
VASEHU9W3N9RDPGZ        @home Glass Vase          2299    2173
```

2- Add Product

```
8-Show Category info for products
Choice:2
Product Name:new
Product Price:10
Product Discount:5
Product Description:very important new item
When finish entering category levels, type -1
Category level :1 >> clothing
Category level :2 >> dress
Category level :3 >> pencil
Category level :4 >> -1
```

3- Edit Product

```
Product ----5----
1000001 new      10      5
Choice:2
Which values do you want to edit?
1-Change name
2-Change description
3-Change price
4-Change discount
5-Change category
6-Finish Editing
Choice:4
Discount:5
Which values do you want to edit?
1-Change name
2-Change description
3-Change price
4-Change discount
5-Change category
6-Finish Editing
Choice:6
```

4- Remove Product

```
Choice:4
Enter desired product number for removing
ID - Name - Price - Discount

Product ----1----
DTBE9ZHVEFSHKRGG         @home Annulus Solid Wood Dressing Table 22900    17745

Product ----2----
VASEJDBZMRZTZVS7         @home Earthy Wine Net Ceramic Vase        1499    5

Product ----3----
VASEJDBZDNPPUFEK         @home Enchanted Cushion Ceramic Vase     1299    1170

Product ----4----
VASEHU9W3N9RDPGZ         @home Glass Vase          2299    2173

Product ----5----
1000001 new     10      5
Choice:1
```

5- See Order List (not implemented :( )

7 and 8 with together and press 1 again

```
art
         Product ----2----
         VASEJDBZDNPPUFEK          @home Enchanted Cushion Ceramic Vase     1299     1170
         Key Features of @home Enchanted Cushion Ceramic Vase Material : CERAMIC Color :  GOLD has to be kept on Table decorative
          purpose,@home Enchanted Cushion Ceramic Vase (8.646 inch, Gold) Price: Rs. 1,170 VASE ENCH FRST CUSHION GLD 23X22CM,Spe
         cifications of @home Enchanted Cushion Ceramic Vase (8.646 inch, Gold) General Brand @home Suitable For Table Model Numb
         er HGFVSIMSTGLD00134 Type Vases Material Ceramic Model Name Enchanted Cushion Color Gold Dimensions Other Dimensions 23.
         5X12.5X22 (LXBXH) in cms Height 8.646 inch Width 9.2355 inch Depth 4.9125000000000005 inch Body & Design Features Shape
         Tumblers In the Box Sales Package 1 Vase Pack of 1
         Home Decor & Festive Needs  >>  Flowers, Plants & Vases  >>  Flower Vase  >>  @home Flower Vase  >>  @home Enchanted Cus
         hion Ceramic Vase (8.646 inch ...

         Product ----3----
         VASEHU9W3N9RDPGZ          @home Glass Vase          2299     2173
         Specifications of @home Glass Vase (18 inch, Grey) General Brand @home Suitable For Table Model Number HGFVSCGSTGRY00094
          Type Garden Decor Material Glass Color Grey Dimensions Height 18 inch Width 18 inch Depth 42 inch In the Box Sales Pack
         age 1 Vase Pack of 1
         Home Decor & Festive Needs  >>  Flowers, Plants & Vases  >>  Flower Vase  >>  @home Flower Vase  >>  @home Glass Vase (1
         8 inch, Grey)

         Product ----4----
         1000001 new      10      5
         very important new item
         clothing >> dress >> pencil
```

Notice that, printed with description and category info as well.

Customer Menu

```
4-Exit
CHoice:3
Name:new
Pass:customer
Welcome board + new
0-Search products by name and description
1-See Search Results (You should use after all search actions to see resul
2-Sort search results by name ascending
3-Sort search results by name descending
4-Sort search results by price ascending
5-Sort search results by price descending
6-Sort search results by discount percentage ascending
7-Sort search results by discount percentage descending
8-See a trader's products
9-Order Product from select search results
10-Open Category info
11-Open Description info
12-See orders
13-Exit to upper menu
Choice:
```

0- Search

I typed search value as a point

```
 15 EXIL to upper menu
Choice:0
Enter a word for search:point
Matched Product ------ 1 ------
PENEH9CJHKN5KYJB         Bemoree Exclusive Ball Pen        399      249
Matched Product ------ 2 ------
SHOEGHFQKGQVSGHH         DressBerry Bellies      1799      1259
Matched Product ------ 3 ------
PBREH6ZNVKHMUKS5         Escoda Round Paint Brushes       4335     4335
Matched Product ------ 4 ------
JEAEGP3SASYHPJVB         fashion point SLIM Fit Girl's Jeans      1499      799
Matched Product ------ 5 ------
SHOEHX7JCNXWHWHZ         GLAMWALK Festive Bellies         1200      599
Matched Product ------ 6 ------
BKPEGE7ZWDJ5JSGG         Good Win Takssport 20 L Laptop Backpack 835      835
Matched Product ------ 7 ------
PENEGJY8STATFZHY         Lamy Safari Ball Pen    1490      1490
Matched Product ------ 8 ------
PENEJWJ5UTTSUR7N         Lamy Screen Metalic with Stylus Ball Pen      2150     1935
Matched Product ------ 9 ------
VASEG3YYGEKHXWN6         MayurShilpa Paper Vase  599       428
Matched Product ------ 10 ------
PENEGUR4XN68264K         Platignum Retractable Fountain Pen       1695     1695
Matched Product ------ 11 ------
```

2- Sort by Name

```
Choice:1
1- PENEH9CJHKN5KYJB       Bemoree Exclusive Ball Pen       399      249
2- SHOEGHFQKGQVSGHH       DressBerry Bellies      1799     1259
3- PBREH6ZNVKHMUKS5       Escoda Round Paint Brushes       4335     4335
4- SHOEHX7JCNXWHWHZ       GLAMWALK Festive Bellies         1200     599
5- BKPEGE7ZWDJ5JSGG       Good Win Takssport 20 L Laptop Backpack 835      835
6- PENEGJY8STATFZHY       Lamy Safari Ball Pen    1490     1490
7- PENEJWJ5UTTSUR7N       Lamy Screen Metalic with Stylus Ball Pen      2150     1935
8- VASEG3YYGEKHXWN6       MayurShilpa Paper Vase  599      428
9- PENEGUR4XN68264K       Platignum Retractable Fountain Pen       1695     1695
10- PENEGTKGAZ7VR5JH      Platignum Studio Fountain Pen    1695     1695
11- PENEGTMPRWSG4BBD      Platignum Studio Fountain Pen    1695     1695
12- PENEGVHHQJHXGUYN      Platignum Studio Fountain Pen    1695     1695
13- PENEGVUX5ZNHTMVS      Platignum Studio Fountain Pen    1695     1695
14- ACCEGSAZPGAHTHNH      S Class EW-73C  Lens Hood        999      348
15- DIAEJUCFEAC9EUUT      SHOPMANIA DESIGNER NOTEBOOK A5 Notebook Spiral Bound      499      225
16- DIAEJUCFFWRXYACA      SHOPMANIA DESIGNER NOTEBOOK A5 Notebook Spiral Bound      499      225
17- DIAEJUCFHWGHUQFP      SHOPMANIA DESIGNER NOTEBOOK A5 Notebook Spiral Bound      499      225
18- DIAEJUCFPWJYHFVH      SHOPMANIA DESIGNER NOTEBOOK A5 Notebook Spiral Bound      499      225
```

4-Sort by Price

```
13-Exit to upper menu
Choice:1
1- SHOEHX7JCNXWHWHZ       GLAMWALK Festive Bellies         1200     599
2- PENEGJY8STATFZHY       Lamy Safari Ball Pen    1490     1490
3- JEAEGP3SASYHPJVB       fashion point SLIM Fit Girl's Jeans      1499     799
4- PENEGTKGAZ7VR5JH       Platignum Studio Fountain Pen    1695     1695
5- PENEGTMPRWSG4BBD       Platignum Studio Fountain Pen    1695     1695
6- PENEGVHHQJHXGUYN       Platignum Studio Fountain Pen    1695     1695
7- PENEGVUX5ZNHTMVS       Platignum Studio Fountain Pen    1695     1695
8- PENEGUR4XN68264K       Platignum Retractable Fountain Pen       1695     1695
9- SHOEGHFQKGQVSGHH       DressBerry Bellies      1799     1259
10- PENEJWJ5UTTSUR7N      Lamy Screen Metalic with Stylus Ball Pen      2150     1935
```

8- See a Trader

I typed @home and

```
Choice:8
Enter trader name:@home
DTBE9ZHVEFSHKRGG          @home Annulus Solid Wood Dressing Table 22900    17745
VASEJDBZMRZTZVS7          @home Earthy Wine Net Ceramic Vase        1499    1350
VASEJDBZDNPPUFEK          @home Enchanted Cushion Ceramic Vase      1299    1170
VASEHU9W3N9RDPGZ          @home Glass Vase              2299    2173
1000001 new       10      5
```

Notice that, new product (which I added above) Is shown here.

9- Order a product with search results

Last search results were @home products, All time search results are changing

Should first type 1 and see last search list with indexes

```
Choice:1
1- DTBE9ZHVEFSHKRGG          @home Annulus Solid Wood Dressing Table 22900    17745
2- VASEJDBZMRZTZVS7          @home Earthy Wine Net Ceramic Vase        1499    1350
3- VASEJDBZDNPPUFEK          @home Enchanted Cushion Ceramic Vase      1299    1170
4- VASEHU9W3N9RDPGZ          @home Glass Vase              2299    2173
5- 1000001        new     10      5
```

and select an index.

12- See Orders (Not implemented :( )

With openning 10 and 11 to show description and category

```
et Ceramic Vase (9.8250000000 ...
3- VASEJDBZDNPPUFEK       @home Enchanted Cushion Ceramic Vase    1299    1170
Key Features of @home Enchanted Cushion Ceramic Vase Material : CERAMIC Color :  GOLD has to be kept on Table decorative
 purpose,@home Enchanted Cushion Ceramic Vase (8.646 inch, Gold) Price: Rs. 1,170 VASE ENCH FRST CUSHION GLD 23X22CM,Spe
cifications of @home Enchanted Cushion Ceramic Vase (8.646 inch, Gold) General Brand @home Suitable For Table Model Numb
er HGFVSIMSTGLD00134 Type Vases Material Ceramic Model Name Enchanted Cushion Color Gold Dimensions Other Dimensions 23.
5X12.5X22 (LXBXH) in cms Height 8.646 inch Width 9.2355 inch Depth 4.9125000000000005 inch Body & Design Features Shape
Tumblers In the Box Sales Package 1 Vase Pack of 1
Home Decor & Festive Needs  >>  Flowers, Plants & Vases  >>  Flower Vase  >>  @home Flower Vase  >>  @home Enchanted Cus
hion Ceramic Vase (8.646 inch ...
4- VASEHU9W3N9RDPGZ       @home Glass Vase          2299    2173
Specifications of @home Glass Vase (18 inch, Grey) General Brand @home Suitable For Table Model Number HGFVSCGSTGRY00094
 Type Garden Decor Material Glass Color Grey Dimensions Height 18 inch Width 18 inch Depth 42 inch In the Box Sales Pack
age 1 Vase Pack of 1
Home Decor & Festive Needs  >>  Flowers, Plants & Vases  >>  Flower Vase  >>  @home Flower Vase  >>  @home Glass Vase (1
8 inch, Grey)
5- 1000001        new    10      5
very important new item
```

Class Diagrams

Product
- □ String name
- □ String id
- □ String trader
- ○ setters
- ○ getters
- ○ String toString

Customer
- □ Product orders
- □ Product search
- ○ setters
- ○ getters
- ○ bool searchProduct
- ○ void sortByName
- ○ void sortByPrice
- ○ void sortByDisscount
- ○ void printSearch

ICompany
- ● void readFile(String filename);
- ● bool signUpTrader(Trader trader);
- ● bool loginTrader(Trader trader);
- ● bool signUpCustomer(Customer customer);
- ● bool loginCustomer(Customer customer)

Trader
- □ Product product
- ○ setters
- ○ getters

- ● boolean addProduct(Product product)
- ● Product removeProduct(int index)
- ● void editProdcut(Product product)

Company
- □ Trader cTrader
- □ Customer cCustomer
- ○ setters
- ○ getters

- ● void readFile(String filename);
- ● bool signUpTrader(Trader trader);
- ● bool loginTrader(Trader trader);
- ● bool signUpCustomer(Customer customer);
- ● bool loginCustomer(Customer customer)

Uses

Uses

See

Contains

implements

Contains