GIT Department of Computer Engineering
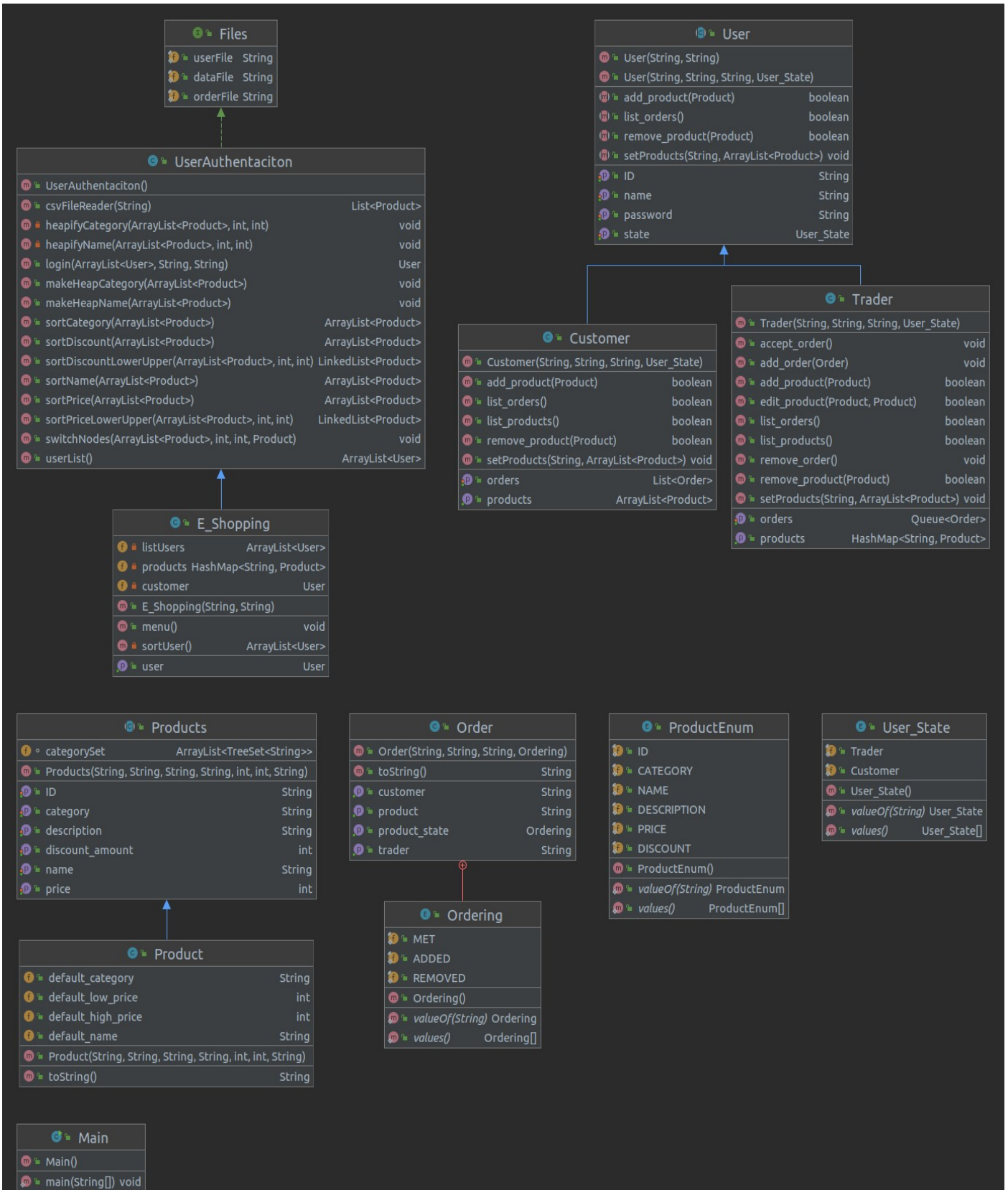
CSE222/505 -Spring 2021 Homework6# Report

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Class Diagram:

Files
- 🔑 userFile — String
- 🔑 dataFile — String
- 🔑 orderFile — String

UserAuthentaciton
- Ⓜ UserAuthentaciton()
- Ⓜ csvFileReader(String) — List<Product>
- Ⓜ heapifyCategory(ArrayList<Product>, int, int) — void
- Ⓜ heapifyName(ArrayList<Product>, int, int) — void
- Ⓜ login(ArrayList<User>, String, String) — User
- Ⓜ makeHeapCategory(ArrayList<Product>) — void
- Ⓜ makeHeapName(ArrayList<Product>) — void
- Ⓜ sortCategory(ArrayList<Product>) — ArrayList<Product>
- Ⓜ sortDiscount(ArrayList<Product>) — ArrayList<Product>
- Ⓜ sortDiscountLowerUpper(ArrayList<Product>, int, int) — LinkedList<Product>
- Ⓜ sortName(ArrayList<Product>) — ArrayList<Product>
- Ⓜ sortPrice(ArrayList<Product>) — ArrayList<Product>
- Ⓜ sortPriceLowerUpper(ArrayList<Product>, int, int) — LinkedList<Product>
- Ⓜ switchNodes(ArrayList<Product>, int, int, Product) — void
- Ⓜ userList() — ArrayList<User>

User
- Ⓜ User(String, String)
- Ⓜ User(String, String, String, User_State)
- Ⓜ add_product(Product) — boolean
- Ⓜ list_orders() — boolean
- Ⓜ remove_product(Product) — boolean
- Ⓜ setProducts(String, ArrayList<Product>) void
- 🅿 ID — String
- 🅿 name — String
- 🅿 password — String
- 🅿 state — User_State

E_Shopping
- 🔑 listUsers — ArrayList<User>
- 🔑 products — HashMap<String, Product>
- 🔑 customer — User
- Ⓜ E_Shopping(String, String)
- Ⓜ menu() — void
- Ⓜ sortUser() — ArrayList<User>
- 🅿 user — User

Customer
- Ⓜ Customer(String, String, String, User_State)
- Ⓜ add_product(Product) — boolean
- Ⓜ list_orders() — boolean
- Ⓜ list_products() — boolean
- Ⓜ remove_product(Product) — boolean
- Ⓜ setProducts(String, ArrayList<Product>) void
- 🅿 orders — List<Order>
- 🅿 products — ArrayList<Product>

Trader
- Ⓜ Trader(String, String, String, User_State)
- Ⓜ accept_order() — void
- Ⓜ add_order(Order) — void
- Ⓜ add_product(Product) — boolean
- Ⓜ edit_product(Product, Product) — boolean
- Ⓜ list_orders() — boolean
- Ⓜ list_products() — boolean
- Ⓜ remove_order() — void
- Ⓜ remove_product(Product) — boolean
- Ⓜ setProducts(String, ArrayList<Product>) void
- 🅿 orders — Queue<Order>
- 🅿 products — HashMap<String, Product>

Products
- 🔑 categorySet — ArrayList<TreeSet<String>>
- Ⓜ Products(String, String, String, String, int, int, String)
- 🅿 ID — String
- 🅿 category — String
- 🅿 description — String
- 🅿 discount_amount — int
- 🅿 name — String
- 🅿 price — int

Order
- Ⓜ Order(String, String, String, Ordering)
- 🅿 toString() — String
- 🅿 customer — String
- 🅿 product — String
- 🅿 product_state — Ordering
- 🅿 trader — String

ProductEnum
- 🔑 ID
- 🔑 CATEGORY
- 🔑 NAME
- 🔑 DESCRIPTION
- 🔑 PRICE
- 🔑 DISCOUNT
- Ⓜ ProductEnum()
- Ⓜ valueOf(String) ProductEnum
- Ⓜ values() — ProductEnum[]

User_State
- 🔑 Trader
- 🔑 Customer
- Ⓜ User_State()
- Ⓜ valueOf(String) User_State
- Ⓜ values() — User_State[]

Product
- 🔑 default_category — String
- 🔑 default_low_price — int
- 🔑 default_high_price — int
- 🔑 default_name — String
- Ⓜ Product(String, String, String, String, int, int, String)
- Ⓜ toString() — String

Ordering
- 🔑 MET
- 🔑 ADDED
- 🔑 REMOVED
- Ⓜ Ordering()
- Ⓜ valueOf(String) Ordering
- Ⓜ values() — Ordering[]

Main
- Ⓜ Main()
- Ⓜ main(String[]) void

Problem Solution Approach

I think the assignment as 4 different part: Sorting products, Users implementation , Reading files and user authentication.

Users implementation , I created a User abstract class because there are two user who have same methods and fields. Orders and products have been implemented inside of the users. I tried to create a menu but I had implemented to driver function inside of the menu.

For sorting products two different approach has been thought.(Heapsort and Insertionsort). Name and category have been used with heapsort. Price and discount amount have been used with insertion sort.

Reading files needs to be find depends on user. Not all the file needs to be hold inside of the object.

User authentication has been implemented like given the assignment. Program needs id and password. It searches users field and gives a user to manage to program.

Data structures:

HashMap ==> products,

Queue ==> Orders

ArrayList and linkedlist are generally used all the classes.

Test Cases:

TEST CASES	TEST CASE DESCRİPTİON	TEST DATA	EXPECTED RESULT	ACTUAL RESULT	PASS /FAİL
1	Trader-Add Product	add_product()	Adding product	Added	Pass
2	Trader-Remove product	remove _product()	Removing Product	Removed	Pass
3	Trader-Edit product	edit_product()	Editing Product	Edited	Pass
4	Trader-List product	list_product()	Listing Product	Listed	Pass
5	Trader-List orders	list_orders()	Listing orders	Listed	Pass
6	Sort User	sortUser()	Sort Orders	Sorted	Pass
7	Get product	getProduct()	Getting Product	Getted	Pass
8	Customer-add product	add_product()	Adding product	Added	Pass
9	Customer-remove product	remove _product()	Removing Product	Removed	Pass
10	Customer-edit product	edit_product()	Editing Product	Edited	Pass
11	Customer-list product	list_product()	Listing Product	Listed	Pass
12	Customer-list orders	list_orders()	Listing orders	Listed	Pass
13	Search by price increasing order	sortPriceLowerUpper increasing ()	Sorting L-I	Sorted	Pass
14	Search by price decreasing order	sortPriceLowerUpper decreasing ()	Sorting I-L	Sorted	Pass
15	Search by discount amount increasing order	sortDiscountLowerUpper increasing ()	Sorting I-L	Sorted	Pass
16	Search by	sortDiscountLowerU	Sorting L-I	Sorted	Pass

	discount amount decreasing order	pper decreasing ()			
17	Search by name	sortName()	Sorting name and search	Sorted	Pass
18	Search by category	sortCategory()	Sorting Category And search	Sorted	Pass

Running Result:

```
Welcome the E-Shopping
Welcome to trader menu
1-)Add product
2-)Remove product
3-)Edit product
4-)List product
5-)List Orders
Added trader product passed.
Editing trader product passed
Removing trader product passed
Listing trader product passed
Listing trader order passed
Welcome to Customer menu
1-)Add product
2-)Remove product
3-)List product
4-)List Orders
5-)Search by price increasing order
6-)Search by price decreasing order
7-)Search by discount amount increasing order
8-)Search by discount amount decreasing order
9-)Search by name
10-)Search by category
Adding customer product passed
Removing customer product passed
Listing customer product passed
Listing customer order passed
```

ID:LJGEAB2HGWKYZ4RH

Name:Fashionjackpot Women's Leggings

Category:"[""Clothing >> Women's Clothing >> Western Wear >> Leggings & Jeggings >> Leggings & Jeggings >> Fashionjackpot Leggings & Jeggings""]"

Description:Fashionjackpot Women's Leggings (Pack of 2)

Discount:399

Price:899

ID:TSHDZ5ZJHZK3GFVR

Name:Numero Uno Striped Men's V-neck T-Shirt

Category:"[""Clothing >> Men's Clothing >> T-Shirts >> Numero Uno T-Shirts""]"

Description:Numero Uno Striped Men's V-neck T-Shirt - Buy MOSS GREEN MELANGE/NAVY MEL Numero Uno Striped Men's V-neck T-Shirt For Only Rs. 1699 Online in India. Shop Online For Apparels. Huge Collection of Brand

Discount:1699

Price:1699

ID:ACBECFGTYJ3E8VHE

Name:Navaksha Necktie Men's Combo

Category:"[""Clothing >> Men's Clothing >> Navaksha Men's Clothing""]"

Description:Navaksha Necktie Men's Combo

Discount:756

Price:1550

ID:CAGDU85YZUFN86CH

Name:My Ego Combo Set

Category:"[""Beauty and Personal Care >> Fragrances >> Deodorants >> Combos >> My Ego Combos""]"

Description:My Ego Combo Set (Set of 2)

Discount:210

Price:370

ID:TSHE8GF4NEEGKNRH

Name:Huetrap Graphic Print Men's Round Neck T-Shirt

Category:"[""Clothing >> Men's Clothing >> T-Shirts >> Huetrap T-Shirts""]"

Description:Huetrap Graphic Print Men's Round Neck T-Shirt

Discount:699

Price:699

ID:NKCE3JRMZFZEGEHT

Name:Joyeria Milan Resin Necklace

Category:"[""Jewellery >> Necklaces & Chains >> Necklaces""]"

Description:Joyeria Milan Resin Necklace