An Overview of the Application

In this programming assignment, you will develop a very simplified version of an online shopping site. We will call it MyBazaar.

Problem Definition

First, we need to review the requirements (specifications) of the system we want to develop. The basic components of an online shopping application include:

users (service providers and customers),
items for sale (classified according to a certain specification, such as product type),
shopping-related concepts (product pricing, sale campaigns, etc.)
events/actions (viewing product information, adding items to the shopping cart, viewing discounts, managing personal information, placing orders, etc.).

Your program will need to be able to handle simple requirements of an online shopping application. You will be given input files that contain information necessary for instantiating the users of the system, and items for sale.

Users

Our online shopping application will comprise three different types of users: Administrative and technical staff who are employees (service providers), and costumers who are clients. You are expected to design your user classes in a hierarchical structure. User information is as follows:

- Every **Person** in the system has a **name**, an **e-mail**, and a **date of birth**.
- Every **Employee** has a **salary**.
- An employee can either be an **Admin** or a **Technician**.
- An admin has a **password**.
- A technician can be **senior** or not.
- A **Customer** has a **customerID**, a **password**, a **balance** (money in their shopping account), **status** (which can be **CLASSIC**, **SILVER** or **GOLDEN**), **shopping cart**, and **order history**.
- **customerID** is assigned in order (starting from 1) to each added customer.
- Customer status is calculated as follows: every new customer is automatically assigned the CLASSIC status. A customer who spends at least 1000 $ is awarded the SILVER status. A customer who spends at least 5000 $ is awarded permanent GOLDEN status and counts as a VIP customer.
- **A customer with a SILVER status gets a discount rate of 10%** for all orders (even ones that include items with discount campaigns).
- **A customer with a GOLDEN status gets a discount rate of 15%** for all orders (even ones that include items with discount campaigns).
- Customer status limits and discount rates must be stored as constant static variables.

Users should be able to perform the following actions:

- **All users** should be able to:
  - Display personal data: name, e-mail, and date-of-birth.
- **Customers** should be able to:
  - Change their password own by providing the old password and a new one,
  - Update their balance (deposit money into their shopping account),
  - View active campaigns,
  - Add items to their shopping cart, if the item is available (if it exists and is in stock),
  - Clear their shopping cart,
  - Place orders for items in their shopping carts by providing their password,
  - Orders will be successful only if all of the following conditions are satisfied: the shopping cart is not empty, the customer has enough money in the shopping account, and the password provided matches the customer’s password.

  - After each order, customer's status should be updated if necessary. Also, the stock amount of the bought items should be updated accordingly.
  - Customer class should also override `toString()` method to print the customer's data: ID, e-mail, date of birth and status.
- **All employees** should be able to:
  - Display stock amount and item types,
  - List all available items with their types,
  - Display VIP customers.
- **Admins** should be able to:
  - Add new customers to the system by providing the customer name, e-mail, date-of-birth, and initial customer balance and password,
  - Add other admins and technicians to the system,
  - Display all available data about a particular customer,
  - Display all customers,
  - Override the display personal data method to add the keyword "Admin" before their name, e-mail, and date-of-birth,
  - Launch a campaign.
- **Technicians** should be able to:
  - Display all orders made by all customers only if they are senior technicians,
  - Display info about a particular item,
  - Add a new item.

Items

Items represent all products that are available for sale. They are categorized as either **Cosmetic**, **Electronic**, or **Office Supplies** items. You are expected to design your item classes in a hierarchical structure. The necessary information about the items is as follows:

- Subcategories of Cosmetic items are: **Perfume**, **Hair care**, and **Skin care**.
- Subcategories of Electronic items are: **Computer**, **TV**, and **Smart phone**.
- Subcategories of Office Supplies items are: **Book**, and **CD-DVD**.
- Subcategories of Computer items are: **Desktop**, **Laptop**, and **Tablet**.
- All items have an **ID** and a **price**.
- **Cosmetic** and **Electronic** items possess **manufacturer** and **brand** information.
- **ID** is assigned in order (starting from 1) to each added item.
- Cosmetic items have an **expiration date**, a **weight**, and can be either **organic** or not.
- Perfumes have **lasting duration**.
- Hair care items may be **medicated** or not.
- Skin care items may be **baby sensitive** or not.
- Electronic items have a **maximum allowed input voltage** and a **maximum power consumption** in Watts. • Computer items have an **operating system**, a **CPU Type**, a **RAM Capacity**, and an **HDD Capacity** in gigabytes. • Desktop computer items have a **box color**.
- Laptop computer items may have **HDMI support** or not.
- Tablet computer items have **dimensions**.
- TVs have a **screen size -**in inches.
- Smart phone items have a **screen type**.
- Office Supplies items have a **release date**, and a **cover title**.
- Book items have a **publisher**, **author(s)**, and a number of **pages**.
- CD-DVD items have a **composer**, and **song(s)**.
- Apart from the above, all item types (Laptop, Book etc.) have a related stock (inventory) information whose values should be initially obtained from the input file named `item.txt.`

Shopping

The main shopping concepts in our application are shopping **Orders** and discount **Campaigns**.

- Orders have an **orderDate**, a **totalCost**, list of **purchased items**, and **customerID** of the buyer. • When order data is displayed; order date, customerID, total cost, and a number of bought items should be shown.
- Campaigns have a **startDate**, an **endDate**, **itemType**, and a **discountRate**.

- The maximum discount rate of any campaign is 50%.

Events/Actions

i. **Add a new customer**: A service provider with admin role is the only one authorized to add a new customer. The program should add a new customer if the syntax of the command is as provided below:

ADDCUSTOMER<TAB>**adminName**<TAB>**customerName**<TAB>**customerMail**<TAB>**customerDateofBirth**<TAB>**initialBalance**<TAB>**password**

Note: The first argument indicates the name of the admin who initiates the request and the program you implement has to check the records before perform this request. If no record is found with **adminName** then it should display an error message. For such cases or details, read *Constraints* section carefully.

Usage Illustration:

ADDCUSTOMER<TAB>**Cemile**<TAB>**Kerem**<TAB>**kerem@yahoo.com**<TAB>**21.02.1993**<TAB>**100000**<TAB>**kerem1111**
No admin person named Cemile exists!

ii. **Show customer information**: An admin person can also show the customers which are recorded so far. The displayed customer records should include: name, ID, e-mail, date of birth, and status. The syntax to display customer info should be as follows:

SHOWCUSTOMER<TAB>**adminName**<TAB>**customerID**

Usage Illustration:

	SHOWCUSTOMER<TAB>**Leyla**<TAB>**3**
Possible outputs	No admin person named Leyla exists! *(or)*
	Customer name: Hamza ID: 3 e-mail: hamza@hacettepe.edu Date of Birth: Tue Sep 08 00:00:00 EEST 1987 Status: CLASSIC

iii. **List customers**: Similar to the previous event, an admin is also authorized to list all customer info for customers who are recorded in the system. To do that the command syntax should be:

SHOWCUSTOMERS<TAB>**adminName**

Usage Illustration:

	SHOWCUSTOMER<TAB>**Demet**
Possible outputs	No admin person named **Demet** exists!
	Customer name: Emre ID: 1 e-mail: emre@hacettepe.edu Date of Birth: Mon Oct 02 00:00:00 EEST 2000 Status: CLASSIC Customer name: Meltem ID: 2 e-mail: meltem@hacettepe.edu Date of Birth: Fri Mar 30 00:00:00 EEST 1990 Status: CLASSIC

iv. **Show admin information**: Admin staff can also display their information. Note that they cannot display others' personal information.

SHOWADMININFO<TAB>**adminName**

Usage Illustration:

	SHOWADMININFO<TAB>**Can**
Possible outputs	No admin person named Leyla exists! *(or)*
	----------- Admin info ----------- Admin name: Can Admin e-mail: can@hacettepe.edu Admin date of birth: 21.05.1980

v. **Launch a campaign**: In the system, only admins are allowed to launch a new campaign.

CREATECAMPAIGN<TAB>**adminName**<TAB>**startDate**<TAB>**endDate**<TAB>**itemType**<TAB>**rate**

Note: There are a couple of constraints for launching a campaign. Please refer to Constraints section.

Usage Illustration:

	CREATECAMPAIGN<TAB>**Alper**<TAB>**23.03.2017**<TAB>**01.06.2017**<TAB>**BOOK**<TAB>**25**
Possible outputs	No admin person named Alper exists! *(or)*
	Campaign was not created. Discount rate exceeds maximum rate of 50%.

vi. **Add a new employee**: An existing user with admin role can add a new employee (another admin or a technician). To do that the command should be provided to the system as given below:

ADDADMIN<TAB>**adminName**<TAB>**newAdminName**<TAB>**newAdminMail**<TAB>**newAdminDateofBirth**<TAB>**newAdminSalary**<TAB>**newAdminPassword**

ADDTECH<TAB>**adminName**<TAB>**newTechName**<TAB>**newTechMail**<TAB>**newTechDateofBirth**<TAB>**newTechSalary**<TAB>**isSenior**

Usage Illustration:

	ADDADMIN<TAB> **Demet**<TAB> **Yavuz**<TAB> **yavuz@gmail.com**<TAB>**16.07.1984**<TAB> **1000**<TAB> **yavuz1** **ADDTECH**<TAB>**Yavuz**<TAB> **Kubilay**<TAB> **kubilay@outlook.com**<TAB>**19.04.2001** <TAB> **500**<TAB>**1**
e	No admin person named Demet exists! *(or)*

Possibl outputs	No technician person named Yavuz exists!

vii. **List existing items**: Service providers – or employees (admins and technicians) can list the existing items with their information in detail.

LISTITEM<TAB>**[adminName|technicianName]**

Usage Illustration:

	LISTITEM<TAB>Kubilay //assume Kubilay is an employee (admin or tech.)
Possible outputs	No admin or technician person named Kubilay exists! *(or)*
	Type: SmartPhone Item ID: 28 Price: 1100.0 $ Manufacturer: Apple Inc. Brand: APPLE Max Volt: 200 V. Max Watt: 240 W. Screen Type: IPS LCD ----------------------- Type: TV Item ID: 25 Price: 12000.0 $ Manufacturer: Royal Philips Electronics of the Netherlands Brand: PHILIPS Max Volt: 200 V. Max Watt: 240 W. Screen size: 74" . . .

viii. **Show items types with low stock**: In this system, one of the missions of service providers (admins or technicians) is to monitor the stock status of every item type. Thus, they should often display the remaining stock amount of items. The system response to a stock status request differs depending on the syntax. In the first case, the system considers the provided stock value and displays only those items whose stock amount is below this limit value if provided in the command line; otherwise, the system displays stock information of all items.

SHOWITEMSLOWONSTOCK<TAB>[**adminName|technicianName]**<TAB>**{maxStockAmount}**

Usage Illustration:

	SHOWITEMSLOWONSTOCK<TAB>**Enes**<TAB>**14** **SHOWITEMSLOWONSTOCK**<TAB>**Enes**

stuptuo elbissoP	No admin or technician person named Enes exists! *(or)*
	Book : 16 CDDVD : 5 Desktop : 11 Laptop : 42 Tablet : 11 TV : 13 SmartPhone : 9 HairCare : 4 Perfume : 1 SkinCare : 8
	CDDVD : 5 Desktop : 11 Tablet : 11 TV : 13 SmartPhone : 9 HairCare : 4 Perfume : 1 SkinCare : 8

ix. **Show VIP customers**: Service providers can display VIP customers. VIP customers are those whose status is *GOLDEN*.

SHOWVIP<TAB>[**adminName|technicianName]**

Usage Illustration:

	SHOWVIP<TAB>**Alper**
elbissoP stuptuo	No admin or technician person named Alper exists!
	Customer name: Emre ID: 1 e-mail: emre@hacettepe.edu Date of Birth: Mon Oct 02 00:00:00 EEST 2000 Status: GOLDEN

x. **Display items under specific types**: A technician can display sub-items. To do that he/she should provide item types each of which is separated by a colon mark.

DISPITEMSOF<TAB>**technicianName**<TAB>**type1**<:>**type2**<:>...<:>**typeN**

Usage Illustration:

	DISPITEMSOF<TAB>**Kubilay**<TAB>**BOOK:HAIRCARE**
stuptuo el	No technician person named Kubilay exists! *(or)*

Possib

```
Type: Book
Item ID: 4
Price: 4.0 $
Release Date: 1960
Title: To Kill a Mockingbird
Publisher: J. B. Lippincott & Co.
Author: Harper Lee
Page: 281 pages
-----------------------
Type: HairCare
Item ID: 30
Price: 26.0 $
Manufacturer: Goldwell Manufacturing Services
Brand: GOLDWELL
Organic: Yes
Expiration Date: 2021
Weight: 750 g.
Medicated: Yes
```

xi. **Add a new item**: Only technicians are authorized to add new items to the system. To add a new item, they should take argument length and order of the item (See Items Input File Section) into consideration. Colon marks separate the arguments.

ADDITEM<TAB>**technicianName**<TAB>**itemType**<:>**argument1**<:>**argument2**<:>...<:>**argumentN**

Usage Illustration:

```
ADDITEM<TAB>Kubilay<TAB> LAPTOP:1250:Dell Inc.:DELL:220:250:Windows
10  Home:Intel Core i7:8:250:1
```

Possible outputs

```
No technician person named Kubilay exists!
```

```
No item type Laptop found
```

xii. **Show orders**: Another and the last mission of the tech. team is to display the orders requested so far. As mentioned, not all technicians can visualize orders, but only the ones who are senior technicians.

SHOWORDERS<TAB>**technicianName**

Usage Illustration:

```
SHOWORDERS<TAB>Emir
```

Possible outputs

```
No technician person named Emir exists!
```

```
Emir is not authorized to display orders!
```

```
Order History:
```

	`Order date: Mon Mar 20 12:18:39 EET 2017 Customer ID: 1 Total Cost: 12000.0 Number of purchased items: 0`

xiii. **Change password**: Customers use their passwords when placing a new order request, which is designed to avoid transactions on behalf of someone else. Passwords are initially determined by admins who are authorized to add new customers, then customers can change their passwords using this command:

```
CHPASS<TAB>customerID<TAB>oldPassword<TAB>newPassword
```

Usage Illustration:

	`CHPASS<TAB>1<TAB>emre1234<TAB>1234emre`
Possible outputs	`No customer with ID number 1 exists!`
	`The given password does not match the current password. Please try again.`
	`The password has been successfully changed.`

xiv. **Load money**: Customers can place a new order only if their balances are sufficient. Before placing a new order they can deposit money into their accounts if it does not have sufficient amount for purchase.

```
DEPOSITMONEY<TAB>customerID<TAB>loadAmount
```

Usage Illustration:

	`DEPOSITMONEY<TAB>customerID<TAB>loadAmount`
Possible outputs	`No customer with ID number 1 exists!`

xv. **Display campaigns**: Customers may prefer to buy items that have a sale campaign. To display campaigns, the command will be as given below:

```
SHOWCAMPAIGNS<TAB>customerID
```

Usage Illustration:

	`SHOWCAMPAIGNS<TAB>1`
ossible utputs	`No customer with ID number 1 exists!`
	`No campaign has been created so far!`

	`Active campaigns:`
	`20% sale of PERFUME until 01/09/2017`

P o	

xvi. **Add to cart**: To enable a customer to buy more than one item within one order, almost all online shopping system provide a cart mechanism. This system also employs this mechanism, and customers should first add some items to their carts before placing a purchase order. To do that, the command line below should be provided to the system:

ADDTOCART<TAB>**customerID**<TAB>**itemID**

Usage Illustration:

	ADDTOCART<TAB>**1**<TAB>**11**
Possible outputs	No customer with ID number 1 exists!
	Invalid item ID
	We are sorry. The item is temporarily unavailable.
	The item Book has been successfully added to your cart.

xvii. **Empty cart**: In a shopping system, customers may want to empty their carts and start shopping from scratch. The command syntax below enables customer to do that:

EMPTYCART<TAB>**customerID**

Usage Illustration:

	EMPTYCART<TAB>**1**
Possible outputs	No customer with ID number 1 exists!
	The cart has been emptied.

xviii. **Place a new purchase order**: The process of shopping activity of customers ends with a purchase order if they want to buy the items in their shopping carts. To direct customer to the payment phase, the system should first consider the customer's password and check if it matches the password of the customer whose ID is given. If it does, the system should calculate the total price of the items in the customers' carts considering customers' status (*GOLDEN*, *SILVER*, or *CLASSIC*) and active campaigns. As mentioned, if the status of the customer is other than *CLASSIC* then the system should lower the total price depending on their status. Similarly, if a campaign has already been launched for an item that is in a customer's cart, the system should also lower the price only for that item. To successfully place an order, the customer should have enough money, which means the system should also check the balance of the customer who initiated the order process. After a successful order operation, the system should give a feedback to the customer informing him/her about how much more money they need to spend until their customer status can be upgraded (to SILVER or GOLDEN when applicable).

ORDER<TAB>**customerID**<TAB>**customerPassword**

Usage Illustration:

	ORDER<TAB>**1**<TAB>**emre1234**
Possible outputs	No customer with ID number 1 exists!
	The cart has been emptied.
	Order could not be placed. Insufficient funds.
	You should add some items to your cart before order request!
	Order could not be placed. Invalid password.
	Done! Your order will be delivered as soon as possible. Thank you!
	Congratulations! You have been upgraded to a XXX MEMBER! You have earned a discount of X% on all purchases.
	You need to spend XXX more TL to become a XXX MEMBER.

INPUT FILES

You will be provided with three (tab-separated) text input files:

- **Users** in the system,
- **Items** that are sold,
- **Commands** that you need to execute.

USERS INPUT FILE

List of all users in the system (admins, technicians and customers) will be given in the (tab-separated) `users.txt` file:

- a line containing information about an admin will start with a keyword **ADMIN**,
- a line containing information about a technician will start with a keyword **TECH**,
- a line containing information about a customer will start with a keyword **CUSTOMER**.

The format of each person's data will be given as follows:

ADMIN<TAB>**name**<TAB>**email**<TAB>**birthDate**<TAB>**salary**<TAB>**password**

TECH<TAB>**name**<TAB>**email**<TAB>**birthDate**<TAB>**salary**<TAB>**isSeniorTechnician**

CUSTOMER<TAB>**name**<TAB>**email**<TAB>**birthDate**<TAB>**balance**<TAB>**password**

A sample `users.txt` input file is given below:

```
ADMIN Demet demet@hacettepe.edu 11.12.1989 3500 demet1234
CUSTOMER Emre emre@hacettepe.edu 02.10.2000 0 emre1234
TECH Fatih fatih@hacettepe.edu 17.03.1992 2100 0
CUSTOMER Meltem meltem@hacettepe.edu 30.03.1990 500.40 meltem1234
CUSTOMER Hamza hamza@hacettepe.edu 08.09.1987 10321.5 hamza1234 ADMIN
Alper alper@hacettepe.edu 19.12.1991 3500 alper1234
TECH Emir emir@hacettepe.edu 28.02.1983 2700 1
ADMIN Can can@hacettepe.edu 21.05.1980 3450 can1234
ADMIN Leyla leyla@hacettepe.edu 01.11.1975 3600 leyla1234
ADMIN Cemil cemil@hacettepe.edu 06.07.1985 3750 cemil1234
TECH Handan handan@hacettepe.edu 29.10.1989 2700 1
CUSTOMER Taha taha@hacettepe.edu 29.04.1969 7505.43 taha1234 CUSTOMER
Furkan furkan@hacettepe.edu 30.09.1974 153.85 furkan1234 TECH Enes
enes@hacettepe.edu 02.02.1996 2100 0
```

You are expected to create an instance for each user in this file.

ITEMS INPUT FILE

List of all items for sale will be given in the (tab-separated) `item.txt` file.

- a line containing information about a desktop computer item will start with a keyword DESKTOP,
- a notebook computer item will start with a keyword LAPTOP,
- a tablet item will start with a keyword TABLET,
- a television item will start with a keyword **TV**,
- a smart phone item will start with a keyword **SMARTPHONE**,
- a book item will start with a keyword **BOOK**,
- a CD-DVD item will start with a keyword **CDDVD**,
- a hair care item will start with a keyword **HAIRCARE**,
- a skin care item will start with a keyword **SKINCARE**,
- a perfume item will start with a keyword **PERFUME**.

The format of each item data will be given as follows:

DESKTOP<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**maxVolt**<TAB>**maxWatt**<TAB>**operatingSystem**
<TAB>**CPUType**<TAB>**ramCapacity**<TAB>**HDDCapacity**<TAB>**boxColor**

LAPTOP<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**maxVolt**<TAB>**maxWatt**<TAB>**operatingSystem**
<TAB>**CPUType**<TAB>**ramCapacity**<TAB>**HDDCapacity**<TAB>**HDMISupport**

TABLET<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**maxVolt**<TAB>**maxWatt**<TAB>**operatingSystem**
<TAB>**CPUType**<TAB>**ramCapacity**<TAB>**HDDCapacity**<TAB>**dimension**

TV<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**maxVolt**<TAB>**maxWatt**<TAB>**screenSize**

SMARTPHONE<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**maxVolt**<TAB>**maxWatt**<TAB>**screenType**

BOOK<TAB>**cost**<TAB>**releaseDate**<TAB>**coverTitle**<TAB>**publisherName**<TAB>**author1**<,>
author2<,>...<,>**authorN**<TAB>**pageNumber**

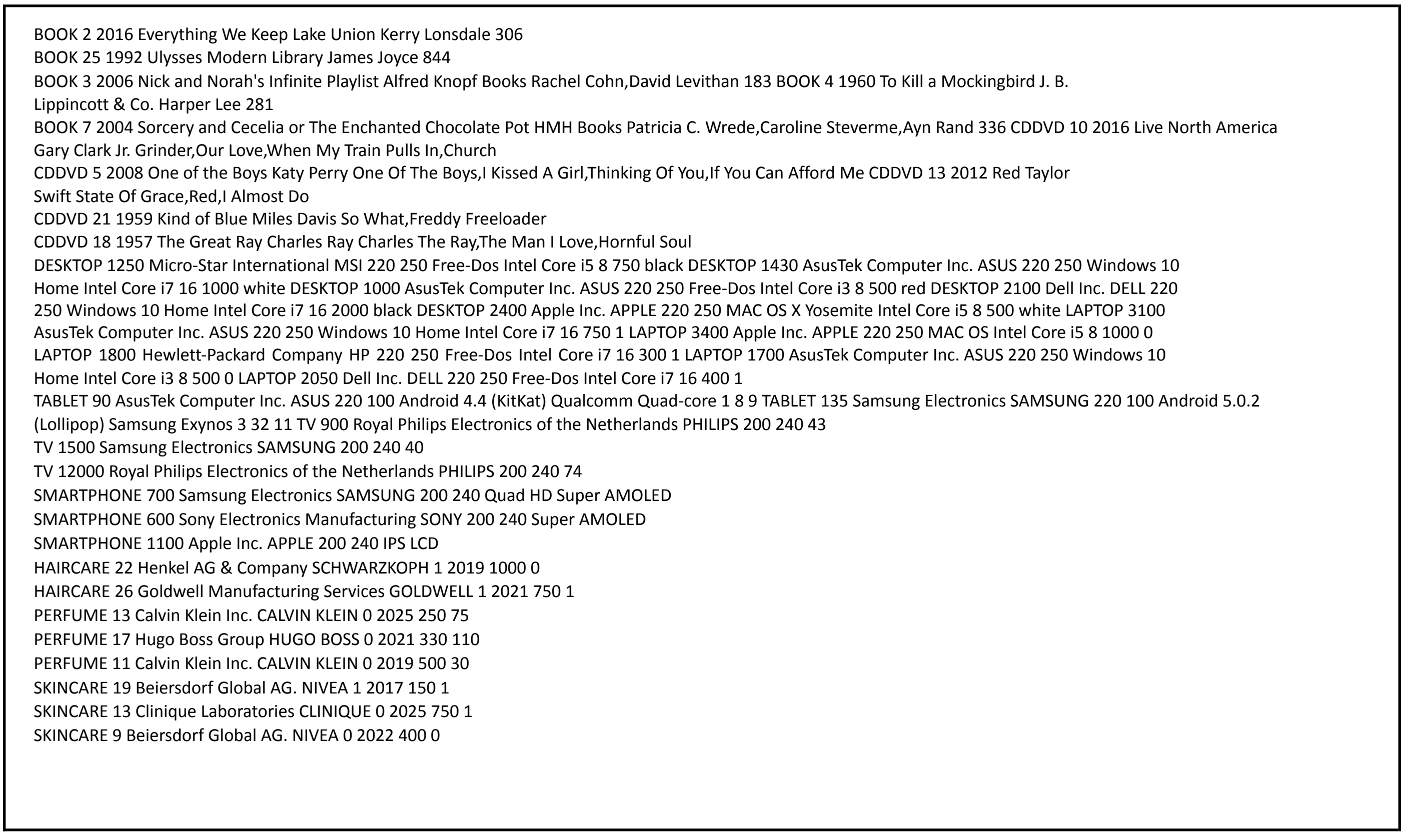
CDDVD<TAB>**cost**<TAB>**releaseDate**<TAB>**coverTitle**<TAB>**composerName**<TAB>**song1**<,>**song2**<,>...
<,>**songN**

HAIRCARE<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**isOrganic**<TAB>**expirationYear**<TAB>
weight<TAB>**isMedicated**

SKINCARE<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**isOrganic**<TAB>**expirationYear**<TAB>
weight<TAB>**babySensitive**

PERFUME<TAB>**cost**<TAB>**manufacturer**<TAB>**brand**<TAB>**isOrganic**<TAB>**expirationYear**<TAB>
weight<TAB>**lastingDuration**

A sample `item.txt` input file is given below:



```
BOOK 2 2016 Everything We Keep Lake Union Kerry Lonsdale 306
BOOK 25 1992 Ulysses Modern Library James Joyce 844
BOOK 3 2006 Nick and Norah's Infinite Playlist Alfred Knopf Books Rachel Cohn,David Levithan 183 BOOK 4 1960 To Kill a Mockingbird J. B.
Lippincott & Co. Harper Lee 281
BOOK 7 2004 Sorcery and Cecelia or The Enchanted Chocolate Pot HMH Books Patricia C. Wrede,Caroline Steverme,Ayn Rand 336 CDDVD 10 2016 Live North America
Gary Clark Jr. Grinder,Our Love,When My Train Pulls In,Church
CDDVD 5 2008 One of the Boys Katy Perry One Of The Boys,I Kissed A Girl,Thinking Of You,If You Can Afford Me CDDVD 13 2012 Red Taylor
Swift State Of Grace,Red,I Almost Do
CDDVD 21 1959 Kind of Blue Miles Davis So What,Freddy Freeloader
CDDVD 18 1957 The Great Ray Charles Ray Charles The Ray,The Man I Love,Hornful Soul
DESKTOP 1250 Micro-Star International MSI 220 250 Free-Dos Intel Core i5 8 750 black DESKTOP 1430 AsusTek Computer Inc. ASUS 220 250 Windows 10
Home Intel Core i7 16 1000 white DESKTOP 1000 AsusTek Computer Inc. ASUS 220 250 Free-Dos Intel Core i3 8 500 red DESKTOP 2100 Dell Inc. DELL 220
250 Windows 10 Home Intel Core i7 16 2000 black DESKTOP 2400 Apple Inc. APPLE 220 250 MAC OS X Yosemite Intel Core i5 8 500 white LAPTOP 3100
AsusTek Computer Inc. ASUS 220 250 Windows 10 Home Intel Core i7 16 750 1 LAPTOP 3400 Apple Inc. APPLE 220 250 MAC OS Intel Core i5 8 1000 0
LAPTOP 1800 Hewlett-Packard Company HP 220 250 Free-Dos Intel Core i7 16 300 1 LAPTOP 1700 AsusTek Computer Inc. ASUS 220 250 Windows 10
Home Intel Core i3 8 500 0 LAPTOP 2050 Dell Inc. DELL 220 250 Free-Dos Intel Core i7 16 400 1
TABLET 90 AsusTek Computer Inc. ASUS 220 100 Android 4.4 (KitKat) Qualcomm Quad-core 1 8 9 TABLET 135 Samsung Electronics SAMSUNG 220 100 Android 5.0.2
(Lollipop) Samsung Exynos 3 32 11 TV 900 Royal Philips Electronics of the Netherlands PHILIPS 200 240 43
TV 1500 Samsung Electronics SAMSUNG 200 240 40
TV 12000 Royal Philips Electronics of the Netherlands PHILIPS 200 240 74
SMARTPHONE 700 Samsung Electronics SAMSUNG 200 240 Quad HD Super AMOLED
SMARTPHONE 600 Sony Electronics Manufacturing SONY 200 240 Super AMOLED
SMARTPHONE 1100 Apple Inc. APPLE 200 240 IPS LCD
HAIRCARE 22 Henkel AG & Company SCHWARZKOPH 1 2019 1000 0
HAIRCARE 26 Goldwell Manufacturing Services GOLDWELL 1 2021 750 1
PERFUME 13 Calvin Klein Inc. CALVIN KLEIN 0 2025 250 75
PERFUME 17 Hugo Boss Group HUGO BOSS 0 2021 330 110
PERFUME 11 Calvin Klein Inc. CALVIN KLEIN 0 2019 500 30
SKINCARE 19 Beiersdorf Global AG. NIVEA 1 2017 150 1
SKINCARE 13 Clinique Laboratories CLINIQUE 0 2025 750 1
SKINCARE 9 Beiersdorf Global AG. NIVEA 0 2022 400 0
```

You are expected to create an instance for each item in this file.

Commands Input File

List of all commands, which will be given to test your program and which you are expected to execute correctly and in order, will be given in the (tab-separated) `commands.txt` file. A detailed explanation, format and expected output for each command is given in the Events/Actions section.

A sample `commands.txt` input file is given below:

```
ADDCUSTOMER Cemil Kerem kerem@yahoo.com 21.02.1993 100000 kerem1111
SHOWCUSTOMER Leyla 3
SHOWCUSTOMERS Demet
SHOWCUSTOMERS Ferit
ADDCUSTOMER Musa Ayten ayten@yahoo.com 05.10.1981 1000 ayten0000
ADDTOCART 7 37
ORDER 7 ayten0000
SHOWCUSTOMER Can 4
SHOWADMININFO Can
SHOWADMININFO Enes
CREATECAMPAIGN Alper 23.03.2017 01.06.2017 BOOK 25
CREATECAMPAIGN Leyla 21.03.2017 01.09.2017 DEKSTOP 90
CREATECAMPAIGN Leyla 21.03.2017 01.09.2017 PERFUME 20
SHOWCAMPAIGNS 2
ADDTOCART 3 10
ADDTOCART 3 3
ADDTOCART 3 5
ADDTOCART 3 15
ADDTOCART 5 10
ORDER 3 hamza1234
DEPOSITMONEY 6 210.6
CHPASS 1 emre1234 emre12345678
EMPTYCART 3
ORDER 3 hamza1234
ADDTOCART 1 15
ADDTOCART 1 2
ADDTOCART 1 11
ORDER 1 emre12
ORDER 1 emre1234
ORDER 1 emre12345678
SHOWORDERS Emir
SHOWITEMSLOWONSTOCK Enes 14
SHOWVIP Alper
ADDADMIN Demet Yavuz yavuz@gmail.com 16.07.1984 1000 yavuz1
SHOWADMINONFO Yavuz
ADDTECH Yavuz Kubilay kubilay@outlook.com 19.04.2001 500 1 ADDITEM Kubilay
LAPTOP:1250:Dell Inc.:DELL:220:250:Windows 10 Home:Intel Core i7:8:250:1
ADDTOCART 6 37
ADDTOCART 6 25
ORDER 6 kerem1111
SHOWORDERS Emir
SHOWCUSTOMERS Demet
LISTITEM Kubilay
DISPITEMSOF Kubilay BOOK:HAIRCARE:PERFUME
```

CONSTRAINTS

- **Person Existence**: As you may have realized, every command has its operator who may be an admin, a technician, or a customer. The command's operator name or ID (for customers) is provided as the second argument of the command line. The system should output an error message if such person does not exist in the system.
- **Stock Update**: As new items are added to the system or ordered by the customers, stock amount of the item type to which item belongs should be updated accordingly.
- **Add New Item**: The arguments of an item to be added to the system should be separated by colon marks (:). Before processing an **Add New Item** request, the system should first check if the item type has already been defined before.
- **Change Password**: Customers can update their password, but the system should check if the provided password matches the current password.
- **Show Campaigns**: The system allows a customer to visualize existing campaigns. However, there might be no campaigns launched so far. In such case, the system should output a message whose content is given in the

Action/Event section.

- **Launch New Campaign**: To launch a new campaign successfully, the discount rate should not exceed the maximum rate allowed in the system. An admin launches a campaign not for a particular item but for all items under a specified type. If a campaign already exists for that type, the system should not allow the admin to create another one.
- **Show Orders**: To visualize the orders made so far, system should consider the senior status of technician who initiates display request.
- **Add to Cart**: In this request, the system should check if there actually is such item whose ID number is provided by a customer. If no item with *itemID* exists in the system, an error message should be displayed (the content of this message is also provided in Action/Event section). Moreover, the system should also take stock information of the item into consideration. If the stock is depleted, the system should prevent customers from adding that item to their carts.
- **Make Order**: When processing this request, the system should first consider the password of the customer who initiates the order request. The system should also check if the customer's cart is empty. If everything goes well up to this stage, the system should now calculate the total price of the order. The customer should have enough money to purchase all items in his/her cart. The system should also check the active campaigns for each item in the customer's cart, and if a campaign exists, the price for that item should be lowered depending on the discount rate defined in the campaign. For the total price calculation, the system should also consider the customer's present status. If his/her status is other than CLASSIC, the price should also be lowered by the system. After the process of placing order is over, the system should update the stock amount of each purchased item, update the customer's status if necessary, and calculate and display the amount of money that the customer should spend in order to pass to the higher status (if applicable).
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General constraints:

All outputs should be printed to the console and should match output formats provided in the Section Events/Actions.

The **minimum** submission format is (minimum meaning that your zipped folders may contain other files/folders):

```
b<student id>.zip
− javadoc
− src
− uml.jpg
```

COMPILE & RUN

```
javac Main.java
```

```
java Main users.txt item.txt commands.txt
```