

GIT
DEPARTMENT OF
COMPUTER ENGINEERING

CSE 222/505 – Spring 2021

REPORT FOR
HOMEWORK 1

SÜLEYMAN GÖLBOL
1801042656

1. SYSTEM REQUIREMENTS

Because of the application is going to be used by administrators , employees work in branch and customers, it should give different options for user.

Administrators can add/remove employees of branches or branches to the company.

Branch employees can add/remove products to store. They can inquire stocks and if it is less they can inform the manager(admin). They can sell and add new order for customers.

If customer doesn't have a subscription yet, they can add a subscription for customer.

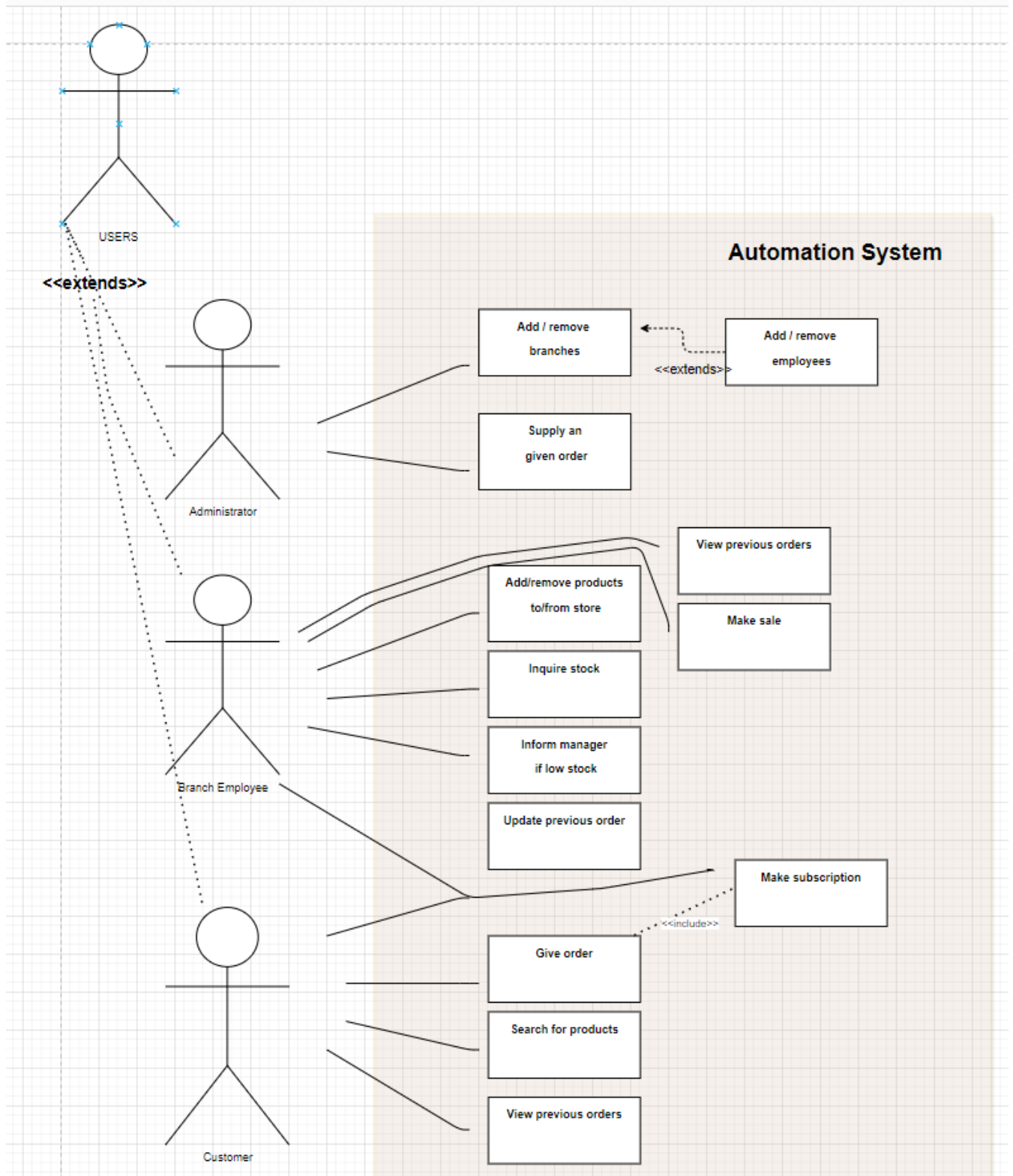
Every customer has a special customer number.

Customers can search for products but firstly they have to choose color and product model or they can choose branch and then they can list all the products that store has. Another option is they can give product type and color info(if there has a color option) and they can find which branch has that product.

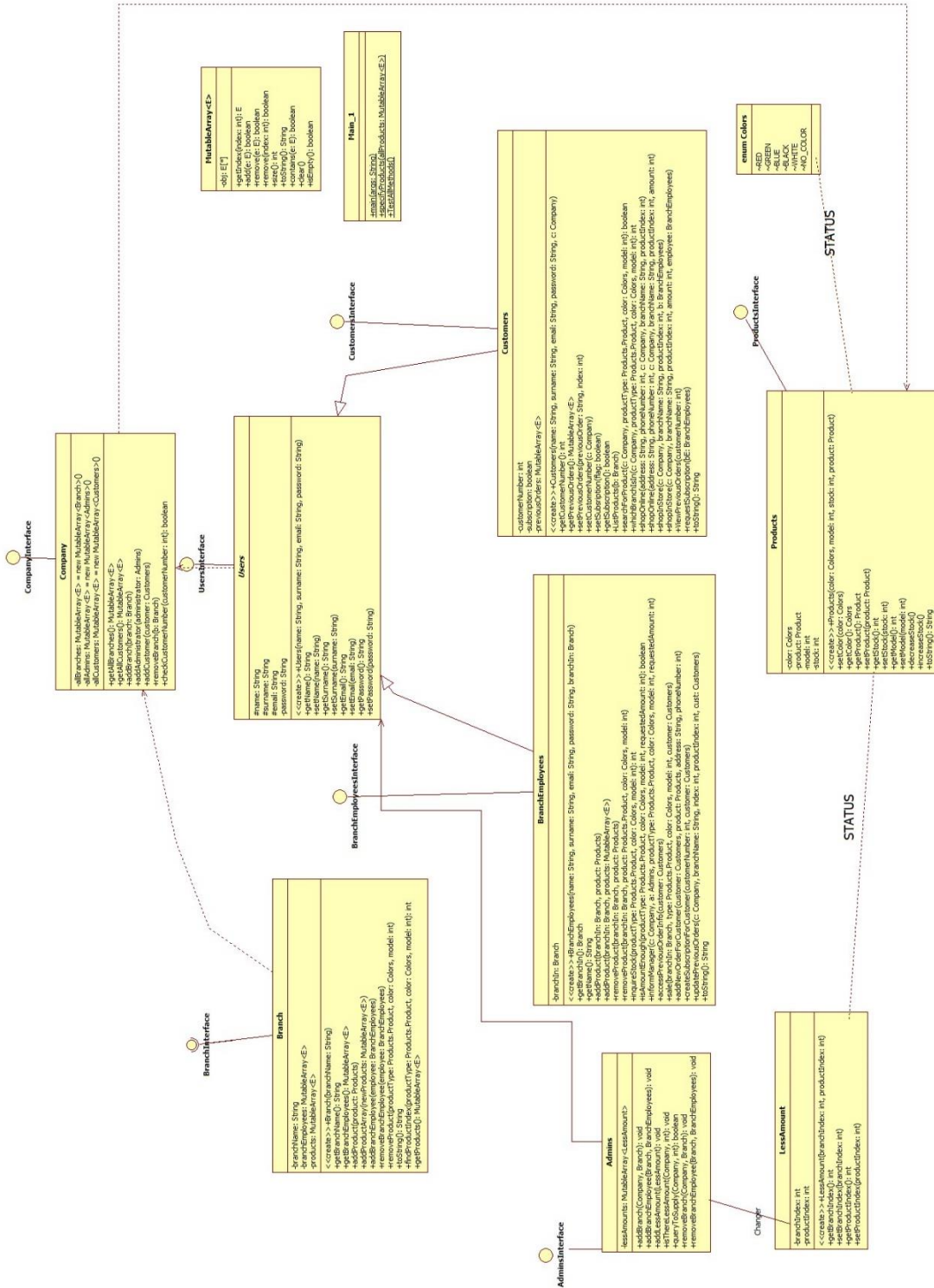
They can access previous orders by their special customer number.

Branch employees can not change their branch. They cannot add administrators or branches. They cannot see customer's previous orders without customer info.

2. USE CASE DIAGRAMS



3. CLASS DIAGRAMS



4. PROBLEM SOLUTION APPROACH

My solution approach was creating a Dynamic array class with just using simple arrays. If I hadn't use them, I would have to create methods like `addToArray()`, `removeFromArray()` etc.

But with my solution I just created a class with generics. Then when I need arrays I just used the class (which is called `MutableArray`).

My another approach was using abstract class for Users. I created variables like name, surname, email, id inside of it. So when I created other user classes like Admins, BranchEmployees and Customers, I just extended it from Users class.

Other problem was product's color and type. For these I created enums. So for example when I need to use blue color, I just used `Colors.BLUE`. And for the products that don't have color info, I used `Colors.NO_COLOR`.

My last problem and approach was controlling customers and products from Admins class at the same time. To solve this I created Company class. This class helped me a lot because I created branches admins and customers in this class. So connecting them became easy.

5. TEST CASES

5.1) CREATING ADMIN AND BRANCHES

```
Company company = new Company();
Branch branch1, branch2, branch3, branch4, tempBranch;
BranchEmployees be1, be2, be3, be4, tempEmployee;
Admins admin = new Admins("Suleyman", "Golbol", "info@sglbl.com", "1234");
System.out.println(admin.getName());
System.out.println("----TEST ALL----");
System.out.println("ADDING 4 BRANCHES ");
admin.addBranch(company, branch1 = new Branch("Hatay Branch") );
admin.addBranch(company, branch2 = new Branch("Adana Branch") );
admin.addBranch(company, branch3 = new Branch("Mersin Branch") );
admin.addBranch(company, branch4 = new Branch("Kocaeli Branch") );
admin.addBranch(company, tempBranch = new Branch("Temp Branch") );
System.out.println(company.getAllBranches().toString() );
```

5.2) ADMIN ADDS BRANCH EMPLOYEES

```
System.out.println("--PERSONS(USERS) SUBSCRIBING TO SYSTEM WITH DEFINING THEIR INFO--");
System.out.println("--ADDING BRANCH EMPLOYEES--");
admin.addBranchEmployee(branch1, be1 = new BranchEmployees("Cemil", "Koçak", "cemil@b.com","xyzt" , branch1) );
admin.addBranchEmployee(branch2, be2 = new BranchEmployees("Ahmet", "Açık", "ahmet@b.com","liki" , branch1) );
admin.addBranchEmployee(branch3, be3 = new BranchEmployees("Furkan", "Boz", "furkan@bc.com","sifre" ,branch1) );
admin.addBranchEmployee(branch4, be4 = new BranchEmployees("Yahya", "Tutmaz", "yahya@c.com","kocaeli" , branch1));
admin.addBranchEmployee(tempBranch, tempEmployee=new BranchEmployees("Ali", "Can", "alia@c.com","pass" , tempBranch));
```

5.3) REMOVING BRANCH AND BRANCH EMPLOYEES

```
System.out.print(branch1.getBranchEmployees().toString() + branch2.getBranchEmployees().toString());
System.out.println( branch3.getBranchEmployees().toString() + branch4.getBranchEmployees().toString() + tempBranch.getBranchEmployees().toString());
System.out.println("--REMOVING BRANCH EMPLOYEE--");
admin.removeBranchEmployee(tempBranch, tempEmployee);
System.out.print(branch1.getBranchEmployees().toString() + branch2.getBranchEmployees().toString());
System.out.println( branch3.getBranchEmployees().toString() + branch4.getBranchEmployees().toString() + tempBranch.getBranchEmployees().toString());
System.out.println("--REMOVING BRANCH--");
admin.removeBranch(company, tempBranch);
System.out.println(company.getAllBranches().toString() );
```

TERMINAL OUTPUT

```
sglbl@Sgbl1PC:/mnt/c/Araclar/GTU/2.Sınıf/2.Dönem/Cse222/HW1$ make
javac -d classfiles *.java
java -cp classfiles Main
Admin: Suleyman Golbol
----TEST ALL----
ADDING 4 BRANCHES
[ Hatay Branch, Adana Branch, Mersin Branch, Kocaeli Branch, Temp Branch ]
--PERSONS(USERS) SUBSCRIBING TO SYSTEM WITH DEFINING THEIR INFO--
--ADDING BRANCH EMPLOYEES--
[ Cemil Koçak ][ Ahmet Açık ][ Furkan Boz ][ Yahya Tutmaz ][ Ali Can ]
--REMOVING BRANCH EMPLOYEE--
[ Cemil Koçak ][ Ahmet Açık ][ Furkan Boz ][ Yahya Tutmaz ][ ]
--REMOVING BRANCH--
[ Hatay Branch, Adana Branch, Mersin Branch, Kocaeli Branch ]
```

5.4) CREATING CUSTOMERS WITH INFO

```
System.out.println("--CREATING CUSTOMERS WITH NAME EMAIL AND PASSWORD--");
Customers customer1, customer2, customer3, customer4;
company.addCustomer( customer1 = new Customers("Ali", "Cem", "alicem@gmail.com", "1iki3", company) );
company.addCustomer( customer2 = new Customers("Oya", "Su", "oya@gmail.com", "4321", company) );
company.addCustomer( customer3 = new Customers("Talat", "Ay", "talat@gmail.com", "1233", company) );
company.addCustomer( customer4 = new Customers("Baran", "Solmaz", "brn@gmail.com", "1111", company) );
```

5.5) CREATING PRODUCTS

```
System.out.println("CREATING PRODUCTS OF BOOK CASES");
for(int i=0; i<12; i++)
    allProducts.add( new Products(Colors.NO_COLOR, i+1, 10, Products.Product.BOOK_CASES) );
System.out.println("CREATING PRODUCTS OF OFFICE CABINETS");
for(int i=0; i<12; i++)
    allProducts.add( new Products(Colors.NO_COLOR, i+1, 10, Products.Product.OFFICE_CABINETS) );

System.out.println("CREATING PRODUCTS OF MEETING TABLES");
for(int i=0; i<10; i++)
    allProducts.add( new Products(Colors.BLACK, i+1, 10, Products.Product.MEETING_TABLES) );
for(int i=0; i<10; i++)
    allProducts.add( new Products(Colors.GREEN, i+1, 10, Products.Product.MEETING_TABLES) );
for(int i=0; i<10; i++)
    allProducts.add( new Products(Colors.BLUE, i+1, 10, Products.Product.MEETING_TABLES) );
for(int i=0; i<10; i++)
    allProducts.add( new Products(Colors.RED, i+1, 10, Products.Product.MEETING_TABLES) );

System.out.println("CREATING PRODUCTS OF OFFICE DESKS");
for(int i=0; i<5; i++)
    allProducts.add( new Products(Colors.BLACK, i+1, 10, Products.Product.OFFICE_DESKS) );
for(int i=0; i<5; i++)
```

5.6) BRANCH EMPLOYEES ADD PRODUCTS TO BRANCH

```
System.out.println("BRANCH EMPLOYEES ADDS PRODUCTS");
be1.addProduct(branch1, allProducts); //branch employee ads products to her/his branch.
be2.addProduct(branch2, allProducts);
be3.addProduct(branch3, allProducts);
be4.addProduct(branch4, new Products(Colors.BLUE, /*model*/1, /*stock*/2, Products.Product.MEETING_TABLES ));
//Branch4 has just one product in it.
```

5.7) CUSTOMER LISTS ALL PRODUCTS

5.8) CUSTOMER SEARCH FOR PRODUCTS

5.9) TRYING TO FIND PRODUCT DOESN'T EXIST

5.10) TRYING TO FIND PRODUCT EXISTS

5.11) CUSTOMER SHOPPING FROM STORE

5.12) CUSTOMER LEARNS WHICH BRANCH HAS PRODUCT

5.13) TRY BUYING PRODUCT WITHOUT SUBSCRIPTION

5.14) REQUESTING SUBSCRIPTION FOR CUSTOMER FROM EMPLOYEE

5.15) BUYING PRODUCT WITH SUBSCRIPTION

5.16) ADMIN QUERIES IF NEED TO BE SUPPLIED

5.17) IF NEEDED, SUPPLIES

5.18) TRYING TO BUY PRODUCT COULDN'T FIND IN A BRANCH

5.19) EMPLOYEE TRY TO REMOVE A PRODUCT FROM BRANCH DOESN'T EXIST

5.20) CUSTOMER SHOPPING ONLINE

5.21) CUSTOMER TRIES TO BUY WITH A BIG AMOUNT WHICH IS NOT ENOUGH

5.22) BRANCH EMPLOYEE INQUIRES STOCK

5.23) EMPLOYEE INFORMS ADMIN, ADMIN INCREASING STOCK

5.24) BRANCH EMPLOYEE SELLS PRODUCT TO CUSTOMER

5.25) BRANCH EMPLOYEE ACCESS CUSTOMER'S PREVIOUS ORDER

6) RUNNING AND RESULTS

```
sg1b1@Sg1b1PC:/mnt/c/Aracilar/GTU/2.Sınıf/2.Dönem/Cse222/HW1$ make
javac -d classfiles *.java
java -cp classfiles Main
Admin: Suleyman Golbol
---TEST ALL---
ADDING 4 BRANCHES
[ Hatay Branch, Adana Branch, Mersin Branch, Kocaeli Branch, Temp Branch ]
--PERSONS(USERS) SUBSCRIBING TO SYSTEM WITH DEFINING THEIR INFO--
--ADDING BRANCH EMPLOYEES--
[ Cemil Koçak ][ Ahmet Açık ][ Furkan Boz ][ Yahya Tutmaz ][ Ali Can ]
--REMOVING BRANCH EMPLOYEE--
[ Cemil Koçak ][ Ahmet Açık ][ Furkan Boz ][ Yahya Tutmaz ][ ]
--REMOVING BRANCH--
[ Hatay Branch, Adana Branch, Mersin Branch, Kocaeli Branch ]
--CREATING CUSTOMERS WITH NAME EMAIL AND PASSWORD--
Ali Cem's customer number is 54
Oya Su's customer number is 2
Talat Ay's customer number is 78
Baran Solmaz's customer number is 95
--PRINTING ALL CUSTOMERS--
[ Name: Ali Cem Email: alicem@gmail.com, Name: Oya Su Email: oya@gmail.com, Name: Talat Ay Email: talat@gmail.com, Name: Baran Solmaz Email: brn@gmail.com ]
--CREATING PRODUCTS--
CREATING PRODUCTS OF BOOK CASES
CREATING PRODUCTS OF OFFICE CABINETS
CREATING PRODUCTS OF MEETING TABLES
CREATING PRODUCTS OF OFFICE DESKS
CREATING PRODUCTS OF OFFICE CHAIRS
```

```
BRANCH EMPLOYEES ADDS PRODUCTS
--CUSTOMER LISTS ALL PRODUCTS--
Model: 1 Color: NO_COLOR Type: BOOK_CASES
Model: 2 Color: NO_COLOR Type: BOOK_CASES
Model: 3 Color: NO_COLOR Type: BOOK_CASES
Model: 4 Color: NO_COLOR Type: BOOK_CASES
Model: 5 Color: NO_COLOR Type: BOOK_CASES
Model: 6 Color: NO_COLOR Type: BOOK_CASES
Model: 7 Color: NO_COLOR Type: BOOK_CASES
Model: 8 Color: NO_COLOR Type: BOOK_CASES
Model: 9 Color: NO_COLOR Type: BOOK_CASES
Model: 10 Color: NO_COLOR Type: BOOK_CASES
Model: 11 Color: NO_COLOR Type: BOOK_CASES
Model: 12 Color: NO_COLOR Type: BOOK_CASES
Model: 1 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 2 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 3 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 4 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 5 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 6 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 7 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 8 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 9 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 10 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 11 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 12 Color: NO_COLOR Type: OFFICE_CABINETS
Model: 1 Color: BLACK Type: MEETING_TABLES
Model: 2 Color: BLACK Type: MEETING_TABLES
Model: 3 Color: BLACK Type: MEETING_TABLES
```



```

Model: 6 Color: BLUE Type: OFFICE_CHAIRS
Model: 7 Color: BLUE Type: OFFICE_CHAIRS
--CUSTOMER SEARCH FOR PRODUCTS--
--TRYING TO FIND BLACK OFFICE CABINETS(WHICH SHOULD BE FALSE BECAUSE THERE ISN'T COLOR CHOICE)--
false
--TRYING TO FIND BLUE OFFICE DESKS--
true
---CUSTOMER SHOPPING FROM STORE---
--CUSTOMER TRIES TO FIND A PRODUCT BRANCH DOESN'T HAVE( BLACK BOOK CASES)--
Product you searched couldn't find.

--CUSTOMER LEARNS WHICH BRANCH HAS THAT PRODUCT( BLUE OFFICE DESK)--
Product found in Hatay Branch store / stock is 10 and product index is 79
Product found in Adana Branch store / stock is 10 and product index is 79
Product found in Mersin Branch store / stock is 10 and product index is 79

--BUYING PRODUCT WITH INDEX NUMBER IN-STORE (BLUE OFFICE DESK) WITHOUT SUBSCRIPTION--
Please request subscription first.

--REQUESTING SUBSCRIPTION FOR CUSTOMER FROM EMPLOYEE--
--BUYING PRODUCT WITH INDEX NUMBER IN-STORE (BLUE OFFICE DESK) WITH SUBSCRIPTION--
Product found in Hatay Branch store / stock is 10 and product index is 79
Product found in Adana Branch store / stock is 10 and product index is 79
Product found in Mersin Branch store / stock is 10 and product index is 79
Buying Successful
BRANCH EMPLOYEE IS UPDATING CUSTOMER'S PREVIOUS ORDER
S|Order-> Branch: Adana Branch Model: 1 Color: BLUE Type: OFFICE_DESKS
--ADMIN QUERIES IF NEED TO BE SUPPLIED (IF NEEDED, SUPPLIES AND PUTS "S" INSTEAD "N")--
S|Order-> Branch: Adana Branch Model: 1 Color: BLUE Type: OFFICE_DESKS

```

```

--TRYING TO BUY PRODUCT COULDN'T FIND IN A BRANCH--
Please request subscription first.

PRINTING BRANCH4 PRODUCTS -> [ Model: 1 Color: BLUE Type: MEETING_TABLES ]
--EMPLOYEE TRIES TO REMOVE A PRODUCT FROM A BRANCH THAT DOESN'T EXIST--
Product you want to delete couldn't find.

--EMPLOYEE REMOVES A PRODUCT FROM A BRANCH THAT EXISTS--
PRINTING BRANCH4 PRODUCTS -> [ ]

```

```

--CUSTOMER SHOPPING ONLINE--
--SEARCH FOR A SPECIFIC PRODUCT(IF FOUND RETURN TRUE)--
true
--CUSTOMER LEARNS WHICH BRANCH HAS THAT PRODUCT( OFFICE CABINET WHICH DOESN'T HAVE COLOR CHOICE)--
Product found in Hatay Branch store / stock is 10 and product index is 14
Product found in Adana Branch store / stock is 10 and product index is 14
Product found in Mersin Branch store / stock is 10 and product index is 14
Product found in Hatay Branch store / stock is 10 and product index is 13
Product found in Adana Branch store / stock is 10 and product index is 13
Product found in Mersin Branch store / stock is 10 and product index is 13

```

```

--CUSTOMER TRIES TO BUY WITH A BIG AMOUNT WHICH IS NOT ENOUGH--
Stock is not enough for amount. Tell employee to inform the manager.
--BRANCH EMPLOYEE INQUIRES STOCK AND CHECKS IF AMOUNT IS ENOUGH (RETURNS TRUE IF ENOUGH)--
false
--ADMIN INFORMED, ADMIN INCREASING STOCK--
--CUSTOMER TRIES TO BUY AGAIN--
Buying Successful
N|Order-> Branch: Mersin Branch Model: 2 Color: NO_COLOR Type: OFFICE_CABINETS Address: Turuncclu, Hatay 31160 Phone: 2233870
--BRANCH EMPLOYEE SELLS PRODUCT TO CUSTOMER--
--BRANCH EMPLOYEE ACCESS CUSTOMER'S PREVIOUS ORDER--
Order-> Branch: Mersin Branch Model: 2 Color: NO_COLOR Type: OFFICE_CABINETS
S|Order-> Branch: Mersin Branch Model: 2 Color: NO_COLOR Type: OFFICE_CABINETS Address: Turuncclu, Hatay 31160 Phone: 2233870

sg1b1@Sg1b1PC:/mnt/c/Arac1ar/GTU/2.Sınıf/2.Dönem/Cse222/HW1$ █

```