

**GTU Department of Computer Engineering**  
**CSE 222/505 - Spring 2021**  
**Homework # Report**

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## 1 SYSTEM REQUIREMENTS

At first, we should initialize a company.

```
public static Company initCompany()
{
    Company company = new Company(new Admin(getString("Name : "), getString("Surname : "), getString("Mail : "), getString("Password : ")));
    Admin admin = company.getAdmin();

    // add 4 branches
    for(int i=0; i<4; i++) admin.addBranch();

    return company;
}
```

Company Constructor takes an Admin object. Admin constructor takes name, surname, email and password as parameters. In this method I use addBranch method to create 4 branches initially.

### Admin

Admins can add and delete branch/employee/customers.

```
public boolean addBranch()
```

When deleting a branch, branch id is required. When adding, software creates a unique id so it is not required

```
public boolean removeBranch(int branchId)
```

When adding a branch employee, an Employee object needs to be passed.

```
public boolean addBranchEmployee(Employee person)
```

When deleting it is only required to pass an employee id

```
public boolean removeBranchEmployee(int id)
```

Admin also can list all the employees or all the subscribers(customers)

```
public void listEmployees()
```

```
public void listSubscribers()
```

## Employee

Branch employees can make in-shop sales. sales method takes customerId,

```
public void sell(int customerId, int productId, int amount) throws Exception
```

productId and amount of products as parameters

## Company Members

Both Admin and Employee class inherits from CompanyMembers class. They both have access to add and remove a customer.

```
public boolean addCustomer(Customer customer)
```

```
public boolean removeCustomer(int customerId)
```

Add and remove products

```
public void addProducts(int branchId, int productId, int amount) throws Exception
```

```
public void removeProducts(int branchId, int productId, int amount) throws Exception
```

And list the products from all the branches that is out of stock

```
public void productsNeedToBeSupplied()
```

## Customer

User is able to subscribe to the company after creating a customer object.

```
public void subscribe() throws Exception
```

This method sets customer object's isSubscribed property to true. And sets the id to a unique integer value. Customer is able to buy online or buy in shop.

```
public void buyOnline(int productId, int amount) throws Exception
```

```
public void buyInShop(int branchId, int productId, int amount) throws Exception
```

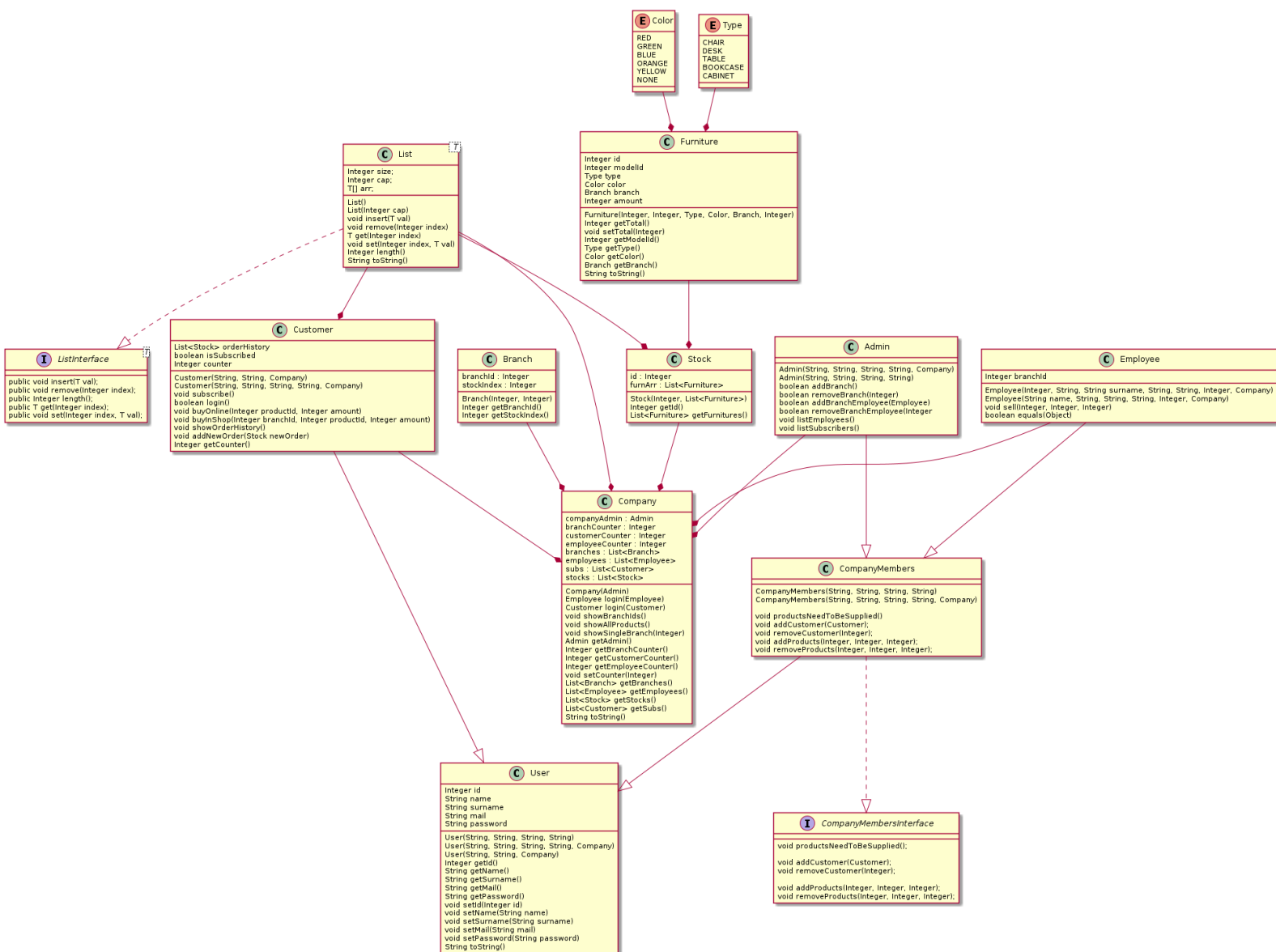
When customer buys online, they only pass productId and amount of products as a parameter. When buying in shop, branch id needs to be

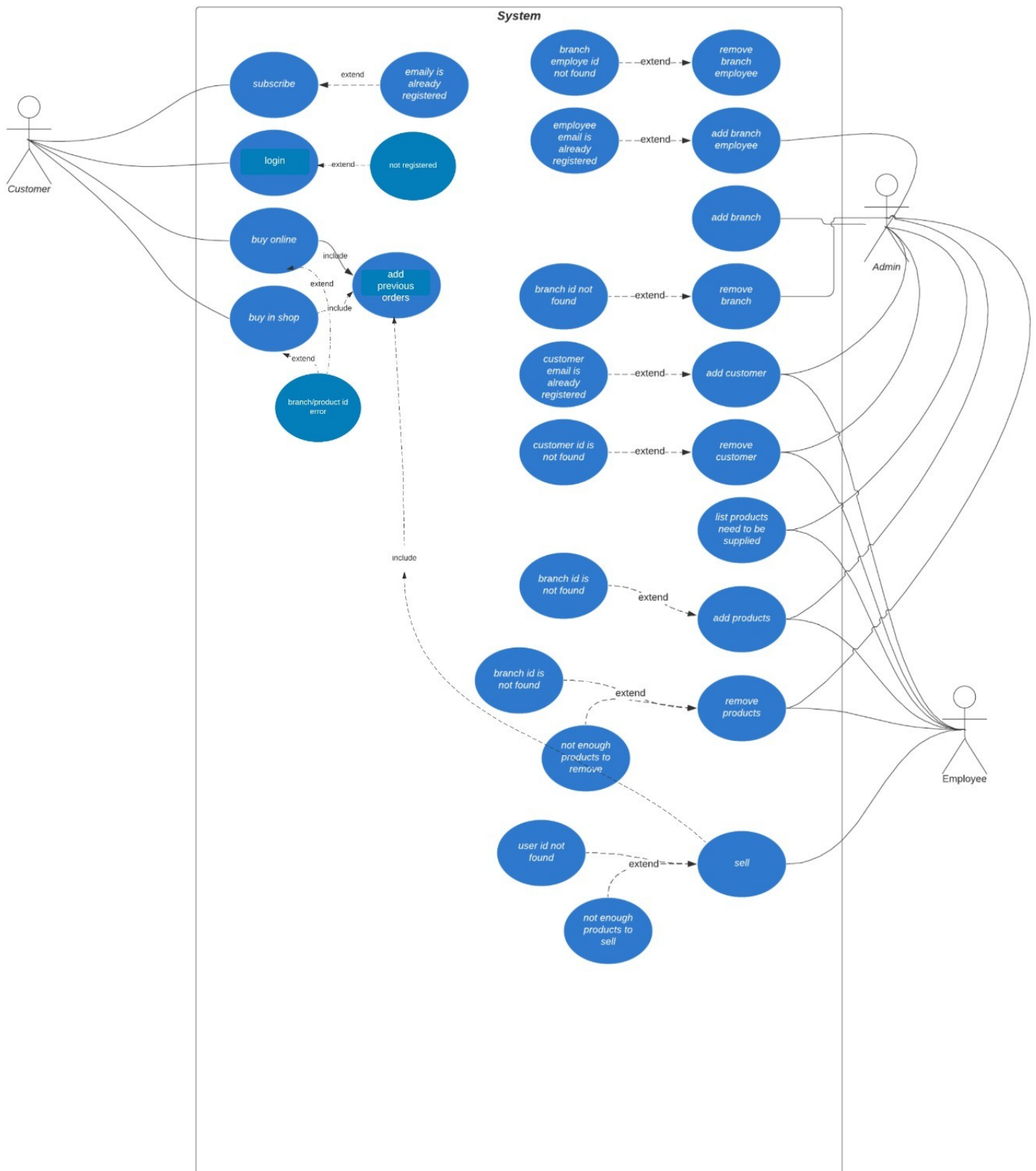
passed as a parameter also. After these methods, new order is inserted to orderHistory array. This array holds all the previous orders of a customer.

```
public void addNewOrder(Stock newOrder)
```

A stock object needs to be send as a parameter.

## **2 USE CASE AND CLASS DIAGRAMS**





### 3 PROBLEM SOLUTION APPROACH

I have created a ListInterface<T> interface and List<T> class that implements it. Since we were not allowed to use any data structures other than arrays, I developed my own ArrayList like data structure. And it made the whole structure very clean.

### 4 TEST CASES

Create a company with administrator

```
Name : Barış  
Surname : Ayyıldız  
Mail : b@mail.com  
Password : 123456
```

#### Admin

Remove branch

```
Branch Id : 0  
Branch have removed
```

```
Branch Id : 99  
Branch id not found
```

Add branch employee

```
Name : john  
Surname : doe  
Mail : j@mail.com  
Password : 123  
Branch Id : 2  
Employee hired!
```

```
Name : testing  
Surname : testing  
Mail : j@mail.com  
Password : abcd  
Branch Id : 1  
This email is already registered with another employee...
```

Remove branch employee

```
Employee id : 0  
Employee have fired!
```

```
Employee id : 12  
Employee id is not found...
```

Add customer

```
Name : customer1  
Surname : customer1  
Mail : c@mail  
Password : 123  
user id is : 0  
Customer added...
```

```
Name : testing  
Surname : testing  
Mail : c@mail  
Password : 3472634  
This email is already registered...
```

Remove customer

```
CustomerId : 0  
Customer removed
```

```
CustomerId : 120  
Customer id is not found...
```

Add products

```
BranchId : 2  
ProductId : 10  
Amount : 20
```

```
BranchId : 2  
ProductId : 50  
Amount : -34  
Amount should be greater than 0
```

```
BranchId : 1  
ProductId : 500  
Amount : 3  
Index is out of bounds
```

```
command : 8  
BranchId : 9  
ProductId : 12  
Amount : 5  
branch is not found...
```

Remove products

```
BranchId : 2  
ProductId : 20  
Amount : 2
```

```
BranchId : 10  
ProductId : 20  
Amount : 3  
branch is not found...
```



```
BranchId : 3  
ProductId : 100  
Amount : -50  
Amount should be greater than 0
```

## Employee

Sell

```
CustomerId : 0  
ProductId : 50  
Amount : 4
```

```
CustomerId : 2  
ProductId : 23  
Amount : 3  
user not found...
```

## Customer

Buy online

```
ProductId : 21  
Amount : 4  
Home address : adress  
Phone number : 053543
```