

GTU Department of Computer Engineering
CSE 222/505 - Spring 2021
Homework #01 Report

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1. SYSTEM REQUIREMENTS

First, this is an automation system of a company. So, for a working system. There should be a company.

```
System.out.println("Load Example Company");  
company = useExampleCompany();
```

As example, loads an example company.

When loading a company, This functions does the following.

Create an admin

```
CompanyAdministrator admin = new CompanyAdministrator(company, "Erdogan", "Hoca", "123");
```

Create 4 Branches

```
CompanyBranch branch1 = new CompanyBranch(1);  
CompanyBranch branch2 = new CompanyBranch(2);  
CompanyBranch branch3 = new CompanyBranch(3);  
CompanyBranch branch4 = new CompanyBranch(4);
```

Create 4 Employees

```
CompanyEmployee employee1 = new CompanyEmployee(company, "Burak", "Hoca", "123", branch1);  
CompanyEmployee employee2 = new CompanyEmployee(company, "Basak", "Hoca", "123", branch2);  
CompanyEmployee employee3 = new CompanyEmployee(company, "Ilhan", "Hoca", "123", branch3);  
CompanyEmployee employee4 = new CompanyEmployee(company, "Muhammed", "Student", "123", branch4);
```

Create 2 Customers

```
Customer customer1 = new Customer("Siftah", "Para", "123", "123");  
Customer customer2 = new Customer("Foo", "Bar", "123", "123");
```

And add all of them to company respectively,

```
company.addAdmin(admin);  
admin.addBranch(branch1); admin.addBranch(branch2);  
admin.addBranch(branch3); admin.addBranch(branch4);  
admin.addBranchEmployee(employee1); admin.addBranchEmployee(employee2);  
admin.addBranchEmployee(employee3); admin.addBranchEmployee(employee4);  
employee1.addCustomer(customer1); employee1.addCustomer(customer2);
```

Notice that, company adds admin, admin adds employee and branch and employee adds customer.

And finally, add products to sell

```

employee1.addProduct(new Product("Chair", 1, 1, 5));
employee1.addProduct(new Product("Desk", 3, 4, 5));
employee1.addProduct(new Product("Table", 2, 5, 5));
employee1.addProduct(new Product("Bookcase", 1, 4, 5));
employee1.addProduct(new Product("Cabinet", 4, 0, 5));

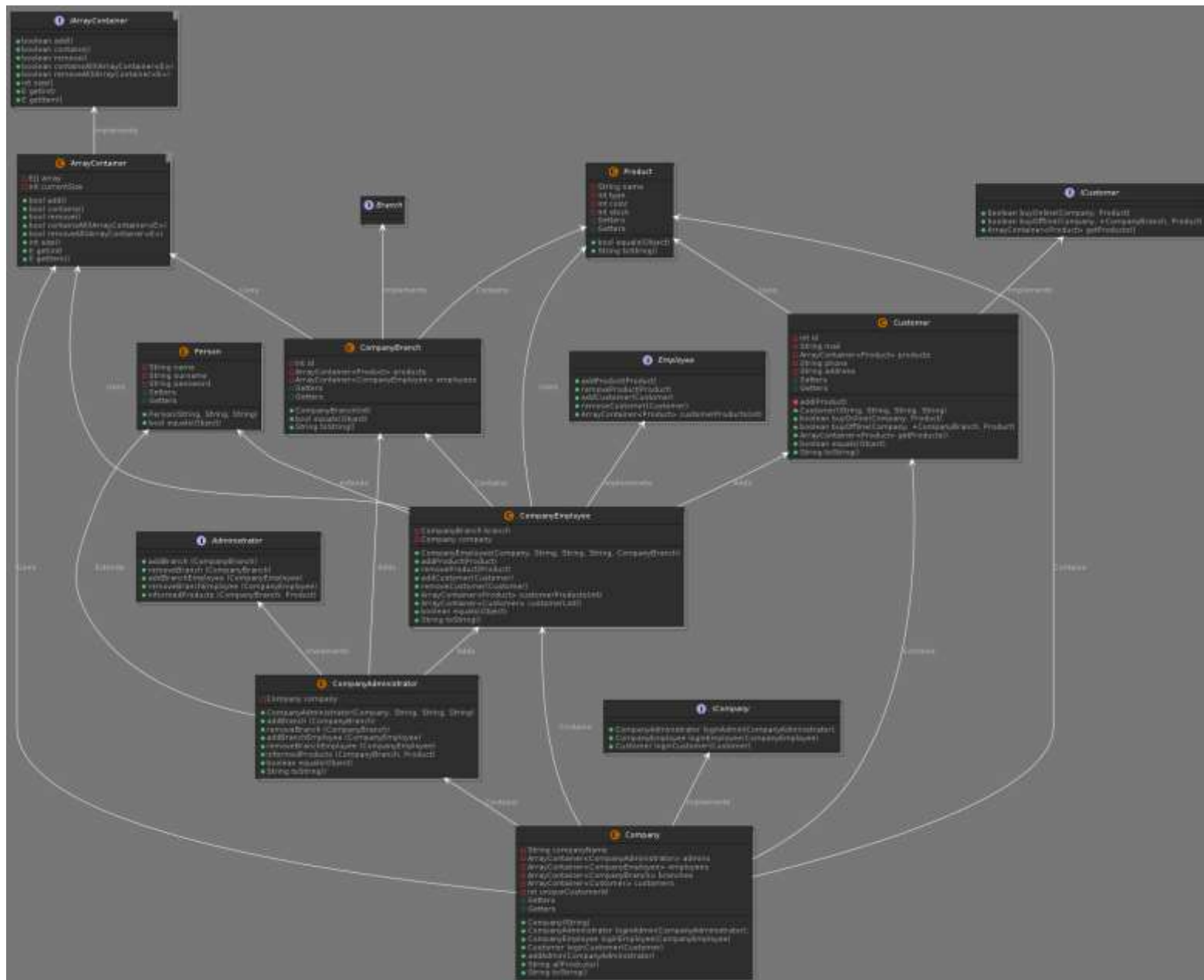
```

After this process, your automation system for this company is ready to use.

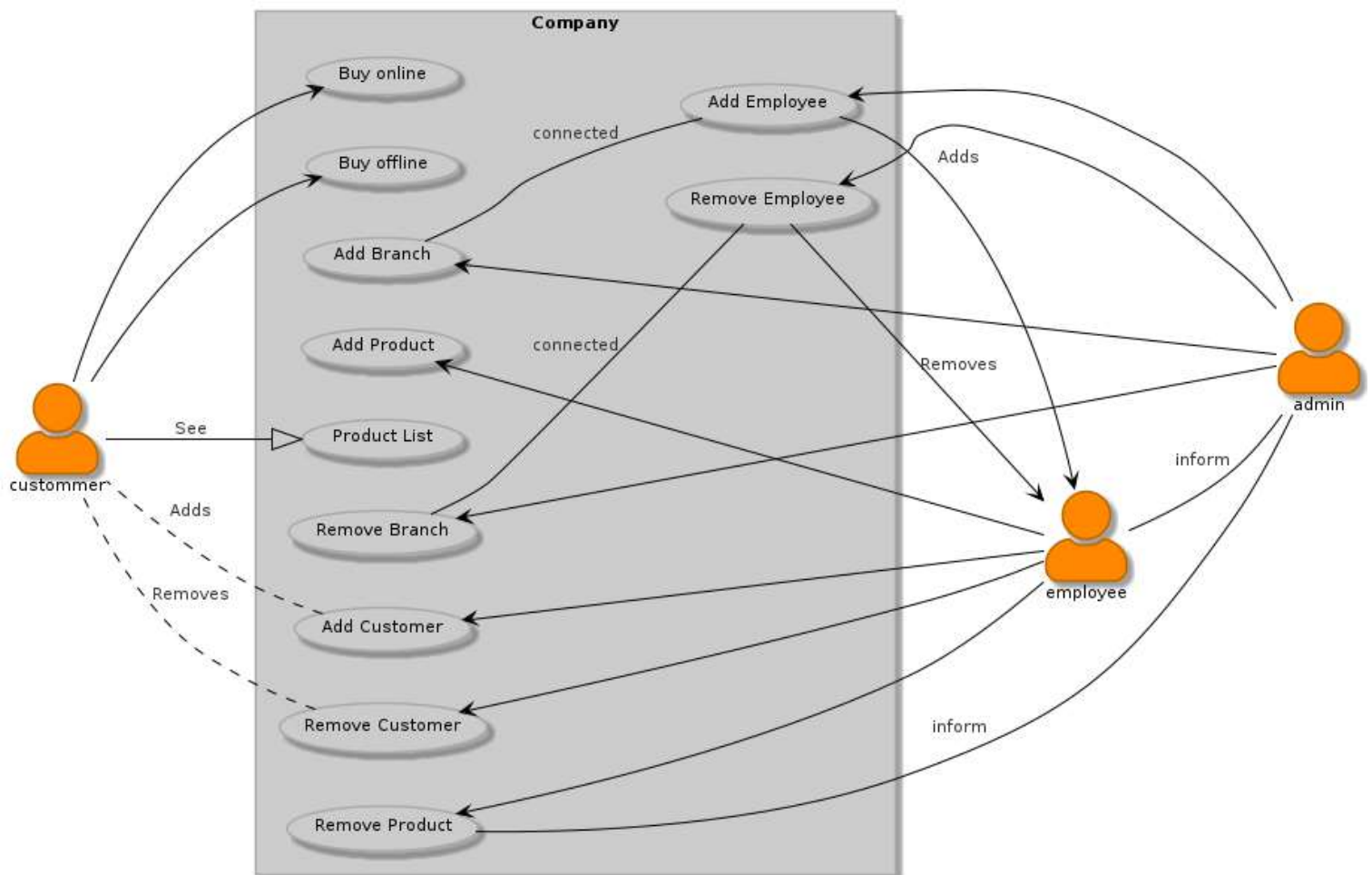
2. USE CASE AND CLASS DIAGRAMS

2.1 Class Diagram UML

(More HD Version in folder)



2.2 Use Case Diagram



3. PROBLEM SOLUTION APPROACH

First of all, I have to do all approach with standard java array. It is not easy when not using a data structure. So I implement a container class with standard java array to behave like ArrayList Class. After this implementation, Implementation code seems more easy.

As a solution. I draw a plan on a paper to, which class will represent which work or which class will extends or contains which plan. This was like Use Case and Class UML

diagram. After those thinking process. I start to implement my interfaces and source codes separately to see what I should do and how I should.

There was another problem when I implement the code. This was, accessing a parent class from a child class. I found a solution for this like, adding parent class to derived class as a field and assign via a constructor solved my problem.

4. TEST CASES

Create a company

```
Company company = new Company("GTU Office Solutions");
```

Create and add a admin

```
CompanyAdministrator admin = new CompanyAdministrator(company, "Erdogan", "Hoca", "123");  
company.addAdmin(admin);
```

Login as a admin

```
admin = company.loginAdmin(  
    new CompanyAdministrator(company, getStr("Name:"), getStr("Surname:"), getStr("Password:")));
```

Add Branch

```
((CompanyAdministrator) admin).addBranch(new CompanyBranch(getInt("Enter Branch Id:")));
```

Add Employee

```
((CompanyAdministrator) admin)  
    .addBranchEmployee(new CompanyEmployee(company, getStr("Name:"), getStr("Surname:"),  
        getStr("Password:"), new CompanyBranch(getInt("Enter Branch Id:"))));
```

Remove Branch

```
((CompanyAdministrator) admin).removeBranch(new CompanyBranch(getInt("Enter Branch Id:")));
```

Remove Employee

```
((CompanyAdministrator) admin).removeBranchEmployee(  
    new CompanyEmployee(company, getStr("Name:"), getStr("Surname:"), null, null));  
System.out.println("Remove Employee Successful");
```

See Branch List

```
System.out.println("Branch List\n" + company.getBranches());
```

See Employee List


```
System.out.println("Employee List\n" + company.getEmployees());
```

Login as a employee

```
employee = company.loginEmployee(  
    new CompanyEmployee(company, getStr("Name:"), getStr("Surname:"), getStr("Password:"), null));
```

Add Customer

```
employee.addCustomer(getCustomer());
```

Add Product

```
employee.addProduct(getProduct());
```

Remove Customer

```
employee.removeCustomer(new Customer(getStr("Name:"), getStr("Surname:"), null, null));
```

Remove Product

```
employee.removeProduct(getProduct());
```

See a customer's products

```
employee.customerProducts(temp);
```

See Customer list

```
System.out.println("Customers List\n" + company.getCustomers());
```

Login as a customer

```
customer = company.loginCustomer(getCustomer());
```

Buy online (If this is the first time, than ask for address and phone number)

```
se 1.  
if (customer.getPhone() == null && customer.getAddress() == null) {  
    System.out.println("First Time Online Buyers Should Provide Address and Phone");  
    customer.setAddress(getStr("Address:"));  
    customer.setPhone(getStr("Phone:"));  
}  
System.out.println("Enter Desired Product Information");  
if (customer.buyOnline(company, getProduct()))
```

Buy Offline

```
if (customer.buyOffline(company, new CompanyBranch(getInt("Branch Id:"), getProduct()))
```

See old purchases

```
System.out.println(customer.getProducts());
```

See all products of company

```
System.out.println(company.allProducts());
```

5. RUNNING AND RESULTS

There are several options for result. In this report, menu option was shown.

Menu when run the program.

```
-Menu-
1-Login with Example Company
2-Create Your Own Company from Scratch!
3-Disable login panels (Disables to ask login information each time when using menu)
4-Use quick test all functions
5-Quit
Choice:|
```

Test Company Created

```
Choice:2
Enter your Company Name:Test Company

Company Menu
1-See Company Information
2-Add an admin
3-Login as a Admin
4-Login as a Employee
5-Login as a Customer
6-See Product List
7-Close MANAGER.IO

Choice:|
```

```
Choice:2
Name:Test
Surname:Admin
Password:123
Admin Added Successfully
```

Login as admin (not success)

```
Choice:3
Admin Login Panel
Name:Test
Surname:Wrong Input
Password:123
Name Surname or Password is invalid. Or There is No Admin in Company
```

Successful login as admin

```
Choice:3
Admin Login Panel
Name:Test
Surname:Admin
Password:123
Login Success
```

ADMIN PANEL

Add Branch

```
Choice:1
Enter Branch Id:3
Branch successfully added.
```

```
Choice:1
Enter Branch Id:3
Branch adding failed. Same branch already exist
```

Add Employee


```
Choice:2
Name:Test
Surname:Employee
Password:123
Enter Branch Id:3
Employee Successfully Added.
```

```
Choice:2
Name:Test
Surname:Employee
Password:123
Enter Branch Id:2
Employee adding failed. Same employee already exist or wrong branch id
```

Remove Branch

```
Enter Branch Id:3
Success removeAll
Branch, its employees and its products are successfully removed
```

```
Enter Branch Id:3
Branch removing failed. There is no branch with this id
```

Remove Employee

```
Choice:4
Employee List
Employee:Test Employee Branch Id: 3

Name:Test
Surname:Employee
Remove Employee Failed. Employee does not match
```

EMPLOYEE PANEL

```
Choice:4
Employee Panel
Name:Test
Surname:Employee
Password:123
Login Success
```

Add Product

```
Choice:1
Name:Desk
Type:2
Color(0 for colorless):0
Stock:25
Product Added Successfully
```

```
Choice:1
Name:Desk
Type:2
Color(0 for colorless):0
Stock:40
Product Added Successfully
```

```
Choice:6
Employee's Branch Product List
Product Name:Desk      Type:2 Stock:65
```

Add Customer

```
Choice:2
Name:Test
Surname:Customer
Password:123
Mail:test@customer.com
Adding Customer Successful
```

```
Choice:2
Name:Test
Surname:Customer
Password:134
Mail:45
Adding Customer Failed. Same Customer already exist
```

Remove Product

```
Choice:3
Employee's Branch Product List
Product Name:Desk      Type:2 Stock:65

Name:invalid
Type:Test
Wrong input. Enter an int. Try Again
3
Color(0 for colorless):5
Stock:1
Removing Product stock Failed
```

Remove customer

```
Customers List
Customer:Test Customer   ID: 0 Mail:test@customer.com

Name:invalid
Surname:customer
This item not in the array.
Remove Customer Failed, There is no match
```

CUSTOMER PANEL

Login as a first time.

```
Choice:5
Customer Panel
First time customer? (Y),Type Y for Yes. Other types considered No.
Y
Enter your Info
Name:Customer
Surname:Test
Password:123
Mail:Test@custom.com
Login Success
```

Buy online

```
Choice:1
First Time Online Buyers Should Provide Address and Phone
Address:GTU
Phone:155
Enter Desired Product Information
Name:Desk
Type:2
Color(0 for colorless):0
Stock:30
Purchase Failed. Wrong Product Info
```

Buy offline

```
Choice:2
Branch Id:3
Name:Test
Type:5
Color(0 for colorless):5
Stock:20
Purchase Success
```

Purchase History

```
Choice:3
Product Name:Test          Type:5 Color:5 Stock:20
```

Purchase history from an employee

```
Employee Menu
0-My Profile
1-Add Product
2-Add Customer
3-Remove Product
4-Remove Customer
5-See a Customer's Purchase History
6-Branch Product List
7-See All Customers
8-Log Out

Choice:5
Customers List
Customer:Test Customer    ID: 0 Mail:test@customer.com

Customer ID:0
Product Name:Test        Type:5 Color:5 Stock:20
```

All Info about company

```
Choice:1

Information of Company → Test Company
Admins
-----
Admin:Test Admin

Branches and Products
-----
Branch Id:3
Employee List
Employee:Test Employee Branch Id: 3
Product List
Product Name:Test        Type:5 Color:5 Stock:80

Employees
-----
Employee:Test Employee Branch Id: 3

Customers
-----
Customer:Test Customer    ID: 0 Mail:test@customer.com
```