# GIT Department of Computer Engineering
# CSE 222/505 - Spring 2021
# Homework 3 Report

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1. **SYSTEM REQUIREMENTS**

   First, the company object is created. The name, surname, email and password of the admin are determined.

   The **admin** can add and remove branches and branch employees.

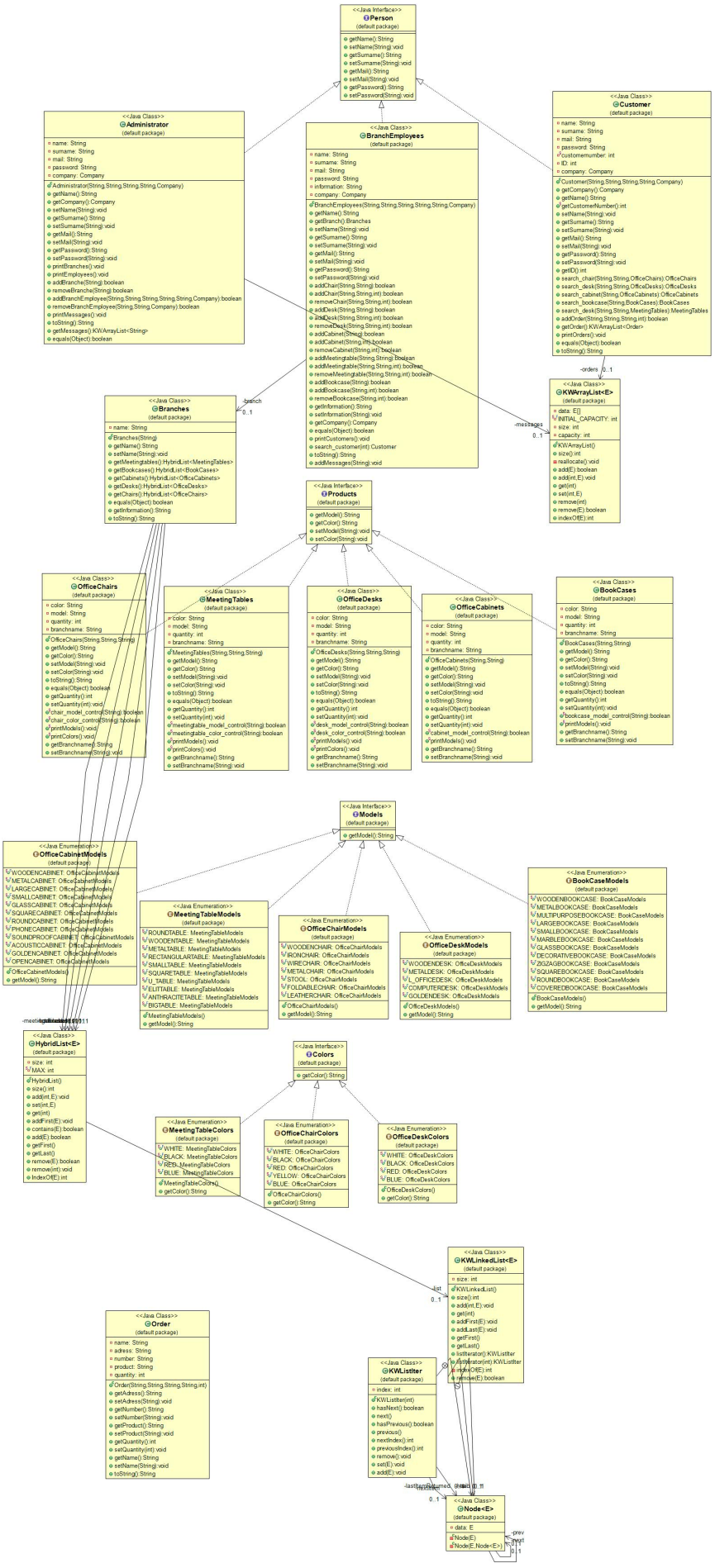
   Admin also can print employee and branch information.

   The **branch employee** can add and remove product to branch.

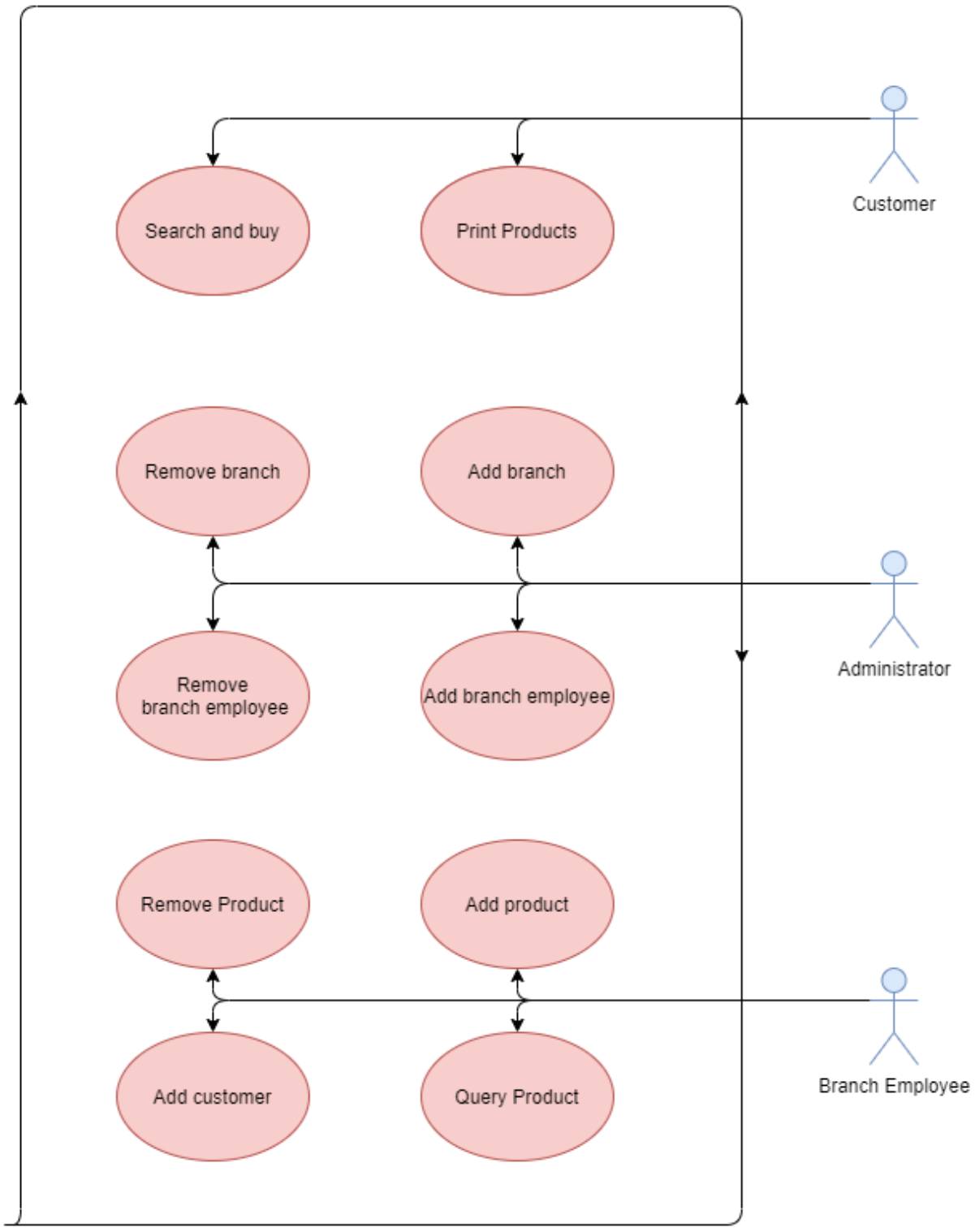
   The **customer** can search product and buy.

## 2. USE CASE AND CLASS DIAGRAMS

### 2.1 Class Diagram



2.2 Use Case Diagram



## 3. PROBLEM SOLUTION APPROACH

A kwarraylist class,kwlinkedlist class and hybrid class were created to easily access, store and manipulate data. Generate the data with these classes. Model and color types are kept in enum classes. It can be easily seen in which colors and models the products are available. User and product classes are designed using polymorphism principles.Thanks to polymorphism, transformations can be made where necessary.An order class has been created for holding orders.A database class has been created where products and users are kept.

## 4. TEST CASES

```
admin = new Administrator(name,surname,mail,password,this);
branches = new KWLinkedList<>();
employees = new KWArrayList<>();
customers = new KWArrayList<>();
admin.addBranche("Corum");
admin.addBranche("Yozgat");
admin.addBranche("Ankara");
admin.addBranche("Gebze");
admin.addBranchEmployee("Ahmet", "Cakar", "cakar@mail.com", "cakar123", "Corum",this);
admin.addBranchEmployee("Rasim Ozan", "Kutahyali", "rok@mail.com", "rok123", "Yozgat",this);
admin.addBranchEmployee("Sinan", "Engin", "engin@mail.com", "engin123", "Ankara",this);
admin.addBranchEmployee("Abdulkerim", "Durmaz", "durmaz@mail.com", "durmaz123", "Gebze",this);
this.addCustomer("Samet", "Nalbant", "nalbant@mail.com", "nalbant123", this);
this.addProduct();
```

The company object, an admin, 4 workers and automatic products were added automatically.

## 5.RUNNING AND RESULTS

### Admin

```
1
Please enter your mail:
saltu@mail.com
Please enter your password:
5918

Welcome Coskun Saltu

1.Add branch
2.Add branchemployee
3.Remove branch
4.Remove branchemployee
5.Print Branches
6.Print BranchEmployees
7.Print messages
8.Return to top menu
```

Add Branch

```
Please enter a branch name:
Alaca
The branch has been added!
Your new branches:

Name:Corum


Name:Yozgat


Name:Ankara


Name:Gebze


Name:Alaca
```

Remove branch

```
Name:Ankara


Name:Gebze

Please enter a branch name:
Ankara
The branch has been removed!
Your new branches:

Name:Corum


Name:Yozgat


Name:Gebze
```

Add Branch employee

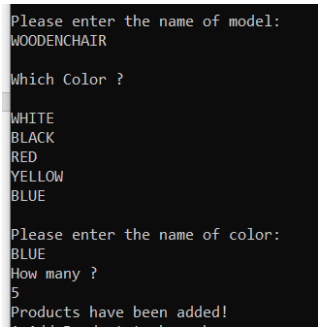
```
Please enter a employee name:
Atakan
Please enter a employee surname:
Altin
Please enter a employee mail:
altin@mail.com
Please enter a employee password:
1234
Please enter a employee branchname:
Corum
The employee has been added!
Your new Branchemployees:

Name:Ahmet Cakar        Mail:cakar@mail.com     Branch:Corum


Name:Rasim Ozan Kutahyali       Mail:rok@mail.com       Branch:Yozgat


Name:Abdulkerim Durmaz  Mail:durmaz@mail.com    Branch:Gebze


Name:Atakan Altin       Mail:altin@mail.com     Branch:Corum
```

Remove Branch employee

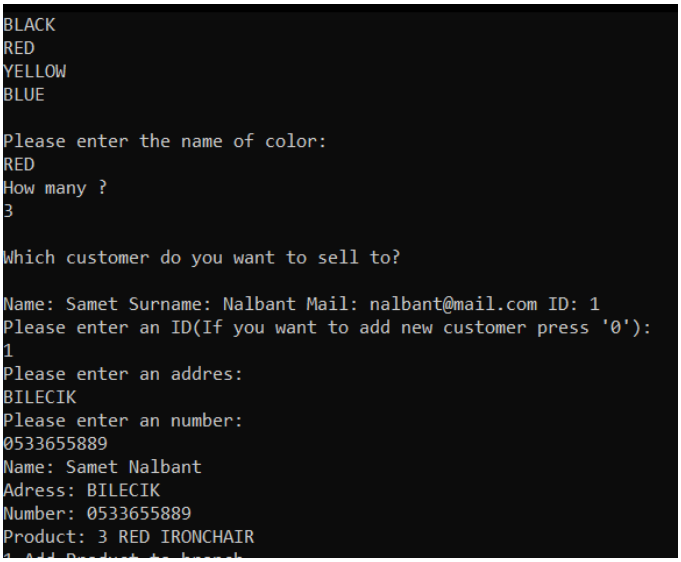
```
Please enter a employee name:
Rasim Ozan
Please enter a employee surname:
Kutahyali
The employee has been removed!
Your new Branchemployees:
Name:Ahmet Cakar        Mail:cakar@mail.com     Branch:Corum
Name:Abdulkerim Durmaz  Mail:durmaz@mail.com    Branch:Gebze
Name:Atakan Altin       Mail:altin@mail.com     Branch:Corum
```

**Branch Employee**

Add Product




Make Sell




Print Product

**Customer**

Print product

```
5 BLACK COMPUTERDESK
5 RED COMPUTERDESK
5 BLUE COMPUTERDESK
5 WHITE GOLDENDESK
5 BLACK GOLDENDESK
5 RED GOLDENDESK
5 BLUE GOLDENDESK

5 WOODENCABINET
5 METALCABINET
5 LARGECABINET
5 SMALLCABINET
5 GLASSCABINET
5 SQUARECABINET
5 ROUNDCABINET
5 PHONECABINET
5 SOUNDPROOFCABINET
5 ACOUSTICCABINET
5 GOLDENCABINET
5 OPENCABINET
```

Search and buy

```
1.Print all product in company
2.Search a product in company
3.Print my previous orders
4.Return the top menu
2
Which product do you want to buy ?

1.Office Chair
2.Office Desk
3.Office Cabinet
4.Bookcase
5.Meeting Table
3

Which Model ?

WOODENCABINET
METALCABINET
LARGECABINET
SMALLCABINET
GLASSCABINET
SQUARECABINET
ROUNDCABINET
PHONECABINET
SOUNDPROOFCABINET
ACOUSTICCABINET
GOLDENCABINET
OPENCABINET

Please enter the name of model:
WOODENCABINET
The product has been found!
5 WOODENCABINET in Gebze
Do you want to buy ?
1.Yes
2.No
1
How many ?
3
Please enter an addres:
BILECIK
Please enter an number:
0564684894
Name: Samet Nalbant
Adress: BILECIK
Number: 0564684894
Product: 3 WOODENCABINET
```

Print previous order

```
Name: Samet Nalbant
Adress: BILECIK
Number: 0533655889
Product: 3 RED IRONCHAIR


Name: Samet Nalbant
Adress: BILECIK
Number: 0564684894
Product: 3 WOODENCABINET
```

## 6.TIME COMPLEXITIES

1. Add Product

```
public boolean addChair(String model,String color) {
    int index=0;
    KWLinkedList<Branches> branches= getCompany().getBranches();
    for(int i=0;i<branches.size();i++) {
        if(branches.get(i).getName().equals(getInformation())) {
            index = i;
        }
    }

    if(!getCompany().getBranches().get(index).getChairs().add(new OfficeChairs(model,color,getInformation()))) {

        for(int i=0;i<branch.getChairs().size();i++) {
            if(branch.getChairs().get(i).equals(new OfficeChairs(model,color,getInformation()))) {

                branch.getChairs().get(i).setQuantity(branch.getChairs().get(i).getQuantity()+1);
            }
        }
    }
    return true;

}
```

2. Remove Product

```
public boolean removeChair(String model,String color,int quantity) {
    int index=0;
    boolean flag=false;
    KWLinkedList<Branches> branches= getCompany().getBranches();
    for(int i=0;i<branches.size();i++) {
        if(branches.get(i).getName().equals(getInformation())) {
            index = i;
        }
    }
    for(int i=0;i<branch.getChairs().size();i++) {
        if(branch.getChairs().get(i).equals(new OfficeChairs(model,color,getInformation()))) {
            if(!(branch.getChairs().get(i).getQuantity() < quantity)) {
                    branch.getChairs().get(i).setQuantity(branch.getChairs().get(i).getQuantity()-quantity);
                    flag = true;
            }
        }
    }
    return flag;
}
```

3. Add branch

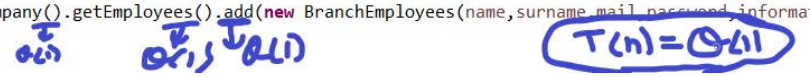
```
public boolean addBranche(String branchname) {

    getCompany().getBranches().addLast(new Branches(branchname));
    return true;

}
```

4. Remove Branch

```
public boolean removeBranche(String branchname) {

    if(getCompany().getBranches().remove(new Branches(branchname))) {
        for(int i=0;i<getCompany().getEmployees().size();i++) {
            if(getCompany().getEmployees().get(i).getInformation().equals(branchname)) {
                this.removeBranchEmployee(getCompany().getEmployees().get(i).getName(),getCompany().getEmployees().get(i).getSurname(),null
            }
        }
        return true;
    }


    return false;

}
```

5. Add BranchEmployee

```
public boolean addBranchEmployee(String name,String surname,String mail,String password,String information,Company company) {

    return getCompany().getEmployees().add(new BranchEmployees(name,surname,mail,password,information,company));
}
```




6. Remove BranchEmployee

```
public boolean removeBranchEmployee(String name,String surname,Company company) {

        return getCompany().getEmployees().remove(new BranchEmployees(name,surname,null,null,null,null));
}
```


7. Search Product

```
public OfficeChairs search_chair(String model, String color,OfficeChairs chair) {
    for(int i=0;i<getCompany().getBranches().size();i++) {
        for(int j=0;j<getCompany().getBranches().get(i).getChairs().size();j++) {
            if(getCompany().getBranches().get(i).getChairs().get(j).equals(new OfficeChairs(model,color,null))) {
                chair = getCompany().getBranches().get(i).getChairs().get(j);
                return chair;
            }
        }
    }
    return null;
}
```