

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

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- **SYSTEM REQUIREMENTS**

*In this homework, we require Users Interface class. . We also require some inherited classes from Users which names are Administrators, BranchEmployees, and Customers classes. I don't need to keep any data in that classes. These classes have some functions for furniture automation system. We need one more classes which name is Company In that class I need to keep all informations about the furniture-stok. If we want to run this system, it will start automatically when we run the program. In this assignment, we design and implement the furniture-automation system. This automation system has users such as administrators, branch employees and customers.*

*Administrators:*

*-Admin can adding and removing branches*

*-Admin can add branch employees and delete branch employees.*

*Employees:*

*Employee can take care of products in stock*

*Employee can add or remove products from branches*

*access customer's information and view old shopping*

*Employee can create new customers*

*Customers :*

*Customers register and log into the system.*

*Customers can learn about the branches and search for products in branches and shop online*

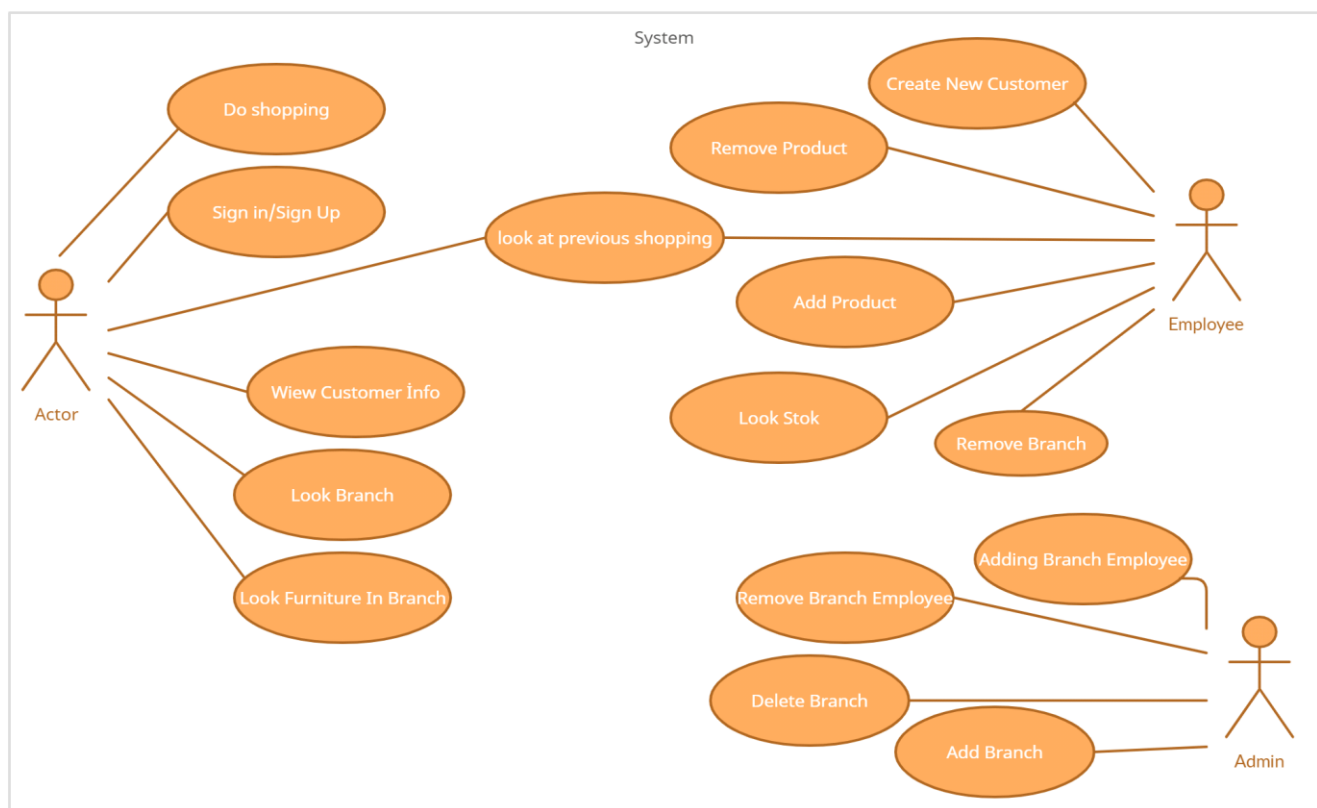
*Customers can view their previous orders*

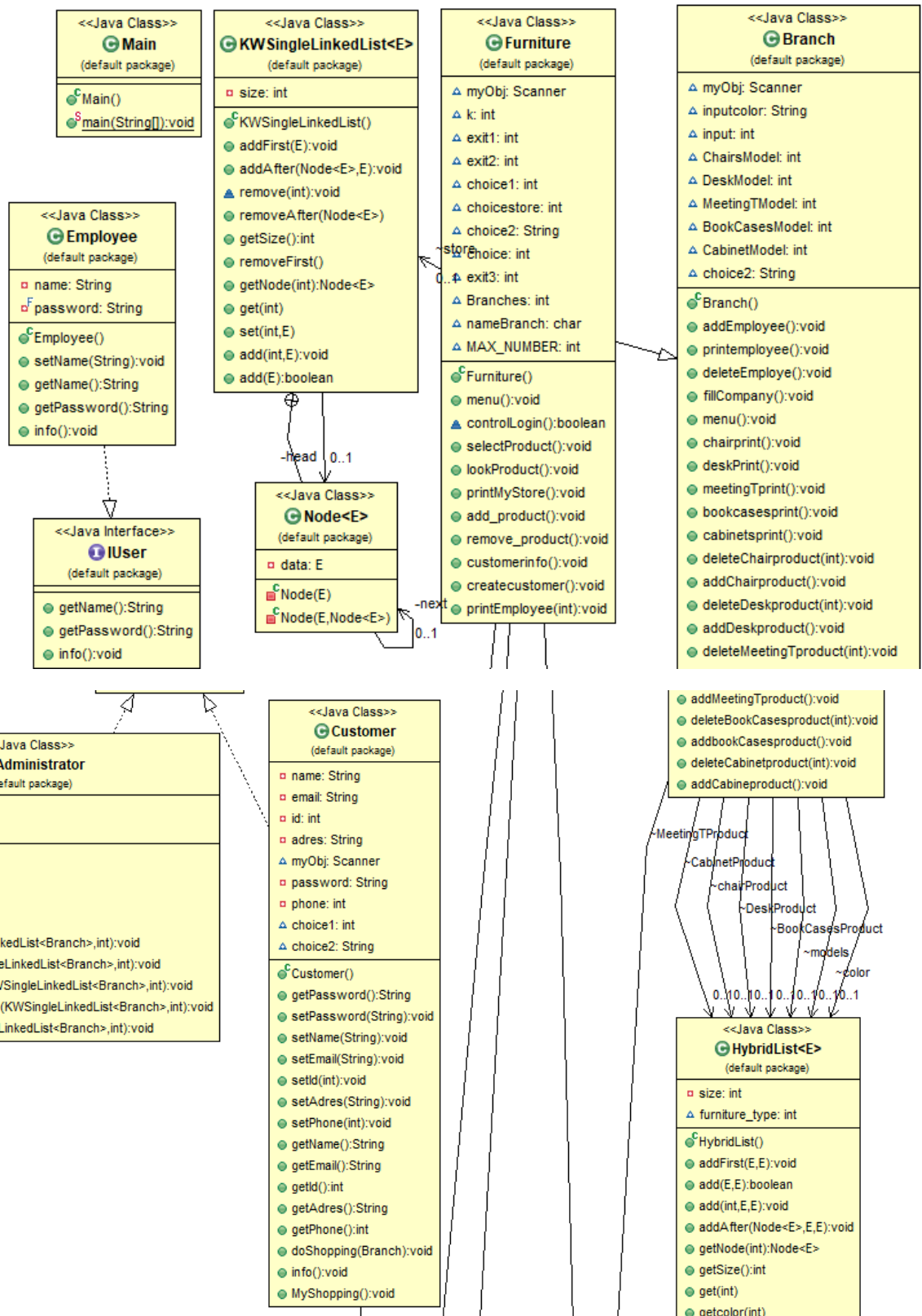
*To make the system, I first wrote an interface for users. I implemented this interface with admin class, employee class and customer class. I created a Branch class similar to a store where I can store my products. I have created hybridList into this class where I can store chairs, tables, meeting tables, bookcases and office cabinets and I created KWayArrayList from the Employee Class because each branch can have more than one element to work with. then I created a Furniture class where I can run the system and inheritance the Branch class here so that I could access products in the system. I created KWSingleLinkList from the Branch Class because we start with 4 stores and an online branch in the system, and then we can increase or decrease it. I have created a menu to be an interactive system in this class.*

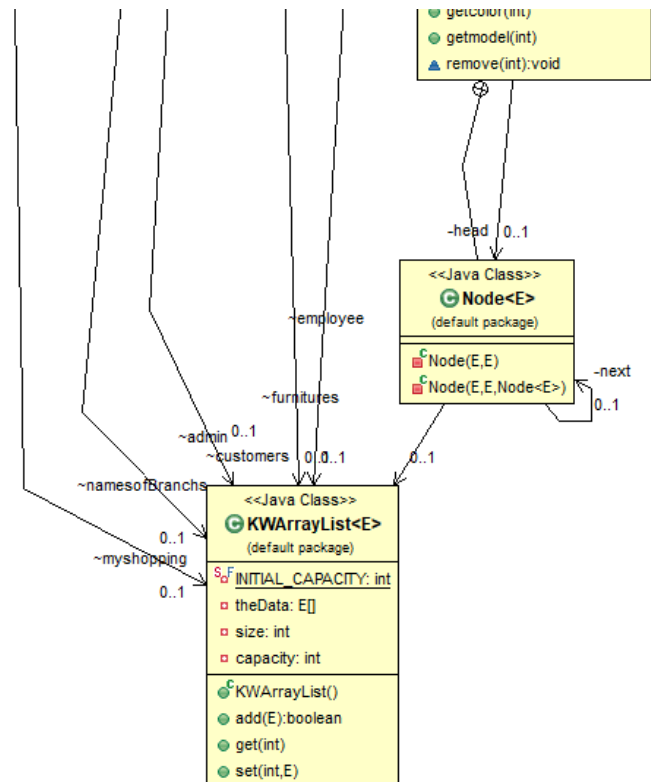
## SYSTEM USAGE

*I left the system admin and employee open, we can use it without entering a password. We start with an admin and an employee. In order for the customer to use the system, they must first register and then log in. If the customer enters the correct id and password to the system, they can view the customer panel and take action. After the first purchase, the address and phone information are registered in the system, but each time they make a purchase, they are asked again because they may want to deliver to a different address.*

- **USE CASE AND CLASS DIAGRAMS**

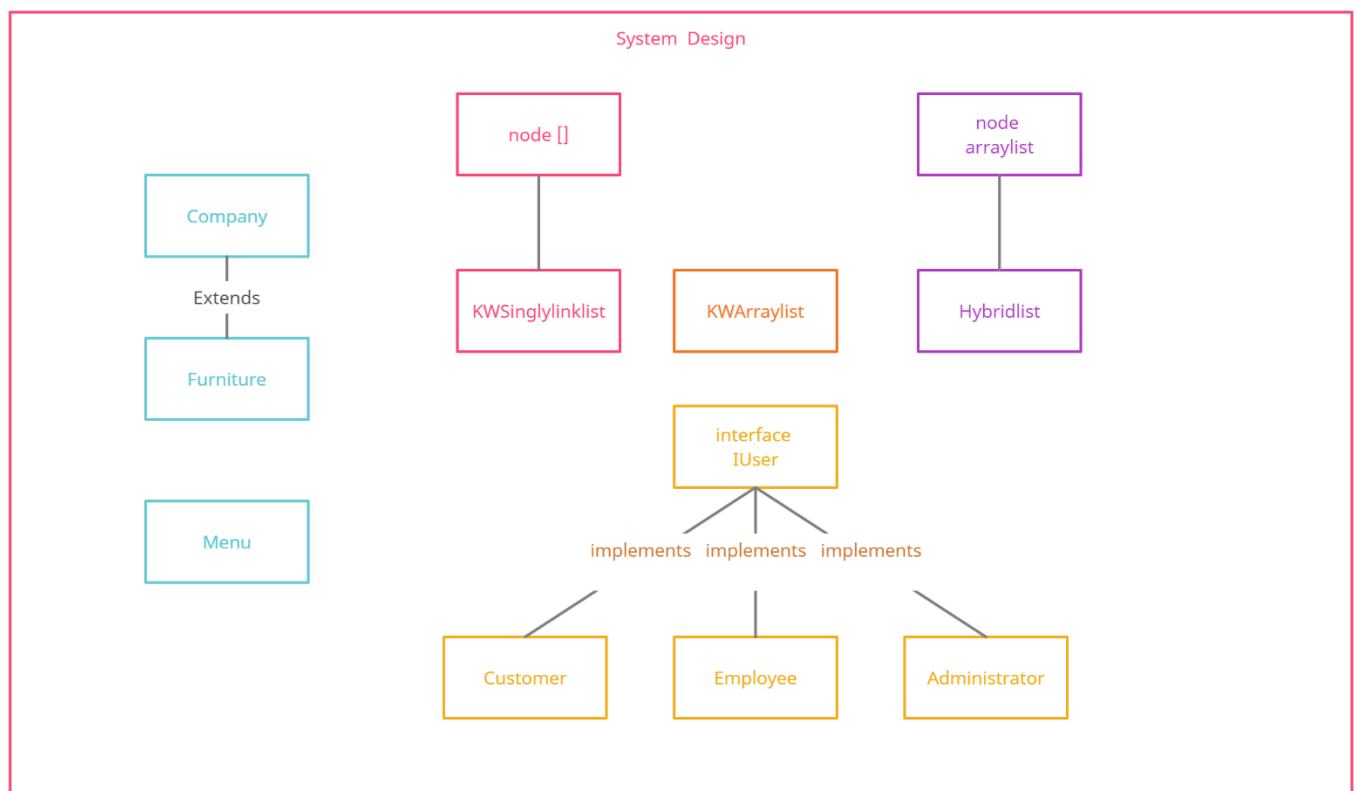






- **PROBLEM SOLUTION APPROACH**

*I started by drawing the object orientated programming scheme before starting to coding, I started by drawing on paper by placing the things given in the .grading section into the system.*



*I implemented Singly Linked List and ArrayList methods that in the book. I used linklist for branches, ArrayList for users. I implemented a HybridList class that keeps a LinkedList as a component and the elements stored in the LinkedList are ArrayLists. ArrayList in node holds 2 data. The first index keep the color of the furniture, the second index keep the model of the furniture. All other methods work like SinglyLinkedList*

**Some of the grading section -implementations**

```

KWSingleLinkedList<Branch> store = new KWSingleLinkedList<>();
KWArrayList<Customer> customers = new KWArrayList<>();
KWArrayList<Administrator> admin = new KWArrayList<>();
/**
 * Constructor

```

```

/**
 * @param chairProduct allocates space for chair-product storage in memory
 * @param DeskProduct allocates space for desk-product storage in memory
 * @param MeetingTProduct allocates space for meeting table-product storage in memory
 * @param BookCasesProduct allocates space for bookcases-product storage in memory
 * @param CabinetProduct allocates space for office cabinet-product storage in memory
 * @param employee to store branch employees
 *
 */
HybridList<String> chairProduct = new HybridList<>();
HybridList<String> DeskProduct = new HybridList<>();
HybridList<String> MeetingTProduct = new HybridList<>();
HybridList<String> BookCasesProduct = new HybridList<>();
HybridList<String> CabinetProduct = new HybridList<>();
KWArrayList<Employee> employee = new KWArrayList<>();

```

```

private static class Node<E> {
    /**
     * @param furnitures The reference to the data.
     */
    KWArrayList<E> furnitures = new KWArrayList<>();
    /** The reference to the next node. */
    private HybridList.Node<E> next;
    /** Creates a new node that references another node.
     * @param color of furniture
     * @param model of furniture
     */
    private Node(E color, E model) {
        furnitures.add(color);
        furnitures.add(model);
        next = null;
    }
    /** Creates a new node that references another node.
     * @param color of furniture
     * @param model of furniture
     * @param nodeRef The node referenced by new node
     */
    private Node(E color, E model, Node<E> nodeRef) {
        furnitures.add(color);
        furnitures.add(model);
        next = nodeRef;
    }
}

```

## -Polymorphism

```
7
8 public static void main(String[] args) {
9     Company myObj = new Furniture(); //Polymorphism
10    myObj.menu();
11 }
```

## -Interface

```
1 public interface IUser {
2
3     /**
4      *
5      * @return name
6      */
7     String getName();
8 }
```

## -Override

```
7     * This method is the menu system created for the user to use interactively.
8     */
9     @Override
10    public void menu() {
11        while (exit1 == 0){
12            System.out.println("---Welcome Furniture Store---");
13            System.out.println("1) Admin Login");
14        }
15    }
```

## -inheritance

```
1 import java.util.Scanner;
2
3 public class Furniture extends Branch {
4
5     /**
6
7     */
8 }
```

## -error handling

```

/** Insert the specified item at index
@param index The position where item is to be inserted
@param item The item to be inserted
@throws IndexOutOfBoundsException if index is out of range
*/
public void add(int index, E item) {
    if (index < 0 || index > size) { //index checking
        throw new IndexOutOfBoundsException(Integer.toString(index));
    }
    if (index == 0) {
        addFirst(item);
    } else {
        Node<E> node = getNode(index-1);
        addAfter(node, item);
    }
}

```

- **TEST CASES**

### *Some Main Tests*

*new branch added - passed*

*remove branch -passed*

*logging into the system with the wrong id -passed*

*Add branch employee - passed*

*Delete branch employee -passed*

*delete an absent employee -passed*

*purchase nonexistent product - passed*

*Adding the wrong color product -passed*

*Adding the wrong model product -passed*

### **RUNNING AND RESULTS**

*some images of system operation and running of tests*



```

Main x
"C:\Program Files\Java\jdk-15.0.2\bin\java.exe" "-javaagent:C:\Program Fil
---Welcome Furniture Store---
1) Admin Login
2) Employee Login
3) Customer Login
4) Exit Furniture Store
Please Choice enter: 1
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 9
Incorrect Choice..
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--

```

Admin Login Test



```
Main x
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 6
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 1
Congratulations on your 6. store
---Admin Panel---
```

•  
Look Branch and Adding  
Branch

```
Main x
8) Go Back <--
Please Choice enter: 1
Congratulations on your 6. store
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 3
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
6-) F Store
Please select a branch to add employee: 7
Incorrecct Choice or Cannot add employee to online store.
Please select a branch to add employee: 3
Please enter Employee name: john
Process Completed.Employee added to branch
*****Employees In Branch*****
1.Employee: john
---Admin Panel---
```

adding branch employee

```
Main x
Please select a branch to add employee: 3
Please enter Employee name: john
Process Completed.Employee added to branch
*****Employees In Branch*****
1.Employee: john
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 3
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
6-) F Store
Please select a branch to add employee: 3
Please enter Employee name: erdoğan
Process Completed.Employee added to branch
*****Employees In Branch*****
1.Employee: john
2.Employee: erdoğan
---Admin Panel---
```

Adding Branch Employee 2nd  
added

```
Main x
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 4
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
6-) F Store
Please select a branch to delete employee: 1
There are no employee in this branch
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter:
```

Deleting an employee from a  
non-employee store

```
Main x
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 4
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
6-) F Store
Please select a branch to delete employee: 3
*****Employees In Branch*****
1.Employee: john
2.Employee: erdoğan
Please enter Employee name: erdoğan
Process Completed.Employee delete to branch
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter:
```

removing branch employee

```
Process completed.Employee delete to Branch
Main x
---Admin Panel---
1) Adding Branch
2) Removing Branch
3) Adding Branch Employee
4) Removing Branch Employee
5) Look/Edit Product
6) Look Branch
7) Look Employee in Branches
8) Go Back <--
Please Choice enter: 2
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
6-) F Store
Please enter the shop number you want to delete. 6
Branch Removed..
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
---Admin Panel---
1) Adding Branch
2) Removing Branch
```

remove branch

```
Main x
Please Choice enter: 3
---Employee Panel---
1) Look Product
2) Remove Product
3) Add Product
4) Look Customer Info
5) Create New Customer
6) Go Back <--
Please Choice enter: 3
1-) A Store
2-) B Store
3-) C Store
4-) D Store
5-) Online Store
Enter the store number : 1
1-) Chair
2-) Desk
3-) Meeting Table
4-) Bookcase
5-) Office Cabinet
Please select the product: 8
Wrong Choice.Product could not be added.
---Employee Panel---
1) Look Product
2) Remove Product
3) Add Product
4) Look Customer Info
5) Create New Customer
```

add product test



```

Main x
Please Choice enter: 1
---Customer Panel---
1) Sign Up
2) Sign In
3) Back
Please Choice enter: 1
Please Enter your name: tuba
Please Enter your e-mail: tbfkf@gmail.com
Please Enter your Password: max
You Are Now a Registered User and Your id : 1
Please go back and log in to the system.
---Customer Panel---
1) Sign Up
2) Sign In
3) Back
Please Choice enter: 2
Please Your Shopping id: 2
User not Found
---Customer Panel---
1) Sign Up
2) Sign In
3) Back
Please Choice enter: 2
Please Your Shopping id: 1
Please Your Password: max
-----Welcome-----
1-) Look at Branches
2-) Do the Shopping

```

sign up-sign in test

```
Main x
Welcome
1-) Look at Branches
2-) Do the Shopping
3-) My previous purchases
4-) Look In Branch
5-) My Info
6-) Logout
Please enter your choice: 2
Please enter your Adress
maltepe
Please enter your phone
12345
do shopping
1-) Chair
2-) Desk
3-) Meeting Table
4-) Bookcase
5-) Office Cabinet
6-) Exit
Please select the product: 7
Incorrect Select..
Please select the product: 2
--Desk in stock--
1-)Walnut color 1.Model Desk
2-)Walnut color 2.Model Desk
3-)Walnut color 3.Model Desk
4-)Walnut color 4.Model Desk
5-)Walnut color 5.Model Desk
6-)White color 1 Model Desk
```

Main x

17-)Black color 4.Model Desk

20-)Black color 5.Model Desk

Please select the product you want to buy: 21

The product was entered incorrectly

Please select the product you want to buy: 19

Your shopping has been completed.

1-) Chair

2-) Desk

3-) Meeting Table

4-) Bookcase

5-) Office Cabinet

6-) Exit

Please select the product: 4

--Bookcases in stock--

1-)1.Model BookCase

2-)2.Model BookCase

3-)3.Model BookCase

4-)4.Model BookCase

5-)5.Model BookCase

6-)6.Model BookCase

7-)7.Model BookCase

8-)8.Model BookCase

9-)9.Model BookCase

10-)10.Model BookCase

11-)11.Model BookCase

12-)12.Model BookCase

Please select the product you want to buy: 1

--Bookcases in stock--

do shopping test

I buy 1 desk and bookcases

```
Main x
1-) Chair
2-) Desk
3-) Meeting Table
4-) Bookcase
5-) Office Cabinet
6-) Exit
Please select the product: 6
-----Welcome-----
1-) Look at Branches
2-) Do the Shopping
3-) My previous purchases
4-) Look In Branch
5-) My Info
6-) Logout
Please enter your choice: 3
*****My Previous Orders*****
1. Black color 5. Model Desk
2. 1. Model BookCases
*****
-----Welcome-----
1-) Look at Branches
2-) Do the Shopping
3-) My previous purchases
4-) Look In Branch
5-) My Info
6-) Logout
Please enter your choice:
```

my previous Orders