

**GIT Department of Computer Engineering**  
**CSE 222/505 - Spring 2021**  
**Homework 1 Report**

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## **1. SYSTEM REQUIREMENTS**

Program requirements for work properly:

Most important requirement is for the automation system is There must be an admin because admin can add some branch and employee to do something if you don't have an admin you cannot process other functions of system.

Next important requirement is branch if you don't have a branch an employee cannot find a branch to work because admin add employee functions work with two parameters first one is branch other one is employee. These three classes have a has a relation each others.

And also system need an at least one employee to add product to branch to buy from customers. When we see the base process, employees sell a Furniture to customer process need to an admin, a branch, an employee a wanted type furniture and customer these are minimum requirements for the base process of selling.

OS requirements:

Operating System need to jdk and jre for start the program

You need to enough space to store data's of company according to the how many you have branch, employee, furniture, customer ... as default branch has 11 array, employee 101,

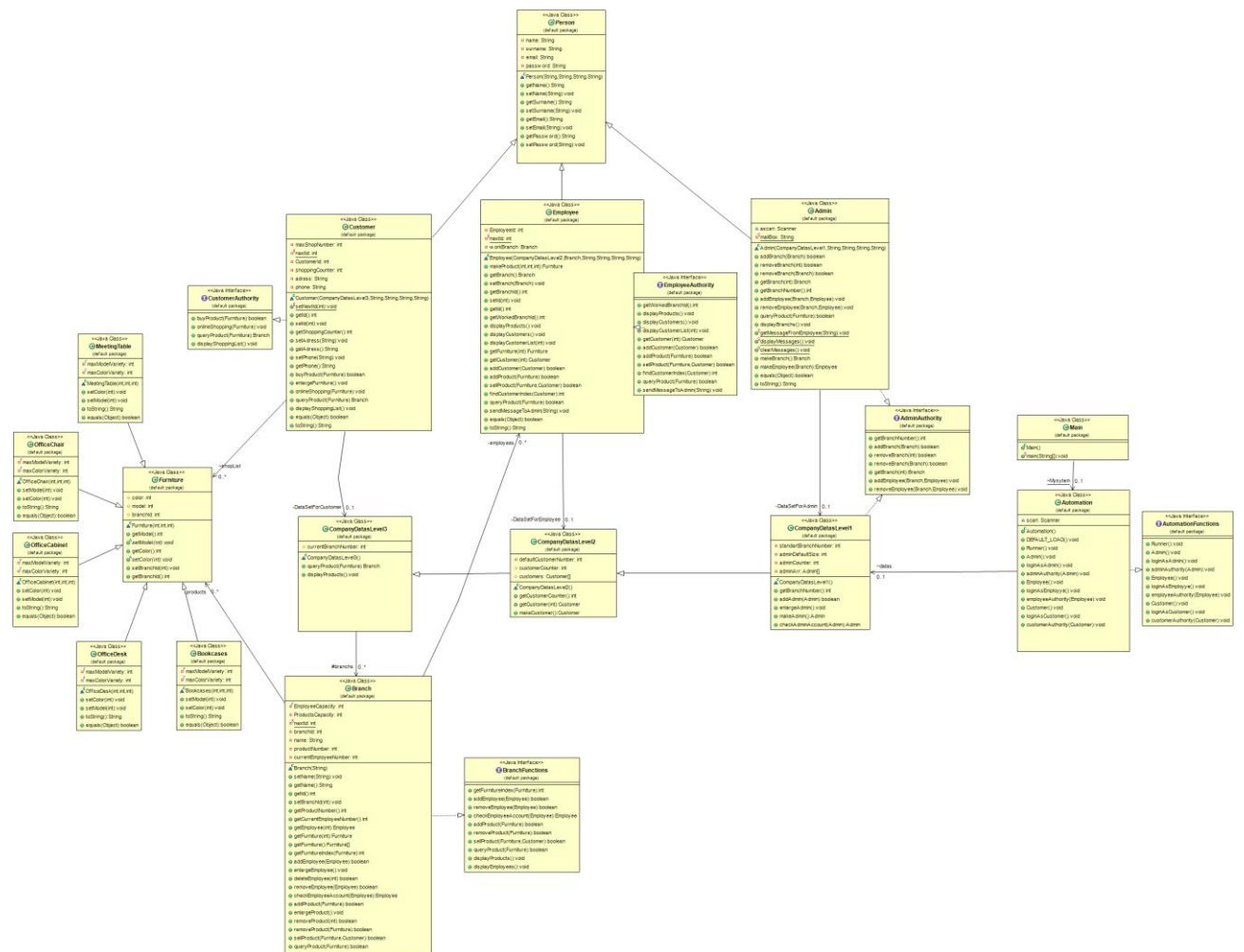
Furniture 10001, Customer 1001

## 2. USE CASE AND CLASS DIAGRAMS

### 2.1 USE CASE DIAGRAM



## 2.2 CLASS DIAGRAM



### **3. PROBLEM SOLUTION APPROACH**

Our problem is make an automation for a company which sell office furniture and different persons has different authority like admin can reach employees but employees cannot reach all branches. So that we need to make data level for three character (admin, employee and customer) they need to do each own authority to do.

Each level keeps and class require element let say admin wants to reach all employees. Admin needs to reach firstly Branch after that branch has employee array admin reach employees over branch reference. Adding employee also doing this way. And Level 1 can reach all branch admin can add and remove branch over data level1.

When we create an employee, we need a branch element about employee is where is work. Also branch has this employee and employee has branch. Employees has branch because of that employee can add and remove product in branch and doing this over branch functions. And also, when the employee sell object, we take the product from branch furniture array and put it customer shop list. We can affect customer over data level 2.

Customer can reach level 3 data level 3 data has all furniture in all branch employee can see that all product this way. When the Customer wants to buy furniture take it from branch and add it own shop List array.

We can say that these problems can solve using data Level way so that each person cannot reach data which don't need to reach data.

Genel Method problems:

Our one of general problem is adding new element to new array to make this we keep a counter to next free space in needed array and put the getting parameter element to place.

Ex:

```
/**<p>It is adding a new customer to the system</p>*/  
public boolean addCustomer(Customer newCustomer) {  
    if(customerCounter >= defaultCustomerNumber)  
        enlargeCustomer();  
  
    customers[customerCounter++] = newCustomer;  
    return true;  
}  
/**<p>If the customer array is full it is size multiply by 2</p>*/  
public void enlargeCustomer() {  
    Customer[] tmpC = new Customer[defaultCustomerNumber*2];  
  
    for(int i=0; i<customerCounter; ++i)  
        tmpC[i] = customers[i];  
  
    customers = tmpC;  
    defaultCustomerNumber *= 2;  
}
```

Other problem is removing elements of array we use array shifting algorithms for this problem.

```
/**<p>Removing employee using array shifting method</p>*/  
public boolean deleteEmployee(int index) {  
  
    if(index >= currentEmployeeNumber)  
        return false;  
  
    while(index < currentEmployeeNumber)  
        employees[index] = employees[++index];  
    currentEmployeeNumber--;  
    return true;  
}  
/**<p>Removing employee when it find same employee id</p>*/  
public boolean removeEmployee(Employee employee) {  
  
    for (int i=0; i< currentEmployeeNumber; ++i) {  
        if(employees[i].equals(employee))  
            return deleteEmployee(i);  
    }  
    return false;  
}
```

Ex:

#### **4. TEST CASES**

- Admin , Employee , Customer valid ,un valid registrations values
- Admin adding branch and employee
- Admin see mailbox
- Employee adding, removing and query a product
- Employee see customer shop list
- Employee selling a product to customer affect customer shop list
- Employee send message to admin about out of stock
- Customer query and buy a product

#### **5. RUNNING AND RESULTS**

**Most of Method are in the following secreen shots for each character some display and other long result is not included but you can see them driver code and menu functions.**

**Admin:**

Login

```
Please select an operation

1-> Login system as admin
2-> Create an admin account
0-> Go top menu

Enter the operation : 1

Entering system as Admin
Enter the email :admin
Enter the password :admin
|=====

Welcome Mr/Mrs admin admin
Please select following operation

1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account

Enter the operation :
```

```
Please select an operation

1-> Login system as admin
2-> Create an admin account
0-> Go top menu

Enter the operation : 1

Entering system as Admin
Enter the email :free
Enter the password :free
|
Email or password is wrong

=====
```

Branch add and remove:



Welcome Mr/Mrs admin admin  
Please select following operation

- 1-> Add a new Branch
- 2-> Remove a Branch
- 3-> Add a new Employee
- 4-> Remove an employee
- 5-> Display current Branchs
- 6-> Display current Employess
- 7-> Query Product
- 8-> Display Messages
- 9-> Clear Messages
- 0-> Log out the account

Enter the operation :1

Enter the branch name :

Branch1

Branch1 has added

=====

```
Welcome Mr/Mrs a a
Please select following operation
```

- 1-> Add a new Branch
- 2-> Remove a Branch
- 3-> Add a new Employee
- 4-> Remove an employee
- 5-> Display current Branchs
- 6-> Display current Employess
- 7-> Query Product
- 8-> Display Messages
- 9-> Clear Messages
- 0-> Log out the account

```
Enter the operation :2
```

```
0-> name : br1
```

```
1-> name : br2
```

```
Enter the index :
```

```
2
```

```
Undefined branch index could not removed branch
Branch has not removed check branch index
```

```
=====
```

```
Welcome Mr/Mrs admin admin
Please select following operation
```

- 1-> Add a new Branch
- 2-> Remove a Branch
- 3-> Add a new Employee
- 4-> Remove an employee
- 5-> Display current Branchs
- 6-> Display current Employess
- 7-> Query Product
- 8-> Display Messages
- 9-> Clear Messages
- 0-> Log out the account

```
Enter the operation :2
```

```
0-> name : Branch1
```

```
1-> name : Br
```

```
Enter the index :
```

```
1
```

```
Branch has removed
```

Employee add and remove:

```
Welcome Mr/Mrs admin admin
Please select following operation
```

```
1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account
```

```
Enter the operation :3
Choose branch for adding employee:
```

```
0-> name : Branch1
```

```
Enter the index :
```

```
0
```

```
Enter employee name :
```

```
e1
```

```
Enter employee surname :
```

```
e1
```

```
Enter employee mail :
```

```
e1
```

```
Enter employee password :
```

```
e1
```

```
Name : e1 Surname : e1 has added
```

```
=====
```

```
Enter the operation :4
```

```
Choose branch for removing employee:
```

```
0-> name : br1
```

```
1-> name : br2
```

```
Enter the index :
```

```
0|
```

```
0. Name : e1 Surname : e1
```

```
1. Name : e2 Surname : e2
```

```
Enter the index number of worker to take out :
```

```
2
```

```
Undefined employee index please enter a valid index
```

```
=====
```

```
Welcome Mr/Mrs admin admin
Please select following operation

1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account

Enter the operation :4
Choose branch for removing employee:
0-> name : Branch1
Enter the index :
0
    0. Name : e1 Surname : e1
    1. Name : ee Surname : ee
Enter the index number of worker to take out :
1
Name : ee Surname : ee has removed
=====
```

Query products:

According to the result if product is exist any branch its return true other wise false

```

Welcome Mr/Mrs a a
Please select following operation

1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account

Enter the operation :7
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
11
Enter the color number range [0,0] :
0
Office Cabinets >> ModelNo > 11 ColorNo >0 BranchId : 0: true
=====

```

```

Welcome Mr/Mrs a a
Please select following operation

1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account

Enter the operation :7
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
2
Enter the color number range [0,0] :
0
Office Cabinets >> ModelNo > 2 ColorNo >0 BranchId : 0: false
=====

```

Message:

Message come from employee

```
Welcome Mr/Mrs a a
Please select following operation

1-> Add a new Branch
2-> Remove a Branch
3-> Add a new Employee
4-> Remove an employee
5-> Display current Branchs
6-> Display current Employess
7-> Query Product
8-> Display Messages
9-> Clear Messages
0-> Log out the account

Enter the operation :8
Office Cabinets >> ModelNo > 2 ColorNo >0 BranchId : 0out of stock
```

**Employee:**

Login:

```
Employee Login System

Please enter the mail :
e1
Please enter the password :
e1

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
|
```

```

Please select an operation
1-> Create and account
2-> Login system
0-> Top menu
2

Employee Login System

Please enter the mail :
free
Please enter the password :
free
|
Email or password is wrong
=====

Please select an operation
1-> Create and account
2-> Login system
0-> Top menu

```

Product add , remove, query:

Adding new furniture

```

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
1
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
1
Enter the model number range [0,6] :
3
Enter the color number range [0,4] :
2
Office Chair >> ModelNo > 3 ColorNo >2 BranchId : 0 added
=====

```

Valid removing an existing furniture

```
Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
2
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
11
Enter the color number range [0,0] :
0
Office Cabinets >> ModelNo > 11 ColorNo >0 BranchId : 0 removed
```

Employee cannot remove un existing furniture

```
Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
2
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
2
Enter the color number range [0,0] :
0
Office Cabinets >> ModelNo > 2 ColorNo >0 BranchId : 0 has not removed
```



```

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
3
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
3
Enter the color number range [0,0] :
0
Yes brach has Office Cabinets >> ModelNo > 3  ColorNo >0 BranchId : 0

```

```

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
Enter an operation :
3
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
3
Enter the model number range [0,9] :
0
Enter the color number range [0,3] :
0
No branch has not Meeting Table >> ModelNo > 0  ColorNo >0 BranchId : 0
=====

```

Messeage to the admin

```
Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
Enter an operation :
7
Select out of stock product
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
2
Enter the color number range [0,0] :
0
Message sended to the admin
=====
```

Selling object:

```

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
Enter an operation :
4
Enter the customer id:
0
Undefined customer id
You need to make an account first
Enter the name :
c
Enter the surname :
c
Enter the email :
c
Enter the password :
c
Your id: 0
Branch0 has 21 products :
0. Office Chair >> ModelNo > 1 ColorNo >0 BranchId : 0
1. Office Chair >> ModelNo > 4 ColorNo >2 BranchId : 0
2. Office Chair >> ModelNo > 3 ColorNo >1 BranchId : 0
3. Office Chair >> ModelNo > 6 ColorNo >4 BranchId : 0
4. Office Desk >> ModelNo > 1 ColorNo >0 BranchId : 0
5. Office Desk >> ModelNo > 1 ColorNo >2 BranchId : 0
6. Office Desk >> ModelNo > 3 ColorNo >3 BranchId : 0
7. Office Desk >> ModelNo > 4 ColorNo >3 BranchId : 0
8. Meeting Table >> ModelNo > 1 ColorNo >0 BranchId : 0
9. Meeting Table >> ModelNo > 6 ColorNo >2 BranchId : 0
10. Meeting Table >> ModelNo > 8 ColorNo >3 BranchId : 0
11. Meeting Table >> ModelNo > 4 ColorNo >1 BranchId : 0
12. Bookcases >> ModelNo > 3 ColorNo >0 BranchId : 0
13. Bookcases >> ModelNo > 6 ColorNo >0 BranchId : 0
14. Bookcases >> ModelNo > 8 ColorNo >0 BranchId : 0
15. Bookcases >> ModelNo > 10 ColorNo >0 BranchId : 0
16. Office Cabinets >> ModelNo > 4 ColorNo >0 BranchId : 0
17. Office Cabinets >> ModelNo > 7 ColorNo >0 BranchId : 0
18. Office Cabinets >> ModelNo > 3 ColorNo >0 BranchId : 0
19. Office Cabinets >> ModelNo > 11 ColorNo >0 BranchId : 0
20. Office Cabinets >> ModelNo > 0 ColorNo >0 BranchId : 0
Enter product index:
13
Selling process succesfully done
=====

```

See customer shop list:

```

Welcome Mr/Mrs e1 e1
1-> Add Product
2-> Remove Product
3-> Query Product
4-> Sell Product
5-> Display a customer shopping List
6-> Display product in working store
7-> Send message to admin out of stock
0-> Top menu
Enter an operation :
5
0. c c Customer Id: 0
Enter the customer id:
0
|c c shopping list :
0. Bookcases >> ModelNo > 6   ColorNo >0 BranchId : 0
=====

```

**Customer:**

Buying:

```

19. Office Cabinets >> ModelNo > 11   ColorNo >0 BranchId : 1

Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
5
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
11
Enter the color number range [0,0] :
0
|Buying succesfully done

```

```
Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
5
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
5
Enter the model number range [0,11] :
2
Enter the color number range [0,0] :
0
We dont have this product
```

See All products:

```

Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
3
All Products :
Branch0 has 20 products :
0. Office Chair >> ModelNo > 1   ColorNo >0 BranchId : 0
1. Office Chair >> ModelNo > 4   ColorNo >2 BranchId : 0
2. Office Chair >> ModelNo > 3   ColorNo >1 BranchId : 0
3. Office Chair >> ModelNo > 6   ColorNo >4 BranchId : 0
4. Office Desk >> ModelNo > 1   ColorNo >0 BranchId : 0
5. Office Desk >> ModelNo > 1   ColorNo >2 BranchId : 0
6. Office Desk >> ModelNo > 3   ColorNo >3 BranchId : 0
7. Office Desk >> ModelNo > 4   ColorNo >3 BranchId : 0
8. Meeting Table >> ModelNo > 1   ColorNo >0 BranchId : 0
9. Meeting Table >> ModelNo > 6   ColorNo >2 BranchId : 0
10. Meeting Table >> ModelNo > 8   ColorNo >3 BranchId : 0
11. Meeting Table >> ModelNo > 4   ColorNo >1 BranchId : 0
12. Bookcases >> ModelNo > 3   ColorNo >0 BranchId : 0
13. Bookcases >> ModelNo > 8   ColorNo >0 BranchId : 0
14. Bookcases >> ModelNo > 10   ColorNo >0 BranchId : 0
15. Office Cabinets >> ModelNo > 4   ColorNo >0 BranchId : 0
16. Office Cabinets >> ModelNo > 7   ColorNo >0 BranchId : 0
17. Office Cabinets >> ModelNo > 3   ColorNo >0 BranchId : 0
18. Office Cabinets >> ModelNo > 11   ColorNo >0 BranchId : 0
19. Office Cabinets >> ModelNo > 0   ColorNo >0 BranchId : 0
Branch1 has 20 products :
0. Office Chair >> ModelNo > 1   ColorNo >0 BranchId : 1
1. Office Chair >> ModelNo > 4   ColorNo >2 BranchId : 1
2. Office Chair >> ModelNo > 3   ColorNo >1 BranchId : 1
3. Office Chair >> ModelNo > 6   ColorNo >4 BranchId : 1
4. Office Desk >> ModelNo > 1   ColorNo >0 BranchId : 1
5. Office Desk >> ModelNo > 1   ColorNo >2 BranchId : 1
6. Office Desk >> ModelNo > 3   ColorNo >3 BranchId : 1

```

Shoplist:

```

Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
2
c c shopping list :
0. Bookcases >> ModelNo > 6   ColorNo >0 BranchId : 0
1. Office Cabinets >> ModelNo > 11   ColorNo >0 BranchId : 0

```

Query:

```
Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
4
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
4
Enter the model number range [0,11] :
10
Enter the color number range [0,0] :
0
Product is in store name: br1
```

```
Welcome Mr/Mrs c c
1-> Display specific id
2-> Display Shopping List
3-> See Broduct all store
4-> Query a product
5-> Buy a product from store
6-> Make online shopping
0-> Log out
Enter the operation :
4
1-> Office chair
2-> Office Desk
3-> Meeting Table
4-> Bookcases
5-> Office Cabinets
Enter the value :
2
Enter the model number range [0,4] :
0
Enter the color number range [0,3] :
2
We dont have this product
```