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

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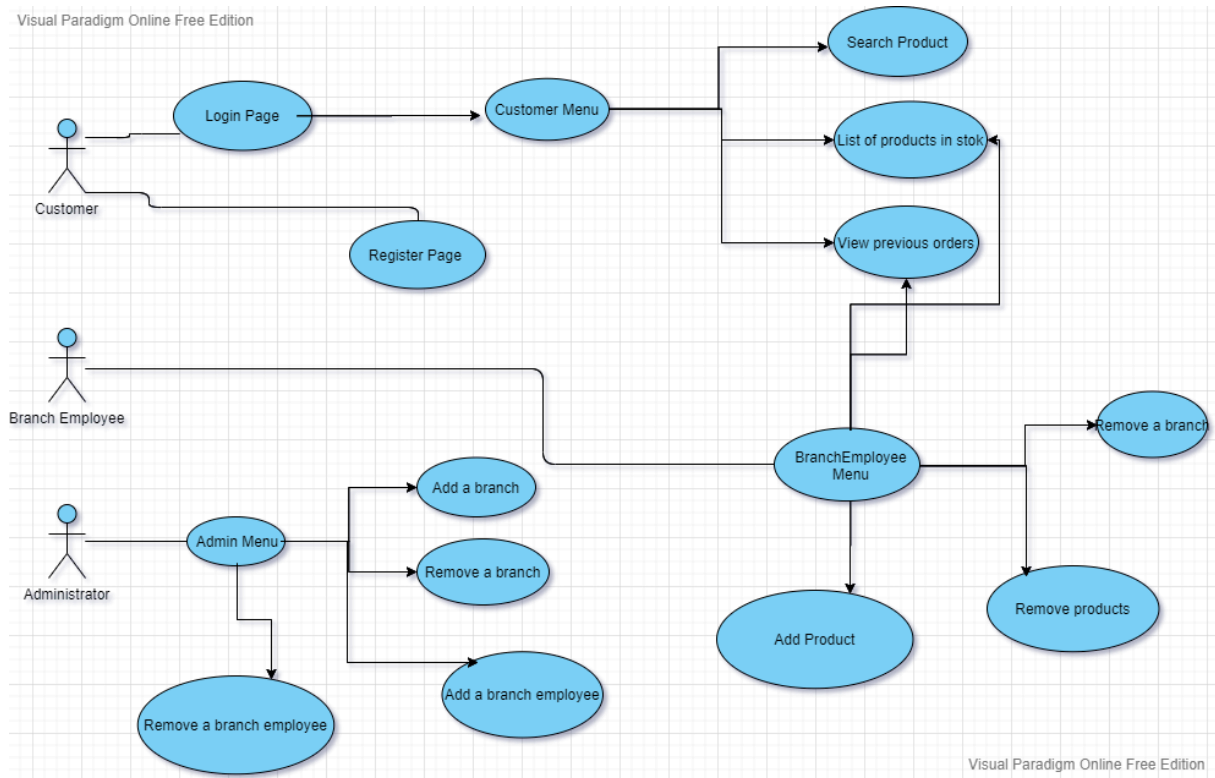# 1801042693

SYSTEM REQUIREMENTS

The company has 4 different branches and sells both in-store and online. The store sells office chairs (7 models and for each, 5 colors), office desks (5 models and for each, 4 colors), meeting tables (10 models and for each, 4 colors), bookcases (12 models) and office cabinets (12 models). The automation system has users such as administrators, branch employees and customers.

Administrators manage the system by adding and removing branches and branch employees. They can also query whether there are any products that need to be supplied.
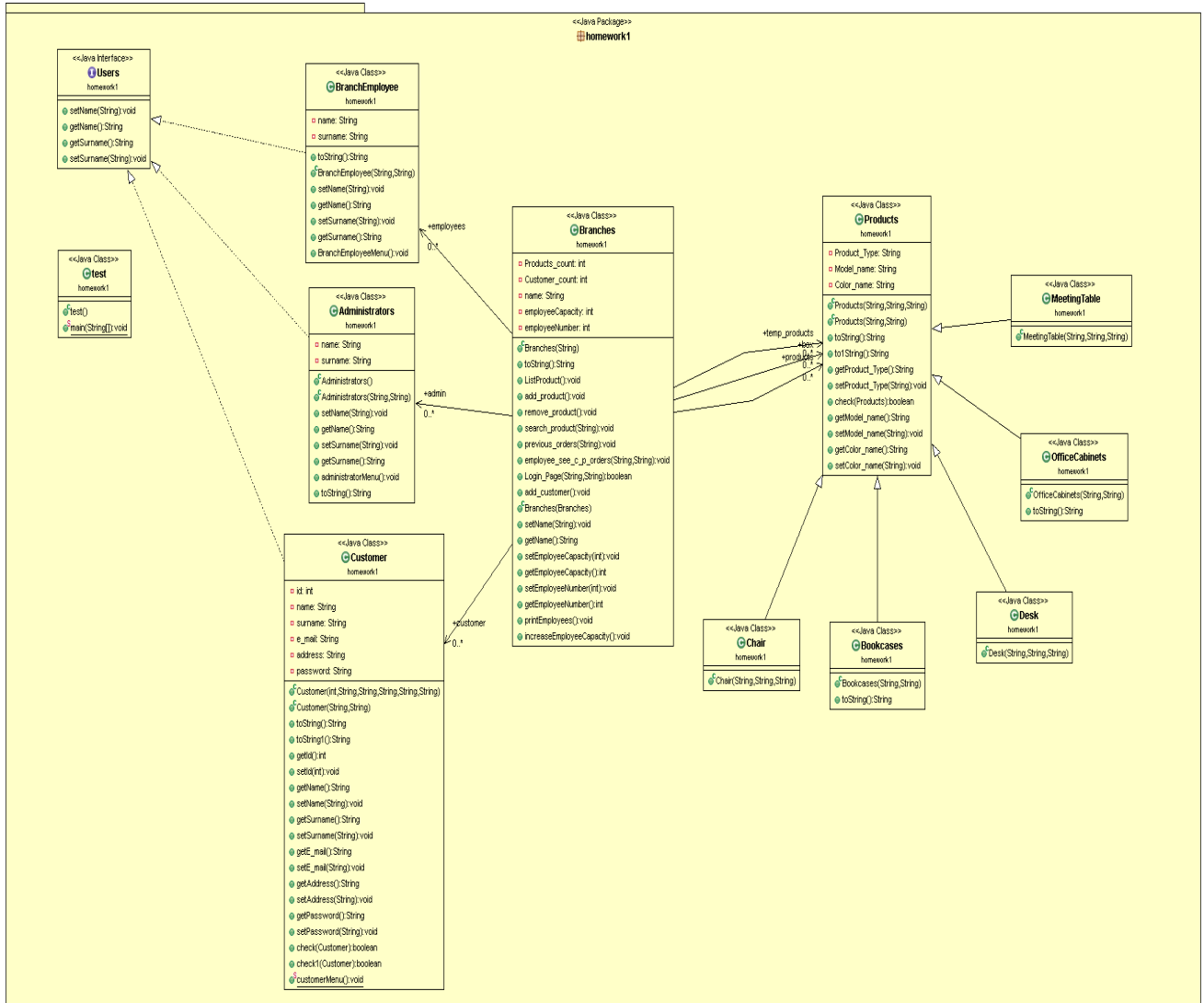
A special customer number is defined for each customer in the system. When a person subscribes to the system, he/she uses his/her name, surname and e-mail address, and defines a password. When the registration is completed, the customer number is automatically defined in the system and the user is informed about it. When the customer logs into the system, they can search for products, see the list of products, see which store a product is in, shop online by entering address and phone information, and view their previous orders.

Branch employees can inquire about the products in stock, inform the manager that the product should be purchased when any product is less than the requested amount, add / remove products, make sales, access the information of the previous orders of a customer by using the customer number and add new order to this section. Branch employees should update the customers' previous orders section during their sales from the store. If the customer is shopping for the first time, then they should create a new subscription

Use Case Diagram

Customer
- Login Page
- Register Page

Customer Menu
- Search Product
- List of products in stok
- View previous orders

Branch Employee

BranchEmployee Menu
- Remove a branch
- Add Product
- Remove products

Administrator
- Admin Menu
  - Add a branch
  - Remove a branch
  - Add a branch employee
  - Remove a branch employee

CLASS DIAGRAM:

<<Java Package>>
homework1

<<Java Interface>>
Users
homework1

- setName(String):void
- getName():String
- getSurname():String
- setSurname(String):void

<<Java Class>>
BranchEmployee
homework1

- name: String
- surname: String

- toString():String
- BranchEmployee(String,String)
- setName(String):void
- getName():String
- setSurname(String):void
- getSurname():String
- BranchEmployeeMenu():void

<<Java Class>>
test
homework1

- test()
- main(String[]):void

<<Java Class>>
Administrators
homework1

- name: String
- surname: String

- Administrators()
- Administrators(String,String)
- setName(String):void
- getName():String
- setSurname(String):void
- getSurname():String
- administratorMenu():void
- toString():String

<<Java Class>>
Branches
homework1

- Products_count: int
- Customer_count: int
- name: String
- employeeCapacity: int
- employeeNumber: int

- Branches(String)
- toString():String
- ListProduct():void
- add_product():void
- remove_product():void
- search_product(String):void
- previous_orders(String):void
- employee_see_c_p_orders(String,String):void
- Login_Page(String,String):boolean
- add_customer():void
- Branches(Branches)
- setName(String):void
- getName():String
- setEmployeeCapacity(int):void
- getEmployeeCapacity():int
- setEmployeeNumber(int):void
- getEmployeeNumber():int
- printEmployees():void
- increaseEmployeeCapacity():void

<<Java Class>>
Customer
homework1

- id: int
- name: String
- surname: String
- e_mail: String
- address: String
- password: String

- Customer(int,String,String,String,String,String)
- Customer(String,String)
- toString():String
- toString1():String
- getId():int
- setId(int):void
- getName():String
- setName(String):void
- getSurname():String
- setSurname(String):void
- getE_mail():String
- setE_mail(String):void
- getAddress():String
- setAddress(String):void
- getPassword():String
- setPassword(String):void
- check(Customer):boolean
- check1(Customer):boolean
- customerMenu():void

<<Java Class>>
Products
homework1

- Product_Type: String
- Model_name: String
- Color_name: String

- Products(String,String,String)
- Products(String,String)
- toString():String
- to1String():String
- getProduct_Type():String
- setProduct_Type(String):void
- check(Products):boolean
- getModel_name():String
- setModel_name(String):void
- getColor_name():String
- setColor_name(String):void

<<Java Class>>
MeetingTable
homework1

- MeetingTable(String,String,String)

<<Java Class>>
OfficeCabinets
homework1

- OfficeCabinets(String,String)
- toString():String

<<Java Class>>
Chair
homework1

- Chair(String,String,String)

<<Java Class>>
Bookcases
homework1

- Bookcases(String,String)
- toString():String

<<Java Class>>
Desk
homework1

- Desk(String,String,String)

+employees
0..*
+admin
0..*
+customer
0..*
+temp_products
+prod_list
0..*
0..*

PROBLEM SOLUTION APPROACH

Problem an automation system for a company that sells office furnitures how can we create a system to keep track of the branches, employees, products and customers of the company?

Solution Approach: We can divide the problem into sub problems and solve each of them separately. We can first solve the problem of keeping track of the branches by collecting them in an array of sort and this array will be managed by the administrators of the company. Then we can store the employees of each branch inside their respective branches so we can keep track of each employee and the branch he belongs to. As for the Products each of them will have some information to keep track of it like customer's names and each will have a unique ID so we don't mix them up.

TEST CASES

Test Scenario	Test Cases	Test Result
Adding a Branch	Branch Name does not exist	Branch is rejected
	Branch Name exists	Branch is added
Adding an Employee	Branch Name exists	Employee is added
	Branch Name does not exist	Employee is rejected
Removing a Branch	Branch Name does not exist	The branch is not removed
	Branch Name exists	Branch is removed
Removing an Employee	Branch Name exists	Employee is removed
	Branch Name does not exist	Employee is not removed
Adding a Product	Product Type does not exist	Product is rejected
	Product Type exists	Product is added
	Product Model does not exist	Product is rejected
	Product Model exists	Product is added
	Product Color does not exist	Product is rejected
	Product Color exists	Product is added
Removing a Product	Product Type does not exist	The product is not removed
	Product Type exists	Product is removed
	Product Model does not exist	The product is not removed
	Product Model exists	Product is removed
	Product Color does not exist	The product is not removed
	Product Color exists	Product is removed
Display products in stok	Product does not exist	Warning(There are not product)
	Product exist	Display
Information of the previous orders of a customer	Product does not exist	Warning(There are not product)
	Product exist	Display
Type controls of input	If the desired type is input	Input provided
	If the not desired type is input	No entry
Search product	Product Type does not exist	Product is founded
	Product Type exists	Product is searched
	Product Model does not exist	Product is founded

	Product Model exists	Product is searched
	Product Color does not exist	Product is founded
	Product Color exists	Product is searched
Registration Page	Customer identity suitability	Customer registration
	Incorrect entry	Return the customer menu
Customers view previous their orders themselves	Product does not exist	Warning(There are not product)
	Product exist	Display
Login Page	Opening the authentication screen.	Opened
	Customer name exist	Login to the system has been provided.
	Customer name does not exist	Login to the system is not provided.
	Customer password exist	Login to the system has been provided.
	Customer password does not exist	Login to the system is not provided.
The customer's purchase of the product	If the product is in stock	Purchase successful
	Requesting products without color type	No color query
	Adding the product to the basket	Added to basket

Running and Results

```
Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
1
```

Add/Remove Branch->

```
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
5
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4

-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
1
Enter the new branch's name: gebze

-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
5
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4
4->gebze
```

```
-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
2
Branches:
Branch1
Branch2
Branch3
Branch4
gebze
Enter the name of the branch that you want to remove: gebze

-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
5
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4
```

Add/Remove Branch Employee:

```
-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
3
Enter the Branch: Branch1
Branch1's employees:
Enter the new branch employee's name: ahmet
Enter the new branch employee's surname: atar

-Administrator Menu-
Please choose the action from below:
1- Add a branch
2- Remove a branch
3- Add a branch employee
4- Remove a branch employee
5- List branches
6- Go back
Choice:
4
Enter the branch employee's name: ahmet
Enter the branch employee's surname: atar
```

```
Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
2
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4
Choice Branch:
0

-BranchEmployee Menu-
**Select the operation**
1-Display products in stock
2-Information of the previous orders of a customer
3-Add Product
4-Remove products
5- Return to previous menu
Choice:
3
```

Display Products:

```
-BranchEmployee Menu-
**Select the operation**
1-Display products in stock
2-Information of the previous orders of a customer
3-Add Product
4-Remove products
5- Return to previous menu
Choice:
1
0-> Product_Type=chair, Model_name=model1, Color_name=red
1-> Product_Type=chair, Model_name=model1, Color_name=blue
2-> Product_Type=chair, Model_name=model1, Color_name=green
3-> Product_Type=chair, Model_name=model1, Color_name=yellow
4-> Product_Type=chair, Model_name=model1, Color_name=black
5-> Product_Type=chair, Model_name=model2, Color_name=red
6-> Product_Type=chair, Model_name=model2, Color_name=blue
7-> Product_Type=chair, Model_name=model2, Color_name=green
8-> Product_Type=chair, Model_name=model2, Color_name=yellow
9-> Product_Type=chair, Model_name=model2, Color_name=black
10-> Product_Type=chair, Model_name=model3, Color_name=red
```

Add Product:

```
Welcome to our Company          0->chair                119-> Product_Type=officecabinets, Model_name=model9
1-Login as an Administrator     1->desk                 120-> Product_Type=officecabinets, Model_name=mode110
2-Login as a Branch Employee    2->meetingtable          121-> Product_Type=officecabinets, Model_name=model11
3-Login as a Customer           3->bookcases             122-> Product_Type=officecabinets, Model_name=model12
4-Exit                          4->officecabinets        123-> Product_Type=desk, Model_name=model2, Color_name=blue
Choice:                         Choice Type:
2                               1
Branches:                       0->red
0->Branch1                      1->yellow
1->Branch2                      2->blue
2->Branch3                      3->brown
3->Branch4                      Color Type:
Choice Branch:                  2
0                               0->model1
                                1->model2
-BranchEmployee Menu-           2->model3
**Select the operation**        3->model3
1-Display products in stock     4->model4
2-Information of the previous orders of a customer  5->model5
3-Add Product                   Model Type:
4-Remove products               1
5- Return to previous menu
Choice:
3
```

Remove Product:

```
-BranchEmployee Menu-           -BranchEmployee Menu-                0->model1
**Select the operation**        **Select the operation**             1->model2
1-Display products in stock     1-Display products in stock          2->model3
2-Information of the previous orders of a customer  2-Information of the previous orders of a customer  3->model3
3-Add Product                   3-Add Product                        4->model4
4-Remove products               4-Remove products                    5->model5
5- Return to previous menu      5- Return to previous menu           6->model6
Choice:                         Choice:                              7->model7
1                               4                                    Model Type:
0-> Product_Type=chair, Model_name=model1, Color_name=red    0->chair    0
1-> Product_Type=chair, Model_name=model1, Color_name=blue   1->desk
2-> Product_Type=chair, Model_name=model1, Color_name=green  2->meetingtable
3-> Product_Type=chair, Model_name=model1, Color_name=yellow 3->bookcases
4-> Product_Type=chair, Model_name=model1, Color_name=black  4->officecabinets
5-> Product_Type=chair, Model_name=model2, Color_name=red    Choice Type:
6-> Product_Type=chair, Model_name=model2, Color_name=blue   0
7-> Product_Type=chair, Model_name=model2, Color_name=green  0->red
                                1->yellow
                                2->blue
                                3->brown
                                4->orange
                                5->green
                                6->black
                                Color Type:
                                1
```

Chair / Yellow /Model 1 is removed branch employee.

```
0-> Product_Type=chair, Model_name=model1, Color_name=red
1-> Product_Type=chair, Model_name=model1, Color_name=blue
2-> Product_Type=chair, Model_name=model1, Color_name=green
3-> Product_Type=chair, Model_name=model1, Color_name=black
4-> Product_Type=chair, Model_name=model2, Color_name=red
5-> Product_Type=chair, Model_name=model2, Color_name=blue
6-> Product_Type=chair, Model_name=model2, Color_name=green
7-> Product_Type=chair, Model_name=model2, Color_name=yellow
8-> Product_Type=chair, Model_name=model2, Color_name=black
9-> Product_Type=chair, Model_name=model3, Color_name=red
10-> Product_Type=chair, Model_name=model3, Color_name=blue
11-> Product_Type=chair, Model_name=model3, Color_name=green
```

```
-BranchEmployee Menu-
**Select the operation**
1-Display products in stock
2-Information of the previous orders of a customer
3-Add Product
4-Remove products
5- Return to previous menu
Choice:
1
0-> Product_Type=chair, Model_name=model1, Color_name=red
1-> Product_Type=chair, Model_name=model1, Color_name=blue
2-> Product_Type=chair, Model_name=model1, Color_name=green
3-> Product_Type=chair, Model_name=model1, Color_name=yellow
4-> Product_Type=chair, Model_name=model1, Color_name=black
5-> Product_Type=chair, Model_name=model2, Color_name=red
6-> Product_Type=chair, Model_name=model2, Color_name=blue
7-> Product_Type=chair, Model_name=model2, Color_name=green
8-> Product_Type=chair, Model_name=model2, Color_name=yellow
9-> Product_Type=chair, Model_name=model2, Color_name=black
10-> Product_Type=chair, Model_name=model3, Color_name=red
```

Remove Result   Before Remove

Customer Menu:

```
Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
3
1-Login Page
2-Registration
3-Return to previous menu
Choice:
2
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4
Choice Branch:
0
```

Registration:

```
*Registration Page*
*Enter ID: *|
2
*Enter name: *
fikret
*Enter surname: *
atar
*Enter e-mail: *
atarfikret@gmail.com
*Enter adress: *
samsun atakum
*Enter password: *
123321
```

Login Page:

```
1-Login Page
2-Registration
3-Return to previous menu
Choice:
1
Branches:
0->Branch1
1->Branch2
2->Branch3
3->Branch4
Choice Branch:
0
1-Enter Name

fikret
2-Enter Password
123321
Successful Login*
```

Customer Menu:

```
-Customer Menu-
**Select the operation**
1- Search Product
2- List of products in stok
3- View previous orders
4- Return to previous menu
Choice:
1
```

Search Product:

```
-Customer Menu-
**Select the operation**
1- Search Product
2- List of products in stok
3- View previous orders
4- Return to previous menu
Choice:
1
0->chair
1->desk
2->meetingtable
3->bookcases
4->officecabinets
Choice Type:
1
0->red
1->yellow
2->blue
3->brown
Color Type:
2
```

Purchased:

```
0->model1
1->model2
2->model3
3->model3
4->model4
5->model5
Model Type:
1
Product is faund!!
Would you like to buy it?
Enter Y / N
Y

-Customer Menu-
**Select the operation**
1- Search Product
2- List of products in stok
3- View previous orders
4- Return to previous menu
Choice:

3
Previous_orders
desk  -  model2  -  blue
```

Desk /Model2 / Blue is purchased by customer

Show Previous orders->

Customer view product in stock:

```
-Customer Menu-
**Select the operation**
1- Search Product
2- List of products in stok
3- View previous orders
4- Return to previous menu
Choice:
2
0-> Product_Type=chair, Model_name=model1, Color_name=red
1-> Product_Type=chair, Model_name=model1, Color_name=blue
2-> Product_Type=chair, Model_name=model1, Color_name=green
3-> Product_Type=chair, Model_name=model1, Color_name=yellow
4-> Product_Type=chair, Model_name=model1, Color_name=black
5-> Product_Type=chair, Model_name=model2, Color_name=red
6-> Product_Type=chair, Model_name=model2, Color_name=blue
7-> Product_Type=chair, Model_name=model2, Color_name=green
8-> Product_Type=chair, Model_name=model2, Color_name=yellow
9-> Product_Type=chair, Model_name=model2, Color_name=black
10-> Product_Type=chair, Model_name=model3, Color_name=red
11-> Product_Type=chair, Model_name=model3, Color_name=blue
12-> Product_Type=chair, Model_name=model3, Color_name=green
13-> Product_Type=chair, Model_name=model3, Color_name=yellow
14-> Product_Type=chair, Model_name=model3, Color_name=black
15-> Product_Type=chair, Model_name=model4, Color_name=red
16-> Product_Type=chair, Model_name=model4, Color_name=blue
17-> Product_Type=chair, Model_name=model4, Color_name=green
18-> Product_Type=chair, Model_name=model4, Color_name=yellow
```

Error handling some examples:

```
Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
adssd
Enter integer input!!
Invalid choice


Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
```

```
Welcome to our Company
1-Login as an Administrator
2-Login as a Branch Employee
3-Login as a Customer
4-Exit
Choice:
3
1-Login Page
2-Registration
3-Return to previous menu
Choice:
6
Invalid choice
```