# GIT Department of Computer Engineering CSE 222/505 - Spring 2020 Homework 1 - Part 2 Report

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## 1. SYSTEM REQUIREMENTS

**Description of the Project:** The Project provides us to manage a big cargo company by using software. In this project there are different type users and they have different roles to handle this software. By using this system each user can make their own tasks. For example Administrator can add branch branch employe can add shipment etc. Our aim is to please our customer and provide service faster. In our system of course we have data and by using these data we can provide faster service.

There are 4 type user for this project;
- Administrators
- Branch Employees
- Transportation Personnel
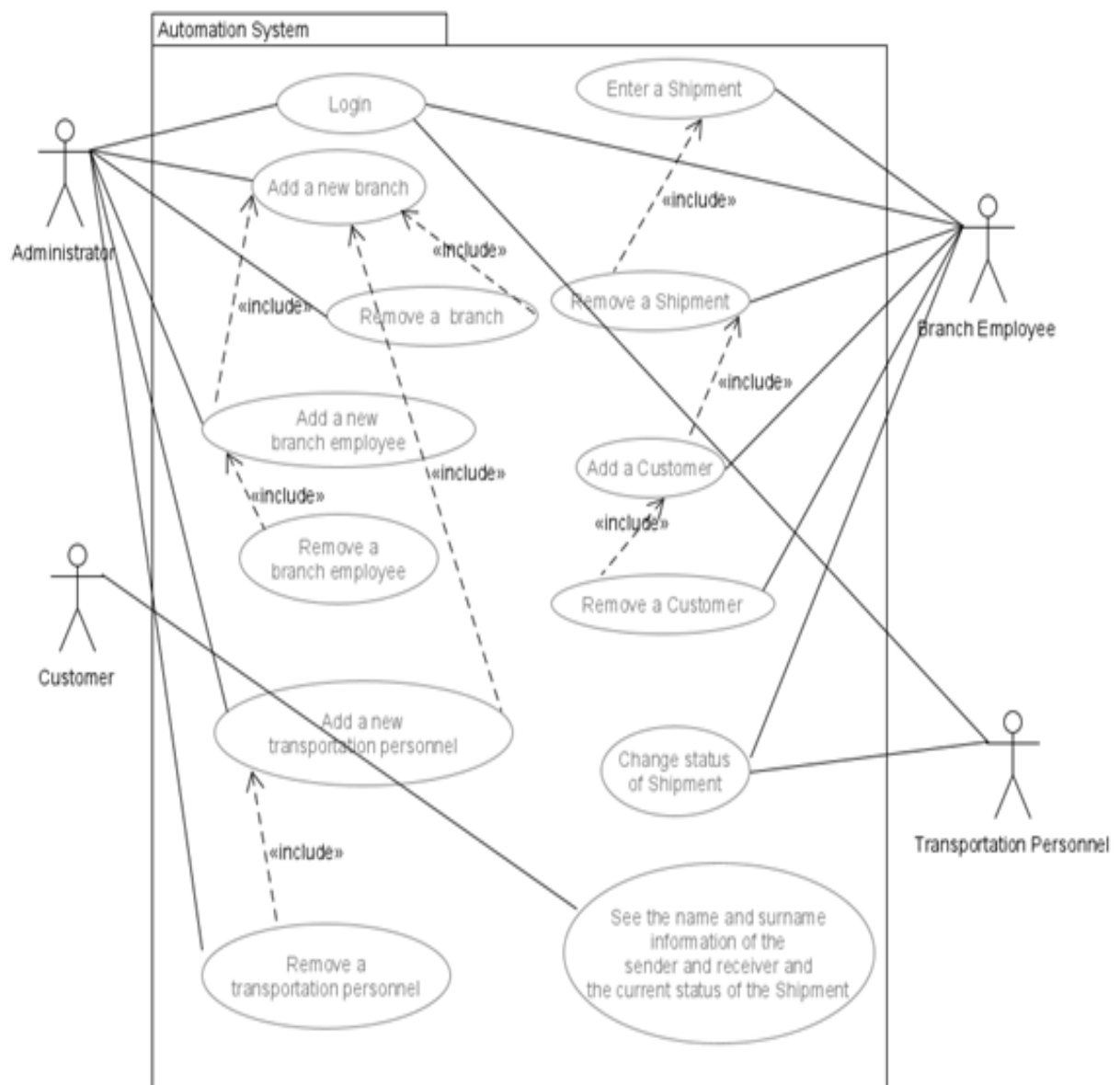- Customers

## Functional Requirements

| Requirement ID | Description of the Requirement |
|---|---|
| FR1 | Administrators can add a new branch |
| FR2 | Administrators can remove a branch |
| FR3 | Administrators can add a new branch employee |
| FR4 | Administrators can remove a branch employee |
| FR5 | Administrators can add a new transportation personnel |
| FR6 | Administrators can remove a transportation personnel |
| FR7 | Branch Employee can enter a Shipment |
| FR8 | Branch Employee can remove a Shipment |
| FR9 | Branch Employee can add a Customer |
| FR10 | Branch Employee can remove a Customer |
| FR11 | Branch Employee can change status of Shipment |
| FR12 | Transportation Personnel can change status of Shipment |
| FR13 | Customer is only authorized to see the name and surname information of the sender and receiver and the current status of the cargo |
| FR14 | Our System uses ArrayList to store data. |

## Non-Functional Requirements

| Requirement ID | Description of the Requirement |
|---|---|
| NFR1 | The interface is provided by using menus. |
| NFR2 | Administrators can add a new Admin |
| NFR3 | Administrators can print all data on the screen |
| NFR4 | Administrators , Branch Employees and Transportation Personnel have to |

| | use their ID and password to enter the system and do their job. |
|---|---|
| NFR5 | Administrators , Branch Employees and Transportation Personnel can set their ID and password. |
| NFR6 | The Tracking number of Shipment is given automatically by the program |

## 2. USE CASE DIAGRAMS

### 3. CLASS DIAGRAMS

My Class Diagram in "ClassDiagram.pdf" . Please check it.

### 5. PROBLEM SOLUTION APPROACH

My Problem solution steps are;
- – Specify the problem requirements
- – Analyze the problem
- – Design an algorithm and Program
- – Implement the algorithm
- – Test and verify the program
- – Maintain and update the program

1) **Specify the problem requirements :** I understand the problem.
2) **Analyze the problem :** I identify;
   - – Input data
   - – Output data
   - – Additional requirements and constraints

3) **Design an algorithm and Program :** I divide the problem into sub-problems. I listed major steps (sub-problems). I break down each step into a more detailed list. To do these We have to divide this big project into small pieces. First of all I started with user type we need divide them with seperate classes. And then to handle all data we need to write a class that manipulate the data. And lastly if we combine all these we can complete the project.

4) **Implement the algorithm :** I  wrote the algorithm in Java by converting each step into statements of Java (classes ,methods etc.)

   First I wrote the User Interface I put the common operation among the users. Then I wrote User Class that implements the user interface and I put common things among users type in this class then I wrote the Classes for each user type such as administrator that extends from user class. Then also I wrote Data class to keep and operate my all data about the data. Then Since administrator and Branch employee has several tasks I wrote manipulate administor and manipulate branch emloyee array. Since we have more than 1 menu in our program I wrote Menu interface and Menu classes that implements this interface. Lastly I merge all this classes in main class.

5) **Test and verify the program:** I run the program for several input cases.
6) **Maintain and update the program :** I keep the program up-to-date.

## 6. TEST CASES

| Test ID | Requirement ID | Test Case | Pre-Condition | Pass/Fail |
|---------|----------------|-----------|---------------|-----------|
| T1 | NFR4 | Check Login Validity | - User must have It's ID and Password<br>- There should be default admin | Pass |
| T2 | FR1 | Administrators can add a new branch | - There must be at least 1 admin<br>- Administrators must be login | Pass |
| T3 | FR2 | Administrators can remove a branch | - There must be at least 1 admin<br>- Administrator must be login<br>- There must be at least 1 branch | Pass |
| T4 | FR3 | Administrators can add a new branch employee | - There must be at least 1 admin<br>- Administrator must be login<br>- There must be at least 1 branch | Pass |
| T5 | FR4 | Administrators can remove a branch employee | - There must be at least 1 admin<br>- Administrator must be login<br>- There must be at least 1 branch<br>- There must be at least 1 branch employee | Pass |
| T6 | FR5 | Administrators can add a new transportation personnel | - There must be at least 1 admin<br>- Administrator must be login<br>- There must be at least 1 branch | Pass |
| T7 | FR6 | Administrators can remove a transportation personnel | - There must be at least 1 admin<br>- Administrator must be login<br>- There must be at least 1 branch<br>- There must be at least 1 transportation personnel | Pass |
| T8 | FR7 | Branch Employee can enter a Shipment | - There must be at least 1 Branch Employee<br>- Branch Employee must be login | Pass |
| T9 | FR8 | Branch Employee can remove a Shipment | - There must be at least 1 Branch Employee<br>- Branch Employee must be login<br>- There must be at least 1 Shipment | Pass |
| T10 | FR9 | Branch Employee can add a Customer | - There must be at least 1 Branch Employee<br>- Branch Employee must be login | Pass |

| | | | | |
|---|---|---|---|---|
| **T11** | FR10 | Branch Employee can remove a Customer | - There must be at least 1 Branch Employee<br>- Branch Employee must be login<br>- There must be at least 1 Customer | **Pass** |
| **T12** | FR11 | Branch Employee can change status of Shipment | - There must be at least 1 Branch Employee<br>- Branch Employee must be login<br>- There must be at least 1 Shipment | **Pass** |
| **T13** | FR12 | Transportation Personnel can change status of Shipment | - There must be at least 1 branch<br>- There must be at least 1 transportation personnel<br>- There must be at least 1 Shipment | **Pass** |
| **T14** | FR13 | Customer is only authorized to see the name and surname information of the sender and receiver and the current status of the cargo | - There must be at least 1 Shipment | **Pass** |

## 7. RUNNING AND RESULTS

| Test ID | Requirement ID | Test Result |
|---------|----------------|-------------|
| T1 | NFR4 |  |

| T2 | FR1 | ```
-------------------------------------------------
  Welcome Administrator Default
-------------------------------------------------
  What Do you want to do ?
-------------------------------------------------
  [1] Add a branch
-------------------------------------------------
  [2] Remove a branch
-------------------------------------------------
  [3] Add a branch employee.
-------------------------------------------------
  [4] Remove a branch employee.
-------------------------------------------------
  [5] Add a transportation personnel.
-------------------------------------------------
  [6] Remove a transportation personnel.
-------------------------------------------------
  [7] Add an administrator.
-------------------------------------------------
  [8] Print All Data up to now.
-------------------------------------------------
  [0] Main Menu.
-------------------------------------------------
Answer: 1
Enter Branch Name: Gebze
Your Branch has added Successfully!
``` |
|----|-----|---|
| T3 | FR2 | ```
-------------------------------------------------
  Welcome Administrator Default
-------------------------------------------------
  What Do you want to do ?
-------------------------------------------------
  [1] Add a branch
-------------------------------------------------
  [2] Remove a branch
-------------------------------------------------
  [3] Add a branch employee.
-------------------------------------------------
  [4] Remove a branch employee.
-------------------------------------------------
  [5] Add a transportation personnel.
-------------------------------------------------
  [6] Remove a transportation personnel.
-------------------------------------------------
  [7] Add an administrator.
-------------------------------------------------
  [8] Print All Data up to now.
-------------------------------------------------
  [0] Main Menu.
-------------------------------------------------
Answer: 2
Choose one of the branch to remove
[1] Gebze
[2] Istanbul
[3] Kocaeli
[4] Manisa
[0] Return Back
Answer: 4
Your Branch has removed Successfully!
``` |

| T4 | FR3 | | ```
-------------------------------------------
  Welcome Administrator Default
-------------------------------------------
  What Do you want to do ?
-------------------------------------------
  [1] Add a branch
-------------------------------------------
  [2] Remove a branch
-------------------------------------------
  [3] Add a branch employee.
-------------------------------------------
  [4] Remove a branch employee.
-------------------------------------------
  [5] Add a transportation personnel.
-------------------------------------------
  [6] Remove a transportation personnel.
-------------------------------------------
  [7] Add an administrator.
-------------------------------------------
  [8] Print All Data up to now.
-------------------------------------------
  [0] Main Menu.
-------------------------------------------
Answer: 3
Choose one of the branch to add branch employee in that Branch.
[1] Gebze
[2] Istanbul
[3] Kocaeli
[4] Manisa
[0] Return Back
Answer: 2
Enter a First Name: Ahmet
Enter a Last Name: Kaya
Enter your ID as Number: 123
Enter a password: 123
Your Branch employee has added Successfully !
-------------------------------------------
``` |

| T5 | FR4 | | |
|----|-----|---|---|

| T5 | FR4 | | |

```
---------------------------------------------
  Welcome Administrator Default
---------------------------------------------
  What Do you want to do ?
---------------------------------------------
  [1] Add a branch
---------------------------------------------
  [2] Remove a branch
---------------------------------------------
  [3] Add a branch employee.
---------------------------------------------
  [4] Remove a branch employee.
---------------------------------------------
  [5] Add a transportation personnel.
---------------------------------------------
  [6] Remove a transportation personnel.
---------------------------------------------
  [7] Add an administrator.
---------------------------------------------
  [8] Print All Data up to now.
---------------------------------------------
  [0] Main Menu.
---------------------------------------------
Answer: 4
Choose one of the branch employee to remove
[1] Akif Kartal
[2] Ahmet Kaya
[3] Emrah Acuk
[4] Yas,n Atka
[0] Return Back
Answer: 4
Your Branch employee has removed Successfully!
---------------------------------------------
```

| | | |
|---|---|---|
| **T6** | **FR5** | ```
--------------------------------------------
  Welcome Administrator Default
--------------------------------------------
  What Do you want to do ?
--------------------------------------------
  [1] Add a branch
--------------------------------------------
  [2] Remove a branch
--------------------------------------------
  [3] Add a branch employee.
--------------------------------------------
  [4] Remove a branch employee.
--------------------------------------------
  [5] Add a transportation personnel.
--------------------------------------------
  [6] Remove a transportation personnel.
--------------------------------------------
  [7] Add an administrator.
--------------------------------------------
  [8] Print All Data up to now.
--------------------------------------------
  [0] Main Menu.
--------------------------------------------
Answer: 5
Choose one of the branch to add transportation personnel in that Branch.
[1] Gebze
[2] Istanbul
[3] Kocaeli
[4] Manisa
[0] Return Back
Answer: 4
Enter a First Name: Fatih
Enter a Last Name: Altaylı
Enter your ID as Number: 789
Enter a Password: 456
Your transportation personnel has added Successfully!
--------------------------------------------
``` |

| T7 | FR6 | |
|---|---|---|

```
--------------------------------------------
  Welcome Administrator Default
--------------------------------------------
  What Do you want to do ?
--------------------------------------------
  [1] Add a branch
--------------------------------------------
  [2] Remove a branch
--------------------------------------------
  [3] Add a branch employee.
--------------------------------------------
  [4] Remove a branch employee.
--------------------------------------------
  [5] Add a transportation personnel.
--------------------------------------------
  [6] Remove a transportation personnel.
--------------------------------------------
  [7] Add an administrator.
--------------------------------------------
  [8] Print All Data up to now.
--------------------------------------------
  [0] Main Menu.
--------------------------------------------
Answer: 6
Choose one of the transportation personal to remove
[1] Fatih Altaylı
[0] Return Back
Answer: 1
Your Transportation Personnel has removed Successfully!
--------------------------------------------
```

| T8 | FR7 | |
|---|---|---|

```
--------------------------------------------
  Welcome Branch Employee Ahmet
--------------------------------------------
  What Do you want to do ?
--------------------------------------------
  [1] Enter a Shipment
--------------------------------------------
  [2] Remove a Shipment
--------------------------------------------
  [3] Add a Customer.
--------------------------------------------
  [4] Remove a Customer.
--------------------------------------------
  [5] Change Current Status of Cargo.
--------------------------------------------
  [0] Main Menu.
--------------------------------------------
Answer: 1
Enter Receiver FirstName: Ali
Enter Receiver Last Name:Veli
Enter Sender First Name: Doğan
Enter Sender Last Name: Cücen
Choose a Shipment Status ?
[1] Pending
[2] Picked Up
[3] In transit to destination.
[4] Delivered.
[5] Out of Delivery.
Answer: 3
Your Shipment has added with tracking Number 399045 !
--------------------------------------------
```

| T9 | FR8 | | ```
    Welcome Branch Employee Ali
-------------------------------------
    What Do you want to do ?
-------------------------------------
    [1] Enter a Shipment
-------------------------------------
    [2] Remove a Shipment
-------------------------------------
    [3] Add a Customer.
-------------------------------------
    [4] Remove a Customer.
-------------------------------------
    [5] Change Current Status of Cargo.
-------------------------------------
    [0] Main Menu.
-------------------------------------
Answer: 2
Choose one of the shipment to remove
[1] Tracking ID: 270239
          - Receiver: Ayşe Kayak Elif
          - Sender: Adıgüzel Tanımsız
          - Status: In transit to destination.
[0] Return Back
Answer: 1
Your Shipment has removed Successfully!
``` | |
| T10 | FR9 | | ```
    Welcome Branch Employee Ahmet
-------------------------------------
    What Do you want to do ?
-------------------------------------
    [1] Enter a Shipment
-------------------------------------
    [2] Remove a Shipment
-------------------------------------
    [3] Add a Customer.
-------------------------------------
    [4] Remove a Customer.
-------------------------------------
    [5] Change Current Status of Cargo.
-------------------------------------
    [0] Main Menu.
-------------------------------------
Answer: 3
Enter First Name: Ali
Enter Last Name: Kaya
Customer has added Successfully!
``` | |

| T11 | FR10 | ```
   Welcome Branch Employee Ali
-------------------------------------
   What Do you want to do ?
-------------------------------------
   [1] Enter a Shipment
-------------------------------------
   [2] Remove a Shipment
-------------------------------------
   [3] Add a Customer.
-------------------------------------
   [4] Remove a Customer.
-------------------------------------
   [5] Change Current Status of Cargo.
-------------------------------------
   [0] Main Menu.
-------------------------------------
Answer: 4
Choose one of the Customer to remove it
[1] Ayşe Kayak Elif
[2] Ahme Kaya
[0] Return Back
Answer: 2
Customer has removed Successfully!
``` | |
|---|---|---|---|
| T12 | FR11 | ```
   Welcome Branch Employee Ahmet
-------------------------------------
   What Do you want to do ?
-------------------------------------
   [1] Enter a Shipment
-------------------------------------
   [2] Remove a Shipment
-------------------------------------
   [3] Add a Customer.
-------------------------------------
   [4] Remove a Customer.
-------------------------------------
   [5] Change Current Status of Cargo.
-------------------------------------
   [0] Main Menu.
-------------------------------------
Answer: 5
Choose one of the shipment to update Status
[1] Tracking ID: 399045
           - Receiver: Ali Veli
           - Sender: Doğan Cücen
           - Status: In transit to destination.
[2] Tracking ID: 630741
           - Receiver: Ayşe Kayak
           - Sender: Elif AdıGüzel
           - Status: Picked Up
[0] Return Back
Answer: 1
Choose a Shipment Status ?
[1] Pending
[2] Picked Up
[3] In transit to destination.
[4] Delivered.
[5] Out of Delivery.
Answer: 4
Shipment Status has changed Successfully!
-------------------------------------
``` | |

| T13 | FR12 | <pre>
---------------------------------------------
  Who are you?
---------------------------------------------
  [1] I am an administrator.
---------------------------------------------
  [2] I am a branch employee.
---------------------------------------------
  [3] I am a transportation personnel.
---------------------------------------------
  [4] I am a customer.
---------------------------------------------
  [0] Exit.
---------------------------------------------
Answer: 3
Enter your ID as Number: 789
Enter your Password: 456
---------------------------------------------
  Welcome Employee yasin
---------------------------------------------
Choose one of the shipment to update Status
[1] Tracking ID: 555540
            - Receiver: Ahmet Kaya
            - Sender: Ali Kaya
            - Status: In transit to destination.
[0] Return Back
Answer: 1
Choose a Shipment Status ?
[1] Pending
[2] Picked Up
[3] In transit to destination.
[4] Delivered.
[5] Out of Delivery.
Answer: 4
Shipment Status has changed Successfully!
</pre> | |
| T14 | FR13 | <pre>
---------------------------------------------
  Welcome to Our Automation System
---------------------------------------------
  Who are you?
---------------------------------------------
  [1] I am an administrator.
---------------------------------------------
  [2] I am a branch employee.
---------------------------------------------
  [3] I am a transportation personnel.
---------------------------------------------
  [4] I am a customer.
---------------------------------------------
  [0] Exit.
---------------------------------------------
Answer: 4
Please enter your tracking Number: 555540
***Sender Information***
Name: Ali
Surname: Kaya
***Receiver Information***
Name: Ahmet
Surname: Kaya
Current Status: Delivered
</pre> | |

**Bonus : List of All Data**

```
Answer: 8
.......................................
   ***Administrators***
1) Default Default
2) Sadi Evren
.......................................
   ***Branches***
1) Gebze
       - Number of Branch Employee: 1
       - Number of Transportation Personnel: 0
       - Number of Shipment: 0
       - Number of Customer: 0
2) Istanbul
       - Number of Branch Employee: 1
       - Number of Transportation Personnel: 0
       - Number of Shipment: 2
       - Number of Customer: 3
3) Kocaeli
       - Number of Branch Employee: 1
       - Number of Transportation Personnel: 1
       - Number of Shipment: 0
       - Number of Customer: 0
.......................................
   ***Branch Employees***
1) Akif Kartal
       - Branch Name: Gebze
2) Ahmet Kaya
       - Branch Name: Istanbul
3) Emrah Acuk
       - Branch Name: Kocaeli
.......................................
   ***Transportation Personnel***
1) Selim Agah
       - Branch Name: Kocaeli
.......................................
   ***Customers***
1) Ali Veli
2) Ayşe Kayak
3) Ali Kaya
.......................................
   ***Shipments***
1) Tracking ID: 399045
       - Receiver: Ali Veli
       - Sender: Doğan Cücen
       - Status: Delivered
2) Tracking ID: 630741
       - Receiver: Ayşe Kayak
       - Sender: Elif AdıGüzel
       - Status: Picked Up
```