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

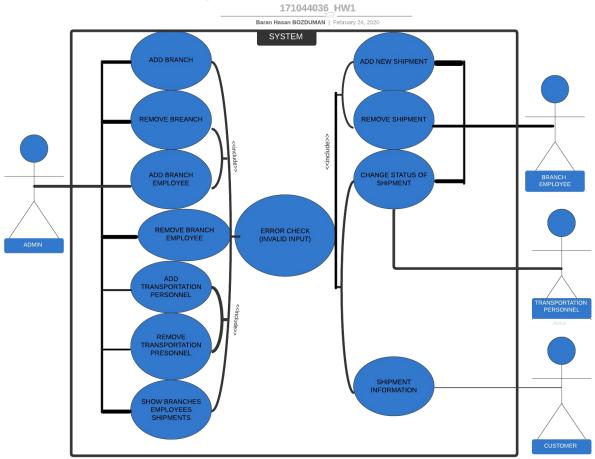
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1.System Requirements

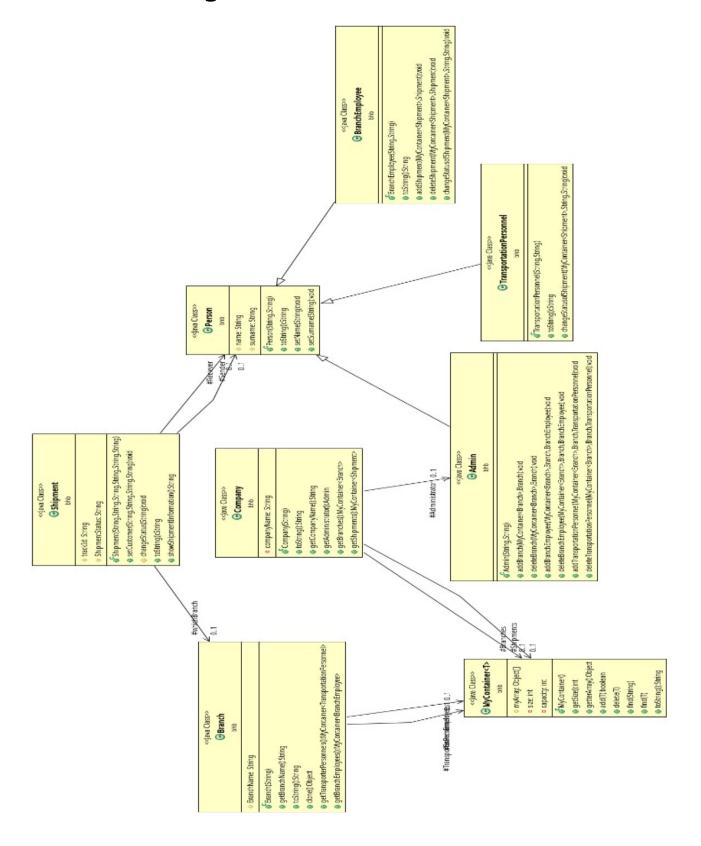
Firstly I should explain problem definition as the given homework#1 assaigment. We code a program which can be used by cargo companies as a cargo automation program to manipulate a cargo company. The automation system has users such as Administrator, Branch Employee, Transportation Personnel and Customer. If we explain functionality of program such as declared homework description "Administrators manage the system by adding and removing branches, branch employees and transportation personnel. Branch employees can enter and remove information about the shipments sent from that branch, add and remove users (customers) to the system. The information of the sender and receiverare recorded for each shipment. When the package arrives at a branch or leaves the branch, its current status is entered into the system by the branch employee. When it is delivered, the transportation personnel makes the update. The customer entering the system with thetracking number is only authorized to see the name and surname information of the sender and receiver and the current status of the cargo" so the some of user is not able to other users ability such as the the adding shipment and changing status of shipment interested in shipment but a transportation employee can not add an shipment as the branch employee and we also need to collect all data just using by normall arrays we are restricted using any collections such as Array lists.

We have to keep all data in different types of arrays for instance we have to speperate them for branches, branch employees and transportation personnel and the customers and the user doesnt matter who is she/he when they add datum the array must move to another bigger array(since the the using of an constant size array is not useful). Because other wise the program will engage lots of memory so it should be dynamic even we have to use arrays.

2.Use Case Diagrams



3.Class Diagrams



4. Problem Solution Aproach

As I mention in system requirements we need to use Array list but we are not able to use it since its forbidden. doing the array manuplating operations for each such as branches, branch emplooyees, customers can be deadly boring so I decided to write my own container like arraylist but in basic level and it does basic operations. I do my add delete etc operations by using container class which is genric to use all types of classes and It is very useful for me .Then I create company class which has a default admin and defined an company name, It keeps my Branches and shipments containers because both of them belong to company and if I need to do an operations I send the containers to interested object method as a parameter since the everything is reference in java it works well, branches keep their name, branch employees and transportation personnel because the employees are belong to branch and admin or employees or customers such as sender and receiver extends from person class and every person must have a name and surname. I overrided classes toString methods to compare data to find an branch, employee etc. It generally returns the name for the object so we can find the object to do operations without need to know hash code of object .I did not create an customer class to track shipments because generally the shipments has customers instead customers having shipments so I keep the customers information in their shipment objects, and the customers only need to know track id (and I overrided the toString method of shipments to give track id so I can compare them). And everybody do own job just transportation personnel and branch employees using same method to change status of shipment.

In main method I am using the objects and objects calls each other until to reach the necessarry functions, and I find objects by using find method which I write in container class and it compares strings(by using my overrided toString method) and returns an object if it can not find the oject it returns null pointer.(I did not know until I get null pointer exceptions instead of returning an empty object I decided to add do while loops in where I get inputs from user and now I have a new problem what if the container is empty is it enter an infinete loop, nope I used conditions and if the container is empty it forwards you to main menu.). Thats okay so far After that I considered what if the admin enters same employees name I didnt show in menu this but it can be easily fix by changing surnames to id number and because of I use next() function of java to get string it takes until the whitespace soyou have to write "_" character instead of white space. So you can add more names from same name . And when entering the inputs you must not use strings it only supports integers.

5.Test Cases

```
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name that you want to add
ADANA
1- Login as Admin
2- Login as Branch Employee
```

```
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
1
Enter Branch Name that you want to add
URFA
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
1
Enter Branch Name that you want to add
MALATYA
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
```

```
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name that you want to remove
 ADANA URFA MALATYA
Enter a Branch Name
ADAN
Enter a Branch Name
ADAS
Enter a Branch Name
SDFSDSF
Enter a Branch Name
ADANA
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name that you want to add
MARAS
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
```

```
2
Enter Branch Name that you want to remove
URFA MALATYA MARAS
Enter a Branch Name
MALATYA
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
1
Enter Branch Name that you want to add
RIZE
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
2
Enter Branch Name that you want to remove
URFA MARAS RIZE
Enter a Branch Name
RIZE
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
```

```
0- FXTT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(),personnel,shipments
Enter your choice:
Enter Branch Name to add a Branch Emoloyee:
URFA MARAS
Enter a Branch Name
URFA
Enter name BranchEmployee:
ALI
Enter surname BranchEmployee:
BAHAR
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name to add a Transportation Personel:
URFA MARAS
Enter a Branch Name
URFA
Enter name transportation Personel:
NEVZAT
Enter surname transportation Personel:
SEFEROGLU
1- Login as Admin
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2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name to remove a Branch Emoloyee:
URFA MARAS
Enter a Branch Name
URFA
ALI BAHAR
Enter a Branch Employee Name
ALI
Enter a Branch Employee Surame
BAHAR
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name to remove a Branch Emoloyee:
URFA MARAS
Enter a Branch Name
URFA
You are forwarding to menu there is not any Branch Employee
1- Login as Admin
2- Login as Branch Employee
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3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
6
URFA MARAS
Enter Branch Name to remove a Transportation Personel:
URFA MARAS
Enter a Branch Name
URFA
NEVZAT SEFEROGLU
Enter a Transporter Personel Name
NEVZA
Enter a Transporter Personel Surame
NEVZA
Enter a Transporter Personel Name
NEVZAT
Enter a Transporter Personel Surame
SEFEROGLU
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
2
Enter Branch Name that you want to remove
URFA MARAS
Enter a Branch Name
```

```
URFA
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name that you want to add
ANTEP
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
3
Enter Branch Name to add a Branch Emoloyee:
MARAS ANTEP
Enter a Branch Name
ANTEP
Enter name BranchEmployee:
MURAT
Enter surname BranchEmployee:
YILDIZ
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
```

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4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
Enter Branch Name to add a Transportation Personel:
MARAS ANTEP
Enter a Branch Name
ANTEP
Enter name transportation Personel:
ERDI
Enter surname transportation Personel:
BAYIR
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
3- Remove a shipment
Enter your choice:
MARAS ANTEP
Enter a Branch Name
MARAS
You are forwarding to menu there is not any Branch Employee
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
```

```
3- Remove a shipment
Enter your choice:
2
MARAS ANTEP
Enter a Branch Name
ANTEP
MURAT YILDIZ
Enter a Branch Employee Name
MURAT
Enter a Branch Employee Surame
YILDIZ
Enter the Track ID
123
Enter the Sender Name
SS
Enter the Sender Surname
Enter the Reciever Name
RR
Enter the Reciever Surame
Enter the Shipment Status
PREPARING
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Enter your track id:
123
Reciever_____RR RR
Sender_____SS SS
Track ID_____123
Shipment Status_____PREPARING
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
3- Remove a shipment
Enter your choice:
1
```

```
MARAS ANTEP
Enter a Branch Name
ANTEP
MURAT YILDIZ
Enter a Branch Employee Name
MURAT
Enter a Branch Employee Surame
YILDIZ
Enter the Track ID
123
Enter the status of shipment
ON WAY
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Enter your track id:
123
Reciever_____RR RR
Sender_____SS SS
Track ID_____123
Shipment Status____ON_WAY
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Update shipment status
MARAS ANTEP
Enter a Branch Name
ANTEP
ERDI BAYIR
Enter a Transporter Personel Name
ERDI
Enter a Transporter Personel Surame
BAYIR
123
Enter the Track ID
Enter the status of shipment
DELIVERED
1- Login as Admin
2- Login as Branch Employee
```

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3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Enter your track id:
123
Reciever_____RR RR
Sender_____SS SS
Track ID_____123
Shipment Status_____DELIVERED
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
3- Remove a shipment
Enter your choice:
MARAS ANTEP
Enter a Branch Name
ANTEP
MURAT YILDIZ
Enter a Branch Employee Name
MURAT
Enter a Branch Employee Surame
YILDIZ
123
Enter the Track ID of shipment that you want to remove
123
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
You are forwarding to menu there is not any Shipments
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
```

```
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
MARAS ANTEP
Enter Branch Name to remove a Transportation Personel:
MARAS ANTEP
Enter a Branch Name
MARAS
You are forwarding to menu there is not any Transportation Personnel
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
MARAS ANTEP
Enter Branch Name to remove a Transportation Personel:
MARAS ANTEP
Enter a Branch Name
ANTEP
ERDI BAYIR
Enter a Transporter Personel Name
ERDI
Enter a Transporter Personel Surame
BAYIR
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
```

```
Please enter your choice:
Update shipment status
MARAS ANTEP
Enter a Branch Name
ANTFP
You are forwarding to menu there is not any Transportation Personnel
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
3
Enter Branch Name to add a Branch Emoloyee:
MARAS ANTEP
Enter a Branch Name
ANTEP
MURAT YILDIZ
Enter name BranchEmployee:
MURAT
Enter surname BranchEmployee:
YILDIZ
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
3- Remove a shipment
Enter your choice:
MARAS ANTEP
Enter a Branch Name
```

0- EXIT

```
ANTFP
MURAT YILDIZ
Enter a Branch Employee Name
MURAT
Enter a Branch Employee Surame
YILDIZ
You are forwarding to menu there is not any Shipment
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Try a valid choice!!!
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
2
Enter Branch Name that you want to remove
 MARAS ANTEP
Enter a Branch Name
ANTFP
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Welcome Baran Hasan BOZDUMAN
1- Add a branch
2- Remove a branch
3- Add a branchemployee
4- Remove a branch employee
5- Add a transportation personel
6- Remove a transportation personnel
7- Show all getBranches(), personnel, shipments
Enter your choice:
2
Enter Branch Name that you want to remove
```

```
MARAS
Enter a Branch Name
HATAY
Enter a Branch Name
MARAS
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
1- Change shipment status
2- Add new shipment
3- Remove a shipment
Enter your choice:
You are forwarding to menu there is not any Branch
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
You are forwarding to menu there is not any Shipments
1- Login as Admin
2- Login as Branch Employee
3- Login as Transportation Personel
4- Login as Customer
0- EXIT
Please enter your choice:
Exitting...
```

6. Running results

I put some screenshots to prove that I run it on given virtual machine...

