GIT Department of Computer Engineering

CSE 222/505 – Spring 2020

Homework #1 Report
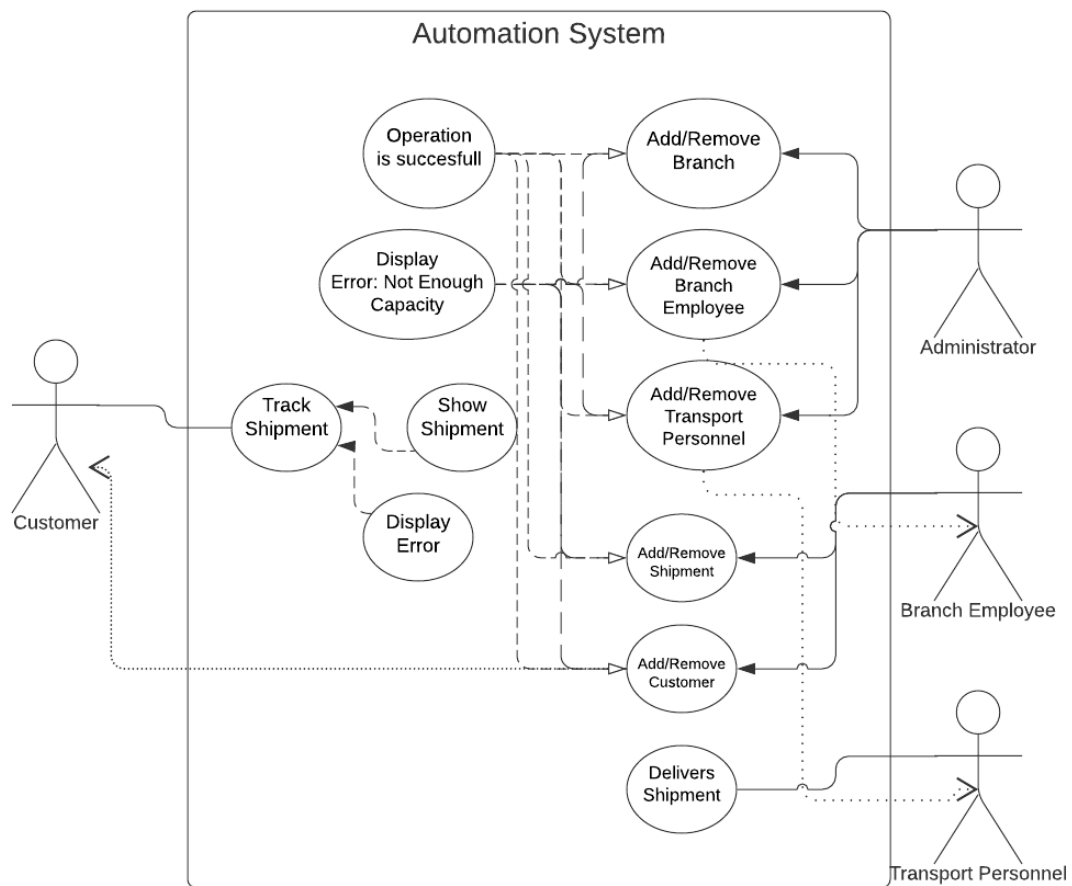
Türker Tercan

171044032

1. System Requirements

This system will be implemented for a cargo automation system. User (Customer) can login the system with his/her tracking number if there is a shipment with that number and shows it.
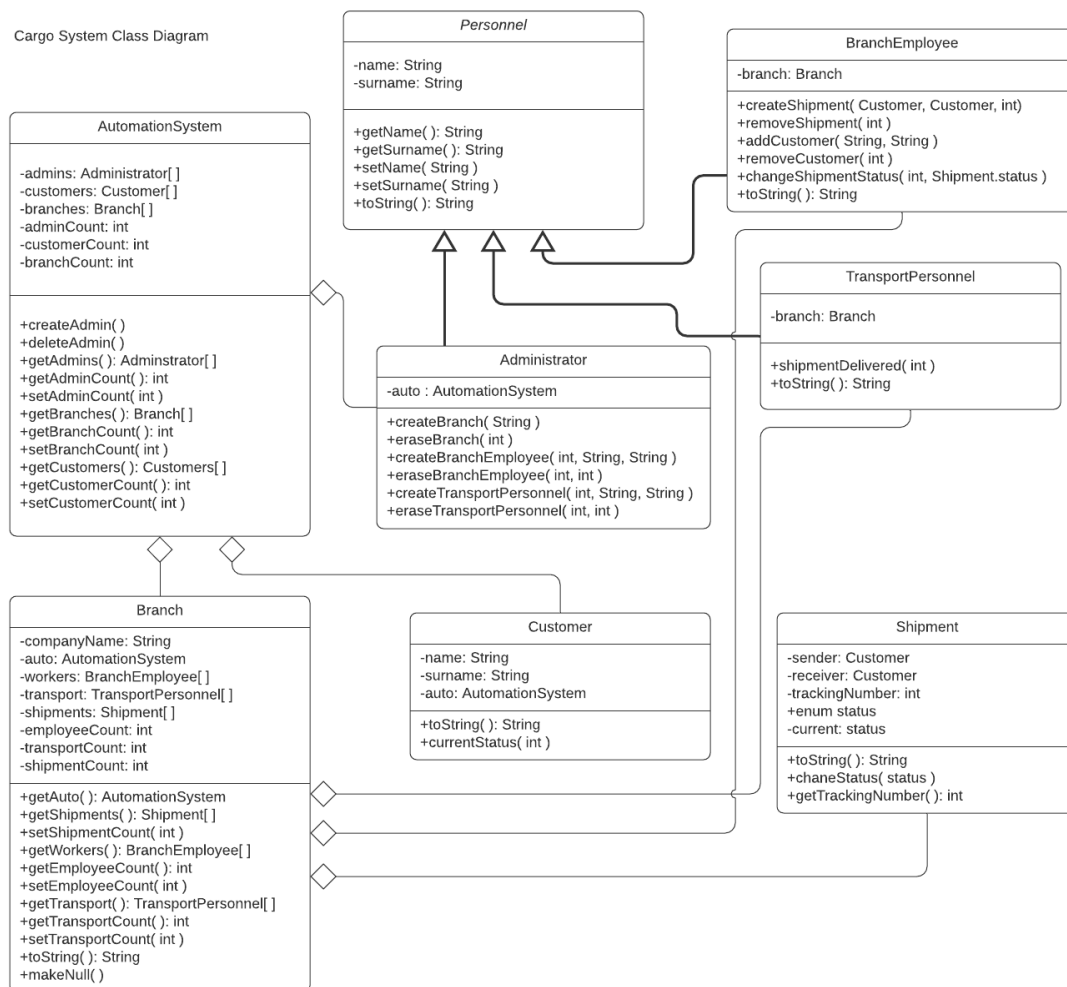
Adminstrators can create or delete branches and workers

Workers can add or erase shipments and customers

2. Use Case Diagrams

3. Class Diagram

Cargo System Class Diagram

4. Problem Solution Approach

The problem is we need to implement a cargo delivery system. To implement that, we need to determine classes and which containers will be in which class.

Sub-goals:

1. Determine classes
2. AutomationSystem, Administrator, Branch, BranchEmployee, Customer, Personnel(Abstract), Shipment, TransportPersonnel and Test will the classes
3. Personnel Abstract class is the superclass for all workers in the system.
4. AutomationSystem will hold admins, customers and branches. It allows us to create admins.
5. Administrator can create branch, employee and personnel but remember that branches is stored in AutomationSystem. To get that, I stored a references of AutomationSystem and implemented getters and setters

6. Branch will contain all workers and all shipments in that branch.
7. BranchEmployee can create or delete shipments from that branch and also TransportPersonnel can deliver shipments. To get the shipments, I stored a reference Branch in these classes.
8. Customers can see their shipments when they logged in correct tracking number

5. Test Cases

```
Test Scenario: Check if Branches can be created and prints properly
Test Case: Create Branches
Test Data:
    - Branch Name: Yurtiçi Kargo
    - Branch Name: PTT Kargo
    - Branch Name: Aras Kargo
Excepted Result:
      Branch Name: Yurtiçi Kargo
      Branch Name: PTT Kargo
      Branch Name: Aras Kargo
Pass/Fail: PASS


Test Scenario: Check if create employee and personnel in a branch
Test Case: Create BranchEmployee and TransportPersonnel and prints it
Test Data:
      admin1.createBranchEmployee(0, "Türker", "Tercan");
      admin2.createTransportPersonnel(0, "Naime", "Öztunç");
      admin1.createBranchEmployee(1, "Çağla", "Şahin");
      admin2.createTransportPersonnel(1, "Egehan", "Öztürk");
Excepted Result:
      Branch Name: Yurtiçi Kargo
      Branch Employees:
      1. Employee: Türker Tercan
      Transport Personnel:
      1. Personnel: Naime Öztunç

      Branch Name: PTT Kargo
      Branch Employees:
      1. Employee: Çağla Şahin
      Transport Personnel:
      1. Personnel: Egehan Öztürk
Pass/Fail: PASS

Test Scenario: Check erase branch works
Test Case: Erase Branch
Test Data:
admin1.eraseBranch(2);
Excepted Result:
      Branch Name: null
Pass/Fail: PASS

Test Scenario: Check if can create customers and shipments and track it
Test Case: Create Customers, Create Shipments, Track Shipments
Test Data:
      emp.addCustomer("Mert", "Yalçınöz");
      emp.addCustomer("Cem", "Bozkurt");
      emp.addCustomer("Demirkan", "Demir");
```

```
        emp.addCustomer("Joaquin", "Phoenix");

        Customer customer = auto.getCustomers()[0];
        emp.createShipment(auto.getCustomers()[1], auto.getCustomers()[0], 123);
        emp.createShipment(auto.getCustomers()[2], auto.getCustomers()[3], 321);
        emp.createShipment(auto.getCustomers()[3], auto.getCustomers()[1], 567);

        customer.currentStatus(567);
        customer.currentStatus(111);
        customer.currentStatus(123);
        customer.currentStatus(321);
```

Excepted Result:
```
        Shipment is found!
        Shipment Information:
        Sender: Joaquin Phoenix    Receiver: Cem Bozkurt
        Tracking Number: 567       Status: NOTShipped

        Shipment is not found. Try again!

        Shipment is found!
        Shipment Information:
        Sender: Cem Bozkurt  Receiver: Mert Yalçınöz
        Tracking Number: 123       Status: NOTShipped

        Shipment is found!
        Shipment Information:
        Sender: Demirkan Demir    Receiver: Joaquin Phoenix
        Tracking Number: 321       Status: NOTShipped
```
Pass/Fail: PASS

6. Running and Result

```
Branch Name: Yurtiçi Kargo

Branch Name: PTT Kargo

Branch Name: Aras Kargo

Branch Name: Yurtiçi Kargo
Branch Employees:
1. Employee: Türker Tercan
Transport Personnel:
1. Personnel: Naime Öztunç

Branch Name: PTT Kargo
Branch Employees:
1. Employee: Çağla Şahin
Transport Personnel:
1. Personnel: Egehan Öztürk

Aras Kargo deleted:
Branch Name: null
Shipment is found!
Shipment Information:
Sender: Joaquin Phoenix  Receiver: Cem Bozkurt
Tracking Number: 567     Status: NOTShipped

Shipment is not found. Try again!

Shipment is found!
Shipment Information:
Sender: Cem Bozkurt       Receiver: Mert Yalçınöz
Tracking Number: 123      Status: NOTShipped

Shipment is found!
Shipment Information:
Sender: Demirkan Demir   Receiver: Joaquin Phoenix
Tracking Number: 321     Status: NOTShipped

After shipment updates

Shipment is found!
Shipment Information:
Sender: Joaquin Phoenix  Receiver: Cem Bozkurt
Tracking Number: 567     Status: NOTShipped

Shipment is not found. Try again!
```

```
Shipment is found!
Shipment Information:
Sender: Cem Bozkurt       Receiver: Mert Yalçınöz
Tracking Number: 123      Status: Shipped

Shipment is found!
Shipment Information:
Sender: Demirkan Demir    Receiver: Joaquin Phoenix
Tracking Number: 321      Status: Delivered

Removing 3rd shipment
Shipment is not found. Try again!
```

```java
public static void main(String[] args) {

    AutomationSystem auto = new AutomationSystem();
    auto.createAdmin();
    auto.createAdmin();

    Administrator admin1 = auto.getAdmins()[0];
    Administrator admin2 = auto.getAdmins()[1];

    admin1.createBranch("Yurtiçi Kargo");
    admin2.createBranch("PTT Kargo");
    admin1.createBranch("Aras Kargo");

    System.out.println(auto.getBranches()[0]);
    System.out.println(auto.getBranches()[1]);
    System.out.println(auto.getBranches()[2]);

    admin1.createBranchEmployee(0, "Türker", "Tercan");
    admin2.createTransportPersonnel(0, "Naime", "Öztunç");

    admin1.createBranchEmployee(1, "Çağla", "Şahin");
    admin2.createTransportPersonnel(1, "Egehan", "Öztürk");

    System.out.println(auto.getBranches()[0]);
    System.out.println(auto.getBranches()[1]);

    admin1.eraseBranch(2);
    System.out.print("Aras Kargo deleted:\n" + auto.getBranches()[2]);


    BranchEmployee emp = auto.getBranches()[0].getWorkers()[0];
    TransportPersonnel person = auto.getBranches()[0].getTransport()[0];

    emp.addCustomer("Mert", "Yalçınöz");
    emp.addCustomer("Cem", "Bozkurt");
    emp.addCustomer("Demirkan", "Demir");
    emp.addCustomer("Joaquin", "Phoenix");

    Customer customer = auto.getCustomers()[0];

    emp.createShipment(auto.getCustomers()[1], auto.getCustomers()[0], 123);
    emp.createShipment(auto.getCustomers()[2], auto.getCustomers()[3], 321);
    emp.createShipment(auto.getCustomers()[3], auto.getCustomers()[1], 567);

    customer.currentStatus(567);
    customer.currentStatus(111);
    customer.currentStatus(123);
    customer.currentStatus(321);

    person.shipmentDelivered(1);
    emp.changeShipmentStatus(0, Shipment.status.Shipped);

    System.out.println("After shipment updates\n");
    customer.currentStatus(567);
    customer.currentStatus(111);
    customer.currentStatus(123);
    customer.currentStatus(321);
```

```java
71            System.out.println("Removing 3rd shipment");
72            emp.removeShipment(2);
73            customer.currentStatus(567);
74
75        }
76
77 }
```