

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

HW1

Nevzat Seferoglu

171044024

1. SYSTEM REQUIREMENTS

Problem Description:

The automation system for a cargo company has users such as administrators, branch employees, transportation personnel and customers. 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 receiver are 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 make the update. The customer entering the system with the tracking number is only authorized to see the name and surname information of the sender and receiver and the current status of the cargo.

All system works based on ID numbers of each data type.

Firstly, system require a name of the company that will initiate the other functions in entire project inside.

Default Headquarter branch created by the system itself.

Headquarter branch is created by default and its ID = 1.

System also require creating an admin for launching entire interface.

Admin,

Must, List all current branches with their information

Must, List all current employees.

Must, Add branch.

Must, Remove branch with ID.

Must, Add new employee.

- There are some requirements for adding employee
 - Employee Name
 - Employee Surname
 - Employee ID
 - Employee Branch
 - Employee Position

Must, Remove existing employee with ID.

- Only needed ID number of employees.
 - o In this process, previously used ids should not be used.

Should, Change branch of employee with IDs.

Branch Employee,

Should, List current branch shipments.

Should, Search shipment with tracking-ID in entire company.

Must, Add customer

- Add specific customer to the system, there is no special ids for customer , every shipments has ids and shipments actually is not unique for customers but every shipment has different kind of unique id.
 - o Description
 - o Tracking-number
 - o Branch-ID (Must be Unique)
 - o Customer's forename (Represents Sender also)
 - o Customer's surname
 - o Receiver's forename (Just a person)
 - o Receiver's surname

All these steps contain error check statement for each project.

Must, Remove customer

- Only needed ID number of shipment tracking-number.
 - o In this process, previously used ids should not be used.

Must, Change status of shipment

- There are three kind of shipment status
 - o In Branch
 - o In Transit
 - o Delivered

All these are **enum** type defined in **enum** class.

In the process of changing shipment status, branch employee cannot make delivered.

Must, Edit other shipment info

- Edit the crucial information about shipment must be changeable.
- Only branch employee can do that.

Customer,

Must, Check the shipment information

- Must be entered correct shipment tracking-number
 - o Shipment Sender
 - o Shipment Receiver
 - o Shipment Status

System Action Sum:

- System use 'switch-case' for conditional statements, 'while' for iterator over the process. Each process must be tested by this language properties.

- Exit choices are available for some processes.

- Important: There is no inputs checking for the menu bar in overall program. Therefore, inputs are important for not to crash. Menu navigation must be used properly.

2. USE CASE DIAGRAMS

Attached to zip file.

3. CLASS DIAGRAMS

Attached to zip file.

4. OTHER DIAGRAMS

5. PROBLEM SOLUTION APPROACH

The problem was to create cargo company system. When I come to the problem cargo company has to keep data about both customer and company structure itself. There are also some essential structures that belongs to company such as branch, employee, shipments. All those structures must involve in a uniqueness system. When I come back to problem, first thing that comes my mind was to creating ids-based system. Thanks to this system I could make a search easy. According to each data type that has some properties and skills, I need to create an interactive data communication system so that It save me not to think about code structure instead some algorithm. Algorithms and code structure should be used in a balance. In complex system, code structures are hard to design and at the same time, should be time saving also.

Exploiting class properties was an enough idea for implement system. But there is critical issue about where the actual data locate. I thought that Company has all branch, shipment, employee and customer. I did not put additional class for all sub employees and shipments etc. There are two enumeration structure for them.

- ShipmentStatus
- EmployeePositions

These enums are collectively works with their own function. When employee ask for some operation it also has some position in structure itself. Thanks to these methods, when Employee created by the developer, it is easy to add a new function or new employee position to system structure.

System Side Effect: All methods and properties of unique employee such as admin, branch employee, transportation employee is represented in same structure which is Employee class.

Summary: **In this project, I learn that even basic methods and variable can be more complicate, and design based. Evaluating both structure and real-case scenario could be tricky.**

6. TEST CASES

Attached to zip file.

7. RUNNING AND RESULTS

Attached to zip file.

Not: 'Test Cases' and 'Running and Results' are in the same .txt file in assignment.