Bilkent University

Department of Computer Science

CS 353 - Database Systems

Shipping Company Data Management System

Project Proposal

Group 15

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1.0 Introduction

This report describes Shipping Company Data Management System project and explains functionalities of this project. After this introduction part, this report will continue with project description part. Description part has brief explanation about aim and details of our system and briefly explains how the system works. Following section indicates the reason behind using database in this Shipping Company Data Management System and specifies how we will use database as a part of our project. Requirements section have 3 sections in it which are: Functional Requirements, Non-functional Requirements and Pseudo Requirements. After the Requirements part of this report, we have specified limitations to our project. Finally, we included our E/R diagram which forms a basis for our design and we also added a conclusion about our progress in our proposal report.

2.0 Project Description

Database systems play a vital role in large enterprises. In shipping companies like UPS, DHL, data storage, retrieval and manipulation is the key factor to the reliable operation of the company. Reliable operation requires reliable database management and it is *the* foundation of such companies. Companies implementing primitive file-system-like technologies suffer from data redundancy, inconsistency and inefficiency which, in turn, cost a lot of money, if not worse. However, a well-designed database system can provide structure to the company's data management and overcome issues that were stated earlier. In this project, it is out goal to achieve a comprehensive database management system for shipping companies that will both efficient and consistent.

2.1 The use of Database for the Shipping Company Data Management System

The system for our project is designed to hold various amounts of information. A shipping company can have entities like employees, customers, couriers, transportation events, retail center, shipped items and so on. Managing such amount and variety of data requires a fast, secure, integrable and modificable system. Therefore, we must use database for this project. Also,usage of database rather than any other system is simply the most secure and effective option. For example, spreadsheets fail to store information in such a practical way like database does. Using a database is a better way to store and analyse big amount of data.

2.2 Usage of Database in Our Project

Database will be used in order to manage all the data for the Shipping Company Data Management System. We are going to use database to login information, data entries and to perform queries. To ease this process, all of the information will be displayed as tables and entities. Therefore, user can easily access the required information.

3.0 Requirements

3.1 Functional Requirements

3.1.1 Customer

- Customers should be able to register to the system.
- Customers should be able to calculate the estimated price and delivery time for their packages.
- Customers should be able to search nearest branches.
- Customers should be able to call a courier.
- Customers should be able to send their packages to their desired destinations.
- Customers should be able to customize delivery type.
- Customers should be able to customize payment method.
- Customers should be able to review the status of their packages.
- Customers should be able to decline the shipping.
- Customers should be able to review the service.
- Customers should be able to file a complaint about lost packages.
- Customers should be able to should be able to view their personal details.
- Customers should be able to change their personal details from their profile.
- Customers should be able to see the information about their previous shipments.

3.1.2 Employees

- Employees should be able to check their tasks.
- Employees should be able to update their status for a task.
- Employees should be able to see the information about the packages that they will carry / transport.
- Employees should be able to view their personal details.

- Employees should be able to request a change for their personal details.

3.1.3 Couriers

In addition to employees.

- Couriers should be able to view information about the package that they are delivering and update it(for example: package's current location).

3.1.4 Admins

In addition to employees:

- Admins should be able to assign tasks for each courier.
- Admins should be able to review complaints.
- Admins should be able to review reports.
- Admins should be able to update an employee's personal details.

3.2 Non Functional Requirements

3.2.1 Usability

- Our system should be able to provide an easy to understand and use interface.
- New users should have no trouble while learning how to navigate through our system.
- Every user of this system should be able to reach the information they are looking for very easily.

3.2.2 Modifiability

- Our system should be able to handle any interactions for every user.
- Our system should be easily modified and updated when needed.

3.2.3 Capacity

- Our database system should be able to store vast data without any problem.

3.2.4 Security

- User accounts should be secure and users should be able to reach their accounts if their login information is correct

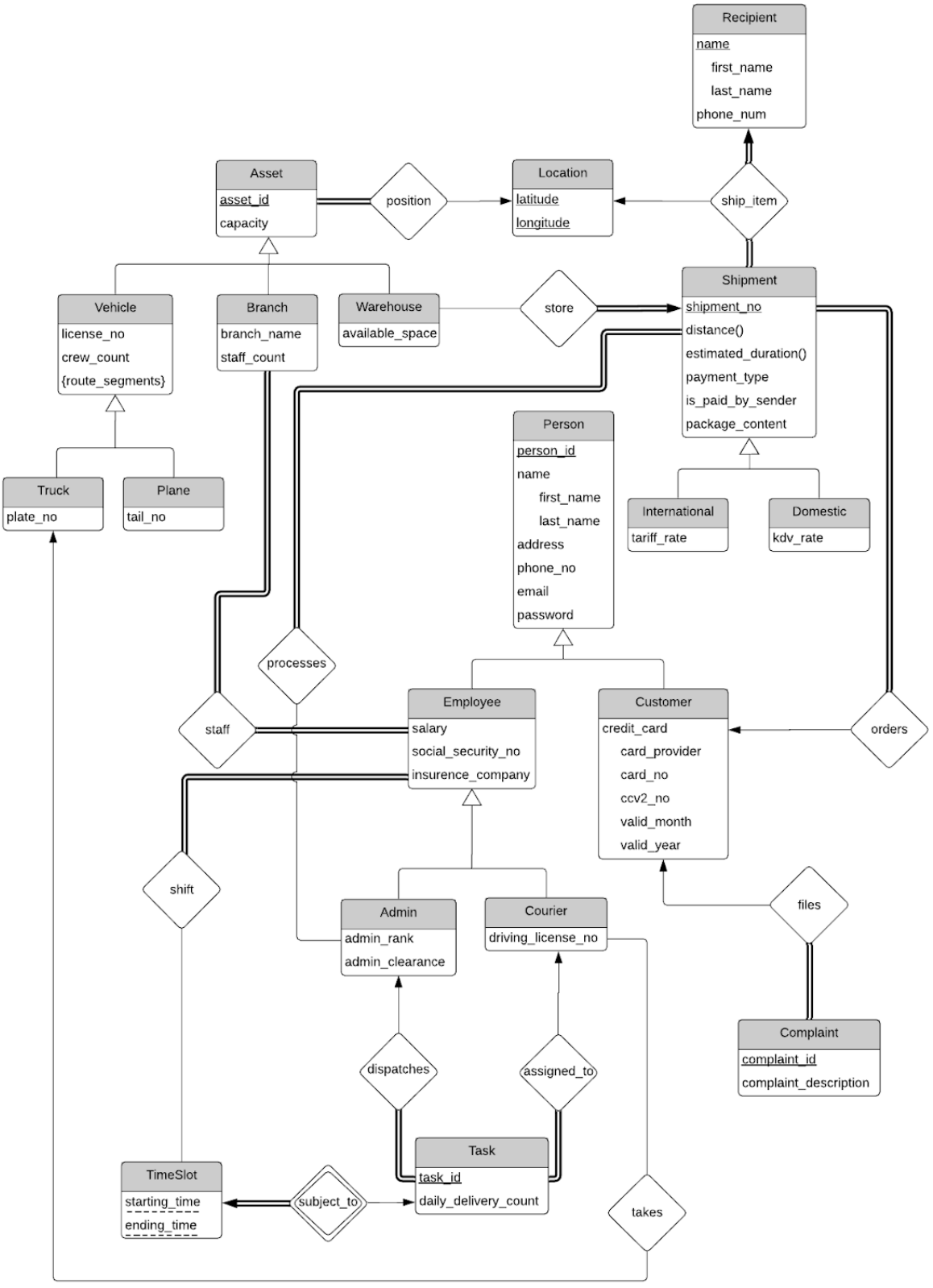
3.2.5 User Authentication

- Simply, a customer account and an employee account should be different from each other. When a customer logs into our system he or she should be able to perform operations which are different from an employee account. For example, employees can update information about a package while a customer can't do that but they can view this updated information about their package.

3.2.6 Efficiency

- Our system should handle every request in an efficient and fast manner.
- Same data should not appear twice in the database and must be sufficient.

4.0 E/R Diagram



5.0 Limitations

- Complaints cover both reports after declination of shipments and regular user complaints.
- User can file a complaint only after shipment has been registered to the database.
- A Courier must have a valid driving license to be able to take responsibility of a Truck.
- All Assets must be at a single location at any instance of the database.
- All Shipments must have a corresponding Recipient and there cannot be a Recipient without a Shipment in the database; and the shipment must have a single destination Location.
- Warehouses can store multiple Shipments and a Shipment can be stored in multiple warehouses during its delivery period.
- A Task is reserved to be completed for a specific period of time, therefore all Couriers must keep up with deliveries in the given TimeSlot.
- All Employees must work within their shifts, which is a specific TimeSlot entity in the database.
- One Admin processes and dispatches a single Task to the Couriers.
- Couriers can take many Tasks, however, a single task is assigned to a single Courier
- A Customer can place many Shipment orders, however, a Shipment can be placed only by a single Customer.
- An Employee can be a staff personnel for many Branches and a Branch can take many Employees.

6.0 Conclusion

In conclusion, we had gone over attributes of our Shipping Company Data Management System in this report. We explained our system's purpose and aim aswell. We explained that this project will be an web-based application. We also explained why our system is beneficial and necessary for a shipping company and how we will be using database as a part of our application. We determined our system's functional and non-functional requirements along with its limitations. Our website's link is also added to this proposal report.

7.0 Website

Our system's E/R diagram and this proposal can be viewed and downloaded from our website:
https://aburaksahin.github.io/DBproj/