# Object Oriented Analysis and Design

# Project: Complete SRS Document


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# SRS DOCUMENT FOR EXPORT AND IMPORT COMPANY

## 1.Introduction:

An export and import company decided to computerize their manual file system towards a centralized database approach. Basically this company provide export import services like door to door, airline , clearance services, transit and other facilities.

### 1.1 Purpose:

The purpose of this project is to computerize the entire system and also train the employees to use that computerize system. This project not only automate several manual tasks performed by the employees of the company. But also provide the tracking facility for the customers and ask them for their feedback and complaints relevant to company employees and services.

For precise requirement gathering a prototype of software was given to employees to use and give their feedback and requirement and also to add the necessary constraints to the software.

The link of the prototype software through which we have gathered information is given ,

https://github.com/irfanrahmani/OOSA_assignment_repo

From this project we determined some important functional and non-functional constraints required to be implemented.

- Strong criticisms on user interface.
- Keep update the database is useful, if the customers are unable to get information of their goods.
- The board of directors agreed to invest on the database and website at early stages, later if it was necessary the budget for mobile application will be issued.
- So in version 1.0 only a desktop application with a website provided to the user.

This prototype also helped us during the requirement prioritization process.

### 1.2 Document Conventions

| No: | Conventions | Full Form |
|---|---|---|
| 1 | UI | User Interface |
| 2 | Db | Database |
| 3 | {n,r,b,u} inside db as enum | {new Customer, Regular, Business, Unspecified} |

| | | |
|---|---|---|
| 4 | | |

## 1.3 Intended Audience

This project focus from two different perspective.
***First :***
The desktop application will be handled by company employees for managing and tracking the activities happening in the company. Like tracking the shipment, finance to calculate the annual and monthly budget, customer services for providing information for customers.
***Second:***
From second perspective the customer themselves are able to directly interact with the website for tracking, online booking , asking information about the services etc.

## 1.4 Project Scope:

The first iterations of this project will give a cover the CRUD operations to store the customer and shipper and as well as the goods information in the database and to monitor online whether shipments are delivered or not.

### 1.4.1 Scope and limitations

### 1.4.2 Scope of initial release Release

The first beta version is now released on 18/April/2022 and is available for testing. This is just a prototype to gain user opinion and adopt the initial required changes. The link of the repository is given
https://github.com/irfanrahmani/OOSA_assignment_repo

### 1.4.3 Scope of Subsequent Releases

Database

- Queries for SQL execution by this application After that I will proceed with mobile application and Website.

### 1.4.4 Limitation and Exclusions

This project do not consist the implementations for the networks and cloud hosting.

Please Install the following prerequisites to test

- Xampp Server with sql database

•Java Runtime Environment

•For Android Android OS 8.1 or higher

### 1.5 References

Template Taken from google classroom uploaded.

## 2.Overall Description:

### 2.1 Product Perspective:

This desktop application for the employees will be used to just to give them ease of inserting the relevant information to the database.

The website will be a responsive website provide the tracking facilities, and at early stages it will just display contact, email and address of the company on the page. No special mechanism is involved in this product to let the customers communicate using the site.

### 2.2 Product Features:

- Constraints stop employees from incorrect insertions in the database.
- Providing some guidance and terms and conditions on the websites for the customers.
- Website will be implemented keeping in focus is that security is top priority in this project. And no compromise should be done to make the website vulnerable.

## 2.3 User Classes:

Object identification is under progress.

Some of the user classes may be

Shipment

Shipper

Consignee

Payment

Record

TrackActivity

### 2.3.1 Characteristics of user classes

The characteristics of each class is currently difficult to explain. Further implementation of diagrams like UML, SD , SSD diagrams are under progress and soon will be added to this SRS document.

## 2.4 Operating Environment

All the technologies will be used to be crossed plate-form to make the product compatible with mac OS, Windows and Linux.

All the tools will be used are like java for desktop application and SQL server database which is considered to be a good choice for small company like this scenario.

## 2.5 Design and Implementation Constraints

Design team is currently working to provide concrete information about this section. Please check the upcoming updates of this document.

## 2.6 Assumptions and Dependencies

Some of dependencies are listed below but can be added or removed if required.

JVM

Xampp Server

php 8.1

Brower compatible with java script frameworks

# 3. System Features:

## 3.1 Description and Priority:

This project will be implementation on iterations. I have prioritized some of it's main and important functionalities which is required to be implemented at 1st iteration.

*After the deployment first iteration the data science team will start fetching data and writing python scripts to filter data and automate some stuff.*

The project implementation is prioritized in the following pattern

- Implementation of a website
- Desktop application for employees to do data entry
- Hosting the website and getting SSL for the URL
- Feedback from website users about technical assessment
- Database implementation to store the overall company data.
- User interface must be responsive during implementation of websites
- Firewalls and more bandwidth will be purchased at next iterations
- Android and IOS application will be developed later.

## 3.2 Stimulus/Response Sequence

A black box testing is required to analyze the stimulus and response of the database retrieval process. Accessing the website of the company on older versions of the browsers and over slow internet. To see which problems are possibles.

The website must be capable to defend its self against some sql injection, DDOS attacks and brute force so these stuff will be implemented by some python scripts using automation of response.

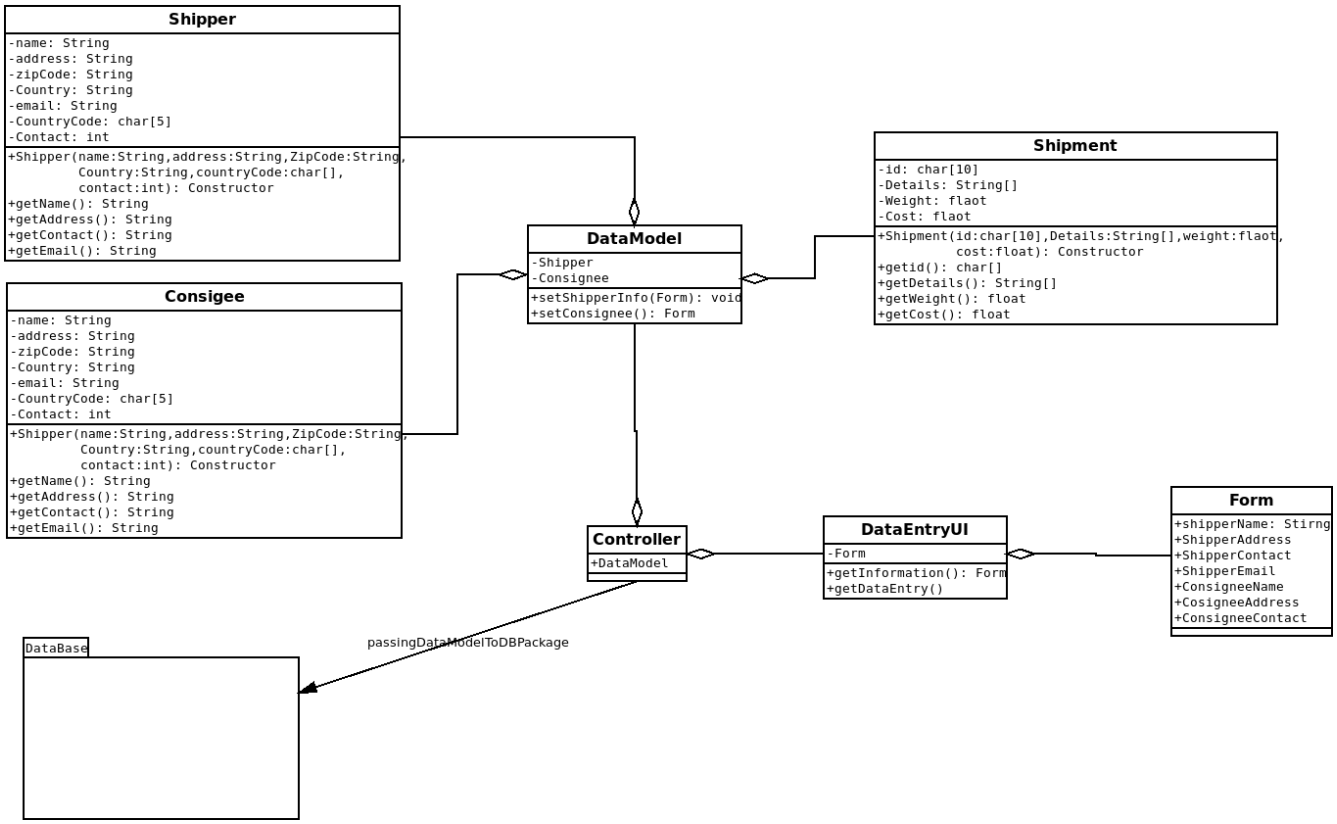
## 3.3 Functional Requirements

Hint: Reservation, Order, Payment

- Data entry at database through employees
- Tracking shipments delivery
- Payments and taxes calculations
- CRUD operations on database

- Currency converter in case customer can’t pay in PKR
- Validation checks during data entry

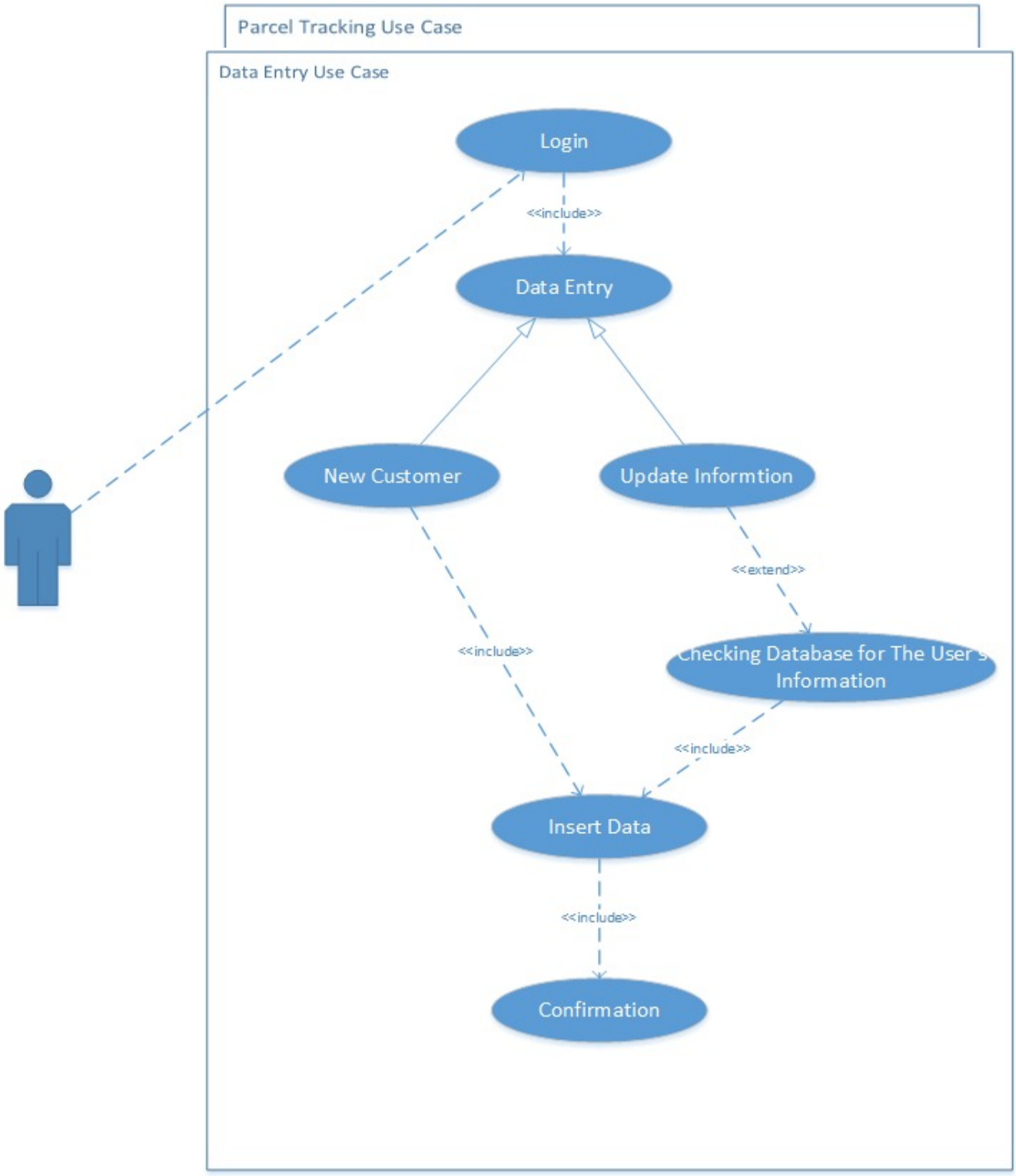
## 3.3.1 UML Diagrams



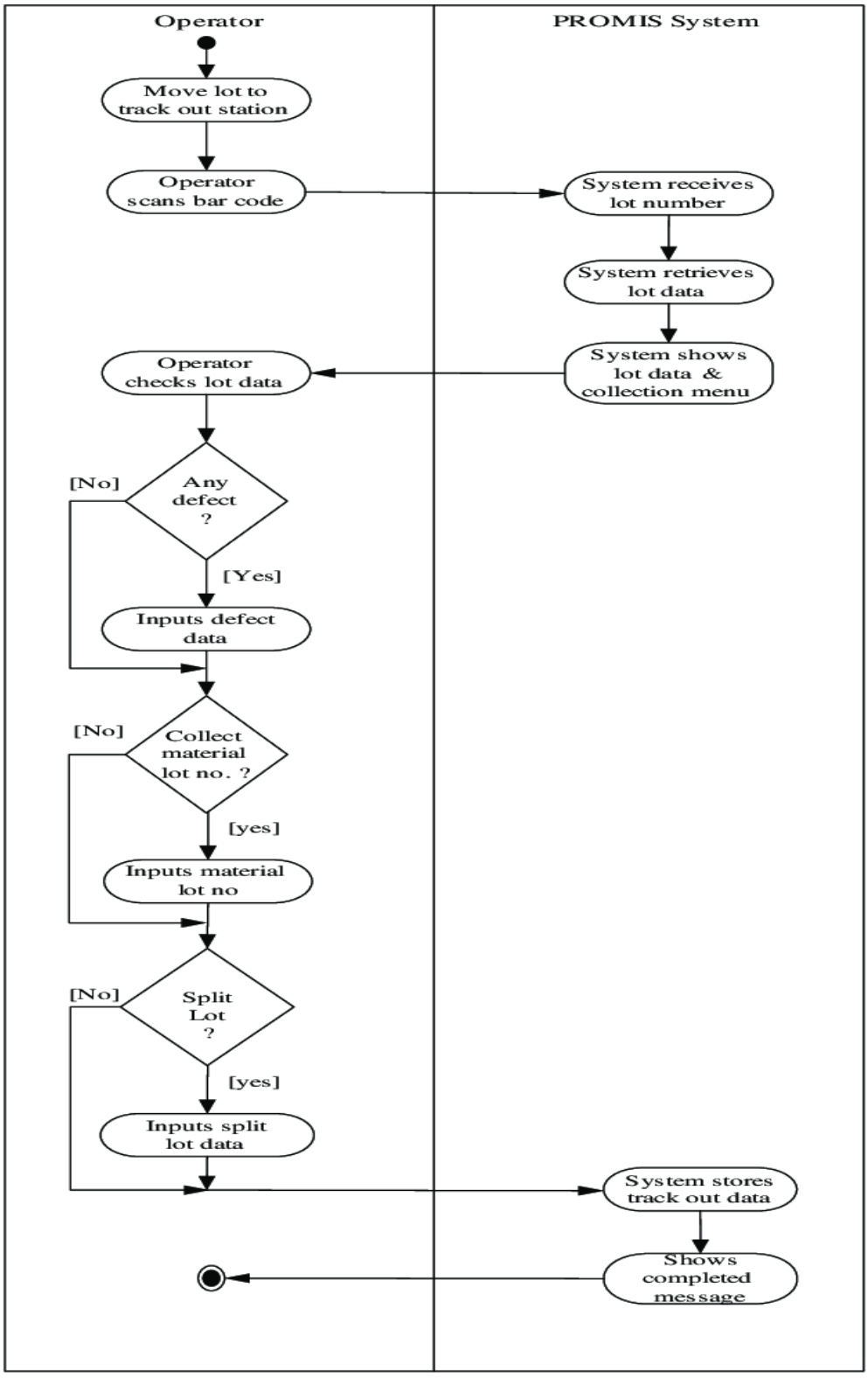

## Note:

I used Dia instead of visio because I had problems with my Windows VM.

### 3.3.1.1 Use-Case Diagram



## 3.3.1.2 Activity Diagram



## 3.3.1.3 State Machine Diagram

## 3.3.1.4 Expanded Use case

**Use Case:** Tracking of Shipment

**Actor:** Customer( Either Consignee or shipper)

**Goal:** To retrieve delivery information from database and show report to client

**Overview:**

The customer will first visit the company url through web browser.

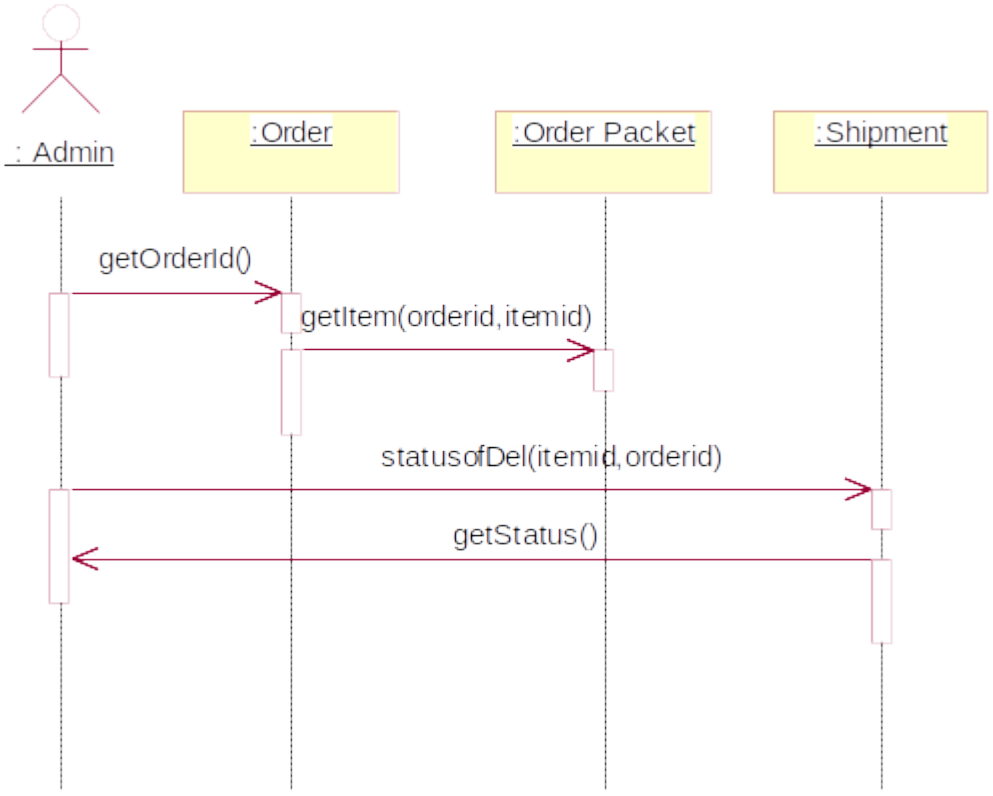
Once the page is loaded he/she will she Tracking text field on the webpage along with a track button. The customer needs to enter the receipt number as tracking number in the field and press Track Button on the page. If he/she enters incorrect number the website will display a message in the same web page that no record found. If the record for the tracing id exists in the database he/she will be redirected to webpage showParcelDetail.html. This webage will give a table where the customer can monitor and have serveral options. Like contacting customer service officer, fix a time for delivery if it’s door to door and also if he/she is required to pay custom / government taxes or duties.

**Typical Course of Event:**

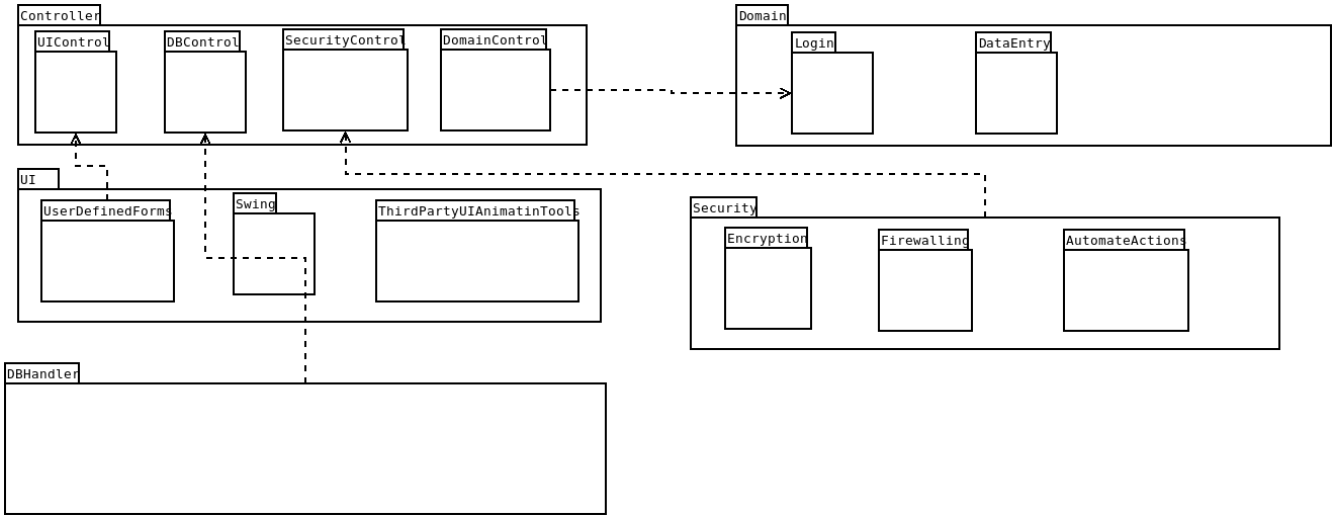
| Actor Action | System Response |
| --- | --- |

| | |
|---|---|
| The customer will enter the tracking number of length 10 characters only.<br><br>The actor will press the Track button<br><br>1. if Customer press the contact button<br><br>2. if Change Delivery is pressed<br><br>3. if Tax and duties button is pressed<br><br>The Customer also have an exit option or he can simply reload the home page. | If the length of character is 10 the beside the text field label will be visible guiding the actor to press tracking button<br><br>The web page will show a loading animation , then display the shipment information will three buttons CONTACT, CHANGE DELIVERY TIME, TAX AND DUTIES.<br>Then:<br>Email, and phone number of the relevant agent will be displayed.<br><br>Then:<br>the webpage will ask the user for new date and time along with a text box to explain the reason. It will generate a response that we will give your request confirmation.<br>Then:<br>It will display the amount to paid with a bank and account number . |

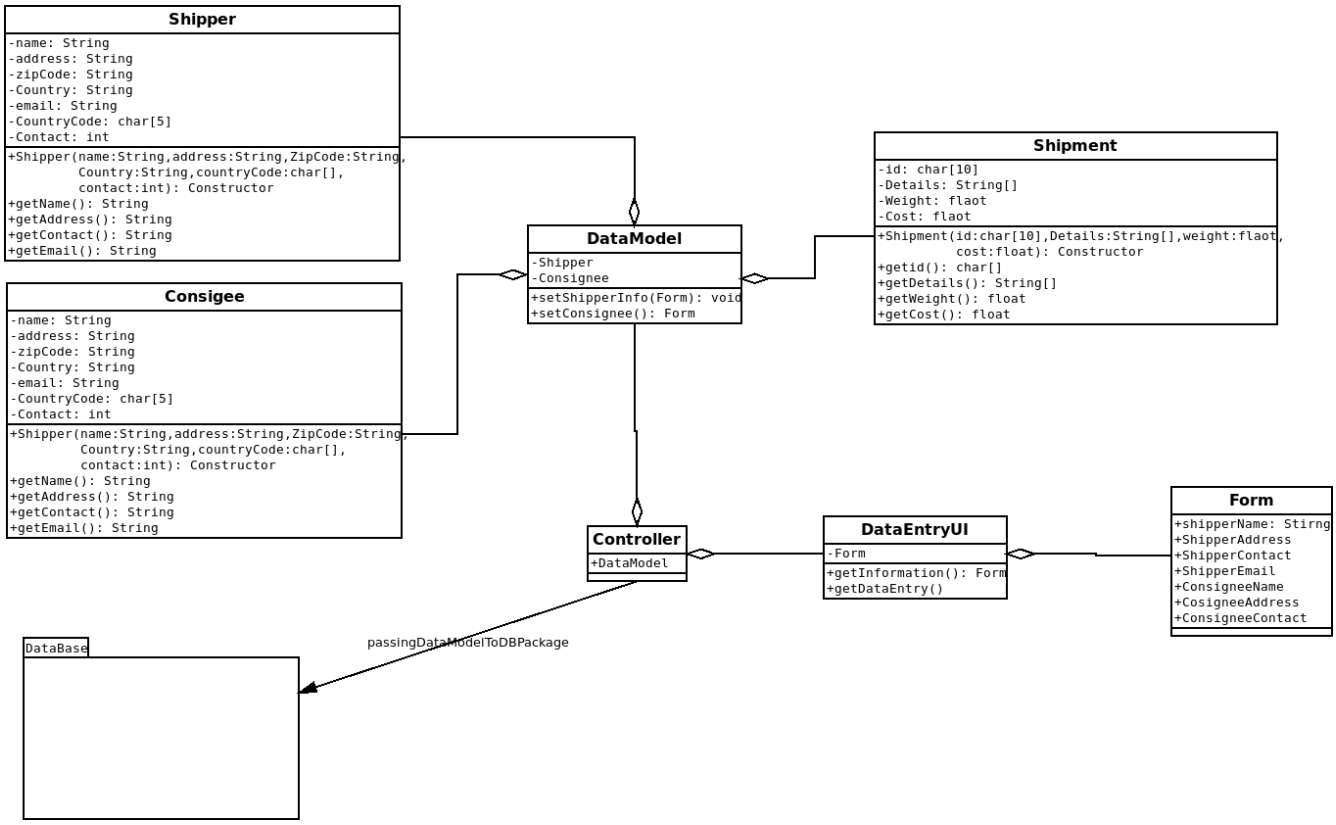
## 3.3.1.5 System Sequence Diagram



## 3.3.1.6 Package Diagram

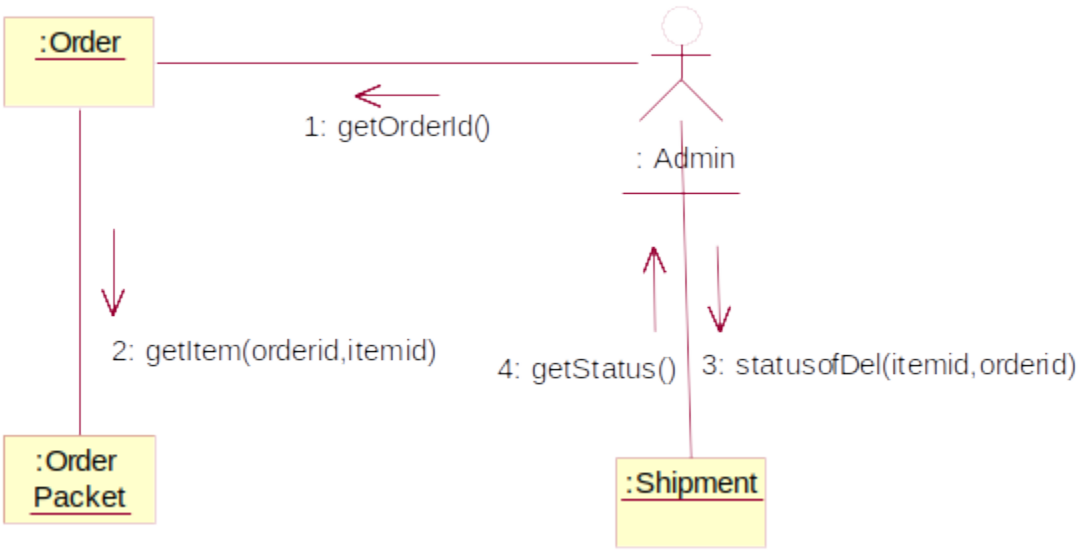



## 3.3.1.7 Class Diagram

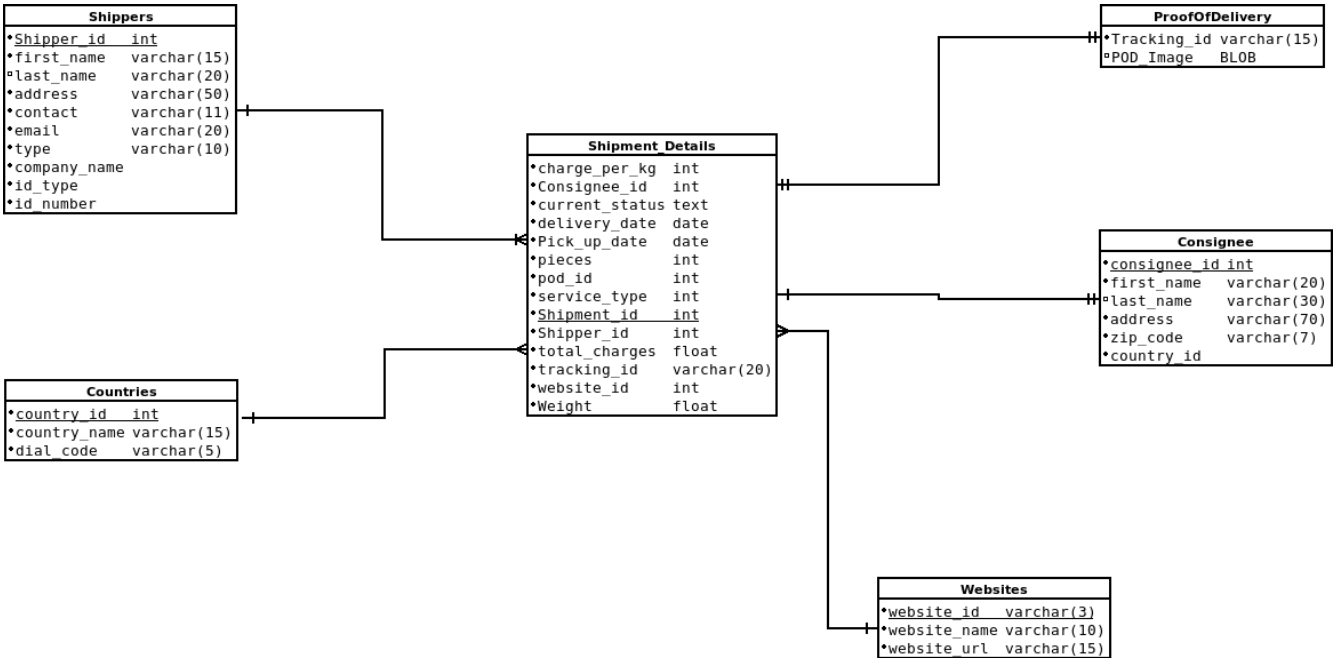



## 3.3.1.8 Interaction Diagram

**3.3.1.9**



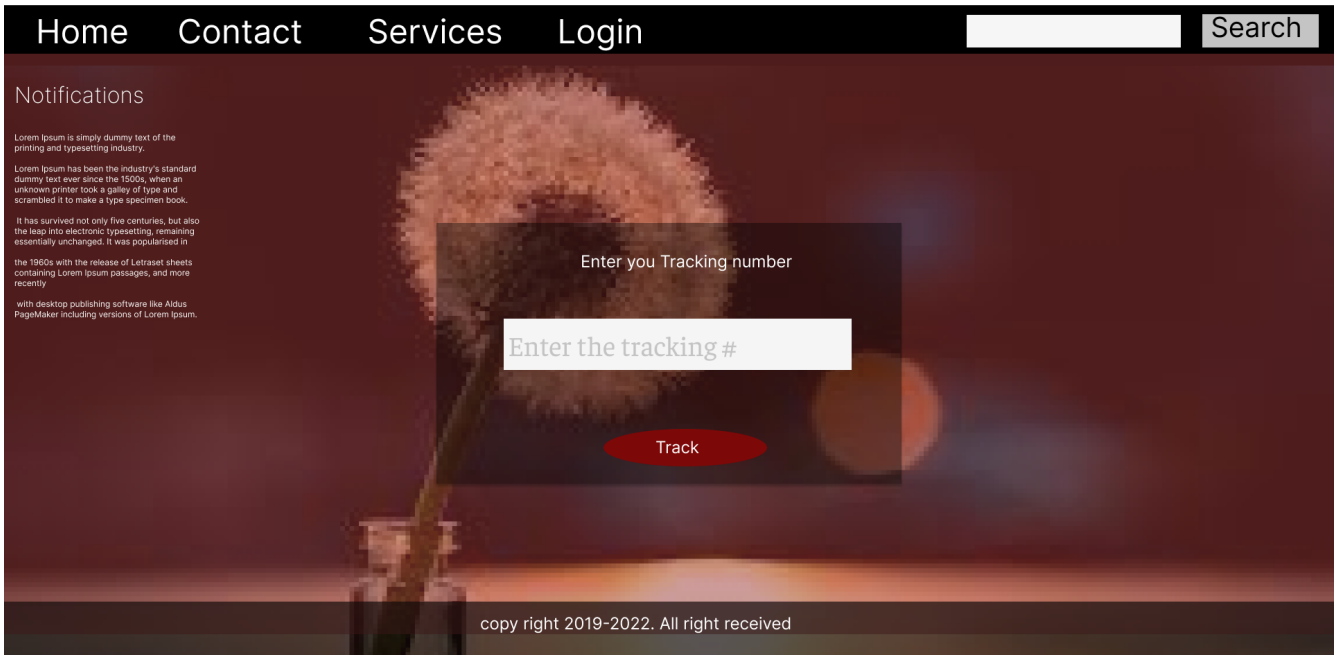

## Entity Relationship Diagram:

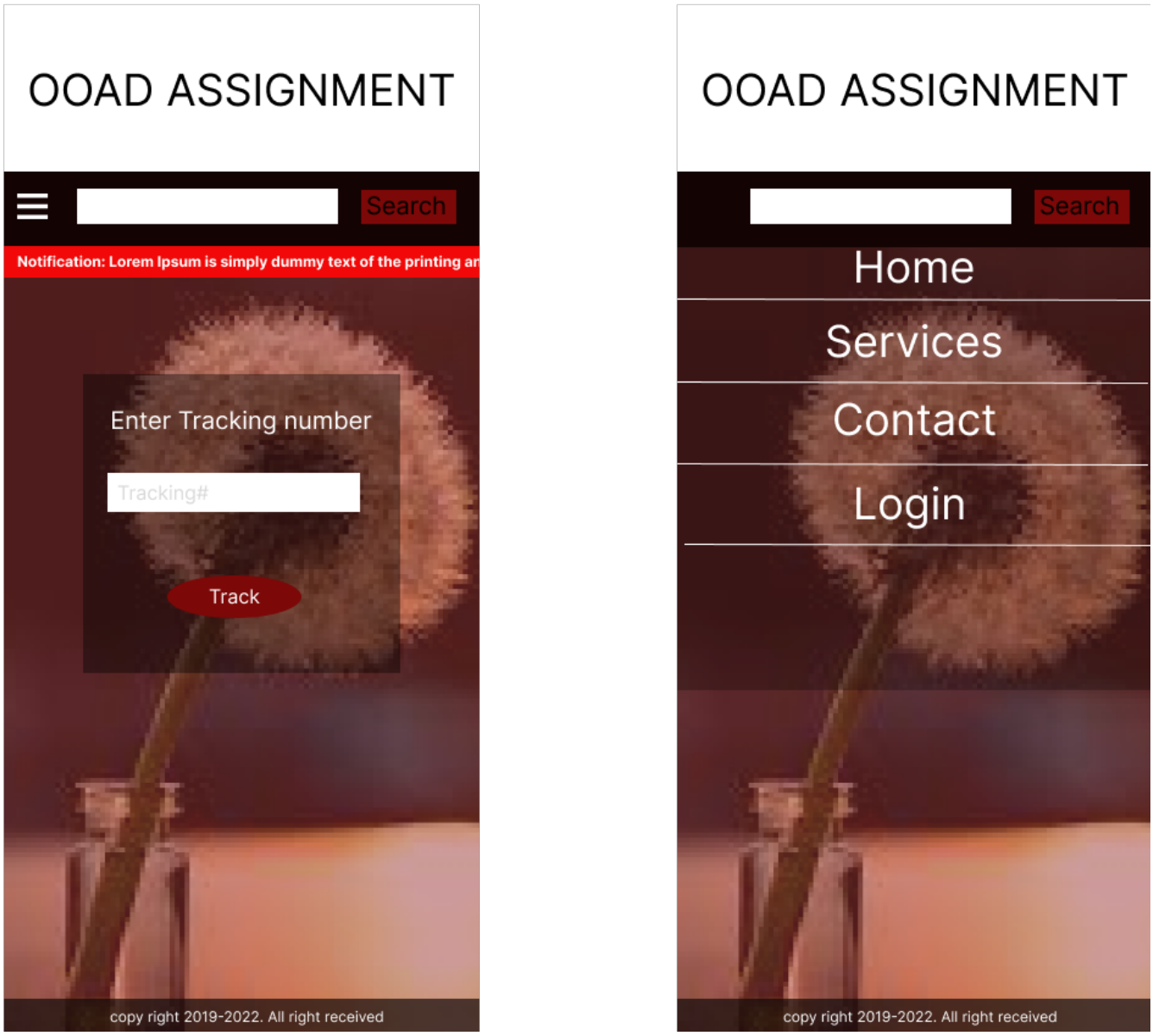


# 4. External Interface Requirements

## 4.1 User Interface:

OOAD ASSIGNMENT






Mobile UI design

### 4.2 Hardware Interface

- The Desktop application for employees requires Core i3 6$^{th}$ generation or higher to give them reliable experiences in x86 architecture.
- AMD Ryzen 3 in arm architecture.
- Pre-testing the hardware before deployment.
- Server will be low aspect at the beginning later hardware upgrade will be decided in 3$^{rd}$ or 4$^{th}$ iteration.

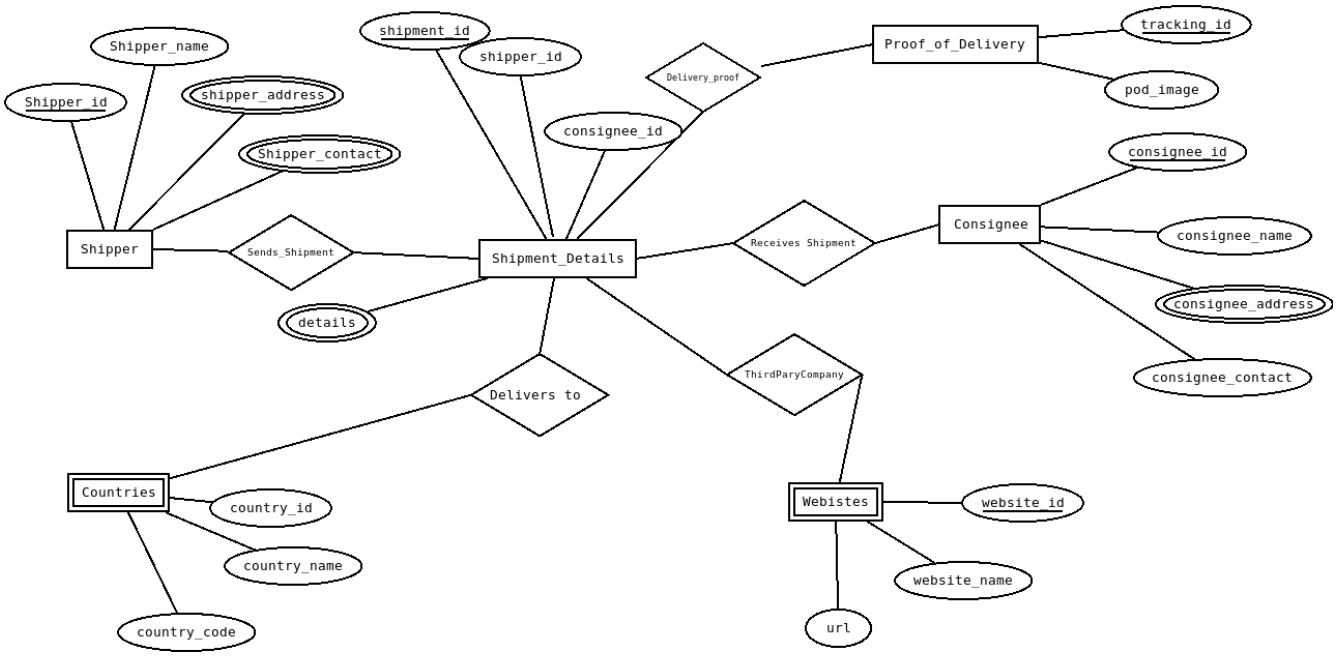
### 4.3 Software Interface

- Windows 8.1 or higher
- macOS Catalina or higher
- Linux Kernel 2.6 or higher
- Android OS 7 or higher

## 5. Non Functional Requirements

These non Function requirement are excluded from first iteration. Because the first version is going to be the beta version and later the point of attention will non functional Constraints.

### 5.1 ER DIAGRAM(LOGICAL ER MODEL)




## 5.2 Software Quality Assurance

A team will be maintain to review the customer technical aspects of the system failure , design of User interface and to improve several functionalities of the system.

### 5.2.1: Maintainability

If the automated email services become unavailable, they can be under maintenance for approximately three hours.

Also if the database is unable to retrieve information due to less bandwidth the website should prompt to try later instead of keeping the user waiting.

### 5.2.2: Availability

Employees are able to read logs of some error of their own user while the IT analyst can automate the processing through natural language processing to detect which reason is the exact cause for a problem in multiple user .

### 5.2.3: Reliability

For Desktop application : Applicants can access their resume 98% of the time without failure.

### 5.2.4: Usability

The website’s interface has to be user-friendly and easy to use.

# The end of SRS document

First iteration will will upload to GitHub repository and will be available for testing at 10/July/2022.