# **INTRODUCTION**

# 1. INTRODUCTION

In today's dynamic world, the seamless movement of goods has become essential, with individuals and businesses alike relying on the timely and secure delivery of items ranging from imported furniture and electronic devices to gifts and business goods. However, the existing transportation systems often employ manual methods, leading to a lack of efficient tracking mechanisms for shipped articles. Once items are dispatched, service providers are left in the dark regarding the whereabouts of their shipments. Recognizing this gap in the industry, E-CONSIGNMENT emerges as a transformative online software solution tailored for cargo management professionals. This innovative system addresses the pressing need for automation in cargo activities, offering real-time tracking capabilities for dispatched articles. E-consignment not only streamlines the receiving and dispatching processes but also ensures the continuous tracking updates through service providers.

E-CONSIGNMENT stands out as a comprehensive online software solution specifically crafted to meet the demands of cargo management professionals. By computerizing the cargo workflow, the system goes beyond mere transaction facilitation. With a primary focus on tracking of dispatched articles, E-CONSIGNMENT provides a robust platform for cargo management, enabling professionals to efficiently manage the entire logistics process from source to destination. The software's capability to furnish continuous updates to service providers ensures a transparent and reliable communication channel, revolutionizing the way cargo activities are conducted in the modern era.

# **SYSTEM ANALYSIS**

### 2. SYSTEM ANALYSIS

# 2.1 Existing System

The current courier service system operates within a centralized framework where individuals or businesses connect with courier service providers through established platforms to send or receive packages. These platforms act as intermediaries, managing the logistics of package delivery and charging fees for their services. Admins, alongside clerks, depend on these platforms to initiate and track shipments, with the expectation of safe and timely deliveries. A significant drawback of the existing courier service system is the lack of tracking capabilities. Unlike more advanced systems, the current framework often fails to provide clerk with comprehensive, up-to-the-minute tracking information throughout the entire transit process. This absence of detailed tracking features introduces uncertainties for clerk and admin, who may be left in the dark about the exact location and status of their packages.

This deficiency becomes particularly problematic in scenarios where precise tracking is crucial, such as time-sensitive deliveries or shipments of valuable items. Without tracking, Admin and clerk are unable to monitor the progress of their shipments in a granular manner, leading to increased anxiety and potential disruptions. Moreover, the limited tracking functionality hampers the system's ability to address issues promptly, such as delays, losses, or damages during transit. The lack of real-time insights makes it challenging to pinpoint when and where a problem occurred, hindering effective problem resolution for courier service providers.

## 2.2 Proposed System

The proposed E-Consignment system seeks to transform the conventional courier service model by introducing a decentralized online software solution that addresses the limitations of the existing system. By leveraging cutting-edge technology, E-Consignment enhances the efficiency, transparency, and security of cargo activities. Unlike the centralized approach of the current system, E-Consignment incorporates real-time tracking features, providing clerk and admin with instant and accurate visibility into the status and location of the shipments. The system's automation streamlines the cargo process, eliminating manual interventions, reducing errors, and ensuring timely deliveries. E-Consignment establishes a secure and transparent platform, maintaining an immutable record of all transactions. This approach not only overcomes the lack of real-time tracking in the existing system but also offers increased flexibility and national reach, allowing for a broader range of cargo projects to be funded and managed. In essence, E-Consignment revolutionizes cargo management, creating a reliable, transparent, and user-friendly environment for professionals in the cargo management industry.

# 2.3 Module Description

This project has 2 modules:

#### **ADMIN**

- Login
- Port office management
- Clerk management
- View customers
- View and track consignment
- View delivered consignment
- Change Password

#### **CLERK**

- Login
- View Profile

- Add consignment
- Update status
- Tracking consignment
- Add Profit
- View delivered consignment
- View consignment report
- View delivered bill report
- Change password

# 2.4 Sprint

# Sprint 1

Module	Task	Pending	Hours For	Expected	Actual Date	Reason
		Task of	Completion	Date of	of	For
		Any		Completion	Completion	Deviation
Admin	Login		2 hours	17/09/2023	17/09/2023	
	Portoffice		4 hours	21/09/2023	21/09/2023	
	Management					
	Clerk		5 hours	01/10/2023	03/10/2023	
	Management					
	View		5 hours	03/10/2023	03/10/2023	
	Consignment					
	View		4 hours	15/10/2023	16/10/2023	
	Customer					
	View		5 hours	16/10/2023	17/10/2023	
	Delivered					
	Change		3 hours	17/10/2023	22/10/2023	
	Password					
	Logout		2 hours	17/10/2023	22/10/2023	

# Sprint 2

Module	Task	Pending	Hours For	Expected	Actual	Reason
		Task of	Completion	Date of	Date of	For
		Any		Completion	Completion	Deviation
	Manage Profile		2 hours	22/10/2023	24/10/2023	
	Customer		6 hours	24/10/2023	24/10/2023	
	Management					
	Consignment		8 hours	25/10/2023	26/10/2023	
	Management					

Billing	3 hours	26/10/2023	26/10/2023	
Update Status	5 hours	27/10/2023	27/10/2023	
Report	5 hours	04/11/2023	04/11/2023	

#### 2.5 User Stories

#### Admin

1. As an admin I want to able view consignments so that I can keep in touch with the transactions.

- 2. As an admin I want to able add port office.
- 3. As an admin I want to able add clerk.
- 4. As an admin I want to able view status of consignment.

#### Clerk

- 1. As a clerk I want to able add customer.
- 2. As a clerk I want to able add consignment.
- 3. As a clerk I want to able bill consignment so that I can print it and give to customer.
- 4. As a clerk I want to able update status so the clerk who send the parcel can track it
- 5. As a clerk I want to able update status so the admin can track it

# **FEASIBILITY STUDY**

## 3. FEASIBILITY STUDY

An analysis of the ability to complete a project successfully, taking into account legal, economic, technological, scheduling, and other factors is considered a feasibility study.

### 3.1 Economically Feasibility

The economic analysis is done to determine the benefits and savings that are expected from the candidate system and compare them with costs. Thus, coming to a conclusion on whether the system is economically feasible or not.

# 3.2 Technical Feasibility

The technical requirements for the system are economic and it does not use additional software. That is whether the system can be implemented using the existing technologies or not.

# 3.3 Operational Feasibility

The system working is quite easy to use and learn due to its simple but attractive interface. Admin or clerk require no special training for operating the system. Technical performance includes issues such as whether the system can be organized so that it always delivers information at the right place and on time using internet services.

# 3.4 Software Feasibility

Even though this application is developed in a very high software environment, it is also supported by many other environments with minimal changes. The system is fully feasible to be executed on any kind of operating systems and browsers.

# 3.5 Hardware Feasibility

Software can be developed with the existing resources. But the existing resources may or may not be used to produce hardware. If no hardware is newly bought for a project, then software is said to achieve hardware feasibility. The system is hardware-wise feasible.

# SOFTWARE ENGINEERING PARADIGM

# 4. SOFTWARE ENGINEERING PARADIGM

The software engineering paradigm which is also referred to as a software process model or Software Development Life Cycle (SDLC) model is the development strategy that encompasses the process, methods and tools. SDLC describes the period of time that starts with the software system being conceptualized.

## 4.1 Agile Model

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. At the end of the iteration, a working product is displayed to the customer and important stakeholders.

#### 4.2 Scrum

Scrum is an agile framework for managing knowledge work, with an emphasis on software development. It is designed for teams of three to nine members, who break their work into actions that can be completed within time boxed iterations, called "sprints", no longer than one month and most commonly two weeks, then track progress and re-plan in 15-minute stand-up meetings, called daily scrums. Scrum is an iterative and incremental framework for managing product development.

# SYSTEM REQUIREMENT SPECIFICATION

# 5. SYSTEM REQUIREMENT SPECIFICATION

# **5.1 Software Requirements**

• Operating System: Windows 11

• Front End: HTML, CSS, JS

• Back End: MySQL

• Language Used: Python

• IDE: PyCharm

• Web browser: Internet Explorer

/Google Chrome/Firefox

• Frame work: Django

# **5.2 Hardware Requirements**

• Processor: Intel core i3 or above

• Ram: 8 GB

• Storage: 256 GB Hard Disk

# **SYSTEM DESIGN**

6. SYSTEM DESIGN

System design is the first in the development phase for many engineered products or

systems. It may define the process of applying various techniques and principles for the

purpose of defining a device, a process or system in sufficient detail to permit its physical

realization.

6.1 Database Design

Database design is the process of producing a detailed data model of a database.

This logical data model contains all the needed logical and physical design choices and

physical storage parameters needed to generate a design in a data definition language, which

can then be used to create a database. The term database design can be used to describe

many different parts of the design of an overall database system. Most correctly, it can be

thought of as the logical design of the base data structures used to store the data.

In the relational model these are the tables and views. In an object database the

entities and relationships map directly to object classes and named relationships. However,

the term database design could also be used to apply to the overall process of designing, not

just the base data structures, but also the forms and queries used as part of the overall

database application within the database management system. The process of doing database

design generally consists of a number of steps which will be carried out by the database

designer. Usually, the designer must: Determine the relationships between the different data

elements and superimpose a logical structure upon the data on the basis of these

relationships.

**Normalization** 

It is a process of converting a relation to a standard form. The process is used to

handle the problems that can arise due to data redundancy i.e., repetition of data in the

database, maintain data integrity as well as handling problems that can arise due to insertion,

updation, deletion anomalies.

**Insertion Anomaly:** Inability to add data to the database due to absence of other data.

Deletion Anomaly: Unintended loss of data due to deletion of other data.

**Update Anomaly:** Data inconsistency resulting from data redundancy and partial update.

**Normal Forms:** These are the rules for structuring relations that eliminate anomalies.

1. First Normal Form (1NF)

A relation is said to be in first normal form if the values in the relation are atomic for every attribute in the relation. This means simply that no attribute value

can be a set of values or, as it is sometimes expressed, a repeating group.

2. Second Normal Form (2NF)

A relation is said to be in second Normal form if it is in first normal form and

it should satisfy any one of the following rules.

• Primary key is a not a composite primary key

• No non key attributes are present

• Every non key attribute is fully functionally dependent on a full set of primary keys.

3. Third Normal Form (3NF)

A relation is said to be in third normal form if there exist no transitive

dependencies.

**Transitive Dependency:** 

If two non-key attributes depend on each other as well on the primary key then they

are said to be transitively dependent. the above normalization principle was applied to

decompose the data in multiple tables thereby making the data to be maintained in a

consistent state.

# **6.2** Tables

# Login

TITLE	TYPE	WIDTH	CONSTRAINT
Login id	Bigint	20	Primary key
Username	Varchar	100	Not null
Password	Varchar	100	Not null
Type	Varchar	100	Not null

# **Port Office**

TITLE	ТҮРЕ	WIDTH	CONSTRAINT
ID	Bigint	20	Primary key
Building number	Varchar	100	Not null
Building name	Varchar	100	Not null
Licence number	Varchar	100	Not null
Email id	Varchar	100	Not null
Mobile No	Varchar	100	Not null
Place	Varchar	100	Not null
City	Varchar	100	Not null
State	Varchar	100	Not null
Pin code	Varchar	100	Not null

# **CLERK**

TITLE	ТҮРЕ	WIDTH	CONSTRAINT
ID	Bigint	5	Primary key
Name	varchar	100	Not null
Gender	varchar	100	Not null
Joined Date	varchar	100	Not null

House name	varchar	100	Not null
House number	varchar	100	Not null
Place	varchar	100	Not null
City	varchar	100	Not null
State	varchar	100	Not null
Pin	varchar	100	Not null
Email	varchar	100	Not null
Phone Number	varchar	100	Not null
Port office	varchar	100	Foreign key
Login ID	Bigint	20	Foreign key

# **CONSIGNMENT**

TITLE	ТҮРЕ	WIDTH	CONSTRAINT
ID	Bigint	20	Primary key
Consignment number	varchar	100	Not null
Customer id	Bigint	20	Foreign key
Destination	varchar	100	Not null
House name	varchar	100	Not null
House number	varchar	100	Not null
Place	varchar	100	Not null
City	varchar	100	Not null
State	varchar	100	Not null
Pin code	varchar	100	Not null
Parcel narration	varchar	100	
Status	varchar	100	Not null

# TRACK

TITLE	ТҮРЕ	WIDTH	CONSTRAINT
Track id	Big int	5	Primary key

Clerk id	Big int	20	Not null
Consignment	varchar	20	Foreign key
Port office	varchar	20	Foreign key
Date	date		Not null
Time	varchar	100	Not null
Status	varchar	20	Not null

# **CUSTOMER**

TITLE	ТҮРЕ	WIDTH	CONSTRAINT
ID	Bigint	20	Primary key
Customer name	varchar	100	Not null
Phone number	varchar	100	Not null
House name	varchar	100	Not null
Place	varchar	100	Not null
City	varchar	100	Not null
State	varchar	100	Not null
Pin	varchar	100	Not null
Clerk id	Big int	20	Not null

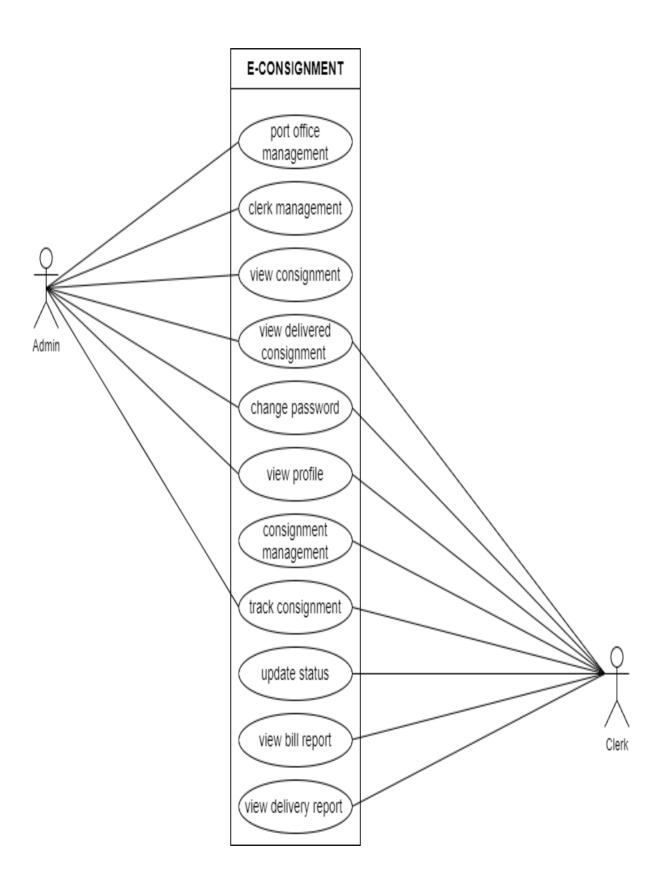
# **BILLING**

TITLE	TYPE	WIDTH	CONSTRAINT
ID	Bigint	20	Primary key
Consignment id	Bigint	20	Foreign key
Amount	varchar	100	Not null
Date	date		Not null

# 6.3 UML Design

The Unified Modelling Language (UML) is a standard language for specifying, visualizing, constructing, and documenting the artefacts of the software systems, as well as for business modelling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modelling of large and complex systems. The UML is a very important part of developing object oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects. Using the UML helps project teams communicate, explore potential designs, and validate the architectural design of the software.

# 6.4 Use Case Diagram



#### 6.5 Scenario

#### **ADMIN**

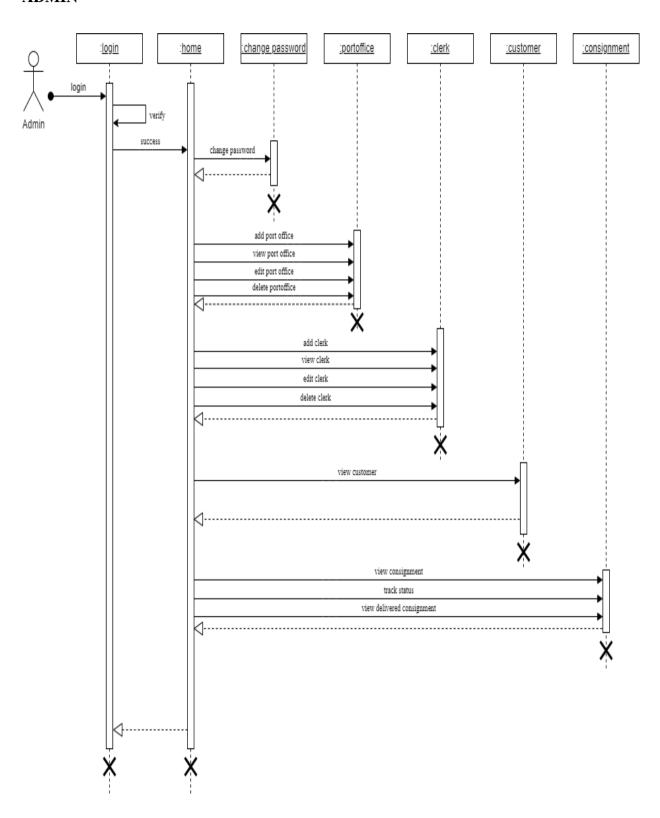
- Can login
- Can add, view, edit, delete Port office
- Can add, view, edit, delete Clerk
- Can view Customers
- Can View Consignments
- Can change password

## **CLERK**

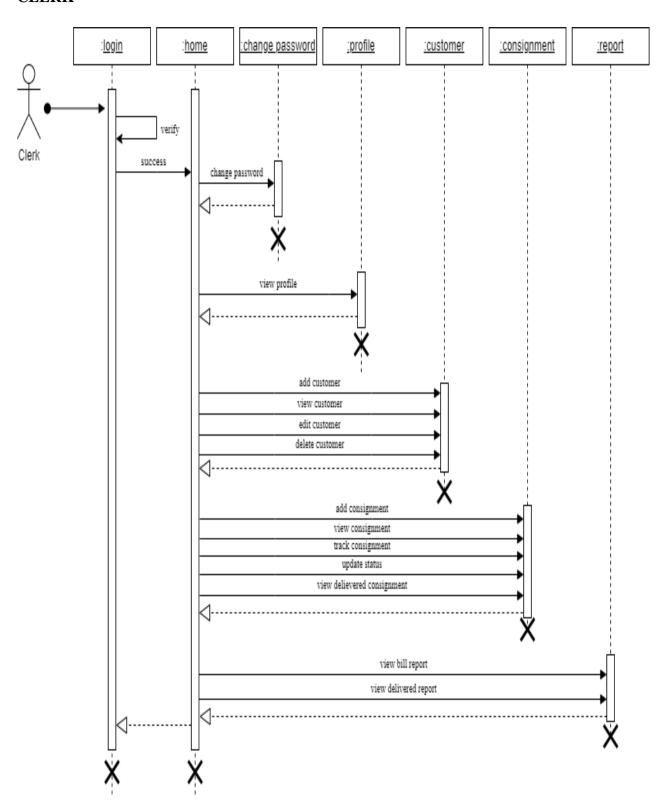
- Can login View Loan Details
- Can add, view, edit, delete Customer
- Can add, view, edit, delete, track Consignment
- Can bill Consignment
- Can update status of arrived parcel
- Can view Consignment report
- Can view bill report
- Can change password
- Can manage Expenses

# **6.5 Sequence Diagram**

# **ADMIN**



## **CLERK**



# SYSTEM DEVELOPMENT

#### 7. SYSTEM DEVELOPMENT

System development is a series of operations to manipulate data to produce output from a computer system. The principal activities performed during the development phase can be divided into two major related sequences.

# 7.1 Coding

The purpose of code is to facilitate the identification and retrieval of items of information. A code is an ordered collection of symbols designed to provide unique identification of an entity or an attribute. Code also shows interrelationship among different items.

#### **Python**

An interpreted language, Python has a design philosophy that emphasises code readability (notably using whitespace indentation to delimit code blocks rather than curly brackets or keywords), and a syntax that allows programmers to express concepts in fewer lines of code than might be used in languages such as C++ or Java.

#### Libraries

Python's large standard library, commonly cited as one of its greatest strengths, provides tools suited to many tasks. For Internet-facing applications, many standard formats and protocols such as MIME and HTTP are supported

#### Django

Django is a high-level Python web framework that enables rapid development of secure and maintainable websites.

#### **MYSQL** Client

Licence GPL Platforms OS Independent Python versions Python 2.7 and 3.4+ PyPI. https://pypi.org/project/mysqlclient/ MySQL client is a fork of MySQL python. It is the MySQL library that is recommended by the Django documentation

# SYSTEM TESTING AND IMPLEMENTATION

## 8. SYSTEM TESTING AND IMPLEMENTATION

Testing is vital to the success of the system. It makes a logical assumption that if all the parts of the system are correct, the goal will be successfully achieved in this project. It is the stage of implementation, which ensures that the system works accurately and effectively before the live operation commences. It is a confirmation that all are correct and an opportunity to show users that the system must be tested and show that the system will operate successfully and produce expected results under expected conditions.

### 8.1 Types of Testing

Different types of testing are:

- 1. Unit testing
- 2. Integration testing
- 3. System testing
- 4. Validation testing
- 5. User acceptance testing

# **Unit Testing**

Unit testing is usually conducted as part of a combined code and unit test phase of the software lifecycle, although it is not uncommon for coding and unit testing to be conducted as two distinct phases. All modules were tested individually as soon as they were completed and were checked for their correct functionality. Unit testing deals with testing a unit as a whole.

# **Integration Testing**

Integration testing is a systematic technique for testing to overcome the errors associated within the interface. In this System all the modules such as login, registration, admin in web, clerk in web, and the final hardware and software are combined and then the entire program is tested as a whole.

## **System Testing**

After performing the validation testing, the next step is output testing of the proposed system since no system could be useful if it doesn't produce the required data in the specific format. The output displayed or generated by the system under consideration is tested by, asking to clerk and admin about the format displayed.

# 8.2 Implementation

Implementation is the stage of a project, when theoretical design is turned into a working system. The most crucial stage is achieving a successful system and confidence that the new system will work effectively. It involves careful planning, investigation of the manual system and a new system.

- 1. Careful planning.
- 2. Investigating the current system and its constraints on implementation.
- 3. Design of methods to achieve the changeover.
- 4. Training of the staff in the changeover procedure and evaluation of change over method

# **SYSTEM MAINTENANCE**

#### 9. SYSTEM MAINTENANCE

Maintenance is making adaptation of the software for external changes (requirements changes or enhancements) and internal changes (fixing bugs). When changes are made during the maintenance phase all preceding steps of the model must be revisited. There are three types of maintenance:

- Corrective (Fixing bugs/errors)
- Adaptive (Updates due to environment changes)
- Perfective (Enhancements, requirements changes)

Maintenance is an enigma of the system development. The definition of the software maintenance can be given describing four activities that are undertaken after the program is released for use. The maintenance activity occurs since it is unreasonable to assume that software testing will uncover all in a large system. The second activity that contributes to the definition of maintenance occurs since rapid changes are encountered in every aspect of computing. The third activity involves recommendation for new capabilities, modification to the existing functions and general enhancements when the software is used. The fourth maintenance activity occurs when software is changed to improve future maintainability or reliability.

# **FUTURE ENHANCEMENT**

# 10. FUTURE ENHANCEMENT

The proposed system exhibits certain drawbacks. Firstly, there is a notable deficiency in providing customers with comprehensive parcel tracking, leading to ambiguity regarding the location of their shipments. Additionally, the absence of a global container booking system restricts our capacity to facilitate smooth transactions on an international scale. Furthermore, the current system lacks the convenience of QR code functionality for efficient parcel management. In response to these limitations, forthcoming enhancements are designed to address these issues, ensuring a more inclusive and user-friendly courier service experience.

# **CONCLUSION**

## 11. CONCLUSION

E-CONSIGNMENT website serves as a comprehensive solution for computerized courier management, encompassing key functionalities such as customer management, billing, and tracking. The computerized courier management system ensures operational efficiency and accuracy in handling shipments. The billing feature streamlines financial processes, and the tracking system keeps users informed about the real-time status of their parcels. The platform excels in delivering a reliable, user-friendly, and technologically sophisticated solution for courier services.

# **APPENDIX**

## **Admin Login**



## **Admin Home page**



### **Admin View Customers**



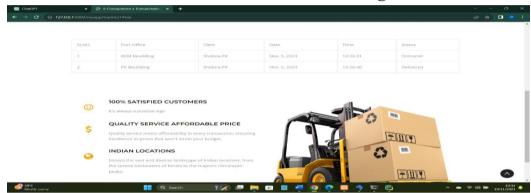
## **Admin View Consignment**



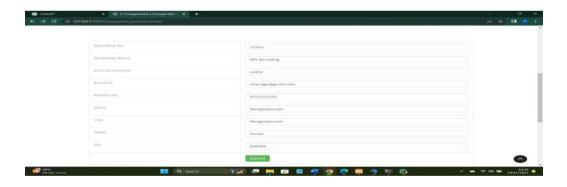
## **Admin view Delivered Consignment**



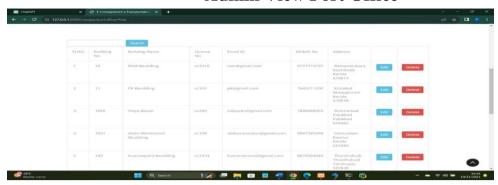
## **Admin View Track Consignment**



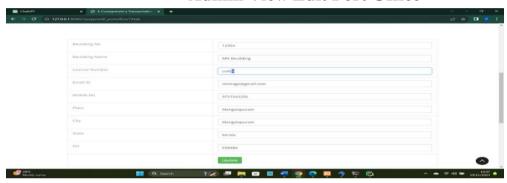
### **Admin View Add Port Office**



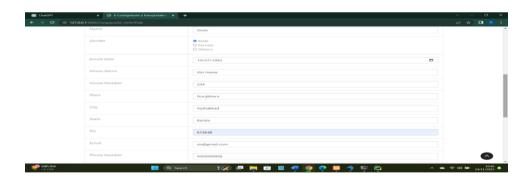
## **Admin View Port Office**



## **Admin View Edit Port Office**



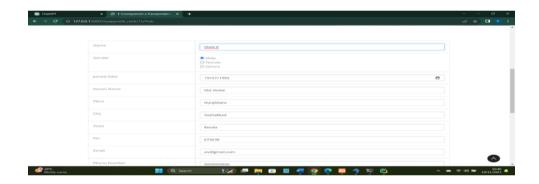
## **Admin View Add Clerk**



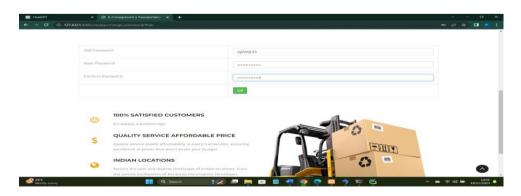
## **Admin View Clerk**



#### **Admin View Edit Clerk**



## **Admin View Change Password**



## Clerk Login



**Clerk View Homepage** 



**Clerk View Profile** 



## **Clerk View Add Customer**



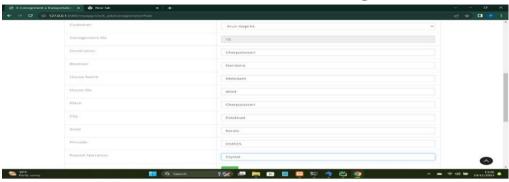
## **Clerk View Customer**



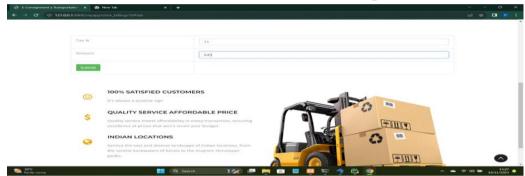
### Clerk View Edit Customer







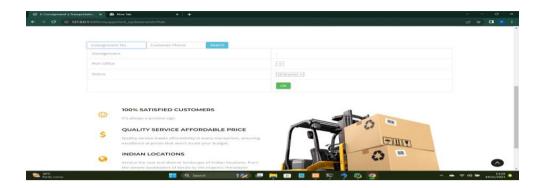
## **Clerk View Billing**



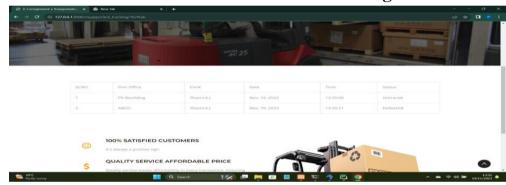
### **Clerk View Bill**



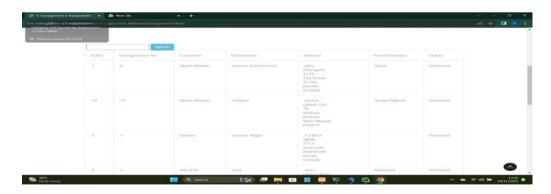
## **Clerk View Update Status**



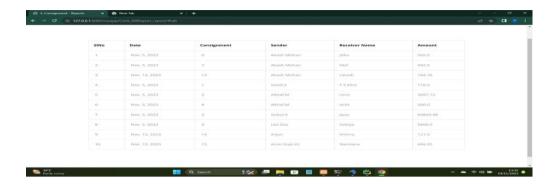
## **Clerk View Tracking**



### **Clerk View Delivered**



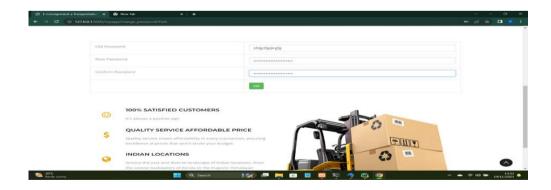
## **Clerk View Bill Report**



**Clerk View Consignment Report** 



**Clerk View Change Password** 



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#### **BIBLIOGRAPHY**

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- [4] https://app.shiprocket.in/register
- [5] https://www.ups.com/doapp/signup?loc=en\_IN&returnto=https:%2F%2Fwww.ups.com%2Ftrack%3Floc%3Den\_IN

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- [2] Building Rest Apps With Flask by Kunal Relan Publisher: APress; 1st ed. edition
- [3] The Pragmatic Programmer by Andrew Hunt and David Thomas Publisher: Pearson Addison-Wesley Professional; 1st edition