DELHI TECHNOLOGICAL UNIVERSITY

DATABASE MANAGEMENT SYSTEM (SE-206)
MTE PROJECT

TOPIC - AUTOMATED COURIER MANAGEMENT SYSTEM

SOURCE CODE - https://github.com/akshitahuja888/Courier-Management-System

SUBMITTED TO: SUBMITTED BY:
Prof. SANJAY KUMAR   AKSHIT AHUJA (2K19/SE/006)
                                                     AMISH MARWAHA (2K19/SE/007)

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PROBLEM STATEMENT

The courier management system is supposed to be effective and utilize the resources in an optimum manner to ensure timely service with least cost. Every aspect of the operation from pickup/receipt must be logged properly. The movement of goods between hubs or zones will have a time limit set under which it must be completed. The last mile delivery will also be important as a lot of delays happen here due to time taken to locate the receiver. Any packages which remain undelivered or unclaimed will be notified to the receiver first and then the sender. The receiver will be sent a tracking ID by the courier service company. This can be used to track its movement. The design and implementation of this system will be the goal of this project.

INTRODUCTION

With the advent of e-commerce, the scope of logistics grew exponentially. With the arrival of the pandemic, the world realized the potential of this as personal movement was restricted and work from homes were encouraged. However, these operations are not immune from the consequences of the pandemic. It caused severe disruptions on the supply chains and logistics. Delays and losses were the two primary troubles which both –the businesses and customers faced. This is where an efficient model of courier management system comes into play.

This project deals with courier management. This system deals with registering a parcel, tracking a parcel, and delivery of the parcel. This system is mainly used to handle a large volume of parcel per day, find the optimum route for transferring the parcel, to increase the operational efficiencies, to increase the customer experience, and reduce the operational cost.

The major idea behind this project is to automate the courier management system. The existing system is computerized to a particular extent, but it has to do a lot of manual work. In this project the optimal route finding is totally automated and the update about the parcel location is also given. The customer can easily track the current location of the parcel using the unique id given to them during the registration process. They can raise queries regarding the parcel using the parcel id. In order to manage a huge amount a customer's data appropriate technology must be used

The model followed by our courier management system is:
1. This project developed a system to implement an effective solution.
2. The application would have a front end with PHP and HTML while the backend would be SQL to support the database function.

PROPOSED APPROACH

Considering all these aspects we have tried to develop a system that will help the Courier department a much better way to approach their work, save lots of valuable time and benefit a lot from this system.

The proposed system is so designed that it can be used by multiple users at a time with different access rights granted to them by the administrator. The software completely eliminates the threat of information leakage, saves a lot of time and also successfully estimates the working hours of the employees.

MODULE 1: HOME PAGE
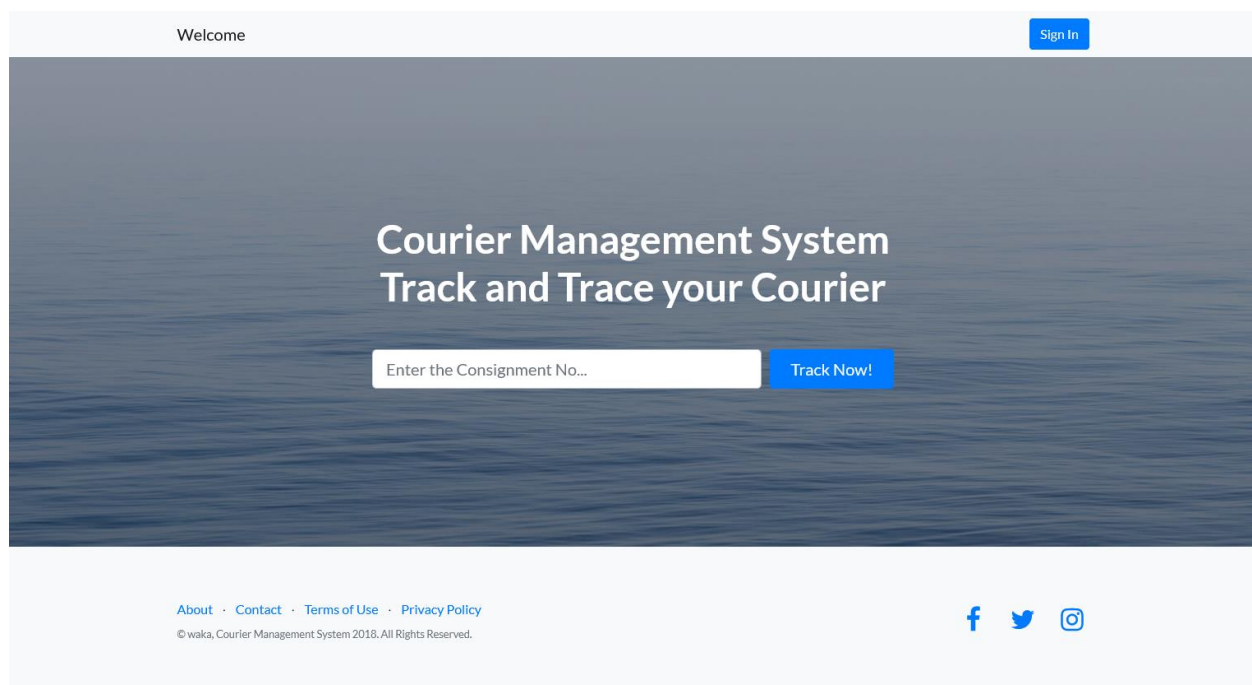
This is the home page or the main welcome page of our system. In this the user can enter the Consignment No. which was given to him/her during sending the courier to the receiver. By entering the consignment, the user can track whether the order has been delivered to the receiver or it is on the way or there is an issue in delivering (if any).

MODULE 2: LOGIN PAGE

The second option for the user is to sign in using the username and password in order to perform the various functionalities such as sending a courier, updating an existing courier, search for the courier, sort all the couriers according to the date on which it was sent. The username id and passwords will be stored in the database. In our case we have assigned the username as courier and id as password as courier.

MODULE 3: ADDING A COURIER

Add Courier

[Click to Get Menu] [Add Courier]

Shipper info

Shipper Name

Shipper Name

Phone

Enter Phone Number

Address

Enter Address

Receiver info

Recevier Name

Recevier Name

Phone

Enter Phone Number

Address

Enter Address

Driver info

Driver Name

Car Plaque

Shipment info

Consignment Number

R5UG7T79

Type of shipment

Select Category

Unite Price OnDelivery

Quantity

Enter Quantity

Booking Mode

Select Booking Mode

Total Feight

Total Weight

Mode

Road

Destination Office

Select Destination Office

Pickup Date

dd / mm / yyyy

*

Pickup Time (Now Time is: 11:00:45)

Enter Pickuptime

Status

in Transit

Comment

Type comment here

[Submit Courier]

Once a user has signed in using the username and the password, he/she can send a courier by moving to the add courier page, in order to send the courier, the user has to enter the Shipper Name, Shipper Email - ID and Shipper Address, after that the user has to enter the Receiver Info i.e., the Receiver's Name, Receiver's Address and Receiver's Phone No. After that consignment no. will be randomly allotted to the user. After that the user has to enter the type of shipment, quantity and the pickup address. All the information entered by the user will be stored safely in the database and the user can access it whenever he/she wants.

MODULE 4: DASHBOARD
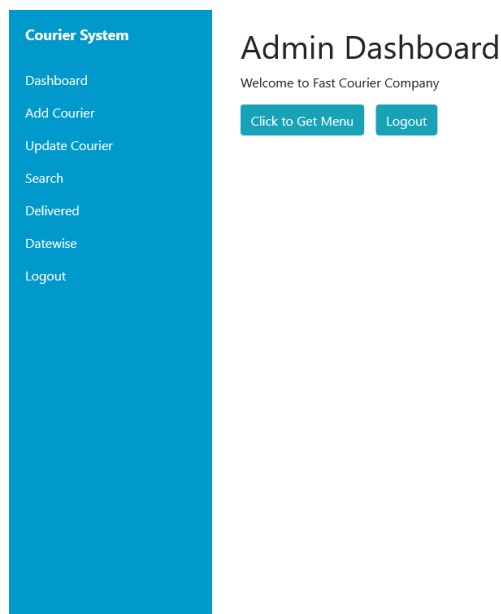
After logging in the user can perform all the functionalities available in the system. Once the user has logged in, he/she will see the dashboard, where the functionalities can be performed. After performing the functionalities, the user will have the option to log out of the system.

MODULE 5: UPDATE COURIER

Update Courier

Click to Get Menu   Update Courier

You have 2 Courier

Filter Courier......   Search Courier

Consignment No	Shipper	Receiver	Pickup Date/Time	Status		
IV2NPH7H	ABG	ROHIT	2021-03-04 - 18h30	in Transit	Edit	Delete
93QQJOH8	ABG	AKSHIT	2021-02-01 - 18h30	in Transit	Edit	Delete

In this module, the user can change the pickup location, time or receiver's info after authentication. Using this the user can even cancel his/her order and apply for refund if any. All the changes made by the user regarding a particular courier will be updated accordingly in the database. However, at a time user can update the information regarding one courier only.

MODULE 6: DELIVERED COURIERS

Delivered Courier

Click to Get Menu

Delivered Courier [5]

Consignment No	Shipper	Receiver	Pickup Date/Time	Status
AUXMT0ER	felix	RAGHAV	2021-04-19 - 09:12	Delivered
54GAWVHJ	HABIMANA	UTKARSH	2021-05-09 - 21h34	Delivered
2THBV8UM	ESSAR SHIPPING	AMISH	05-04-2021 - 12	Delivered
Q906F73L	SCI	SACHIN	26-01-2021 - 4	Delivered
M22P7KHM	Varun Shipping	GAURAV PANDEY	29-01-2021 - 12	Delivered

In this module, the user can check which of his/her couriers have been received by the receiver and then provide the feedback accordingly. This module will consist of all the couriers which the user has sent till date. In this module, the couriers will be filtered according to this status of Delivered. All the couriers in the database will be searched and those with the given status will be listed here.

MODULE 7: SEARCH COURIER

Search Courier

Click to Get Menu

Search Courier

Type to Search Courier......   Search Courier

In this module, as its name suggests, the user can search or track for his/her courier and get the information whether the courier has been delivered or it is in transit. The user would have to use Consignment No. given to them during sending the courier to search the courier. After that if the Consignment No. matches with any of the courier in the database, information regarding that courier will be given to the user.

DATASET AND PERFORMANCE METRIC

The parameter which we had used to measure or store our data in our database is states as below. We had used "cuid" as our primary key in our database in order to connect various tables and identify the records.

Table Structure for Courier Details

Column	Type	NULL
`cid`	int(10)	NOT NULL
`cuid`	int(5)	NOT NULL
`cons_no`	varchar(20)	NOT NULL
`ship_name`	varchar(100)	NOT NULL
`phone`	varchar(13)	NOT NULL
`s_add`	varchar(200)	NOT NULL
`rev_name`	varchar(100)	NOT NULL
`r_phone`	varchar(13)	NOT NULL
`r_add`	varchar(200)	NOT NULL
`dname`	varchar(60)	NOT NULL
`plaque`	varchar(15)	NOT NULL
`type`	varchar(40)	NOT NULL
`qty`	int(10)	NOT NULL
`book_mode`	varchar(20)	NOT NULL
`Totalfreight`	int(15)	NOT NULL
`mode`	varchar(20)	NOT NULL
`office`	varchar(30)	NOT NULL
`pick_date`	varchar(20)	NOT NULL
`pick_time`	varchar(10)	NOT NULL
`status`	varchar(20)	NOT NULL
`comments`	varchar(250)	NOT NULL
`book_date`	date	NOT NULL

Table Structure for Courier Officers Details

Column	Type	NULL
`cuid`	int(10)	NOT NULL
`officer_name`	varchar(40)	NOT NULL
`off_pwd`	varchar(40)	NOT NULL
`address`	varchar(250)	NOT NULL
`email`	varchar(100)	NOT NULL
`ph_no`	varchar(12)	NOT NULL
`office`	varchar(100)	NOT NULL
`reg_date`	datetime	NOT NULL

Table Structure for Courier Tracking Details

Column	Type	NULL
`id`	int(10)	NOT NULL
`cid`	int(10)	NOT NULL
`cons_no`	varchar(20)	NOT NULL
`current_city`	varchar(100)	NOT NULL
`status`	varchar(30)	NOT NULL
`comments`	varchar(255)	NOT NULL
`bk_time`	datetime	NOT NULL

Table Structure for Courier Offices Details

Column	Type	NULL
`id`	int(10)	NOT NULL
`off_name`	varchar(100)	NOT NULL
`address`	varchar(230)	NOT NULL
`city`	varchar(100)	NOT NULL
`ph_no`	varchar(20)	NOT NULL
`office_time`	varchar(100)	NOT NULL
`contact_person`	varchar(100)	NOT NULL

COURIER MANAGEMENT SYSTEM
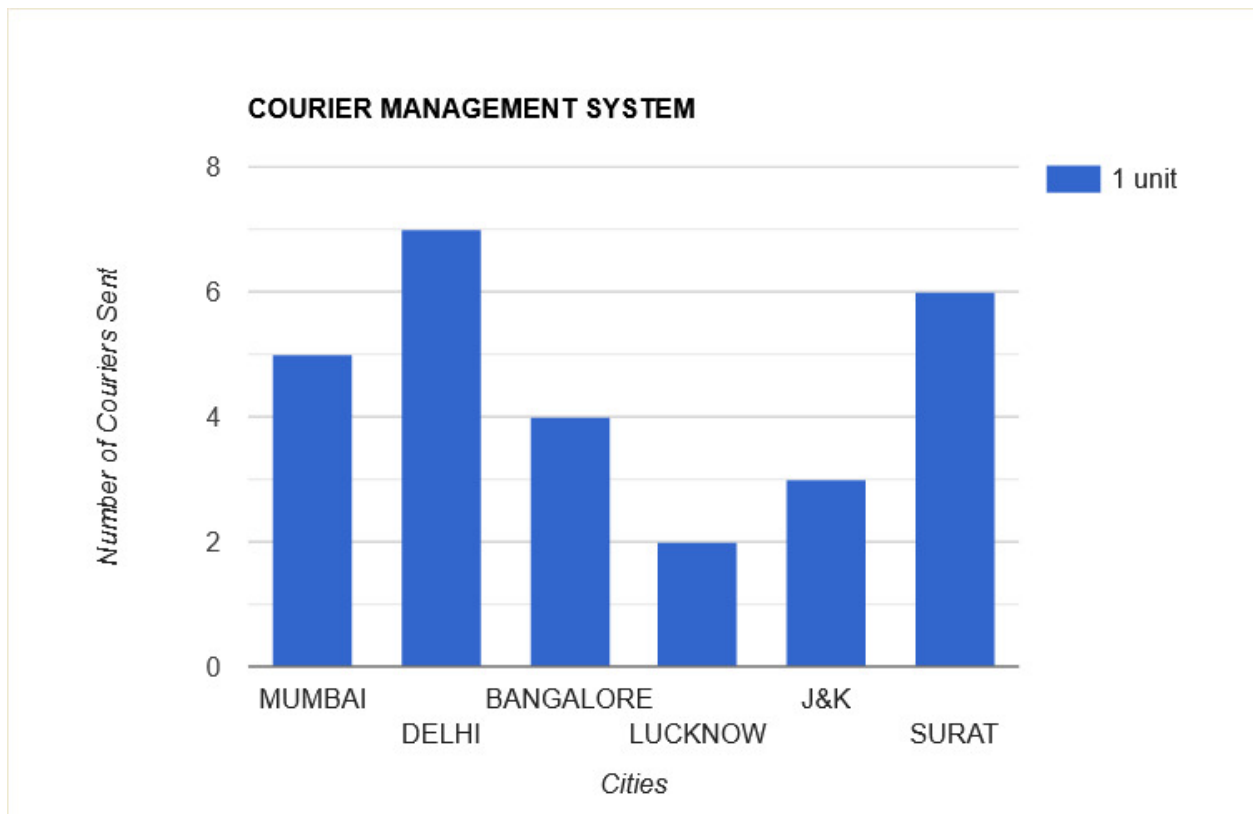
The above graph is based upon the data stored in our database, the horizontal label is "Cities" and the length of the bar denotes the number of couriers which were sent from the respective cities.

COURIER MANAGEMENT SYSTEM
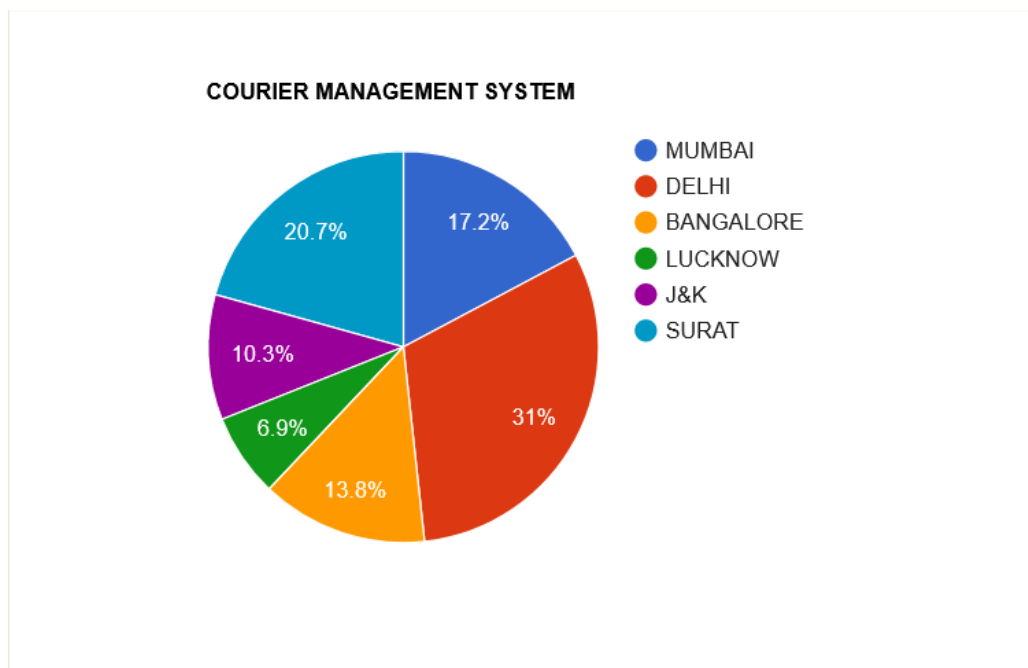
RESULT AND ANALYSIS

The application will rely on the frontend developed by PHP and HTML. These are the two suitable scripting languages for making the interface of the application. The backend of it will be SQL. This is to maintain and process the databases used for various purposes. PHP's compatibility with the SQL database is an added advantage here

The customers will be able to access the information from the application while the administrator will be able to control and segregate the information fed to the servers. The updates made are always by administration authorization. This is to ensure that the customer gets access only to the right information. The end users consist of both, senders and receivers. The updates in transit will be made available to the customer on a provisional basis thereby reducing any scope for error.

In the case of the normal day to day operations the administrator does not need to keep an eye for every movement. The other functions which can be updated on the website and need to be just notified to the administrator are:

1. Pickup or receipt of a package
2. Transit updates
3. Returned packages
4. Delivery confirmations

This concept can be developed into an android mobile application and enable remote working with coordination. The mobile application can be devised in two ways –

1. Customers
2. Business

The business app will be restricted to the employees of the company and will be used to update the data on the application. There will be a separate API for this app and it will contain much more advanced features than the customers' API.

For the customers, a user-friendly app can be developed to help them approach the business for their needs. The main features offered will be:

1. Schedule pickups
2. Get Transit alerts
3. Raise complaints

CONCLUSION

This project has solved the problems caused due to centralization and inefficient updating of a traditional courier management system. Using this new system, the user can perform all the functionalities without any physical movement. The user would not have to reach out to the shipment company again and again as the privacy and security of the package is maintained. The data of the user will also be stored in a database which is very secure and hence there won't be anything related to data leakage. This user-friendly system is by far the fastest as well as the most reliable system for managing couriers.

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