

Route Repository Sysyem: A Discrete Automation of Transport Administration

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ABSTRACT

This web-based application automates the transportation services provided by an organization to its pupil and manages the related information in a convenient manner. The purpose of this application is to design a system that allows the user to learn about all transport routes provided by the organization. The user can make a request to the transport management to enrol oneself through this application. The approach is not only easy to understand but also helps to identify the gap between the demand and supply policy of any transport service in one click. The automated process is flexible enough to extend the services according the requirements as it is deployed using cloud services which by nature can be accessed anywhere through a device connected to the internet.

Keywords: Web-based, Transportation services, Organization, Demand and Supply

INTRODUCTION

Everyone has to travel to their workplace almost every day in their life. There are different modes of transportation facilities available for us yet we choose most economic or comfortable option since it is a part of daily routine for considerably long period of time. While taking own vehicles may not seem cost efficient, people started to pool the vehicles from their colleagues or people from same transport route. But not always are those people available to give you ride.

So, the organization itself provides you the facility to pick you up and drop off at your home or nearby location. The idea is that if many people from same location had to travel to the workplace, why not bring them all at once, which is efficient in terms of cost and apparently can save natural resources. Since then, majority of the organizations have started to provide transport for their work persons. The problem here is how does that person know where exactly does a vehicle go? Can he/she board on a particular vehicle to reach their destination? What are the timings? In which ROUTE does this vehicle go.

OBJECTIVE AND METHODOLOGY

To develop an application which can automate the registration process of transportation services provided by an organization to its users in a fast and secure manner and organize the relevant data in accurate cluster for business service analysis. The application shall be able to provide forms for the user to register themselves into the transportation services provided an organization in a matter of clicks and the admin shall be able to monitor and modify the route services being provided. This web-based application is developed on generic registration methodology which is shaped towards specific problem statement. It can be expanded to real time business requirements for large scale utilizations with related refactoring. Any organization/institutions which intend to provide similar services can make use the application with little or no customizations. The changing requirements in the problem statements and be easily adapted since the code is built on modular execution and additional functionalities can be added to the application without affecting the performance of the existing system.

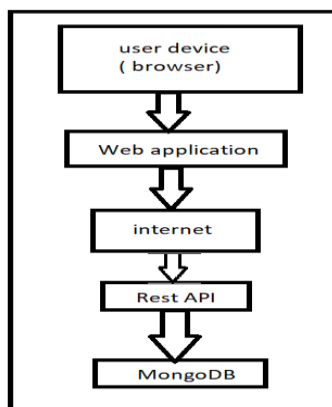


Figure-1: System architecture

RESULTS AND DISCUSSION

User Requests

A nominal user (student/employee) can login to view available routes provided by the organization's transport facility. The user can also request to enrol for a selected route, then logs out of the application: A user first logs into application to view available routes depending on the location availability, the user chooses a near point and then selects the route. To apply for the selected route, the user raises a request by filling his/her details and then clicks apply to successfully post the request for enrolling into the services. Finally, the user may logout of the application.

List of routes available LOGOUT				
#	Bus No	Destination	Available no off seats	action
0	0	balanagar	22	select
1	2	hayathnagar	16	select
2	4	nalanagar	35	select
3	6	balanagar	46	select
4	8	test one	47	select
5	10	lb nagar	89	select
6	12	secunderabad	35	select

Figure 2: User dashboard

ADMIN RESPONSIBILITIES:

The admin logs in to the application to view records and modify them according to requirements and logs out of the application, at the abstract level: The administrator first logs in application and views the request from user; depending on the number of requests the admin decides whether to add a route to avoid overflow or safely accept and update availability of route in the records. The admin then checks for any special management orders and perform them, then updates the database by modifications done so far. The admin then logs out of the app. The admin also has to ensure the integrity and consistency of database schema against the committed changes.

List of routes available

Add New Route

Logout

#	Bus No	Destination	Available no off seats	Actions		
0	0	balanagar	22	EDIT	DELETE	DETAILS
1	2	hayathnagar	16	EDIT	DELETE	DETAILS
2	4	nalnagar	35	EDIT	DELETE	DETAILS
3	6	balanagar	46	EDIT	DELETE	DETAILS
4	8	test one	47	EDIT	DELETE	DETAILS
5	10	lb nagar	89	EDIT	DELETE	DETAILS
6	12	secunderabad	35	EDIT	DELETE	DETAILS

Figure 3: Admin dashboard

APPLICATION WORK-FLOW

At user side, a user first logs into web app where the credentials are verified against the database and the user is authenticated. The app then shows all the available routes to the user. The user selects his/her preferred route; the app prompts a form window to get the details from user which are stored in database. The user may review his/her request on demand. The user then logs out of the application which redirects to homepage. At admin side, the admin logs into the app whose first screen will bring the requests of the user. The admin then performs modifications as needed on the database through the app and the committed actions are acknowledged to the admin who then logs out which redirects to the main page. This is a basic web-application which is ran on any device supporting the compatible browsers. The user browser stands as a terminal to send/receive requests and response. The web application in turn calls the REST API for the interface processing. Using the data provided by the application interface, the REST API communicates with the database hosted on the cloud platform managed by MongoDB (refer Figure 1).

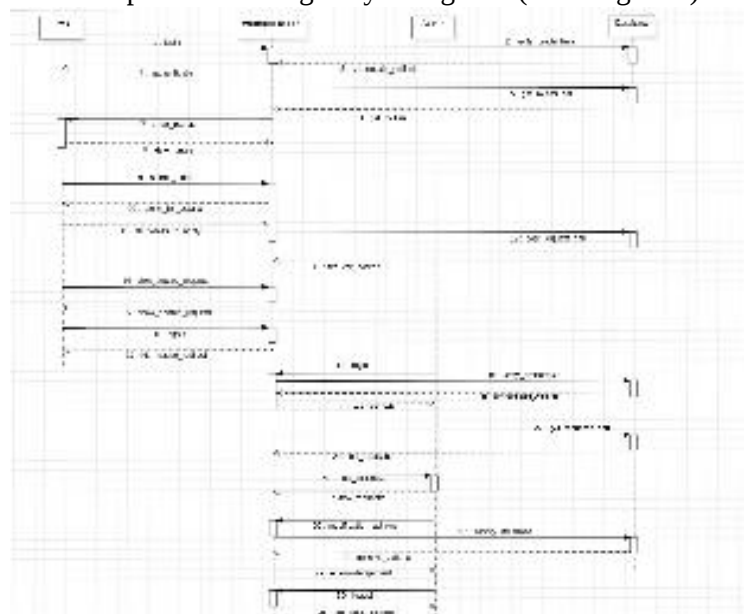


Figure4: work-flow of Route Repository System

CONCLUSION

The Route Repository System web-application is developed and tested for the required problem statement with the use of angular 6 and NodeJS deployed in a Single Page Application (SPA) method. The application works as intended and is fully functional to all the users, admin operations and database monitoring in a smooth flow. The user details are carried out by the form data to the database through the defined interface according to the given system architecture.

Any further modifications are done in separate modules and shall not affect the working flow of the designed system as expected. The application is ready to use for a small-scale environment and demonstration purpose. This application can be enhanced for similar service schemes by the developers since it is built on generic form model. The application runs on cloud platform so the scalability shall not be a problem for required requests. Application is secure enough to authentic valid users and block the intruders from unauthorized users. This application shall be continuously updated according to changing requirements in the future demands.

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