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Railway Reservation System

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A B S T R A C T

In our country India, there are number of counters for the reservation of the seats and one can easily make reservations and get tickets. Online Railway ticket reservation is very useful nowadays. This is very important to design a good-working system software for ticket booking and related transactions. Prediction is done computed using data analytics and machine learning techniques based on various factors like past booking and cancellation trends, station quotas, days of the week, seasonality, holidays etc. Generally waiting list PNR Status during peak seasons like Durga puja (Dussehra), Diwali, Chhathurthi, and Holi etc.has very fewer chances to get confirmed. This is due to a large number of commuters travelling to their hometowns. Even during this peak months flights and bus ticket prices zoom up. In internal policy discussions, the Railways has flagged how it is not practically possible to keep physically increasing the number of trains in every sector based on demand. But if a passenger does not get a confirmed train ticket, she will turn away from Indian Railways and choose other modes like flights for long distances and buses for short distances. Thus, the solution is to take a re-look at its own inventory of berths and apportion them intelligently. The objective of this paper is to find suitable techniques to predict trains with improper ticket allotments.

Keywords: train, railways, allotments, reservations

1. Introduction

The main purpose of maintaining database for Railway Reservation System is to reduce the manual errors involved in the booking and canceling of tickets and make it convenient for the customers and providers to maintain the data about their customers and also about the seats available at them. Due to automation many loopholes that exist in the manual maintenance of the records can be removed. The speed of obtaining and processing the data will be fast. For future expansion the proposed system can be web enabled so that clients can make various enquiries about trains between stations. Due to this, sometimes a lot of problems occur and they are facing many disputes with customers. To solve the above problem, we design a data base which includes customer details, availability of seats in trains, no of trains and their details. The Railway Reservation System facilitates the passengers to enquire about the trains available on the basis of source and destination, Booking and Cancellation of tickets, enquire about the status of the booked ticket, etc. This project contains Introduction to the Railways reservation system .It is the computerized system of reserving the seats of tra in seats in advanced. It is mainly used for long route. On-line reservation has made the process for the reservation of seats very much easier than ever before.

2. Related work

To analyze and predict the accuracy rate of wait listed tickets using different algorithm. The data is imported from the Kaggle database. Then the dataset is imported in colab. The dataset is pre-processed by removing the null values and to know the information about the dataset. After finding the accuracy level using machine learning algorithms, a comparison is made between the algorithms. Here Random Forest Algorithm, Linear Regression Algorithm, Logistic Regression Algorithm, K-means and Decision Tree Algorithm is used to get the accuracy level. Seaborn is used to visualize the result. Then comparison made between the algorithms and final output of the algorithm with the highest accuracy level is predicted.

The system should also have a mechanism to notify the passengers if their waiting list status changes, and they receive a confirmed seat. Additionally, the system should keep track of the cancellation of confirmed seats and allocate them to the passengers in the waiting list based on their priority.

To implement this system, you will need to use a programming language, a database management system, and an appropriate framework or library to build a web-based or desktop application that handles the booking and waiting list management process. The project will require designing a database schema, creating an application interface, and implementing the business logic to handle the booking and waiting list management process.

The train reservation system is an essential system that allows passengers to book and reserve their seats for a specific tra in. In this system, there is a possibility that some passengers may not get confirmed seats due to the high demand for the train.

3. Existing System

While there may appear to be no good reason for a document framework which is ensured to either be terribly wasteful storage shrewd or to cause information misfortune and debasement either from information impacts or loss of the key (notwithstanding being a mind boggling framework, and for having poor perused/compose execution), execution was not the objective .

4. Proposed System

System analysis is a critical step in developing a machine learning model for predicting ticket wastage in Indian Railways. It involves a detailed study of the existing system and processes for ticket sales, cancellations, and refunds, as well as an analysis of the factors that contribute to ticket wastage.

Here's a brief explanation of the system analysis process for predicting ticket wastage in Indian Railways using machine learning:

Identify the System: The first step in the system analysis process is to identify the system or process that needs to be analyzed. In this case, the focus is on the ticket sales, cancellations, and refunds system of Indian Railways.

Gather Data: The next step is to gather data related to ticket sales, cancellations, and refunds. This includes data on the type of ticket, the route, the time of travel, and the passenger demographics, as well as any other factors that could impact ticket wastage, such as weather conditions, festivals, and holidays.

Analyze the System: Once the data is collected, it needs to be analyzed to identify the factors that contribute to ticket wastage. This involves studying the existing processes for ticket sales, cancellations, and refunds and identifying any inefficiencies or areas for improvement.

Identify the Key Variables: Based on the analysis of the system, the next step is to identify the key variables that will be used to develop the machine learning model. These variables could include factors such as the type of ticket, the route, the time of travel, and the passenger demographics, as well as any other relevant factors that impact ticket wastage.

Develop the Machine Learning Model: Once the key variables are identified, the next step is to develop the machine learning model using appropriate algorithms such as regression or decision trees. The model should be trained on historical data and validated to ensure that it accurately predicts ticket wastage.

Implement the Model: After the machine learning model is developed and validated, the next step is to implement it within the ticket sales, cancellations, and refunds system of Indian Railways. This could involve integrating the model into existing systems or developing new systems to support the model.

Monitor and Refine the Model: Finally, it is essential to monitor the performance of the machine learning model over time and refine it as needed to ensure that it continues to produce accurate predictions of ticket wastage.

Overall, system analysis is a critical step in developing a machine learning model for predicting ticket wastage in Indian Railways. It helps to identify the key variables and factors that contribute to ticket wastage, which can be used to develop an accurate and effective predictive model.

5. System Design

This work flow represents the overall process (i.e) after the data is pre-processed the work is divided into three flows. The first division is to evaluate the enroute wait listed tickets. The second division is to prognosis the reserved tickets with wait listed tickets. The third division is to visualise the reservation between train stations to identify vacancies. The work done in the first division and the third division is collected and the accuracy between the work it found out in the fourth process. The fourth process is to find the wait listed tickets which match the wasted tickets .After all these processes we allot the tickets by giving first or primary preference to long distance travelling passengers and the second or secondary preference to the short distance travelling passengers.
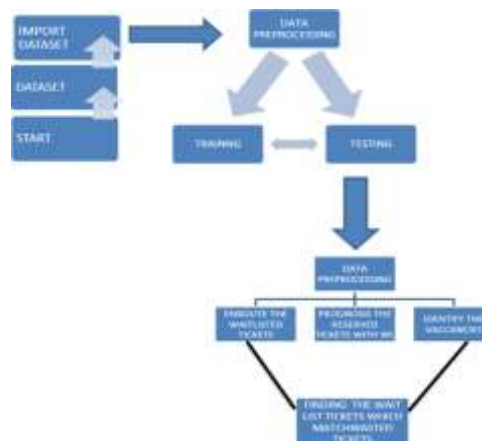

Figure1: Flow diagram

6. Conclusion

In this work, focuses on how to minimize the total passenger waiting time at stations by computing and adjusting train timeta bles for a rail corridor with given time-varying origin-to-destination passenger demand matrices. A reasonable ticket sales strategy is the foundation to increase train operation revenue. To adapt to dynamic market demands, the railway companies need to adjust ticket quotas based on sales data during the sales process using machine learning.

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