

1 TITLE: Big Data Visualization and Analysis of Various Factors Contributing to Airline Delay in the US

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DOI NO: 10.1109/BDICN55575.2022.00042

ABSTRACT: Airline delay analysis aims to evaluate which factors most likely contribute to airline delays, which can help airline companies avoid airline delays and make better flight planning to minimize their loss. Flight delay is attributed to various factors, such as bad weather conditions, physical flaws, delayed flight arrivals, and crew-related issues. With the help of Big Data visualization and analysis, various factors contributing to airline delays in the United States are investigated to make suggestions for airline companies. First, this paper pre-processes the dataset by restricting the time period to rule out the influence of Covid-19 on the irregularity of airline schedules. To obtain the most accurate results, we expurgate missing data. Then, this paper visualizes the correlations between various factors, including months, airline carriers, departure times, weather conditions, and airline delay rate. Each factor is assigned as strong, weak, or no correlation with airline delay. Next, this paper evaluates the results by comparing findings from other research or reports, which support the result from the study. Finally, the optimal situation is analyzed for a flight to depart on time, and suggestions are provided for airline companies to reduce their delay rate.

PUBLISHED IN: 2022 International Conference on Big Data, Information and Computer Network (BDICN)

2 TITLE: Study on **Prediction** Method of Flight Fuel Consumption with Machine Learning

AUTHOR: Wu Zixuan, Zhang Ning, Hong Weijun, Yu Sheng

DOI NO: 10.1109/ICIBA50161.2020.9277445

ABSTRACT: In order to reduce the extra fuel carrying of the flight and improve the fuel efficiency and commercial payload of the fleet, a flight fuel prediction model is put forward based on machine learning method. The flight plan, aeroplane operation data, risk control data of the flight and aeroplane performance data are used to construct the feature vector of flight fuel consumption. The regression relationship between the feature vector and the fuel consumption of the flight is established by using the random forest algorithm. Based on historical flight data, the flight fuel prediction model is trained, and a comparative experiment is designed to verify the validity and fitting ability of the model. The model will be deployed in the near future to help flight dispatchers to make flight plans in X airline.

PUBLISHED IN: 2020 IEEE International Conference on Information Technology, Big Data and Artificial Intelligence (ICIBA)

3 TITLE: An Automated Airlines Reservation Prediction System Using BlockChain Technology

AUTHOR: G Elizabeth Rani, Gogula Narasimha Murthy, Madhurapantula Abhiram, Harini Mohan, Tara Singh Naik, M Sakthimohan

DOI NO: 10.1109/ICIIP53038.2021.9702587

ABSTRACT: The recent Airlines management is facing lots of challenges and the pandemic has made it more critical. The airlines' industry needs to come up with a strong solution to uplift the airlines' sector and sophisticate the customers. In this paper, the main objective of the Airlines reservation system is to implement software using java that accompanies blockchain technology considering the airline sector challenges. It helps users to reserve tickets for air service and track the updated status periodically. Blockchain technology keeps the data secured and centralized providing efficient usage via mobile apps or online. The system provides an efficient user interface for both customers and stakeholders and analyzes the behavior of the customer and provides efficient results. This article also explains the demand price prediction and related challenges to be solved efficiently. All the above factors are considered and an efficient solution of application system using Java.

PUBLISHED IN: 2021 Sixth International Conference on Image Information Processing (ICIIP)

4 TITLE: Predicting Airline Additional Services Consumption Willingness Based on High-Dimensional Incomplete Data

AUTHOR: Jianing Chen, Mingguang Diao, Chuyan Zhang

DOI NO: 10.1109/ACCESS.2022.3166157

ABSTRACT: Prediction of the purchase willingness of passengers has great benefits for airlines to promote auxiliary services, however, the datasets stored in passenger travel information systems are often high-dimensional and incomplete. This study develops a prediction method of airline additional service consumption willingness based on high-dimensional and incomplete datasets with a triple-layer hybrid PSO-XGBoost model, which consists of an incomplete data processing layer, a high-dimensional data processing layer, and a predicting layer. The raw dataset is converted into a complete and low-dimensional dataset through the first two layers and inputted into the predicting layer to train and optimize the XGBoost model together with the PSO algorithm and 10-fold cross-validation.

PUBLISHED IN: IEEE Access (Volume: 10)

5 TITLE: Airline Fare Prediction Using Machine Learning Algorithms

AUTHOR:R. Raja Subramanian; Marisetty Sai Murali; B Deepak; P Deepak; Hamsinipally Nikhil Reddy; R. Raja Sudharsan

DOI NO: 10.1109/ICSSIT53264.2022.9716563

ABSTRACT: This paper discusses the issue of airfare. A set of characteristics defining a typical flight is chosen for this purpose, with the assumption that these characteristics influence the price of an airline ticket. Flight ticket prices fluctuate depending on different parameters such as flight schedule, destination, and duration, a variety of occasions such as vacations or the holiday season. As a result, having a basic understanding of flight rates before booking a vacation will undoubtedly save many individuals money and time. Analysing 3 datasets to get insights about the airline fare and the features of the three datasets are applied to the seven different machine learning (ML) models which are used to predict airline ticket prices, and their performance is compared. The goal is to investigate the factors that determine the cost of a flight. The data can then be used to create a system that predicts flight prices.

PUBLISHED IN: 2022 4th International Conference on Smart Systems and Inventive Technology (ICSSIT)