DEVELOPING A FLIGHT DELAY PREDICTION MODEL USING MACHINE LEARNING

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PRE-REQUISITE:

To complete our project, we must have knowledge of the following. We need to have basic knowledge of the following cloud services:

- IBM cloud
- IBM Watson
- IBM Cloudant DB
- Machine Learning , CNN.

GITHUB ACCOUNT :

- Open https://github.com in a web browser, and then select Sign up**.**
- Enter your email address.
- Create a password for your new GitHub account, and Enter a username**,** too. Next, choose whether you want to receive updates and announcements via email, and then select Continue**.**
- Verify your account by solving a puzzle. Select the Start Puzzle button to do so, and then follow the prompts.
- After you verify your account, select the Create account button.
- Next, GitHub sends a launch code to your email address. Type that launch code in the Enter code dialog, and then press Enter.
- I have created my github account with the email id pmadhumitha4@gmail.com.

INSTALLATION OF IDE'S:

Python is available from its website python.org. Once there, hover your mouse over the Downloads menu, then over the Windows option, and then click the button to download the latest release.

LITERATURE SURVEY:

REVIEW- 1

Title Of The Paper:

Flight delay Prediction using Machine learning Algorithm XGBoost

Name Of The Author: Subhani Shaik.

Problem Description:

Since two decades, rapid growth in air traffic is observed due to comfort, flexibility, and speed. Every year, huge amount around $22 billion loss is noticed due to delay of flights in U.S as per the reports of FAA (Federal Aviation Administration).According to Federal authorities if delay is more than 3 hours for domestic flights and more than 4 hours for International flights the airlines companies have to pay penalty. To avoid the paying of penalty to customer the airlines companies want to maintain a continues relationship among them. Air transportation provides services in the aviation sector and creates wider socioeconomic settlement through its potential to enable convinced types of actions in a local market. According to U.S taxi-out operations are accountable for 4,000 tons of hydrocarbons, 8,000 tons of nitrogen oxides and 45,000 tons of carbon monoxide emissions in the U.S in 2007.

REVIEW 2:

Title Of The Paper :

Review on Flight Delay Prediction

Name Of The Author:

Alice Sternberg, Jorge Soares, Diego Carvalho, Eduardo Ogasawara.

Problem Description:

Commercial aviation is a complex distributed transportation system. It deals with valuable resources, demand fluctuations, and a sophisticated origin-destination matrix that need orchestration to provide smooth and safety operations. Furthermore, individual passenger follows her itineraries while airlines plan various schedules for aircrafts, pilots and flight attendants. Figure 1 illustrates a typical operation of a commercial flight. Stages can take place at terminal boundaries, airports, runways, and airspace, being susceptible to different kinds of delays. Some examples include mechanical problems, weather conditions, ground delays, air traffic control, runway queues and capacity constraints [103, 63, 3].

REVIEW 3:

Title Of The Paper:

Flight delay prediction based on deep learning and Levenberg-Marquart algorithm.

Name Of The Author:

Maryam Farshchian Yazdi1 , Seyed Reza Kamel , Seyyed Javad Mahdavi Chabok and Maryam Kheirabadi.

Problem Description :

Flight delay is inevitable and it plays an important role in both profts and loss of the airlines. An accurate estimation of fight delay is critical for airlines because the results can be applied to increase customer satisfaction and incomes of airline agencies. There have been many researches on modeling and predicting fight delays, where most of them have been trying to predict the delay through extracting important characteristics and most related features. However, most of the proposed methods are not accurate enough because of massive volume data, dependencies and extreme number of parameters. This paper proposes a model for predicting fight delay based on Deep Learning (DL). DL is one of the newest methods employed in solving problems with high level of complexity and massive amount of data. Moreover, DL is capable to automatically extract the important features from data. Furthermore, due to the fact that most of fight delay data are noisy, a technique based on stack denoising autoencoder is designed and added to the proposed model.

Paper Reference:

Title Of The Paper:

Flight Delay Prediction System.

Name Of The Author:

Mrs Yogita Borse*, Dhruvin Jain#, Shreyash Sharma#, Viral Vora#, Aakash Zaver.

Problem Description:

Flight Planning is one of the challenges in industrial world which faces many uncertain conditions. One such condition is delay occurrence, which stems from various factors and imposes considerable costs on airlines, operators, and travelers. Delays in departure can occur due to bad weather conditions, seasonal and holiday demands, airline policies, technical issue such as problems in airport facilities, luggage handling and mechanical apparatus, and accumulation of delays from preceding flights. Here in flight delay prediction system based on the weather parameters which can result in delays. The system considers the temperature, humidity, rain in mm, visibility and month number as important parameters for prediction of delay.

Paper Reference:

[1] Kuhn, Nathalie and Navaneeth Jamadagni. “Application of Machine Learning Algorithms to Predict Flight Arrival Delays.” (2017).

[2] N, Prabakaran & Kannadasan, Rajendran. (2018). Airline Delay Predictions using Supervised Machine Learning. International Journal of Pure and Applied Mathematics. 119.

[3] A Review on Flight Delay Prediction Alice Sternberg, Jorge Soares, Diego Carvalho, Eduardo Ogasawara CEFET/RJ.