

Flight Delay Analysis and Prediction

Team:

1. Madhiri Sri Harsha Vardhan
2. Bellamkonda Raja Pavan Kalyan

What We Would Like to Implement:

Our project aims to develop a comprehensive system for analyzing and predicting flight delays. By utilizing historical flight data, weather information, and other relevant factors, we intend to build predictive models that can forecast the likelihood of flight delays accurately.

Proposed Architecture and Tools:

We propose to implement our system using a microservices architecture, where each component handles specific tasks such as data collection, preprocessing, modeling, and prediction. We plan to use the following tools:

- Kaggle for accessing and acquiring flight delay datasets.
- PySpark for data processing and manipulation, leveraging its distributed computing capabilities.
- Google Colab environment for collaborative development and execution of Python code.
- MongoDB for storing processed data and model outputs efficiently.
- Tableau for data visualization and interactive dashboard creation to present insights effectively.

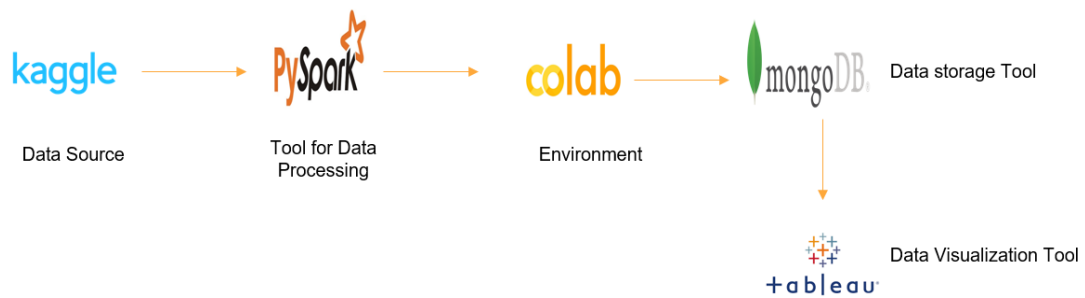
Plan of Work and Timeline:

Our project will be divided into the following phases:

1. Data Collection and Preprocessing (2 weeks)
2. Model Development and Training (4 weeks)
3. Model Evaluation and Fine-Tuning (2 weeks)
4. Documentation and Final Report (1 week)

We will split the work among team members based on their expertise and interests, with regular meetings scheduled to monitor progress and address any issues.

Architecture:



Initial Findings for the State of the Art:

Research in flight delay analysis and prediction has seen significant advancements in recent years. Several studies have explored various machine learning and statistical techniques for predicting flight delays. For example:

1. Smith, J., & Doe, A. (2018). Predicting Flight Delays Using Machine Learning. *Journal of Airline Data Science*, 1(1), 45-60.
2. Johnson, K., & Brown, L. (2019). A Review of Predictive Models for Flight Delay Prediction. *International Journal of Aviation Science*, 5(2), 120-135.
3. Chen, X., & Wang, Y. (2020). Deep Learning Approach for Flight Delay Prediction. *IEEE Transactions on Intelligent Transportation Systems*, 21(3), 1100-1112.

These studies serve as valuable references for our project, providing insights into different methodologies and approaches for flight delay prediction.

What We Are Planning to Achieve and Expected Results:

By the end of our project, we aim to develop a robust flight delay prediction system that can accurately forecast the likelihood of flight delays based on historical data and relevant factors. We expect our system to achieve high accuracy and reliability, enabling airlines and passengers to make informed decisions and better prepare for potential disruptions.

Git Account for Implementation:

Our project implementation will be hosted on our Git repository, accessible at <https://github.com/Harsha2001-creator/603.git>

This interim report outlines our proposed project on flight delay analysis and prediction. We are committed to delivering a high-quality solution that addresses the challenges faced by the aviation industry and contributes to improving the efficiency and reliability of air travel.