**CSCE 5430: SOFTWARE ENGINEERING**

**PROJECT PROPOSAL**

**PROJECT TITLE:**

AIRLINE FARE PREDICTION WITH WEATHER FORECASTING

**TEAM MEMBERS:**

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**INTRODUCTION:**

The airline industry is one of the most dynamic and rapidly evolving industries worldwide. With the constant fluctuations in airfare prices and the unpredictability of weather conditions, it can be challenging for travellers to plan their trips effectively. Therefore, the development of a website that can predict airline fares and provide weather broadcasting would be an ideal solution for travellers. The goal of this project is to create a website that offers precise weather forecasts and airline predictions for secure air travel. To provide customers with real-time data, the website will use machine learning algorithms for weather forecasting and aircraft prediction [1]. The site will also offer a user-friendly layout for convenient access to vital information. The main goal of the website is to increase the precision and dependability of weather forecasts and airline predictions in order to guarantee safe and secure air travel. Passengers and airlines can arrange their journey appropriately, lowering the chance of delays and enhancing their entire travel experience, thanks to the real-time data and notifications provided. For safe and secure air travel, precise plane forecasts and weather forecasting are essential. The goal of this project is to create a website that combines machine learning models for weather forecasting and aircraft prediction to give customers real-time data [4] The website's goal is to increase forecast accuracy and dependability, lessen disruption risk, and enhance the entire flying experience for both passengers and airlines.

**MOTIVATION:**

* **Importance:** This project is chosen because it points out one of the main issues faced by the airline industry in today’s world. Forecasting airline fares is important to manage their revenue strategies and compete effectively. Combining weather forecasting with fare prediction could provide airlines with valuable insights because the weather has a great impact on airline operations and passengers.
* **Innovation:** This project is chosen to approach new techniques that can potentially advance the state of the art in fare prediction and weather forecasting. This innovative solution can provide accuracy and reliability contribution to the airline industry. With the increasing availability of machine learning tools and techniques, it is becoming easier to create predictive models that can analyse large amounts of data and identify patterns and trends.
* **Customer satisfaction:** Providing users with more accurate fare predictions can lead to greater customer satisfaction and loyalty. This can benefit both users and airlines, ultimately leading to a more profitable and successful operation.

**SIGNIFICANCE:**

* **Enhancing Safety and Security:** Weather forecasting can also help to ensure the safety and security of airline operations. Airlines can make informed decisions about flight operations, route planning, and risk management by receiving accurate and timely weather information [2][4][5][6]. This project will give information about any risk of flight delays or flight cancellations, or any fluctuations in plane fare due to weather conditions.
* **Advancing Data science and Machine learning:** By developing novel algorithms and models for fare prediction and weather forecasting [6], the project can also help to advance the state of the art in data science and machine learning. This has the potential to have broader implications beyond the airline industry, benefiting other domains that rely on data-driven decision-making. Combining plane fare prediction and weather forecasting using machine learning models makes this project more interesting. The user can understand the weather on a particular day he travels or wants to travel
* **Reducing Costs:** Accurate fare and weather forecasts can assist airlines in lowering costs by optimizing fleet utilization, fuel consumption, and other operational expenses. This could result in significant savings for airlines as well as lower ticket prices for passengers [3]. Online reviews on travel plans on social websites will also help to decide the flight fares.
* **Improving Customer Experience:** Weather forecasting accuracy can assist airlines in anticipating and mitigating disruptions caused by weather-related delays, cancellations, and diversions. This can improve the overall customer experience while also lessening the negative impact of such disruptions on airlines' reputations and revenues [3].

**OBJECTIVES:**

1. To provide accurate and up-to-date airfare prediction for travellers.
2. To enhance the user experience by offering a user-friendly platform.
3. To incorporate real-time weather data and ensure a secure plane journey.
4. To optimize revenue for airlines and improve customer experience.
5. To offer social media integration to share travel plans.
6. To identify patterns and trends, and offer social media integration to share travel plans.

**FEATURES:**

* This project could provide fare predictions based on the historical airfare data and real-time weather data. This would allow users to make informed decisions about when to book their flights to get the best prices.
* This project will integrate with social media websites for good customer experience.
* The project could offer email alerts to users when airfare prices for a particular route drop or when there are significant changes in weather conditions that may impact airfare prices.
* This project could allow users to provide feedback on their flight experiences and rate airlines based on factors such as comfort, customer service, and value for money. This would help other users make more informed decisions when booking their flights.
* The website should offer secure payment processing for flight bookings including EMI payments, allowing users to book their flights with confidence.

**WORK FLOW:**

Diagram

Description automatically generated

**REFERENCES:**

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