FLIGHT PRICE PREDICTION

Project Based Experiential Learning Program

COLLEGE NAME :

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FLIGHT COST

InTROducTIOn

		Domestic Flights cost/100km		International Flights cost/100km		
#	Country	Low Cost Airline	Legacy Airline	Low Cost Airline	Legacy Airline	Average cost/100 km
65	Solomon Islands	$56.13	$63.76	$11.87	$12.49	**US$36.06**
66	Switzerland	$43.75	$59.66	$14.74	$29.21	**$36.84**
67	Austria	$69.70	$69.70	$3.72	$4.53	**$36.91**
68	Denmark	$26.46	$61.42	$22.61	$40.94	**$37.86**
69	Belgium	$37.75	$84.49	$13.43	$16.61	**$38.07**
70	Canada	$8.00	$8.47	$43.70	$94.66	**$38.71**
71	Japan	$29.52	$72.98	$26.46	$38.96	**$41.48**
72	The Netherlands	$28.15	$91.53	$16.88	$32.84	**$42.35**
73	Qatar	$64.36	$85.31	$18.75	$33.04	**$50.37**
74	Finland	$39.61	$130.80	$8.01	$25.48	**$50.98**
75	United Arab Emirates	$181.38	$220.36	$9.80	$11.28	**$105.71**

Source: Kiwi.com 2018 Aviation Price Index

zafigo

ObJecTivES

The Weather.io is a web application that provides real-time weather information for a specified location. It utilizes the OpenWeatherMap API to fetch weather data and displays it in a user-friendly interface. Users can search for a location by city name and receive

detailed weather information, including temperature, humidity, wind speed, and weather conditions.

It typically uses location data to deliver personalized weather updates. Users can access radar maps, severe weather alerts, and other features to stay informed about the weather in their area. Some weather apps may also offer additional functionalities like UV index, air quality, and pollen count. The app's interface is user-friendly and visually appealing, making it easy to check weather details at a glance.

Weather apps are a convenient way to stay up-to-date on the latest weather conditions. They can provide information on current conditions, as well as forecasts for the next few days or even weeks. Some weather apps also offer features such as radar maps, severe weather alerts, and air quality reports.

Here are some of the most common features of weather apps:

Current weather conditions: This includes information such as the temperature, humidity, wind speed and direction, precipitation, and cloud cover.

Forecasts: Weather apps typically offer forecasts for the next few days or weeks. This information can be displayed in a variety of ways, such as hourly, daily, or weekly forecasts.

Radar maps: Radar maps can be used to see where precipitation is currently falling or is expected to fall. This can be helpful for planning outdoor activities or for staying safe during severe weather events.

Severe weather alerts: Weather apps can send notifications when there is a risk of severe weather in your area. This can help you to stay safe and informed.

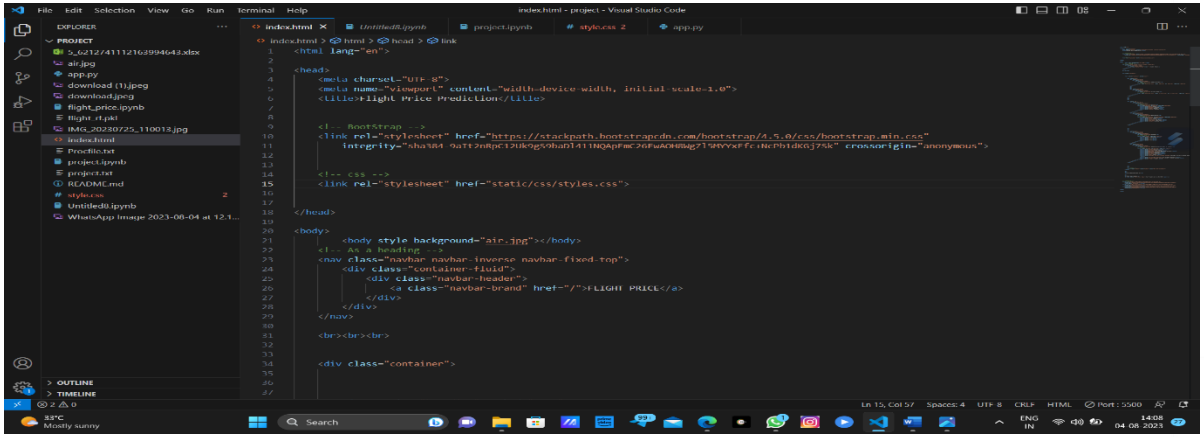
Air quality reports: Some weather apps offer air quality reports. This information can be helpful for people who are sensitive to air pollution or who have respiratory problems.Weather apps can be a valuable tool for staying informed about the weather. They can help you to plan your day, stay safe during severe weather events, and protect your health.

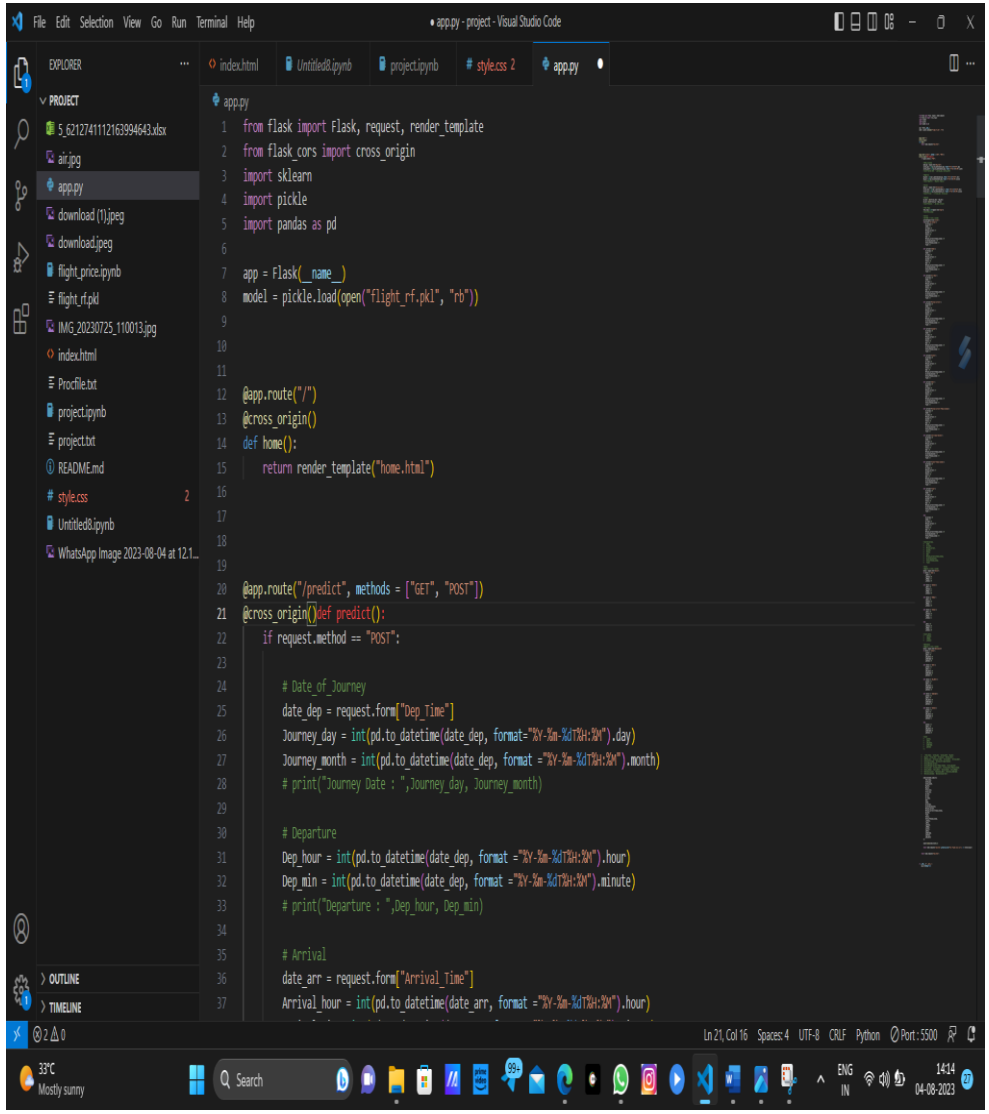
WHy WE nEEd FLIGhT PRicE PRedICtiON

Flight price prediction is important because airlines usually keep their price strategies as commercial secrets and information is always asymmetric. It is difficult for ordinary customers to estimate future flight price changes. However, a reasonable prediction can help customers make decisions when to buy air tickets for a lower price. 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. Having a basic

understanding of flight rates before booking a vacation will undoubtedly save many individuals money and time.

HOW dId WE BuIld FLIGHT PRICE PREDICTION




File Edit Selection View Go Run Terminal Help
app.py - project - Visual Studio Code
EXPLORER
PROJECT
5_62127411121639964 3.xlsx
air.jpg
app.py
download (1).jpeg
download.jpeg
flight_price.ipynb
flight_rf.pkl
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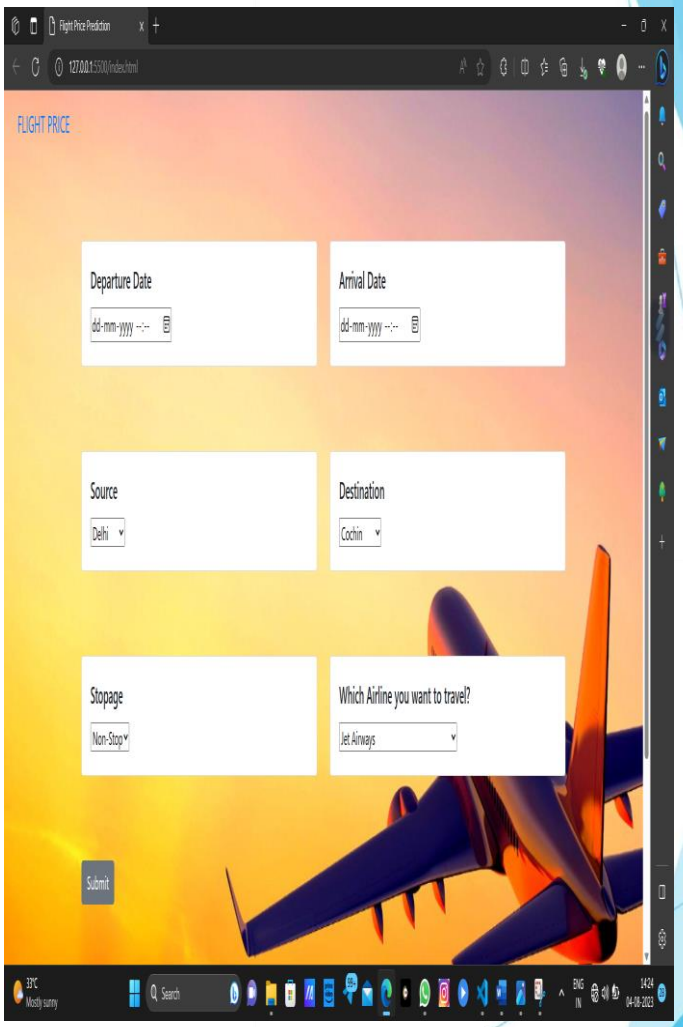
index.html
Procfile.txt
project.ipynb
project.txt
README.md
style.css
Untitled8.ipynb
WhatsApp Image 2023-08-04 at 12.1...
OUTLINE
TIMELINE
index.html
Untitled8.ipynb
project.ipynb
style.css 2
app.py
app.py
from flask import Flask, request, render_template
from flask_cors import cross_origin
import sklearn
import pickle
import pandas as pd
app = Flask(__name__)
model = pickle.load(open("flight_rf.pkl", "rb"))
@app.route("/")
@cross_origin()
def home():
return render_template("home.html")
@app.route("/predict", methods = ["GET", "POST"])
@cross_origin()def predict():
if request.method == "POST":
# Date_of_Journey
date_dep = request.form["Dep_Time"]
Journey_day = int(pd.to_datetime(date_dep, format="%Y-%m-%dT%H:%M").day)
Journey_month = int(pd.to_datetime(date_dep, format ="%Y-%m-%dT%H:%M").month)
# print("Journey Date : ",Journey_day, Journey_month)
# Departure
Dep_hour = int(pd.to_datetime(date_dep, format ="%Y-%m-%dT%H:%M").hour)
Dep_min = int(pd.to_datetime(date_dep, format ="%Y-%m-%dT%H:%M").minute)
# print("Departure : ",Dep_hour, Dep_min)
# Arrival
date_arr = request.form["Arrival_Time"]
Arrival_hour = int(pd.to_datetime(date_arr, format ="%Y-%m-%dT%H:%M").hour)
Ln 21, Col 16 Spaces: 4 UTF-8 CRLF Python Port : 5500
33°C
Mostly sunny
Search
ENG
IN
14:14
04-08-2023


Flight Price Prediction
127.0.0.1:5500/index.html
FLIGHT PRICE
Departure Date
dd-mm-yyyy --:--
Arrival Date
dd-mm-yyyy --:--
Source
Delhi
Destination
Cochin
Stopage
Non-Stop
Which Airline you want to travel?
Jet Airways
Submit
33°C
Mostly sunny
Search
ENG
IN
14:24
04-08-2023

To make well-informed flight predictions, we rely on data from various sources, including:

Flight data from airlines and aviation authorities.

Weather information from meteorological agencies.

Air traffic and airspace data from aviation authorities.

Historical flight performance data.

Prediction Methodology

Our flight prediction decision-making process follows a structured methodology:

a. Data Collection: We gather and update relevant data from the sources mentioned above.

b. Data Analysis: Through statistical analysis and machine learning algorithms, we identify patterns and trends in historical data.

c. Model Development: We develop predictive models based on historical and real-time data, incorporating factors such as weather forecasts, air traffic, and more.

```
async function fetchWeatherData(city) {
  try {
    const response = await fetch(
      `${baseUrl}?q=${city}&appid=${apiKey}&units=${units}`
    );
    if (!response.ok) {
      throw new Error("Weather data not available.");
    }
    const data = await response.json();
    updateWeatherInfo(data);
  } catch (error) {
    console.log(error);
  }
}
```

```
function updateWeatherInfo(data) {
  cityElement.textContent = data.name;
  datetimeElement.textContent = getCurrentTime();
  forecastElement.textContent = data.weather[0].description;
  iconElement.innerHTML = `<img src="http://openweathermap.org/img/wn/${data.weather[0].icon}.png" alt="Weath
  temperatureElement.innerHTML = `${Math.round(data.main.temp)}&#176;${
    units === "metric" ? "C" : "F"
  }`;
  minMaxElement.innerHTML = `<p>Min: ${Math.round(data.main.temp_min)}&#176;${
    units === "metric" ? "C" : "F"
  }</p><p>Max: ${Math.round(data.main.temp_max)}&#176;${
    units === "metric" ? "C" : "F"
  }</p>`;
  realFeelElement.innerHTML = `<p>${Math.round(data.main.feels_like)}&#176;${
    units === "metric" ? "C" : "F"
  }</p>`;
  humidityElement.textContent = `${data.main.humidity}%`;
  windElement.textContent = `${data.wind.speed} ${
    units === "imperial" ? "mph" : "m/s"
  }`;
  pressureElement.textContent = `${data.main.pressure} hPa`;
}
```

d. Model Evaluation: We continually assess the accuracy and performance of our predictive models using validation data.

e. Prediction Generation: Based on the models, we generate flight predictions for specific routes and timeframes.

CommuNIcatION AND DISsemINATION

To ensure the effective utilization of flight predictions, we communicate the information through:

Airlines: Providing airlines with timely updates and predictions to optimize their operations.

Passengers: Sharing predictions through various channels, including websites, mobile apps, and notifications.

Airport Authorities: Collaborating with airport authorities to improve overall efficiency.

Continuous Improvement

Flight prediction decision-making is an iterative process. We are committed to continuous improvement through:

Regularly updating and refining our predictive models.

Incorporating feedback from airlines, passengers, and other stakeholders.

Staying up-to-date with the latest data sources and technologies.

ApplIcATIOns

- To help travellers find the best rates for their flights by comparing different factors that affect the prices
- To help airlines forecast the rates of competitors and adjust their pricing strategies accordingly
- To help travel platforms attract more visitors and increase their revenue
- Optimal timing for airline ticket purchasing from the consumer's perspective is challenging principally because buyers have insufficient information for reasoning about future price movements.

cOnclusIOn

Flight prediction decision-making is a critical aspect of the aviation industry, benefiting airlines, passengers, and all stakeholders. By employing a structured approach and leveraging data-driven methodologies, we strive to enhance the

accuracy and reliability of flight predictions, ultimately leading to improved travel experiences for all.

lInks

Github Link: https://chandiniadabala.github.io/optimizing-flight-booking-decision-through-machine-learning-price-prediction/