

An aerial view of an airport tarmac. A large, semi-transparent red circle is centered over the scene. Inside the circle, a white commercial airplane is parked. To the left of the airplane, there are several red ground support vehicles, including a bus and several smaller service vehicles. In the background, there are airport buildings and other aircraft. The overall scene is brightly lit, suggesting a sunny day.

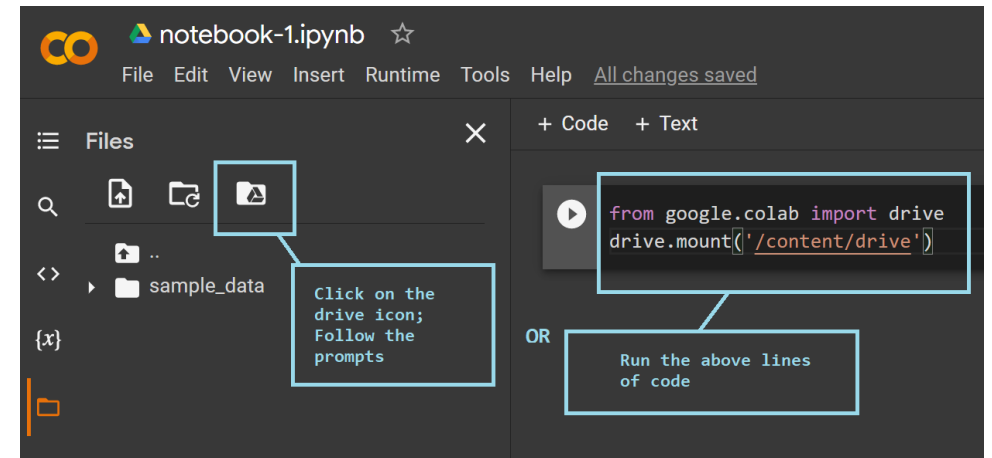
# **WELCOME TO FLIGHT PRICE PREDICTOR PROJECT**



# **FLIGHT PRICE PREDICTION**

- **INTRODUCTION :- THE FLIGHT PRICE PREDICTOR PROJECT IS BASED ON PREDICTING THE FLIGHT PRICE BY TAKING INPUTS LIKE SOURCE DESTINATION, ARRIVAL DESTINATION, NO. OF STOPS AND TRAVELLING DATE .**
- **BY ANALYZING THESE INPUTS, THE SYSTEM PROVIDES USERS WITH AN ESTIMATED FLIGHT PRICE, HELPING THEM MAKE INFORMED DECISIONS WHEN PLANNING THEIR TRAVEL.**
- **THIS PROJECT AIMS TO DEMONSTRATE THE APPLICATION OF MACHINE LEARNING TECHNIQUES IN REAL-WORLD SCENARIOS, OFFERING USERS A PRACTICAL TOOL TO ESTIMATE FLIGHT COSTS.**

# COLAB



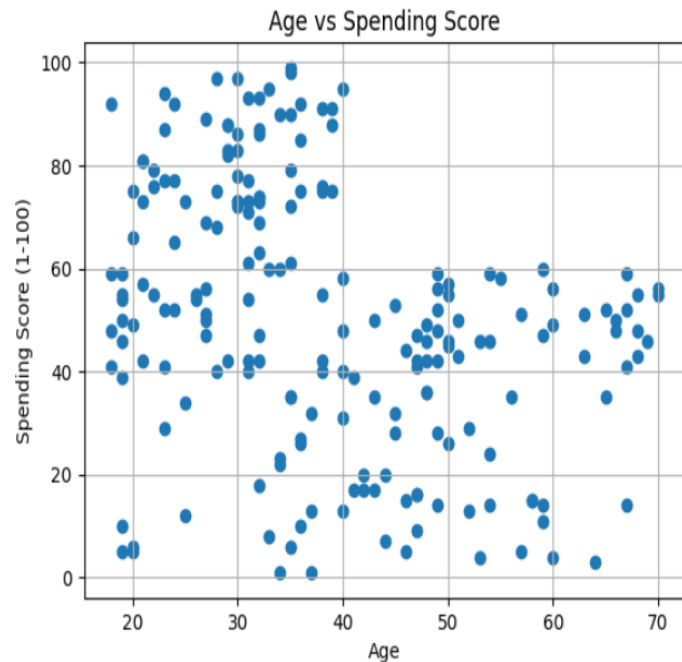
Google Colab is a free cloud-based platform that allows users to write and execute Python code in an interactive notebook environment. Colab is particularly popular in the data science and machine learning communities due to its accessibility, ease of use, and powerful computational capabilities.



Google Colab offers Users can easily import datasets from various sources such as Google Drive, GitHub, and local files. Colab supports popular machine learning libraries like TensorFlow, Keras, PyTorch, and OpenCV, allowing seamless integration and experimentation.

# SOME OF MY COLAB NOTEBOOK WORK

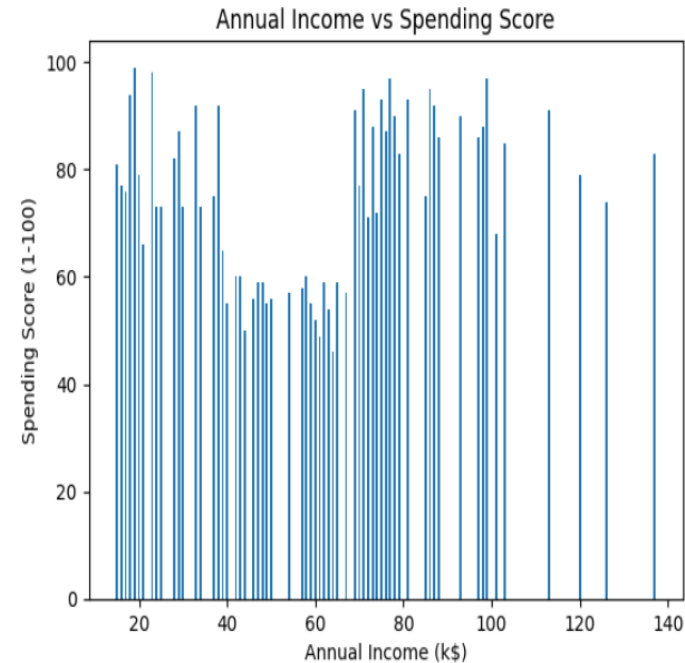
```
plt.scatter(df1['Age'], df1['Spending Score (1-100)'])  
plt.title('Age vs Spending Score')  
plt.xlabel('Age')  
plt.ylabel('Spending Score (1-100)')  
plt.grid()  
plt.show()
```



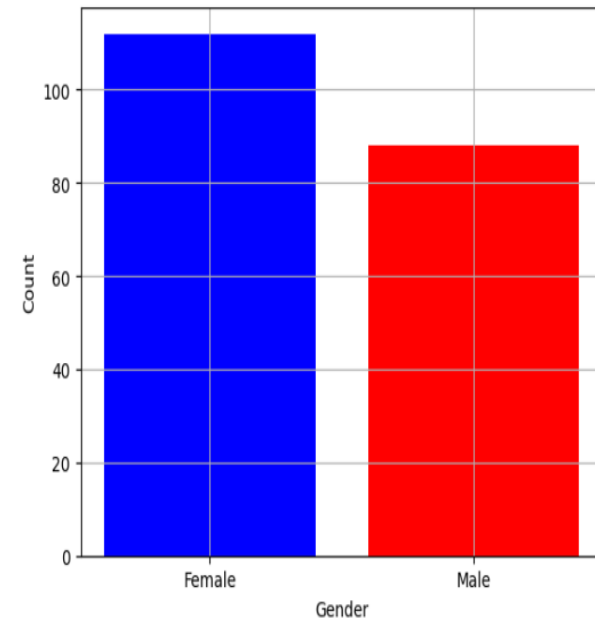
```
y= df1.loc[:, "Spending Score (1-100)"]
```

```
plt.bar(x,y,width=0.5)  
plt.xlabel("Annual Income (k$)")  
plt.ylabel("Spending Score (1-100)")  
plt.title("Annual Income vs Spending Score")
```

```
Text(0.5, 1.0, 'Annual Income vs Spending Score')
```



```
plt.ylabel('Count')  
plt.grid()  
plt.show()
```





# KAGGLE DATASET

Kaggle is an online community platform for data scientists and machine learning enthusiasts, widely known for its competitions and datasets. Kaggle Datasets is a powerful resource within the platform that offers a vast collection of publicly accessible datasets covering a wide range of topics and domains



Kaggle Datasets are widely used across various fields and applications. In academia, they serve as a rich resource for coursework, student projects, and research papers. In the industry, data professionals use these datasets to prototype solutions, benchmark algorithms, and validate models.



Kaggle competitions often leverage these datasets, challenging participants to solve real-world problems and push the boundaries of machine learning.

← → ↺ raw.githubusercontent.com/asr7code/ML-dataset/main/flight\_data

```
Airline,Source,Destination,Total_Stops,Price,Date,Month,Year,Dep_hours,Dep_min,
IndiGo,Banglore,New Delhi,0,3897,24,3,2019,22,20,1,10,2,50
Air India,Kolkata,Banglore,2,7662,1,5,2019,5,50,13,15,7,25
Jet Airways,Delhi,Cochin,2,13882,9,6,2019,9,25,4,25,19,0
IndiGo,Kolkata,Banglore,1,6218,12,5,2019,18,5,23,30,5,25
IndiGo,Banglore,New Delhi,1,13302,1,3,2019,16,50,21,35,4,45
SpiceJet,Kolkata,Banglore,0,3873,24,6,2019,9,0,11,25,2,25
Jet Airways,Banglore,New Delhi,1,11087,12,3,2019,18,55,10,25,15,30
Jet Airways,Banglore,New Delhi,1,22270,1,3,2019,8,0,5,5,21,5
Jet Airways,Banglore,New Delhi,1,11087,12,3,2019,8,55,10,25,25,30
Multiple carriers,Delhi,Cochin,1,8625,27,5,2019,11,25,19,15,7,50
Air India,Delhi,Cochin,1,8907,1,6,2019,9,45,23,0,13,15
IndiGo,Kolkata,Banglore,0,4174,18,4,2019,20,20,22,55,2,35
Air India,Chennai,Kolkata,0,4667,24,6,2019,11,40,13,55,2,15
Jet Airways,Kolkata,Banglore,1,9663,9,5,2019,21,10,9,20,12,10
IndiGo,Kolkata,Banglore,0,4804,24,4,2019,17,15,19,50,2,35
Air India,Delhi,Cochin,2,14011,3,3,2019,16,40,19,15,26,35
SpiceJet,Delhi,Cochin,1,5830,15,4,2019,8,45,13,15,4,30
Jet Airways,Delhi,Cochin,1,10262,12,6,2019,14,0,12,35,22,35
Air India,Delhi,Cochin,2,13381,12,6,2019,20,15,19,15,23,0
Jet Airways,Delhi,Cochin,1,12898,27,5,2019,16,0,12,35,20,35
GoAir,Delhi,Cochin,1,19495,6,3,2019,14,10,19,20,5,10
Air India,Banglore,New Delhi,1,6955,21,3,2019,22,0,13,20,15,20
IndiGo,Banglore,Delhi,0,3943,3,4,2019,4,0,6,50,2,50
IndiGo,Banglore,Delhi,0,4823,1,5,2019,18,55,21,50,2,55
Jet Airways,Kolkata,Banglore,1,7757,6,5,2019,18,55,8,15,13,20
Jet Airways,Delhi,Cochin,2,13292,9,6,2019,21,25,12,35,15,10
IndiGo,Delhi,Cochin,1,8238,1,6,2019,21,50,3,35,5,45
GoAir,Delhi,Cochin,1,7682,15,5,2019,7,0,12,55,5,55
Vistara,Banglore,Delhi,0,4668,18,6,2019,9,45,12,35,2,50
Vistara,Chennai,Kolkata,0,3687,15,6,2019,7,5,9,20,2,15
Vistara,Chennai,Kolkata,0,3687,18,6,2019,7,5,9,20,2,15
Air India,Kolkata,Banglore,2,13227,1,5,2019,9,50,23,15,13,25
IndiGo,Banglore,Delhi,0,4423,6,4,2019,4,0,6,50,2,50
Jet Airways,Delhi,Cochin,2,10919,15,6,2019,14,35,12,35,22,0
Jet Airways,Delhi,Cochin,1,12373,18,5,2019,7,5,12,35,5,30
IndiGo,Delhi,Cochin,1,5894,27,6,2019,10,35,21,0,10,25
SpiceJet,Kolkata,Banglore,1,4649,21,5,2019,15,5,20,20,5,15
Air India,Kolkata,Banglore,0,6245,18,5,2019,14,15,16,45,2,30
Jet Airways,Banglore,New Delhi,1,19225,6,3,2019,7,0,13,15,6,15
```

# DATASET CLEANING USING PANDAS

**Data cleaning is a critical step in the data analysis process, ensuring that datasets are accurate, consistent, and free of errors. It involves detecting and correcting (or removing) corrupt or inaccurate records from a dataset.**

python

```
import pandas as pd

# Load a CSV file into a pandas DataFrame
df = pd.read_csv('data.csv')
```

python

```
# Remove rows with missing values
df_cleaned = df.dropna()

# Fill missing values with the mean of the column
df_filled = df.fillna(df.mean())
```

python

```
# Convert a column to datetime type
df['date_column'] = pd.to_datetime(df['date_column'])

# Convert a column to numeric type
df['numeric_column'] = pd.to_numeric(df['numeric_column'])
```

python

```
# Remove duplicate rows
df_no_duplicates = df.drop_duplicates()
```

python

```
# Remove outliers based on a condition
df_no_outliers = df[(df['column'] > lower_bound) & (df['column'] < upper_bound)]
```

# MACHINE LEARNING

Machine learning (ML) is a subset of artificial intelligence (AI) that involves the use of algorithms and statistical models to enable computers to perform tasks without explicit programming

There are numerous algorithms used in machine learning, each suited for different types of tasks. Some popular algorithms include:

**Linear Regression:** Used for predicting a continuous target variable based on one or more input features.

**Logistic Regression:** A classification algorithm used for binary classification tasks



# APPLIED MACHINE LEARNING ON PROJECT

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.preprocessing import LabelEncoder
from sklearn.ensemble import RandomForestRegressor

df= pd.read_csv('https://raw.githubusercontent.com/asr7code/ML-dataset/main/flight_dataset.csv')
le= LabelEncoder()
df["Airline"]=le.fit_transform(df["Airline"])
df["Source"]=le.fit_transform(df["Source"])
df["Destination"]=le.fit_transform(df["Destination"])
x=df.drop("Price",axis=1)
y=df["Price"]
model=RandomForestRegressor()
model.fit(x,y)
model.score(x,y)
res=model.predict([[1,3,0,2,1,5,2019,5,50,13,15,7,25]])
op = "Price is : " + str(res[0])
print(op)
```

[ ] x.head()



	Airline	Source	Destination	Total_Stops	Date	Month	Year	Dep_hours	Dep_min	Arrival_hours	Arrival_min	Duration_hours	Duration_min
0	3	0	5	0	24	3	2019	22	20	1	10	2	50
1	1	3	0	2	1	5	2019	5	50	13	15	7	25
2	4	2	1	2	9	6	2019	9	25	4	25	19	0
3	3	3	0	1	12	5	2019	18	5	23	30	5	25
4	3	0	5	1	1	3	2019	16	50	21	35	4	45



df.head()



	Airline	Source	Destination	Total_Stops	Price	Date	Month	Year	Dep_hours	Dep_min	Arrival_hours	Arrival_min	Duration_hours	Duration_min
0	3	0	5	0	3897	24	3	2019	22	20	1	10	2	50
1	1	3	0	2	7662	1	5	2019	5	50	13	15	7	25
2	4	2	1	2	13882	9	6	2019	9	25	4	25	19	0
3	3	3	0	1	6218	12	5	2019	18	5	23	30	5	25
4	3	0	5	1	13302	1	3	2019	16	50	21	35	4	45

# HTML FRONTEND USING GLITCH

*Glitch is a collaborative web development platform that allows users to create, share, and remix web applications directly from their browser.*

*Glitch also supports a variety of programming languages and frameworks, including JavaScript, Node.js, HTML, and CSS. Additionally, every project on Glitch comes with a unique URL, making it easy to share and collaborate.*

# FRONTEND WORK

```
!DOCTYPE html>
<html lang="en">
  <head>
    <title>Fill Details to Predict Price</title>
  </head>
  <body>
    style="
      background-image: url('https://cdn.glitch
      background-size: cover;
      background-position: auto;
      font-family: Arial, sans-serif;
      color: black;
      margin: 0;
      padding: 0;
    "
  >
</html>

!DOCTYPE html>
<html>
  <head>
    <title>Flight Price Prediction</title>
    <link rel="stylesheet" href="indexstyle.css">
  </head>
  <body>
    <h1>
      Welcome To Flight Price Predictor
    </h1>
    <h2>
      <a href="templates/form.html"> Predict Price </a>
    </h2>
  </body>
</html>

<h1>Machine Learning based Flight Price Prediction System</h1>
<form method="POST" action="/fpredict">
  <table border="1" bordercolor="black">
    <tbody>
      <tr>
        <td>Airlines</td>
        <td>
          <select name="airline">
            <option value="4">Jet Airways</option>
            <option value="3">IndiGo</option>
            <option value="1">AirIndia</option>
            <option value="6">Multiple Carriers</option>
            <option value="8">Spicejet</option>
            <option value="10">Vistara</option>
            <option value="0">Air Asia</option>
            <option value="2">GoAir</option>
            <option value="7">Multiple carriers Premium e<
            <option value="5">Jet Airways Business</option>
            <option value="11">Vistara Premium economy</o
```

# PROJECT WALKTHROUGH

- Project Link :-
- <https://flight-new-one-.glitch.me/>



**THANKING YOU**

