AIRBNB HOTEL BOOKING ANALYSIS

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PROBLEM STATEMENT

- Airbnb is a popular platform where property owners rent out their homes or apartments to travelers. One of the biggest challenges for hosts is deciding the right price for their listings, since prices vary depending on several factors such as the number of bedrooms, number of bathrooms, cleanliness, accuracy of descriptions, and communication quality with guests.

Project-Description

This project focuses on building a machine learning model to predict the price of Airbnb listings. Pricing an Airbnb property correctly is crucial for both hosts and travelers: hosts want to maximize occupancy and earnings, while travelers want fair and competitive prices. Using historical Airbnb data, the project develops a regression model that learns relationships between listing attributes (such as number of bedrooms, bathrooms, and guest ratings) and the price charged.The model can then be used to predict prices for new or hypothetical listings, helping property owners make informed pricing decisions.

WHO ARE THE END USERS?

- Airbnb Hosts
- To optimize pricing of their listings based on property features and guest reviews.
- Travelers
- To evaluate whether a listing is overpriced or reasonably priced.
- Airbnb Platform Analysts
- To improve automated pricing suggestions and increase platform trust.
- Researchers/Students
- To study the impact of property features and reviews on rental pricing.

Technology Used

- **Python**-Core programming language
- **Pandas & NumPy**-Data cleaning and preprocessing
- **Scikit-learn**-Machine learning (model training, regression, evaluation)
- **Matplotlib/Seaborn**-Data visualization and feature importance
- **Google Colab**-Cloud-based environment for running the project
- **File handling libraries**-openpyxi (for Excel) and built-in CSV handling

RESULT (1)

1. Data Loading and Initial Exploration

```
# Import Required Libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
import plotly.graph_objects as go
from plotly.subplots import make_subplots
import warnings
warnings.filterwarnings('ignore')

# Set style for better visualizations
plt.style.use('default')
sns.set_palette("husl")

print("📚 All libraries imported successfully!")
print("🚀 Ready to analyze Airbnb data!")
```

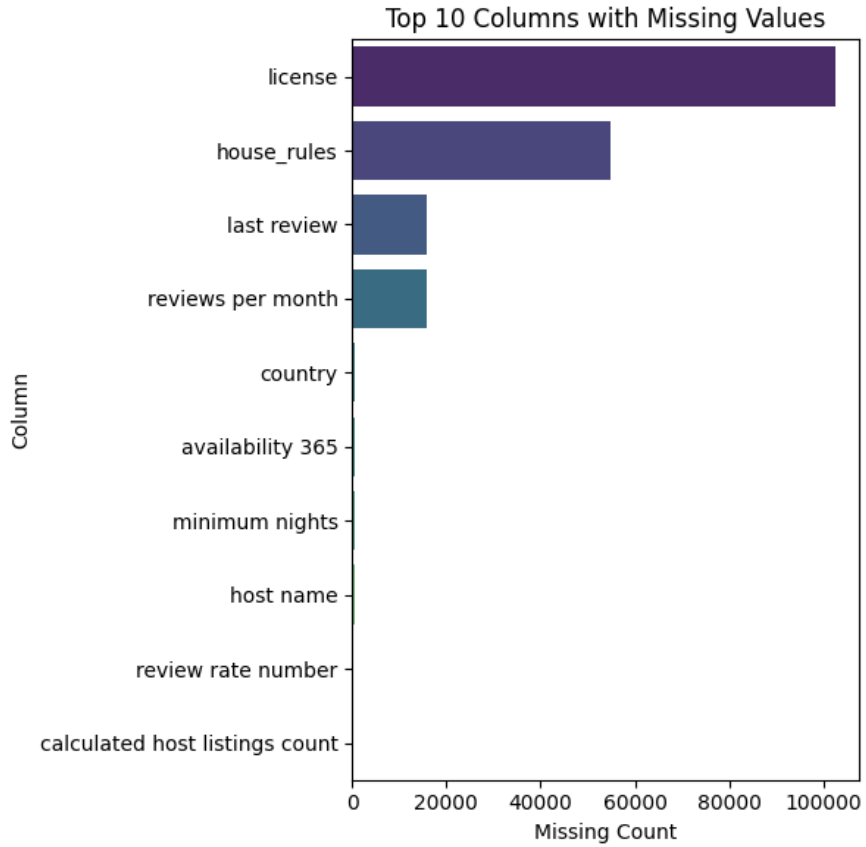
[ ] Python

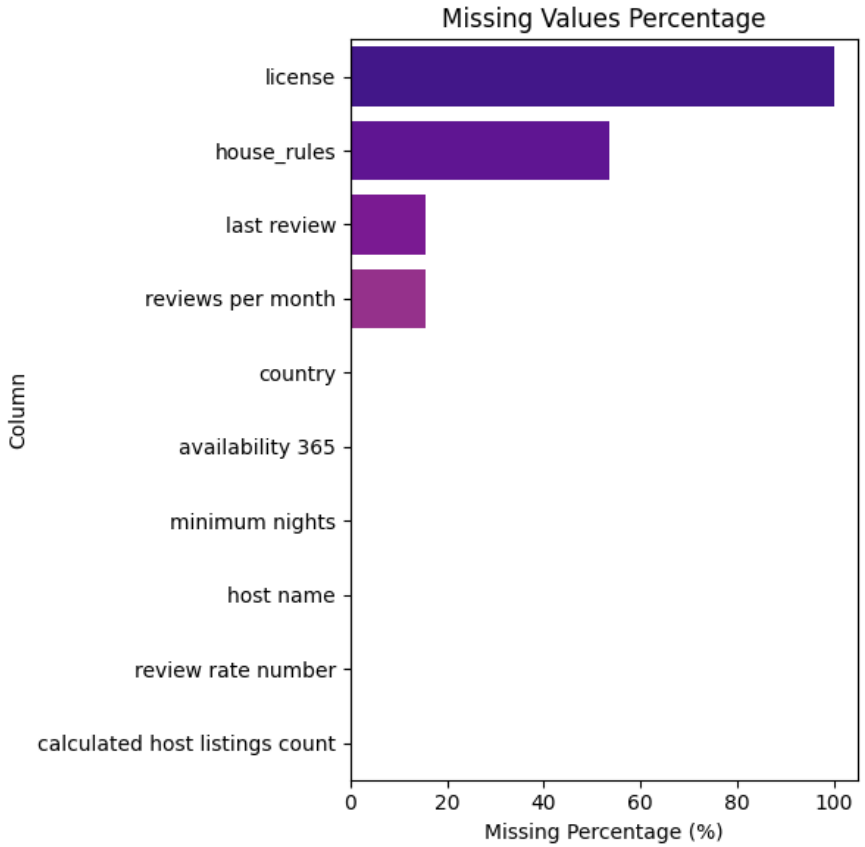
```
# Load the Airbnb Dataset
try:
    df = pd.read_excel("1730285881-Airbnb_Open_Data.xlsx")
    print("✅ Dataset loaded successfully!")
    print(f"📊 Dataset shape: {df.shape}")
    print(f"📋 Columns: {df.shape[1]} | Rows: {df.shape[0]}")
except FileNotFoundError:
    print("❌ File not found. Please check the file path.")
except Exception as e:
    print(f"❌ Error loading file: {e}")
```

[ ] Python

Demo Link

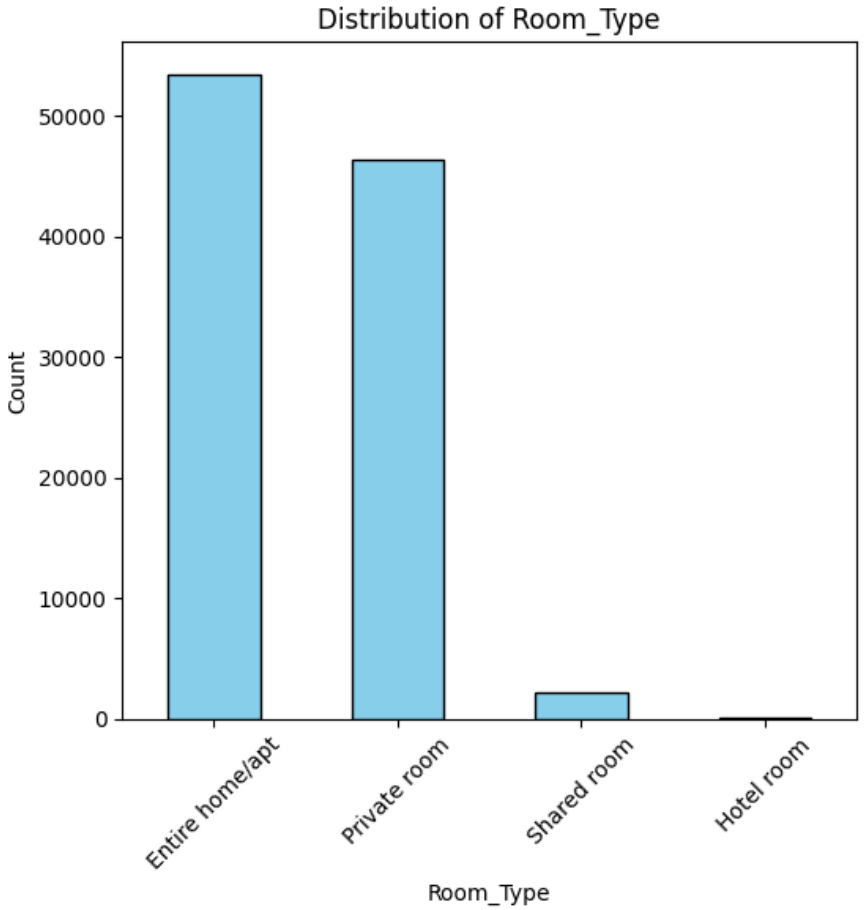
RESULT(2)

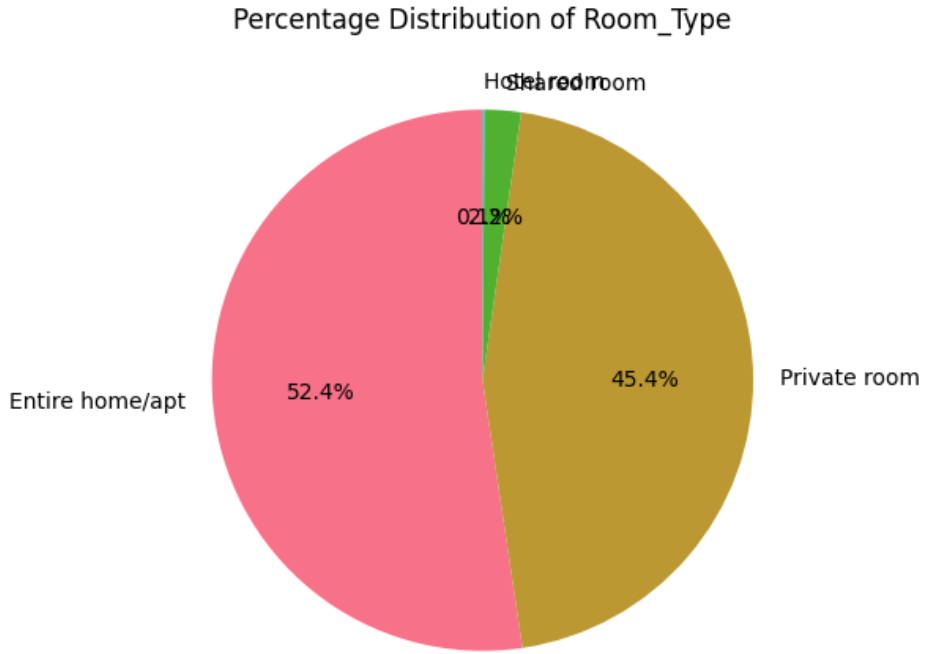




Demo Link

RESULT(3)





[Demo Link]

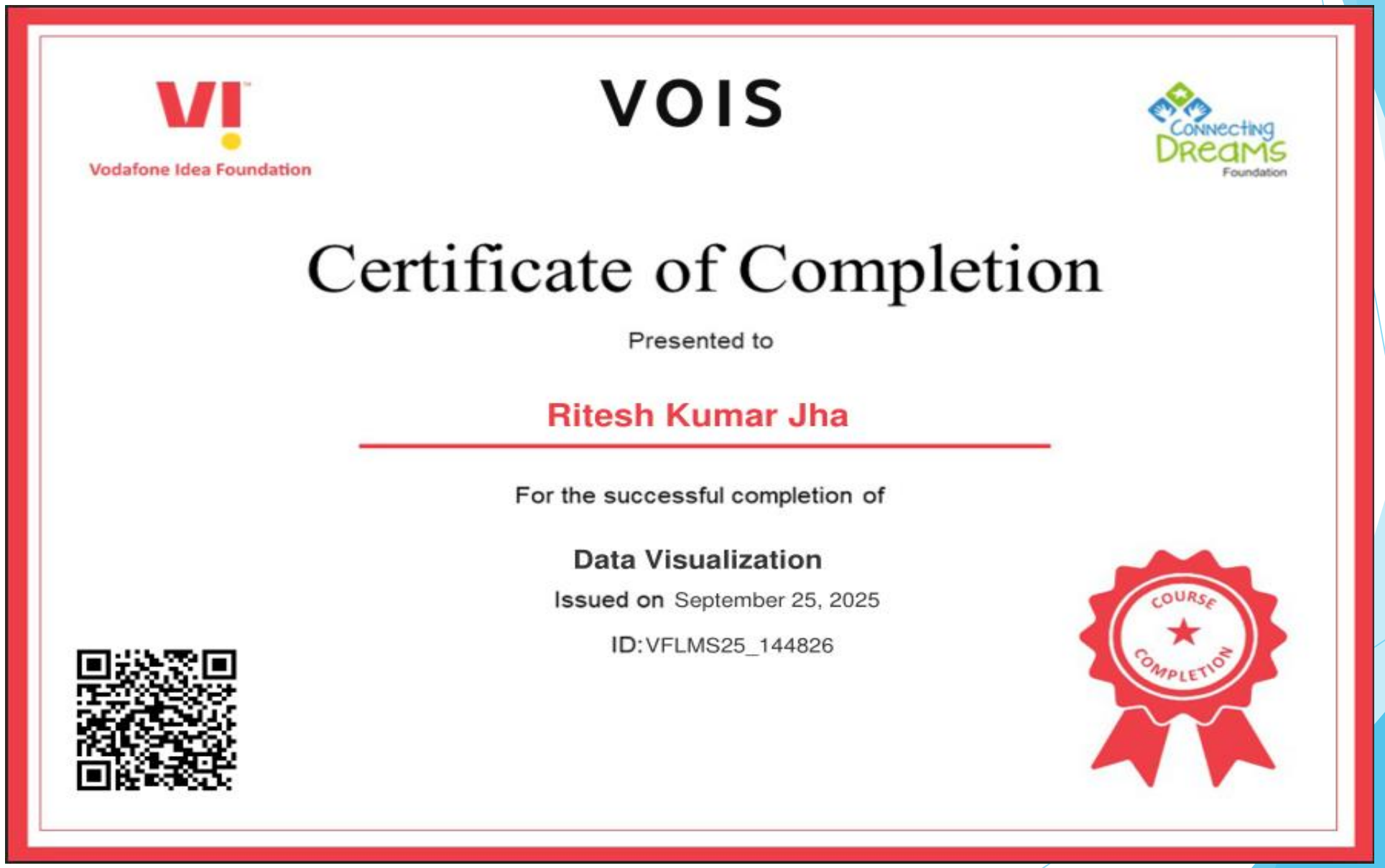
GitHub Repository

https://github.com/riteshjha45/AIRBNB-HOTEL-BOOKING-ANALYSIS-/tree/main

Demo Link

Getting started with Basics of Python Certificate

Data Visualization Certificate



Thank you