



Domain: Transportation and Communication



Data Visualization of

BIRD STRIKES

BETWEEN 2000 – 2011



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INTRODUCTION

A bird strike is strictly defined as a **collision between a bird and an aircraft which is in flight or on a take off or landing roll.**

Bird Strike is common and can be a significant threat to aircraft safety. For smaller aircraft, significant damage may be caused to the aircraft structure and all aircraft, especially jet-engine ones, are vulnerable to the loss of thrust which can follow the ingestion of birds into engine air intakes. This has resulted in a number of fatal accidents.

Bird strikes may occur during any phase of flight but are most likely during the take-off, initial climb, approach and landing phases due to the greater numbers of birds in flight at lower levels. Since most birds fly mainly during the day, most bird strikes occur in daylight hours as well.

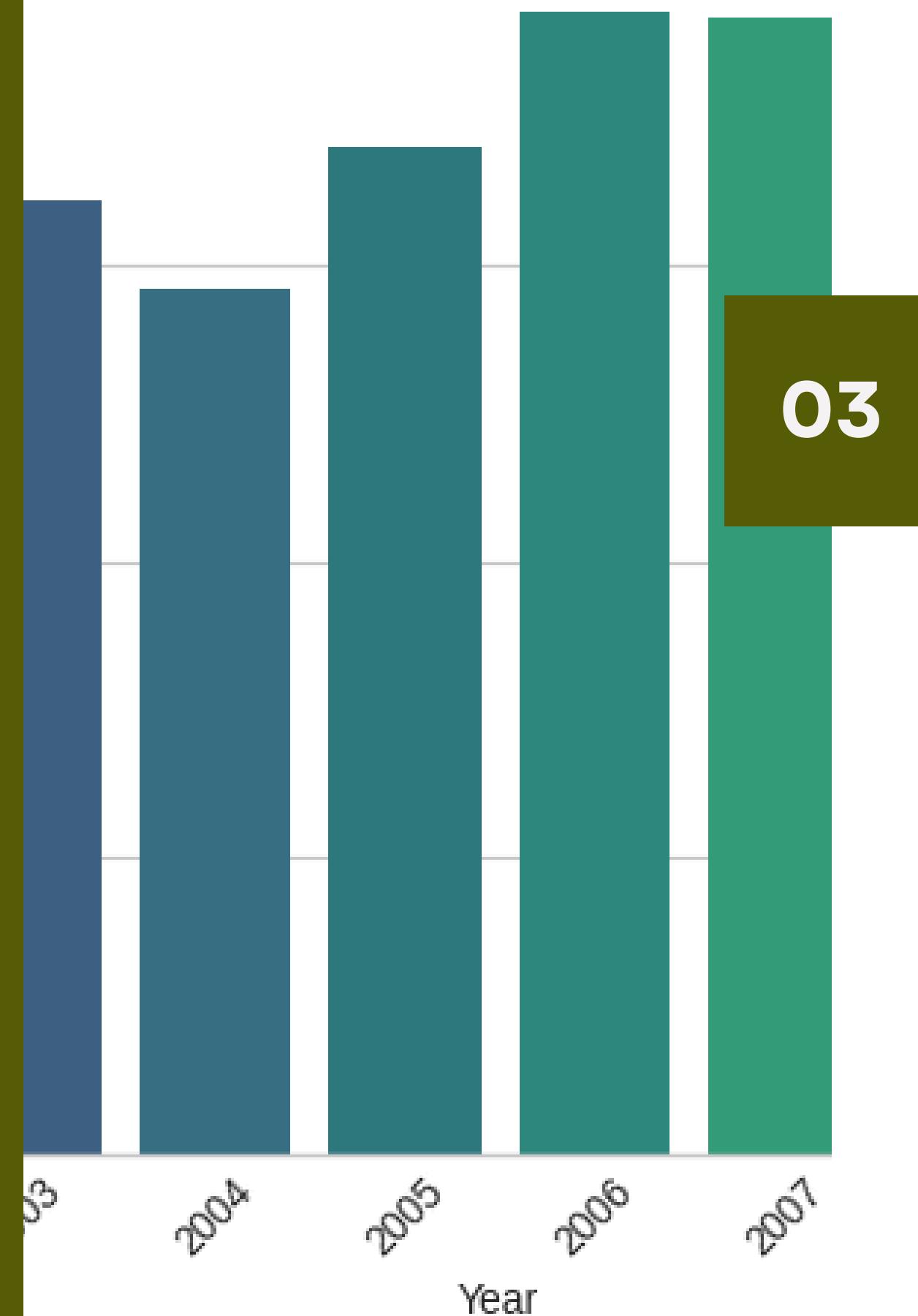


PROBLEM *Statement*

The nature of aircraft damage from bird strikes, which poses a significant risk to continued safe flight, varies according to the size of the aircraft. Small, propeller-driven aircraft are more likely to experience hazardous effects such as structural damage, including the penetration of flight deck windscreens or damage to control surfaces or the empennage. On the other hand, larger jet-engined aircraft are more likely to encounter hazardous effects from bird strikes in the form of engine ingestion consequences.



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OBJECTIVE

- Perform EDA (Exploratory Data Analysis)
- To visually depict the data collected on bird strikes using python .

GIVEN

Bird Strike
2000 - 2011
Data Set

TOOLS USED

Google colab, Python Programming language.

Libraries used: Pandas, Numpy, Matplotlib, Seaborn

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CASE STUDIES

- Visuals Depicting the Number of Bird Strikes.
- Yearly Analysis & Bird Strikes in the US.
- Top 10 US Airlines in terms of having encountered bird strikes.
- Airports with most incidents of bird strikes – Top 50.
- Yearly Cost Incurred due to Bird Strikes:
- When do most bird strikes occur?
- Altitude of aeroplanes at the time of strike
- Phase of flight at the time of the strike.
- Average Altitude of the aeroplanes in different phases at the time of strike
- Effect of Bird Strikes & Impact on Flight
- Effect of Strike at Different Altitude
- Were Pilots Informed? & Prior Warning and Effect of Strike Relation



Bird strike



KEY INSIGHTS

Yearly Analysis & Bird Strikes

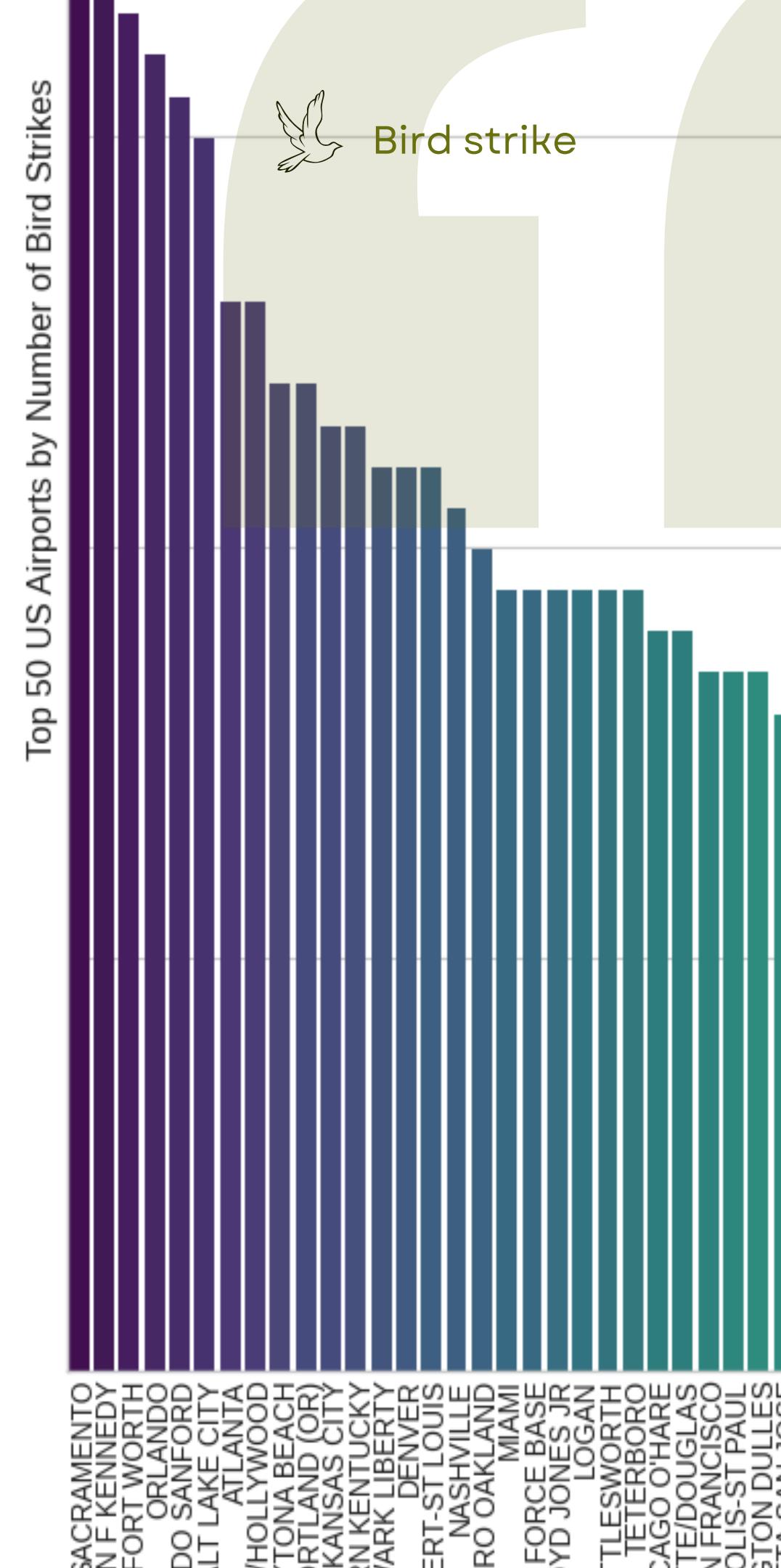
- High Bird Strike Year: 2009
- **Top 10 US Airlines with Most Bird Strikes:**
 - Business
 - Privately Owned
 - Southwest Airlines
 - Delta Airlines
 - American Airlines
 - Government
 - Military
 - Jet Blue Airways
 - Skywest Airlines
- **Airports with Most Bird Strike Incidents Top Airport Among the Top 50:** Sacramento
- **Yearly Cost Incurred Due to Bird Strikes Highest Cost Year:** 2011

Timing and Circumstances of Bird Strikes

- When Most Bird Strikes Occur: **During climb phases**
- Altitude at Time of Strike: **Above 3500 feet above ground**
- Phase of Flight at Time of Strike: **Climb phases**
- Effect of Bird Strikes & Impact on Flight: **Precautionary landing**

Additional Insights

- Effect of Strike at Different Altitudes: **Precautionary landing**
- Were Pilots Informed? **Yes**
- Prior Warning and Effect of Strike Relation: **Precautionary landing**



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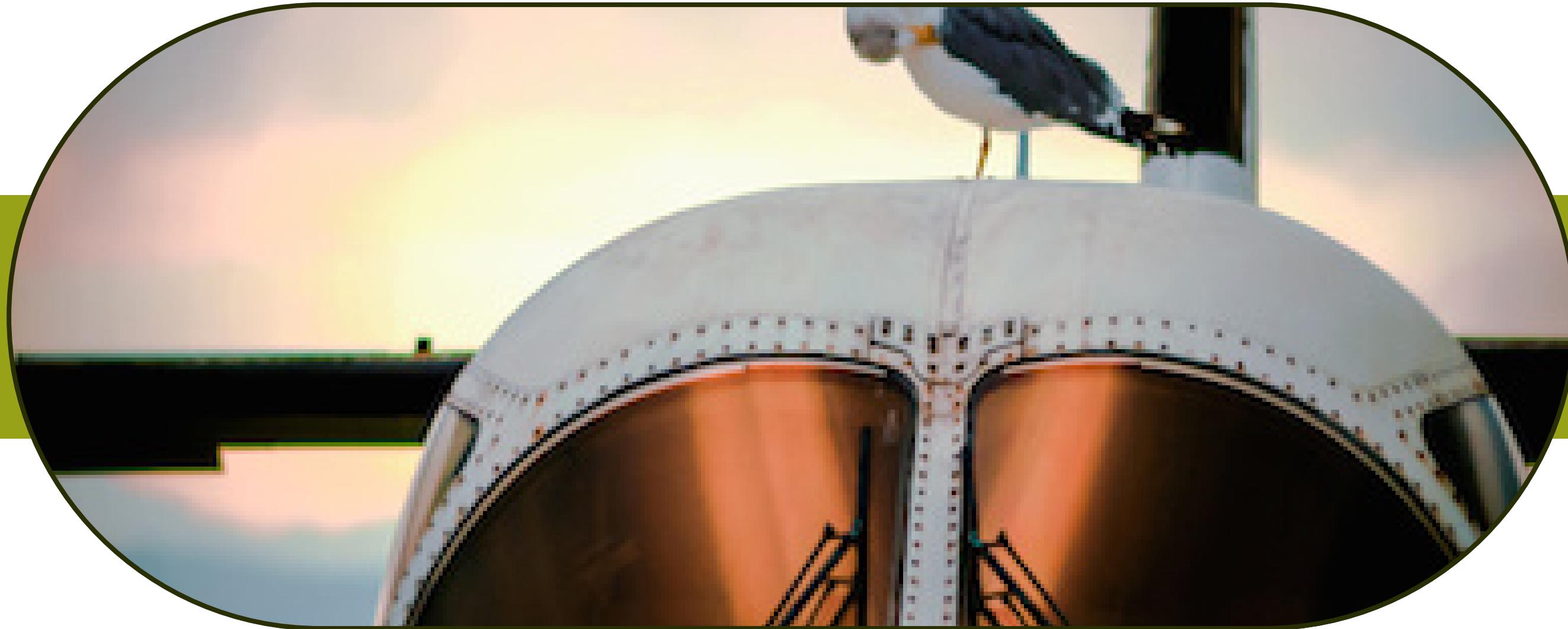
PYTHON

Performed EDA (Exploratory Data Analysis)

- In the given dataset, the 'Flight Date' column were initially in string format and 'Cost: Total \$' which was in object format. Converted them to datetime and int datatype respectively using Python.
- Checked for null and duplicate values in the dataset. Removed all the duplicate/ null values
- Visualised the dataset using Matplotlib and seaborn libraries.



THANK YOU!



Bird strike

