



# Analysis of Bird Strikes: Trends, Impacts, and Insights

A Study Using FAA Data (2000-2011)



# Importance of Transport and Communication Analytics

## I. Introduction

- **Transport and Communication Systems:**
  - Backbone of economic development
  - Key to societal connectivity and efficiency



## 2. Significance of Transport Analytics

- **Safety and Efficiency:**

- Identifies patterns and risks
- Enhances safety measures and routing

- **Cost Reduction:**

- Identifies inefficiencies
- Optimizes routes and reduces fuel consumption

- **Urban Planning:**

- Assists in infrastructure planning
- Addresses congestion and improves public transit

- **Environmental Impact:**

- Assesses emissions and promotes sustainability

### **3. Significance of Communication Analytics**

- **Operational Efficiency:**

- Improves communication processes
- Enhances internal and external operations

- **Customer Experience:**

- Tailors services to customer needs
- Enhances satisfaction and engagement

- **Crisis Management:**

- Evaluates response effectiveness
- Improves emergency communication strategies

- **Decision-Making:**

- Supports informed decisions
- Adapts to market changes and trends



## **4. Conclusion**

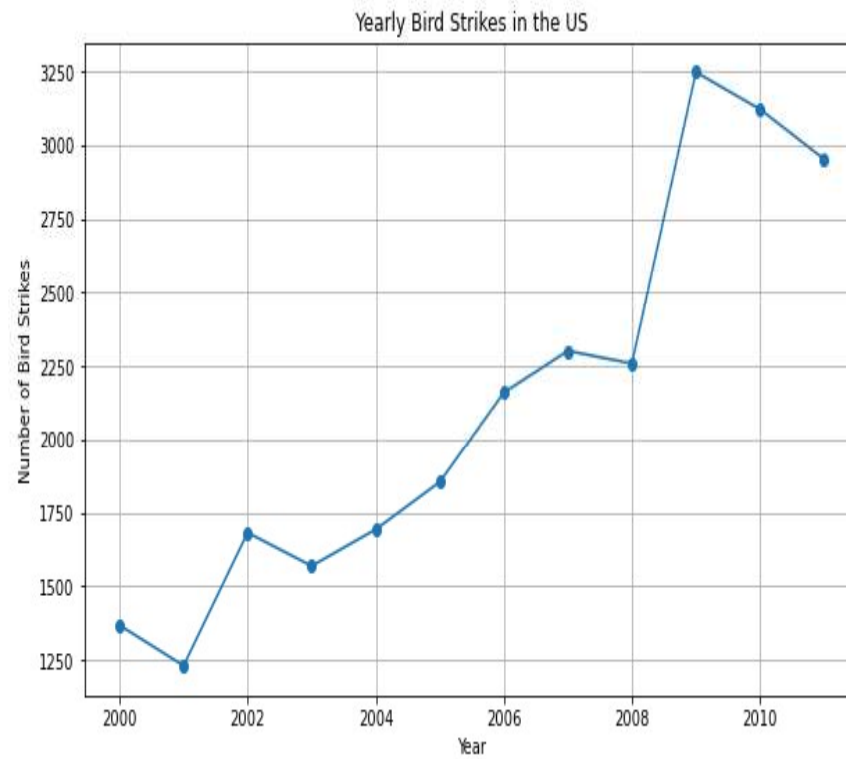
- Leveraging analytics in transport and communication
- Enhances safety, efficiency, and sustainability
- Addresses modern challenges and demands



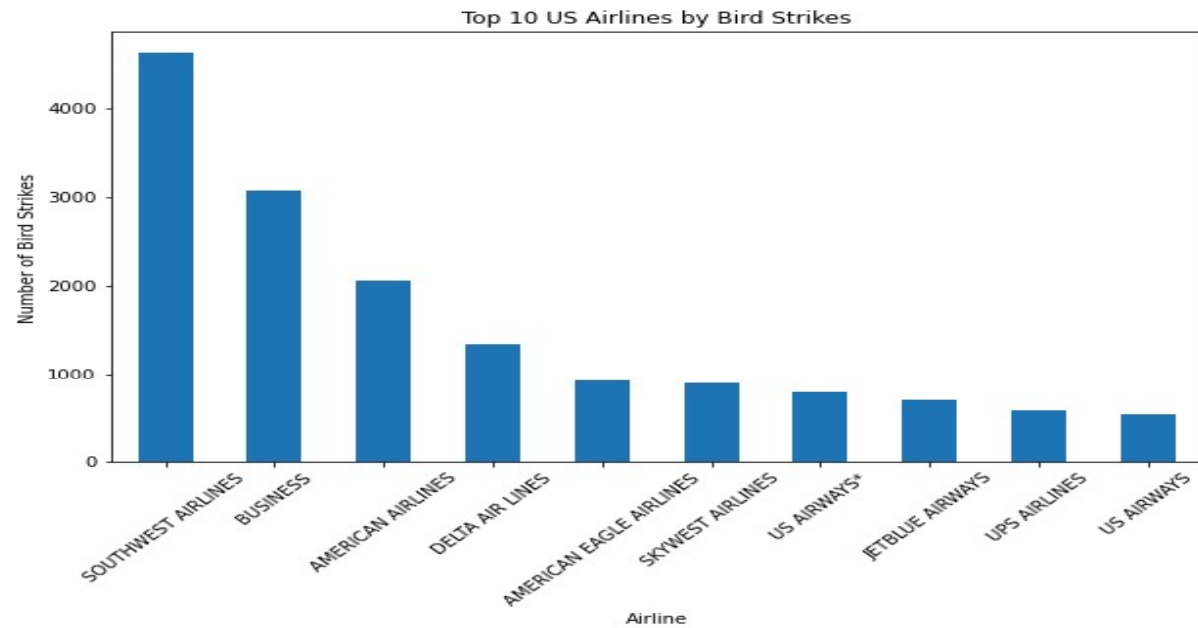
# Objectives

- **Purpose of the Analysis**
- **Understand Patterns:**
  - Examine bird strike data to identify trends and recurring patterns.
- **Assess Impacts:**
  - Analyze the effects of bird strikes on aircraft safety and operations.
- **Timing Insights:**
  - Determine when bird strikes occur most frequently (e.g., time of day, flight phase).
- **Effect and Consequences:**
  - Evaluate the impact of bird strikes on flight performance and aircraft damage.

## Visuals Depicting Number of Bird Strikes

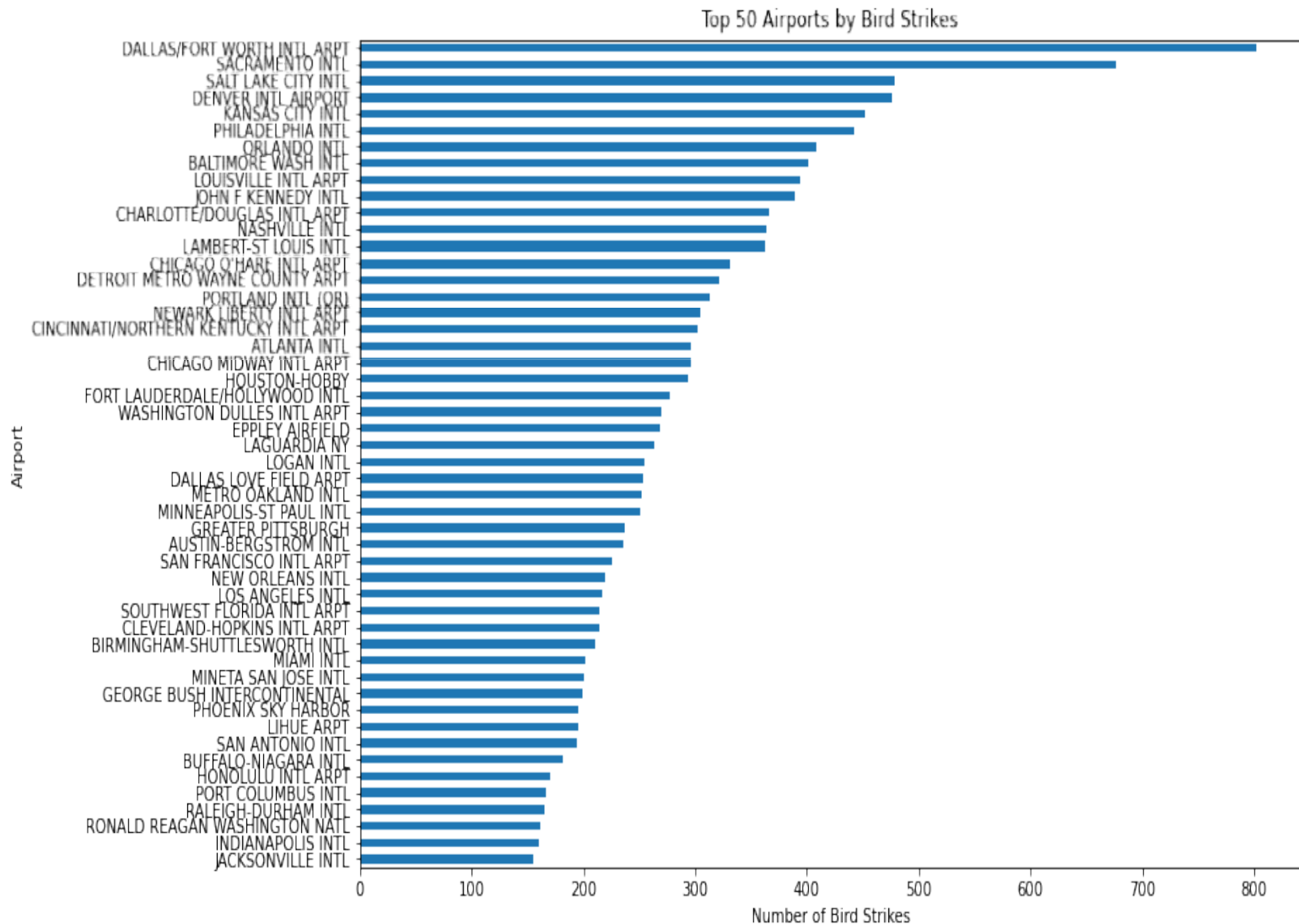


# Top 10 US Airlines with Bird Strikes





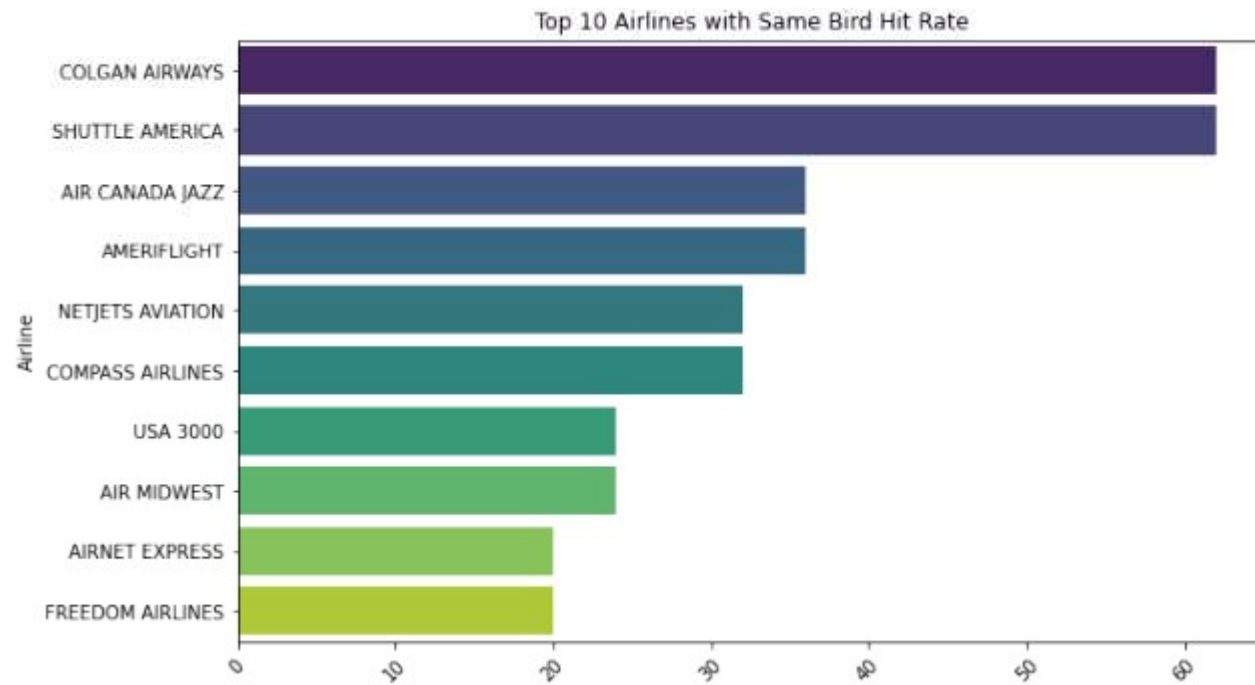
# Top 50 Airports with Most Incidents



# Cost Incurred By Airlines Top 10 (10 Years)

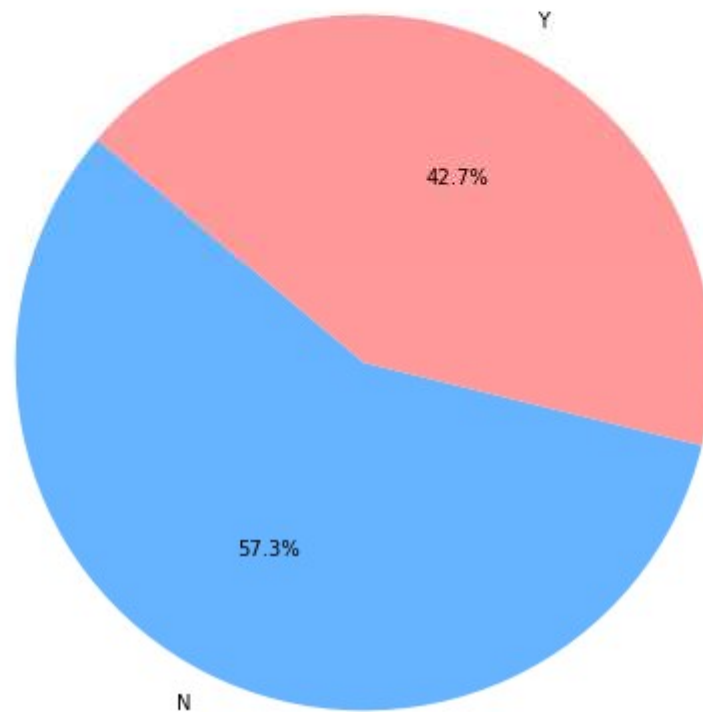
Airline	Cost Incurred in \$
BUSINESS	53959966
UNITED AIRLINES	11917446
DELTA AIR LINES	8316089
FEDEX EXPRESS	7545533
UPS AIRLINES	7124621
HAWAIIAN AIR	5736080
THOMSONFLY	4570000
AMERICAN AIRLINES	4541235
ALASKA AIRLINES	3367651
FRONTIER AIRLINES	3017664

# Top 10 Airlines with same bird hit rate



# Pilot Awareness

Were Pilots Informed About Birds or Wildlife?

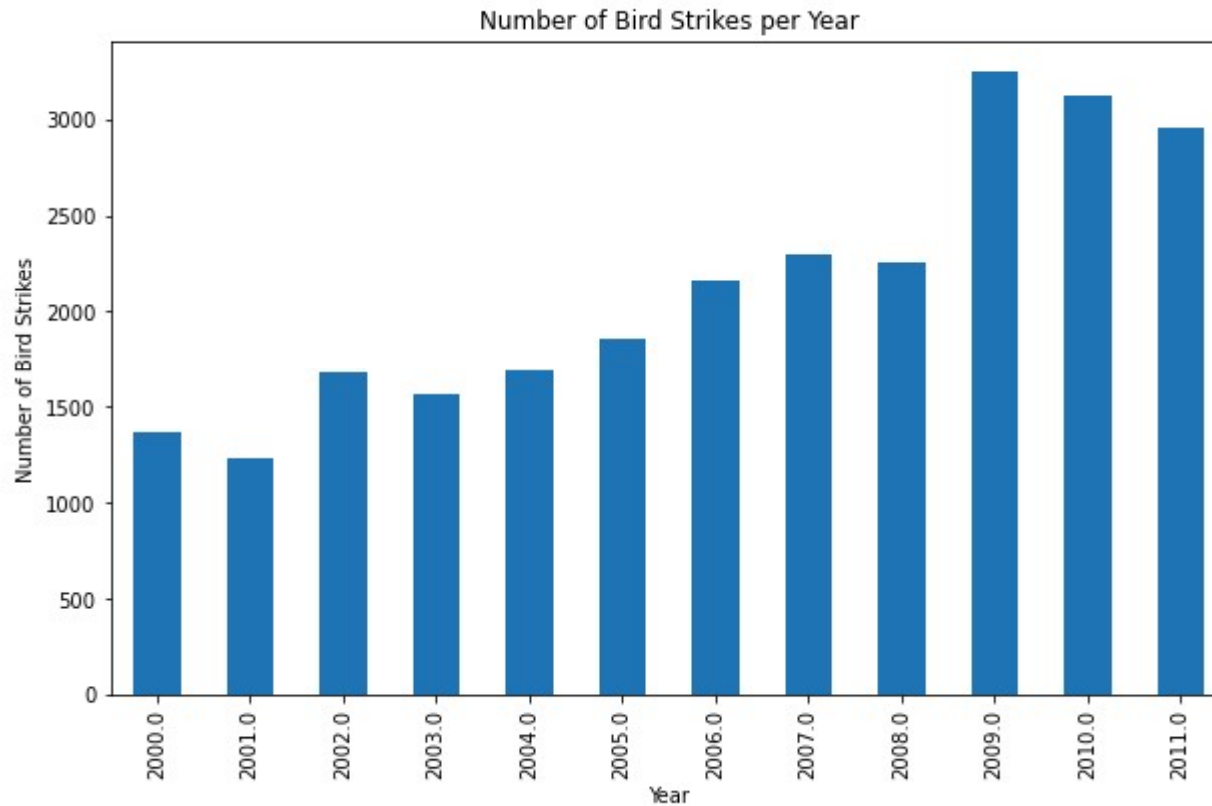


Pilots warned

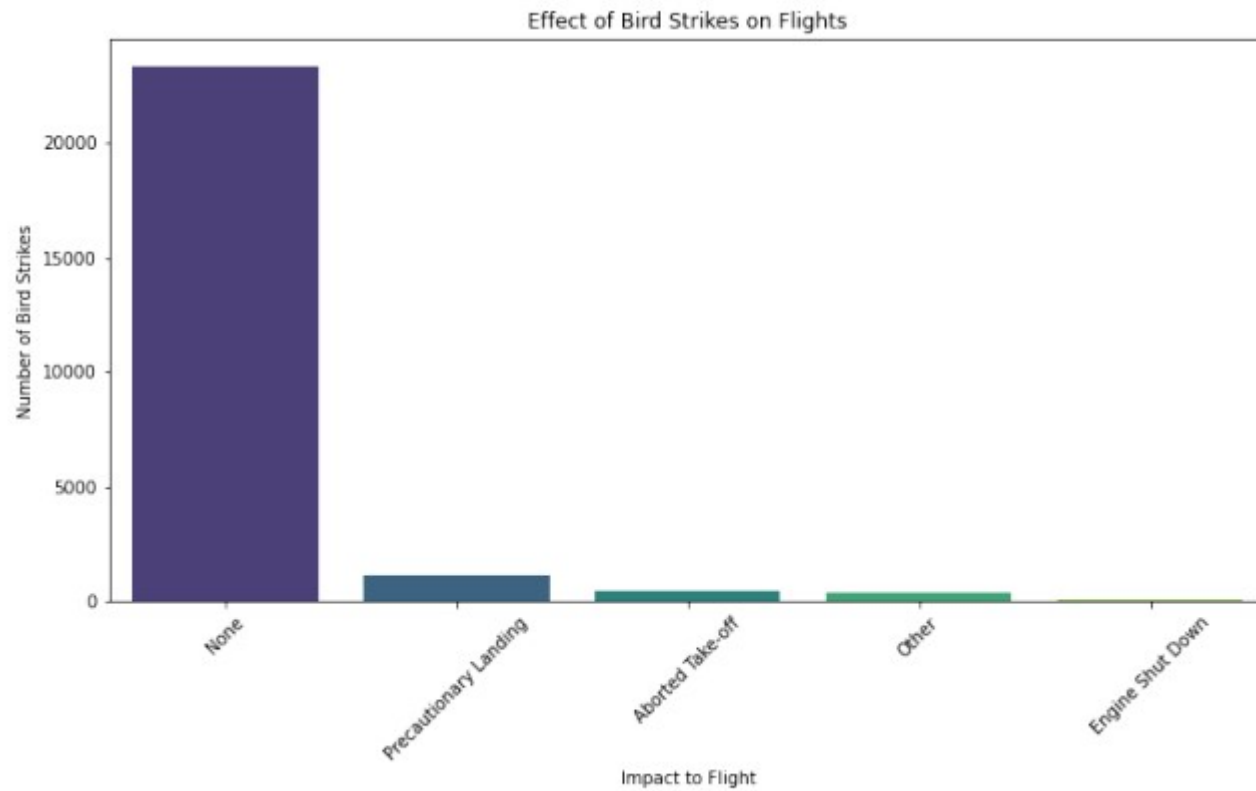
**NO** = 14,567

**YES** = 10,862

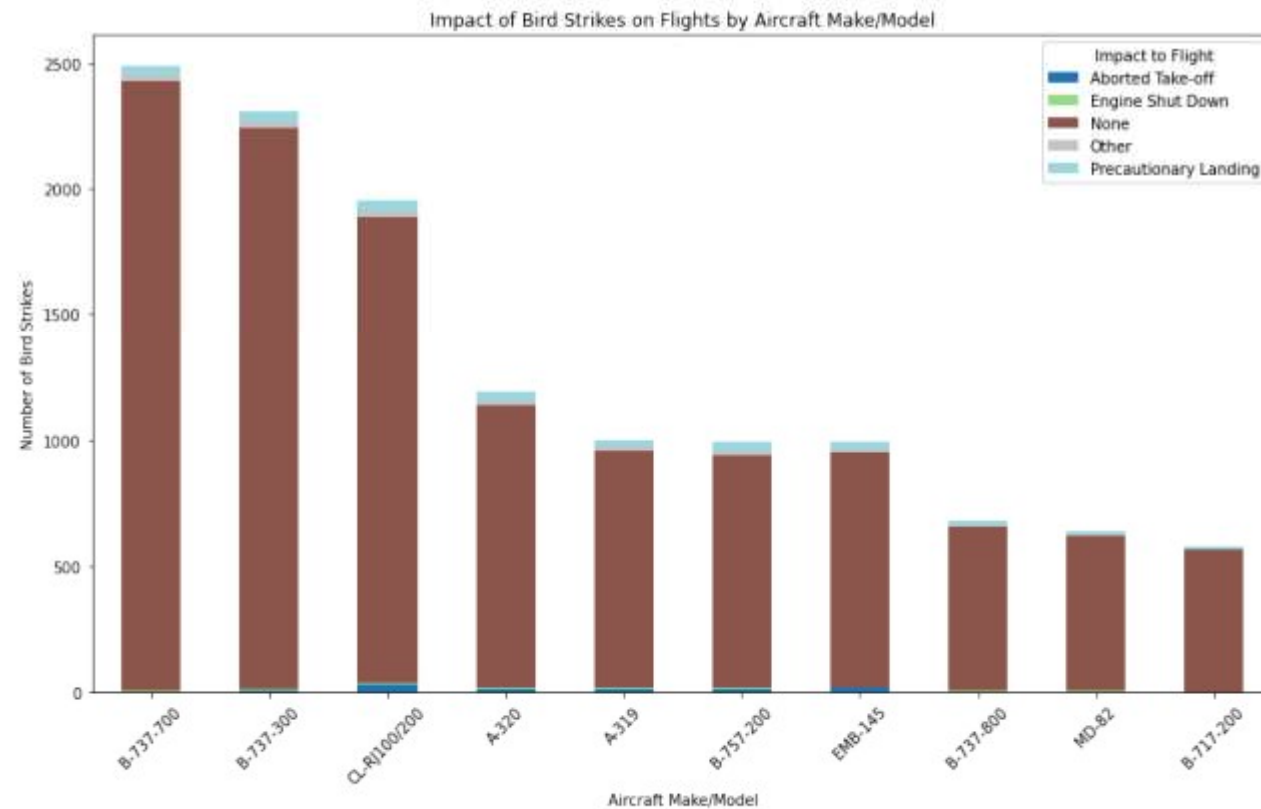
# Number of Birds Strikes per year



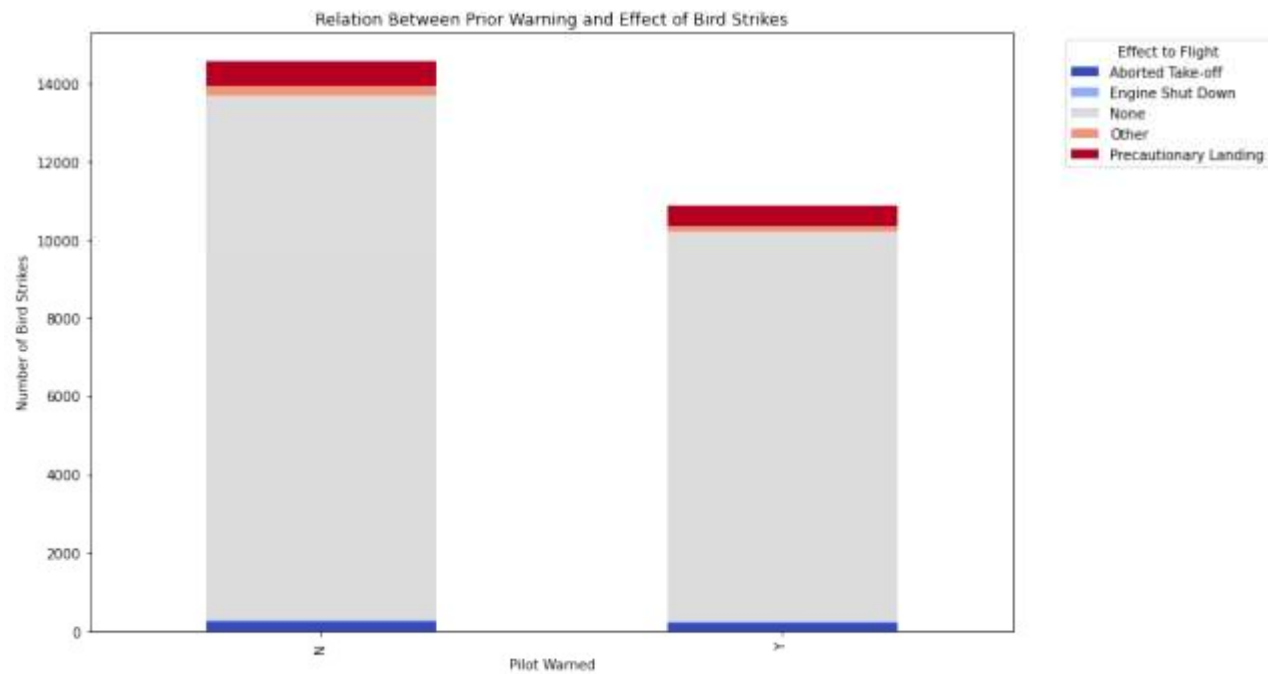
# Effects of Bird Strikes on Flights



# Impact of Bird Strikes by Aircraft Model



# Relation after Warning of Bird Strike

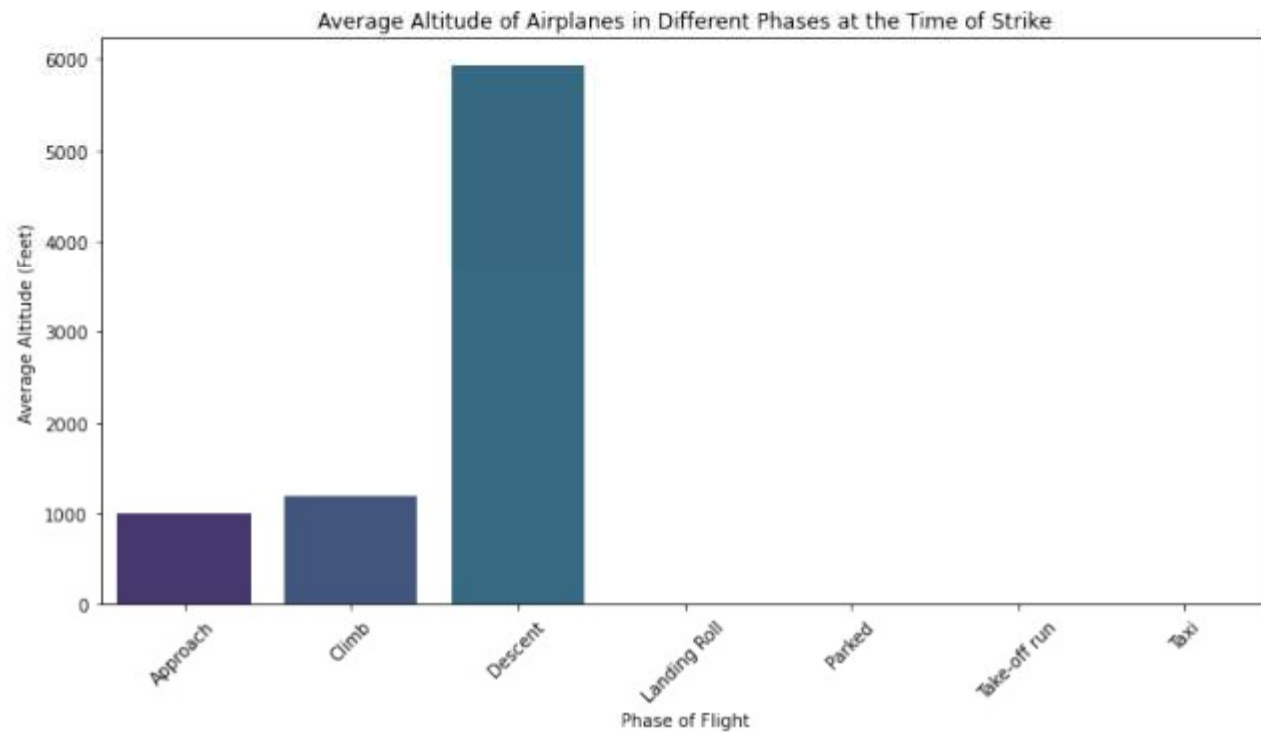




# Phase of Planes at time of Bird Strike

PM

Bird Strikes Data





# Key Findings and Implications

- **Overall Trend:** The total number of bird strikes peaked at 2009. Since then there has been a gradual decline in bird strikes from 2010 and 2011
- **Most Affected Phases:** The most affected phases was the decent followed by climb and approach.



# Implications

## Safety Measures:

- **Wildlife Management:** Implement improved wildlife detection and control measures at airports.
- **Aircraft Design:** Consider design enhancements to reduce bird strike damage.

## Regulations and Protocols:

- **Policy Updates:** Revise aviation regulations to better address bird strike risks.
- **Training:** Update pilot and crew training to include new best practices for bird strike prevention.



## **Cost Management:**

- **Economic Impact:** Develop strategies to mitigate the financial impact of bird strikes on airlines.
- **Investment:** Encourage investment in technology and research to reduce bird strike occurrences.

## **Further Research:**

- **Ongoing Monitoring:** Continue tracking bird strike data and refine strategies based on new findings.
- **Data Collection:** Enhance data collection methods for more detailed analysis.



# Suggestions to Reduce Bird Strikes and Improve Safety

## **Enhanced Wildlife Management:**

- Implement advanced wildlife detection and deterrent systems at airports.
- Develop comprehensive wildlife control programs to minimize bird strikes.

## **Aircraft Design Improvements:**

- Explore and implement design modifications to reduce damage from bird strikes.
- Invest in bird-resistant technologies and materials.



## **Regulatory Changes:**

- Update and enforce stricter aviation regulations to manage bird strike risks effectively.
- Introduce new guidelines for wildlife management at airports.

## **Pilot and Crew Training:**

- Enhance training programs for pilots and ground crew on bird strike prevention and response.
- Regularly update training materials based on the latest research and best practices.

## **Technology Investment:**

- Invest in new technologies for detecting and mitigating bird strikes.
- Support research and development for innovative solutions to reduce bird strike incidents.



**Thank You!!!**