DATA VISUALIZATION OF BIRD STRIKES BETWEEN 2000 – 2011

UNIFIED MENTOR INTERNSHIP – PROJECT 2

BY
M POOJA

CONTENTS

INTRODUCTION

The Bird Strikes project focuses on analyzing data related to bird strikes, specifically **collisions between birds and aircraft** during flight or on take-off or landing.

The dataset, collected by the FAA between 2000-2011, provides insights into the frequency and impact of these incidents, including details about the aircraft involved, altitude, phase of flight, environmental conditions, and the outcomes of the strikes.

The **objective** is to understand the **patterns, risks, and potential safety measures** associated with bird strikes, utilizing Python for data analysis and visualization.

The project aims to contribute to aviation safety by extracting meaningful information from the dataset and providing a comprehensive **overview of bird strike incidents over the specified period**.

METHODOLOGY USED

The methodology employed in the Bird Strikes project involves a structured approach to analyzing and interpreting the dataset collected by the FAA between 2000-2011. The key steps include

- data importing, cleaning, and preprocessing to ensure data quality and integrity.
- Python is used as the primary programming language, and libraries such as pandas, matplotlib, and numpy are utilized for data manipulation, analysis, and visualization.

The analysis explores various aspects of bird strikes, including **yearly trends, the top airlines and airports affected, the altitude of aircraft during strikes, and the impact on flight phases**.

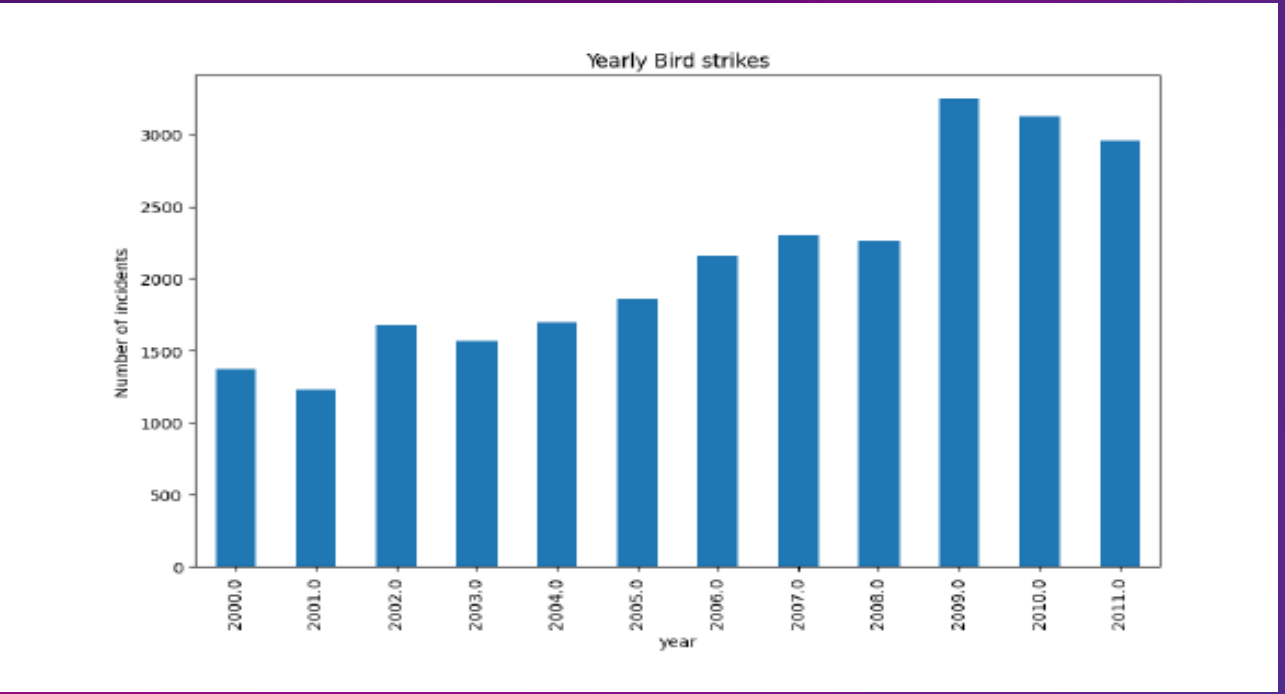
Descriptive statistics and visualizations, such as bar charts, pie charts, and area charts, are employed to present the findings effectively.

The goal is to gain insights into the patterns and factors contributing to bird strikes, providing valuable information for aviation safety and decision-making.

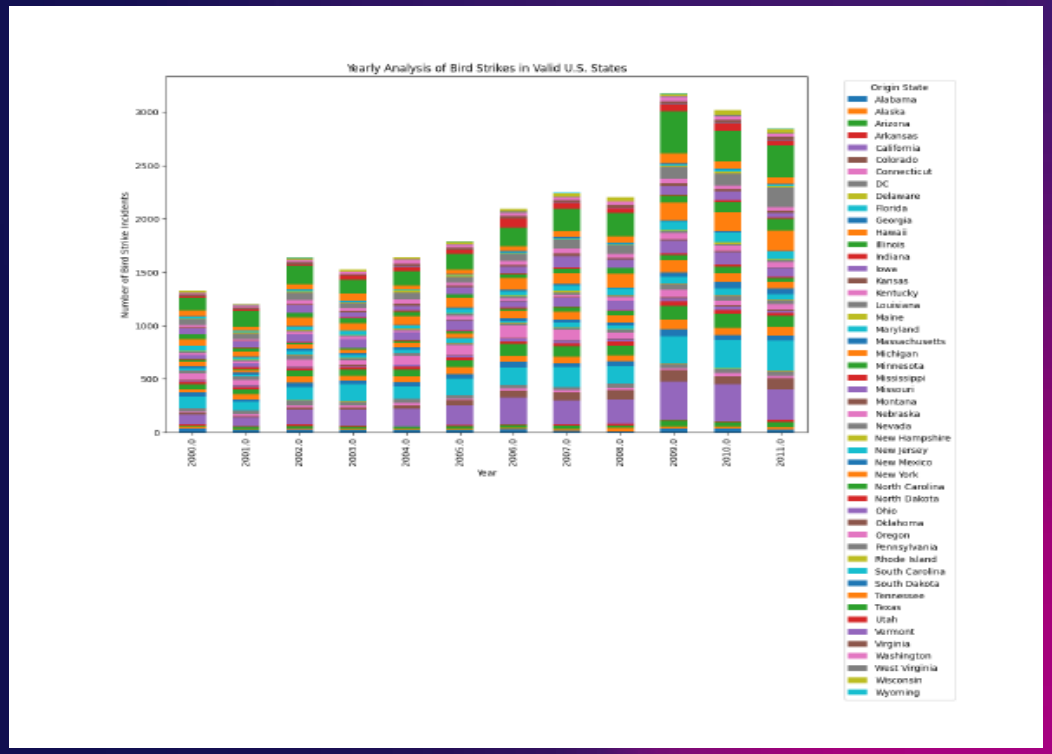
INFERENCES

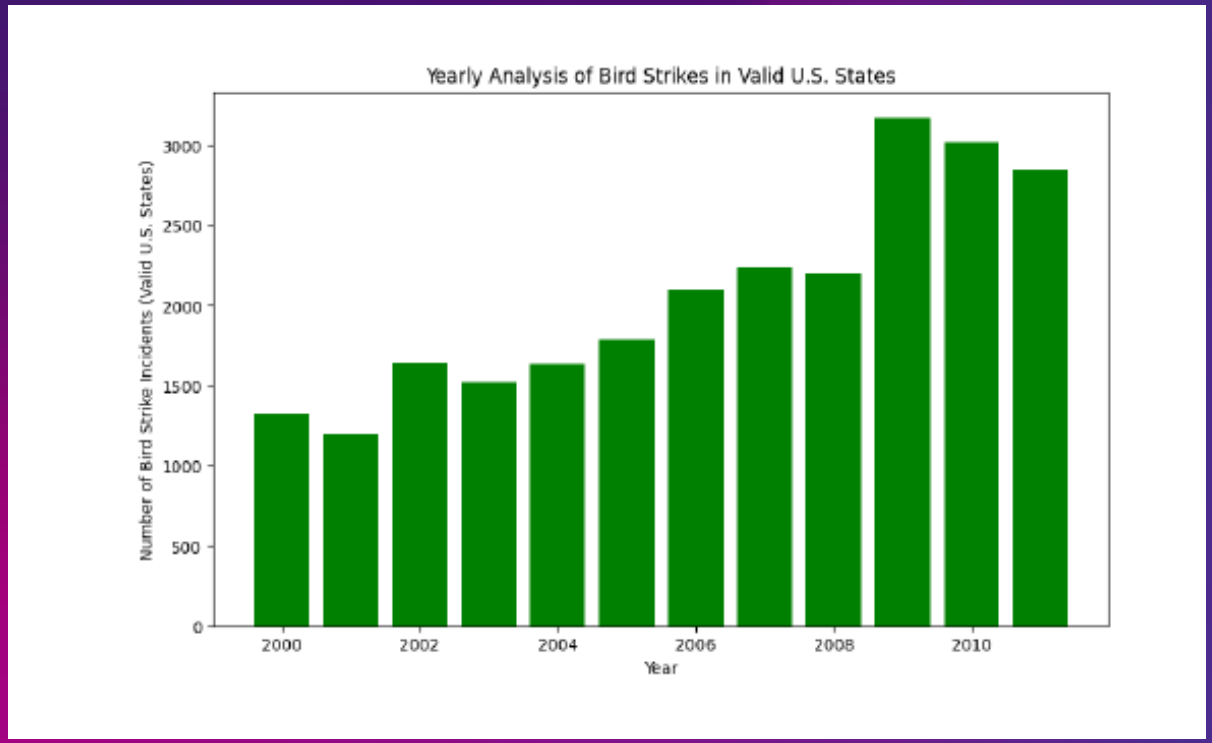
YEARLY ANALYSIS

2000.0	1367
2001.0	1230
2002.0	1681
2003.0	1568
2004.0	1692
2005.0	1853
2006.0	2159
2007.0	2301
2008.0	2258
2009.0	3247
2010.0	3121
2011.0	2952

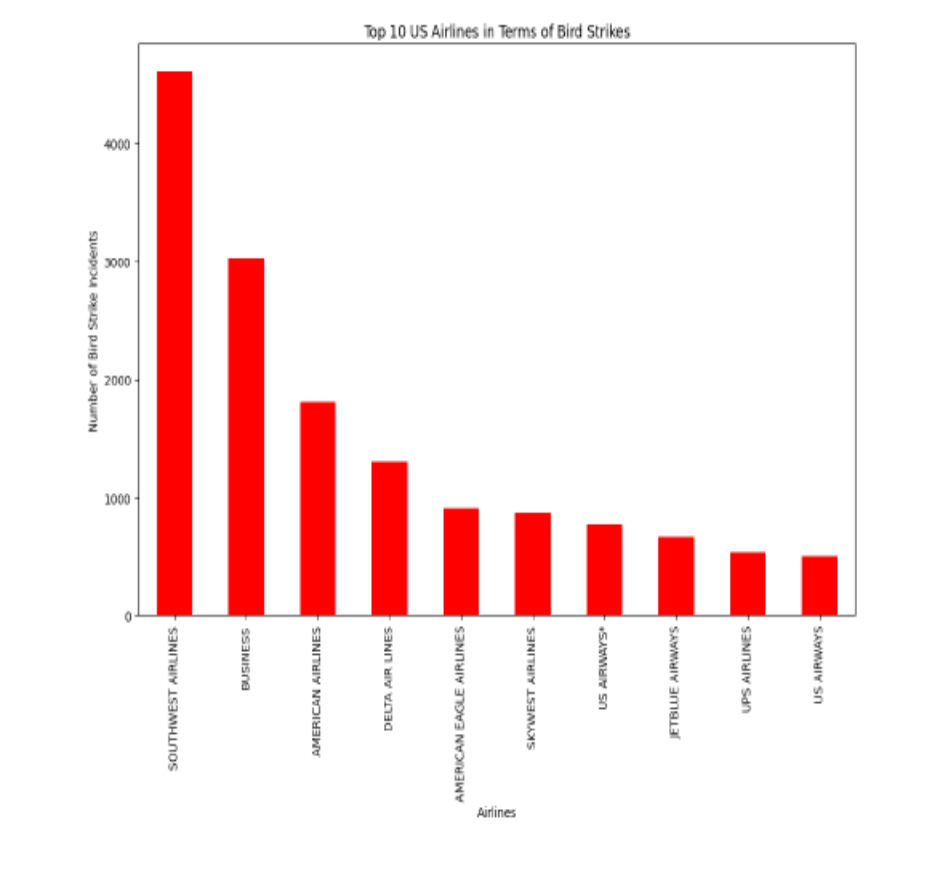


YEARLY ANALYSIS & BIRD STRIKES IN US

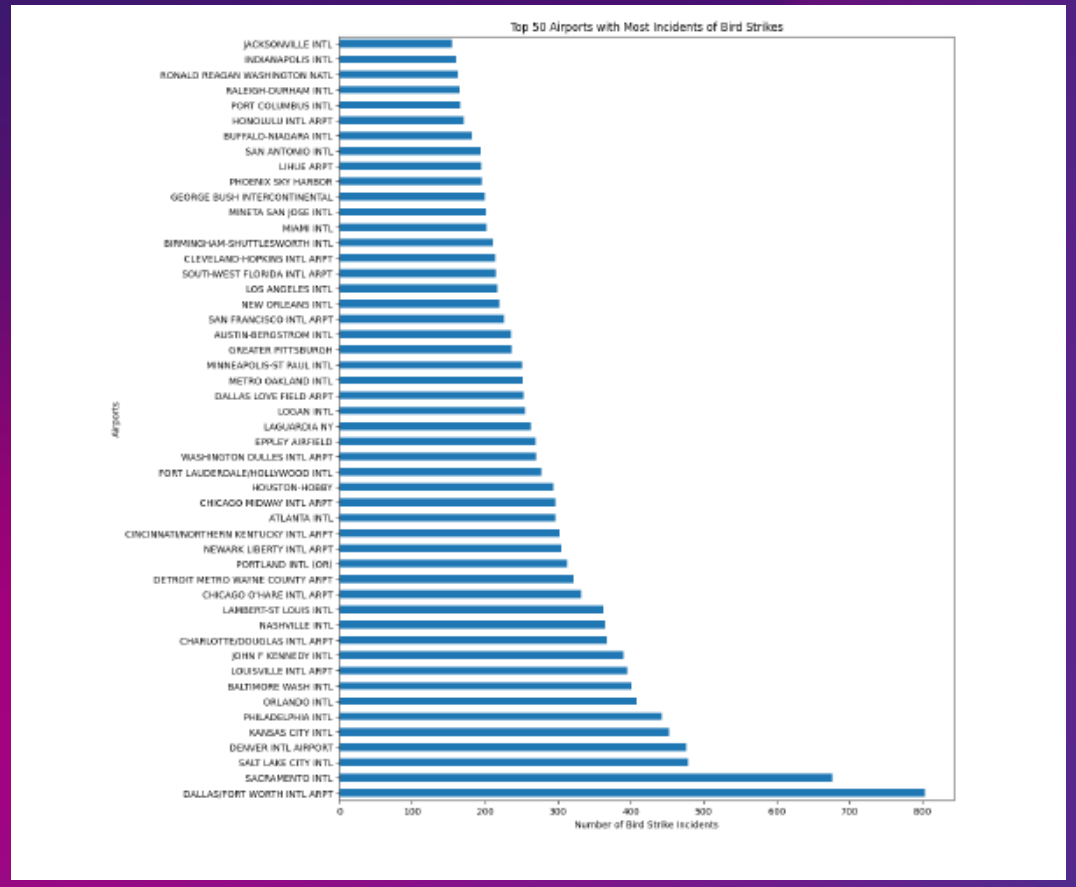




Top 10 US Airlines for encountering bird strikes

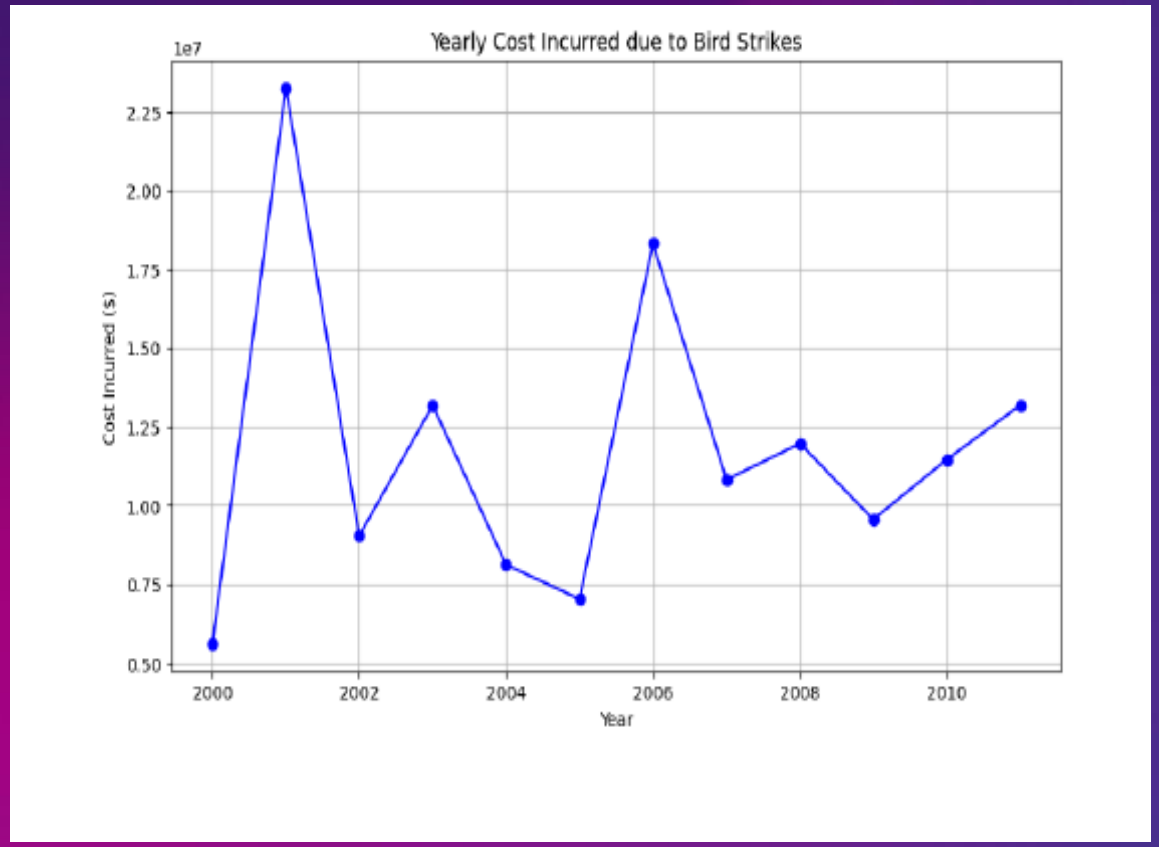


Top 50 Airports with most incidents of bird strikes



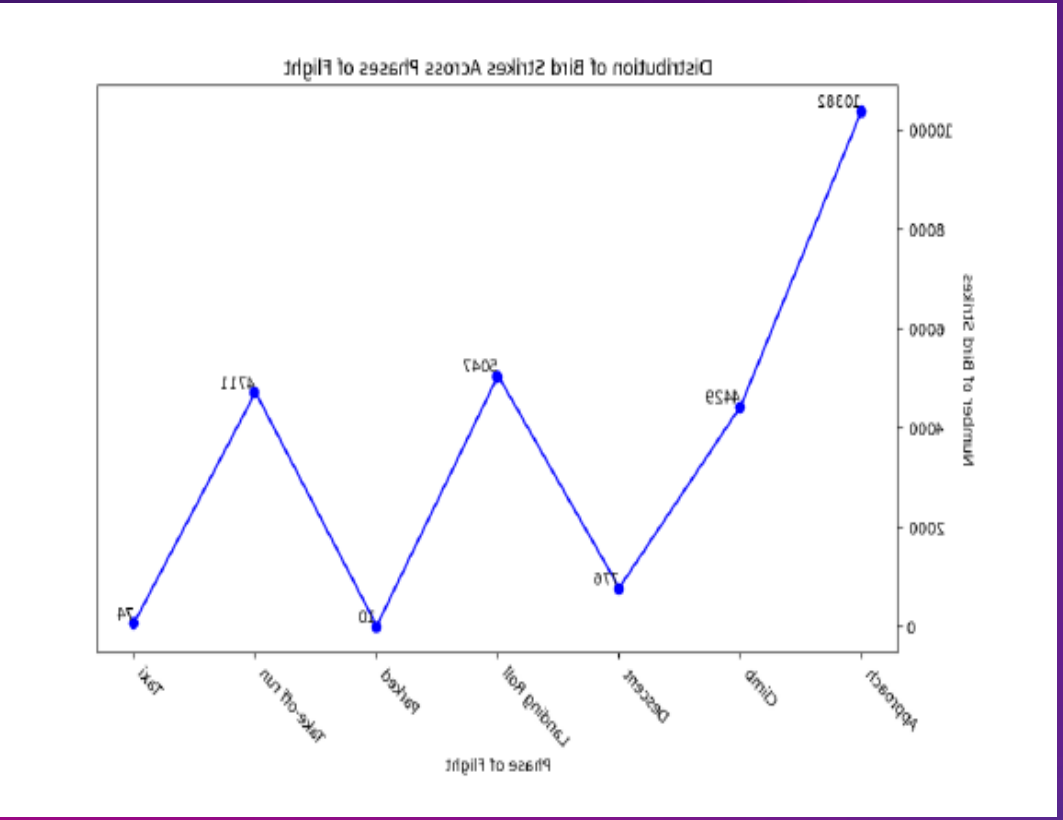
Yearly cost incurred due to bird strikes

2000.0	5625496
2001.0	23252168
2002.0	9046405
2003.0	13176787
2004.0	8116866
2005.0	7026670
2006.0	18309903
2007.0	10822426
2008.0	11966121
2009.0	9564327
2010.0	11459879
2011.0	13180130

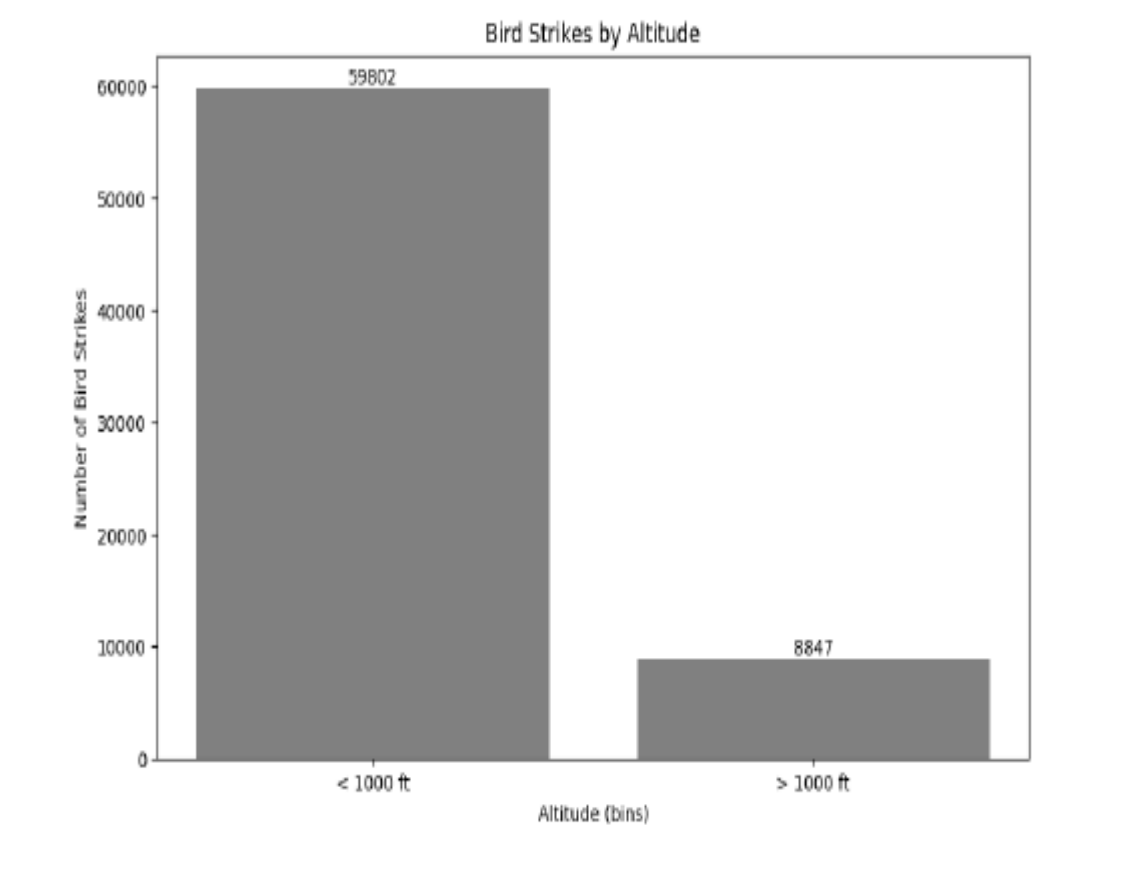


When do most bird strikes occur?

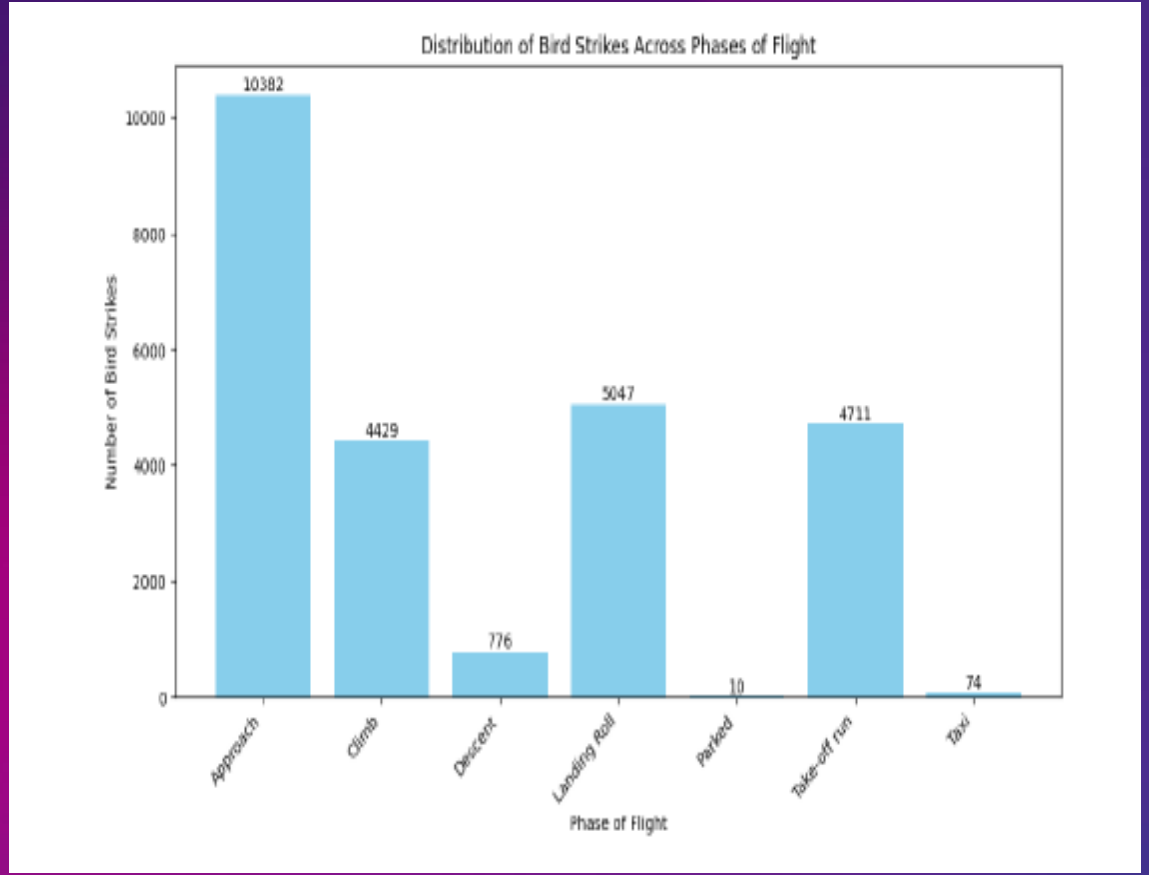
Approach	10382
Landing Roll	5047
Take-off run	4711
Climb	4429
Descent	776
Taxi	74
Parked	10



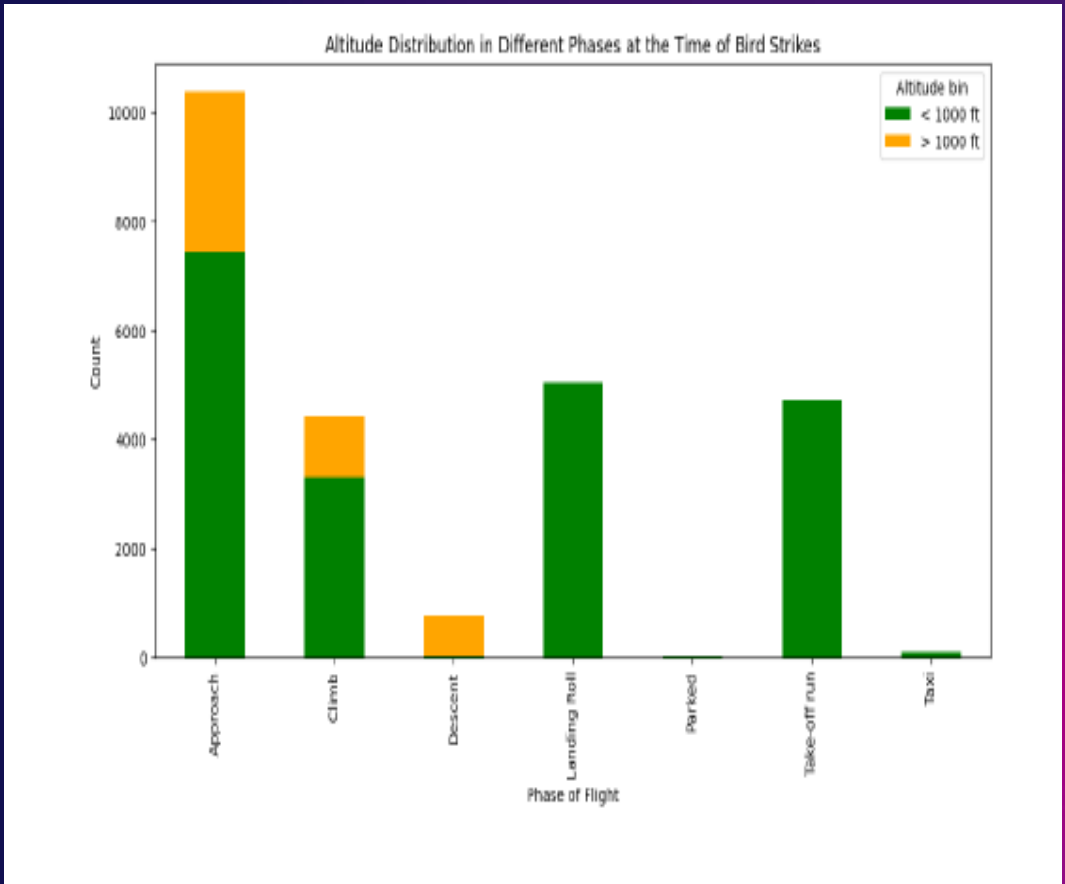
Altitude of aeroplanes at the time of strike



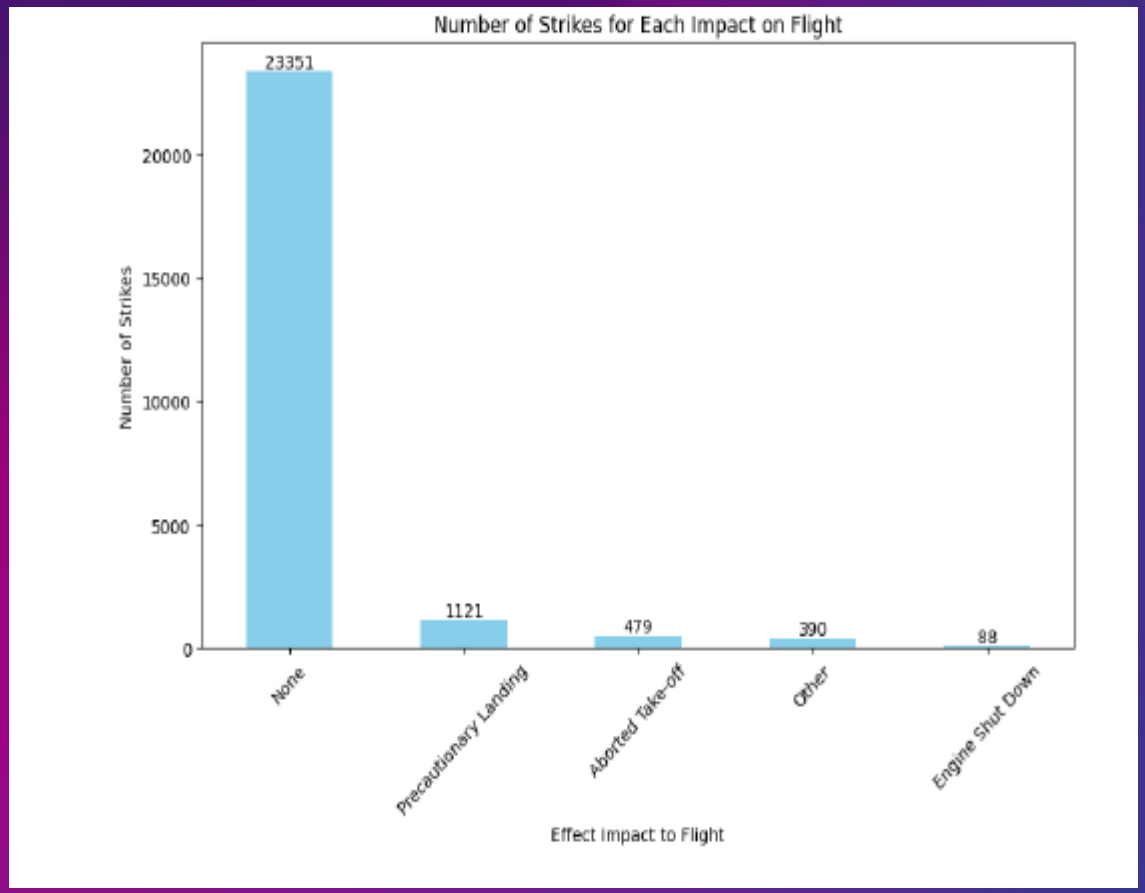
Phase of flight at the time of strike



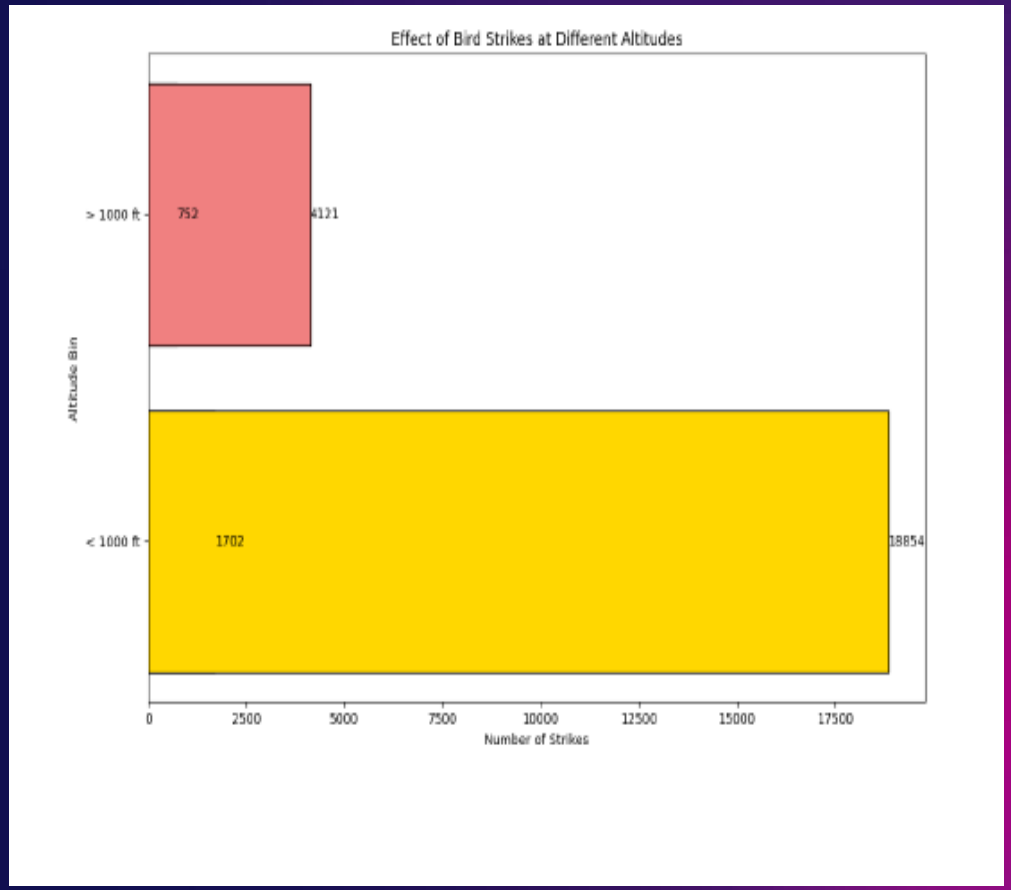
Average altitude of aeroplanes in different phases at the time of strike.



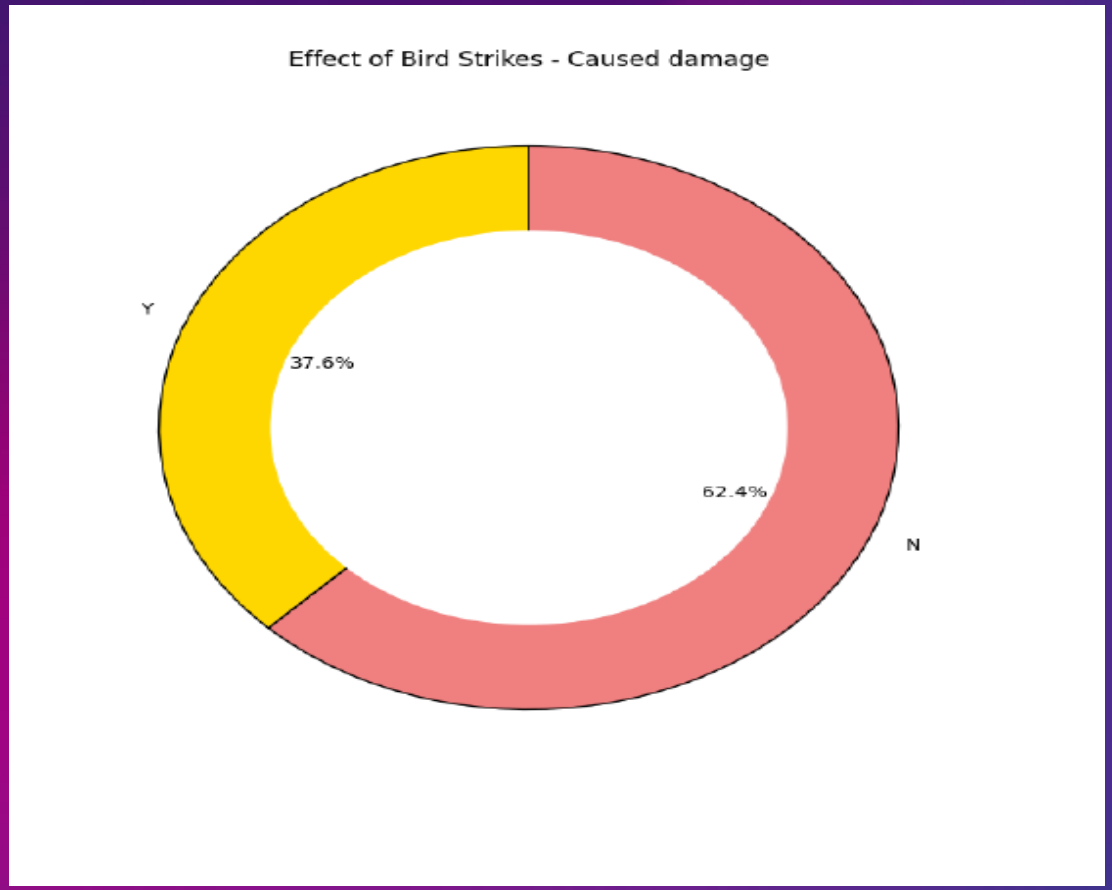
Effect of bird strikes & impact on flight



Effect of strike at different altitude



Prior Waring given to Pilots?



CONCLUSION

The findings contribute to our understanding of **bird strike patterns**, enabling informed decision-making for aviation safety measures.

As a foundation for future work, the project suggests **opportunities for advanced modeling, risk assessment, and the development of targeted strategies to minimize the risk** and impact of bird strikes.

The comprehensive analysis undertaken serves as a valuable resource for aviation stakeholders, guiding them in enhancing safety protocols and shaping the future of bird strike prevention in the industry.

THANK YOU

M POOJA

poojaofficial968@gmail.com

www.linkedin.com/in/pooja-m-083556284