



<b>Project Title</b>	Data Visualization of Bird Strikes between 2000 – 2011
<b>Technologies</b>	Data Science
<b>Domain</b>	Transportation and Communication
<b>Project Difficulties level</b>	Advanced

### **Problem Statement:**

Transport and communication are in the crucial domain in the field of analytics. Environmental impacts and safety are, nowadays, two major concerns of the scientific community with respect to transport scenarios and to the ever-growing urban areas. These issues gain more importance due to the increasing amount of vehicles and people. Seeking new solutions is reaching a point where available technologies and artificial intelligence, especially MAS, are being recognized as ways to cope with and tackle these kinds of problems in a distributed and more appropriate way.

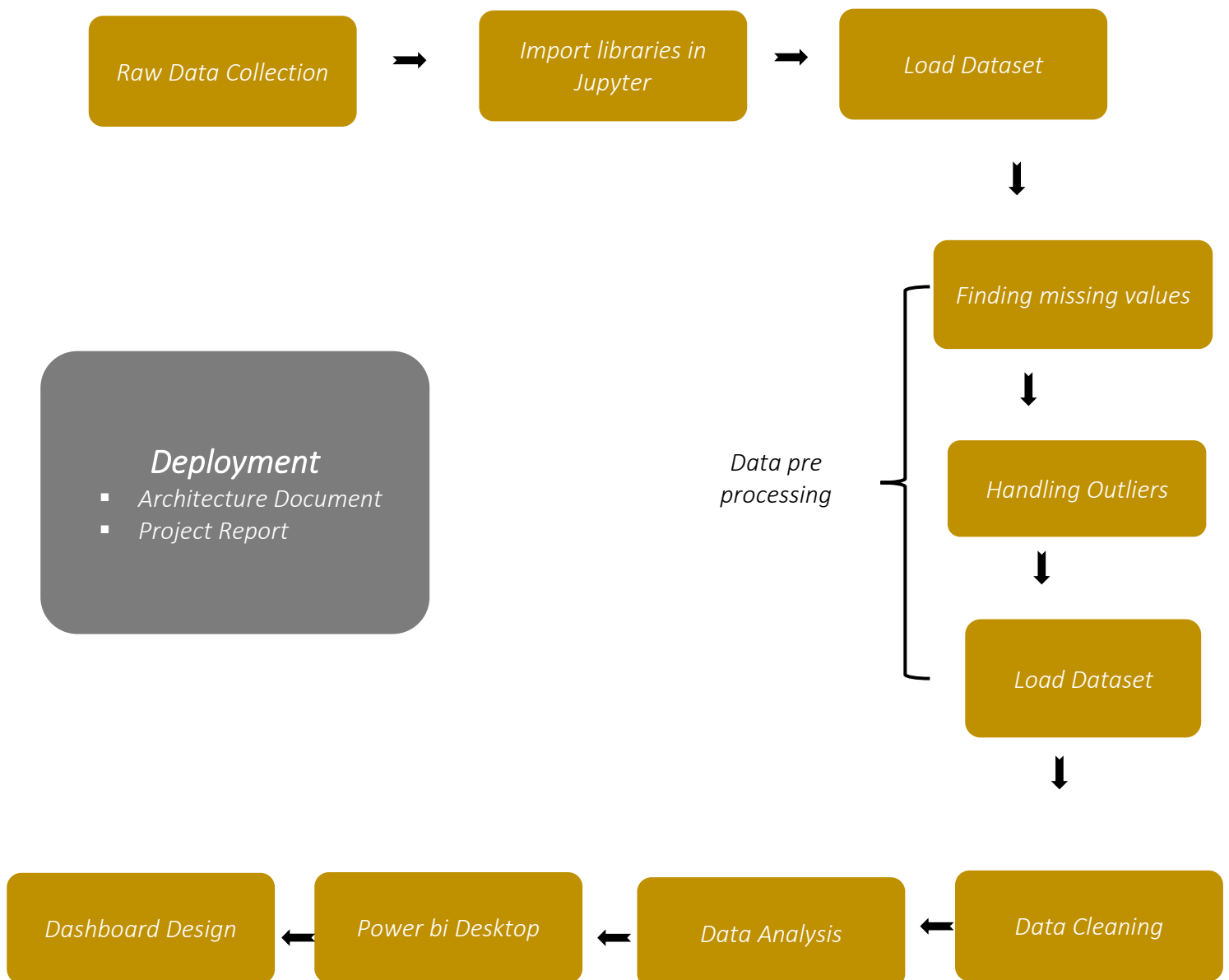
A bird strike is strictly defined as a collision between a bird and an aircraft which is in flight or on a take-off or landing roll. The term is often expanded to cover other wildlife strikes - with bats or ground animals. Bird Strike is common and can be a significant threat to aircraft safety. For 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 several fatal accidents.

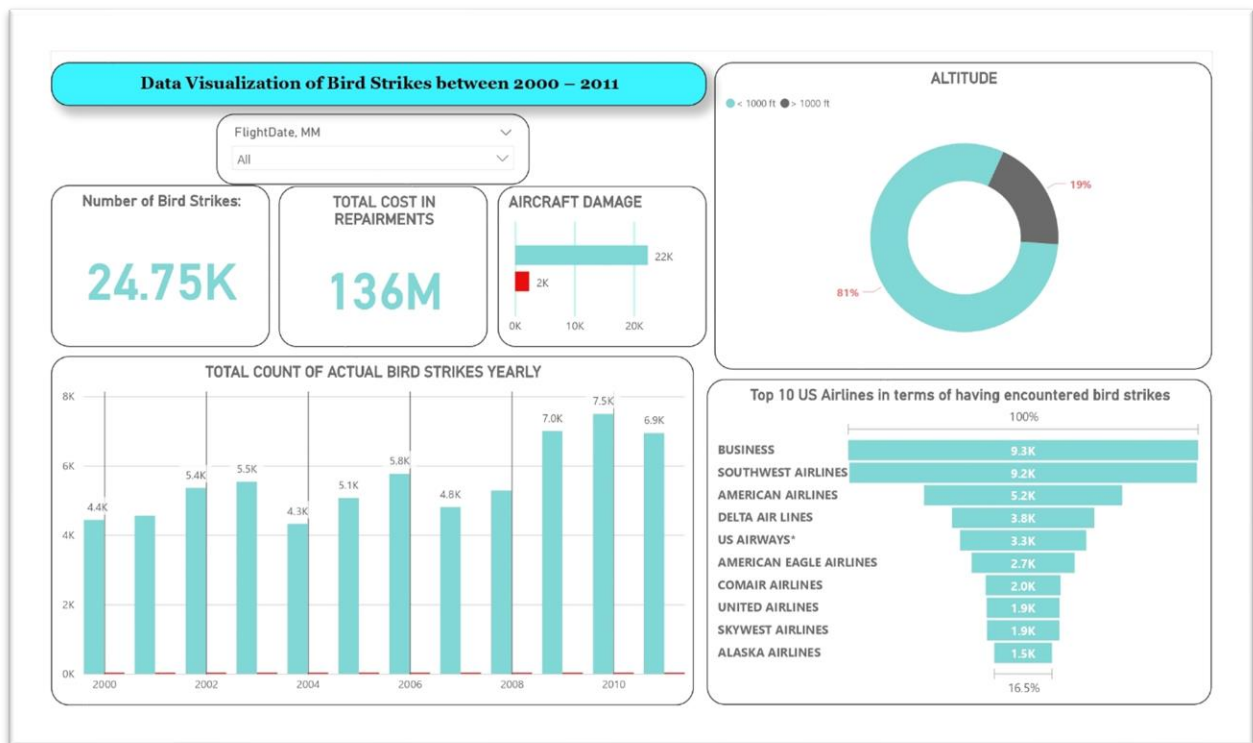
Bird strikes may occur during any phase of flight, but are most likely during the take-off, initial climb, approach and landing phases due to the greater numbers of birds in flight at lower levels. To have a closer look the following document visually depicts the data collected on Bird Strikes by FAA between 2000-2011.

## Dataset

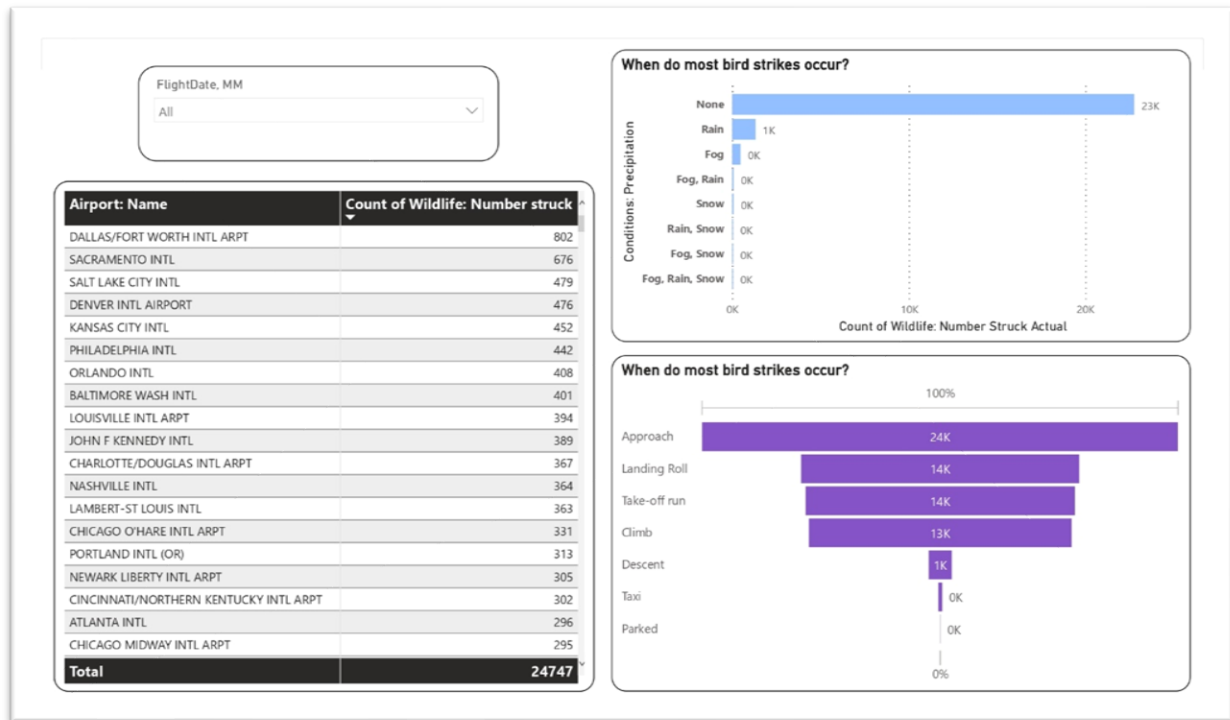
This is a Sales related dataset that contains Information like Phase of flight, Precipitation, Cost: Total, Pilot warned of birds or wildlife, Number of people injured, Feet above ground, Flight Date, Impact to flight etc.

## Architecture Design:

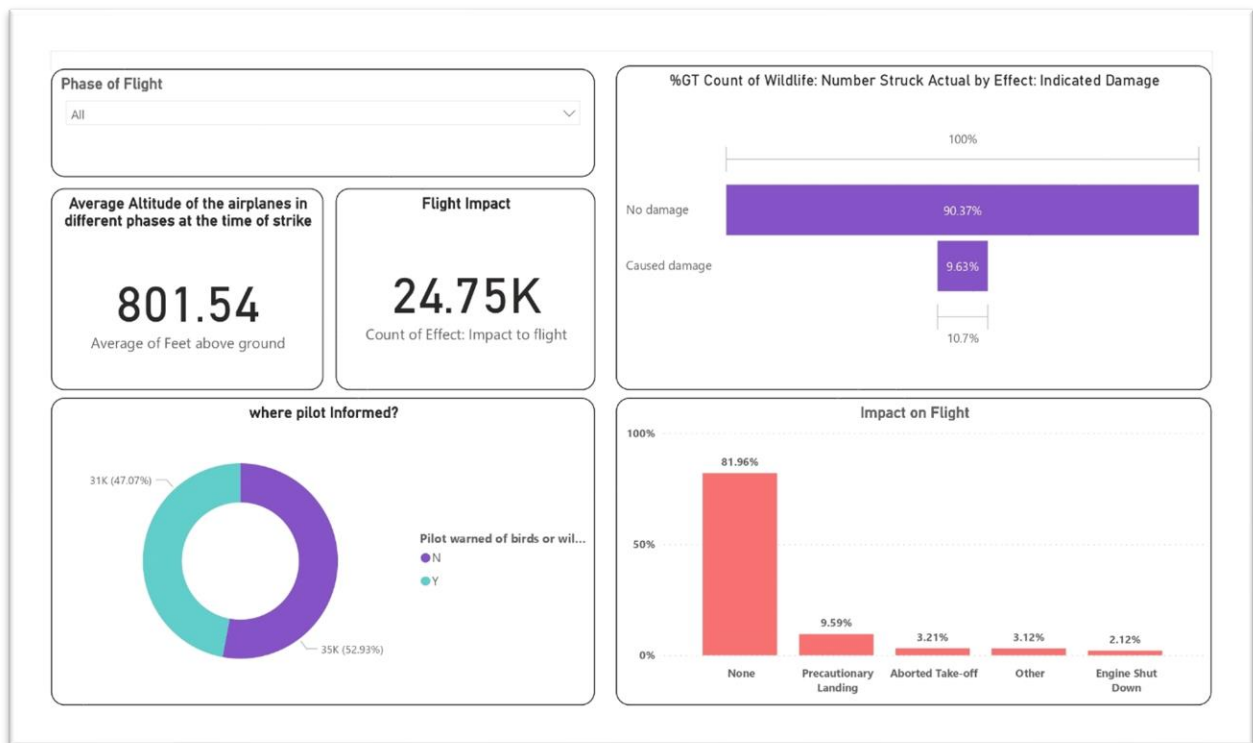




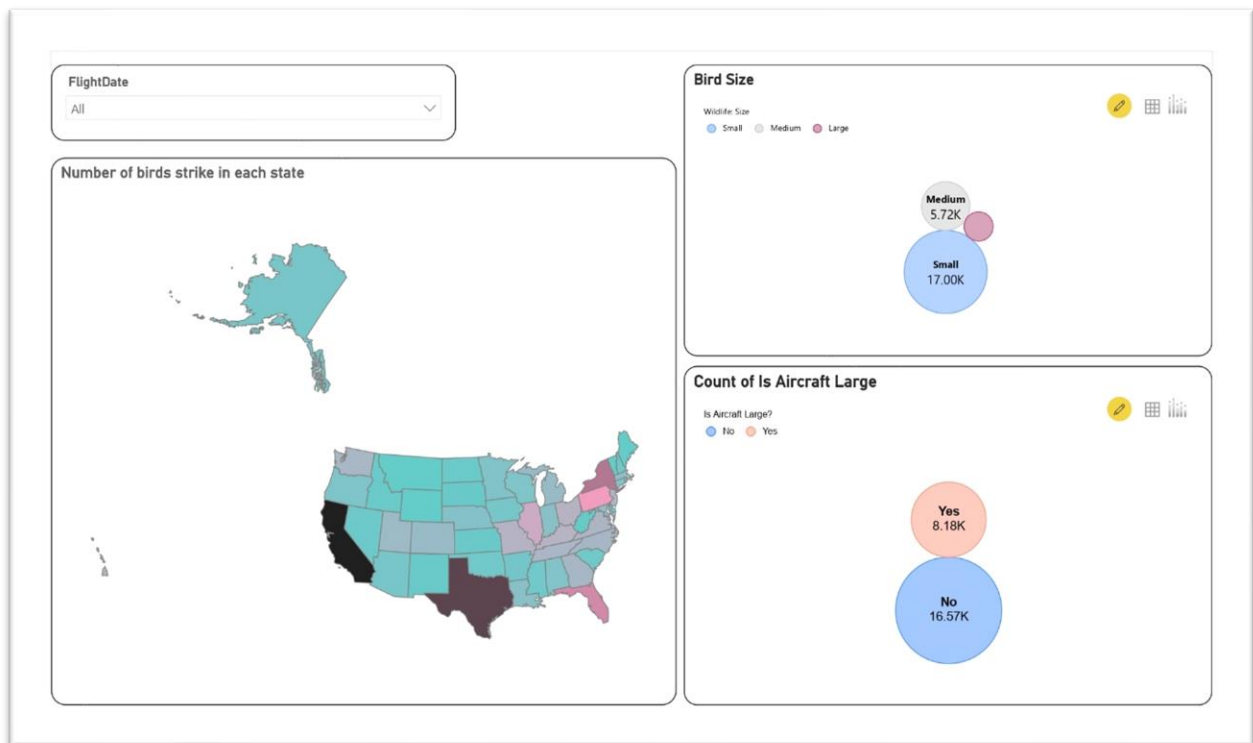
- Total number of bird strikes is around **25** thousand in **11** years and Its repairing cost is **136** million dollar.
- Out of **24,747** flights that have been involved in the bird strike, **22,363** received no damage and **2384** received small to large scale damage.
- Total count of bird strike continuously increasing yearly from 2000 to 2011.
- **81%** of the planes were flying at an altitude **<1000** (less than thousand) and 19 percent of planes were at an altitude **>1000** (greater than thousand) when the are happened.
- Airlines namely, Business, Southwest Airlines, American Airlines, Delta Air Airlines, US Airlines are more involved in bird strikes than other airlines.



- **DALLAS/FORT WORTH INTL AIRPORT** has the highest number of bird strikes than other airport. It have **802** bird strikes. The next one is, **SACRAMENTO INTL** having **676** bird strikes.
- **SALT LAKE CITY INTL (479), DENVER INTL AIRPORT(476), KANSAS CITY INTL(452)**, this are the top airport which having number of air strike.
- The number of bird strike happened when the plane was approaching the runway.
- Also, strikes happened when plain were taking off.
- No strike were reported when planes were parked.



- In **53%** cases pilot were not informed of bird strike where as in **47%** cases they were informed to the bird strikes.
- Average altitude of plain at which most of the bird strike occurred is 801 ft. from ground.
- Impact of the bird strike is around 24,750.
- **81%** of the bird strike results is **no damage to the plain**.
- **9.59%** of the bird strike results is **precautionary landing**.
- **3.21%** of the bird strike results is **Take of being aborted**.
- **2.12%** of the bird strike results is **engine shut down**.
- **3,12%** of the problems are **other**.



- The state of **California** is involved with most number of bird strikes in all of the USA at **6998** strikes, and **Texas** have **5983**.
- States like Montana having low number of bird strikes.
- Size of bird was small in most of the cases of bird strikes followed by medium and then large.
- Most of the time, aircraft involved was not a large aircraft.

THANK YOU