The Tragedy of Flight: A Comprehensive Crash Analysis

1.INTRODUCTION:

1.1.Overview:

An airplane crash analysis is a detailed investigation into the causes of an aviation accident. The goal of an airplane crash analysis is to identify any factors that contributed to the accident, with the ultimate goal of improving safety and preventing future accidents. The process of conducting an airplane crash analysis typically involves the collection and analysis of a wide range of data, including information about the aircraft and its systems, the operators, and any other relevant factors. This data is typically collected from Kaggle. Once the data has been collected, it is analysed through tableau, to identify any potential causes of the accident. The results of an airplane crash analysis are typically published in a report, which may include recommendations for improving safety and preventing similar accidents in the future. These recommendations may be implemented by the relevant authorities or industry organizations.

This analysis is performed to determine the cause of errors once an accident has happened. In the modern aviation industry, it is also used to analyze a database of past accidents in order to prevent an accident from happening. Many models have been used not only for the accident investigation but also for educational purpose.

This analysis helps to understand the Aviation accidents based on the year and tend to prevent the future Airplane Crashes.

1.2.Purpose:

Aviation accident analysis is performed to determine the cause of errors once an accident has happened. In the modern aviation industry, it is also used to analyze a database of past accidents in order to prevent an accident from happening.

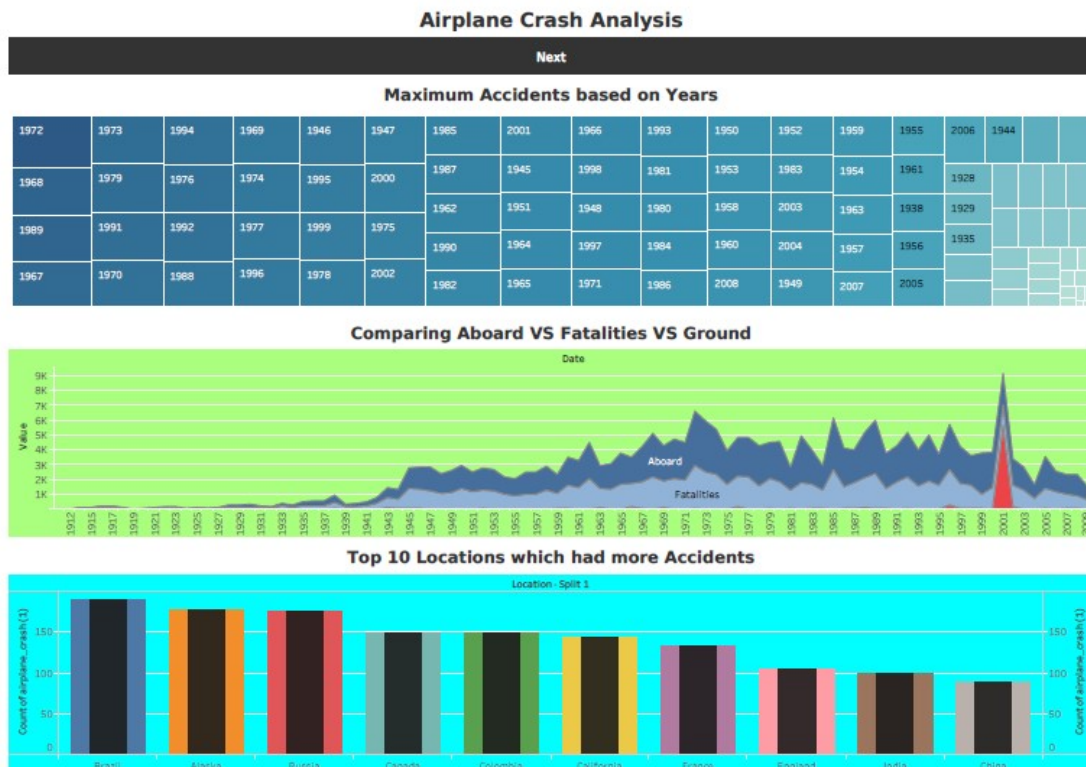# 2.PROBLEM DEFINITION & DESIGN THINKING:

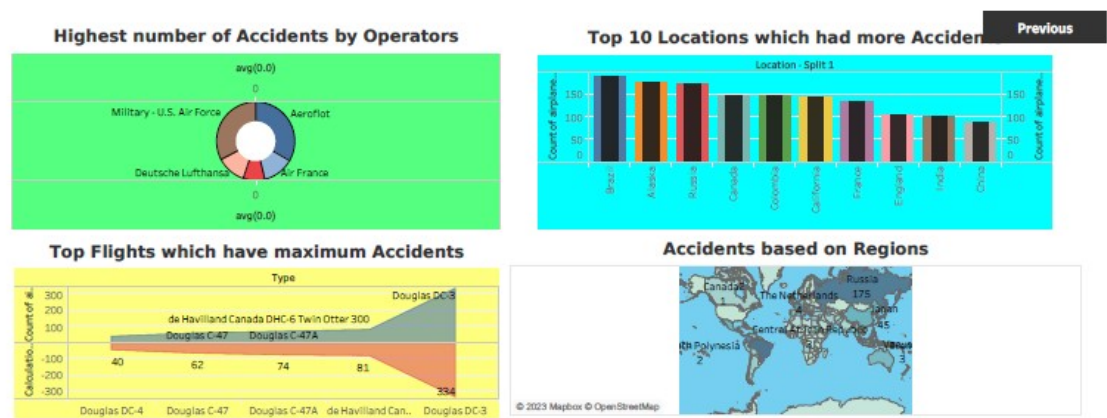## 2.1.Empathy Map:
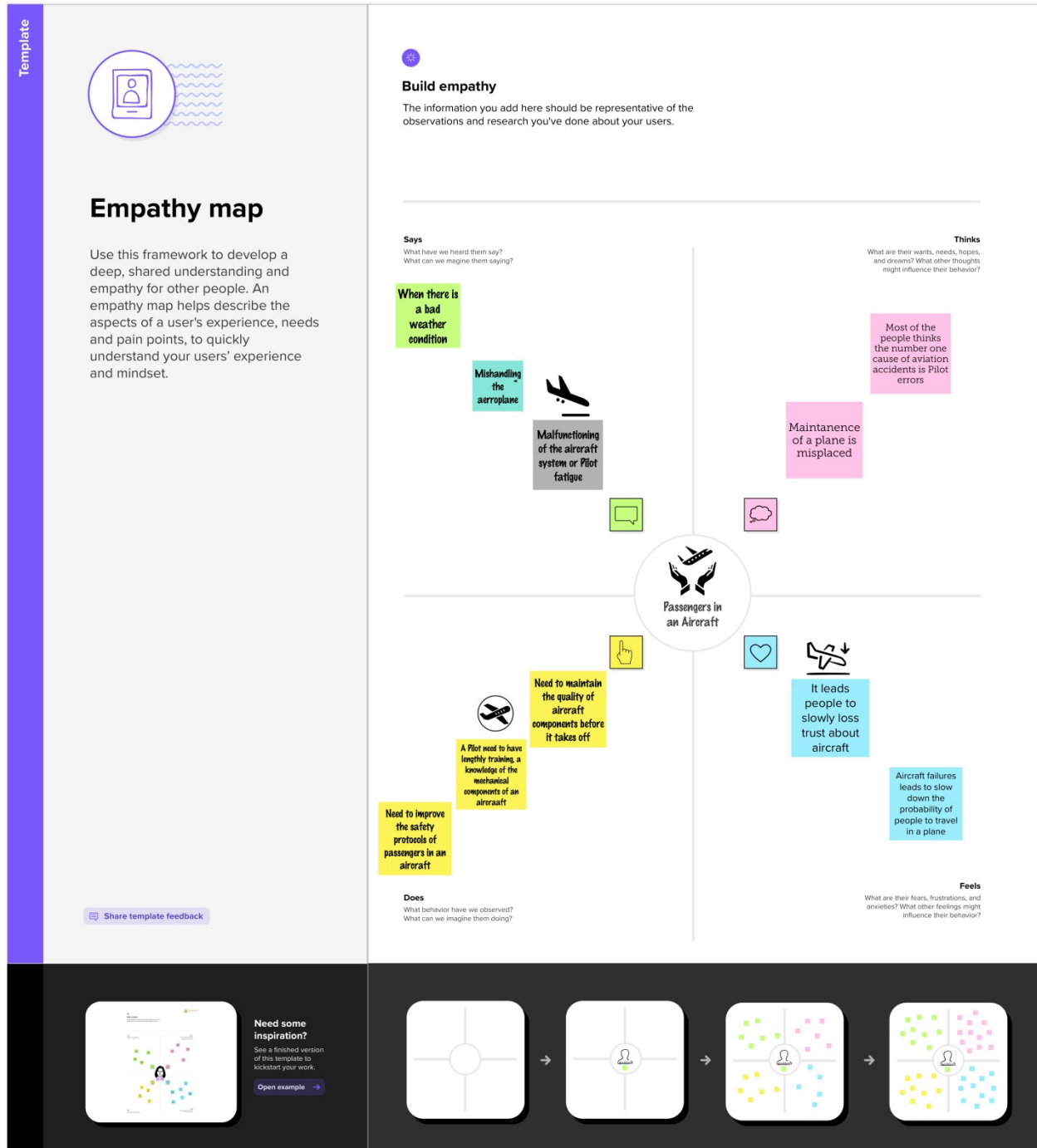
2.2.Ideation & Brainstorming Map:
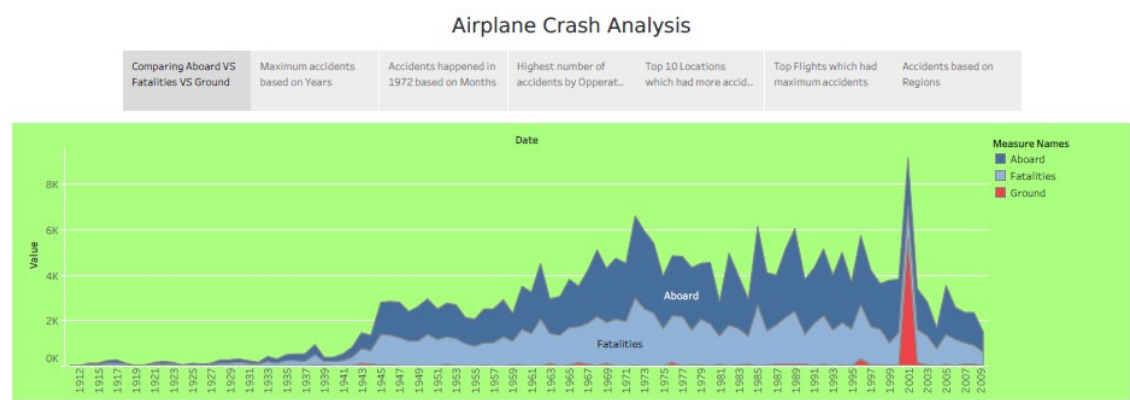

3.RESULT
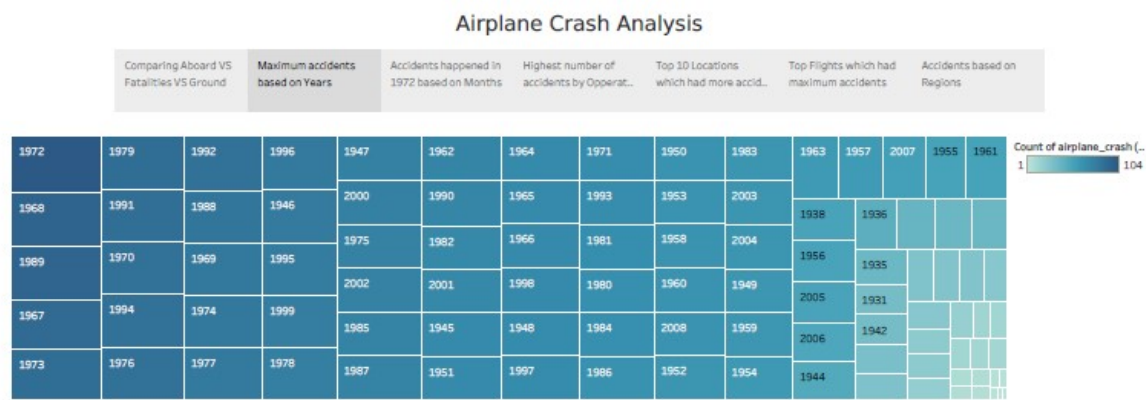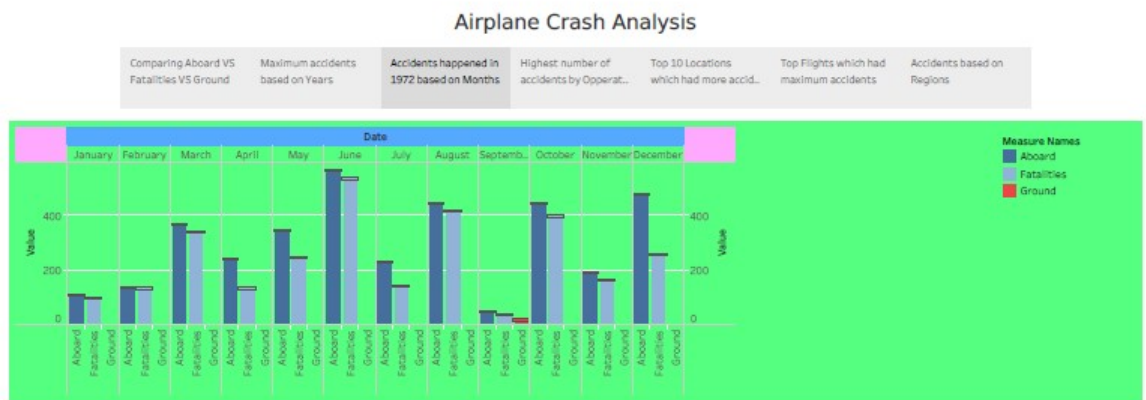
Dashboard (1) :

Dashboard (2) :

Highest number of Accidents by Operators

Top 10 Locations which had more Acciden...

Top Flights which have maximum Accidents

Accidents based on Regions

Stories :

1) Comparing Aboard Vs Fatalities Vs Ground (Story 1) :
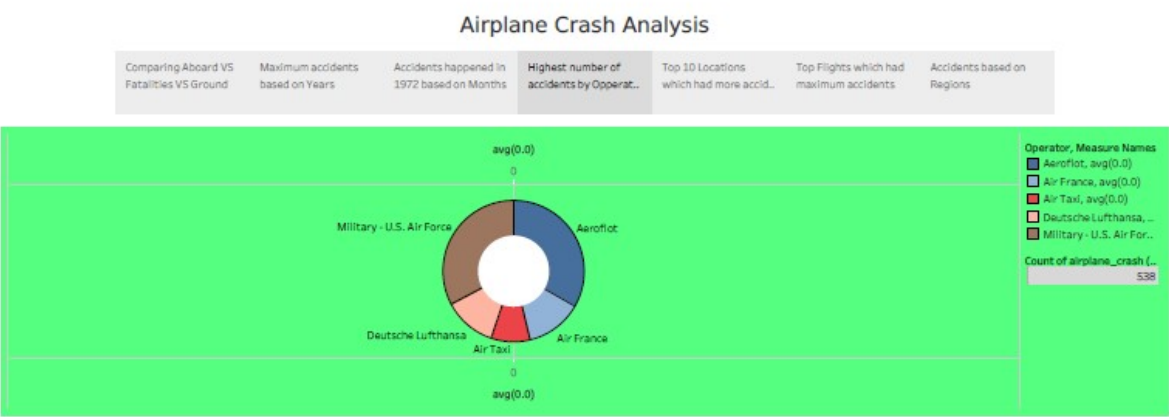

Airplane Crash Analysis

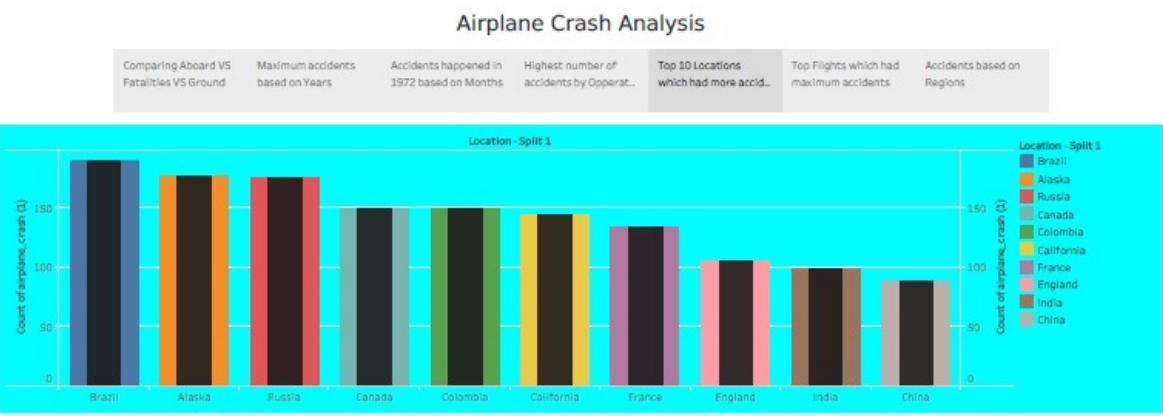**Maximum accidents based on Years (Story 2) :**

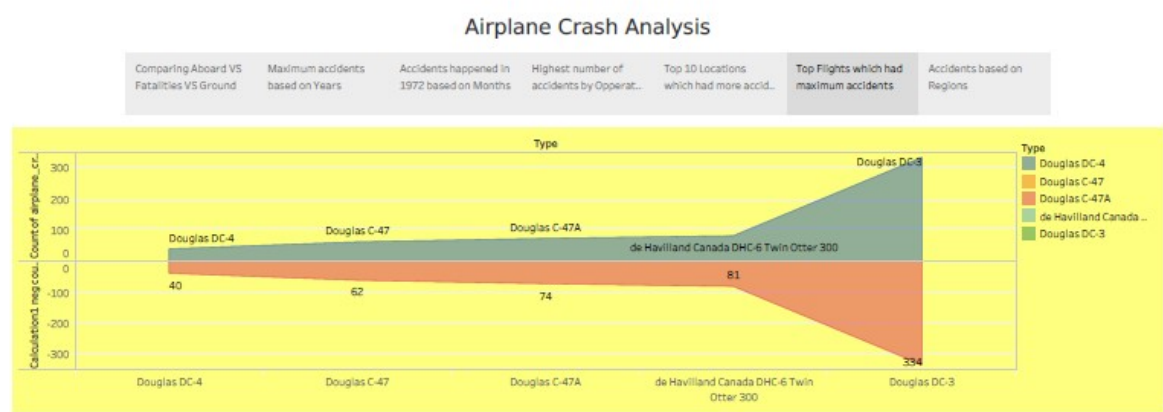**Accidents happened in 1972 based on months (Story 3) :**

Highest Number of accidents by Operators (Story 4) :

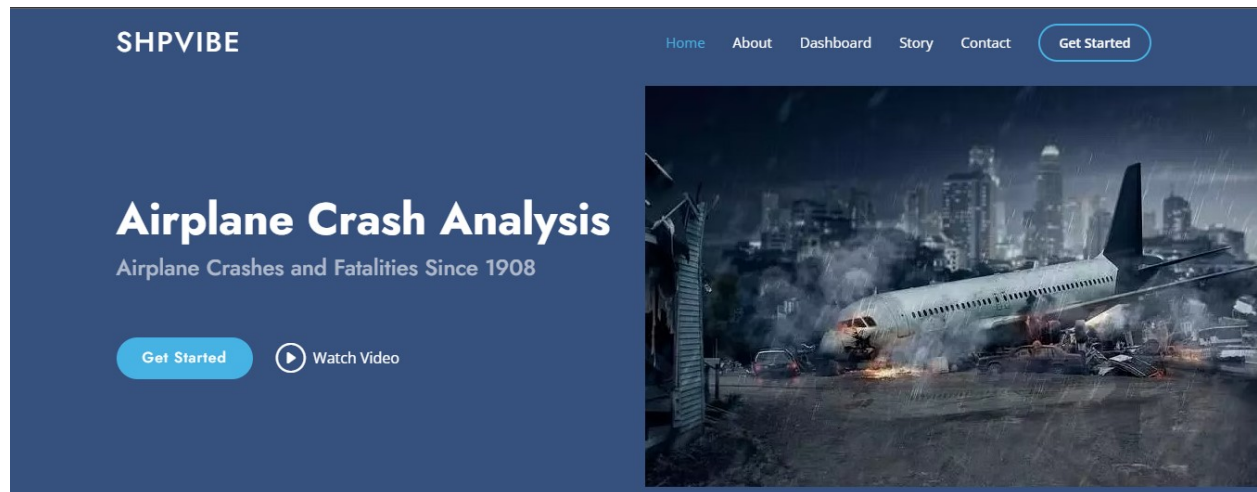## Top 10 Locations which had more accidents (Story 5) :

Top Flights which had maximum accidents (Story 6) :

Accidents based on Regions (Story 7) :

Web Application :

Web application (Dashboard) :
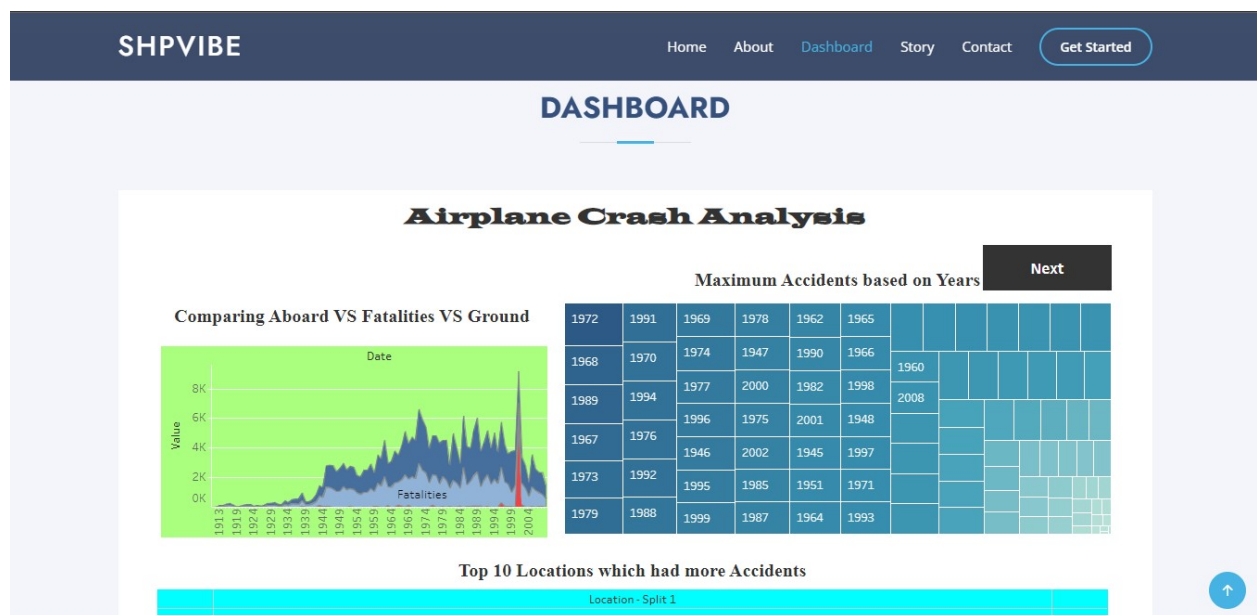
Web application (Story) :
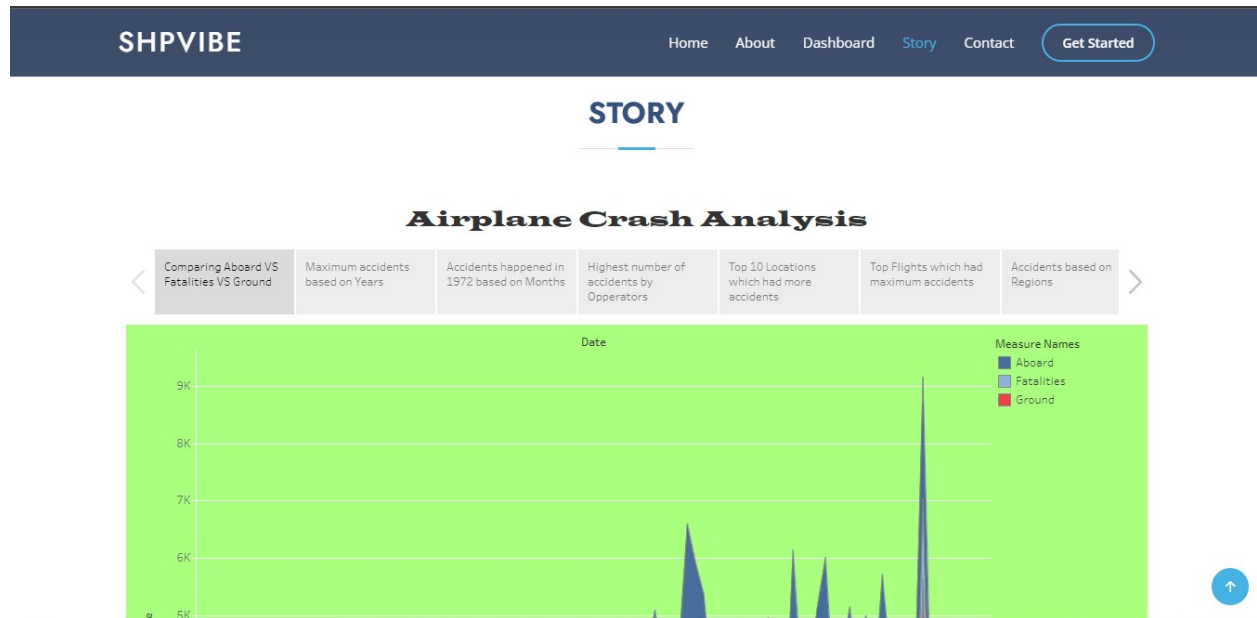
4.ADVANTAGES AND DISADVANTAGES

Advantages of Airplane Crash Analysis:

✓ To effectively discover the hazards that led to the accident and to prevent their recurrence in a future accident or incident.

✓ The key to accident investigation, then, is to determine the error chain leading up to the event. Rectifying the situation regarding an accident under investigation is impossible, because the accident has already happened.

✓ Investigation helps to identify the accident-prone work areas and eliminate their presence by implementing necessary safety precautions. To Protect the Environment: Investigation helps to find the magnitude of hazard to the environment. It helps to control the environmental damage and protect natural resources.

✓ The investigation of near misses and incidents with limited actual consequences allows the company to identify and control unforeseen hazards or inadequate control measures before they cause a more serious incident. In this way regular incident investigation can help to improve safety performance continuously.

Disadvantage of Airplane Crash Analysis :

➢ Although datasets have a large amount of data, they have quite a number of unrecorded values, therefore some columns had to be either removed or filled with correct values. Also, while collecting data on location names, there were many typographical errors, so they had to be replaced with correct spelling. In addition, working on different datasets, comparing results and finding similarities/differences were the biggest challenges throughout the project. Similar findings helped to strengthen the validity of the analysis. However, since both datasets keep track of different records, some of the outcomes, such as location and date, were inconsistent which made it difficult to find correlations.

5.APPLICATIONS OF AIRCRAFT CRASH ANALYSIS

Accidents are unplanned occurrences that result in injuries, illness, death, and loss of property and/or production. While there is no way to completely eliminate accidents, there are certain plans, preparations, and actions that can be taken to reduce them. Know the Hazards. Be aware of surroundings

It allows the company to identify and control unforeseen hazards or inadequate control measures before they cause a more serious incident. In this way regular incident investigation can help to improve safety performance continuously.

Investigations into causes of accidents and incidents, and the resulting safety recommendations, help to prevent such events from re-occurring and thus play an important role in improving aviation.

6.CONCLUSION

This analysis has discovered some compelling patterns for airplane crashes. The most prominent finding is that crashes and fatalities have decreased while the number of passengers has increased. Furthermore, patterns on each different variable, such as location, operator, and phase of flight, provide us with deeper insights into the airplane crash patterns.

The main objective of this project is to raise awareness of flight safety and better understand its problems and progress, so that aviation industries can continue to improve. We hope that more information and understanding will lead to industry changes that save lives.

7.FUTURE SCOPE

One solution that could help reduce the number of crashes is technological advancement. For example, the development and implementation of Automatic Dependent Surveillance-Broadcast (ADS-B) technology will help reduce the risk of airplane collisions and weather-related accidents, provide more efficient routes under adverse weather conditions, and improve situational awareness for pilots . Advancement in technology will be the first step in preventing any further flight accidents.

The installation of new safety technology in general aviation aircraft by streamlining the certification and installation process and encouraging aircraft owners to install such equipment. Examples of recommended

technology: angle-of-attack indicators, inflatable restraints, cockpit data-link weather information.

Industry implementation of Automatic Dependent Surveillance – Broadcast (ADS-B) technology through industry-government Equip2020 working groups.