AVIATION DATA ANALYSIS

INTRODUCTION

Let’s start with the objective of this analysis

1

BUSINESS CONTEXT

The company would like to explore a new business venture - The aircraft industry.

The objective of this analysis:

- Determine if delving into the aircraft industry is worthwhile for the company
- Identify which types of aircrafts the company should purchase to reduce risks.

BUSINESS QUESTIONS

Question 1

What is the trend of aircraft accidents and fatal injuries over the years?

Question 2

Which Phases of Flight are more prone to accidents? Which accidents result in more fatalities, and damage to the aircraft?

Question 3

Is there a relation between number of engines in an aircraft and fatalities in the occurrence of an accident?

THE DATA

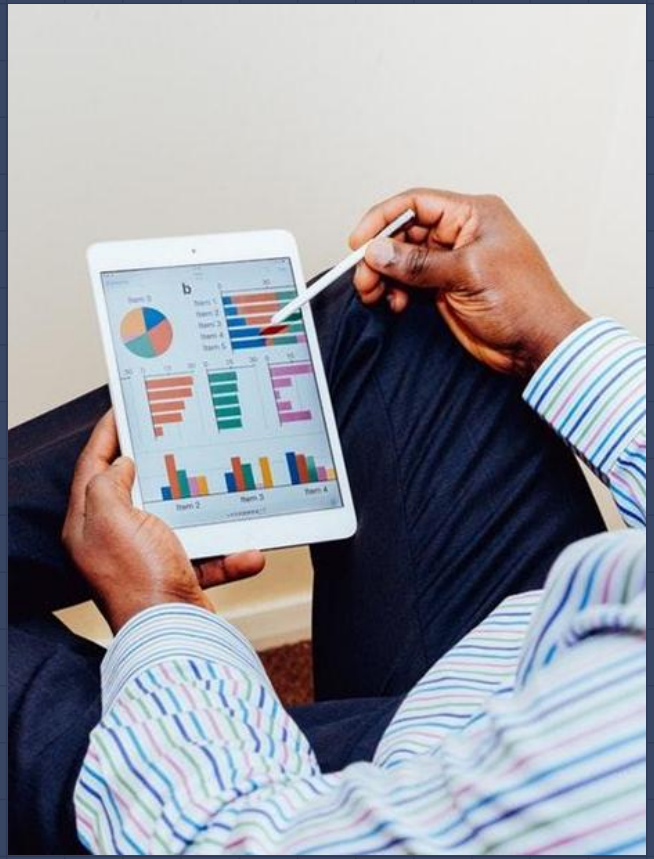
Let’s look at the data we’ll use to answer these questions

2

DATA UNDERSTANDING

- For this analysis, a dataset from the National Transportation Safety Board that includes accident data from 1962 to 2023 was used.

- It contains records of civil aviation accidents and selected incidents in the USA and international waters.

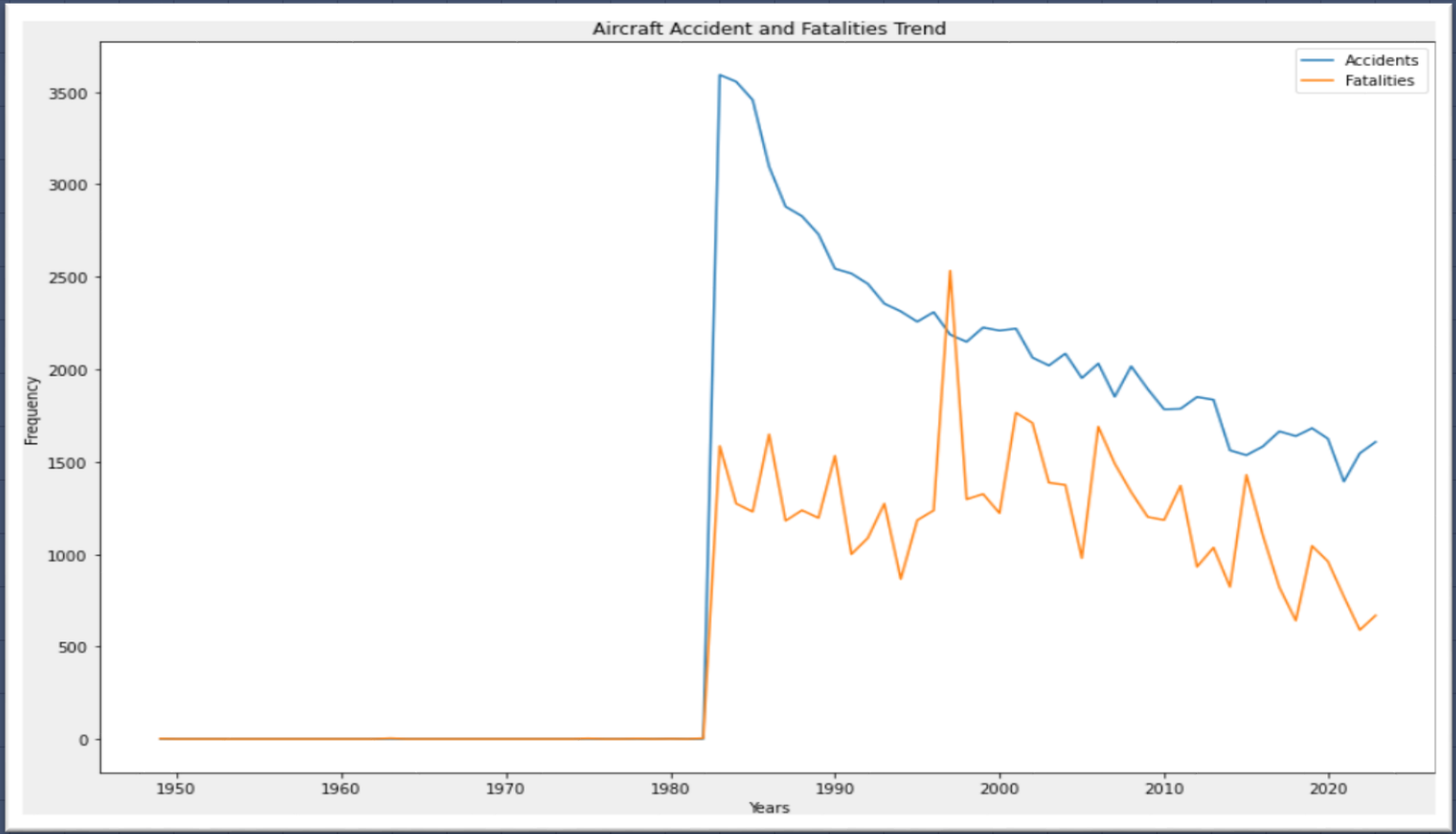


DATA ANALYSIS

Now let’s answer the questions

3

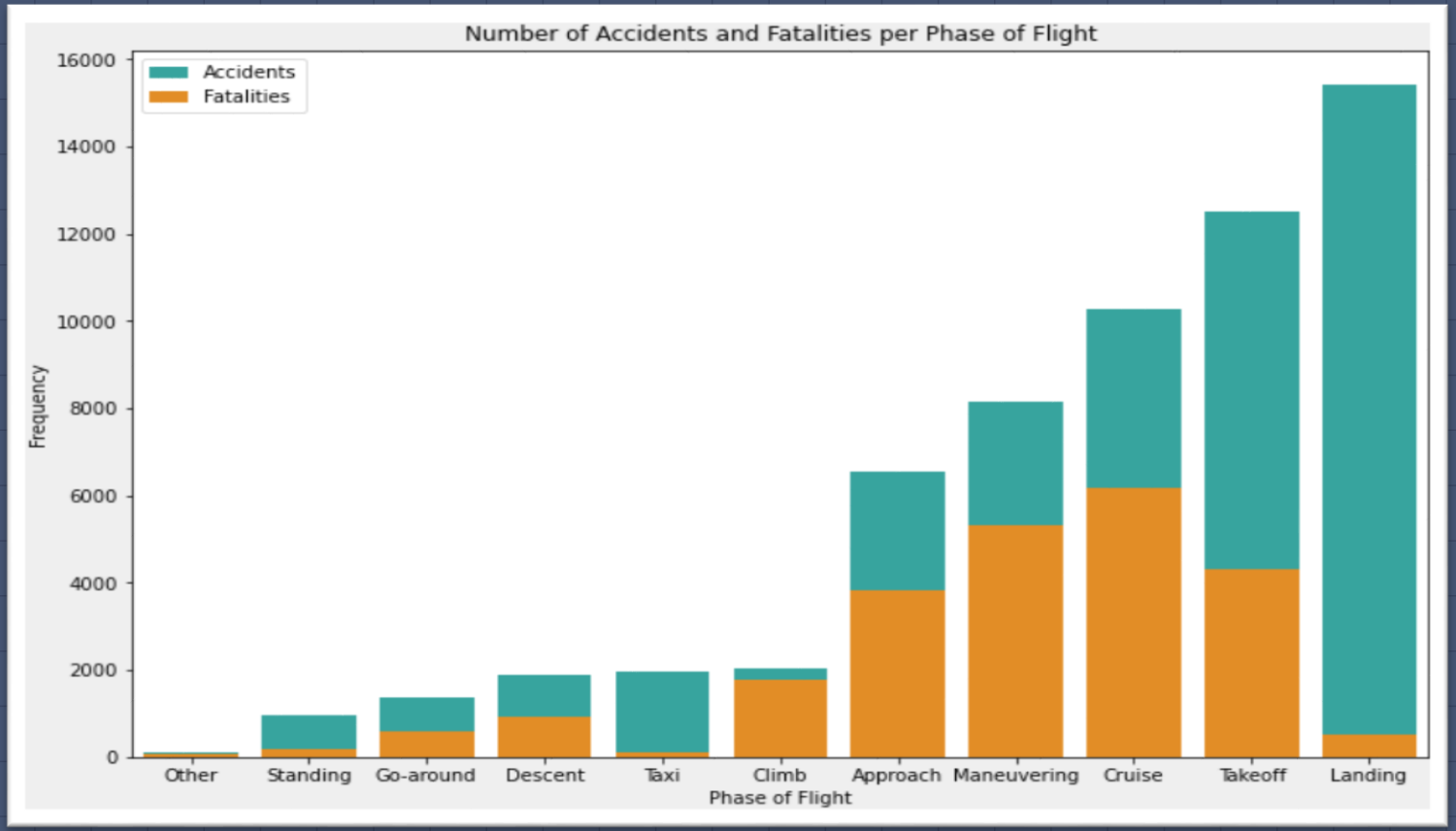
Trend of Aircraft Accidents and Fatalities Over The Years



Trend of Aircraft Accidents and Fatalities Over The Years

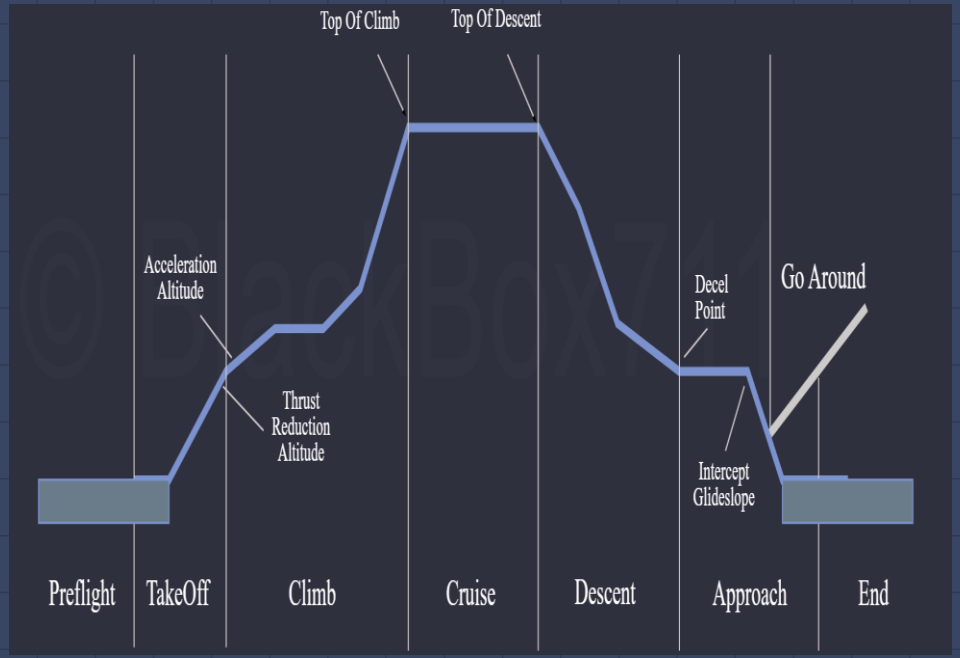
- Number of aircraft accidents have been decreasing over the years.
- Deaths due to aircraft accidents have similarly been decreasing over the years.

Aircraft Accidents at different Phases of Flight

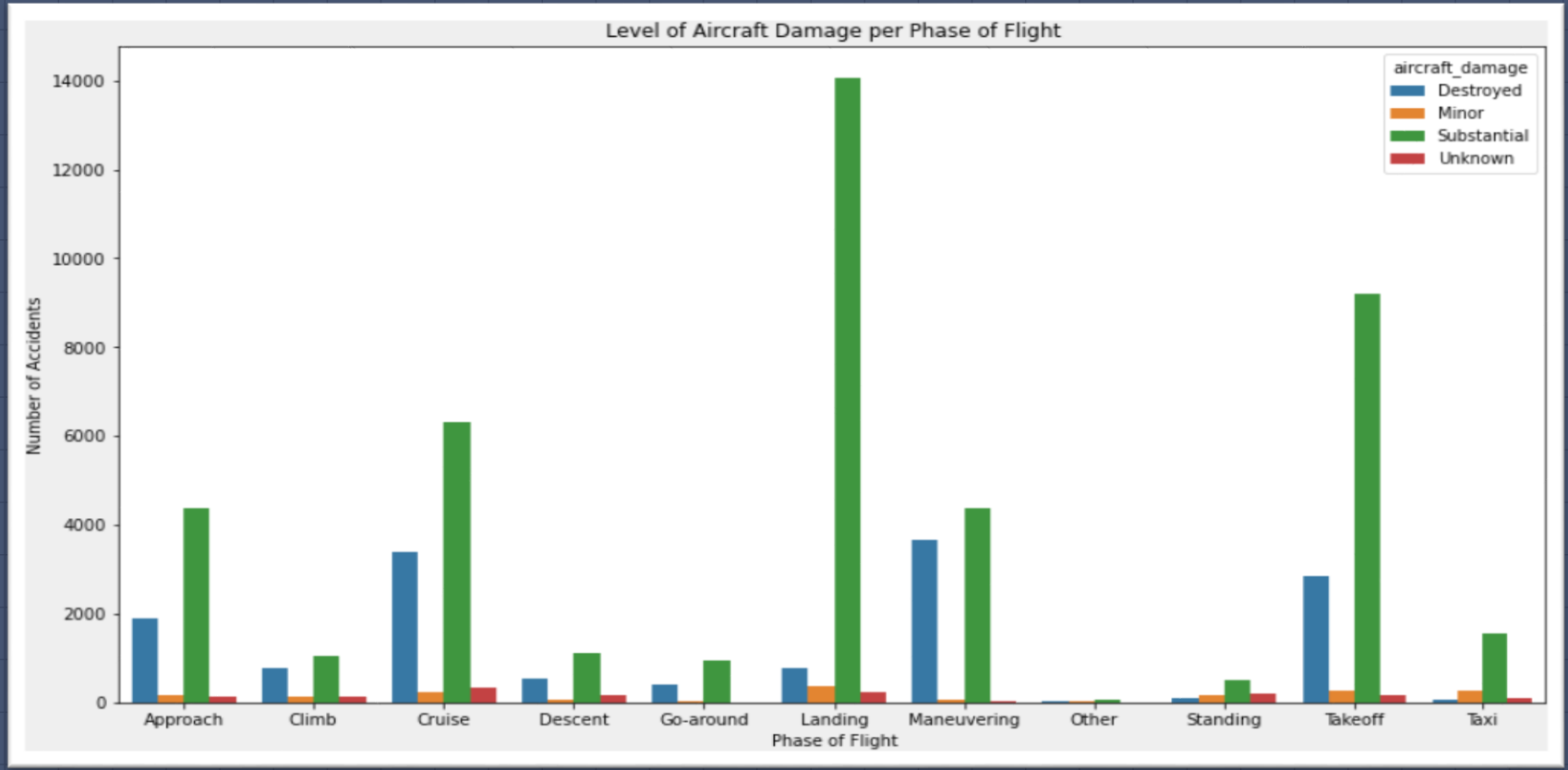


Aircraft Accidents at different Phases of Flight

- Accidents are more likely to happen at the Landing and Takeoff phases of flight.
- However, few accidents in the Landing and Takeoff phase result in fatalities.



Aircraft Accidents at different Phases of Flight

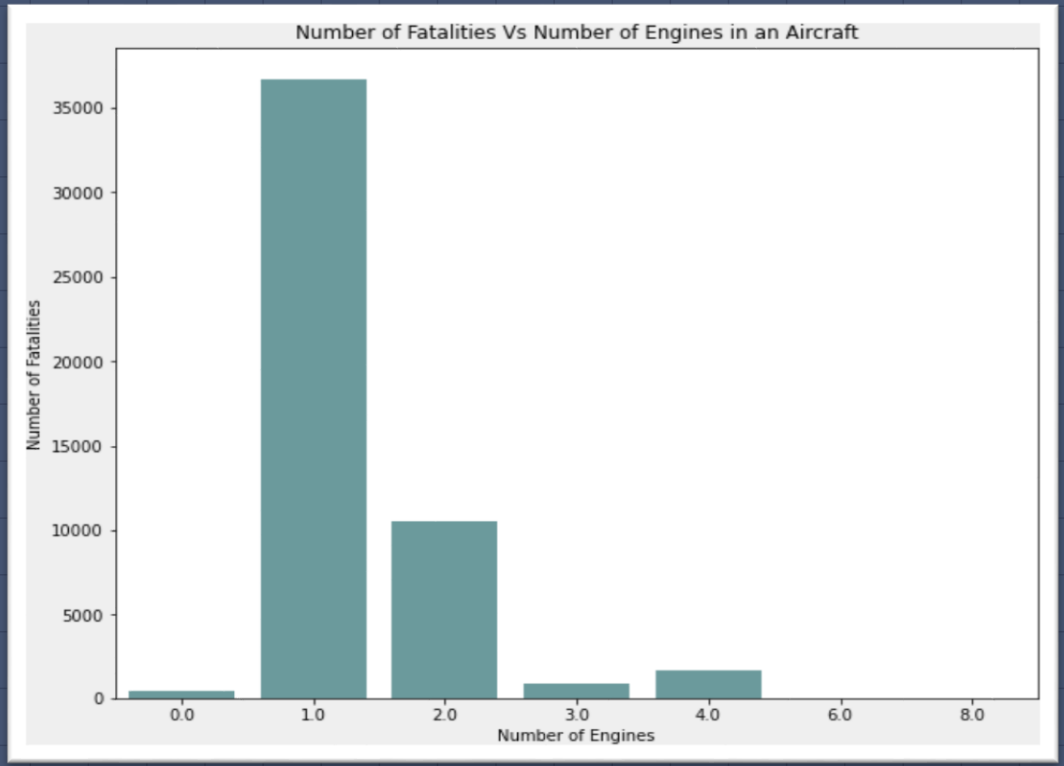


Aircraft Accidents at different Phases of Flight

- In addition to most accidents occurring at Landing and Takeoff, most of the accidents in this phase cause substantial damage to the aircraft.

- For phases that have higher risks of having fatalities (Cruise, Maneuvering), the aircrafts tend to be destroyed in the event of an accident.

Number of Engines in an Aircraft Vs Fatal Accidents



- The highest number of fatal injuries occur when the aircraft has only one engine.

RESULTS AND RECOMMENDATIONS

4

Results

- Aircrafts are becoming safer. The number of accidents and fatalities over the years continues to decrease.
- When accidents do occur, most of them tend to be in the Landing and in the Takeoff phases of flight. Although, these accidents rarely result in fatalities, they cause substantial damage to the aircrafts.
- There is a higher risk of fatal injuries in accidents that involve aircrafts with only one engine while those with more than one engine have less fatal injuries.

Recommendations

- The aircraft industry is a worthwhile business venture for the company given that a lot of effort has been put into advancing aviation technology and making air travel safer.

- Investing in aircrafts that have sophisticated auto-pilot and auto-landing systems will assist to enhance flight precision and reduce number of accidents at Landing and Takeoff.

- Finally, it is also advisable for the company to invest in aircrafts that have at least two engines, to further reduce the risk of fatalities.

THANKS!

Any questions?

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