PHASE 1 PROJECT: AVIATION ANALYSIS

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INTRODUCTION

- The main aim of this presentation is to show the likelihood of injuries to occur to passengers on various kinds of aircraft types and to determine which will be the most suitable kind to be used.

BUSINESS UNDERSTANDING

BUSINESS PROBLEM

The company is expanding in to new industries to diversify its portfolio. Specifically, they are interested in purchasing and operating airplanes for commercial and private enterprises, but do not know anything about the potential risks of aircraft. We will be determining which aircraft are the lowest risk for the company to start this new business endeavor. We will then translate the findings into actionable insights that the head of the new aviation division can use to help decide which aircraft to purchase.

DATA BEING USED

- The dataset being used is from the National Transportation Safety Board that includes aviation accident data from 1962 to 2023 about civil aviation accidents and selected incidents in the United States and international waters.
- There are two files being used in this dataset:

1) AviationData.csv
2) USState_Codes.csv

AviationData.csv

- The NTSB aviation accident database contains information from 1962 and later about civil aviation accidents and selected incidents within the United States, its territories and possessions, and in international waters. (The image below is a snippet of this data

Event.Id Event ID	Investigation.Type Investigation Type	Accident.Number NTSB Number
87951 unique values	Accident 96% Incident 4%	**88863** unique values
20001218X45444	Accident	SEA87LA080
20001218X45447	Accident	LAX94LA336
20061025X01555	Accident	NYC07LA005
20001218X45448	Accident	LAX96LA321

USState_Codes.csv

- This file contains the US State name and the abbreviation of them. (The image below is a snippet of the data)

US_State US State Name	Abbreviation US State Abbreviation
62 unique values	**62** unique values
Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO

DATA UNDERSTANDING

From the data set given we have the following bits of information:

- Aircraft Make and Model: Information about the specific make and model of the aircraft involved in each incident.
- Weather Conditions: Details on the weather conditions prevailing at the time of the accidents.
- Injury Severity: The count and type of injury observed at every occurrence of an accident

We will look at the data given with regard to the fatal injuries occurred as with death this will lead to the most liability in terms of compensation to the bereaved families

DATA ANALYSIS

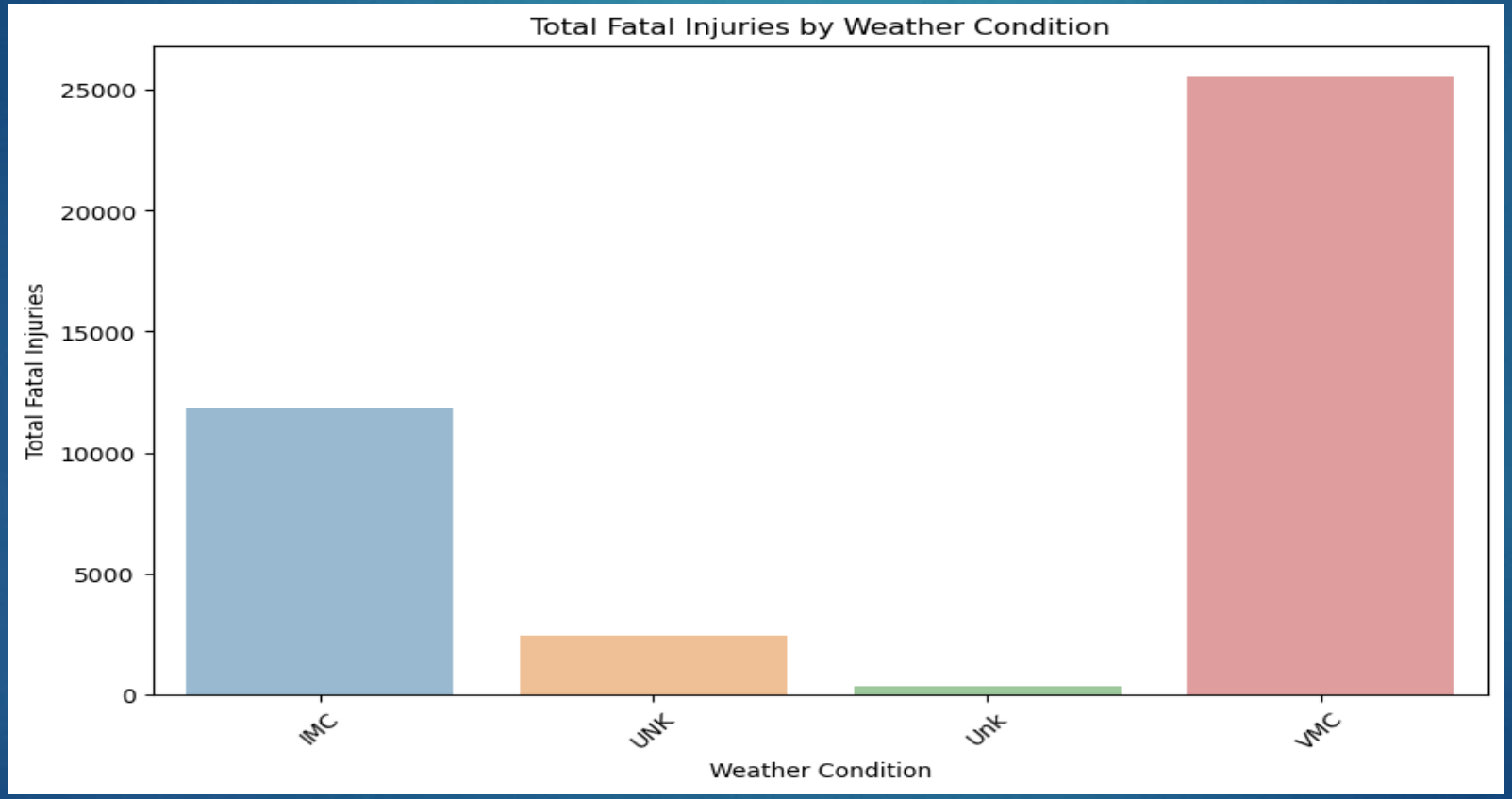
- The main method of analysis this data would be through the use of python programming language

- This is a 'computer language' that would help us understand the data better and develop what we would be needing the most

- The main attributes we'll look at is the fatalities due to aircraft type, fatalities caused by different weather conditions(This would indicate the accident that occurred most was during which weather condition) and we'll also look at the fatalities due to the reason of flight

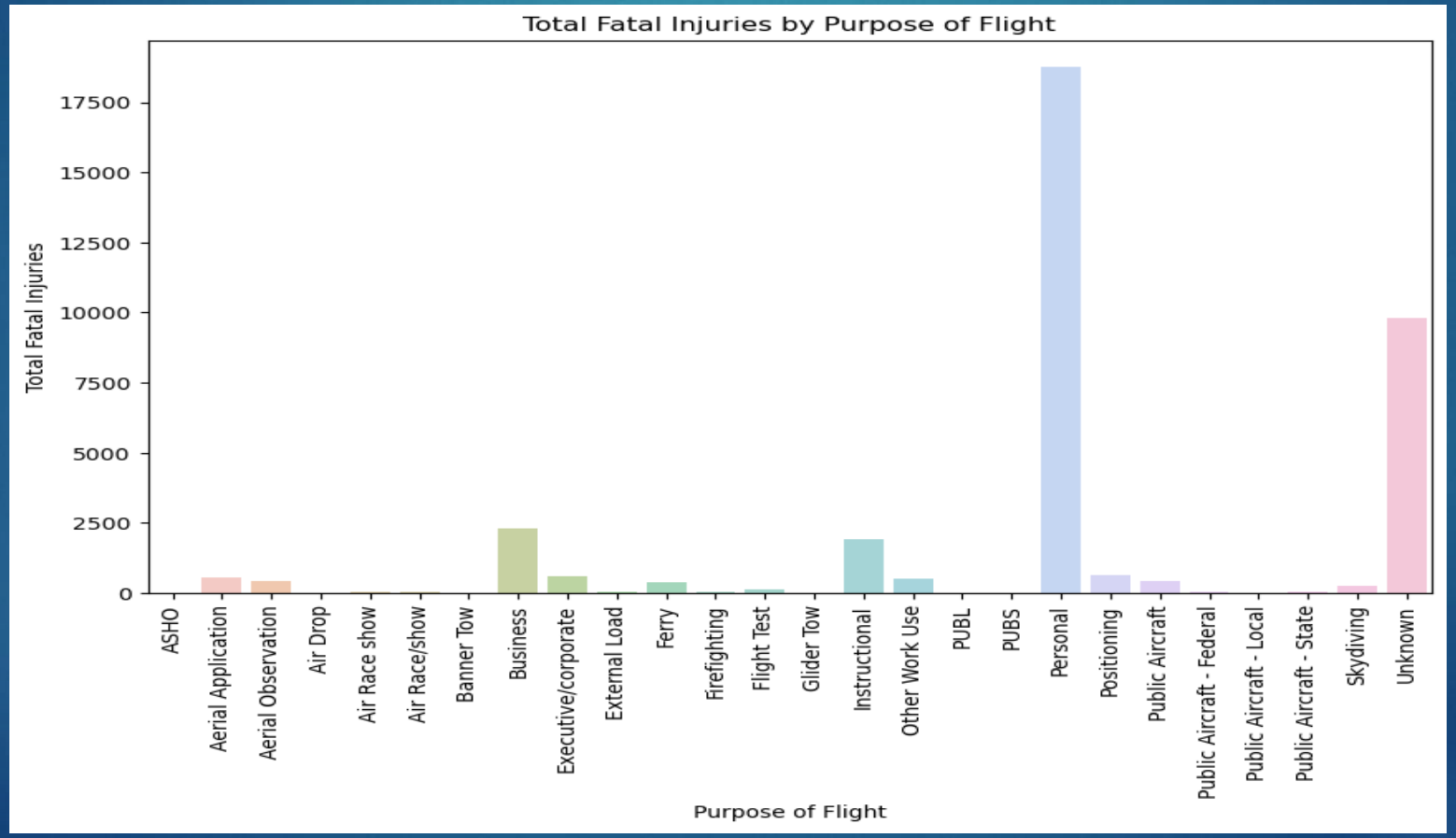
Fatal Injuries According to Weather

The graph below represents the total fatal injuries that occurred with respect to the kind of weather that was experienced



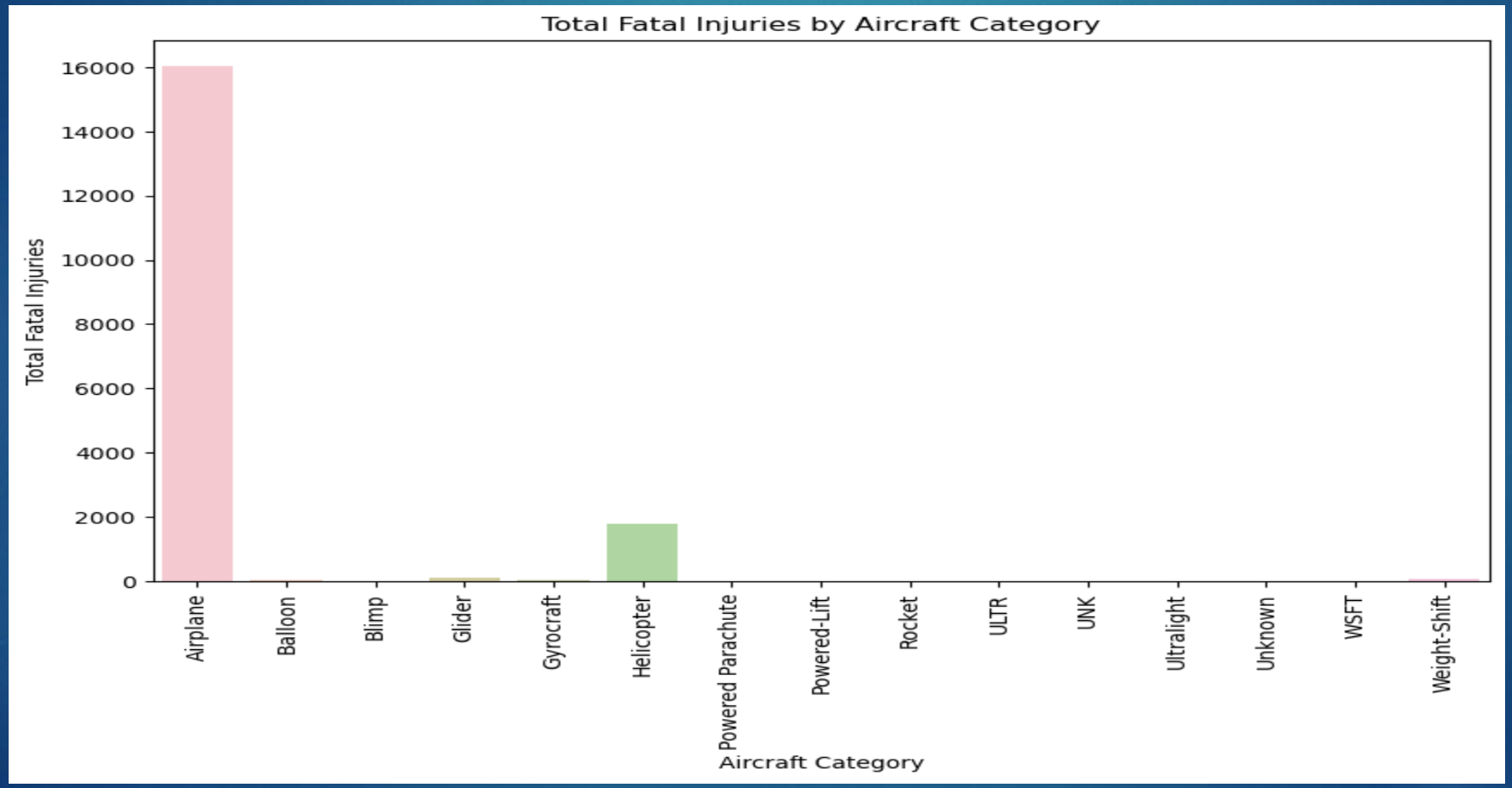
Fatal Injuries according to Purpose of Flight

The graph below is a representation of the fatalities that occurred with respect to the purpose of the flight and the scheduled times for the flights



Fatal Injuries per Aircraft Type

The figure below shows the total amount of fatalities with regard to the kind of aircraft being used



CONCLUSIONS

- Airplanes are the most common types of aircrafts used, hence the high fatality rate
- Most aircrafts are used for personal use
- The most common aircraft might yield in the most amont of revenue due to high traffic

RECOMENDATION

- Go for the most available and highest stream of revenue but be aware that it is also the highest likely to have the biggest impact