Phase 1 Project

AVIATION RISK ANALYSIS PROJECT STEPS

Understand the Business Goal

The company wants to expand into the aviation industry.

Your job is to identify **low-risk aircraft** for **purchase and operation**.

Deliver insights in a way that non-technical executives can use for **decision-making**.

Load and Inspect the Data

Load the aviation accident data (AviationData.csv).

Load state/location code data (USState_Codes.csv) if available.

Inspect the data types, missing values, and column meanings.

Data Cleaning

Task	Why
Remove Duplicates	To prevent misleading results.
Fix Typos / Standardize Names	To group similar aircraft properly.
Drop Columns with Too Much Missing Data	If a column has over ~70% missing values.
Convert Dates	Parse to date-time to extract year, month, etc.

Feature Engineering

Feature	Purpose
Risk Score	Combine injury counts into a single metric.
Accident Severity Level	Bucket into "Low", "Medium", "High" risk.
Is Commercial vs Private	Categorize aircraft type for business insights.
Region or State	Analyze by location (join with USState_Codes.csv).

Exploratory Analysis

Analysis	Purpose
Correlation Heat map	See which features affect risk the most.
Boxplots or Histograms	Spot outliers and trends.
Aircraft Type by Risk Score	Compare across categories.

Business-Level Insights

Insight	Use
"Cessna models had the lowest injury rates in private use cases."	Purchase suggestion.
"Accidents peaked in 2001 and 2012. Seasonal trends observed."	Planning & safety.