Aviation Risk Assessment for Business Expansion

Phase 1 Data Science Project

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Business Understanding

Goal: Identify low-risk aircraft types for safe investments.

Key Questions:

- Most common causes of accidents

- States with highest accident counts

- Weather's impact on fatalities

Data Source

National Transportation Safety Board (NTSB) Aviation Accident Dataset (1962–2

Includes summaries, injury counts, weather, location, aircraft type

Data Preparation

Removed missing/irrelevant entries

Converted data types (dates, numeric)

Standardized categories (weather, states)

Focused on fatalities and conditions

States with Most Accidents

Top states: California, Texas, Florida

Reflects flight volume, training activity, regional weather

Fatal Injuries by Weather

IMC conditions have highest fatalities

Clear (VMC) weather shows fewer fatalities

Common Causes of Accidents

Pilot error, engine failure, controlled flight into terrain

Human error and mechanical issues dominate

Business Recommendations

Avoid operations in IMC conditions

Prioritize aircraft with modern avionics

Limit operations to lower-risk states with good weather

Next Steps

Add severity-weighted risk scoring by aircraft type

Integrate maintenance records

Develop risk heatmaps and benchmarks

Thank You

Questions? Contact Hassan ali

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