

Identifying the Lowest-Risk Aircraft for Investment

Moringa School Data Science Phase 1 Project

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Dated 29th April 2025

Overview

- Project Goal: Determine lowest-risk aircraft models for corporate investment.
- Audience: Head of Aviation Division (Business Stakeholders)

Business Understanding

Key Questions:

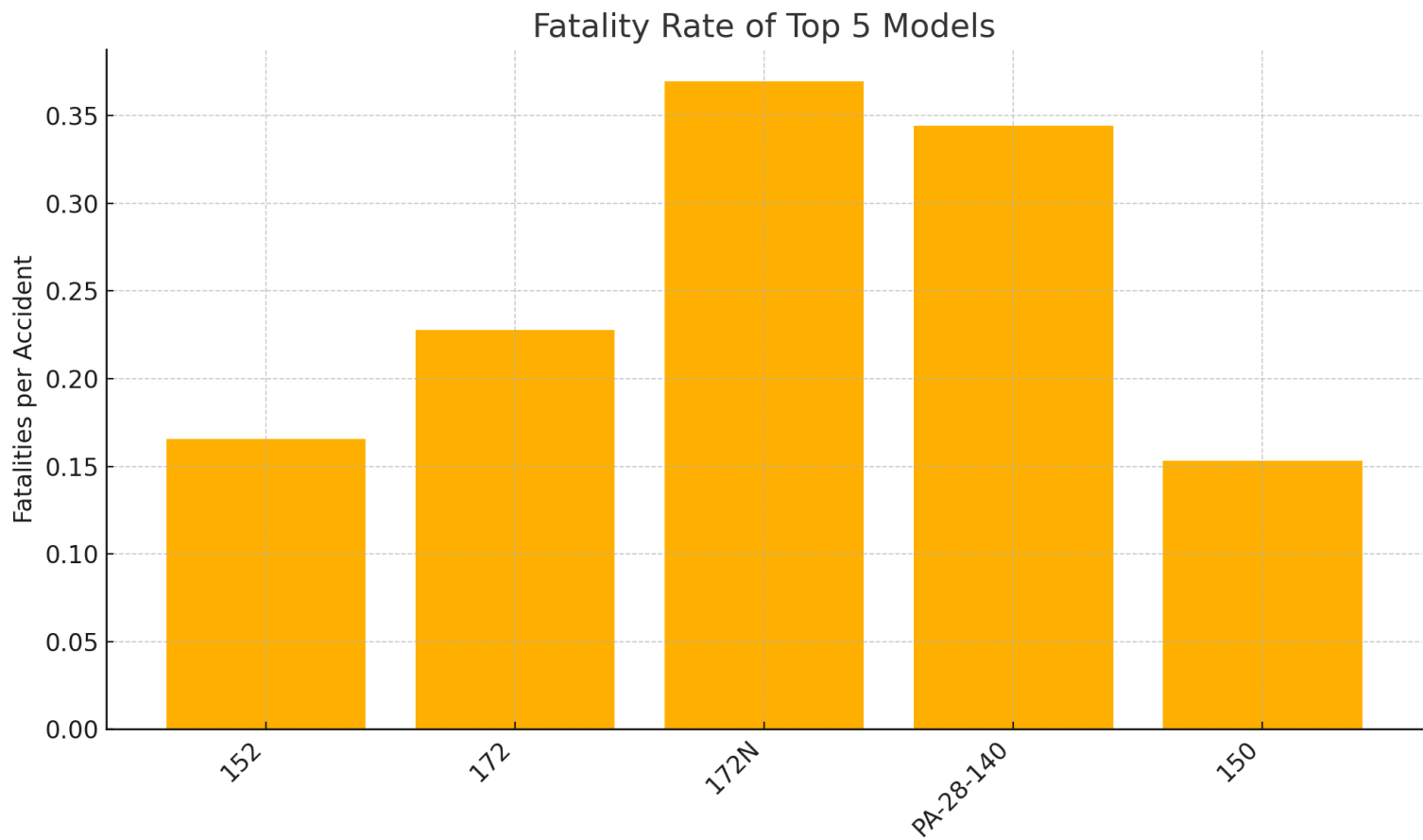
- Which aircraft types have the lowest accident and fatality rates?
- Which phases of flight pose the greatest risk?
- How can we build a safe, diversified fleet?

Data Understanding

Dataset: NTSB Aviation Accident Records (1962–2023)

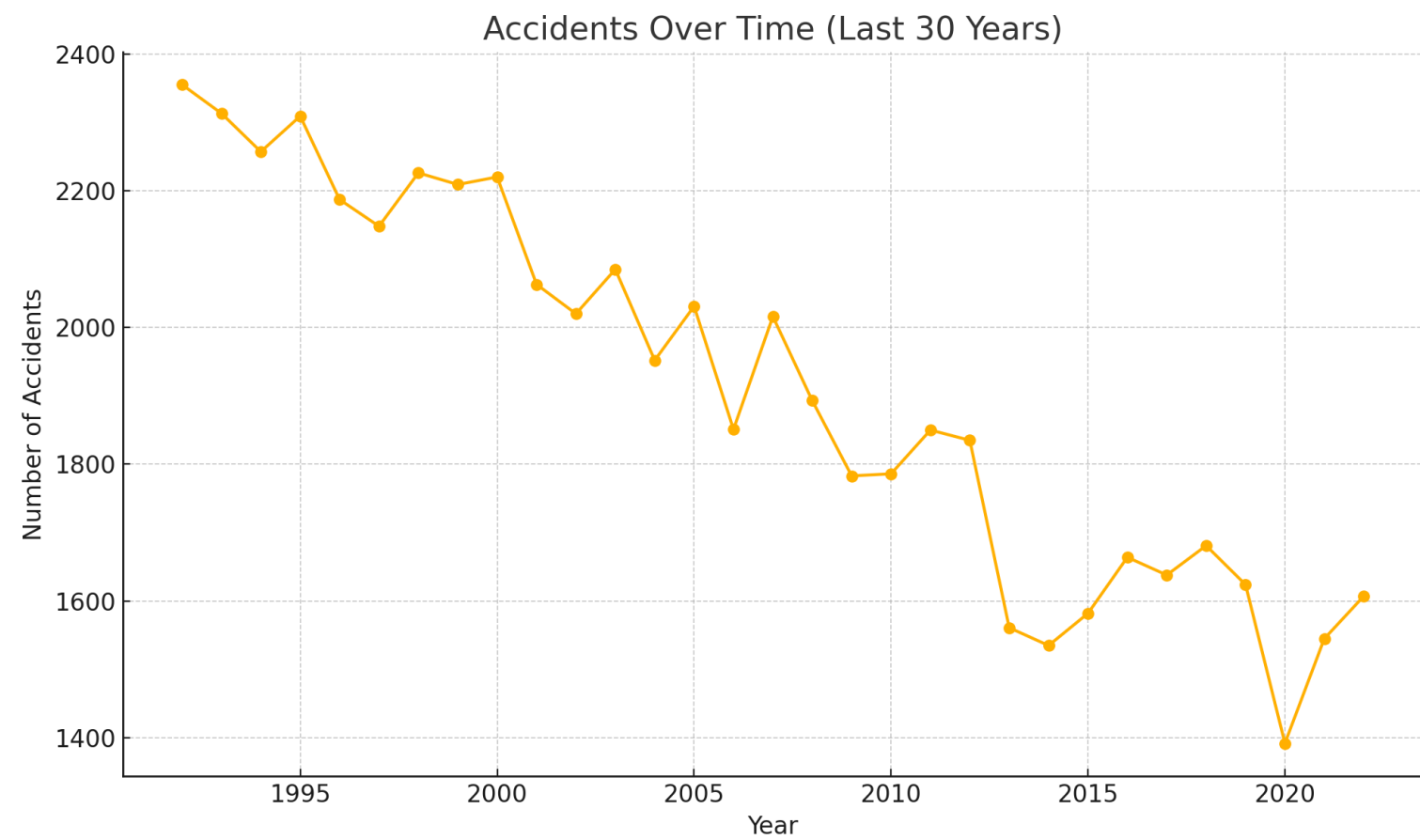
- Fields: Date, Location, Phase, Make & Model, Accidents, Injuries, Fatalities

Fatality Rate of Top 5 Models

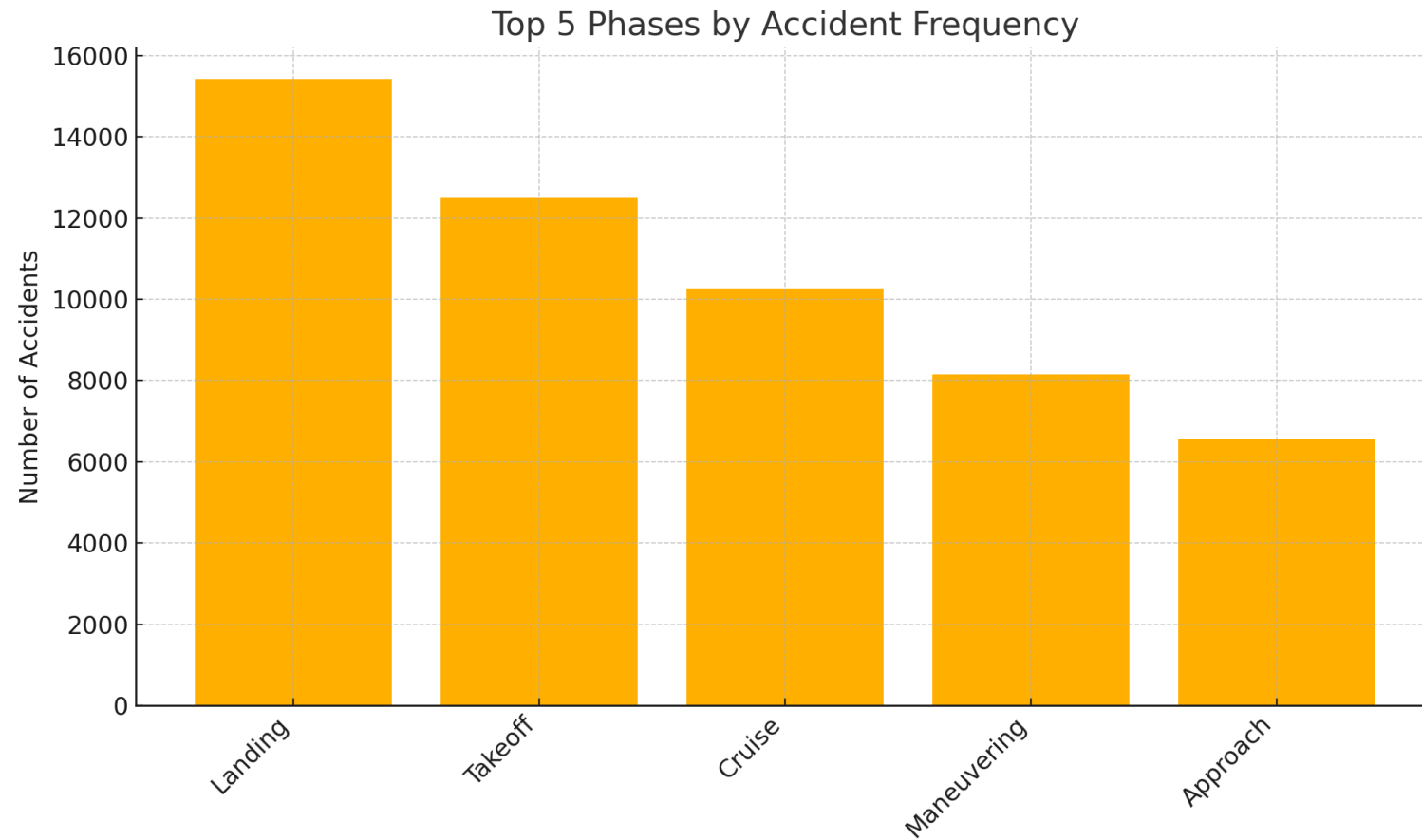


Model Code	Make
152	Cessna
172	Cessna
172N	Cessna
PA-28-140	Piper
150	Cessna
172M	Cessna
172P	Cessna
182	Cessna
150M	Cessna
PA-28-180	Piper
180	Cessna
140	Piper
152R	Cessna
210	Cessna
PA-28-235	Piper
150H	Cessna
PA-28-161	Piper
152H	Cessna
140A	Piper
205	Cessna

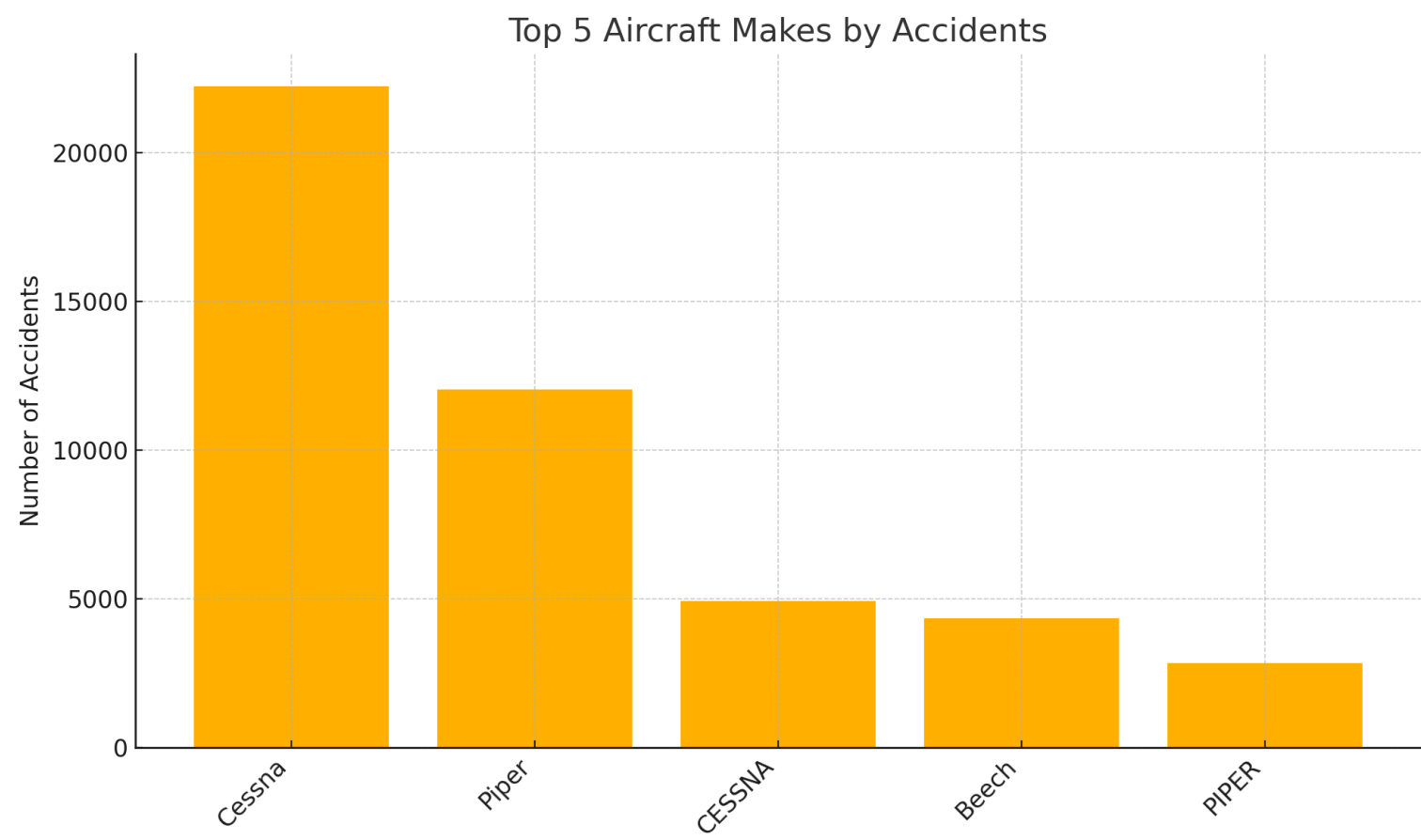
Accidents Over Time



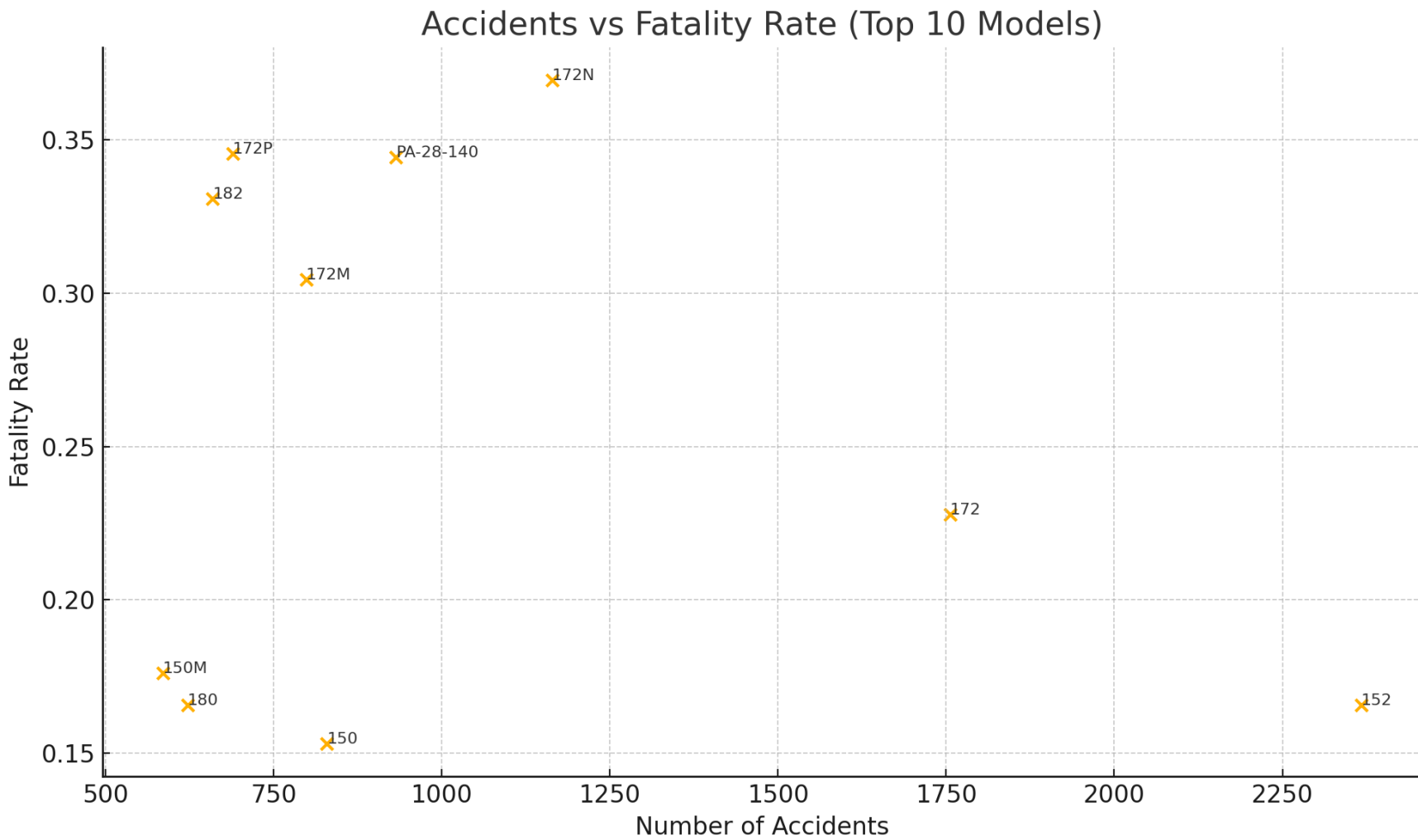
Phase-of-Flight Risk



Accidents by Make



Accidents vs Fatality Rate



Model Code	Make
152	Cessna
172	Cessna
172N	Cessna
PA-28-140	Piper
150	Cessna
172M	Cessna
172P	Cessna
182	Cessna
150M	Cessna
PA-28-180	Piper
180	Cessna
140	Piper
152R	Cessna
210	Cessna
PA-28-235	Piper
150H	Cessna
PA-28-161	Piper
152H	Cessna
140A	Piper
205	Cessna

Inference From Data Analysis

High accident numbers don't mean “dangerous”—they reflect popularity and usage.

What matters is how often those accidents turn fatal.

The Cessna 172 shows many incidents but very few result in fatalities, making it our top-lowest-risk recommendation.

Recommendations

1. Acquire Cessna 172 Skyhawk (Make: Cessna)
2. Acquire Piper PA-28 Cherokee Variants (Make: Piper)
3. Build a diversified fleet & implement safety protocols

Next Steps

- Develop pilot training curriculum focused on landing safety
- Establish maintenance schedules per manufacturer guidelines
- Deploy interactive dashboard for ongoing risk monitoring

Thank You

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