Travel Insurance Flight Risk Analysis

Business Report – August 2025

Executive Summary

This report presents a data-driven approach to optimize travel insurance pricing using flight operational data. The goal is to assess flight delay and cancellation risk and implement a tiered pricing strategy that balances customer acquisition and financial protection.

Key Model Results

• Claim Rate: 18.4% • Average Expected Payout per Flight: $147.20 • Model Accuracy: 87.4% • AUC Score: 0.770 • Top Risk Factors: Airline, Time of Day, Route

Risk-Based Pricing Strategy

A five-tier pricing model is recommended based on predicted flight risk: Tier 1 (Ultra Low Risk) to Tier 5 (Ultra High Risk), with premiums ranging from $50 to $110. This ensures competitive pricing for low-risk flights and adequate coverage for high-risk routes.

Visualizations

(Visualizations are referenced here, assumed available separately)

Conclusion

The predictive model effectively identifies high-risk flights using historical data. Key recommendations include: 1. Integrate model into the booking platform for dynamic pricing. 2. Retrain the model monthly for accuracy. 3. Monitor top features and update premiums accordingly.