

Flight Scheduling Data Analysis Report

Dataset Overview

The dataset includes 776 flights from Mumbai Airport, covering two time slots: 6AM–9AM and 9AM–12PM. Each entry includes flight number, origin, destination, scheduled and actual departure/arrival times.

Key Findings

- Total flights analyzed: 776 - Valid departure delay records: 770 - Valid arrival delay records: 772 - Average departure delay: 33.9 min - Average arrival delay: 5.44 min - Maximum departure delay: 382.0 min - Maximum arrival delay: 339.0 min

Top 5 Destinations by Flight Frequency

Delhi (DEL): 90 flights Bengaluru (BLR): 63 flights Hyderabad (HYD): 42 flights
Chennai (MAA): 35 flights Kolkata (CCU): 28 flights

Observations

Morning flights (6AM–12PM) show a clustering around peak operational hours, causing minor cascading delays. Most delays are under 30 minutes, suggesting manageable congestion but limited runway buffer. Flights to high-traffic destinations (e.g., Delhi, Bengaluru, Hyderabad) dominate schedules. Minor timing adjustments could yield significant delay reductions.

Recommendations

- Redistribute departures slightly away from 8–9 AM peaks. - Prioritize punctual turnaround of flights with tight connections. - Use historical delay patterns to allocate additional ground handling capacity. - Develop predictive delay alerts using machine learning to preempt cascading effects.