

Data Analytics
DAB-14

US Flight Disruption

Fatema Alalawi

Core Problem:

U.S. flight delays and cancellations are causing passenger dissatisfaction and operational inefficiencies

Goal:

Pinpoint the biggest causes of flight delays and cancellations to fix them.

Audience:

Airline Operations Management

Year	Key Statistic	Source
2019	17% of flights were delayed; 1.9% were cancelled.	Bureau of Transportation Statistics (BTS)
2020	Mass cancellations due to COVID-19	DOT Air Travel Consumer Report
2021	22.6% of flights were delayed (Travel demand rebounded faster than airline capacity)	BTS
2022	2.7% of flights were cancelled (The highest rate in a decade (excluding 2020))	BTS
2023	1.4% of flights were cancelled But with 77 million delay minutes.	BTS

Objectives:

1. Problem Scale & Frequency

- Monthly Failure Volume & Trends
- Airline Disruption Frequency Ranking
- Cancellation vs. Delay Ratio

2. Severity & Impact

- Delay Severity Distribution
- Worst-Case Scenario Identification

3. Geographic Contribution

- Destination Airport Impact
- Problematic Route Corridors
- Regional Disruption Patterns

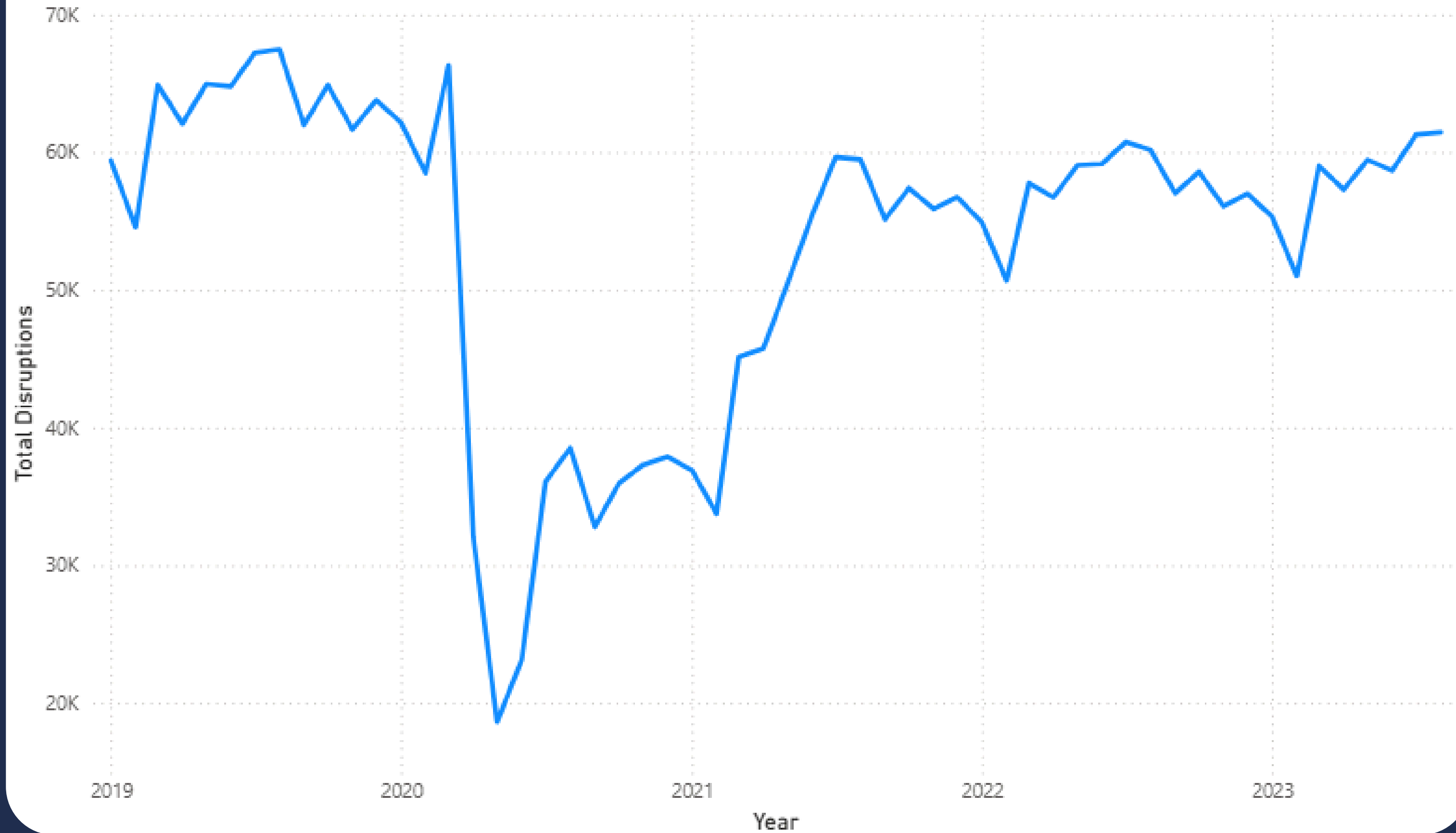
4. Time Contribution

- Time-of-Day Failure Patterns
- Day-of-Week Patterns
- Seasonal Pattern

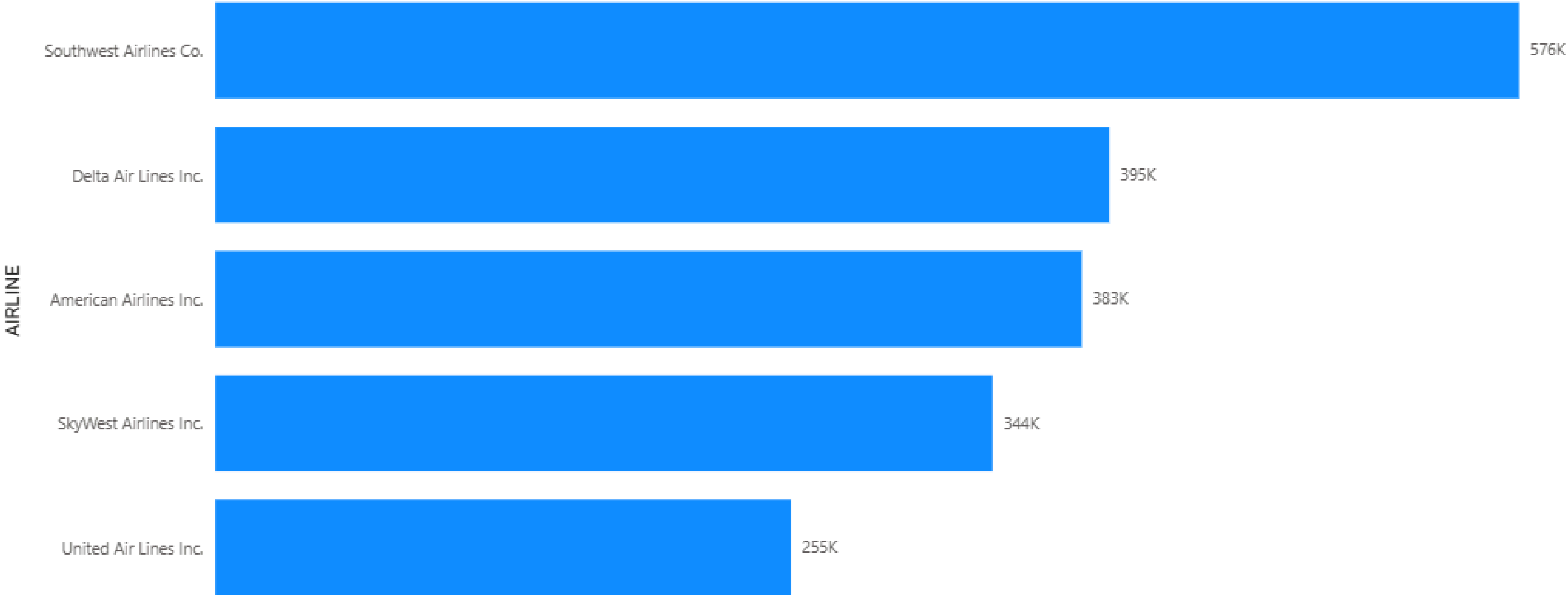
5. Operational Contribution

- Flight Distance vs. Delay Severity
- Scheduled vs. Actual Air Time
- Taxi Time Impact

Total Disruptions Over Time



Top Airlines with Most Disruptions



Total Disruptions

Top Airlines with Most Disruption

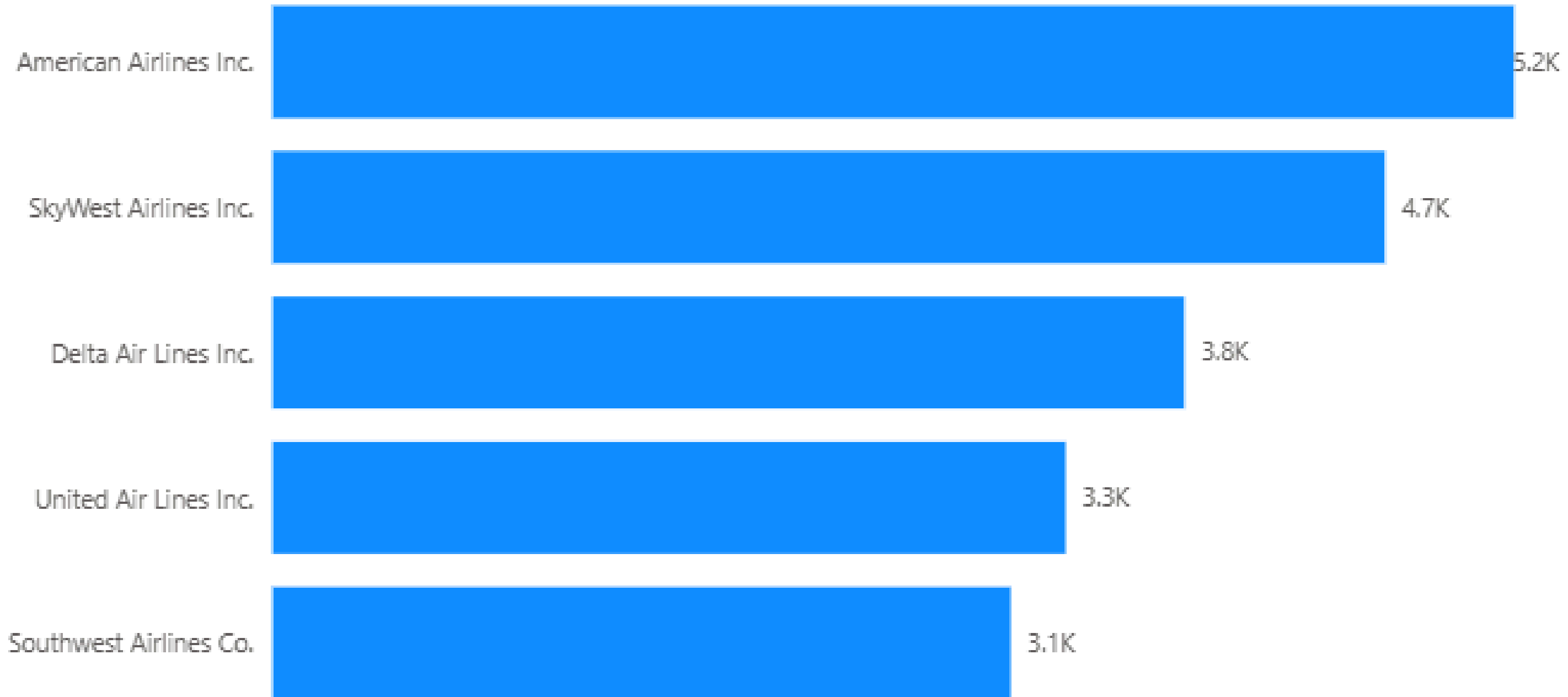
Cancellations Delayed Flights

AIRLINE



Cancellations and Delayed Flights

Top Airlines with Extreme Delays



Extreme Delays

Top Routes with Most Delays

