Report On Flight Operations Analysis

1. Introduction:

This report provides an in-depth analysis of flight operations across three major airlines (Airline A, Airline B, and Airline C). By examining key operational metrics such as total revenue, ticket pricing, passenger volume, flight durations, and delay impacts, this analysis seeks to uncover insights that can drive better decision-making and improve efficiency in airline operations. The data was processed using Excel Pivot Tables and Power BI visualization, with the focus on comparing the performance of these airlines across various routes, understanding revenue distribution, ticket pricing trends, and analyzing flight durations.

2. Data Analysis in Excel:

Data cleaning was performed, including handling missing values and formatting.

Pivot Tables: Pivot tables were used to calculate key metrics, like total revenue, average delay per routes, and passengers.

Insights: These tables helped in providing insights into the operational landscape, improvements that could be made, such as optimizing flight schedules and managing delays.

Total revenue by Airline

Row Labels	Sum of revenue
Airline A	$ 12,690,094.00
Airline B	$ 12,466,576.00
Airline C	$ 12,661,543.00
Grand Total	**$ 37,818,213.00**

Total Number of flight by each Airline

Row Labels	Count of flightID
Airline A	337
Airline B	335
Airline C	328
Grand Total	**1000**

Total Passengers by Airline

Row Labels	Sum of passengers
Airline A	41,769.00
Airline B	40,709.00
Airline C	40,695.00
Grand Total	**123,173.00**

Months with Peak Passengers

Row Labels	Sum of passengers
January	90,929.00
February	32,244.00
Grand Total	**123,173.00**

Average Ticket Prices

Row Labels	Average of ticketPrice
Airline A	$ 300.16
Airline B	$ 307.81
Airline C	$ 313.74
Grand Total	**$ 307.18**

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Maximum Ticket Prices

Row Labels	Max of ticketPrice
Airline A	$ 498.00
Airline B	$ 499.00
Airline C	$ 499.00
Grand Total	**$ 499.00**

Minimum Ticket Prices

Row Labels	Min of ticketPrice
Airline A	$ 100.00
Airline B	$ 101.00
Airline C	$ 100.00
Grand Total	**$ 100.00**

Avg Duration by Origin

Row Labels	Average of Duration
ATL	**3:05 AM**
ATL	2:48 AM
DFW	3:18 AM
JFK	3:08 AM
LAX	3:24 AM
MIA	2:46 AM
ORD	3:02 AM
Grand Total	**3:05 AM**

Ticket prices across different Routes

Row Labels	Sum of ticketPrice
ATL	$ 51,328.00
DFW	$ 56,200.00
JFK	$ 53,663.00
LAX	$ 42,283.00
MIA	$ 51,586.00
ORD	$ 52,120.00
Grand Total	**$ 307,180.00**

Routes Durations

Row Labels	Average of Duration
ATL	**2:58 AM**
ATL	2:48 AM
DFW	2:57 AM
JFK	3:13 AM
LAX	3:04 AM
MIA	2:27 AM
ORD	3:18 AM
Grand Total	**2:58 AM**

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3. Strategic Recommendations:

Revenue Optimization: Consider increasing ticket prices on high-demand routes like DFW and JFK to boost revenue.

Route Efficiency: Shorten durations on longer routes, such as ATL to LAX, to improve efficiency and customer experience.

Seasonal Adjustments: Prepare for peak travel periods like January by optimizing flight schedules and increasing capacity.

Improve Delays: Focus on reducing delays across all airlines to enhance operational efficiency.

4. Conclusion:

By focusing on reducing delays, optimizing routes, and enhancing profitability, the airline can significantly improve its operational efficiency and financial performance. The recommendations provided are based on an analysis of the available data and aim to address the key challenges faced by the airline. Implementing these strategies should lead to better resource utilization, increased customer satisfaction, and a stronger competitive position in the market.