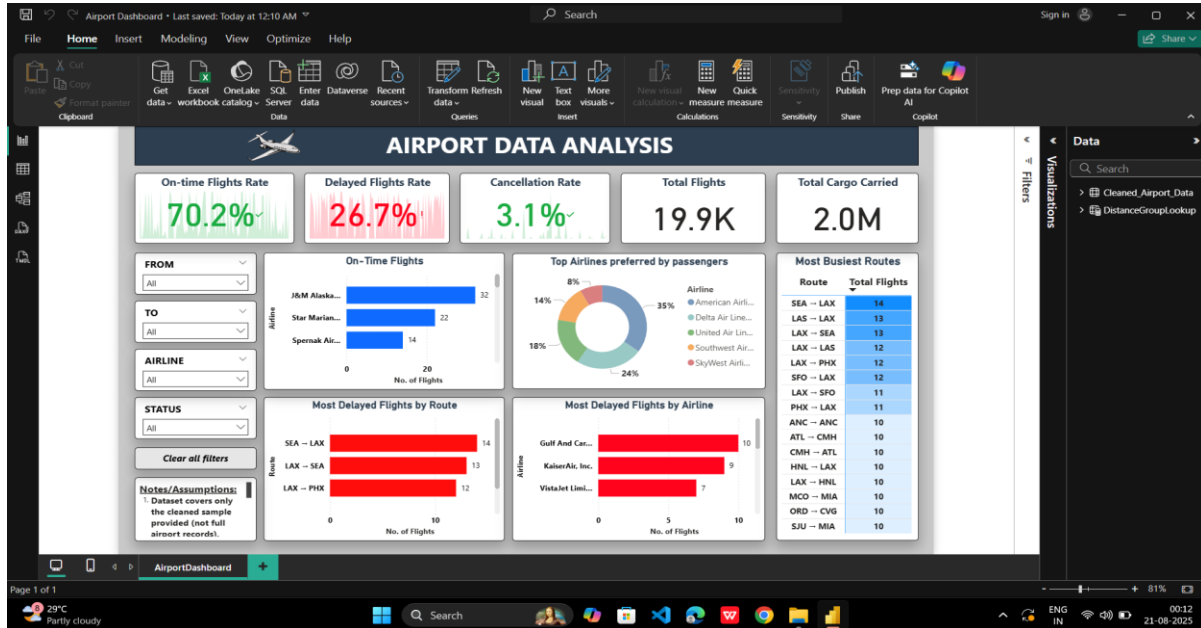# Airport Data Analysis Report

1. Dashboard Overview:

2. Approach:

The approach to this Airport Data Analysis project involved the following steps:

i. **Data Cleaning:** Removal of inconsistencies and irrelevant records, handling missing values.

ii. **Data Transformation:** Standardizing formats, calculating KPIs such as On-time Flights Rate, Delayed Flights Rate, and Cancellation Rate.

iii. **Dashboard Development:** Visualization of KPIs and insights using Power BI including filters for From, To, Airline, and Status.

iv. **Insights Generation:** Identifying busiest routes, most delayed routes, and airline performance.

3. Data Quality Notes:

i. The dataset covers only the cleaned sample provided (not the full airport records).

ii. Some routes and airlines may have limited representation.

iii. Assumptions were made for missing or incomplete data.

iv. Results are representative of the dataset provided and may not reflect full-scale operational performance.

4. KPI Summary:

KPIs	Insights
On-time Flight Rate	A majority of flights are on-time, but there is room for improvement.
Delayed Flight Rate	More than 1 in 4 flights experience delays. This is a significant concern.
Cancellation Rate	Cancellations are relatively low, indicating stable airline operations.
Total Flights	The dataset covers ~20,000 flights.
Total Cargo Carried	Absolute number of cargo carried (in tons).
Most Busiest Route	14 flights recorded, making it the busiest route in this sample.
Most Delayed Airline	Needs focused operational improvements.

5. Insights:

i. **Busiest Route:** SEA – LAX with 14 flights is the busiest route among all routes.

ii. **Top Airlines Preferred:** American Airlines (35%) leads, followed by Delta Airlines (24%), etc are the most preferred Airlines by the passengers.

iii. **Most Delayed Routes:** SEA – LAX (14 delays), followed by LAX – SEA (13 delays).

iv. **Most Delayed Airlines:** Gulf & Caribbean cargo is the most delayed carrier.

v. **On-Time Performance:** J&M Alaska Airline performed better with 32 on-time flights compared to others.

6. Recommendations:

i. **Improve On-Time Performance:** Focus on routes like SEA–LAX and LAX–SEA where delays are frequent.

ii. **Airline-Specific Strategies:** Southwest Airlines should investigate delay reasons and improve scheduling.

iii. **Passenger Experience:** Since American Airlines is the most preferred, maintaining punctuality should be a key focus.

iv. **Cancellation Reduction:** Review the causes of the 3.1% cancellation rate and minimize operational disruptions.

v. **Scalability:** Extend this analysis to full airport records for more accurate decision-making.