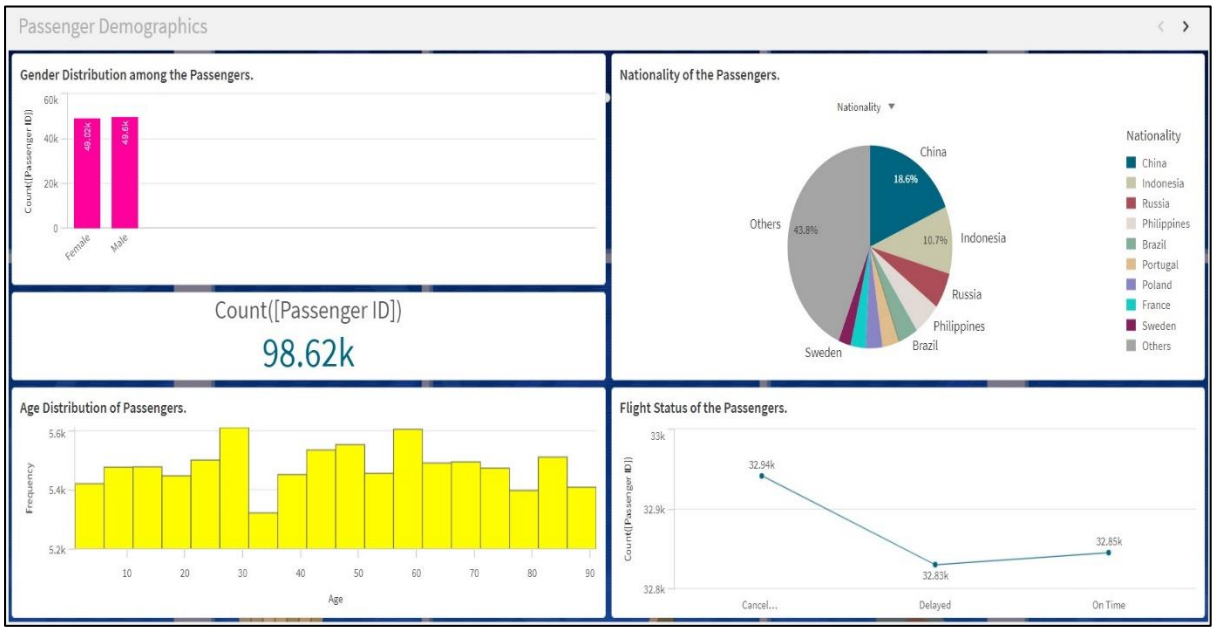
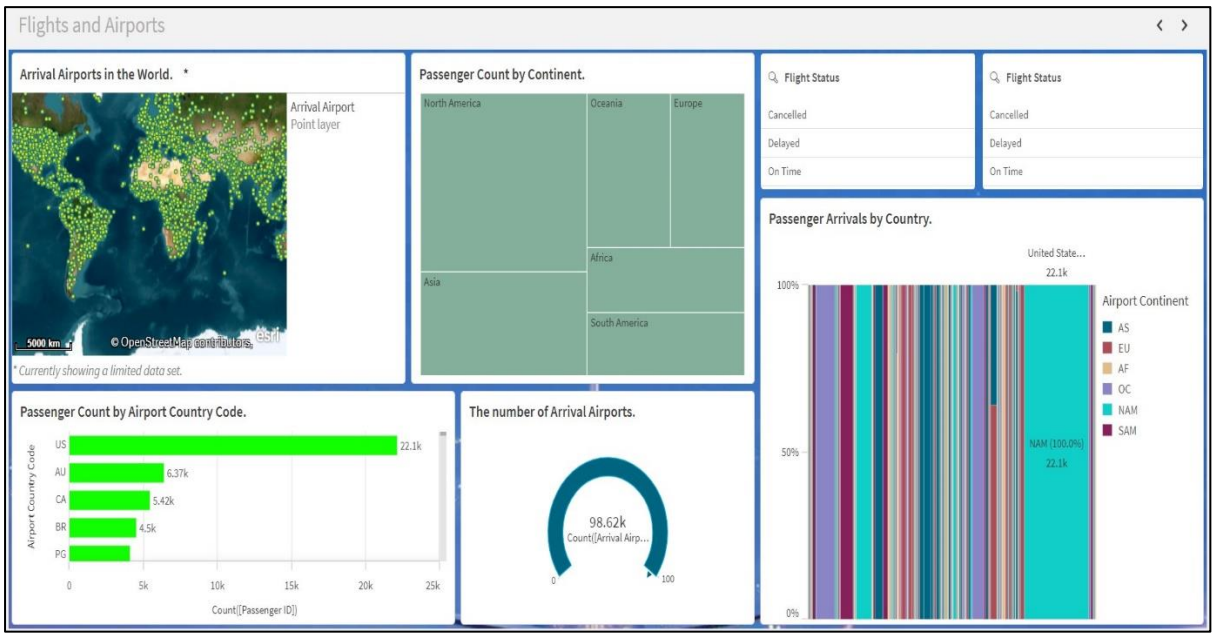
Exploring Insights from Synthetic Airline Data Analysis with Qlik

Visualizations

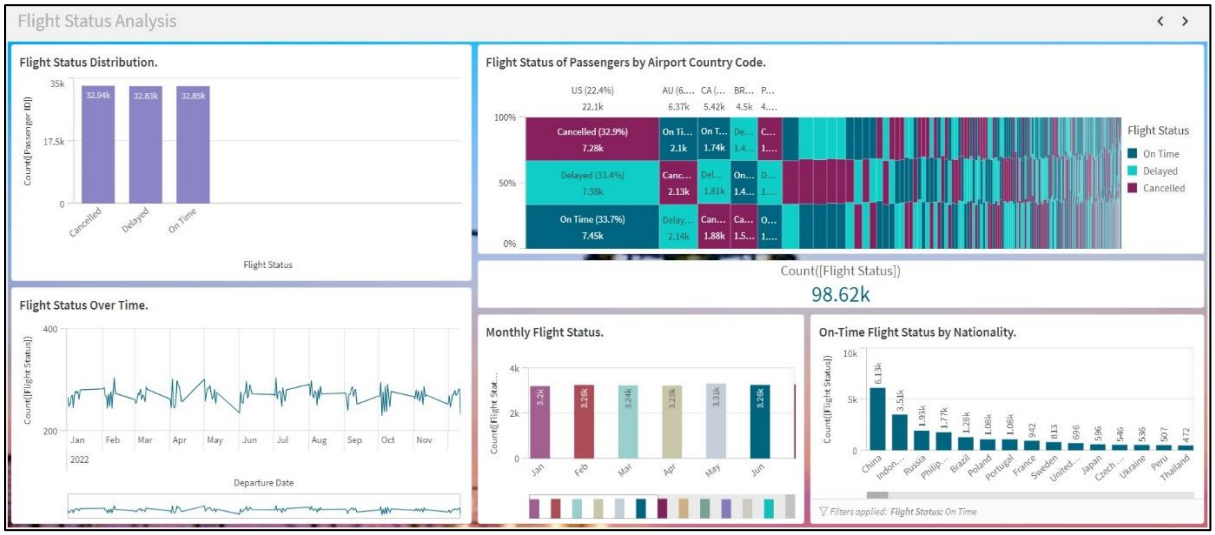
Dashboard 1:



Dashboard 2:



Dashboard 3:

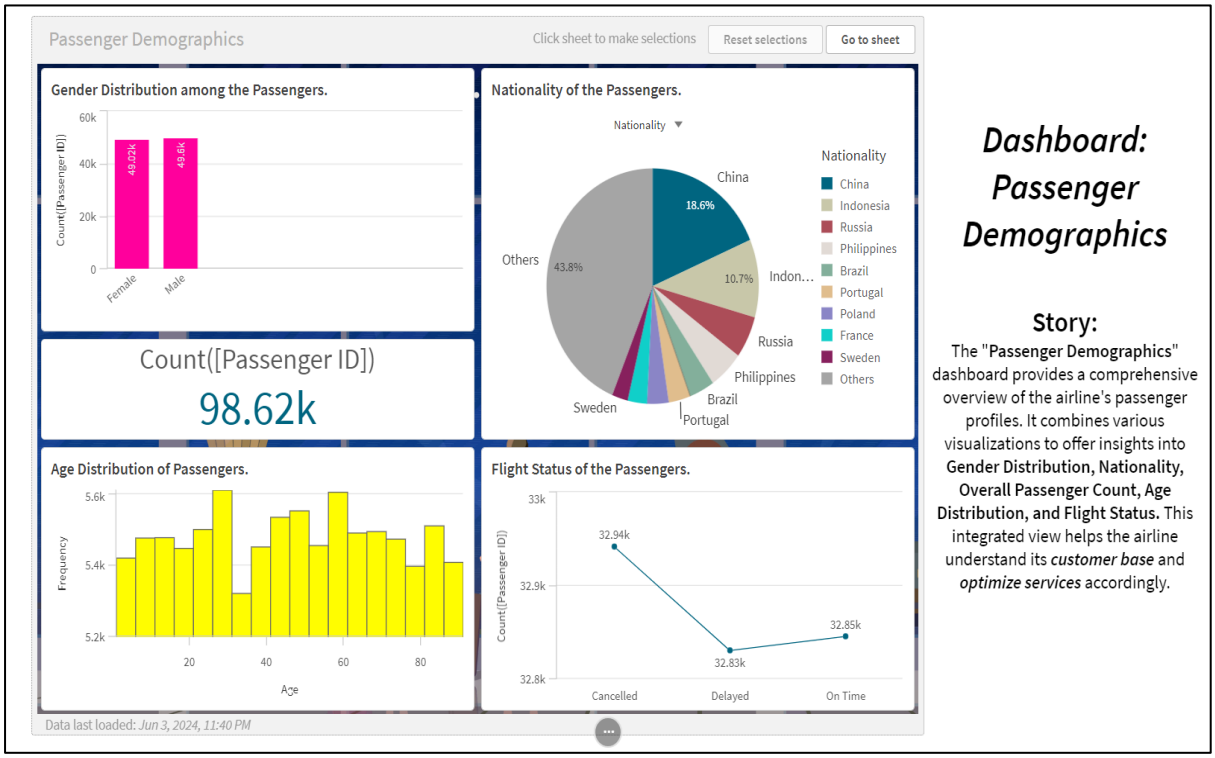


Dashboard 4:

Dashboard 5:

Story Telling

Story Telling 1:



1. Gender Distribution Among Passengers (*Visualization: Bar Chart*)

X-Axis: Gender (Male, Female)
Y-Axis: Count of Passenger IDs
Story: This bar chart shows the number of male and female passengers, revealing the gender composition. Here, there are 49.02k male and 49.6k female passengers, males make up 49.71% and females 50.29%. This insight can inform the airline's marketing and service strategies.

2. Nationality of Passengers (*Visualization: Pie Chart*)

Slices: Nationality
Size: Count of First Names
Story: The pie chart illustrates the distribution of passengers by nationality, highlighting the most common nationalities. For instance, here Chinese passengers account for 18.6%, Indonesians 10.7%, and Russians 5.8%, this helps the airline understand where most of its passengers come from and potentially cater to the preferences of these groups.

3. Total Passenger Count (*Visualization: KPI*)

Metric: Count of Passenger IDs
Story: The KPI displays the total number of passengers, providing a quick snapshot of the airline's customer base size. Here, it shows "Total Passengers: 89.62k," which immediately conveys the operations' scale and helps assess growth or decline over time.

Count([Passenger ID])
98.62k

4. Age Distribution of Passengers (*Visualization: Histogram*)

X-Axis: Age
Y-Axis: Frequency (Count of Passenger IDs)
Story: The histogram presents the age distribution of passengers, highlighting which age groups are most prevalent. For instance, the majority of passengers are aged 26-31, the airline can tailor its services to suit the needs and preferences of this age group.

5. Flight Status of Passengers (*Visualization: Line Chart*)

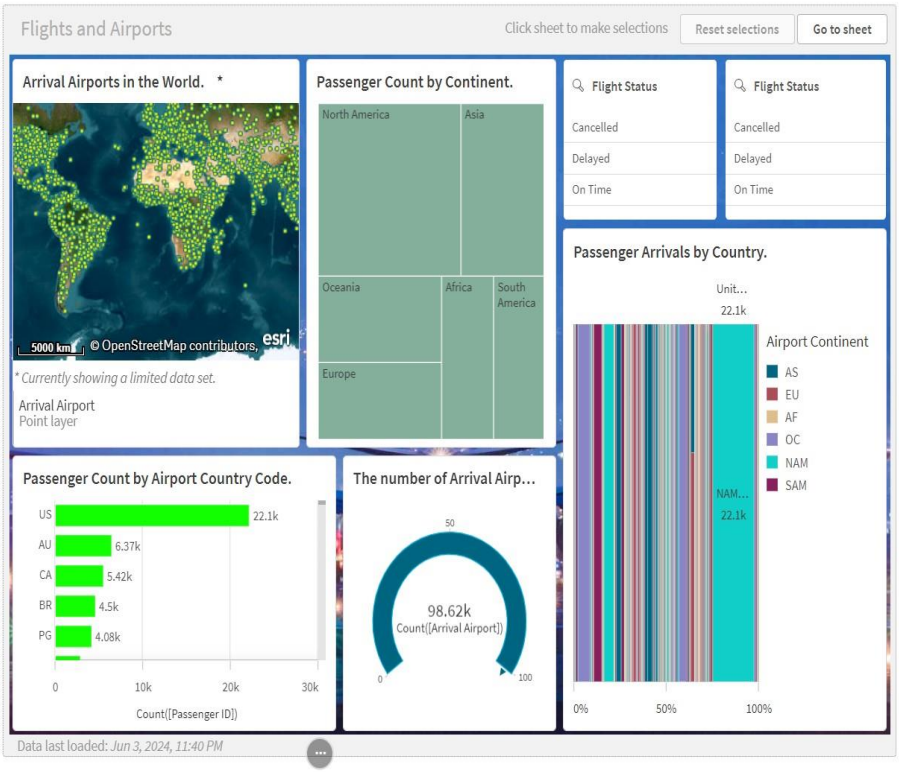
X-Axis: Flight Status (e.g., On Time, Delayed, Cancelled)
Y-Axis: Count of Passenger IDs
Story: The line chart tracks the number of passengers by flight status over time, showing trends and peaks. For example, there is a peak in the number of canceled flights, and the airline can investigate and address potential causes for these cancellations to improve service punctuality.

Story Telling 2:

Dashboard: Flights and Airports

Story:

The **"Flights and Airports"** dashboard provides a detailed analysis of **Arrival Airports, Passenger Distribution by Continent and Country, Flight Status, and Passenger Counts.** This narrative helps stakeholders understand *flight patterns, passenger demographics, and operational efficiency* across different regions.



1. Arrival Airports in the World (*Visualization: Map*)

Data Points: Arrival Airports
Story: This map visualization shows the locations of arrival airports worldwide. By visualizing arrival airports on a global map, we can see the geographic spread and identify key hubs. For instance, major cities with high passenger traffic are highlighted, indicating important destinations for the airline.

2. Passenger Count by Continent (*Visualization: TreeMap*)

Dimensions: Continents
Measure: Count of Passenger IDs
Story: The treemap illustrates the distribution of passengers by continent. This visualization shows which continents have the highest passenger counts. For example, here the largest section represents North America which indicates that North America has the highest number of passengers, guiding regional marketing and operational strategies.

3. Flight Status (*Visualization: Filter Pane*)

Dimensions: Flight Status (e.g., On Time, Delayed, Cancelled)
Story: The filter pane allows users to filter the dashboard by different flight statuses. Users can dynamically explore data based on the current status of flights, providing a real-time understanding of operational conditions. For example, filtering to show only "Delayed" flights can help identify patterns and areas needing improvement.

4. Passenger Count by Airport Country Code (*Visualization: Horizontal ComboChart*)

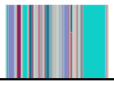
X-Axis: Count of Passenger IDs
Y-Axis: Airport Country Code
Story: The combo chart shows the number of passengers for each airport country code. This visualization highlights which countries have the highest passenger counts. For example, "US" has the highest bar which indicates that the United States have the most passengers, helping to prioritize resources and marketing efforts in that country.

5. Number of Arrival Airports (*Visualization: Gauge*)

Measure: Count of Arrival Airports
Story: The gauge shows the total number of arrival airports served by the airline. This provides a quick overview of the airline's reach. For instance, a gauge showing 150 arrival airports indicates the airline's extensive network and helps in assessing network expansion goals.

6. Passenger Arrivals by Country (*Visualization: Mekko Chart*)

Dimensions: Country Name, **Cells** - Airport Continent
Measure: Count of Passenger IDs
Story: The Mekko chart illustrates passenger arrivals by country and continent.Insight: This chart provides a detailed view of passenger distribution, showing both the volume of passengers and their regional distribution. For example, if the chart shows a large block for "USA" in "North America", it highlights the significant passenger traffic to the United States, guiding strategic decisions.



Story Telling 3:

Dashboard: Flight Status Analysis

Story:

The "Flight Status Analysis" dashboard provides a detailed examination of the **flight statuses across different dimensions such as distribution by status, airport country code, and nationality.** It also tracks the **flight statuses over time and by month.** This analysis helps stakeholders understand the ***performance and reliability of flights, identifying patterns and areas for improvement.***

1. Flight Status Distribution (*Visualization: Bar Chart*)

X-Axis: Flight Status (e.g., On Time, Delayed, Cancelled)
Y-Axis: Count of Passenger IDs
Story: This bar chart displays the distribution of flight statuses, highlighting the *count of passengers affected by each status.* Here the *"Cancelled"* bar is significantly *higher* than *"Delayed"* and *"On Time"* which indicates that the majority of flights aren't punctual, indicating the airline's to *increase their reliability.*

2. Flight Status of Passengers by Airport Country Code (*Visualization: Mekko Chart*)

Dimensions: Airport Country Code, Flight Status
Measure: Count of Passenger IDs
Story: The Mekko chart illustrates the distribution of flight statuses across different airport country codes. This visualization *shows which countries experience more delays or cancellations.* For instance, flights from the *US* have a *higher proportion of delays* which indicates *potential operational issues* in that region, *prompting further investigation.*

3. Total Flight Status Count (*Visualization: KPI*)

Measure: Count of Flight Statuses
Story: The KPI displays the *total number of recorded flight statuses.* For example, showing *"Total Flight Status Records: 98.62k"* provides a quick snapshot of the *dataset size*, indicating the *volume of flight data being analyzed.*

4. Flight Status Over Time (*Visualization: Line Chart*)

X-Axis: Departure Date
Y-Axis: Count of Flight Statuses
Story: This line chart tracks the *number of flights by status over time, showing trends and patterns.* If the chart reveals an *increasing* trend in *delayed flights* during *certain months*, it can indicate *seasonal challenges or operational inefficiencies* that need addressing.

5. Monthly Flight Status (*Visualization: Bar Chart*)

X-Axis: Month of Departure Date
Y-Axis: Count of Flight Statuses
Story: The bar chart shows the *monthly distribution of flight statuses.* Here, *April* shows a *higher* count of *"Delayed"* statuses, it could be due to *weather conditions* affecting flight schedules, highlighting the *need for better contingency planning* during these months.

6. On-Time Flight Status by Nationality (Visualization: Bar Chart)

X-Axis: Nationality
Y-Axis: Count of Flight Statuses
Filter: Flight Status (On Time)
Story: This bar chart displays the *count of on-time flights for passengers of different nationalities.* Here, *"Chinese"* passengers have the *highest* count of *on-time flights* which indicates *reliable service* for this demographic, informing *marketing strategies* and *customer service enhancements* for other nationalities.

Preprocessed Dataset

Airline Dataset Updated - v2
Airline Dataset Updated - v2.csv
Columns: 15
Rows: 98619

Unpivot | Add field | Select data from source

Passenger ID	First Name	Last Name	Gender	Age	Nationality	Airport Name	Airport Count...	Country Name
165488	Dionis	Joist	Female	4	Philippines	Bremen Airport	DE	Germany
824967	Federica	Peters	Female	16	Portugal	Watson Lake Airport	CA	Canada
0a1ws9	Lammond	Sargood	Male	59	Serbia	Karluk Lake Seaplane Base	US	United States
0A1yOa	Arel	Beswick	Male	83	United States	Holy Cross Airport	US	United States
0A2OYl	Jack	Mitrikhin	Male	89	Turkey	Rottnest Island Airport	AU	Australia
0a5x5P	Perry	Pretsell	Male	64	Nigeria	Vallenar Airport	CL	Chile
0a7Cyn	Hall	Baselio	Male	41	Nicaragua	Yongphulla Airport	BT	Bhutan
0a8dgV	Thorsten	Shorto	Male	51	China	South Cariboo Region / 108 Mile Airport	CA	Canada
0A21rX	Rachael	Dehn	Female	46	Portugal	Kalgoorlie Boulder Airport	AU	Australia
0A882z	Mordecai	Bodycombe	Male	39	China	Pouso Alegre Airport	BR	Brazil
0aadJy	Henrik	Sparsholt	Male	44	Portugal	Nonoaí Airport	BR	Brazil
0AaQgs	Freddi	Lightwood	Female	36	China	Dublin Airport	IE	Ireland
0ABwzj	Haleigh	Greeve	Male	15	Azerbaijan	Capital City Airport	US	United States
0aCQ4S	Filmore	Oertzen	Male	43	Syria	Villa Garzón Airport	CO	Colombia
0adLfT	Ferne	Tibbs	Female	63	China	Qinhuangdao Beidaihe Airport	CN	China
0AdzKV	Marcile	Arpin	Female	20	Turkmenistan	Yes Bay Lodge Seaplane Base	US	United States
0AeX0D	Merralee	Gerrard	Female	39	Nepal	Valdez Pioneer Field	US	United States
0aF2JH	Casper	Kolin	Male	89	Czech Republic	Borg El Arab International Airport	EG	Egypt
0Ag9k2	Shannon	MacNelly	Male	37	Russia	Mara Lodges Airport	KE	Kenya
0AGxaE	Joellen	Gooder	Female	83	Indonesia	Beijing Daxing International Airport	CN	China
0aGxGw	Domingo	Halward	Male	55	Cambodia	Tambohorano Airport	MG	Madagascar

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Passenger ID	First Name	Last Name	Gender	Age	Nationality	Airport Name	Airport Count...	Country Name
0Ah752	Tiertza	Whild	Female	77	China	Abresso Airport	ID	Indonesia
00Ahsk	Lorine	Kearton	Female	78	Sudan	Ngukurr Airport	AU	Australia
0AibM9	Pauly	Coulton	Male	55	China	Vestmannaeyjar Airport	IS	Iceland
0Alzlz	Jodie	Nelligan	Female	86	China	Overberg Airport	ZA	South Africa
0aKHSU	Jonah	Lydster	Male	27	Italy	Lankaran International Airport	AZ	Azerbaijan
0AknTv	Nathalie	Boddice	Female	40	Greece	Voinjama Airport	LR	Liberia
0ALAAk	Lion	Trounce	Male	74	China	Stevens Point Municipal Airport	US	United States
0ALCLa	Purcell	Eccleshall	Male	29	Ukraine	Charata Airport	AR	Argentina
0AlQ2l	Jobie	Yeskin	Female	23	Indonesia	Bousso Airport	TD	Chad
0amvFk	Link	Basilone	Male	86	China	Tomanggong Airport	MY	Malaysia
0AMwdl	Sinclair	Yezafovich	Male	4	China	Santa Ana Airport	SB	Solomon Islands
0An1bQ	Egor	Gloster	Male	65	Morocco	Evanston-Uinta County Airport-Burns Field	US	United States
0AN13u	Rozamond	Duffrie	Female	25	Russia	Londolovit Airport	PG	Papua New Guinea
0ANcMl	Rollins	Castelletti	Male	26	Indonesia	Ati Airport	TD	Chad
0ANIr0	Michaelina	Iorio	Female	5	Peru	Malmstrom Air Force Base	US	United States
0ANJso	Twyla	Willmont	Female	32	Peru	Yas Island Seaplane Base	AE	United Arab Emirates
0aq3QA	Dinny	Tomasicchio	Female	48	Japan	Chifeng Airport	CN	China
0aqfee	Giacomo	Gillice	Male	68	France	Kenema Airport	SL	Sierra Leone
0aqso0	Staffard	Pargiter	Male	81	Indonesia	Amderma Airport	RU	Russian Federation
0aqWaU	Cart	Naisby	Male	7	Russia	Einasleigh Airport	AU	Australia
0ArA8W	Sheridan	Stit	Male	71	China	Oakey Airport	AU	Australia