

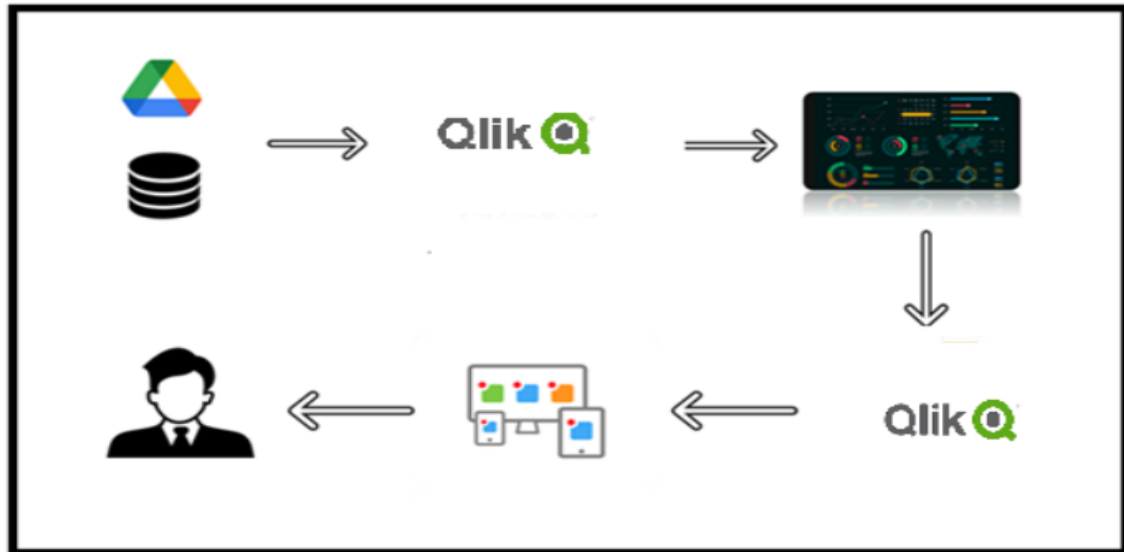
# Goal of the Project: Utilizing Qlik to explore Insights from Synthetic Airline Data

***Project Overview: This project aims to utilize Qlik (specifically Qlik Sense) to derive and explore valuable insights from Airline Dataset to drive business. Qlik is a business intelligence and data visualization tool.***

***In this project, the synthetic airline data simulates various aspects of airline operation, including flight schedules, passenger demographics, ticket sales, and performance metrics. The aim is to utilize Qlik for the purpose of business intelligence and to uncover patterns by leveraging Qlik's analytical tools, to aid in the decision-making process.***

# Qlik Sense Project Documentation by Arijeet Sarkar

## Technical Architecture:



*f*

To accomplish this project, the path undertaken is composed of steps which are illustrated below-:

- Data Collection and Extraction from Database
- Data Preparation
- Data Visualization
- Dashboard Creation

- Storytelling
- Performance Testing

## **Data Collection:**

We were provided with the dataset to work upon which was plagued with inconsistencies so it had to be processed. The data was uploaded using the Qlik interface upon which Qlik suggested the making of an app by itself. Proceeding forward, an interface showed the dataset and the various fields in it.

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The screenshot shows the Qlik Sense interface. At the top, there's a navigation bar with tabs: 'Prepare Data manager', 'Analyze Sheet', 'Narrate Storytelling', and 'Airline Analysis Qlik App'. Below this, there's a main workspace with a diagram showing 'Airline Dataset Updated - v2' and 'Processed\_Data\*'. A message at the bottom of the workspace states: '\* This table has not been loaded or has changed since the last time it was loaded.' To the right, there's a 'Recommended associations' panel showing 'Total tables: 1', 'Unassociated tables: 1', and 'Recommendations: 0'. Below the workspace, there's a 'Processed\_Data' script and a data preview table.

Processed\_Data script

Airline Datas...	Airline Dataset U...	Airline Dataset Updated - v2-...	Airline Datas...	Airline Datas...	Airline Dataset Updated - v2-1.Nationality	Airline Dataset Updated - v2-1.Airport Name	Airline Datas...	Airline Dataset Updated - v2-1.Coun
165488	Dionis	Jolist	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
0a1y0a	Arel	Beswick	Male	83	United States	Holy Cross Airport	US	United States
0a20Yl	Jack	Mitrikhin	Male	89	Turkey	Rottneest Island Airport	AU	Australia
0a5x5P	Perry	Pretsell	Male	64	Nigeria	Vallenar Airport	CL	Chile

Hide data preview

The above image contains the airline dataset updated -v2 which was the raw data we were provided with.

## Data preparation:

As the raw data contained noise and inconsistency(in the form of '0' and '-' in the airport arrival field) therefore it had to be cleaned which was done with Qlik Data Manager.The following script helped us to

do the cleaning-:

```
118
119 [Airline Dataset Updated - v2]:
120
121 Load *;
122
123 [Airline Dataset Updated - v2]:
124
125 NoConcatenate Load *,
126 if(Age>=0 and Age <=1,'Baby',
127     if(Age>=1 and Age <=3,'Toddler',
128     if(Age>=4 and Age <=4,'Child',
129     if(Age>=10 and Age <=12,'Tween',
130     if(Age>=13 and Age <=19,'Teen',
131     if(Age>=20 and Age <=24,'Young Adult',
132     if(Age>=25 and Age <=39,'Adult',
133     if(Age>=40 and Age <=54,'Middle',
134     if(Age>=55 and Age <=79,'Elder',
135     if(Age>=80,'Just plain old')))))))) AS AgeGroup,
136 Date#([Departure Date], 'MM/DD/YYYY') as [Departure_Date],
137 Year([Departure Date]) as Year,
138 Month([Departure Date]) as Month
139 RESIDENT [Airline Dataset Updated - v2]
140 WHERE NOT ([Arrival Airport]= '0' or [Arrival Airport]= '-');
141
```

This script segregated the age field into different sections required for future visualization and also removed inconsistency within the dataset.

## Data Visualization :

Data visualization was a key aspect of Qlik

Sense as it was one of the core features provided by Qlik. Several ready to use templates were provided which aided in the creation of sharp visualization

Total Number of Passengers

97.74k

Number of male passengers

49.17k

Number of female passengers

48.57k

Number of Passengers effected by Delayed flights

32.52k

Number of Passengers with on time flights

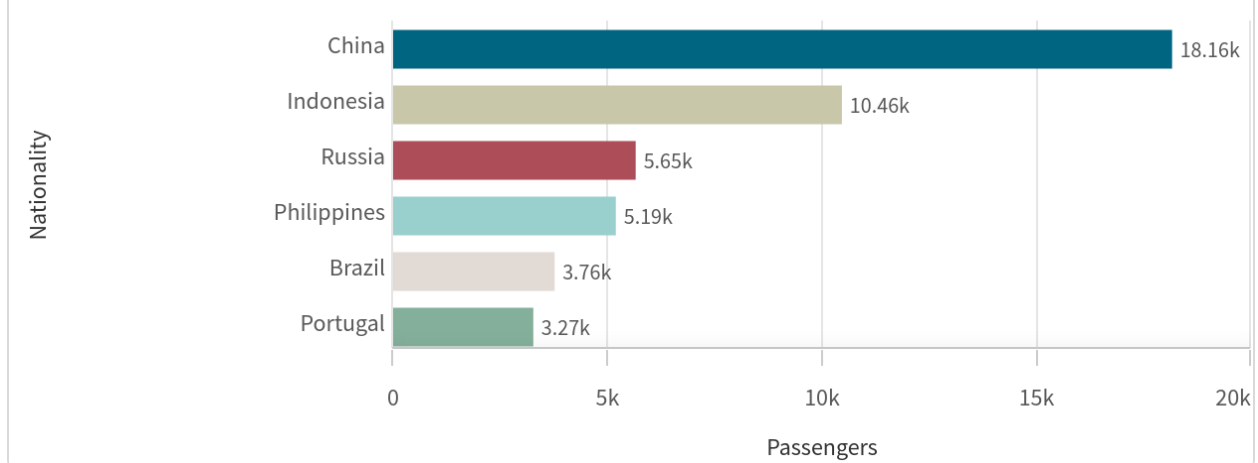
32.56k

Number of Passengers effected by cancelled flights

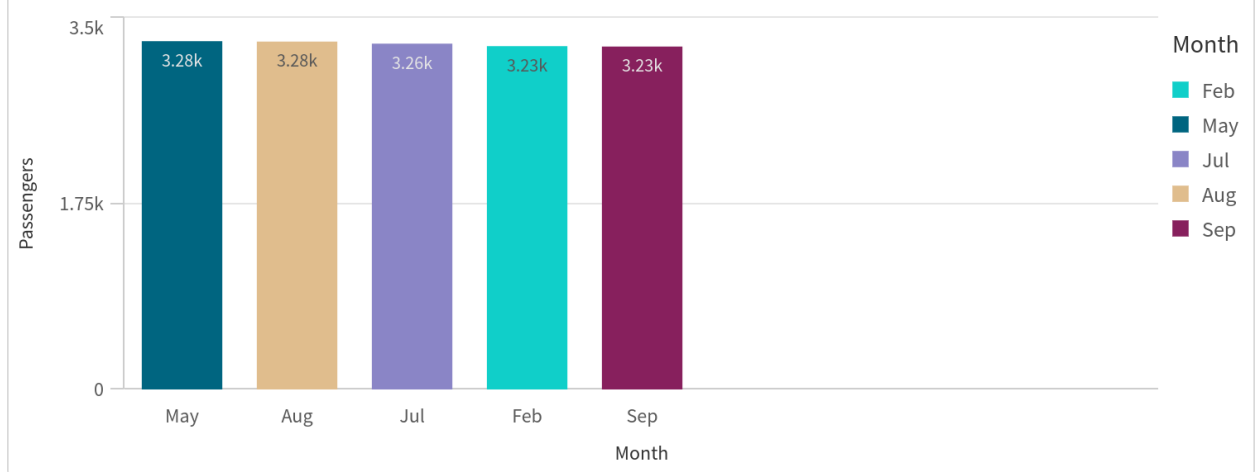
32.66k

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## Number of Passengers -Nation Wise



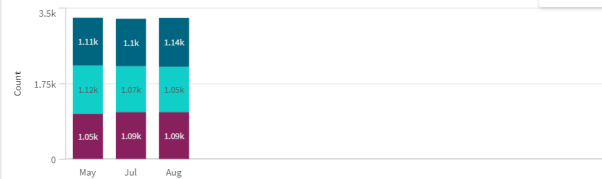
## Number of Passengers travelled -Month Wise



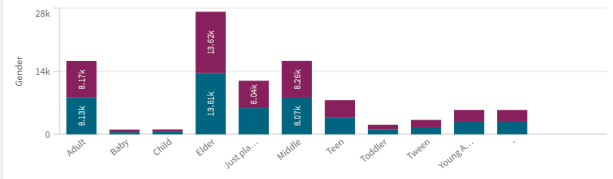
## Dashboard 2

## Airline Data Analysis

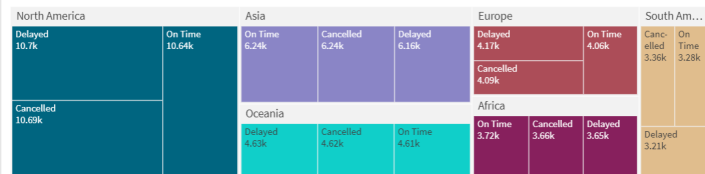
### Top 3 Months Flight Status Wise



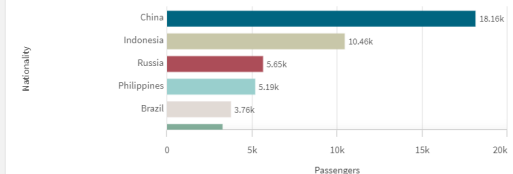
### Age group-Gender Wise



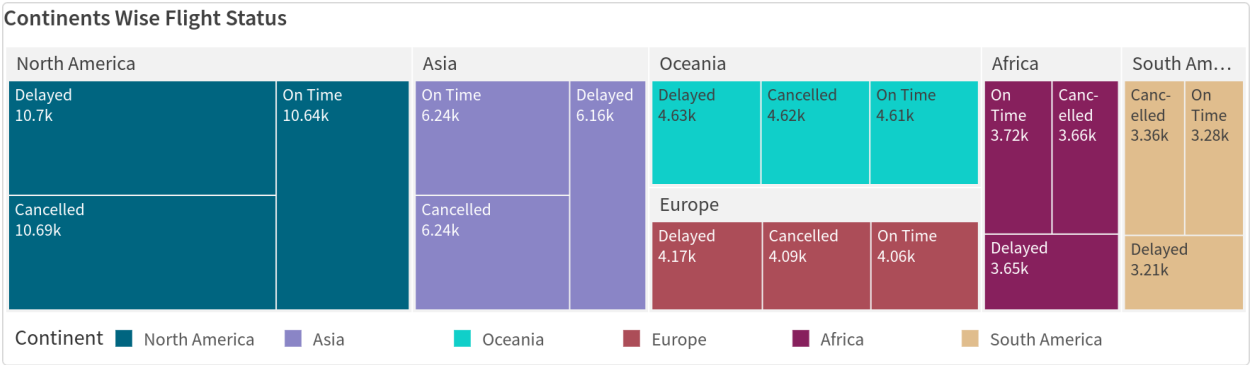
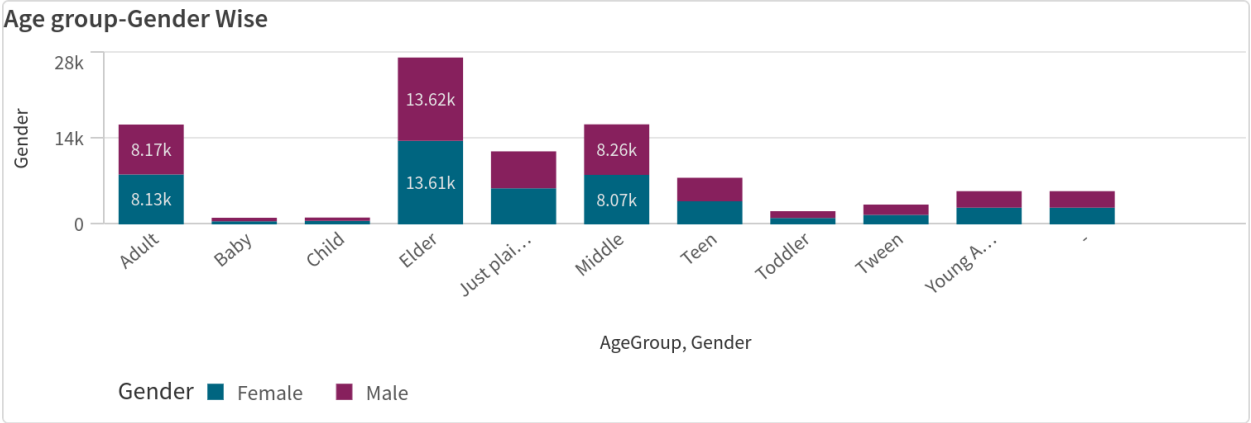
### Continents Wise Flight Status



### Number of Passengers -Nation Wise



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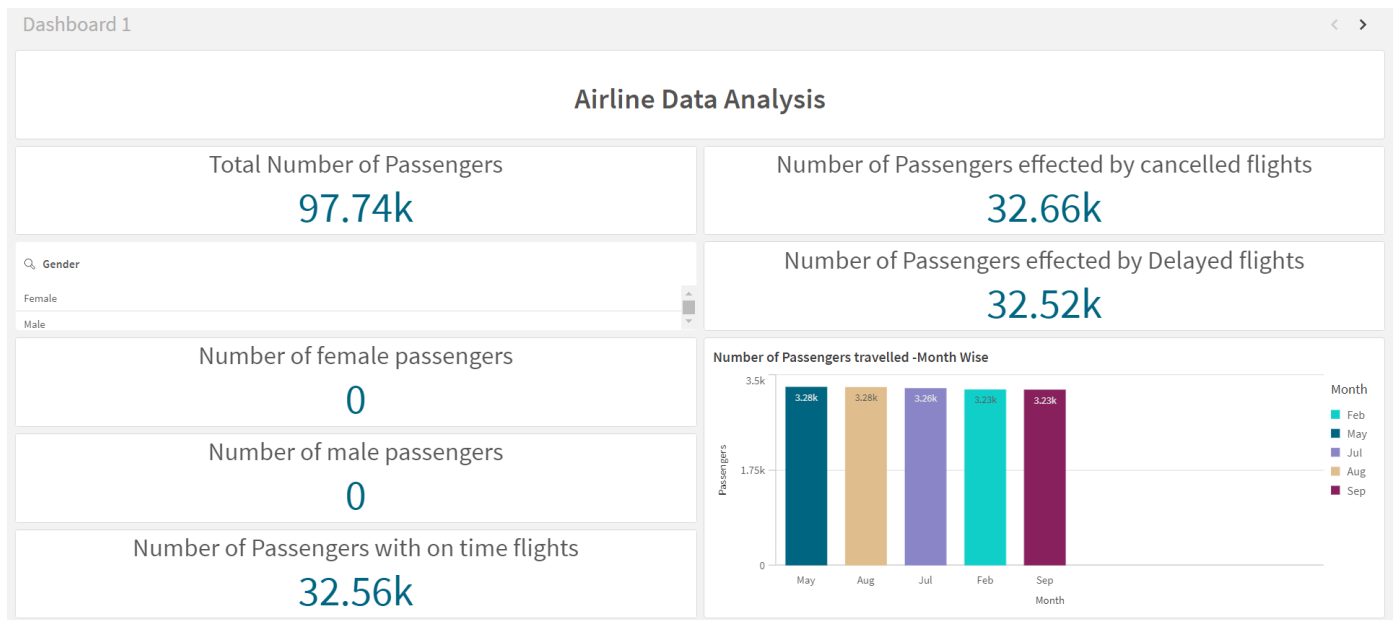


## **Dashboard Creation:**

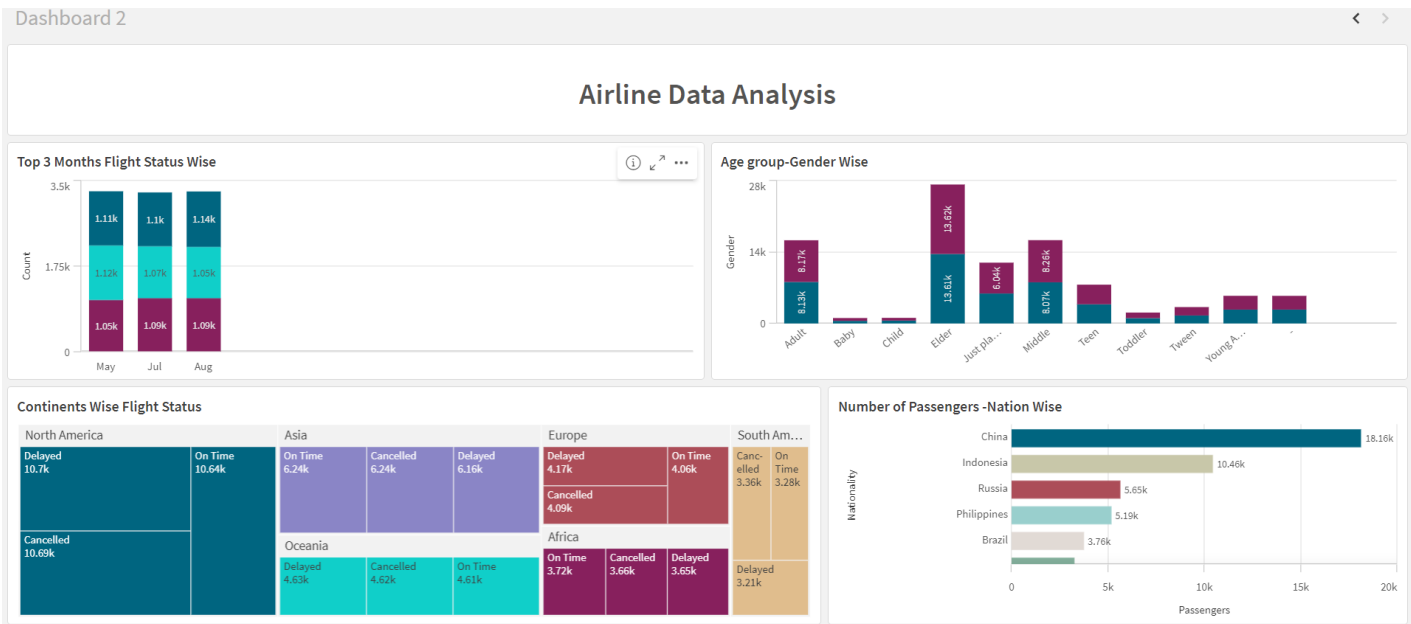
Moving forward, visualization were needed to drive business intelligence .The tools and templates provided by Qlik were useful in crisp and fast creation of dashboards.

The dashboards are created in such a manner that an end business user can interact in an easy manner and the data is curated as per the specific requirement and use cases of the aforementioned user.

The various graphs and charts created are as follows-:



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## Storytelling:

Storytelling aspect of this project was accomplished by using Qlik's Storytelling pane. The various pages generated are given below:-

# Qlik Sense Project Documentation by Arijeet Sarkar

## Exploring Insights From Synthetic Airline Data Using Qlik

Total Number of Passengers

97.74k

The number of male and female passengers travelled:-

Female : [Click here](#)

Number of Passengers effected by cancelled flights Male : [Click Here](#)

32.66k

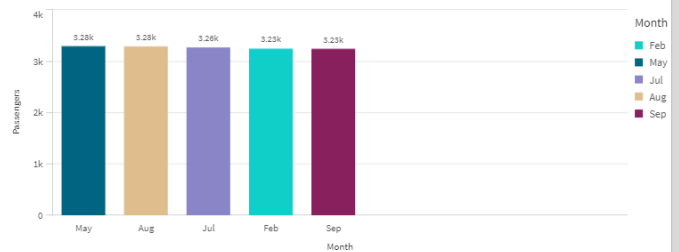
Number of Passengers effected by Delayed flights

32.52k

Number of Passengers with on time flights

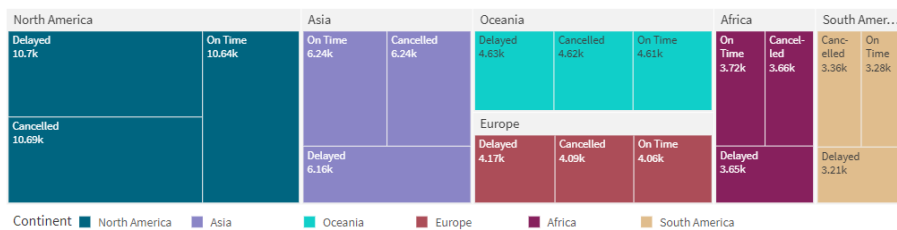
32.56k

Number of Passengers travelled -Month Wise



## Exploring Insights From Synthetic Airline Data Using Qlik

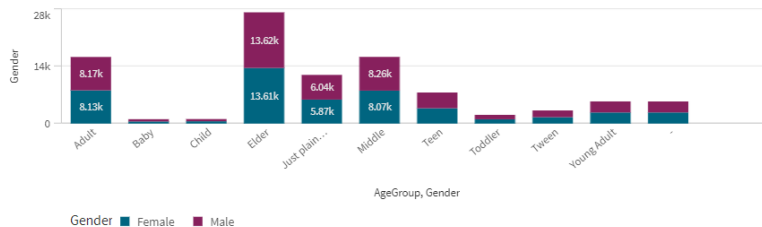
Continents Wise Flight Status



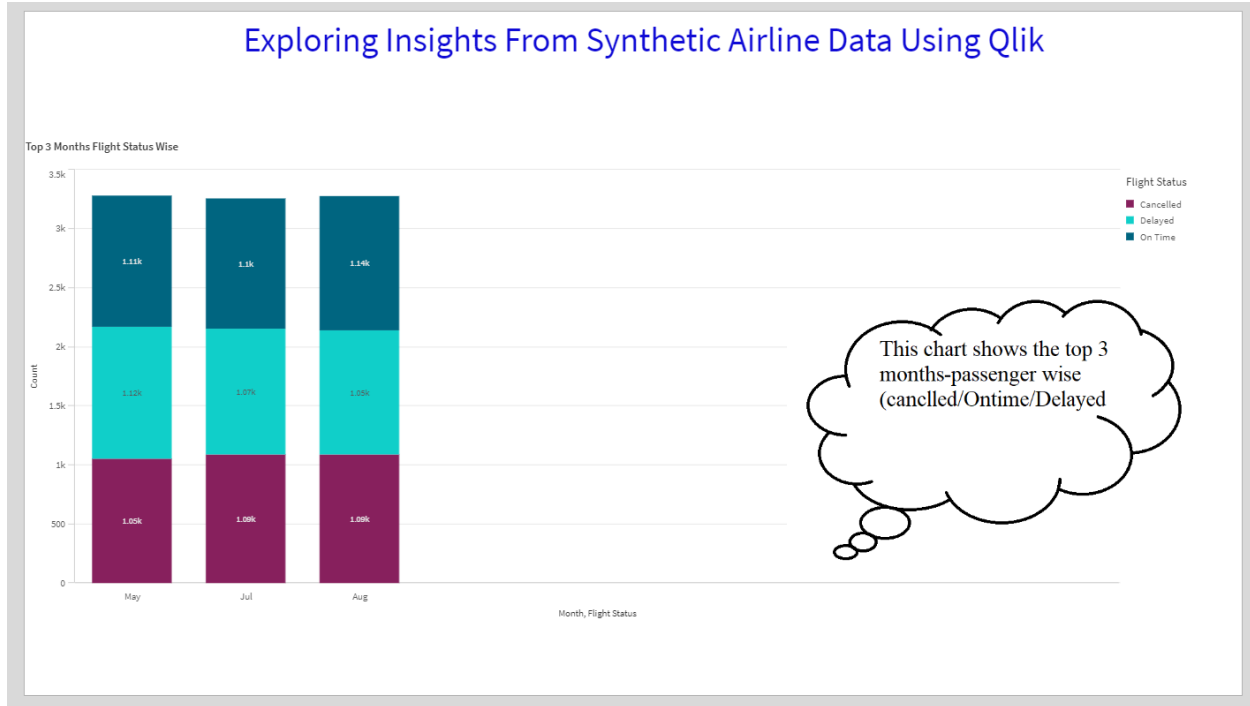
This chart shows Continent Wise Flight Status

This chart shows Age group-Gender Wise

Age group-Gender Wise



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## Performance Testing:

In order to optimize the various parameters for faster and efficient working of Qlik Analysis, an eye was kept on the data being loaded into the database. Overall optimization was kept in mind for performance efficacy.

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Airline Dataset Updated - v2	Processed_Data
Passenger ID	AgeGroup
First Name	Departure_Date
Last Name	Year
Gender	Month
Age	Airline Dataset Updated - v2-1.Passenger ID
Nationality	Airline Dataset Updated - v2-1.First Name
Airport Name	Airline Dataset Updated - v2-1.Last Name
Airport Country Code	Airline Dataset Updated - v2-1.Gender
Country Name	Airline Dataset Updated - v2-1.Age
Airport Continent	Airline Dataset Updated - v2-1.Nationality
Continents	Airline Dataset Updated - v2-1.Airport Name
Departure Date	Airline Dataset Updated - v2-1.Airport Country Code
Arrival Airport	Airline Dataset Updated - v2-1.Country Name
Pilot Name	Airline Dataset Updated - v2-1.Airport Continent
Flight Status	Airline Dataset Updated - v2-1.Continents
Airline Dataset Updated - v2.Nationality_GeoInfo	Airline Dataset Updated - v2-1.Departure Date
Airline Dataset Updated - v2.Airport Country Code_GeoInfo	Airline Dataset Updated - v2-1.Arrival Airport
Airline Dataset Updated - v2.Country Name_GeoInfo	Airline Dataset Updated - v2-1.Pilot Name
	Airline Dataset Updated - v2-1.Flight Status
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2..Nationality_GeoInfo
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2..Airport Country Code_GeoInfo
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2..Country Name_GeoInfo
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2-1.Nationality_GeoInfo
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2-1.Airport Country Code_GeoInfo
	Airline Dataset Updated - v2-1.Airline Dataset Updated - v2-1.Country Name_GeoInfo

Utilization of data filters: The usage of filter pane allows us to curate the data for specific needs by altering the dashboards for different use-cases (in this case Gender).

## **Inferences obtained from the visualization/Dashboard:**

As evident from the charts and graphs ,the airlines can use the insights for the purpose of revenue optimization by analyzing histroical ticket sales data,peak travel time,popular destinations,etc.

Moreover the end customer will also be able to benefit as the airlines would be looking to attract customers with luring offers.