



Smartbridge Internship Project Report: Unveiling Airline Insights with Qlik Cloud

**SUBMITTED BY
AKSHAYKUMAR CHILUKA**

1.INTRODUCTION:

1.1 OVERVIEW:

This feasibility study aimed at exploring Qlik Cloud as a cloud-based solution for data visualization in order to extract important information from airline statistics. We wanted to create interactive dashboards that would transform raw numbers into appealing graphs and help employees in the aviation sector make decisions.

1.2 PURPOSE:

Our primary goal was to do the following:

Identifying key performance indicators (KPIs): We identified important measures that show how well or badly an airline is doing. These could include things like on-time arrival rates for flights, types of people who use the company's services most often (known as passenger demographics).

Creating data visualizations: The next step was to take those KPIs and make them into graphs that can be quickly understood. We used charts, maps, bar graphs etc for visualizing the data.

Developing interactive dashboards: - Last thing is developing the dashboard.i have created interactive databoard that gives the information about certain details.This dashboards help to analize the data in different angles

1.3 TECHNICAL ARCHITECHTURE:

Project is based on following technologies:

Data Source: Airline database provided by the smartbridge platform.

Data Visualization Tool: Qlik Cloud

Development Tools: Insight Advisor,data connectors, custom objects,charts etc.

2. DEFINE PROBLEM:

2.1 SPECIFY THE BUSINESS PROBLEM:

This project addressed the main problem of understanding air travel patterns and improving passenger experience. Our goal was to identify who flew, where they came from, when their flights were etc. In addition, the study sought to establish whether

there were specific types of travellers who were highly affected by flight disruptions or inefficiencies at the airport among other things.

2.2 BUSINESS REQUIREMENTS:

This project focused on two key areas: passenger analysis and airport management. Understanding the passenger needs by analyzing their age and interest. Improving the passengers experience by providing more flights not delaying flights, if there is a delay providing needs to them and improving the customer service. Airport management is another aspect we mainly focused on no of airports country wise how well they are managing and the things they need to improve such thing can be analyzed by this project.

2.3 Literature Survey :

Research and solutions related to data visualization and its application in understanding passenger behavior within the airline industry. Passenger analysis through visualization can give us the information about the passengers segmentation and their experience this will help to give the solutions to improve the customer service of airports. Airport information through visualization gives us how well they managing the flights and passengers. it give us the information about the thing that should be important for improvement of the quality of airport.

3. DATA COLLECTION:

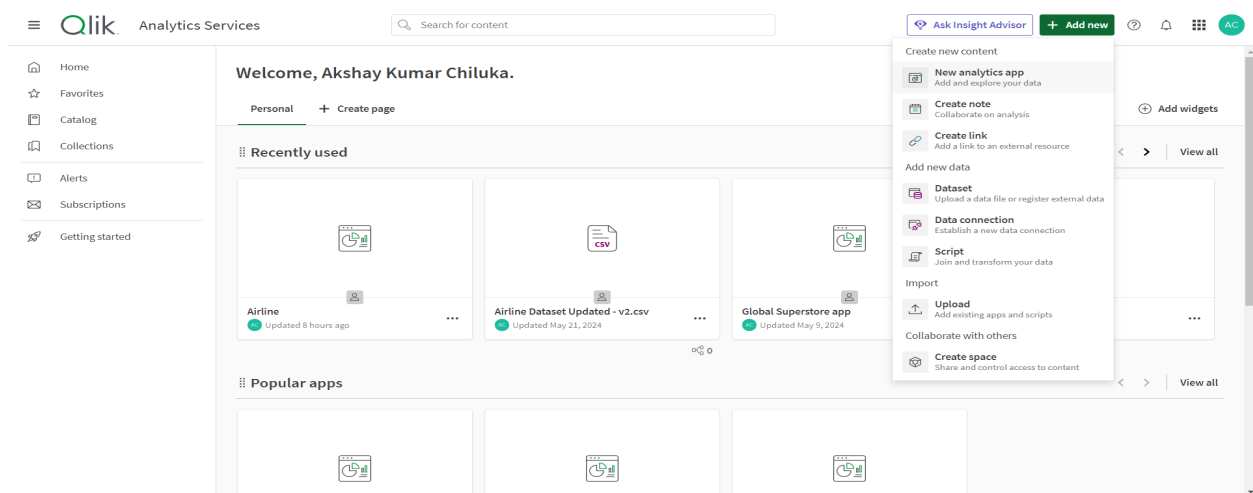
3.1 COLLECT THE DATASET:

The data about the airline is collected through the link provided by the smarbridge platform. the data consist of information about the passengers and airports.

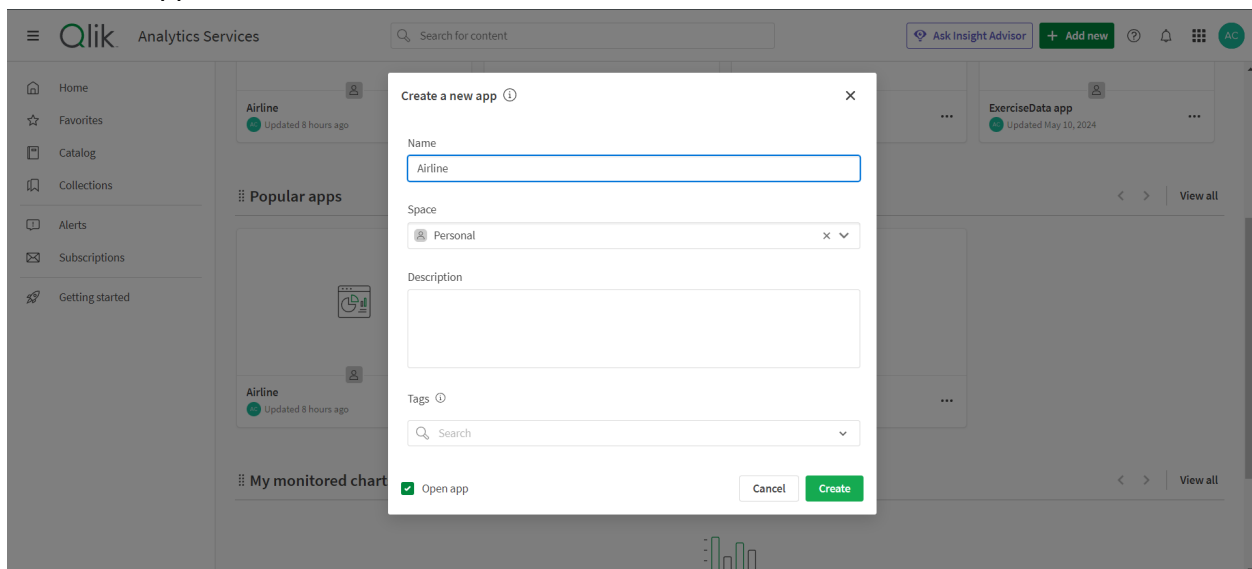
3.2 CONNECT DATA WITH QLIK SENSE:

To connctet the data with the qlik sense following process is followed

1. After login in to the qlik cloud click on add new then click on new analytics app



2. Give the app name and click on create.



3. Add the dataset to the app by dragging the dataset from your folder and click next



4.DATA PREPARATION:

4.1 Prepare the data for visualization:

After connecting the data to the Qlik cloud the cleaning and preprocessing of the data should be done.

Here in airline data I removed the column called pilot name which is not used for visualization and added new columns such as month and agegroup which are useful for visualization.

Airport Name	Airport Count...	Country Name	Airport Conti...	Continents	Departure Date	Arrival Airport	Flight Status	Month	AgeGroup
Bremen Airport	DE	Germany	EU	Europe	5/23/2022	BRE	Delayed	May	Child
Watson Lake Airport	CA	Canada	NAM	North America	11/23/2022	YQH	On Time	Nov	Teen
Karluk Lake Seaplane Base	US	United States	NAM	North America	2/25/2022	KKL	Cancelled	Feb	Elder
Holy Cross Airport	US	United States	NAM	North America	1/17/2022	HCR	On Time	Jan	Just plan old
Rottnest Island Airport	AU	Australia	OC	Oceania	09-02-2022	RTS	On Time	-	Just plan old
Vallenar Airport	CL	Chile	SAM	South America	10/16/2022	VLR	Delayed	Oct	Elder
Yongphulla Airport	BT	Bhutan	AS	Asia	12/27/2022	YON	Cancelled	Dec	Middle
South Cariboo Region / 108 Mile Airport	CA	Canada	NAM	North America	2/27/2022	ZMH	Cancelled	Feb	Middle
Kalgoorlie Boulder Airport	AU	Australia	OC	Oceania	04-06-2022	KGI	Cancelled	-	Middle
Pouso Alegre Airport	BR	Brazil	SAM	South America	8/13/2022	PPY	Cancelled	Aug	Adult
Nonoal Airport	BR	Brazil	SAM	South America	4/26/2022	0	Cancelled	Apr	Middle
Dublin Airport	IE	Ireland	EU	Europe	12-08-2022	DUB	Cancelled	-	Adult
Capital City Airport	US	United States	NAM	North America	11/23/2022	HAR	On Time	Nov	Teen
Villa Garzón Airport	CO	Colombia	SAM	South America	3/24/2022	VGZ	On Time	Mar	Middle
Qinhuangdao Beidaihe Airport	CN	China	AS	Asia	11-04-2022	BPE	Cancelled	-	Elder
Yes Bay Lodge Seaplane Base	US	United States	NAM	North America	09-09-2022	WYB	Delayed	-	Young Age
Valdez Pioneer Field	US	United States	NAM	North America	8/27/2022	VDZ	Delayed	Aug	Adult
Borg El Arab International Airport	EG	Egypt	AF	Africa	10-02-2022	HBE	Cancelled	-	Just plan old
Mara Lodges Airport	KE	Kenya	AF	Africa	11/18/2022	MRE	On Time	Nov	Adult
Beijing Daxing International Airport	CN	China	AS	Asia	10/29/2022	PKX	On Time	Oct	Just plan old

Age group column is based on age where the age between 0 and 1 is baby, 1 and 3 is toddler, 3 and 9 is Child, 9 and 12 is Tween, 12 and 19 is Teen, 19 and 24 is Young age, 24 and 39 is Adult, 39 and 54 is Middle, 54 and 79 is Elder and 79 above is Just plan old.

Airport Name	Airport Count...	Country Name	Airport Conti...	Continents	Departure Date	Arrival Airport	Flight Status	Mon
Karluk Lake Seaplane Base	US	United States	NAM	North America	2/25/2022	KKL	Cancelled	
Holy Cross Airport	US	United States	NAM	North America	1/17/2022	HCR	On Time	
Rottnest Island Airport	AU	Australia	OC	Oceania	09-02-2022	RTS	On Time	-
Vallenar Airport	CL	Chile	SAM	South America	10/16/2022	VLR	Delayed	
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Pouso Alegre Airport	BR	Brazil	SAM	South America	8/13/2022	PPY	Cancelled	
Nonoal Airport	BR	Brazil	SAM	South America	4/26/2022	0	Cancelled	
Dublin Airport	IE	Ireland	EU	Europe	12-08-2022	DUB	Cancelled	-
Capital City Airport	US	United States	NAM	North America	11/23/2022	HAR	On Time	
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Beijing Daxing International Airport	CN	China	AS	Asia	10/29/2022	PKX	On Time	
Tamborano Airport	MG	Madagascar	AF	Africa	11/27/2022	WTA	On Time	
Tumohi Airport	PG	Papua New Guinea	OC	Oceania	8/14/2022	TIP	Cancelled	

Update calculated field
Name: AgeGroup
Expression:
`if(Age>=0,if(Age<=1,'Baby',if(Age>1,if(Age<=3,'Toddler',if(Age>3,if(Age<=9,'Child',if(Age>9,if(Age<=12,'Teen',if(Age>12,if(Age<=19,'Young',if(Age>19,if(Age<=24,'Young',if(Age>24,if(Age<=39,'Adult',if(Age>39,if(Age<=54,'Middle',if(Age>54,if(Age<=79,'Elder',if(Age>79,'Just plan old'))))))))))))`
Preview:
Adult
Baby
Child
Elder
Young
Update

5.DATA VISUALIZATIONS:

5.1 VISUALIZATIONS:

Following are the visualization created for the airline data

No of passengers effected by cancelled flight

32.94k

No of male passengers

49.6k

No of flights on time

32.85k

Total no of passengers

98.62k

No of female passengers

49.02k

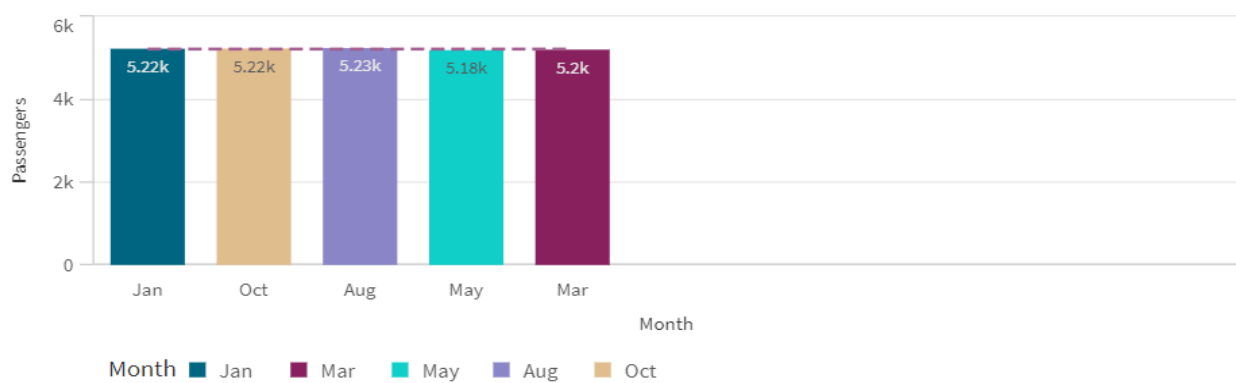
No of passengers effected by Delay of flight

32.83k

Top 3 Months-Flight wise

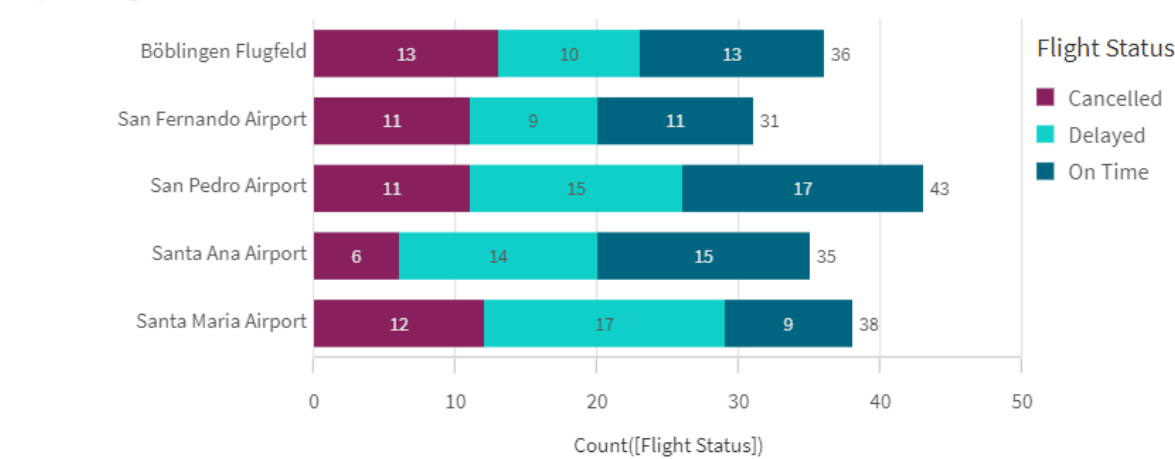


Top 5 -Number of travelled-Month wise

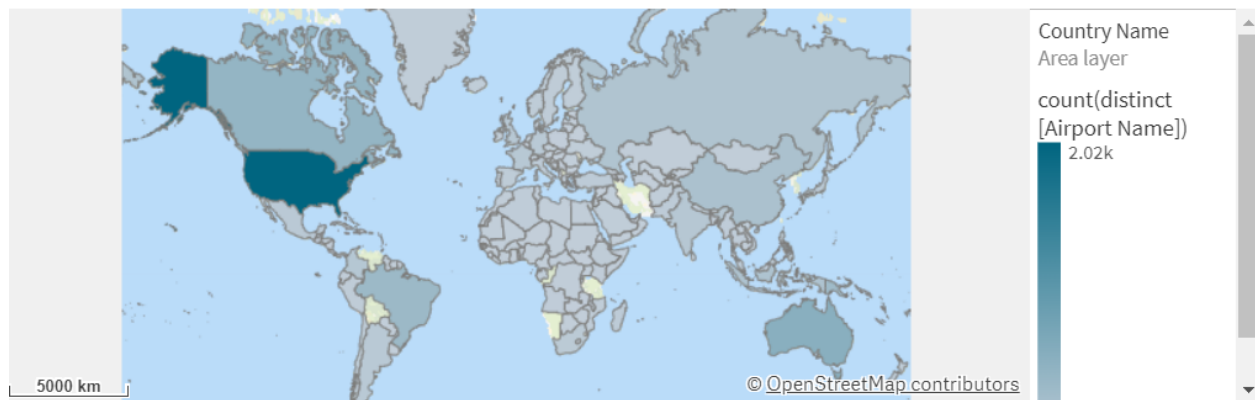


No of Airports
9.06k

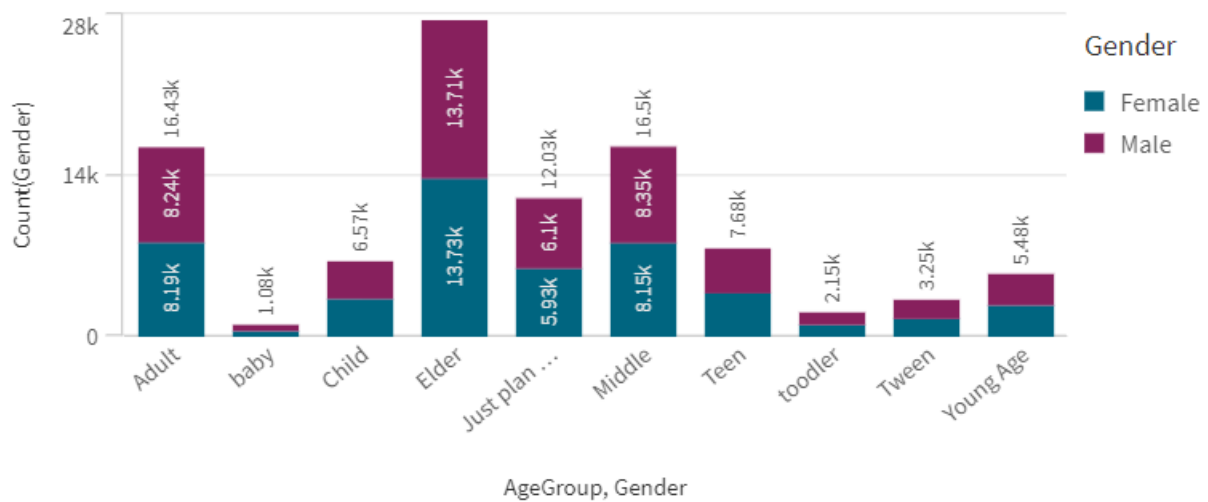
Airport-Flight status



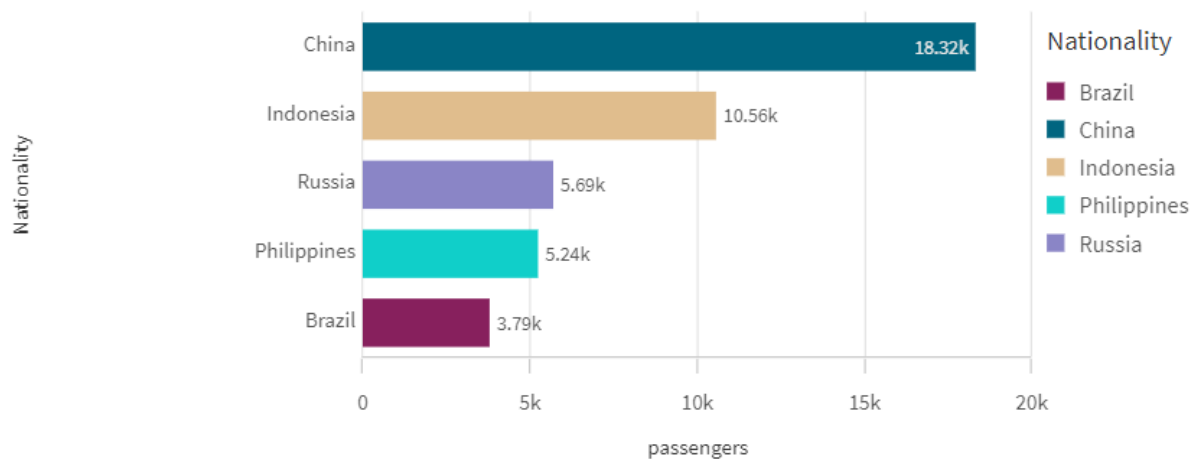
Country Name by countDistinct Airport Name



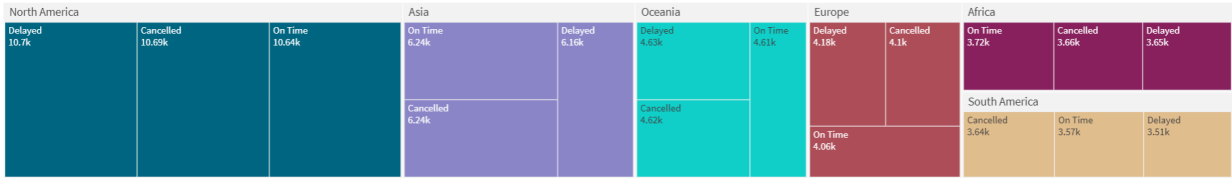
Age group gender wise



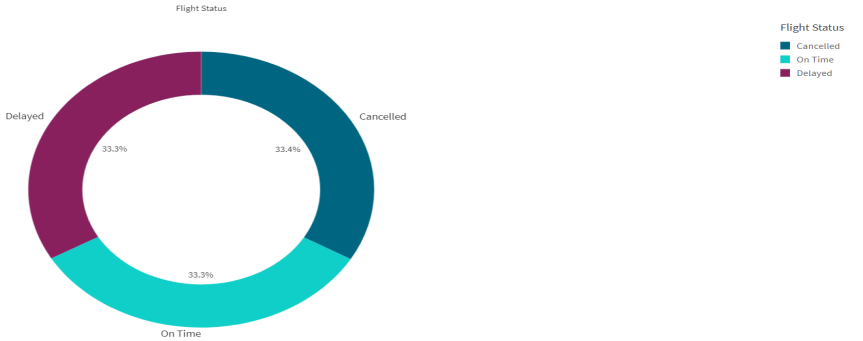
Number of passengers-Nation wide



Continent wise Flight status



No of passenger-flight status wise



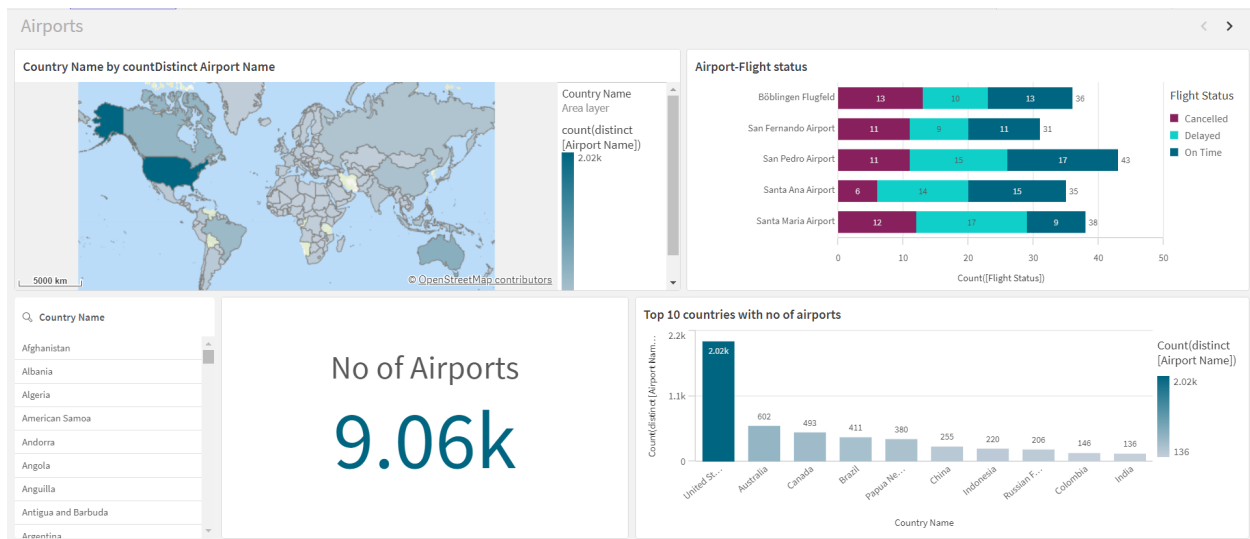
No of passengers-Nationality wise



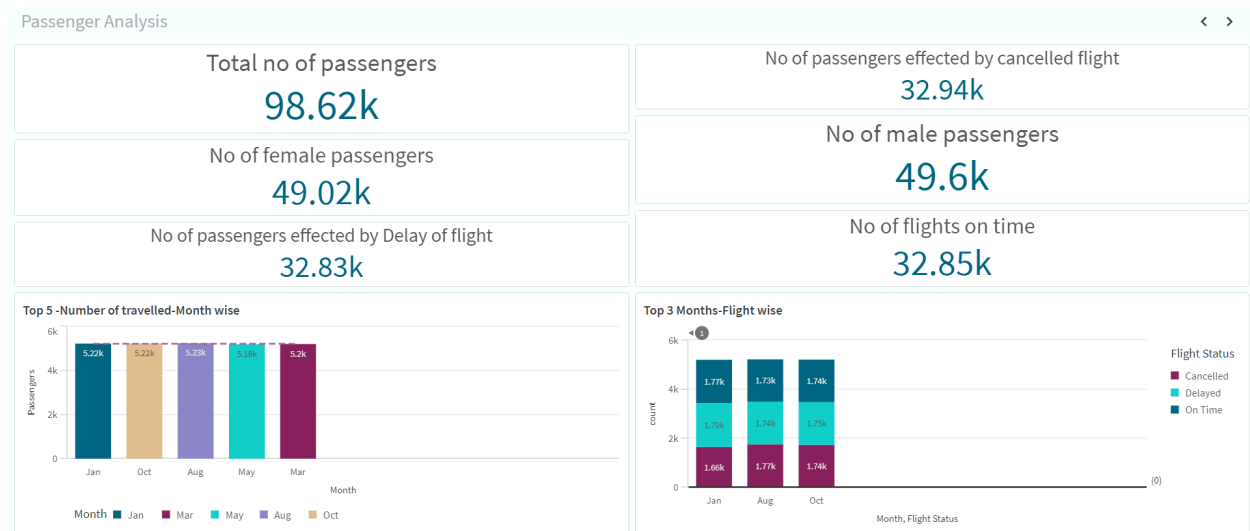
6.DASHBOARD:

6.1 RESPONSIVE AND DESGIN OF DASHBOARD:

1.Airports:

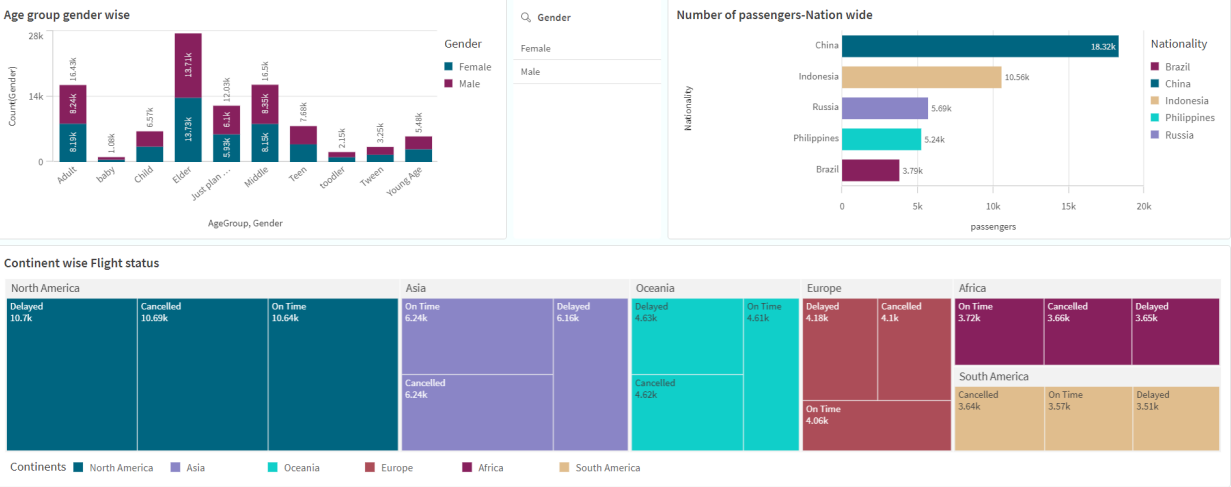


2.PASSENGERS ANALYSIS:



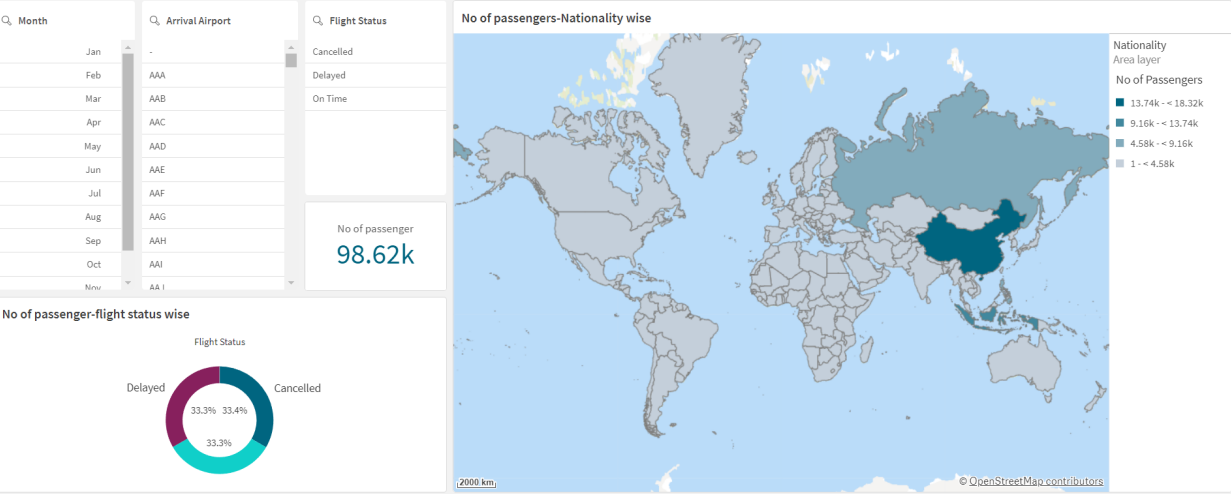
3.Passengers and flight status

Passengers and flight status



4.Passenger Demographics:

Passenger Demographics



7.REPORT:

7.1 REPORT CREATION:

NO OF PASSENGERS INFORMATION

Total no of passengers

98.62k

No of passengers effected by cancelled flight

32.94k

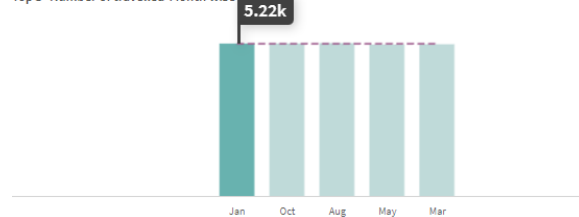
No of passengers effected by Delay of flight

32.83k

No of flights on time

32.85k

Top 5 -Number of travelled-Month wise

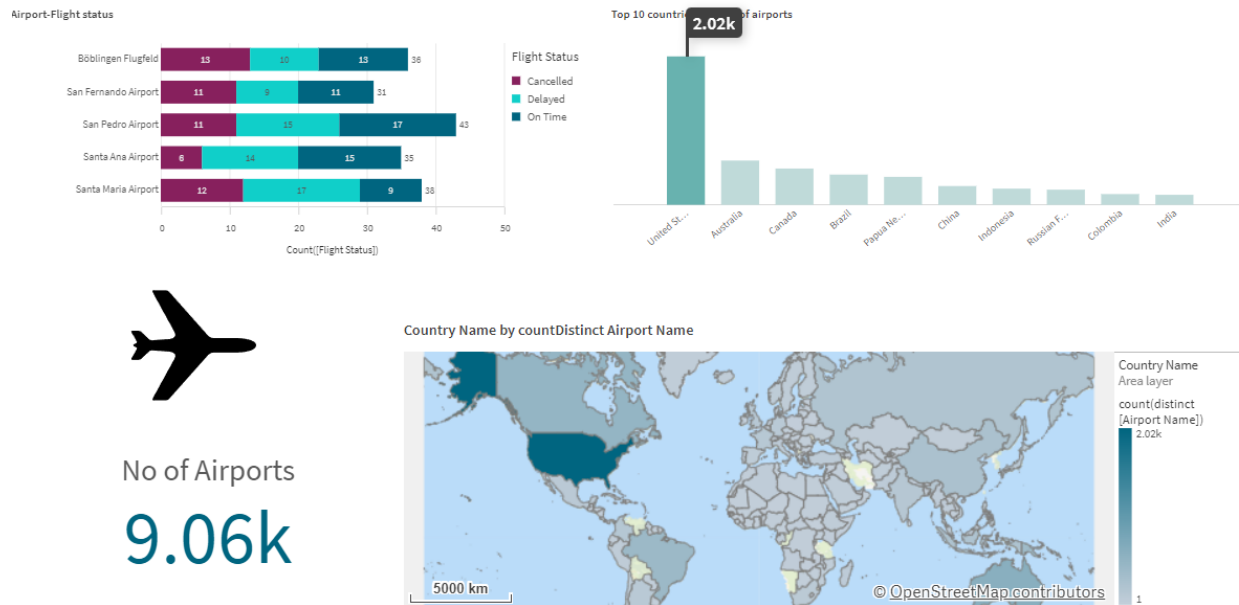


Top 3 Months-Flight wise



This image give us the information about the no of airports,top countries with highest no of airports,airports and there fight status information this dashboard also contain the map representation showing countries with no of airports as measure.The fliter pane , filters country name and give the information about the no of airports in a particular country

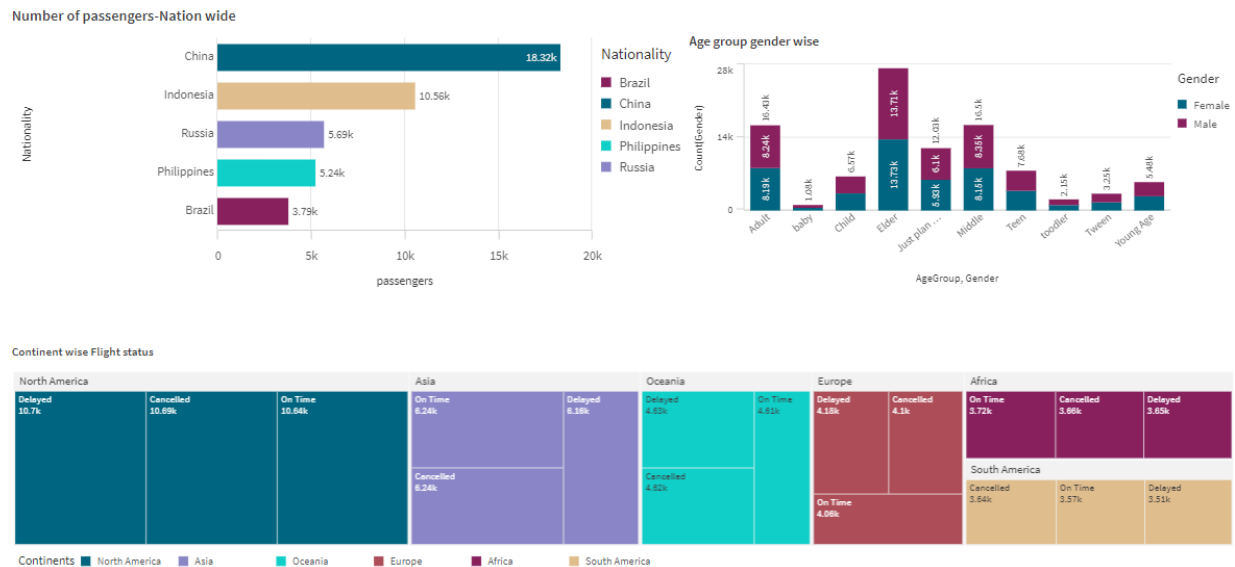
NO OF AIRPORTS INFORMATION



No of Airports
9.06k

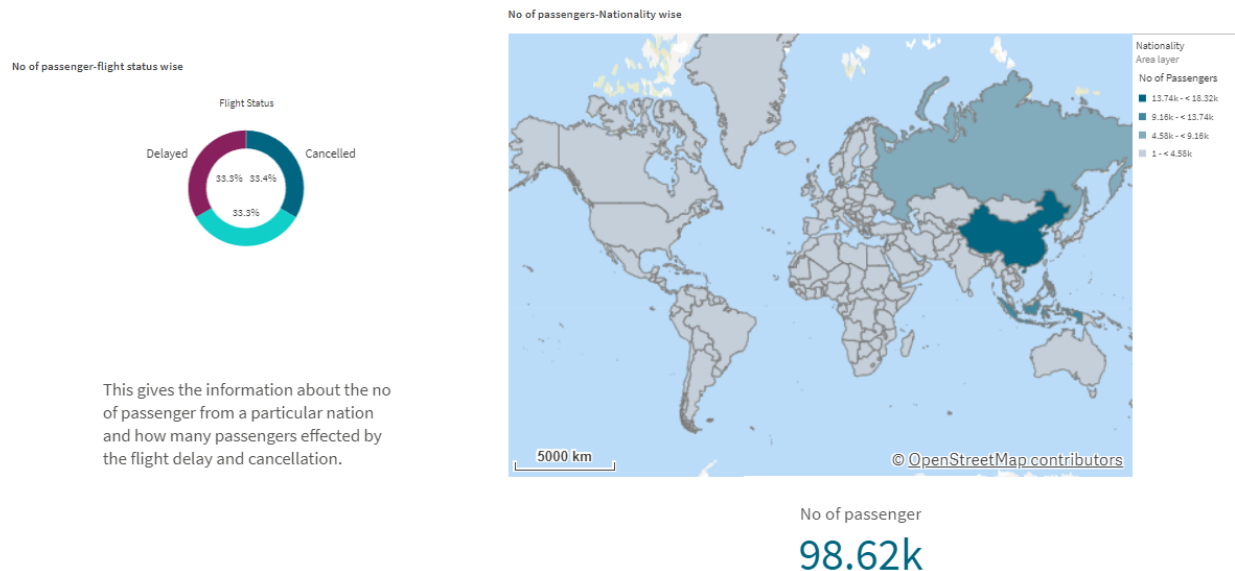
Above image gives information about the passengers and no of passengers effected by the flight status.

PASSENGERS AND FLIGHT STATUS INFORMATION



This image gives us the information about the no of passengers country wise, it will help us to analyze the passengers and which country people shows more interest on traveling through plane. This image also gives information about age group of passenger and their gender, no of passengers around the continent and their flight status.

PASSENGERS NATIONALITY AND FLIGHT WISE



Map representation shows the density of passengers around the world and their flight status as a pie chart.

By above representations we can conclude that the passengers intrested to travle around the world.some of the passengers are facing issues due to delay and cancelation of flight.This may effect the experience of passengers.So airlines should improve their fights make sure no to delay the filght and cancel flights and provide good quality and expreince of flight

8.PERFORMANCE TESTING:

8.1 AMOUNT OF DATA RENDERED:

Amount of data rendered for analyzing and visualizing is 98620 rows and 16 columns

8.2 UTILIZATION OF DATA FILTERS:

1.Country name:By using country name as filter we visualize no of airports in that particular country,names of airports and flight status in that particular airport.

2.Gender:Acording to the gender we visualize about the passengers for that particular gender

3.Month:By month wise we can visualize the performace of the flights.

4.Arrival ariport:By using arrival ariport as filter we can see number of passengers that are travelled to that particular airport no of flights arrived and their performance.

5.Flight status:According to the flight status we can visualize the no of passengers affected by the flights delay and cancelation.