

Unlocking Insights into the Global Air Transportation Network with Tableau

1. INTRODUCTION

1.1 Overview

The Global Air Transportation Network dataset is a comprehensive collection of information on airports, airlines and their routes. It contains information such as names, cities, countries, codes (IATA and ICAO) longitudes, latitudes and altitudes of airports across the world with detailed time zone and daylight-saving time data. Additionally, this include information about airlines including their IDs, name aliases, IATA and ICAO codes, callsigns country of origin and active/inactive status. Similarly, it also covers route details such as airline sources to destination airports along with essential details like code share stakeholder if any stops required during this journey along with the type of aircraft being used for that particular journey. This dataset has ben compiled through meticulous labour by researches all over the world to give you a comprehensive detail into air transportation networks from around the globe. It requires your generous donations in order for them to keep updating this data source so please do donate if possible.

1.2 Purpose

The business requirement of the Global Air Transportation Network- Airports, Airlines, and Routes dataset is to provide stakeholders in the aviation industry with accurate, up-to-date information on the worldwide air transportation network. The dataset is intended to help stakeholders make informed decisions related to business growth, investment, capacity planning and, and infrastructure development. Using data analytics and visualization tools like Tableau, the dataset can be analysed to identify trends and patterns in the air transportation network, providing valuable insights into the state of the industry. This information can be used to optimize routes, improve operational efficiency, and enhance customer experience. Ultimately, the business requirement of the dataset is to enable stakeholders in the aviation industry to gain a competitive advantage by making data-driven decisions. By providing a comprehensive collection of data related to the air transportation network, the dataset can help stakeholders stay ahead of the curve in a dynamic and rapidly changing industry.

Socially, the dataset can contribute to the development of air transportation networks that are more efficient, safe, and environmentally sustainable. By providing stakeholders with a comprehensive understanding of the air transportation network, the dataset can help to optimize routes and reduce congestion in the air, leading to improved air quality and reduced carbon emissions. This can contribute to the overall well-being of communities around the world, by making air travel more accessible, affordable, and eco-friendly. From a business perspective, the dataset can have a significant impact on the aviation industry. By enabling stakeholders to make data-driven decisions, the dataset can help airlines, airport authorities, tourism boards, and government agencies to identify new business opportunities, optimize capacity planning, and streamline operations. This can lead to increased profitability and competitiveness, as well as improved customer experience. Moreover, the dataset can be used by investors to identify promising sectors and geographic areas for investment in the aviation industry.

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2. Problem Definition & Design Thinking

2.1 Empathy map

Empathy Map - 04-09-2023.pdf - Adobe Reader

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Change

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► Edit PDF
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15-10-2023

Says
What have we heard them say?
What can we imagine them saying?

A lot of people traveling in airways nowadays, so Global Air Transportation is a necessary thing.

Global Air Transportation helps to travel distant places.

Planes, jets, cockpits, helicopters and drones are the Global Air Transportation Networks.

It is only used by wealthy people because it cost is expensive.

Global Air Transportation is very useful to travel long places very easily and quickly.

It is used to communicate across internationally about Personal, Business, Medical and Tourism Purposes.

It is very comfortable to travel long distance and also for transporting goods over the world.

Thinks
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

The Pilot will mentally and physically strong to operate the airplane.

I'm wondered about the knowledge of flying in the sky.

That is a bit harder to sustain in the Air Transportation Network.

Monthly Monthly 16,000+ people traveling in Airlines.

They provide security check up in the air line that is very safe and good.

They must have a lot of experience to operate.

I think the management for Air Transportation is a very huge process and it is crucial.

Does
What behavior have we observed?
What can we imagine them doing?

Global Air Transportation is very useful to travel long places very easily and quickly.

It is used to communicate across internationally about Personal, Business, Medical and Tourism Purposes.

It is very comfortable to travel long distance and also for transporting goods over the world.

Feels
What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

It is a very Fastest way of travelling.

One of the fear in travelling is, it is unexpected atmosphere travel.

I feel happy to travel in Airways.

Travel is a Joy of Happiness.

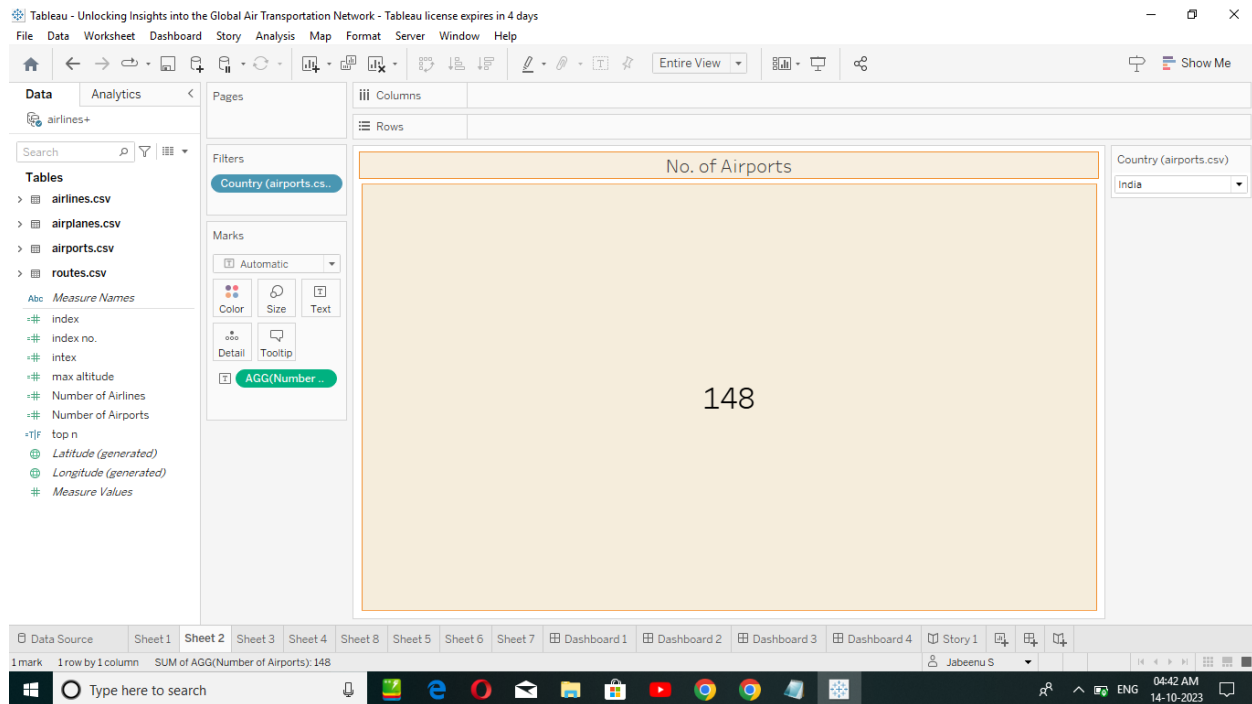
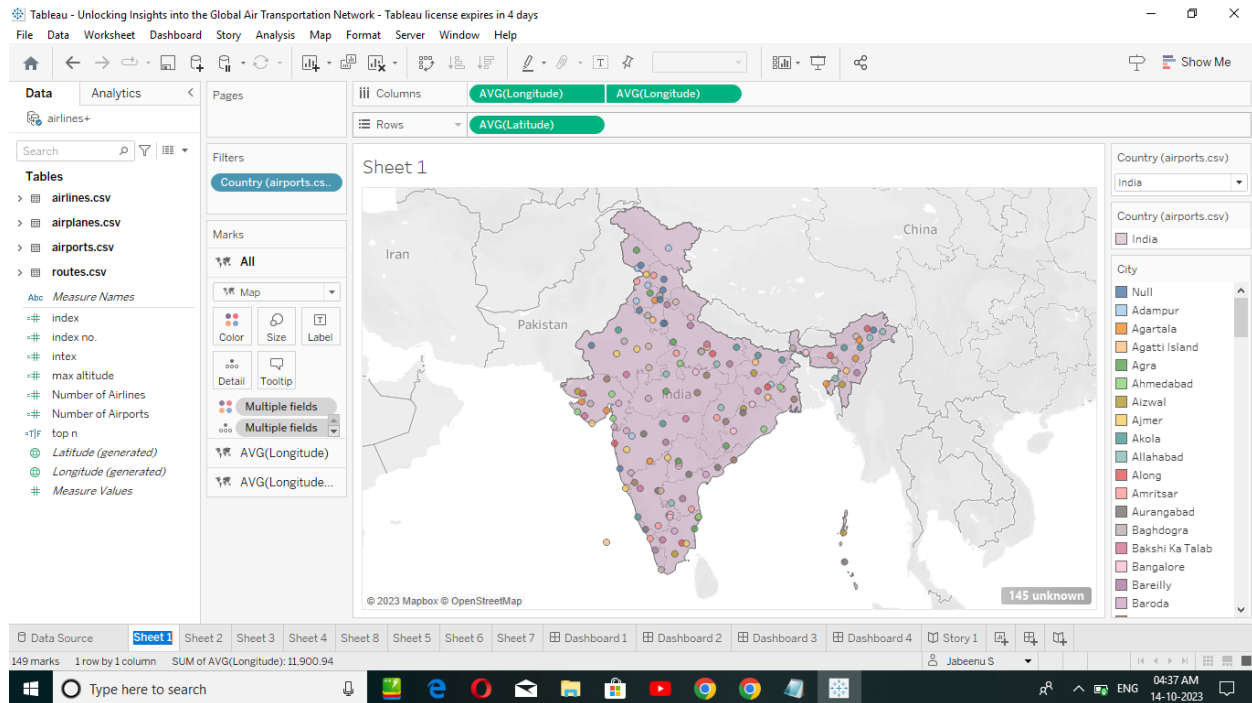
It is too much of cost to travel in Air transport.

Working in project with my team 'Unlocking Insights into the Global Air Transportation Network with Tableau'

Jabeenu



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Data Analytics Pages Columns Rows

airlines+ Search

Tables

- airlines.csv
- airplanes.csv
- airports.csv
- routes.csv

Measure Names

- index
- index no.
- intex
- max altitude
- Number of Airlines
- Number of Airports
- top n
- Latitude (generated)
- Longitude (generated)
- Measure Values

Filters

- Country (airports.csv)
- top n: True
- ICAO code

Marks

- Automatic
- Color
- Size
- Text
- Detail
- Tooltip
- SUM(Altitude)

Airports at Higher Altitude within a Country

index no.	Airport name	City	ICAO code	
1	Zenata-Messali El Hadj A. Tlemcen	Tlemcen	PA44	834
2	Yorkton Municipal Airport	Yorkton	CRJ7	1,635
3	Yellowknife Airport	Yellowknife	GLF5	675

Country (airports.csv)

(All)

Data Source Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6 Sheet 7 Dashboard 1 Dashboard 2 Dashboard 3 Dashboard 4 Story 1 Jabeeru S 04:43 AM 14-10-2023

3 marks 3 rows by 1 column SUM(Altitude): 3,124

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- City

Marks

- Automatic
- Color
- Size
- Text
- Detail
- Tooltip
- SUM(Altitude)

Airports at Higher Altitude in the World

Airport name	City	ICAO code	
Mount Hagen Kagamuga Airport	Mount Hagen	S601	5,38
Goroka Airport	Goroka	N262	5,28
Aguenar - Hadj Bey Akhamok Airport	Tamanrasset	MD83	4,51
Mecheria Airport	Mecheria	MD88	3,85
Calgary International Airport	Calgary	E35L	3,55
Bou Chekif Airport	Tiaret	PC12	3,24
Rocky Mountain House Airport	Rocky Mountain House	C25C	3,24
Djanet Inedbirene Airport	Djanet	C130	3,17
Williams Lake Airport	Williams Lake	DC91	3,08
Cranbrook/Canadian Rockies International Airport	Cranbrook	DC93	3,08

City

(All)

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10 marks 10 rows by 1 column SUM(Altitude): 38,432

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airlines+ Search

Tables

- airlines.csv
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Measure Names

- index
- index no.
- intex
- max altitude
- Number of Airlines
- Number of Airports
- top n
- Latitude (generated)
- Longitude (generated)
- Measure Values

Filters

Country: India

Marks

Automatic

Color Size Label

Detail Tooltip

Active

Columns

Rows

Airline ID Name Icao Callsign

Airlines within a Country

Airline ID	Name	Icao	Callsign
218	Air India Limited	AIC	AIRINDIA
241	Air Sahara	ASH	SAHARA
569	Air India Express	AXB	EXPRESS INDIA
1026	Alliance Air	LLR	ALLIED
1370	Blue Dart Aviation	BDA	BLUE DART
2001	Deccan Aviation	DKN	DECCAN
2575	Go Air	GOW	GOAIR
2634	Gujarat Airways	GUJ	GUJARATAIR
2850	IndiGo Airlines	IGO	IFLY
2851	India International Airways	IIL	INDIA INTER
2852	Indian Air Force	IFC	INDIAN AIRFORCE
2853	Indian Airlines	IAC	INDAIR
3000	Jet Airways	JAI	JET AIRWAYS
3142	Kingfisher Airlines	KFR	KINGFISHER
3907	Paramount Airways	PMW	PARAWAY
3918	Pawan Hans	PHE	PAWAN HANS
4375	Spicejet	SEJ	SPICEJET
13105	Air India Regional	IN	ALLIED
13106	MDLR Airlines	IN	MDLR
13107	Jagson Airlines	JGN	JAGSON
13905	Skyline nepc	IN	Null
16327	Indya Airline Group	IGI	Indya1

Active

(All)

N

Y

Country

India

Active

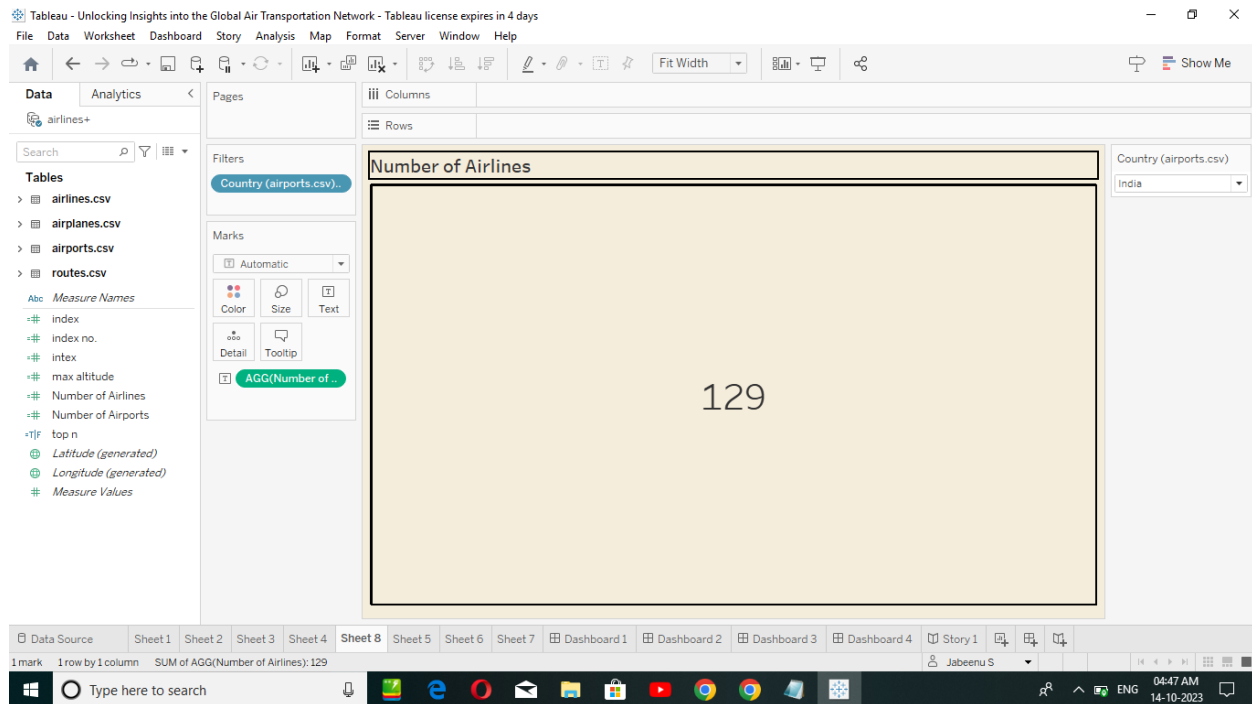
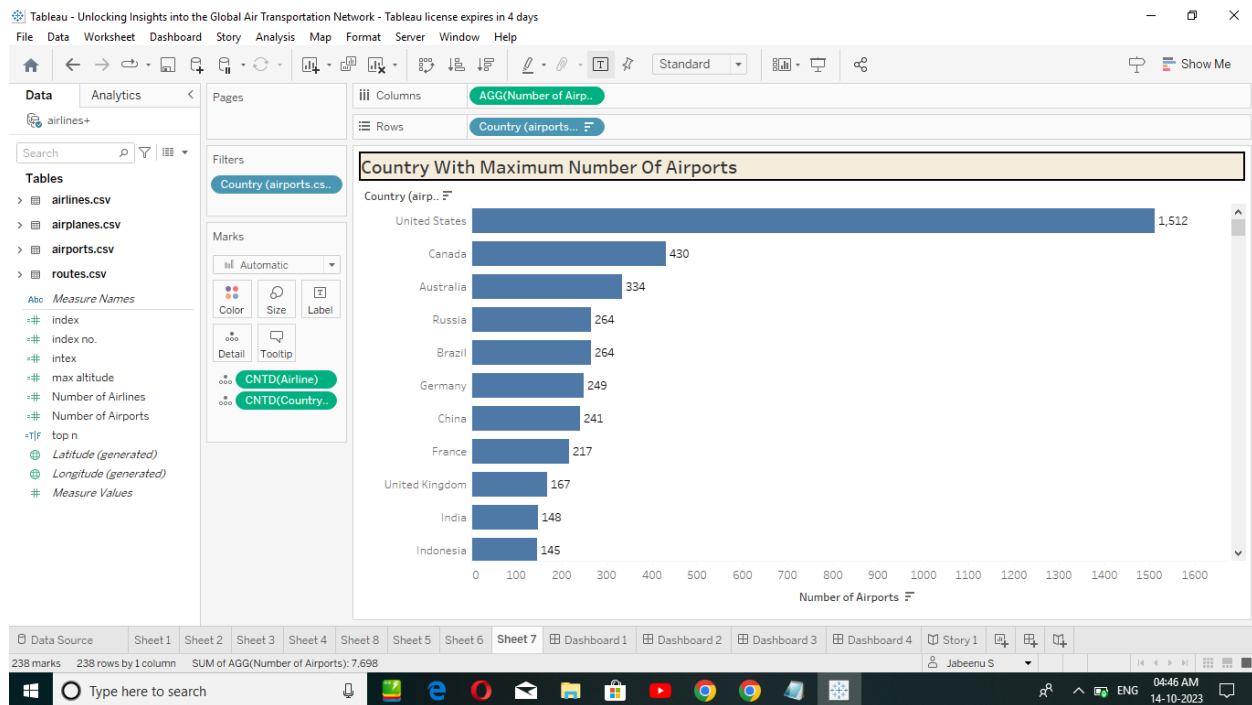
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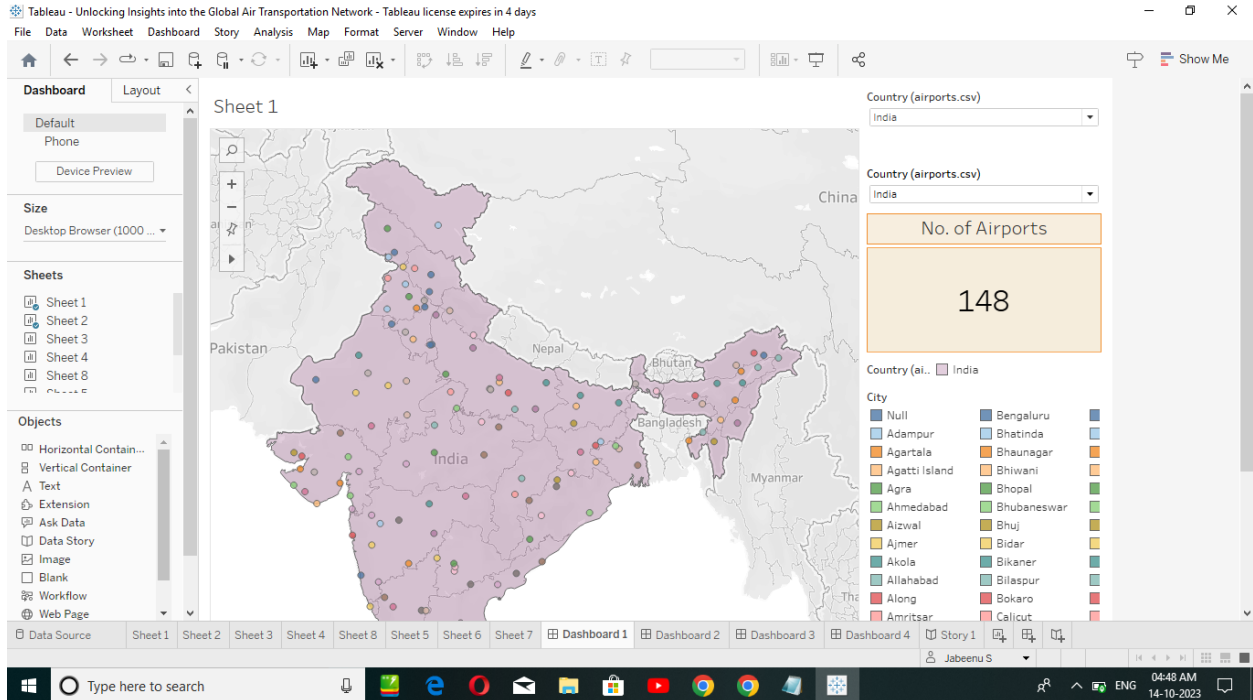


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Dashboard Layout

Default Phone Device Preview

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Sheets Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6 Sheet 7 Dashboard 1 Dashboard 2 Dashboard 3 Dashboard 4 Story 1

Objects Horizontal Container Vertical Container Text Extension Ask Data Data Story Image Blank Workflow Web Page

Airlines within a Country

Airline ID	Name	Icao	Callsign	
218	Air India Limited	AIC	AIRINDIA	
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569	Air India Express	AXB	EXPRESS INDIA	
1026	Alliance Air	LLR	ALLIED	
1370	Blue Dart Aviation	BDA	BLUE DART	
2001	Deccan Aviation	DKN	DECCAN	
2575	Go Air	GOW	GOAIR	
2634	Gujarat Airways	GUJ	GUJARATAIR	
2850	IndiGo Airlines	IGO	IFLY	
2851	India International Airways	IIL	INDIA INTER	
2852	Indian Air Force	IFC	INDIAN AIRFORCE	
2853	Indian Airlines	IAC	INDAIR	
3000	Jet Airways	JAI	JET AIRWAYS	
3142	Kingfisher Airlines	KFR	KINGFISHER	
3907	Paramount Airways	PMW	PARAWAY	
3918	Pawan Hans	PHE	PAWAN HANS	
4375	Spicejet	SEJ	SPICEJET	
13105	Air India Regional	IN	ALLIED	
13106	MDLR Airlines	IN	MDLR	
13107	Jagson Airlines	JGN	JAGSON	
13905	Skyline nepc	IN	Null	
16327	Indya Airline Group	IG1	Indya1	
16362	OCEAN AIR CARGO	IXO	Null	
16738	NEPC Airlines	IN	Null	
16901	12 North	N12	12N	
19451	Air Costa	IN	Null	

Country India

Number of Airlines

129

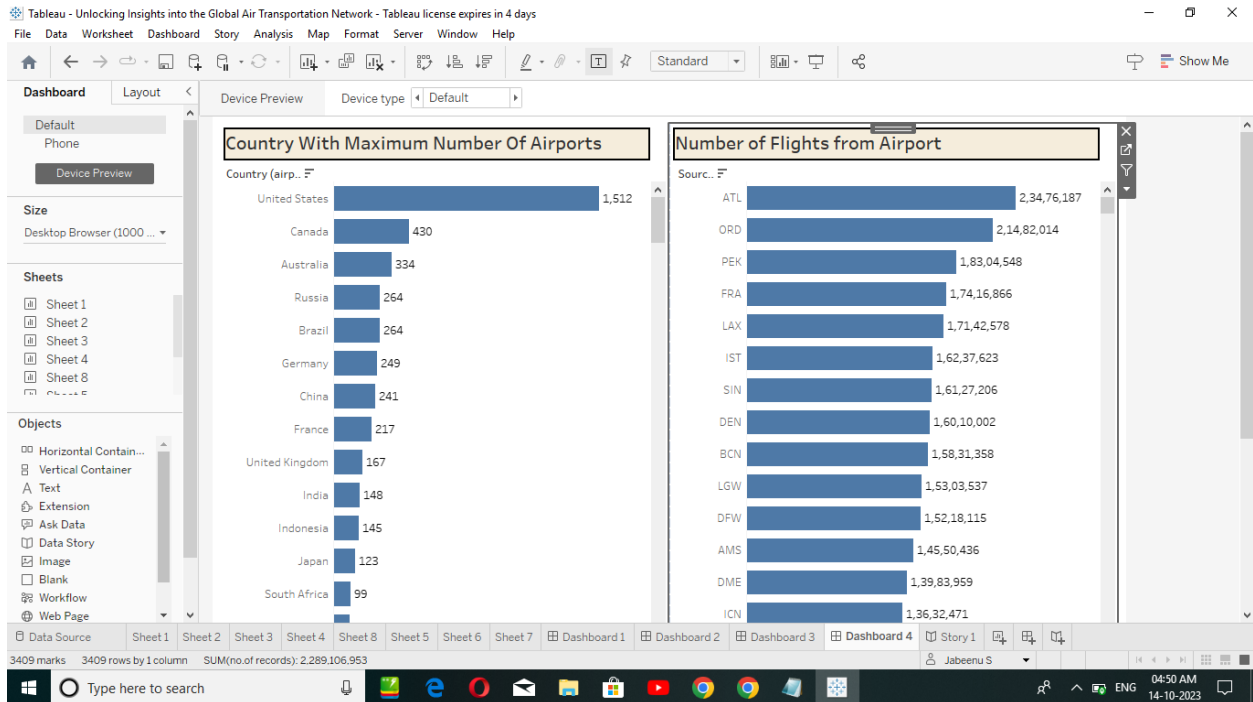
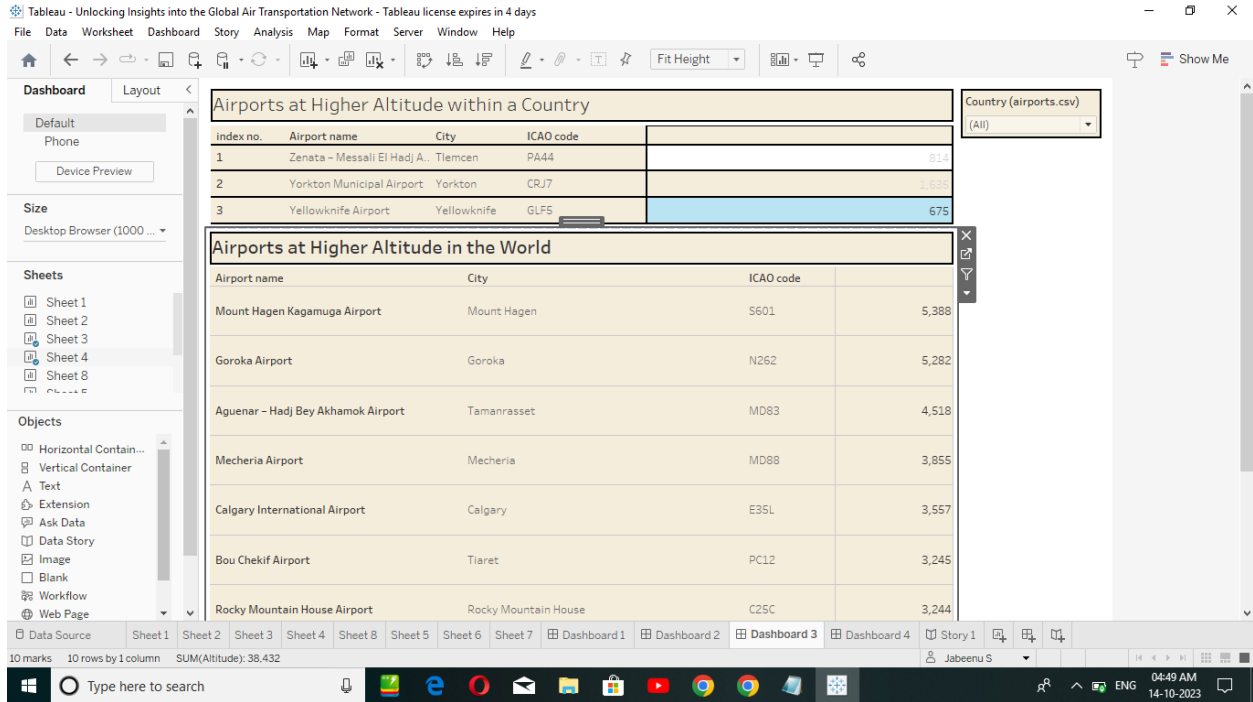
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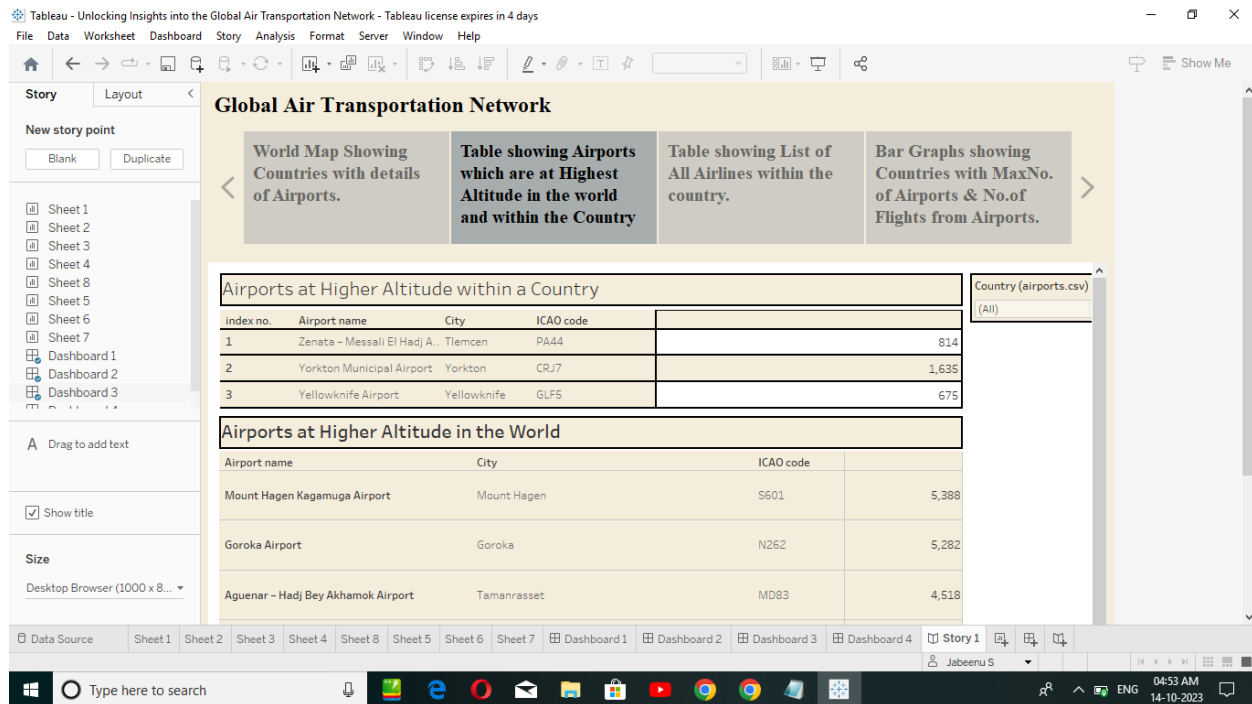
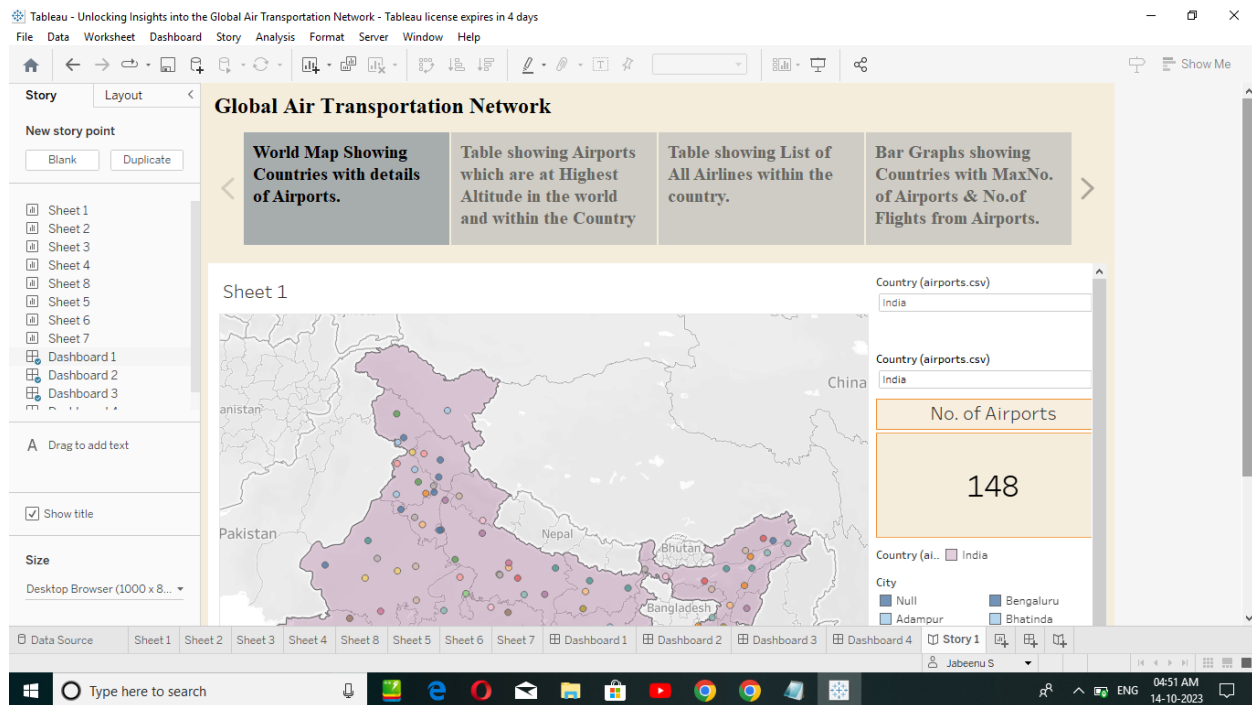
Country (airports.csv) India

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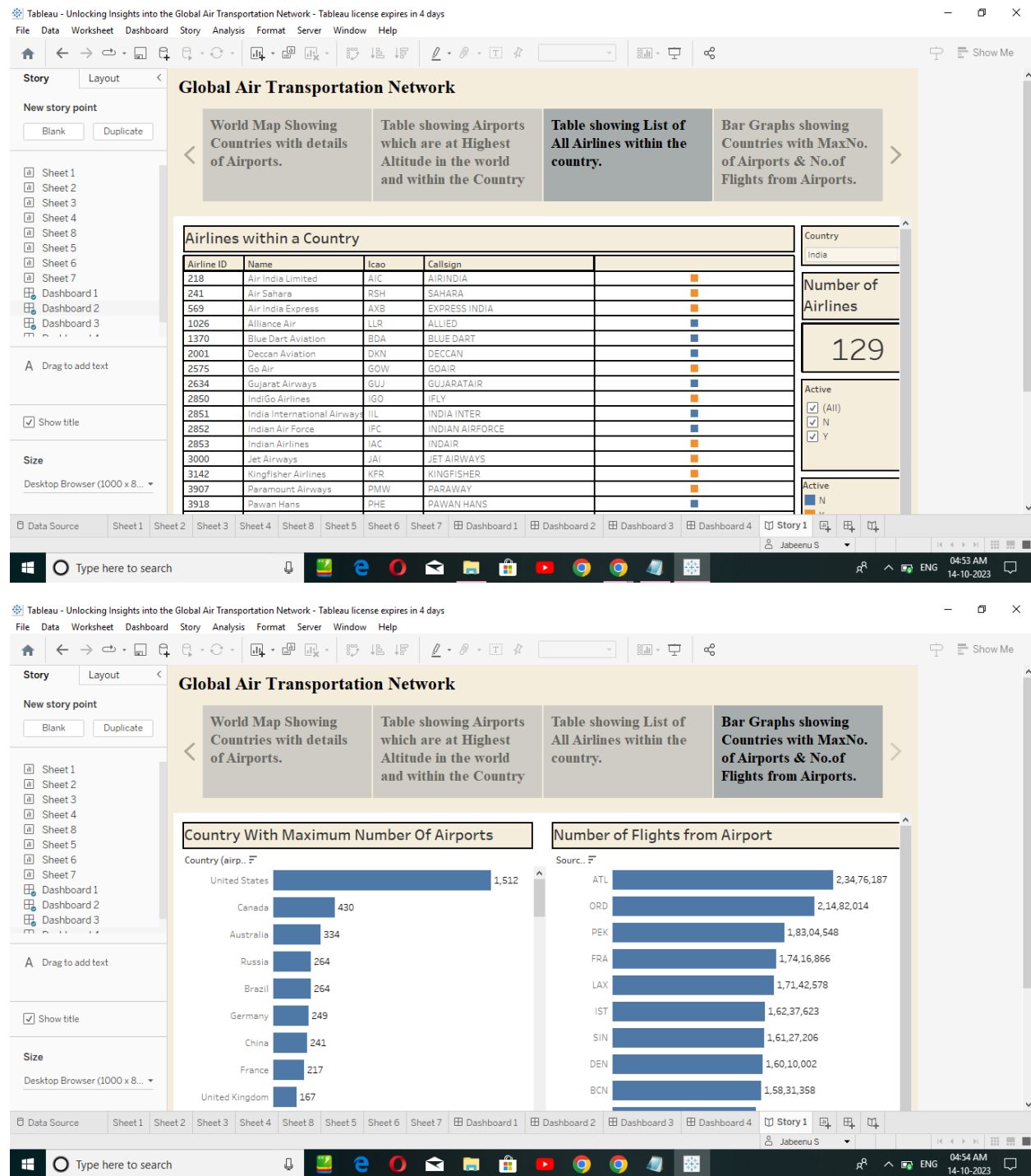
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4. ADVANTAGES AND DISADVANTAGES

Advantages of Air Transport:

Speed and Efficiency: One of the key advantages of air transport is its unparalleled speed. Airplanes can cover long distances in a matter of hours, enabling businesses to deliver goods quickly, especially for time-

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sensitive orders. This swift transportation option is particularly beneficial for industries such as e-commerce, pharmaceuticals, and perishable goods.

Global Reach

Air transport provides extensive global coverage, connecting businesses to various destinations around the world. It allows companies to expand their customer base and reach new markets, irrespective of geographical barriers. This enables businesses to tap into international opportunities and access a broader range of customers.

Reliable Timelines

Air transport operates on fixed schedules, ensuring reliable timelines for delivery. Airlines maintain strict adherence to departure and arrival times, minimizing delays and enhancing supply chain efficiency. This reliability is crucial for businesses that require precise order preparation and fulfilment to meet customer expectations.

Reduced Inventory Holding Costs

The fast transit times offered by air transport help reduce inventory holding costs. With shorter lead times, businesses can maintain lower inventory levels while still meeting customer demands. This frees up working capital and minimizes storage expenses, contributing to overall cost savings.

Enhanced Security

Air transport offers enhanced security measures compared to other modes of transportation. Airports have stringent security protocols in place to ensure the safety of cargo, including thorough screening processes and restricted access. This helps protect valuable and sensitive products during transit, reducing the risk of theft or damage.

Disadvantages of Air Transport

Higher Cost

One of the significant drawbacks of air transport is its higher cost compared to other modes, such as sea or land transport. Air freight charges are generally higher due to factors like fuel costs, infrastructure investments, and handling fees. Businesses must carefully evaluate the cost-benefit analysis of air transport based on their specific needs and budget.

Limited Capacity

Airplanes have limited cargo space compared to ships or trains. This limited capacity can pose challenges for businesses dealing with bulky or oversized shipments. Air transport is best suited for high-value, time-sensitive goods that require swift delivery, rather than large-volume shipments.

Restrictions on Hazardous Goods

Air transport has strict regulations regarding the transportation of hazardous goods. Certain hazardous materials or substances may be prohibited from being transported by air due to safety concerns. Businesses dealing with such goods need to comply with stringent regulations and find alternative transportation methods if necessary.

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Understanding the advantages and disadvantages of air transport is crucial for businesses seeking efficient order preparation and global shipping solutions. The speed, global reach, reliable timelines, reduced inventory holding costs, and enhanced security make air transport an attractive option for many companies. However, it is essential to consider the higher cost and limited capacity associated with air transport.

For expert guidance and comprehensive logistics solutions, consider partnering with IFS International Logistics Operator. With their extensive experience in air freight and supply chain management, they can provide tailored solutions to optimize your order preparation and ensure seamless transportation. Contact IFS International Logistics Operator today to discuss your logistics requirements and discover how they can enhance your supply chain operations.

5. Applications

The worldwide air transportation network is a critical infrastructure with high impact on mobility, trade and economy. Another examples are the air transport systems of a country or a country's own air transport company.

What is the role of information technology in aviation? Information technology system supports a lot of functions including reservation management, ticketing, and inventory management. The Airline Company has a number of branches and distributors over the globe.

Air transport is one of the fastest modes of public transport which connects international boundaries. Air transport allows people from different countries to cross international boundaries and travel other countries for personal, business, medical, and tourism purposes.

The importance of air transport lies in its ability as an economic engine to generate and support jobs, strengthen trade and connectivity between people and countries, promote tourism, and connect remote communities.

6. Conclusions

Project Name: Unlocking Insights into the Global Air Transportation Network

In this project, I conclude Story of 4 Titles

- World Map Showing Countries with details of Airports
- Table showing Airports which are at Highest altitude in the world and within a country
- Table showing List of All airlines within a Country
- Bar Graph showing Countries with Max.no of Airports & no. of Flights from Airport

7.Future Scope

The most recent estimates suggest that demand for air transport will increase by an average of 4.3% per annum over the next 20 years. If this growth path is achieved by 2036 the air transport industry will then contribute 15.5 million in direct jobs and \$1.5 trillion of GDP to the world economy.

The industry has a number of domestic and international airlines, as well as a large network of airports. The future of the aviation industry in India is likely to see continued growth and expansion, driven

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by factors such as a growing middle class, increased tourism, and government policies supporting the industry.