Project report

Unlocking insights into the Global Air Transportation Network with Tableau

Submitted by

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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 aircrafts across the world with detailed time zone and daylight saving time data. Additionally, this includes information about

Airlines including their ID's 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 codeshare stakeholder if any stops required during this journey along with the type of aircraft being used for that particular journey. This dataset has been compiled through meticulous labor by researchers all over the world to give you a comprehensive detail into air transportation networks from around the globe.

1.2 Purpose:

Data Exploration: Visualizations and dashboards allow users to explore the dataset interactively, gaining a deeper understanding of the complex air transportation network. Users can filter, drill down, and focus on specific aspects of the ddata that interest them.

Performance Analysis: Airlines and airports can use visualizations to analyze their own performance metrics, such as on-time arrivals, passenger volumes, and route profitability, aiding in strategic decision-making.

Market Research: Researchers can use visualizations to analyze market trends, competitive landscapes, and the impact of external factors (e.g., economic events, pandemic) on air travel.

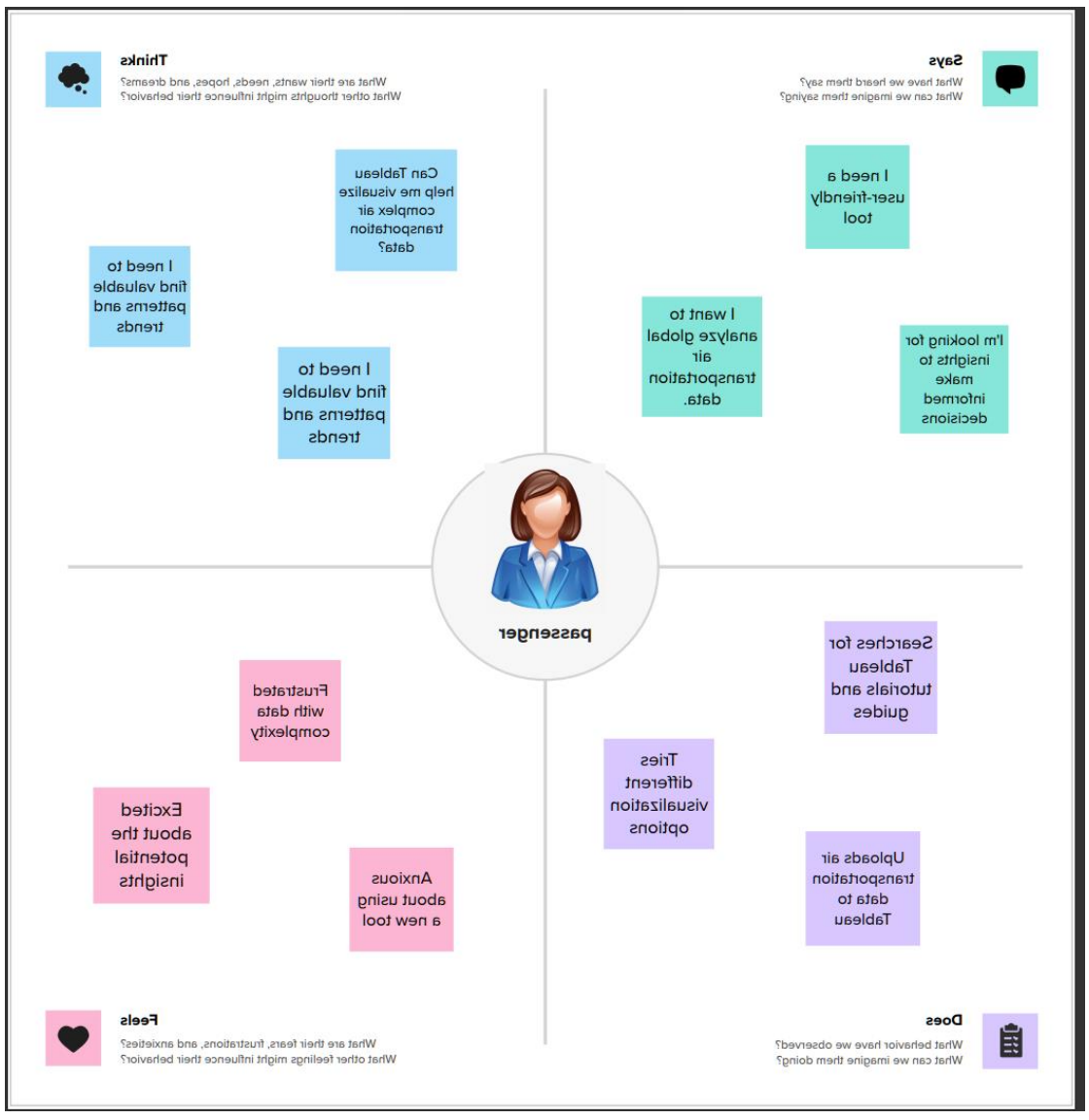
Airline Strategy: Airlines can make data-driven decisions about fleet management, codeshare agreements, and network expansion by visualizing route performance and aircraft usage.

Time Zone Management: Airlines and travelers can benefit from visualizations that display time zone and daylight saving time data, aiding in scheduling and avoiding disruptions.

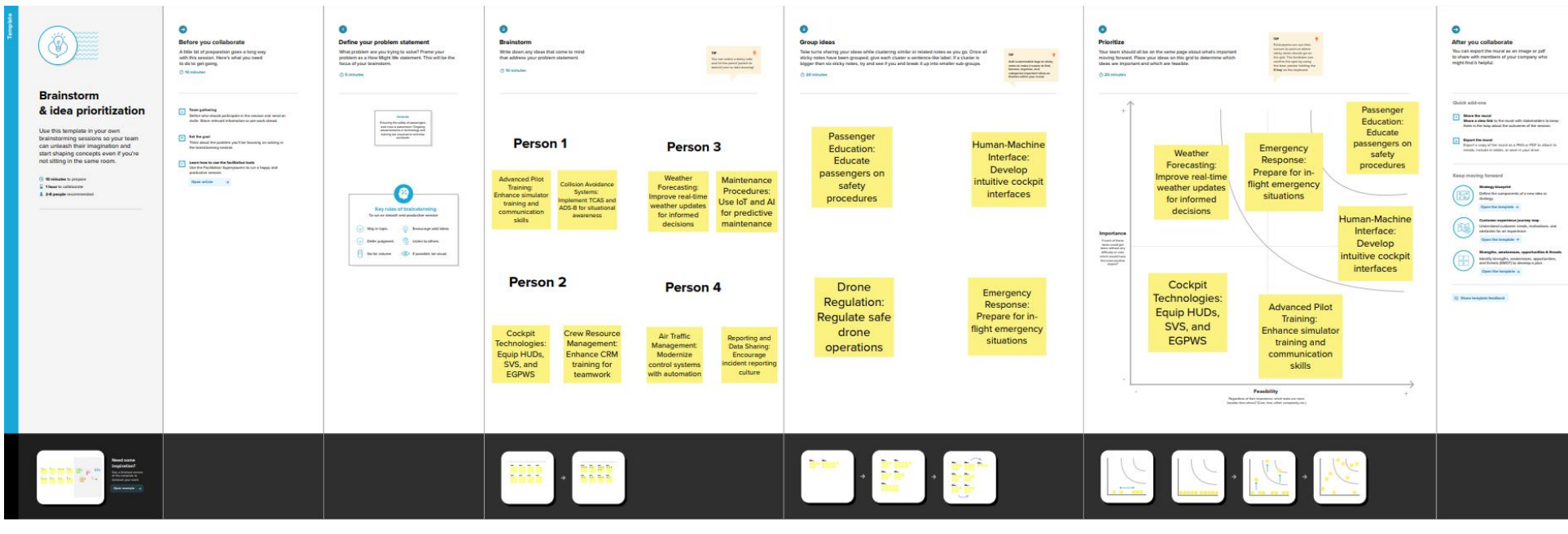
Educational Use: Visualizations and dashboards based on this dataset can be valuable educational tools for students, researchers, and professionals in the aviation industry.

2. Problem Definition & Design Thinking:

2.1 Empathy map:

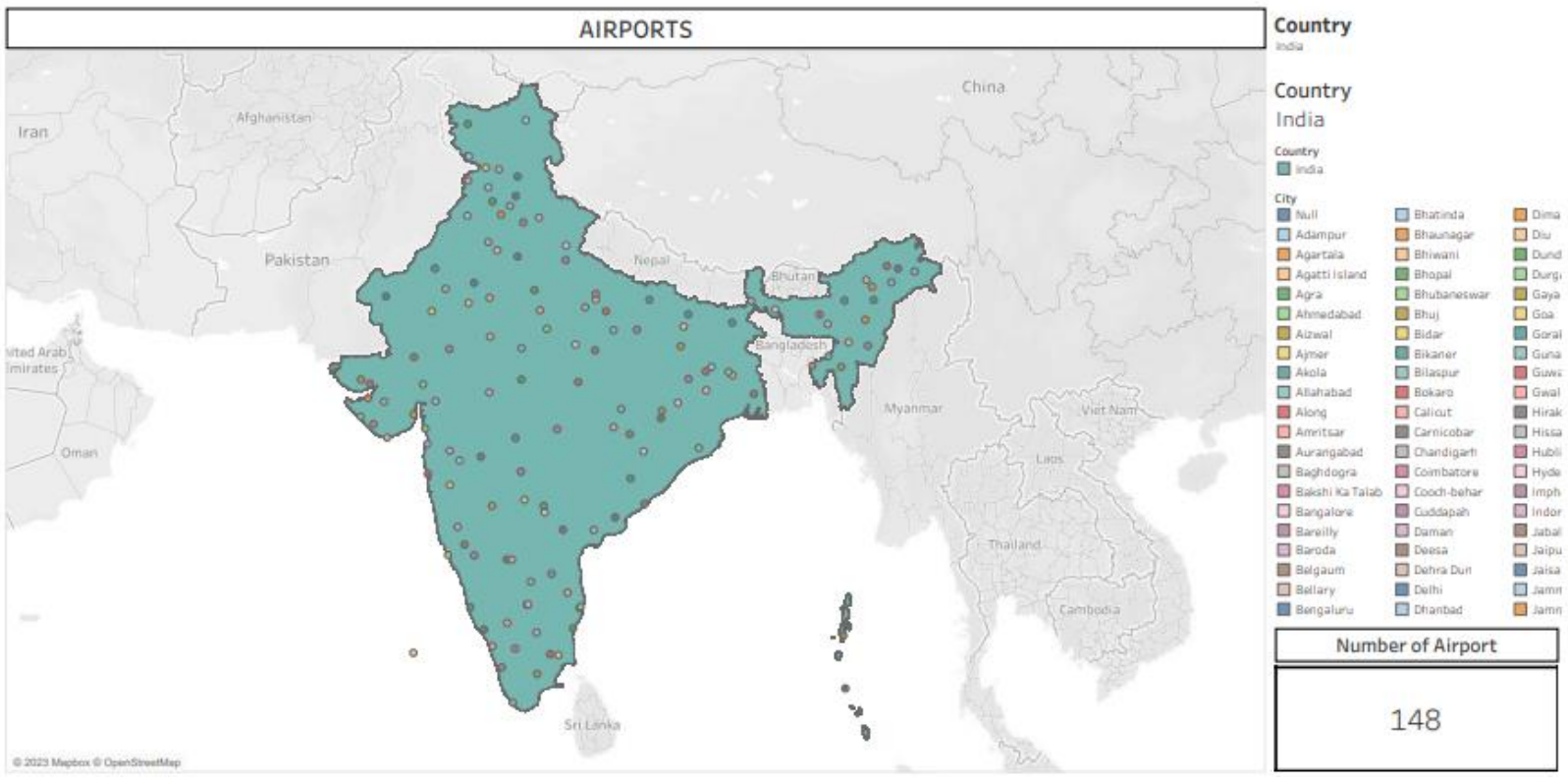


2.2 Ideation & Brainstorming map:

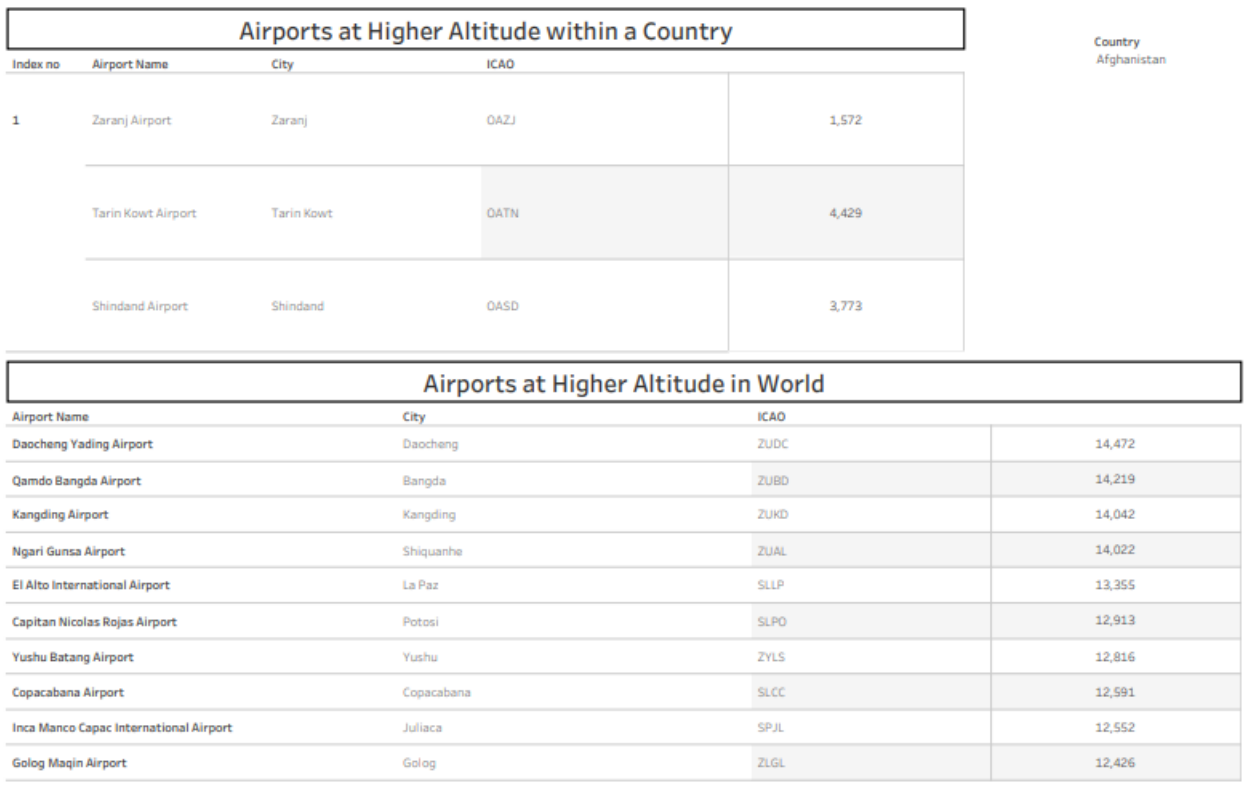


3. Result:

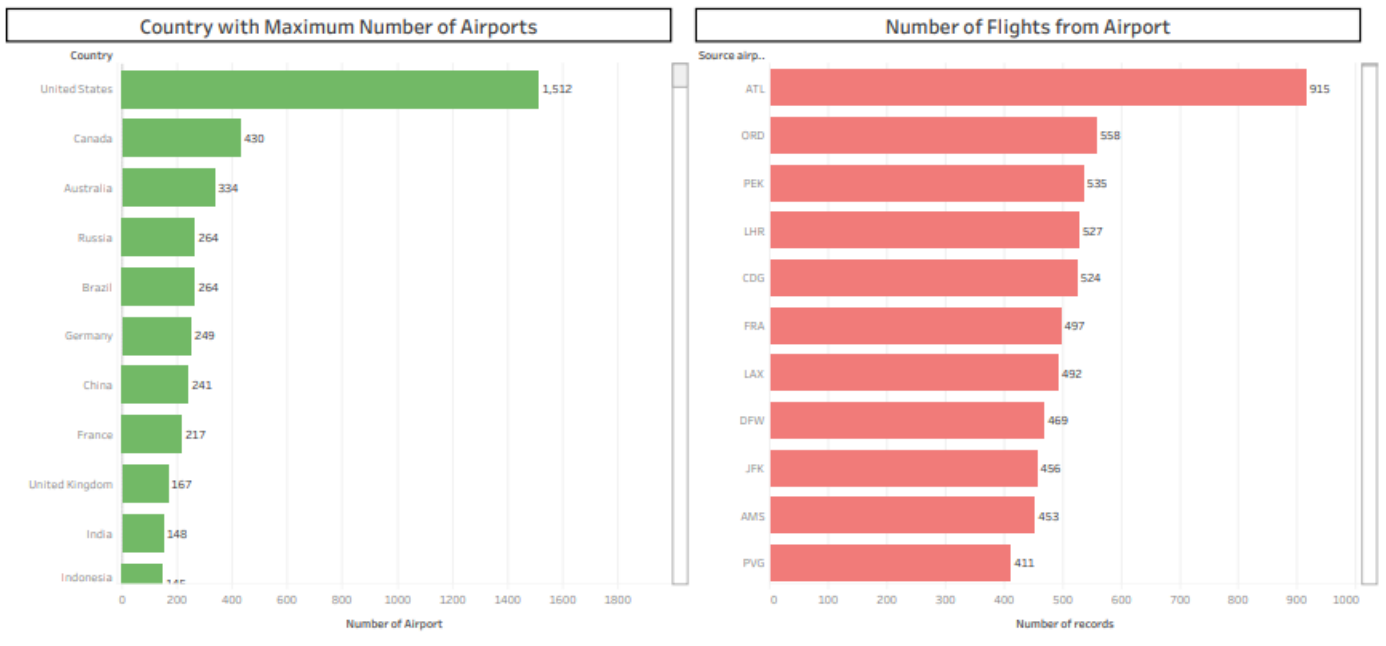
Dashboard 1:



Dashboard 2:



Dashboard 3:



Dashboard 4:

Airlines within a Country

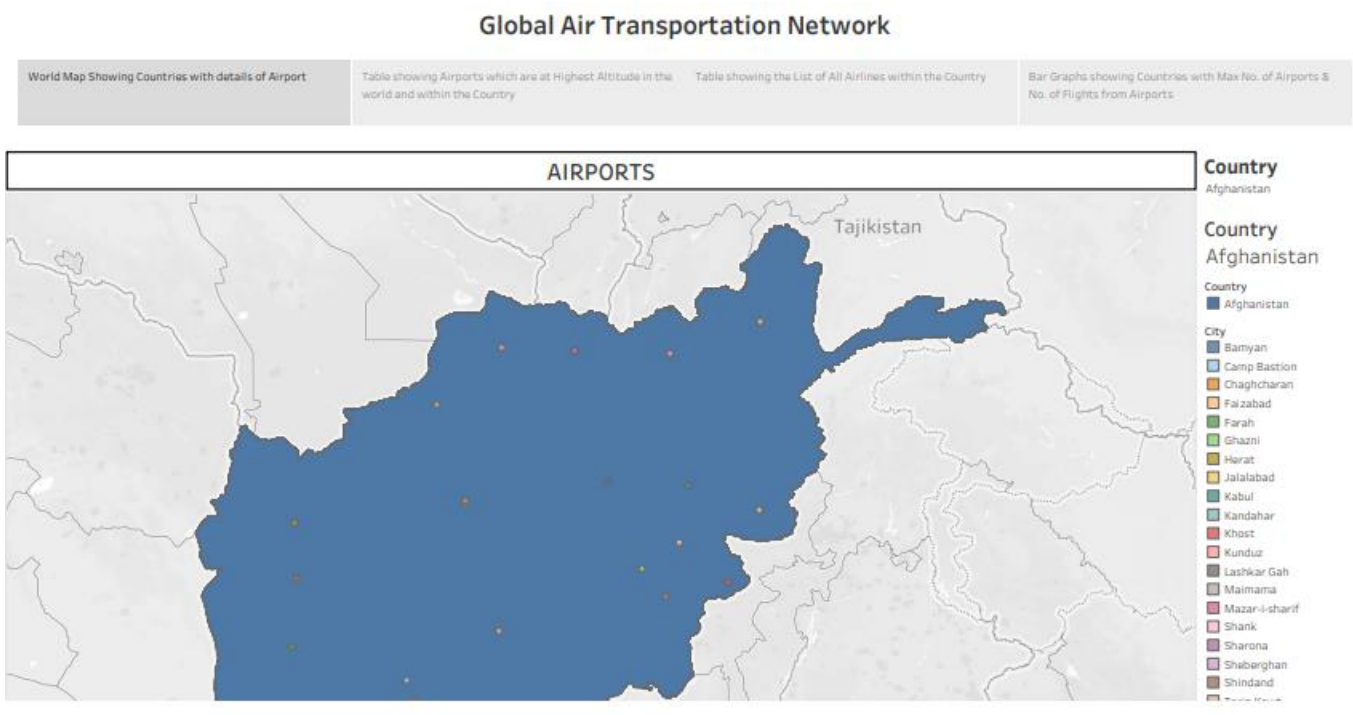
Airline ID	Name	Icao	Callsign	
218	Air India Limited	AIC	AIRINDIA	
241	Air Sahara	RSH	SAHARA	
569	Air India Express	AXB	EXPRESS INDIA	
1026	Alliance Air	LLR	ALLIED	
1370	Blue Dart Aviation	BDA	BLUE DART	
2001	Deccan Aviation	DKN	DECCAN	
2575	Go Air	GOW	GOAIR	
2634	Gujarat Airways	GUJ	GUJARATAIR	
2850	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	\N	ALLIED	
13106	MDLR Airlines	\N	MDLR	
13107	Jagson Airlines	JGN	JAGSON	
13905	Skyline nepc	\N	Null	
16327	Indya Airline Group	IG1	Indya1	
16362	OCEAN AIR CARGO	IXO	Null	
16738	NEPC Airlines	\N	Null	
16901	12 North	N12	12N	
19451	Air Costa	\N	Null	
20264	Air Vistara	VTI	Null	
20286	Air Pegasus	PPL	Null	
21270	Air Carnival	\N	Null	

Country
India

Active
Y
N

Active
N
Y

Story:



4. Advantages & Disadvantages:

Advantages:

Comprehensive Data: The project provides a vast and detailed dataset coveting airports, airlines, routes, and related information, offering a holistic view of global air transportation networks.

Research Insights: Researchers and analysts can give valuable insights into aviation trends, network connections, and geographical patterns, facilitating in-depth studies and informed decision-making.

Geographic Data: The inclusion of longitudes, latitudes, and altitudes of airports allows for geographical analysis and mapping, aiding in route planning and navigation.

Time Zone Information: The dataset's time zone and daylight saving time data is crucial for airlines travelers to manage schedules effectively, reducing the risk of missed flights.

Code Standardization: The availability of IATA and ICAO codes for airports and airlines helps in standardizing data, making it easier to integrate with other aviation databases.

Disadvantages:

Data Quality: If the dataset contains inaccuracies or inconsistencies, these issues may be magnified in visualizations, potentially leading to misleading conclusions.

Overcomplexity: Creating overly complex visualizations can make it challenging for viewers to extract meaningful insights, especially if they are not familiar with data visualization techniques.

Misinterpretation: Viewers might misinterpret visualizations, leading to incorrect conclusions or decisions if the data is not presented clearly and accurately.

Data Accuracy: The accuracy of the dataset may vary depending on the sources and contributors, potentially leading to inconsistencies or outdated information.

Maintenance: Keeping the data up-to-date with the ever-changing aviation industry can be challenging and time-consuming, requiring continuous effort and resources.

5. Applications:

Researchers and analysts can gain valuable insights into aviation trends, network connections, and geographical patterns, facilitating in-depth studies and informed decision-making.

Visualizations based on this dataset can serve as valuable educational tools for students, researchers, and professionals in the aviation industry.

Airlines can monitor the strategies and performance of competitors, helping them make informed decisions in a competitive market.

Government agencies can use visualizations to monitor and enforce aviation regulations, assess environmental impacts, and plan airspace management.

It can be used to provide travelers with information on flight routes, airport facilities, and travel options.

6. Conclusion:

Overall, creating a project with visualization and dashboards on this Global Air Transportation Networks Dataset can serve a wide range of stakeholders, providing actionable insights, improving decision-making and enhancing understanding of the global air transportation network.

7. Future Scope:

The future scope of this Tableau project depends on the evolving needs of the aviation industries, technological advancements, and the project's ability to adapt to this changes. Continuous innovation and a focus on addressing industries challenges will be key to its long-term success.