

PROJECT REPORT ON

Unlocking Insights into the Global Air Transportation Network with Tableau

Submitted by

Team 3: III BSc Maths EM

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Introduction

Overview:

The project "Unlocking Insights into the Global Air Transportation Network with Tableau" aims to use Tableau, a data visualization software, to explore and analyze the global air transportation network. The project uses a comprehensive dataset of information on airports, airlines, and their routes to provide insights into a variety of topics.

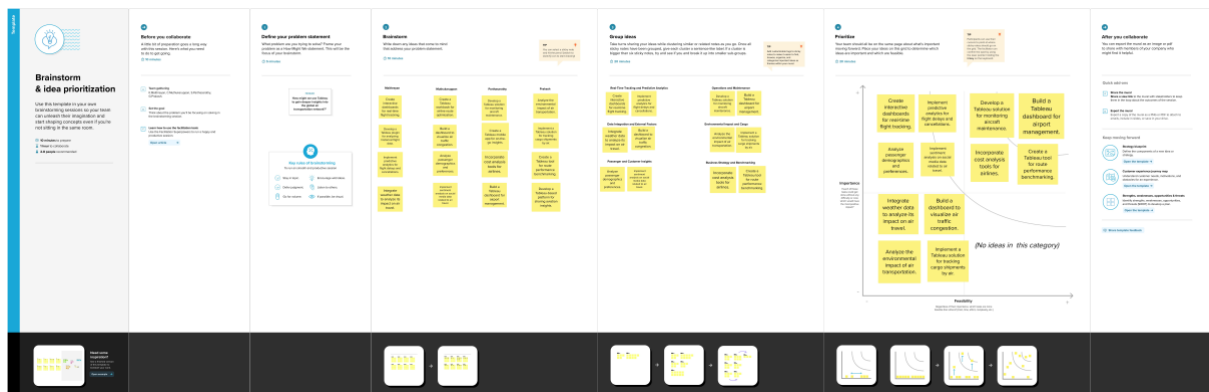
Purpose:

The purpose of the project "Unlocking Insights into the Global Air Transportation Network with Tableau" is to use Tableau to explore and analyse the global air transportation network in order to gain insights into a variety of topics, including:

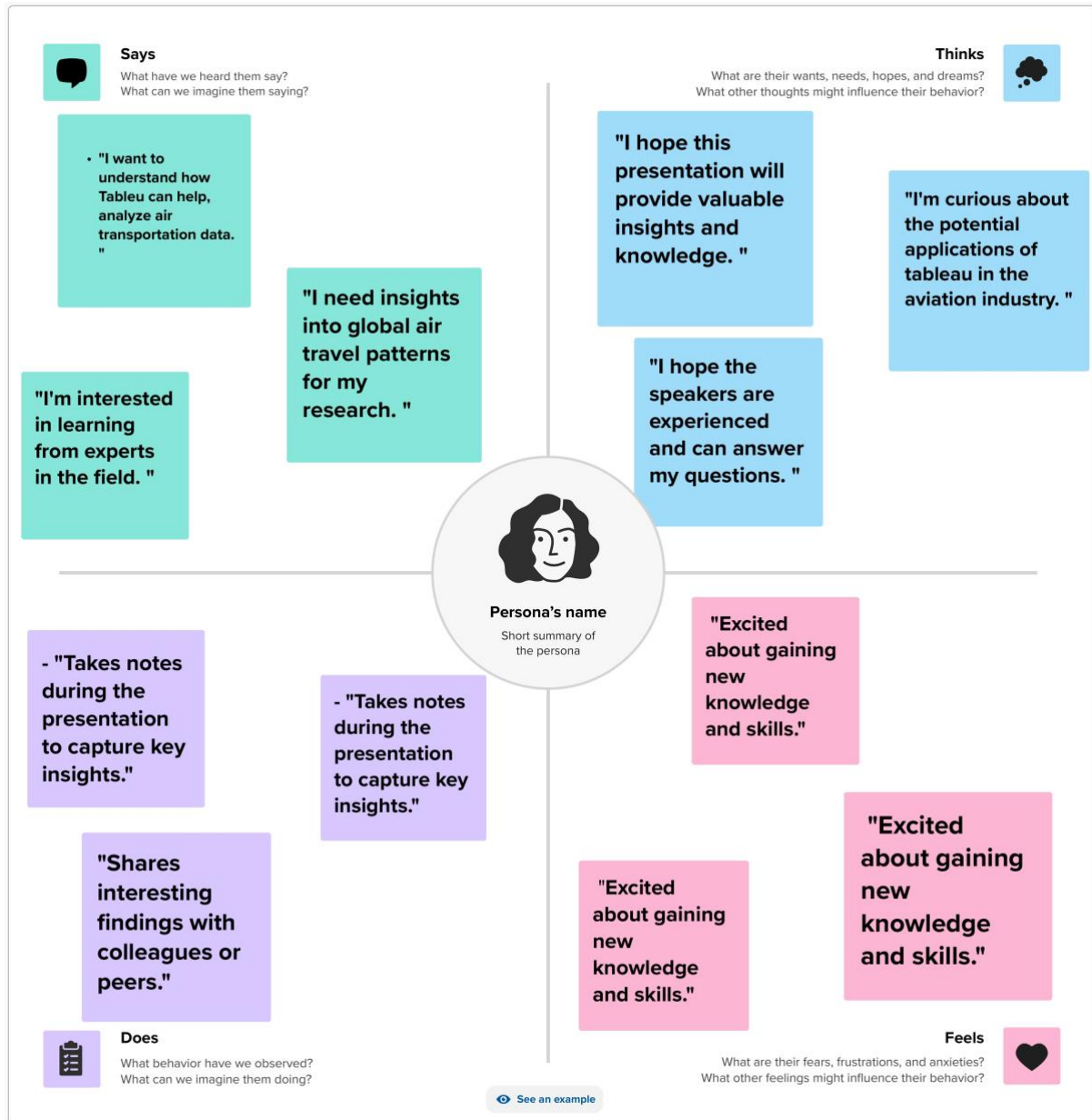
- Air traffic patterns
- Airline performance
- Network efficiency
- Emerging trends

Problem Definition and Design Thinking

Brainstorming and Ideation Map:



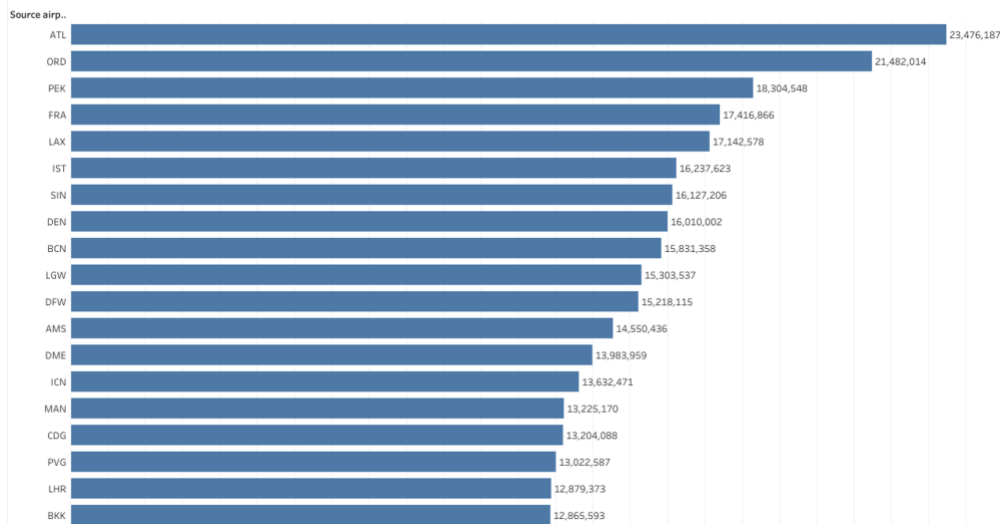
Empathy Map:



Result

The unique visualisations are given below

Number of Flights from Airport



Num-
ber of
Air-
ports

148

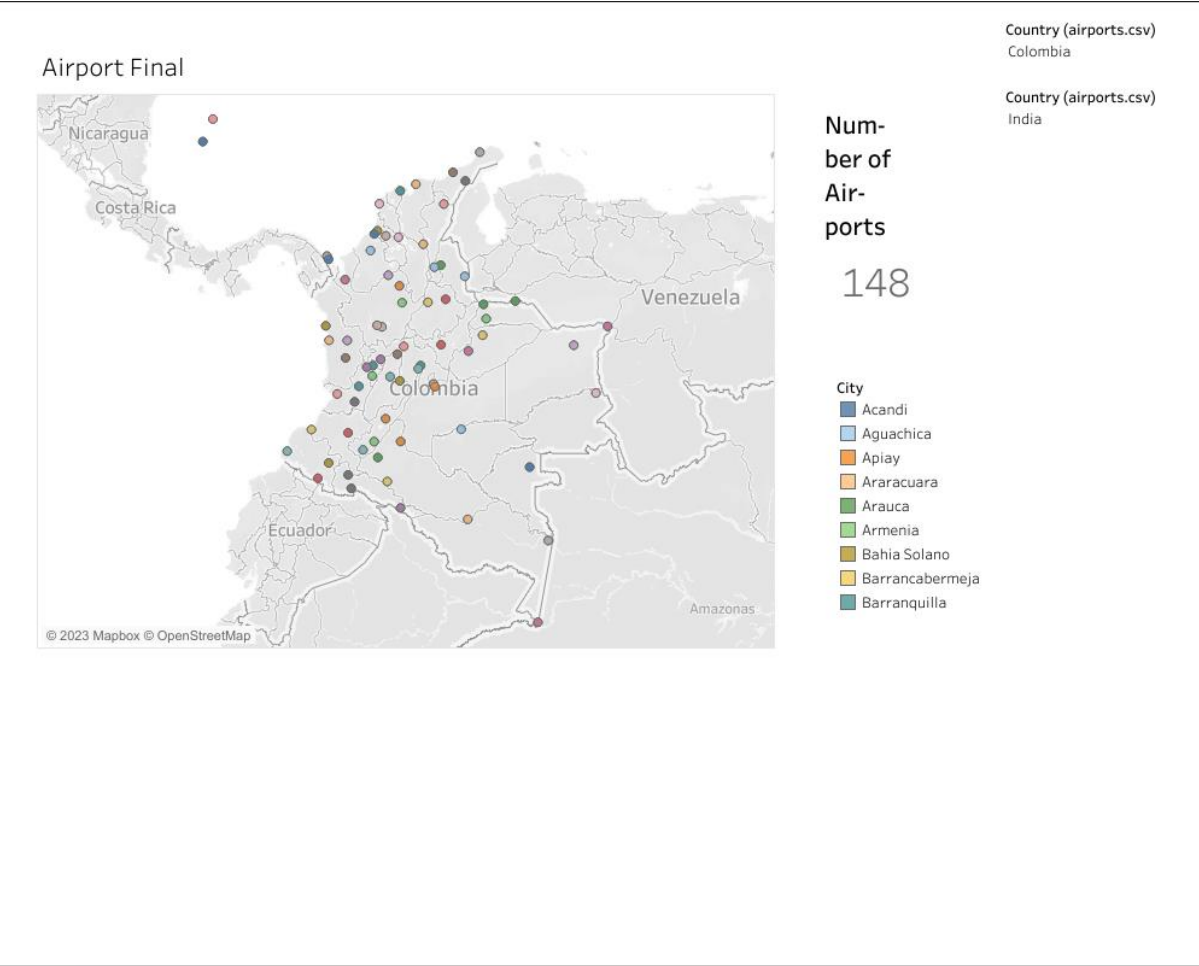
Airports at higher altitude within a country

Index no.	Name (airports.csv)	City	ICAO (airpo..	
1	Tomanggong Airport	Tomanggong	WBKM	26
	Tawau Airport	Tawau	WBKW	57
	Sultan Mahmud Airport	Kuala Terengganu	WMKN	21

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Airline ID	Name	Icao	Callsign	Active
13	Ansett Australia	AAA	ANSETT	Y
120	Alliance Airlines	UTY	UNITY	Y
338	Airnorth	ANO	TOPEND	Y
476	Airlines Of Tasmania	ATM	AIRTAS	Y
1143	Aeropelican Air Services	PEL	PELICAN	Y
2125	Eastland Air	ELA	Null	Y
2782	Horizon Airlines	HZA	Null	Y
3052	Jetstar Airways	JST	JETSTAR	Y
3122	Kendell Airlines	KDA	KENDELL	Y
3363	Macair Airlines	MCK	Null	Y
3608	National Jet Systems	NJS	NATIONAL JET	Y
3831	Ozjet Airlines	OZJ	AUSJET	Y
4089	Qantas	QFA	QANTAS	Y
4178	Regional Express	RXA	REX	Y
4702	Skywest Airlines	OZW	OZWEST	Y
4937	Tiger Airways Australia	TGW	GO CAT	Y
5360	Virgin Australia	VOZ	VIRGIN	Y
10675	Sharp Airlines	SHA	SHARP	Y
13178	Strategic Airlines	WV	Null	Y
13394	Jayrow	WV	Null	Y
13397	Wilderness Air	WV	Null	Y
13398	Whitaker Air	WV	Null	Y
17022	Orchid Airlines	ORC	Null	Y
17082	Skywest Australia	WV	Null	Y
18076	Flying kangaroo Airline	FKA	Skippy	Y
19830	All Australia	8KB	Null	Y
21268	Jetgo Australia	WV	Null	Y

Airports at Highest Altitude in World			
Name (airports.csv)	City	ICAO (airports.csv)	
Daocheng Yading Airport	Daocheng	ZUDC	14,472
Qamdo Bangda Airport	Bangda	ZUBD	14,219
Kangding Airport	Kangding	ZUKD	14,043
Ngari Gonsa Airport	Shiquanhe	ZUAL	14,022
El Alto International Ai...	La Paz	SLLP	13,355
Capitan Nicolas Rojas Airport	Potosi	SLPO	12,913
Yushu Batang Airport	Yushu	ZYLS	12,816
Copacabana Airport	Copacabana	SLCC	12,591
Inca Manco Capac Internati...	Juliaca	SPJL	12,552
Golog Maqin Airport	Golog	ZLGL	12,425



Advantages and Disadvantages

Advantages of the solution proposed by the data visualizations in the project "Unlocking Insights into the Global Air Transportation Network with Tableau":

- The data visualizations provide a clear and concise overview of the global air transportation network, including air traffic patterns, airline performance, network efficiency, and emerging trends.
- The data visualizations are interactive, allowing users to explore the data in more detail and to identify patterns and relationships that might not be immediately obvious.
- The data visualizations can be used to communicate complex information about the global air transportation network to a variety of audiences, including decision-makers, industry analysts, and the general public.

Disadvantages of the solution proposed by the data visualizations in the project "Unlocking Insights into the Global Air Transportation Network with Tableau":

- The data visualizations are only as good as the data that they are based on. If the data is inaccurate or incomplete, the insights gained from the data visualizations will be limited.
- The data visualizations can be complex and difficult to interpret for users who are not familiar with data visualization or the air transportation industry.
- The data visualizations may not be able to capture all of the nuances of the global air transportation network. For example, they may not be able to account for the impact of factors such as weather, political instability, and economic conditions.

Overall, the data visualizations in the project "Unlocking Insights into the Global Air Transportation Network with Tableau" offer a number of advantages, including their ability to provide a clear and concise overview of the global air transportation network, their interactivity, and their ability to communicate complex information to a variety of audiences. However, it is important to be aware of the limitations of the data visualizations, such as their reliance on accurate and complete data and their potential complexity for users who are not familiar with data visualization or the air transportation industry.

Application

The solution proposed by the data visualizations in the project "Unlocking Insights into the Global Air Transportation Network with Tableau" can be applied in a variety of areas, including:

- Airline planning and strategy: Airlines can use the data visualizations to identify new market opportunities, develop pricing strategies, and optimize their route networks.
- Airport operations and planning: Airports can use the data visualizations to improve their efficiency, attract new airlines and passengers, and plan for future growth.
- Government regulation and policy development: Government agencies can use the data visualizations to assess the impact of new regulations, develop policies to promote competition and innovation, and ensure the safety and security of the air transportation system.
- Academic research: Researchers can use the data visualizations to study the relationship between air transportation and economic growth, identify the factors that drive demand for air travel, and develop models to predict future air traffic patterns.

Conclusion

The project "Unlocking Insights into the Global Air Transportation Network with Tableau" has demonstrated the potential of Tableau to provide valuable insights into the complex data associated with the global air transportation network. The data visualizations created for the project provide a clear and concise overview of air traffic patterns, airline performance, network efficiency, and emerging trends in the air transportation industry. The data visualizations are also interactive, allowing users to explore the data in more detail and to identify patterns and relationships that might not be immediately obvious.

The findings of the project can be applied in a variety of areas, including airline planning and strategy, airport operations and planning, government regulation and policy development, and academic research. Airlines can use the findings to identify new market opportunities, develop pricing strategies, and optimize their route networks. Airports can use the findings to improve their efficiency, attract new airlines and passengers, and plan for future growth. Government agencies can use the findings to assess the impact of new regulations, develop policies to promote competition and innovation, and ensure the safety and security of the air transportation system. Academic researchers can use the findings to study the relationship between air transportation and economic growth, identify the factors that drive demand for air travel, and develop models to predict future air traffic patterns.

Overall, the project has shown that Tableau is a powerful tool for exploring and analysing the global air transportation network. The insights gained from the project can be used by a variety of stakeholders to make informed decisions about the air transportation industry and to improve its performance.

Future Scope

The project "Unlocking Insights into the Global Air Transportation Network with Tableau" has a number of potential enhancements that could be made in the future. Here are a few ideas:

- **Expand the dataset:** The project currently uses a dataset of information on airports, airlines, and their routes. However, the project could be enhanced by expanding the dataset to include additional information, such as flight data, passenger data, and cargo data. This would allow for more comprehensive and insightful analysis of the global air transportation network.
- **Develop more sophisticated data visualizations:** The project currently uses a variety of basic data visualizations, such as line charts, bar charts, and pie charts. However, the project could be enhanced by developing more sophisticated data visualizations, such as heatmaps, geographic information system (GIS) maps, and interactive dashboards. This would allow for more visually appealing and informative data visualizations.
- **Integrate with other data sources:** The project currently uses a single data source, which is the dataset of information on airports, airlines, and their routes. However, the project could be enhanced by integrating with other data sources, such as weather data, economic data, and social media data. This would allow for more contextualized and insightful analysis of the global air transportation network.

Overall, the project "Unlocking Insights into the Global Air Transportation Network with Tableau" has a bright future. With a few enhancements, the project could become a leading resource for understanding and analyzing the global air transportation network.