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SMARTINTERNZ

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UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABLEAU

III B SC MATHEMATICS

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UNDER THE GUIDENCE OF

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CONTENT OF THE THESIS

❖ INTRODUCTION

❖ PROBLEM DEFINITION & DESIGN THINKING

❖ RESULT

❖ ADVANTAGES & DISADVANTAGES

❖ APPLICATIONS

❖ CONCLUTION

❖ FUTURE SCOPE

❖ APPENDIX

❖ INTRODUCTION

1.1 OVERVIEW

The global air transportation network is a complex and interconnected system that facilitates the moment of people, goods, and information across the world through air travel. It encompasses a vast web of airlines, airports, flight routes, and supporting infrastructure that spans continents and connects even the most remote locations. This Network plays a pivotal role in our increasingly interconnected world, driving economic growth, cultural exchange, and global trade. It enables swift and efficient travel, making the world more acesible than ever before. Understanding and managing this intricate web of routes and connections is essential for governments, aviation industry professionals, and researchers to ensure safe, efficient, and sustainable air travel in a rapidly evolving global landscape.
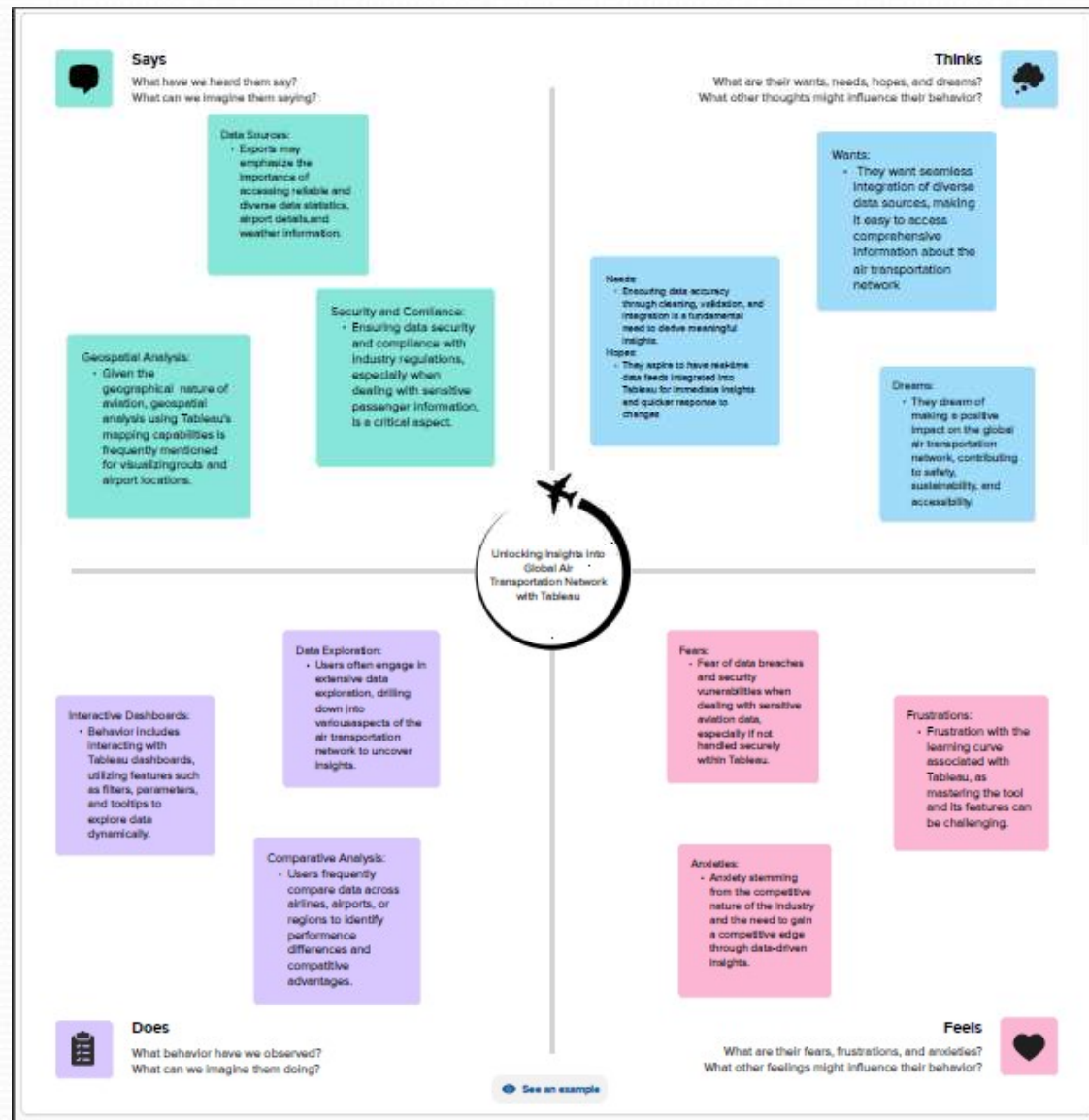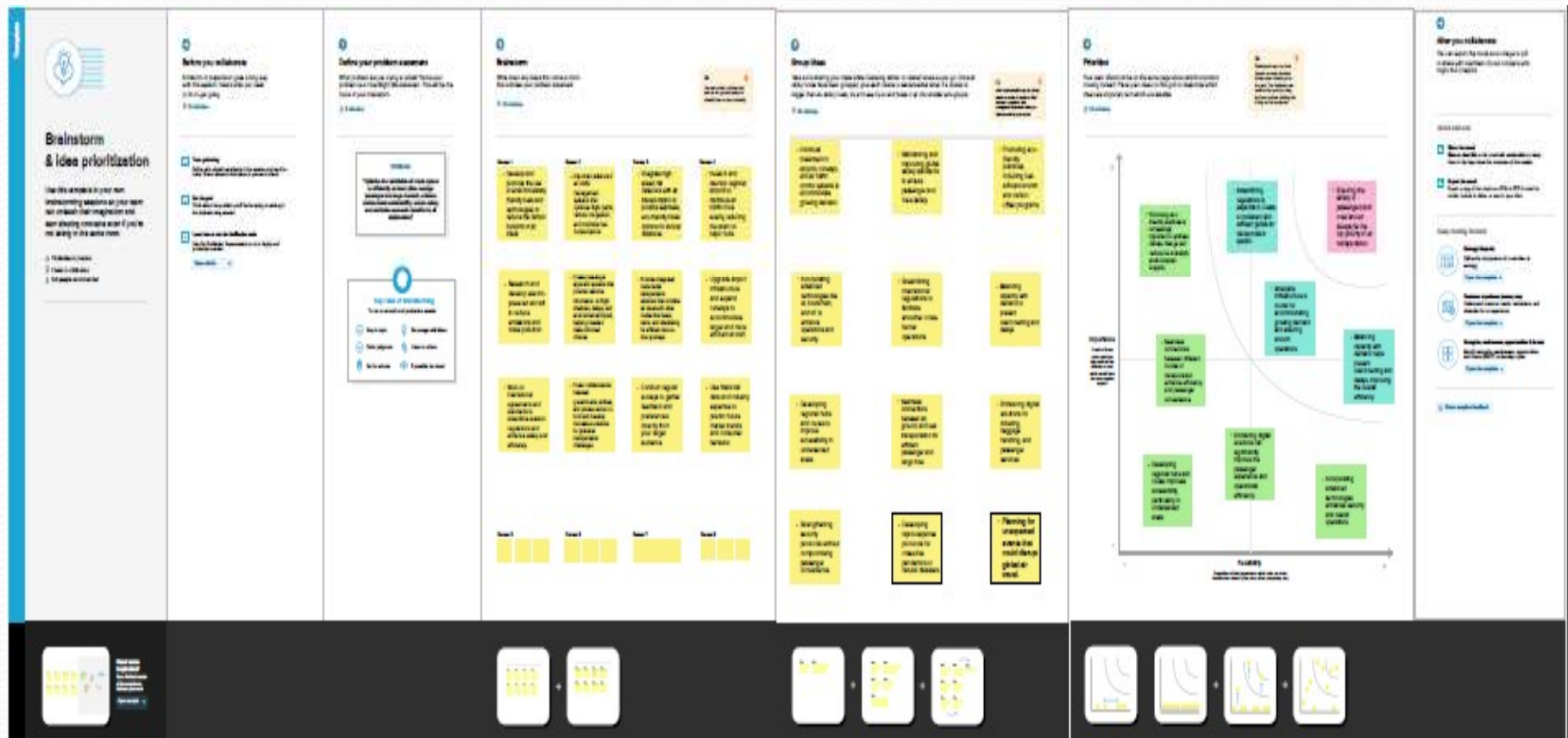
1.2 PURPOSE

❖ The primary purpose of the global air transportation network is to facilitate the efficient movement of people , goods, and information across the world, promoting international connectivity and economic growth.

2.1 EMPATHY MAP

Says

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

Data Sources:
· Exports may emphasize the importance of accessing reliable and diverse data statistics, airport details and weather information.

Geospatial Analysis:
· Given the geographical nature of aviation, geospatial analysis using Tableau's mapping capabilities is frequently mentioned for visualizing routes and airport locations.

Security and Comilance:
· Ensuring data security and compliance with industry regulations, especially when dealing with sensitive passenger information, is a critical aspect.

Thinks

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

Wants:
· They want seamless integration of diverse data sources, making it easy to access comprehensive information about the air transportation network

Needs:
· Ensouring data accuracy through cleaning, validation, and integration is a fundamental need to derive meaningful insights.

Hopes:
· They aspire to have realtime data feeds integrated into Tableau for immediate insights and quicker response to changes

Dreams:
· They dream of making a positive impact on the global air transportation network, contributing to safety, sustainability, and accessibility.

Unlocking Insights into Global Air Transportation Network with Tableau

Does

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

Interactive Dashboards:
· Behavior includes interacting with Tableau dashboards, utilizing features such as filters, parameters, and tooltips to explore data dynamically.

Data Exploration:
· Users often engage in extensive data exploration, drilling down into various aspects of the air transportation network to uncover insights.

Comparative Analysis:
· Users frequently compare data across airlines, airports, or regions to identify performance differences and competitive advantages.

Feels

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

Fears:
· Fear of data breaches and security vunerabilities when dealing with sensitive aviation data, especially if not handled securely within Tableau.

Frustrations:
· Frustration with the learning curve associated with Tableau, as mastering the tool and its features can be challenging.

Anxieties:
· Anxiety stemming from the competitive nature of the industry and the need to gain a competitive edge through data-driven insights.

👁 See an example

2.2 IDEATION & BRAINSTORMING MAP

❖ADVANTAGES & DISADVANTAGES

ADVANTAGES TO GLOBAL AIR TRANSPORTATION NETWORK

- SPEED
- CONNECTIVITY
- TOURISM
- INTERNATIONAL TRADE
- ECONOMIC GROWTH

DISADVANTAGES TO GLOBAL AIR TRANSPORTATION NETWORK

- HIGH COSTS
- ENVIRONMENTAL IMPACT
- CONGESTION
- NOISE POLUTION
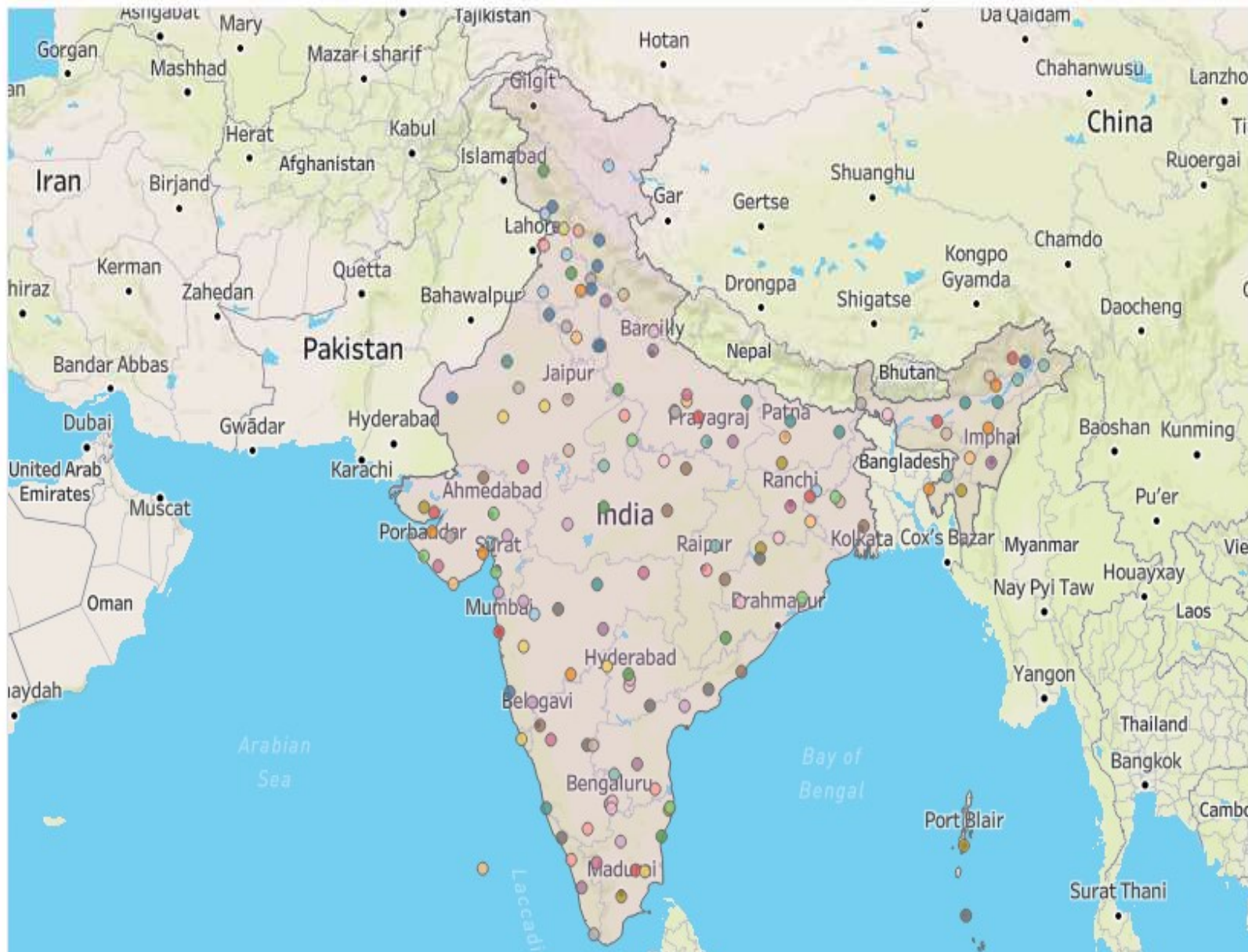- WEATHER-DEPENDENT

world map details of all airports

Country

India

Number of airports

148

City

- Null
- Adampur
- Agartala
- Agatti Island
- Agra
- Ahmedabad
- Aizwal
- Ajmer
- Akola
- Allahabad
- Along
- Amritsar
- Aurangabad
- Baghdogra
- Bakshi Ka Talab
- Bangalore
- Bareilly

PREVIOUS | Airlines within a Country | **NEXT**

Airline ID	Name	Icao	Callsign	
218	Air India Limited	AIC	AIRINDIA	■
241	Air Sahara	RSH	SAHARA	■
569	Air India Express	AXB	EXPRESS INDIA	■
2575	Go Air	GOW	GOAIR	■
2850	IndiGo Airlines	IGO	IFLY	■
2853	Indian Airlines	IAC	INDAIR	■
3000	Jet Airways	JAI	JET AIRWAYS	■
3142	Kingfisher Airlines	KFR	KINGFISHER	■
3907	Paramount Airwa..	PMW	PARAWAY	■
4375	Spicejet	SEJ	SPICEJET	■
13105	Air India Regional	\N	ALLIED	■
13106	MDLR Airlines	\N	MDLR	■
13107	Jagson Airlines	JGN	JAGSON	■
16327	Indya Airline Gro..	IG1	Indya1	■
16362	OCEAN AIR CARGO	IXO	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 ▼

Active

■ Y

Airports at higher altitude within a country

Country

India ▼

Index no	Airport Name	City	ICAO (airpo..	
1	Ziro Airport	Zero	VEZO	5,403
2	Yelahanka Air Force Station	Bangalore	VOYK	3,045
3	Vishakhapatnam Airport	Vishakhapatnam	VEVZ	15

Airports at higher altitude within a world

Airport Name	City	ICAO (airports.csv)	
Daocheng Yading Airport	Daocheng	ZUDC	14,472
Qamdo Bangda Airport	Bangda	ZUBD	14,219
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gunsa Airport	Shiquanhe	ZUAL	14,022
El Alto International Airport	La Paz	SLLP	13,355
Capitan Nicolas Rojas Airport	Potosi	SLPO	12,913

Country with Maximum Number of Airports

Country (airp.. ⇄

Country	Airports
United States	1,512
Canada	430
Australia	334
Russia	264
Brazil	264
Germany	249
China	241
France	217
United Kingdom	167
India	148
Indonesia	145
Japan	123

Number of flights from airport

Source airp..

Source airport	Flights
ATL	915
ORD	558
PEK	535
LHR	527
CDG	524
FRA	497
LAX	492
DFW	469
JFK	456
AMS	453
PVG	411
SIN	408
BCN	391
ICN	370
MUC	368

Global Air Transportation Network

| World Map Showing Countries with details of Airports. | Table Showing Airports which are at Highest Altitude in the world and within the Country. | Table Showing List of All Airlines within the Country. | Bar Graphs showing Countries with Max No. of Airports & No. of Flights from Airports. |

world map details of all airports

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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 Internation..	IIL	INDIA INTER	🟦
2852	Indian Air Force	IFC	INDIAN AIRFORCE	🟦
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Active

🟦 N
🟧 Y

Global Air Transportation Network

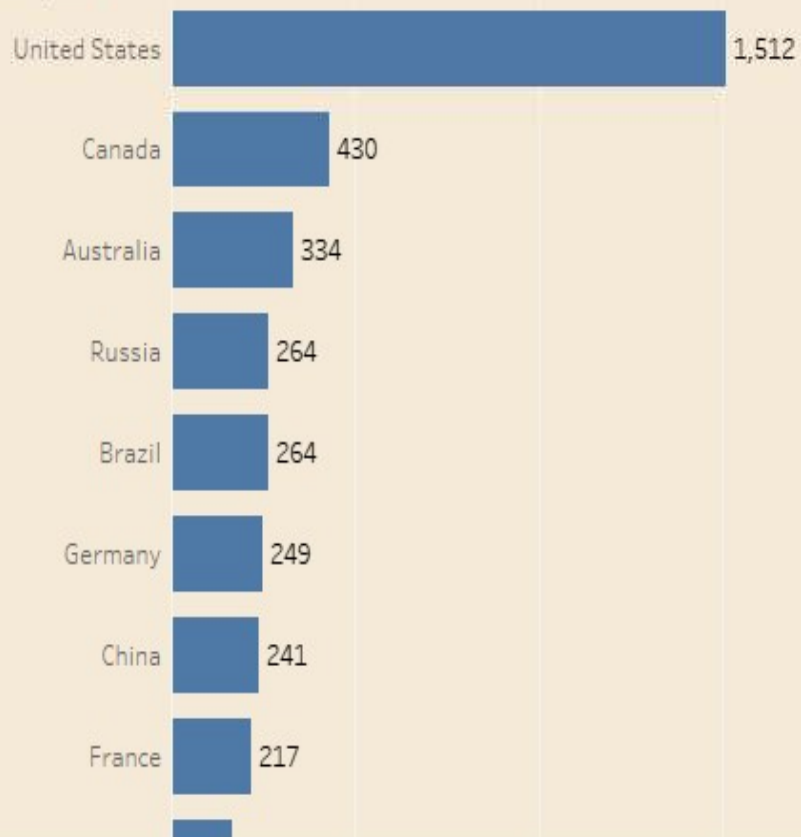| World Map Showing Countries with details of Airports.	Table Showing Airports which are at Highest Altitude in the world and within the Country.	Table Showing List of All Airlines within the Country.	Bar Graphs showing Countries with Max No. of Airports & No. of Flights from Airports.

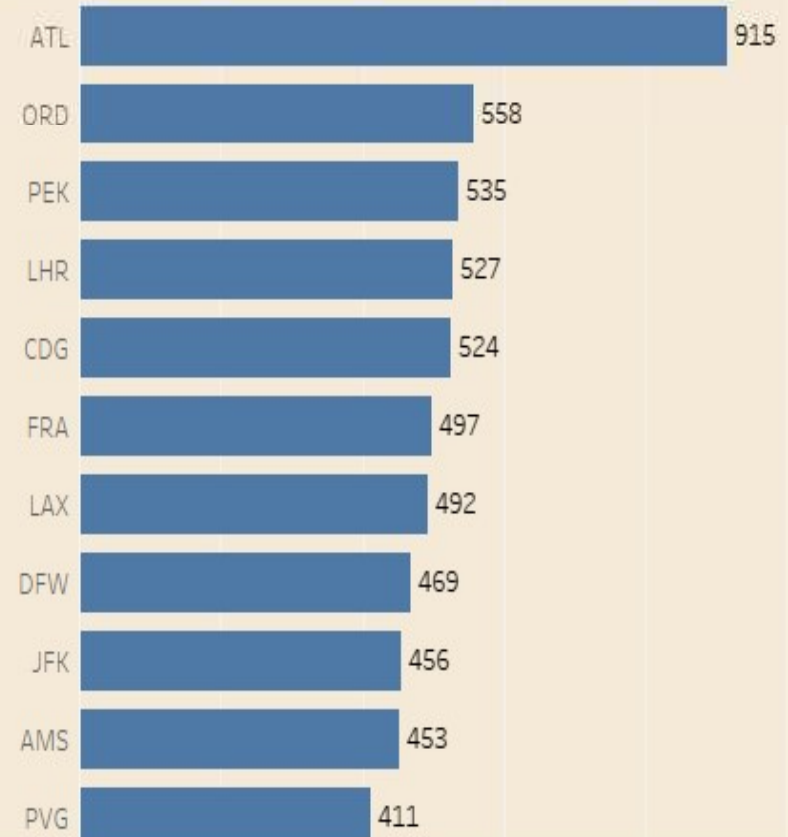## Country with Maximum Number of Airports

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APPLICATIONS

❖ The Global Air Transportation Network enables time-sensitive business travel, facilitating face-to-face meetings, negotiations, and conferences that are vital for international business operations, dial-making, and design making.

❖ Air travel is commonly used to transport sports teams to various locations for competitions, tournaments, and events. This efficient mode of transportation allows athletes to participate in a wide range of sporting events around the world and fosters international sportsmanship.

CONCLUSION

- ❖ The Global Air Transportation Network plays a multifaceted and indispensable role in our interconnected world.
- ❖ It supports economic growth, facilitates global trade, and serves as a lifeline for emergency responses and humanitarian efforts, while also promoting cultural exchange and international collaboration through travel and tourism.

FUTURE SCOPE

The future scope of the Global Air Transportation Network includes advancements in sustainable aviation technology, such as electric and hybrid aircraft, to reduce environmental impact and address the growing demand for air travel while minimizing carbon emissions.