



PERIYAR UNIVERSITY

SRI KAILASH WOMEN'S COLLEGE,
THALAIVASAL

DEPARTMENT OF MATHEMATICS

III-BSc Mathematics (2023-2024)

INCHARGE: Mrs.D.SIVASATHIYA,M.SC.,B.ED..

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PROJECT TITLE	Unlocking Insights Into the global air transportation network with tableau.
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1)INTRODUCTION

- ★ This 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
- Altitudes

- ★ of airports across the world with detailed time zones and daylight-saving time data.
- ★ Additionally, this includes information about airlines including them

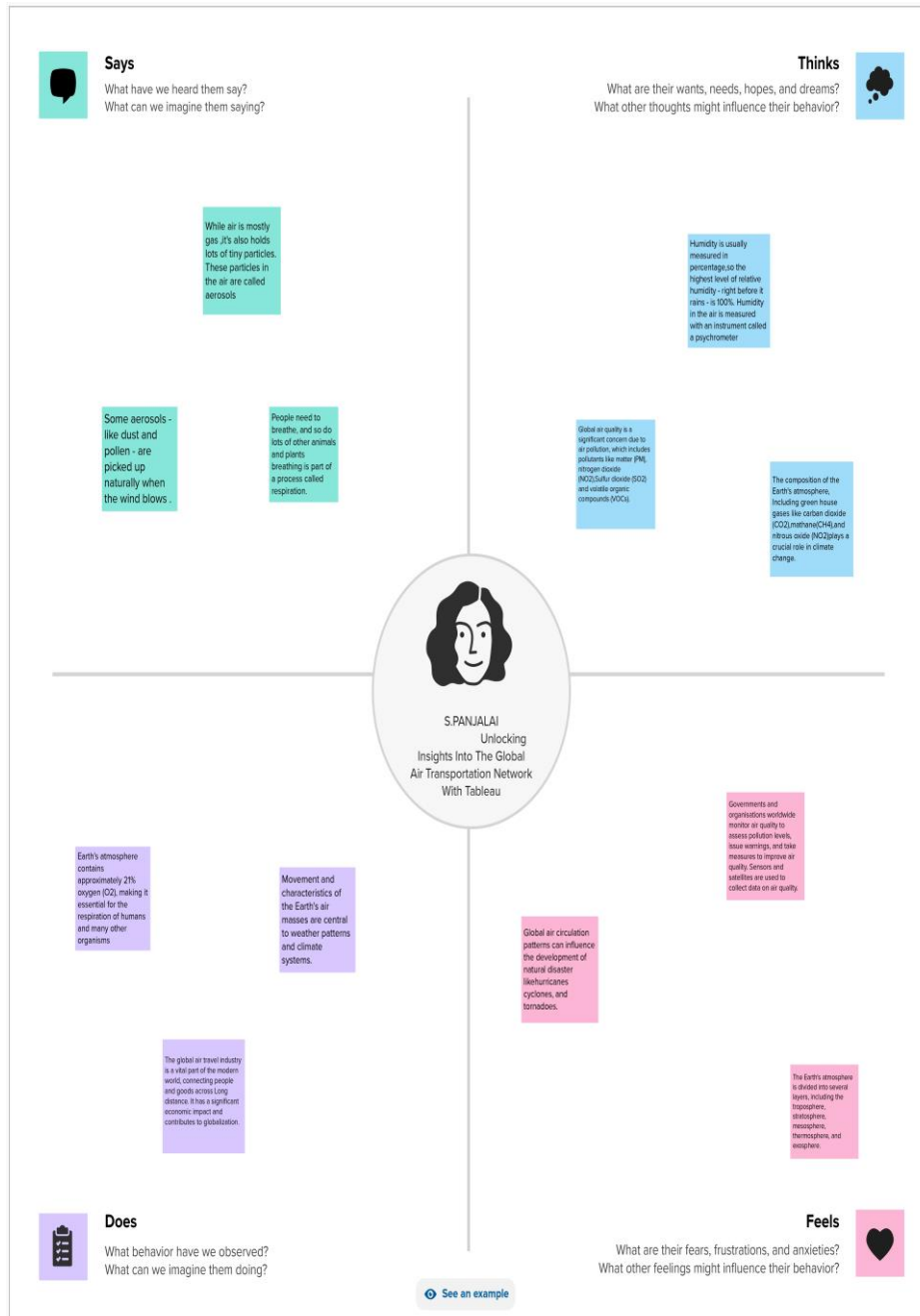
- IDs,
- name aliases,
- IATA and ICAO codes,
- callsigns country
- origin and active/inactive status.

- ★ Similarly,

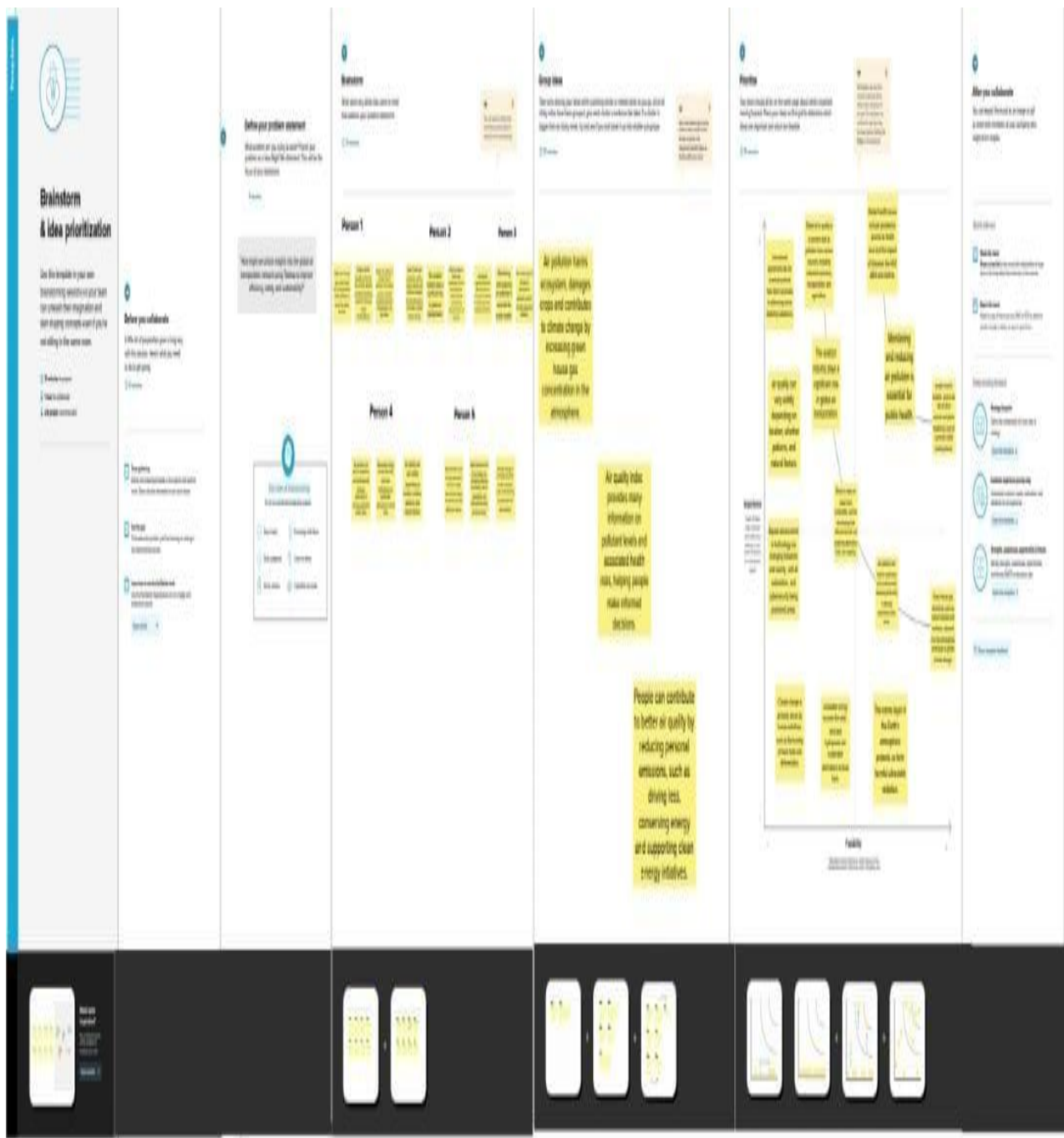
- ★ it also covers route details such as airline sources to destination airports along with essential details like codeshare stakeholder if any stops required during this journey along with the type of aircraft being used for that particular journey.
- ★ This dataset has been compiled through meticulous labor by researchers all over the world to give you a comprehensive detail into air transportation networks from around the globe.

2) Problem Definition and Designing Thinking

2.1) EMPATHY MAP



2.2) BRAINSTORMING

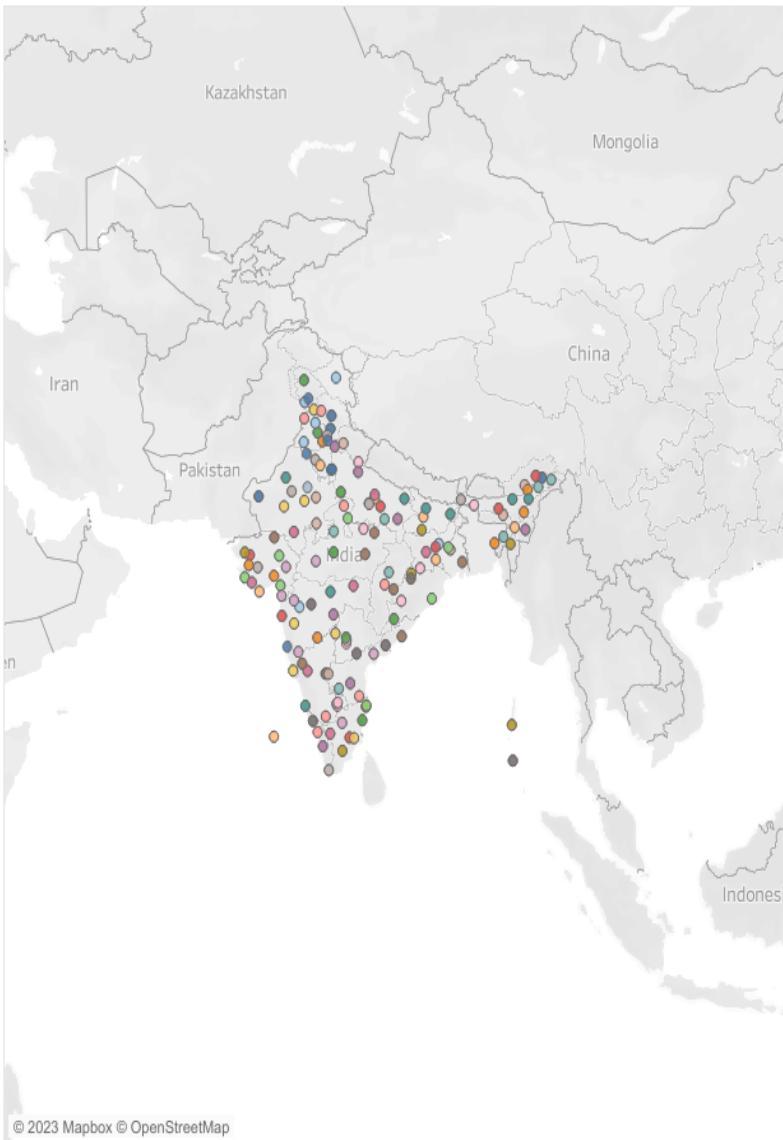


3)RESULT:

3.1) Dashboard

3.1.1) Dashboard 1

World map showing details of all airports within the country



Number of
Airports
within a
country

148

Country (airports.csv)
India

City
Null
Adampur
Agartala
Agatti Island
Agra
Ahmedabad
Aizwal
Ajmer
Akola
Allahabad
Along
Amritsar
Aurangabad
Baghdogra
Bakshi Ka Talab
Bangalore
Bareilly
Baroda
Belgaum
Bellary
Bengaluru
Bhatinda
Bhaunagar
Bhiwani
Bhopal
Bhubaneswar
Bhuj
Bidar
Bikaner
Bilaspur
Bokaro
Calicut

Country (airports.csv)
India

3.1.2) Dashboard 2

Airports at higher altitude within a country

Country (airports.csv)
Afghanistan

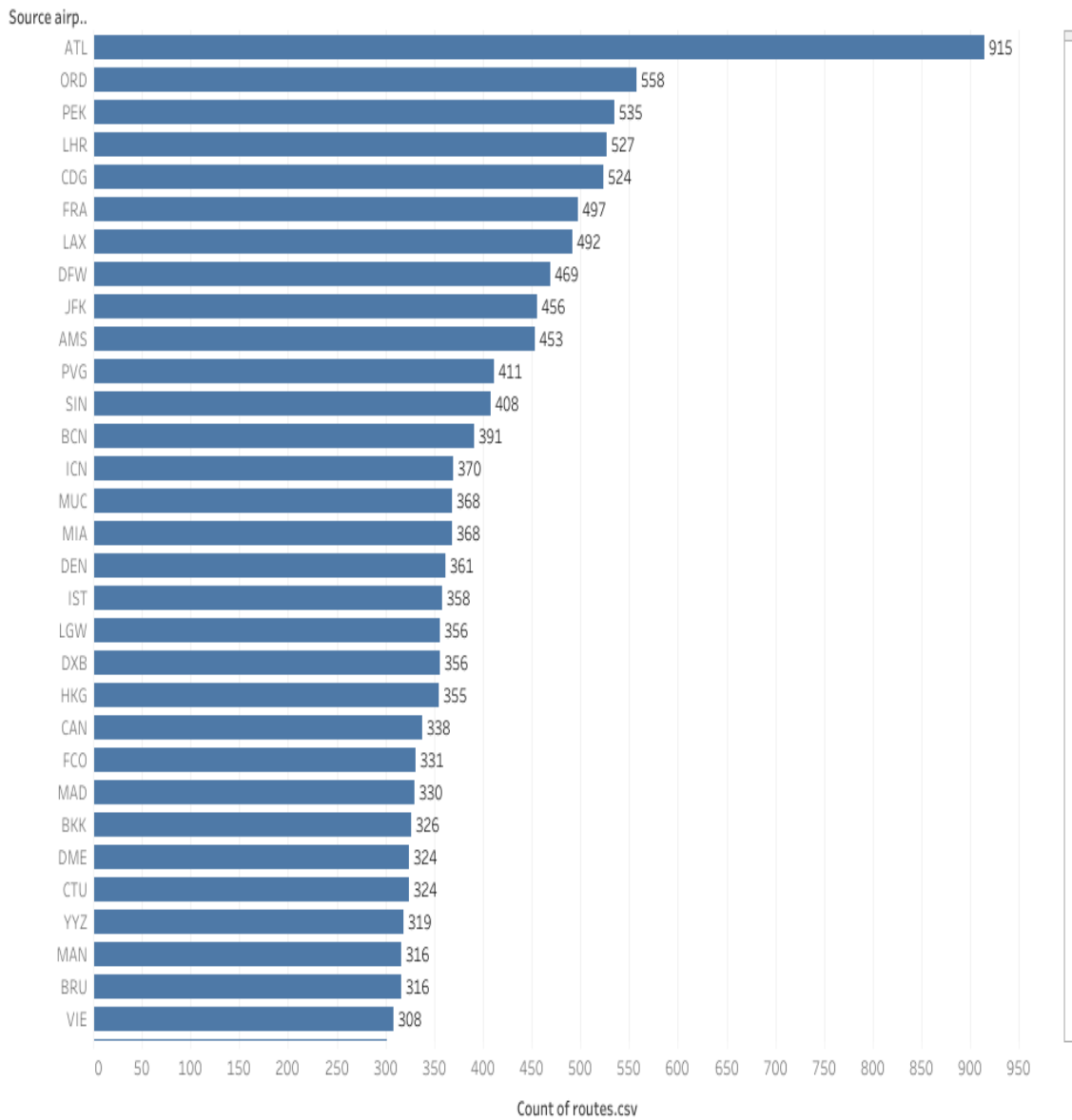
Index No	Name (airports..	City	ICAO (airpo..	
1	Bagram Air Base	Kabul	OAIX	4,895
	Bamiyan Airport	Bamyan	OABN	8,367
	Bost Airport	Lashkar Gah	OABT	2,464

Airports at higher altitude in the world

Name (airports.csv)	City	ICAO (airpo..	
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
Yushu Batang Airport	Yushu	ZYLS	12,816
Copacabana Airport	Copacabana	SLCC	12,591
Inca Manco Capac International Airport	Juliaca	SPJL	12,552
Golog Maqin Airport	Golog	ZLGL	12,426

3.1.3) Dashboard 3

Number of flights from airport



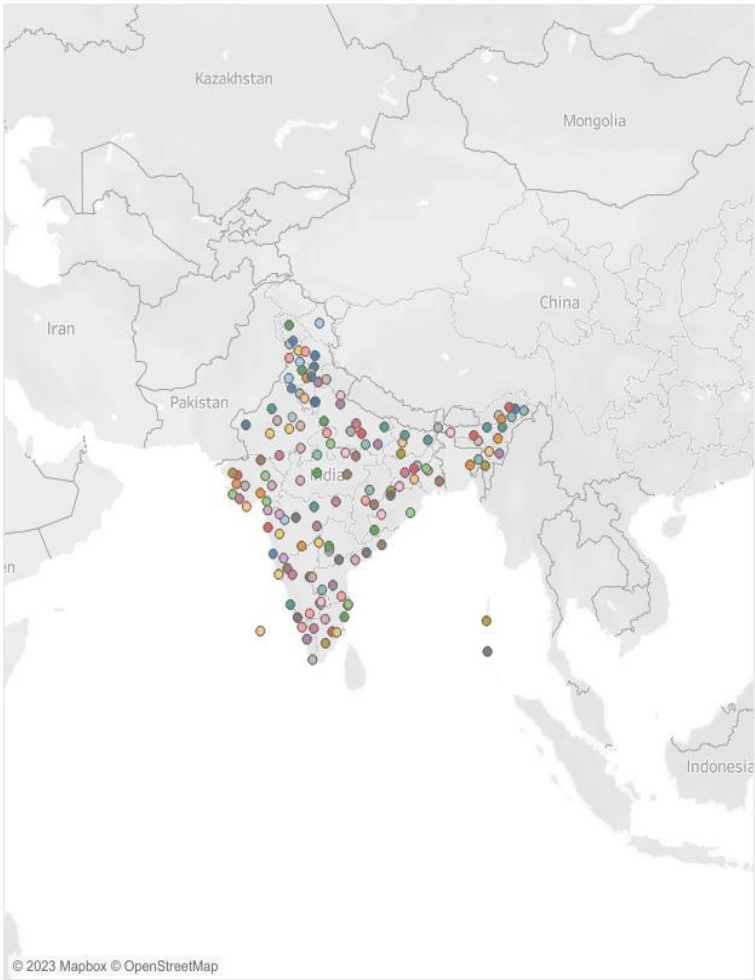
3.2) Story

3.2.1) STORY

Story 1

World map showing countries with details..	Table showing airports which are at highest ..	Table showing list of all airlines within the ..	Bar graphs showing countries with max n..
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World map showing details of all airports within the country



Number of
Airports
within a
country

148

- Country (airports.csv)
India
- City
- Null
 - Adampur
 - Agartala
 - Agatti Island
 - Agra
 - Ahmedabad
 - Aizwal
 - Ajmer
 - Akola
 - Allahabad
 - Along
 - Amritsar
 - Aurangabad
 - Baghdogra
 - Bakshi Ka Talab
 - Bangalore
 - Bareilly
 - Baroda
 - Belgaum
 - Bellary
 - Bengaluru
 - Bhatinda
 - Bhaunagar
 - Bhiwani
 - Bhopal
 - Bhubaneswar
 - Bhuj
 - Bidar
 - Bikaner
 - Bilaspur
 - Bokaro
 - Calicut
- Country (airports.csv)
India

3.2.2) STORY 2

Story 1

World map showing countries with details..

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n..

Airports at higher altitude within a country

Country (airports.csv)
Afghanistan

Index No	Name (airports..	City	ICAO (airpo..	
1	Bagram Air Base	Kabul	OAIX	4,895
	Bamiyan Airport	Bamiyan	OABN	8,367
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Airports at higher altitude in the world

Name (airports.csv)	City	ICAO (airpo..	
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El Alto International Airport	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 International Airport	Juliaca	SPJL	12,552
Golog Maqin Airport	Golog	ZLGL	12,426

3.2.3) STORY 3

































Story 1

World map showing countries with details..

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n..

Airline ID	Name	Icao	Callsign	
184	Air Alpha Greenland	AHA	AIR ALPHA	
864	Atlantic Helicopters	FAC	FAROECONPTER	
921	Air Greenland	GRL	GREENLAND	
1078	Air Alsie	MMD	MERMAID	
1379	Bel Air Helicopters	BEH	BLUECONPTER	
1412	Billund Air Center	BIL	BILAIR	
1586	CHC Denmark	HBI	HELIBIRD	
1781	Cimber Air	CIM	CIMBER	
1859	Company Flight	CYF	COMPANY FLIGHT	
1890	Copenhagen Airtaxi	CAT	AIRCAT	
1954	DAT Danish Air Transport	DTR	DANISH	
1977	Dancopter	DOP	DANCONPTER	
1978	Danish Air Force	DAF	DANISH AIRFORCE	
1979	Danish Army	DAR	DANISH ARMY	
1980	Danish Navy	DNY	DANISH NAVY	
2270	Execujet Scandinavia	VMP	VAMPIRE	
2330	Faroconpter	HBL	HELIBLUE	
2373	Flexflight	FXT	Null	
2700	Helenia Helicopter Service	HHP	HELENIA	
2837	Ikaros DK	IKR	IKAROS	
3057	Jetttime	JTG	JETTIME	
3104	Karlog Air Charter	KLG	KARLOG	
3366	Maersk	Null	Null	
3572	Mytravel Airways	VKG	VIKING	
3702	North Flying	NFA	NORTH FLYING	
4476	Star Air	SRR	WHITESTAR	
4529	Sun Air of Scandinavia	SUS	SUNSCAN	
4776	Sterling Airlines	SNB	STERLING	
4855	Star Air	Null	Null	
5257	Uni-Fly	UNC	UNICONPTER	
11856	Transavia Denmark	TDK	Null	
17115	Copenhagen Express	CX0	Copex	

Active

☒ N

☒ Y

Country

Denmark

Active

 N

 Y

3.2.4) STORY

Story 1

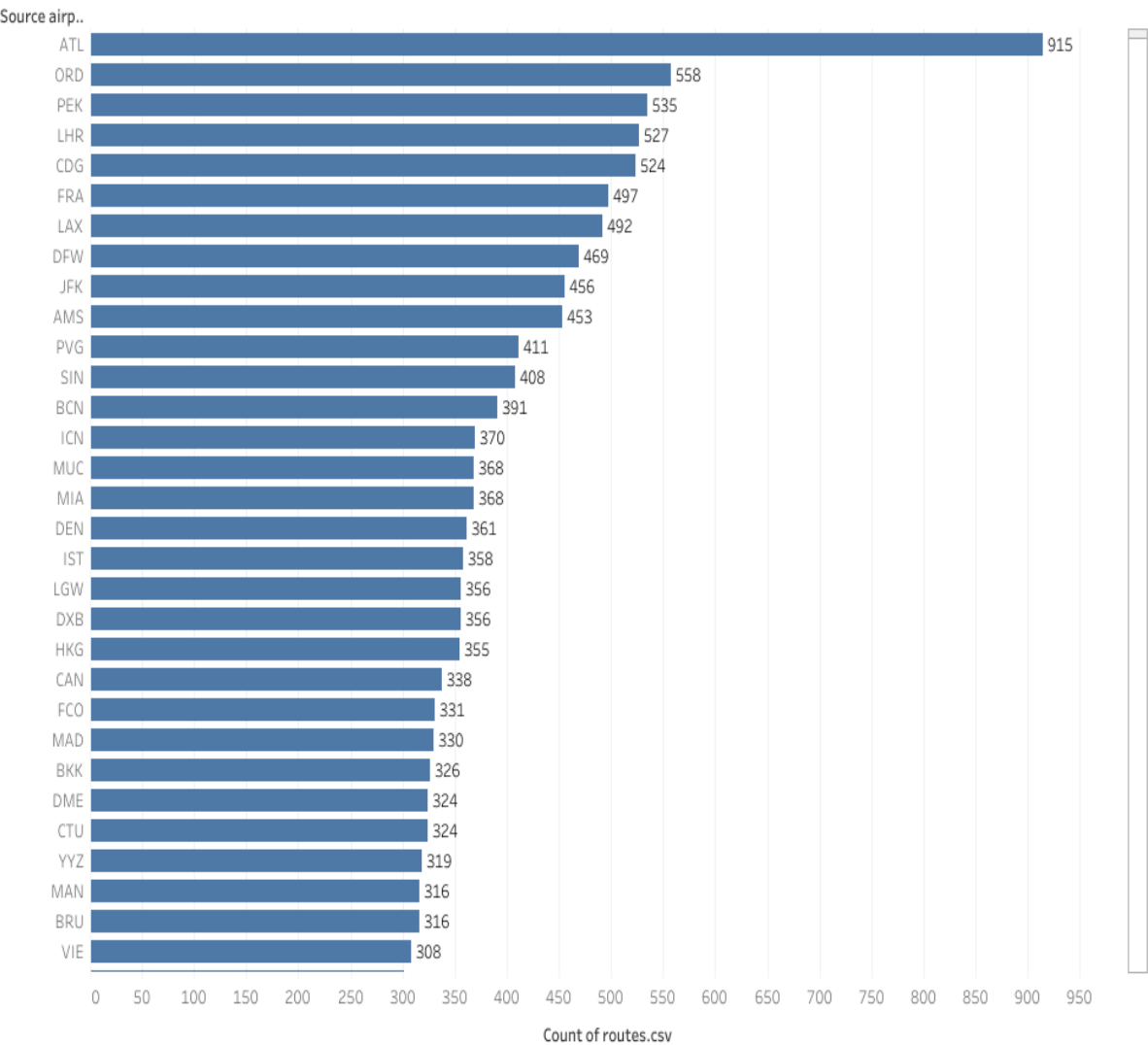
World map showing countries with details..

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n..

Number of flights from airport



4)ADVANTAGES and DISADVANTAGES

4.1) Advantages

Fast speed:

Air transport is capable of moving bulky cargo and hundreds of people very fast in any part of the world. Obviously, it is much faster than any mode of transportation like road transportation, rail transportation or water transportation. It is well used in nation emergencies due to its speed. In India, railways are majorly used by people for moving to any part of the country due to its economic service but nowadays people are moving towards airways for its fastest speed and people want to reach their destination as soon as possible.

Rapid service:

Air transport is easy, dependable and definitely the fastest way to transport passengers and goods. It offers rapid and convenient service at a low cost. Air transport is the best way for the transport of fragile goods due to its fastest service.

Low infrastructure:

Air transport travels totally on a natural path so it just requires very less investment for its maintenance. Apart from constructing airports from where air traffic is also controlled, there is no other infrastructure needed like making rail paths or several stations like in railways or in any other mode of transportation.

No physical barriers:

As land routes have so many obstacles or barriers like divided regions need special permission every time which is not applicable while travelling by air. There are no obstructions like mountains, rivers or any other element which can affect its speed. It works on a direct route and hence it is faster than other modes of transport.

Defence service:

Every country is very much reliant on Airforce service. Nowadays wars are not only fought on land borders but the air force offers a much easy and fast way to reach the enemy and vanish their evil intentions without much loss. During natural calamities like earthquakes, floods etc. it plays a very vital role in saving the lives of people and providing them special service in bad times.

Security:

Air transport provides quick and comfortable service with a very secure environment for people to travel around in any part of the world where other modes cannot reach. Travelling with very delicate or high-value goods over long distances is convenient through air transport.

4.2)Disadvantages

Costly Service:

As compared to land transport, rail transport and water transport this is relatively more costly for its services. Passengers cannot travel frequently if they are not financially good. Although Air service offers not only costly business class seats it provides economical class also which is cheaper than business class but still, it is costlier than other modes of transport. It applies the same to cargo. Though it provides faster service than other modes which is great for trading air service goods are costly and need special permission.

Limited capacity:

Air transport provides fast means of transportation but it has the drawback of the limited capacity of goods which is better in other modes. It is not good for bulky cargo and has limitations on the number of passengers travelling. Also, some kind of goods such as batteries, gases, fired solid and liquids etc.

Undependable and risky:

Air transport travels in a natural path so it is totally dependent on the weather which makes it sometimes uncertain to travel in bad weather conditions such as fog, rain and snow etc. which causes cancellation of flights or diversion of its routes and makes it risky to travel.

Accident-prone:

Compared to other modes air travel is always at high risk of accidents. There are more accidents on count while travelling by air transport. The reason can be bad weather, signal issues or machine parts failure which causes loss of people, crew or goods.

Requires Skill:

There are trained people required to fly an aircraft and because of it air travel becomes a little costly due to limited crew.

Unfit for cheap and bulky goods:

Since airways are costly due to numerous conditions, it becomes expensive to move cheap goods and also aircraft are small in size as compared to other modes so it's difficult to load bulky cargo.

5)Applications

- ☐ Air transport boosts productivity across the global economy: improved transport links expand the market in which companies operate.
- ☐ As a result, companies are better able to exploit economies of scale thereby reducing costs, and to specialise in areas of comparative advantage.
- ☐ By opening up markets, air services expose companies to stiffer competition, encouraging them to become more efficient.
- ☐ Air transport improves the efficiency of the supply chain, for example, many industries use air transport to shorten delivery times as part of their just-in-time delivery systems, enabling them to deliver products to clients quickly and reliably and to reduce costs.
- ☐ Air transport is an enabler of investment both into and out of countries and regions: viable air transport links are one of the key considerations that influence where international companies choose to invest.
- ☐ Air transport can act as a spur to innovation by encouraging effective networking and collaboration between companies located in different parts of the globe.
- ☐ A good transport infrastructure can also encourage greater spending on research and development by companies – for example, increasing the size of potential markets allows the fixed costs of innovation to be spread over larger sales.
- ☐ Air transport provides consumer welfare benefits to individuals in terms of the increased availability of travel connections, and for local airport communities.
- ☐ These must be taken into account when considering environmental impacts on, for example, air quality, noise and congestion in the vicinity of airports.
- ☐ There is a clear distinction between these ‘catalytic’ impacts and the direct, indirect and induced economic impacts of air transport.
- ☐ In simple terms, the economic value of the direct, indirect and induced effects is related to the total revenues of the air transport industry, whereas the catalytic impacts are “spinoff” effects on other industries.
- ☐ Air transport facilitates world trade: air transport helps countries participate in the global market by increasing access to main markets and allowing globalisation of production

6)CONCLUSION

☐ The 21st century has seen the continued internationalization and globalization of the world's economy.

☐ There is also evidence of deeper globalization of cultures and politics.

☐ Air transport has played a part in fostering these developments, but airlines, and to a greater degree, air transport infrastructure has had to respond to changing demands for its services.

☐ Air transport is a facilitator and, as such, the demands for its services are derived from the requirements for high-quality, speedy, and reliable international transport.

☐ Globalization, almost by definition, means demands for greater mobility and access, but these demands are for different types of passengers and cargoes, to different places, and over different distances than was the previous norm.

☐ International air transport is less than a century old, but is now a major contributor to globalization and is continually reshaping itself to meet the demands of the economic and social integration that globalization engenders.

☐ Economically, in static terms, globalization occurs to facilitate the greater division of labor and allows countries to exploit their comparative advantage more completely.

☐ Perhaps, however, more importantly, in the longer term, globalization stimulates technology and labor transfers and allows the dynamism that accompanies entrepreneurial activities to stimulate the development of new technologies and processes that enhance global welfare.

☐ To allow the flows of ideas, goods, and persons that facilitates both static and dynamic efficiency on a global scale, air transport has played a role in the past.

☐ It seems inevitable that it this role will continue in the future.

7) EMBED CODE

7.1) Dashboard EMBED CODE

7.1.1) Dashboard 1

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500 ) { vizElement.style.width='1000px';vizElement.style.height='827px';} else {
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7.2) STORY EMBED CODE

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