PROJECT REPORT

1 INRODUCTION

1.1 overview:

- **The worldwide air transportation network is a critical infrastructure with high impact on nobility,trade and economy**

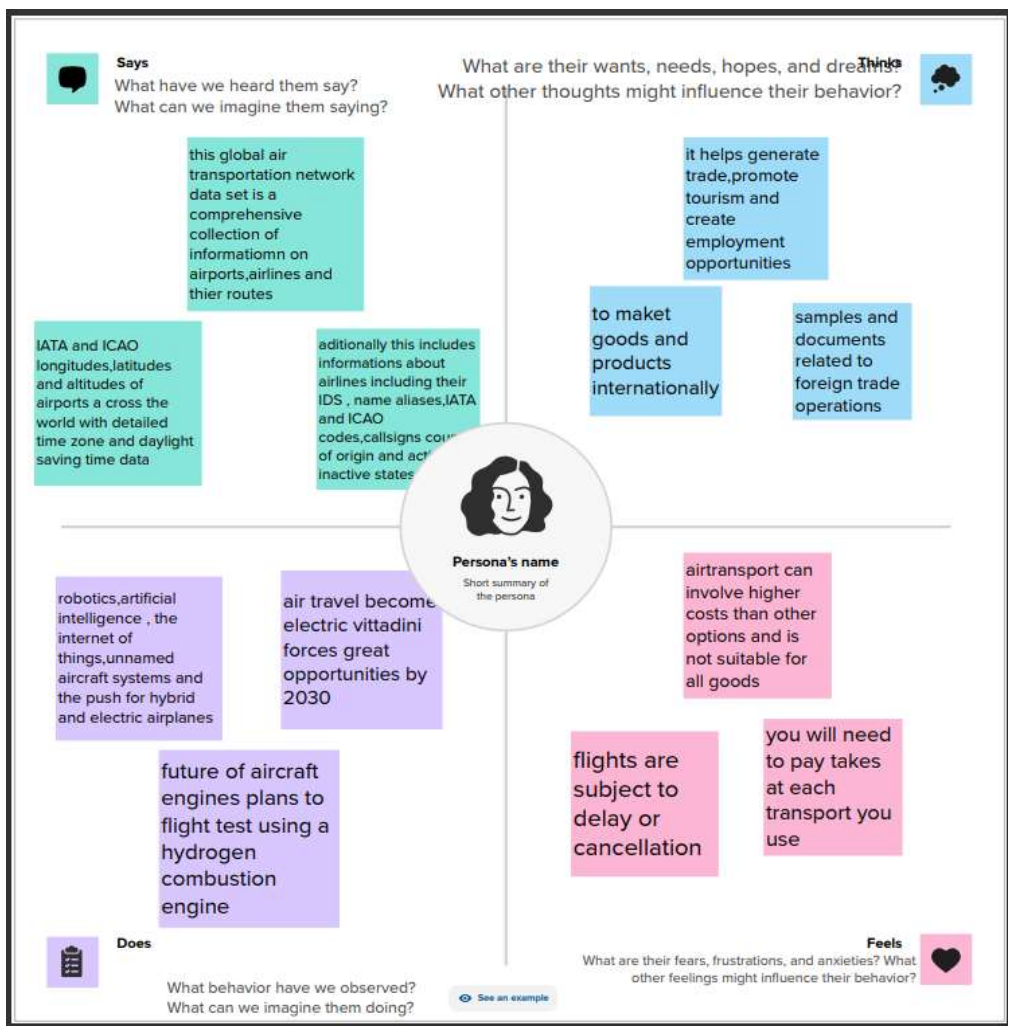
- **The global air transportation network has a dataset and it is a comprehensive collection of information on airports,airlines and their routes.It is a complex network which has the properties of small-world networks and scale free networks .The degree distribution of the nodes displays a heavy tailed distribution.**

1.2 purpose:

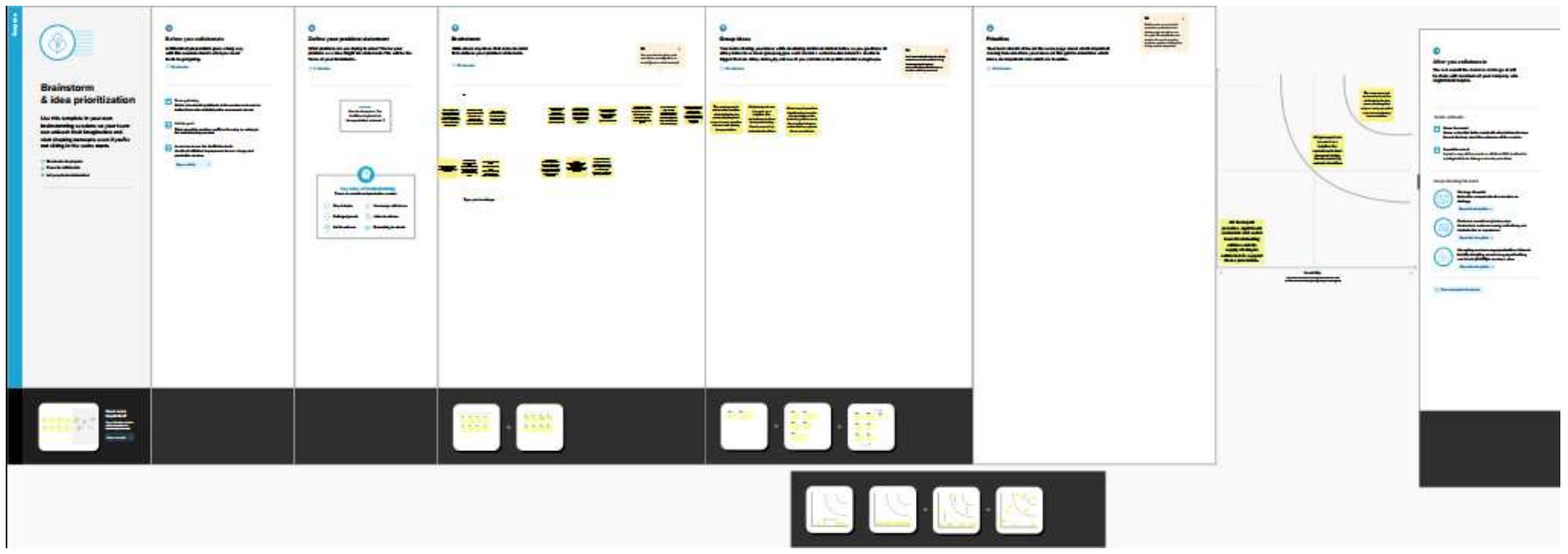
- **Air transport allows people from different countries to cross international boundaries and travel other countries for personal,business,medical and tourism purposes.**
- **The air transport network is a key infrastructure asset,providing an essential link between individual countries and the wider global economy.**

2 PROBLEM DEFINITION & DESIGN THINKING

2.1 Empathy Map:



2.2 Ideation & Brainstorming Map:



3 RESULT

Dashboard:

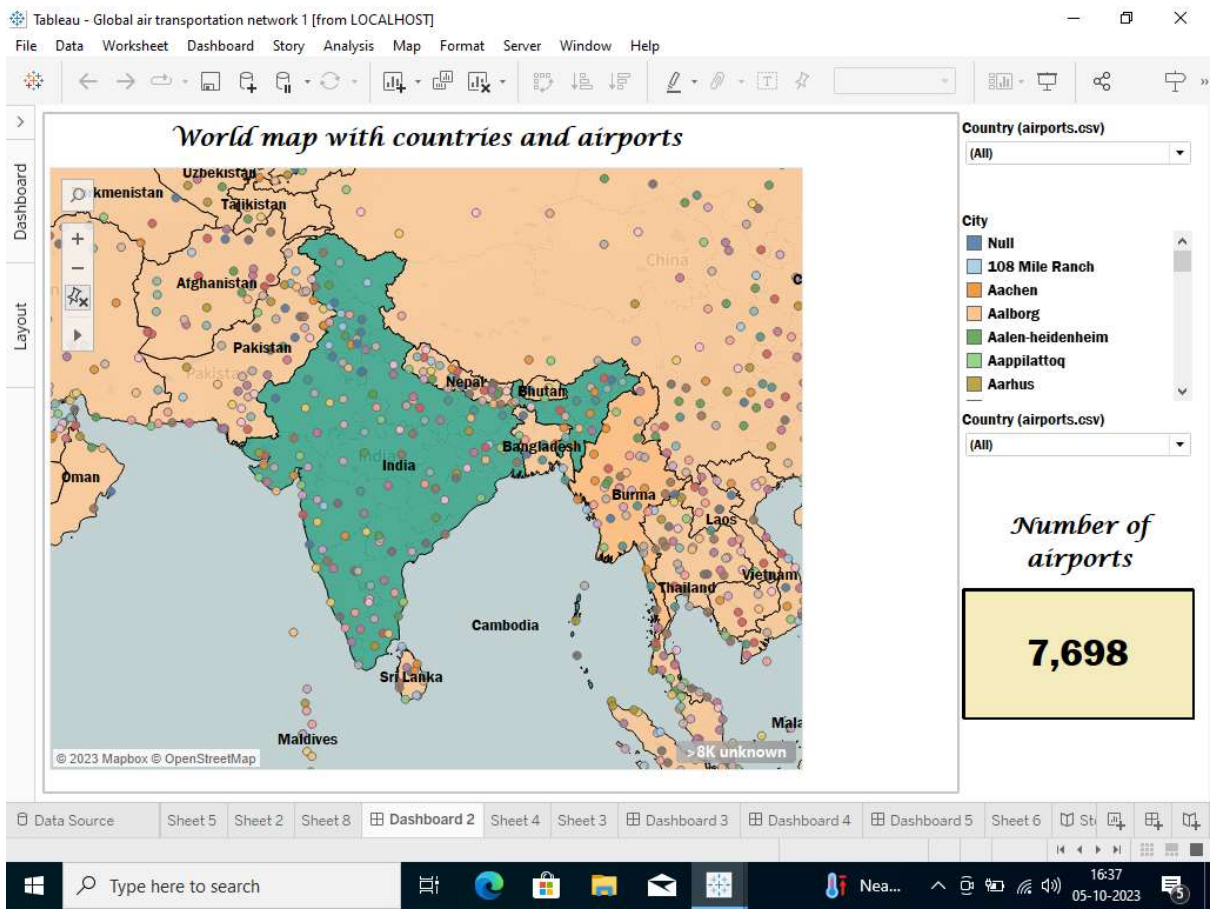


Tableau - Global air transportation network 1 [from LOCALHOST]

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Dashboard

Layout

Airports at higher altitude within a country

Country (airports.csv)

Bhutan

Name (airp..	City	ICAO (airpo..	
Bathpalathang Airport	Jakar	VQBT	8,485
Gelephu Airport	Gelephu	VQGP	980
Paro Airport	Thimphu	VQPR	7,332

Airports at highest altitude in world

Name (airp..	City	ICAO (airports.csv)	
Daocheng Y..	Daocheng	ZUDC	14,472
Qamdo Ban..	Bangda	ZUBD	14,219
Kangding A..	Kangding	ZUKD	14,042
Ngari Guns..	Shiquanhe	ZUAL	14,022
El Alto Inter..	La Paz	SLLP	13,355
Capitan Nic..	Potosi	SLPO	12,913
Yushu Bata..	Yushu	ZYLS	12,816
Copacaban..	Copacabana	SLCC	12,591
Inca Manco..	Juliaca	SPJL	12,552
Golog Maqi..	Golog	ZLGL	12,426

Data Source | Sheet 5 | Sheet 2 | Sheet 8 | Dashboard 2 | Sheet 4 | Sheet 3 | Dashboard 3 | Dashboard 4 | Dashboard 5 | Sheet 6 | St

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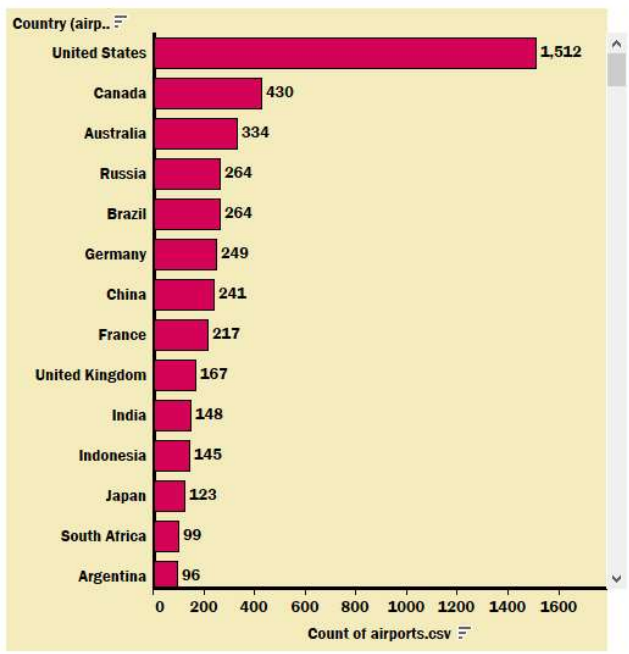
Tableau - Global air transportation network 1 [from LOCALHOST]

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

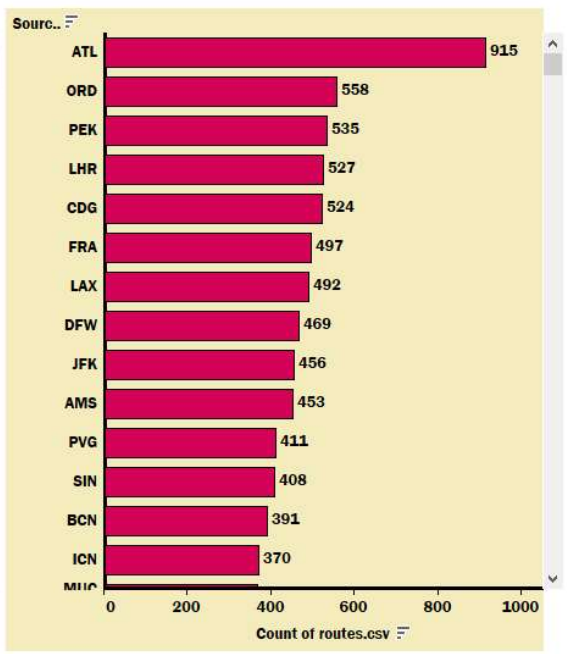
Dashboard

Layout

country with maximum number of airports



airports and thier count of routes



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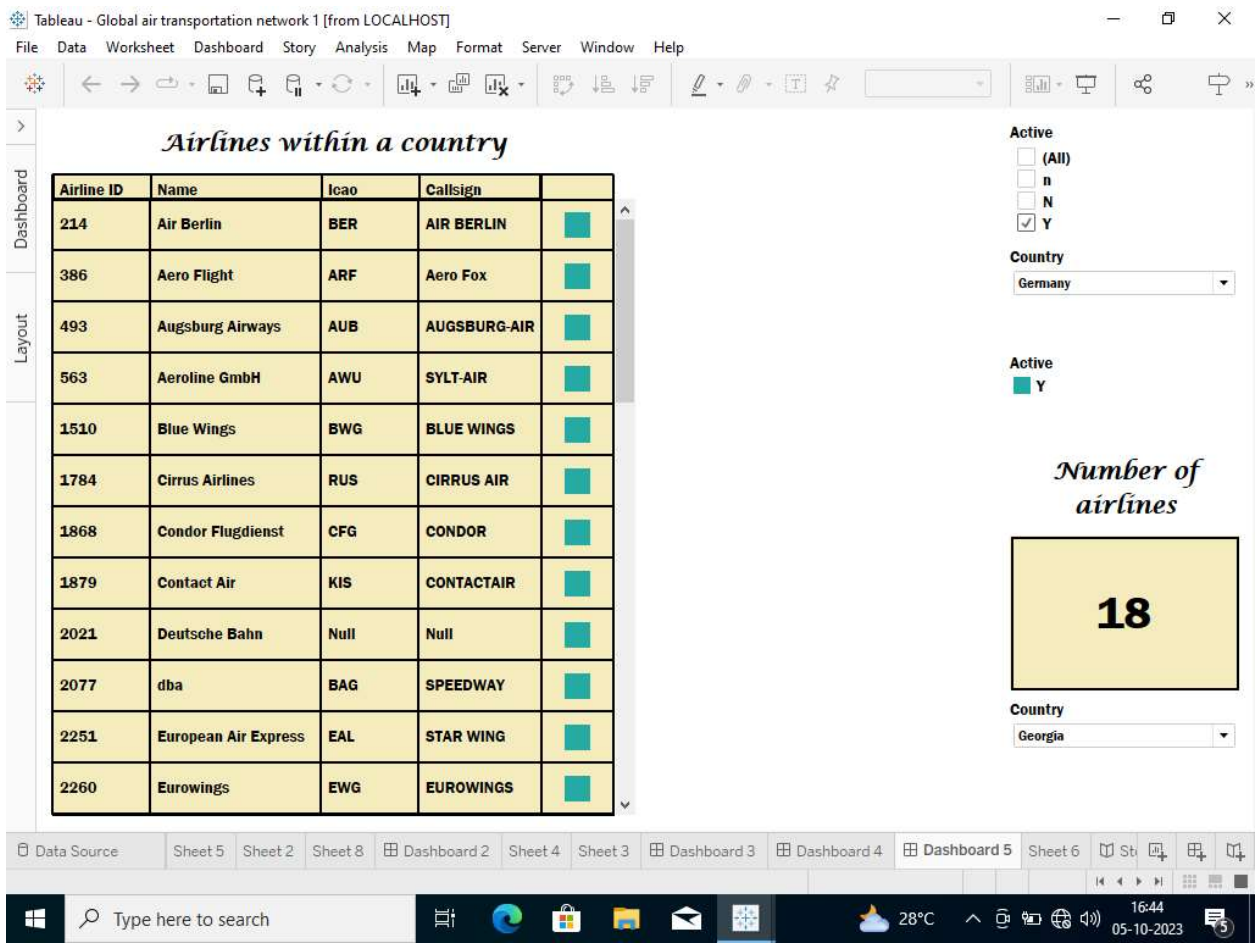
Tableau - Global air transportation network 1 [from LOCALHOST]
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Dashboard
Layout
Airlines within a country
Airline ID | Name | Icao | Callsign
214 | Air Berlin | BER | AIR BERLIN
386 | Aero Flight | ARF | Aero Fox
493 | Augsburg Airways | AUB | AUGSBURG-AIR
563 | Aeroline GmbH | AWU | SYLT-AIR
1510 | Blue Wings | BWG | BLUE WINGS
1784 | Cirrus Airlines | RUS | CIRRUS AIR
1868 | Condor Flugdienst | CFG | CONDOR
1879 | Contact Air | KIS | CONTACTAIR
2021 | Deutsche Bahn | Null | Null
2077 | dba | BAG | SPEEDWAY
2251 | European Air Express | EAL | STAR WING
2260 | Eurowings | EWG | EUROWINGS
Active
(All)
n
N
Y
Country
Germany
Active
Y
Number of airlines
18
Country
Georgia
Data Source
Sheet 5
Sheet 2
Sheet 8
Dashboard 2
Sheet 4
Sheet 3
Dashboard 3
Dashboard 4
Dashboard 5
Sheet 6
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05-10-2023

Story:

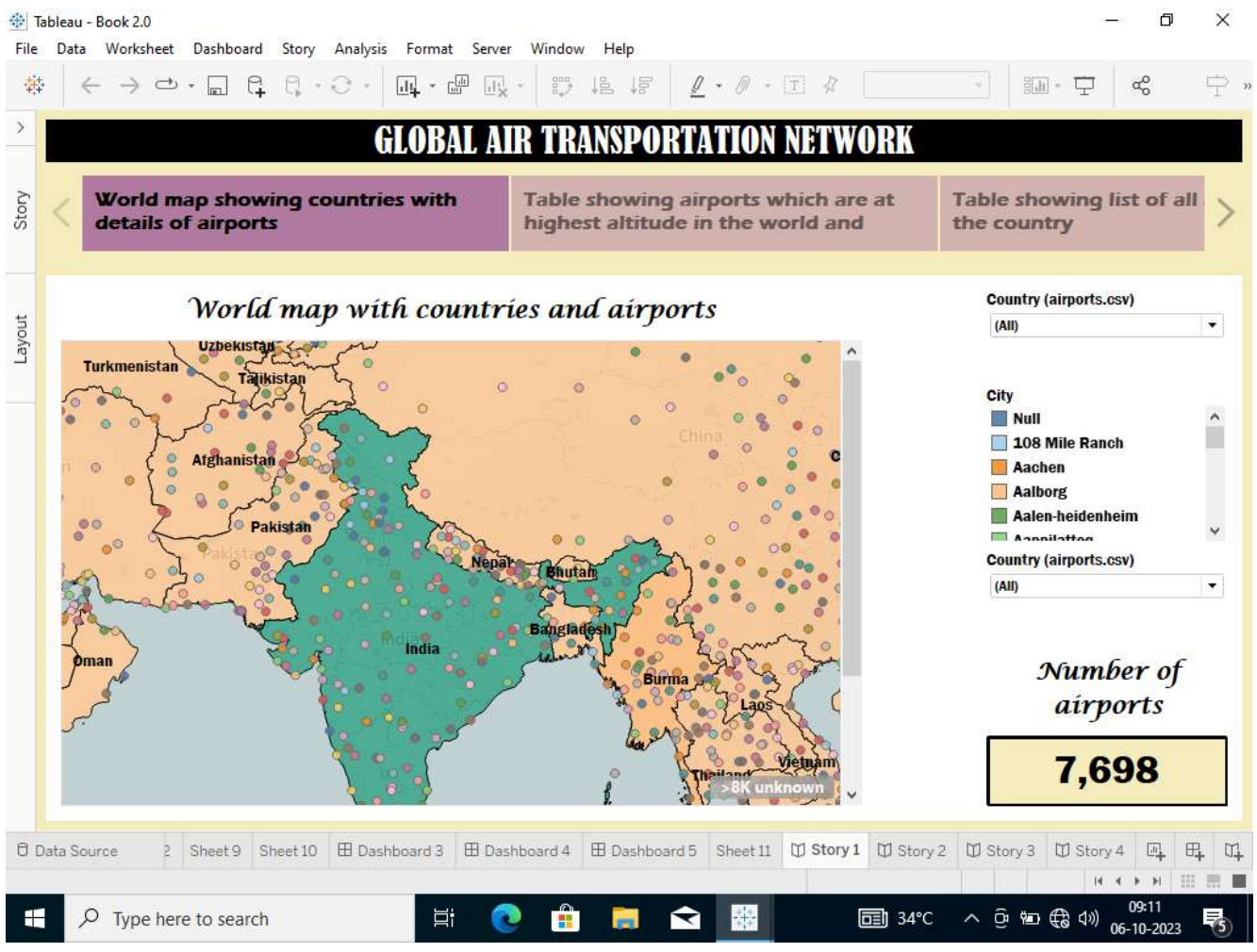
Tableau - Book 2.0
File Data Worksheet Dashboard Story Analysis Format Server Window Help
Story
Layout
GLOBAL AIR TRANSPORTATION NETWORK
World map showing countries with details of airports
Table showing airports which are at highest altitude in the world and
Table showing list of all the country
World map with countries and airports
Uzbekistan
Turkmenistan
Tajikistan
Afghanistan
Pakistan
China
Nepal
Bhutan
India
Bangladesh
Oman
Burma
Laos
Vietnam
Thailand
>8K unknown
Country (airports.csv)
(All)
City
Null
108 Mile Ranch
Aachen
Aalborg
Aalen-heidenheim
Country (airports.csv)
(All)
Number of airports
7,698
Data Source
Sheet 9
Sheet 10
Dashboard 3
Dashboard 4
Dashboard 5
Sheet 11
Story 1
Story 2
Story 3
Story 4
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Tableau - Book 2.0

File Data Worksheet Dashboard Story Analysis Format Server Window Help

GLOBAL AIR TRANSPORTATION NETWORK

World map showing countries with details of airports | **Table showing airports which are at highest altitude in the world and** | Table showing list of all the country

Airports at higher altitude within a country

Country (airports.csv): Australia

Name (airp..	City	ICAO (airpo..	
Adelaide International Airport	Adelaide	YPAD	20
Adelaide Parafield Airport	Adelaide	YPPF	57

Airports at highest altitude in world

Name (airp..	City	ICAO (airports.csv)	
Daocheng Y..	Daocheng	ZUDC	14,472
Qamdo Ban..	Bangda	ZUBD	14,219
Kangding A..	Kangding	ZUKD	14,042
Ngari Guns..	Shiquanhe	ZUAL	14,022
El Alto Inter..	La Paz	SLLP	13,355
Capitan Nic..	Potosi	SLPO	12,913
Yushu Bata..	Yushu	ZYLS	12,816
Copacaban..	Copacabana	SLCC	12,591
Inca Manco..	Juliaca	SPJL	12,552
Golog Maqi..	Golog	ZLGL	12,426

Data Source | Sheet 9 | Sheet 10 | Dashboard 3 | Dashboard 4 | Dashboard 5 | Sheet 11 | Story 1 | Story 2 | Story 3 | Story 4

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Tableau - Book 2.0

File Data Worksheet Dashboard Story Analysis Format Server Window Help

GLOBAL AIR TRANSPORTATION NETWORK

countries with | Table showing airports which are at highest altitude in the world and | **Table showing list of all airlines within the country** | Bar ... maxi

Airlines within a country

Active: (All)

Country: Germany

Airline ID	Name	Icao	Callsign	
214	Air Berlin	BER	AIR BERLIN	
386	Aero Flight	ARF	Aero Fox	
493	Augsburg Airways	AUB	AUGSBURG-AIR	
563	Aeroline GmbH	AWU	SYLT-AIR	
1510	Blue Wings	BWG	BLUE WINGS	
1784	Cirrus Airlines	RUS	CIRRUS AIR	
1868	Condor Flugdienst	CFG	CONDOR	
1879	Contact Air	KIS	CONTACTAIR	
2021	Deutsche Bahn	Null	Null	

Active: Y

Number of airlines: 18

Country: Georgia

Data Source | Sheet 9 | Sheet 10 | Dashboard 3 | Dashboard 4 | Dashboard 5 | Sheet 11 | Story 1 | Story 2 | Story 3 | Story 4

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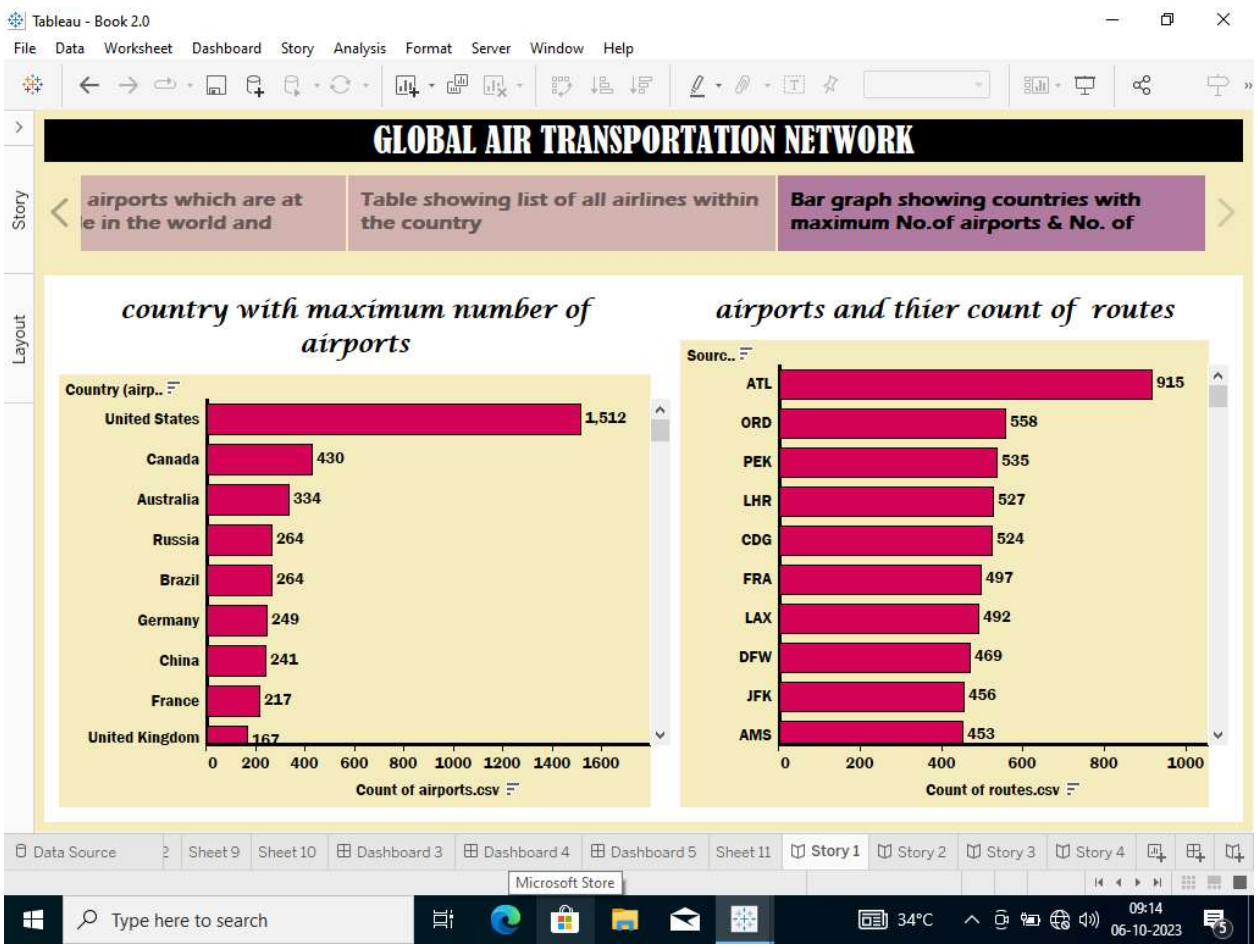

4 ADVANTAGES & DISADVANTAGES

Advantages

Global Reach:

- **Air transport provides extensive global coverage,connecting business to various destinations around the world.It allows companies to expand their customer base and reach new markets.**

Speed and Efficiency:

- **One of the key advantages of air transport is its unparalleled speed.Airplanes can cover long distance in a matter of hours,enabling businesses to deliver goods quickly especially for time sensitive orders.**

Enhanced Security

- **Air transport offers enhanced security measures compared to other modes of transportation and also it has a high standard of production with a low risk of robbery and injury.**

Natural Route:

- **An aircraft can fly to any location without seeing any natural obstacles or barriers.**

DISADVANTAGES

Climate Condition that are adverse:

- **Extreme weather will cause planes to be grounded and airports to close,halting shipments for several days and rendering the service ineffective.**

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.**

Cost:

- **Air travel is considered to be the most expensive means of transportation .The cost of maintaining aircraft is higher and the costs for the building of aerodromes and avions are much higher.**

5 APPLICATIONS

- **Air transport is currently used in almost all industrial sectors and distribution chains.Most companies use air transport to market goods and products internationally or to deliver samples and documents related to foreign trade operations.**

- **It is an important enabler to achieving economic growth and development.Air transport facilities integration into the global economy and provides vital connectivity on a national,regional,and international scale.It helps generate trade,promote tourism,and create employment opportunities.**

6 CONCLUSION

- **In conclusion,The air transport is not only a vital engine of global socio-economic growth but is also of vital importance as a catalyst for**

economic development in most countries and for many regions within each country.

- Currently,rising operating costs,stoked by the high price of aviation fuel combined with slowing or even negative demand growth,will lead to dramatic restructuring of the airline industry and the collapse of many airlines especially smaller ones.

- The air transport industry needs not only to be financially sound to be effective as an economic catalyst for growth but also to be environmentally responsible.

- Governments need to be sensible,transparent and long-term in their approach.priority must be given to tackling obstacles such as inefficient and fragmented ATM's,restrictive air service agreements,inadequate airport infrastructures and unjustified government charges and taxes.

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 trillion of GDP to the world economy.

Hydrogen-Powered Planes:

- Aviation is currently responsible for 3.6% of the EU's greenhouse gas emissions due to the fact that modern planes use kerosene as fuel .A recent report suggested that hydrogen-powered planes could enter the market as soon as 2035,and those planes could carry hundreds more passengers per flight than traditional planes with a cleaner energy source.

Going Beyond Traditional Wing Design:

- A blended wing design combines the wing and the fuselage into a single unit so the entire aircraft provides the lift for the flight Delta wings-like those used on the concord and high-speed military jets may also be incorporated in some way into commercial planes.

Futuristic Cabin Design:

- **Airlines are constantly looking for ways to maximize the number of people they can put on each flight without sacrificing the comfort of the passengers In the future,we may see improvements such as double-ducker economy seats that promise more space for riders paired with increased capacity for the airline.**

Air Taxis:

- **Have you been longing to ride in a flying car that feels like it's straight from back to the future or the jetsons?Aviation companies are researching ways to shift local transportation from the road to the air with electrically-powered "air taxis" for short flights.**

- **In 2017,volocopter completed their maiden flight for electrified individual air transport,and the Lilium jet from Munich is reported to be able to fly 300km for an hour.Their five-seater air taxi could start operating as early as common as traveling by subway is in major cities today.**

The Return of Supersonic Flights:

- **United plans to buy 15 new supersonic airliners,and hopes to"return supersonic speeds to aviation" by the year 2029.Previous supersonic passenger flights ended in 2003 when british airways and air france retired the concord**

Better in-Flight Entertainment:

- **In-flight entertainment options for the future will include more screens,more gaming,and even the ability to take e-courses during flight.Panasonic is also developing ways for passengers to improve wellness on flights by setting up lighting to regulate circadian rhythms on long-haul flights and dampening cabin noise to promote better sleep.**

8 APPENDIX

- **In this report we have written about the global air transportation network with contains of project maps,dashboards,bargraphs,tables etc..**

- **The content of this article is include of the following activities:**

1.Introduction.
2.Problem definition&design thinking.
3.Result.
4.Advantages&Disadvantages.
5.Applications.
6.Conclusion.
7.Future Scope.

- **From this report we have briefly about the air transport and its importance and lots of authenticity and transparency about our project.It shows that how would be improve our transport in various ways and also we have lots of enthusiasm to learn this report.**