1. INTRODUCTION

1.1 OVERVIEW

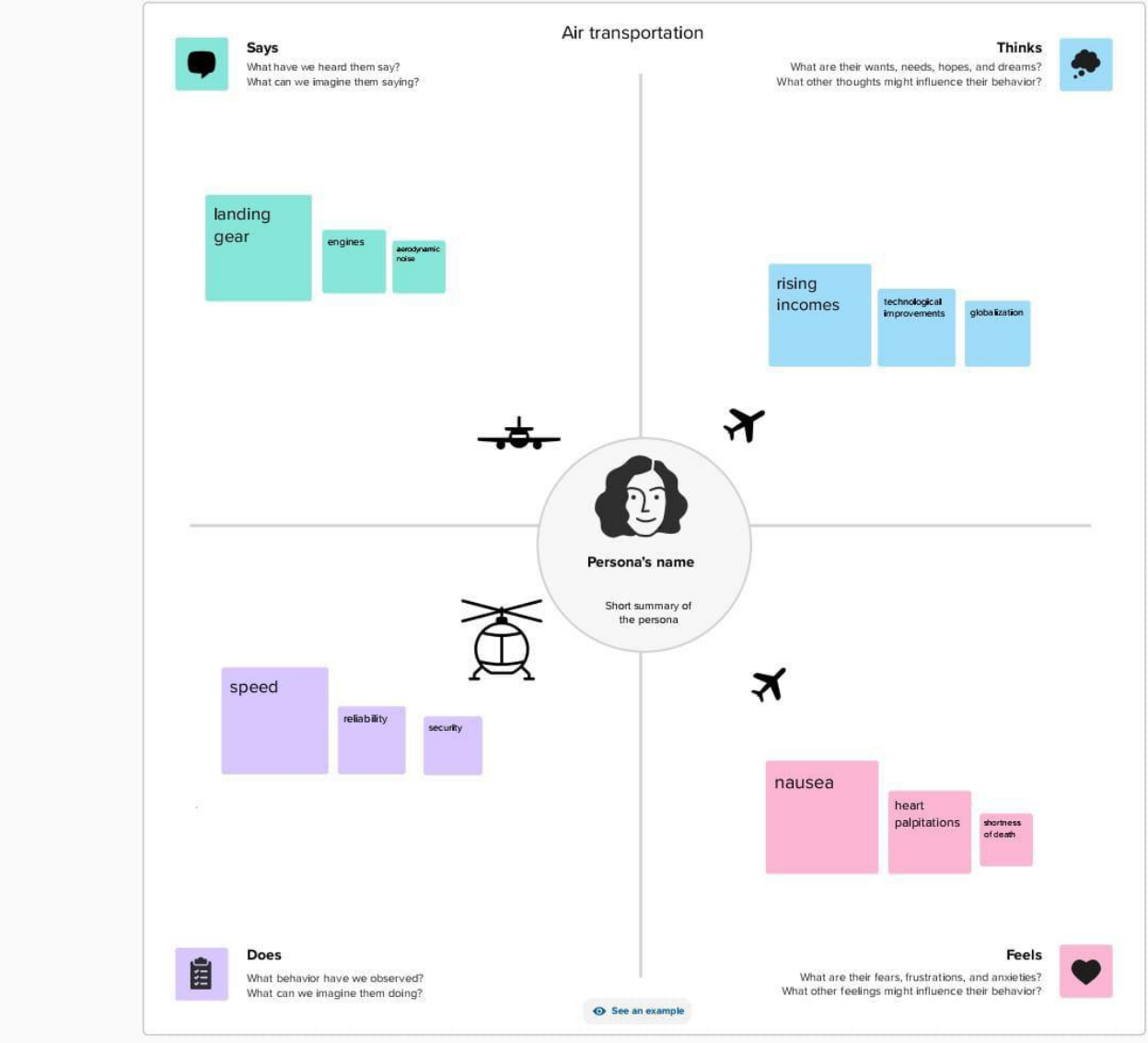
The Air Transportation Network is a complex network witch as the properties of small world network and scale free network and the network have large connectivity's and long distance connectivity's at the same time

1.2 PURPOSE

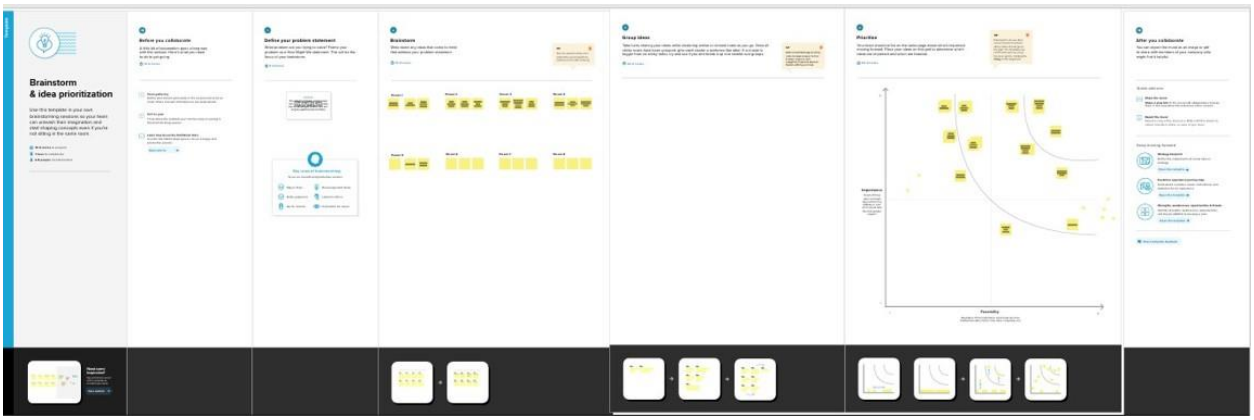
The air transport network is the key infrastature asset it is the only worldwide passenger and cargo transpotation network

2. PROBLEM DEFINITION & DESIGN THINKING

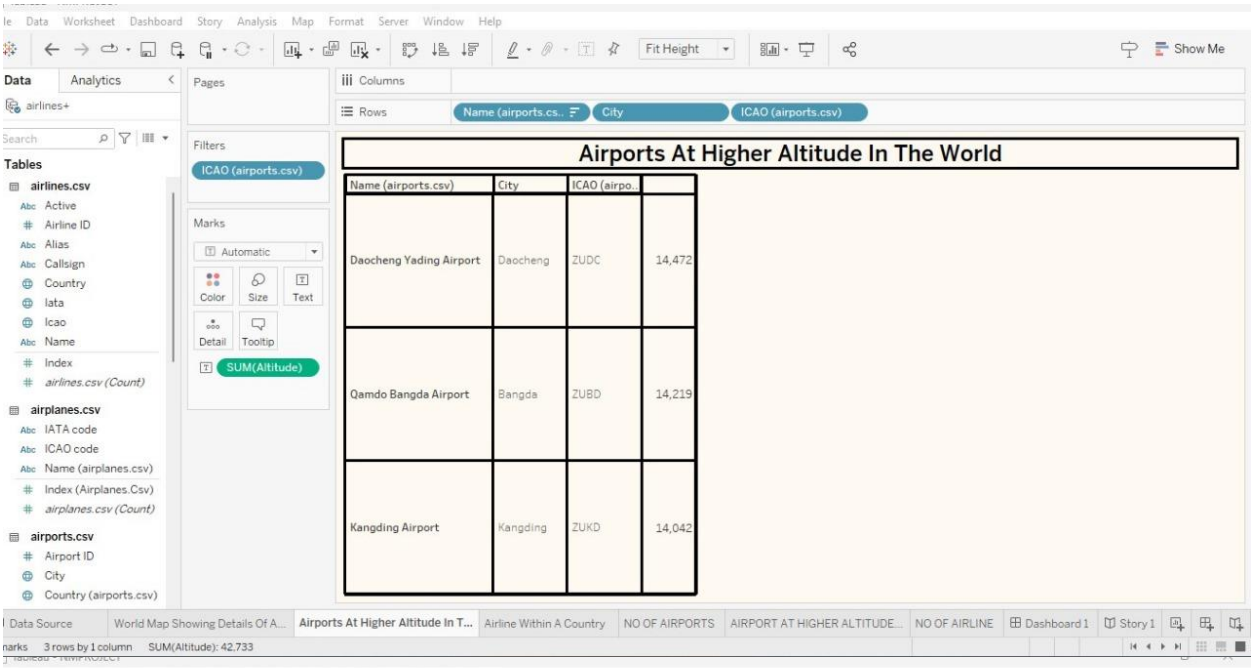
2.1 EMPATHY MAP

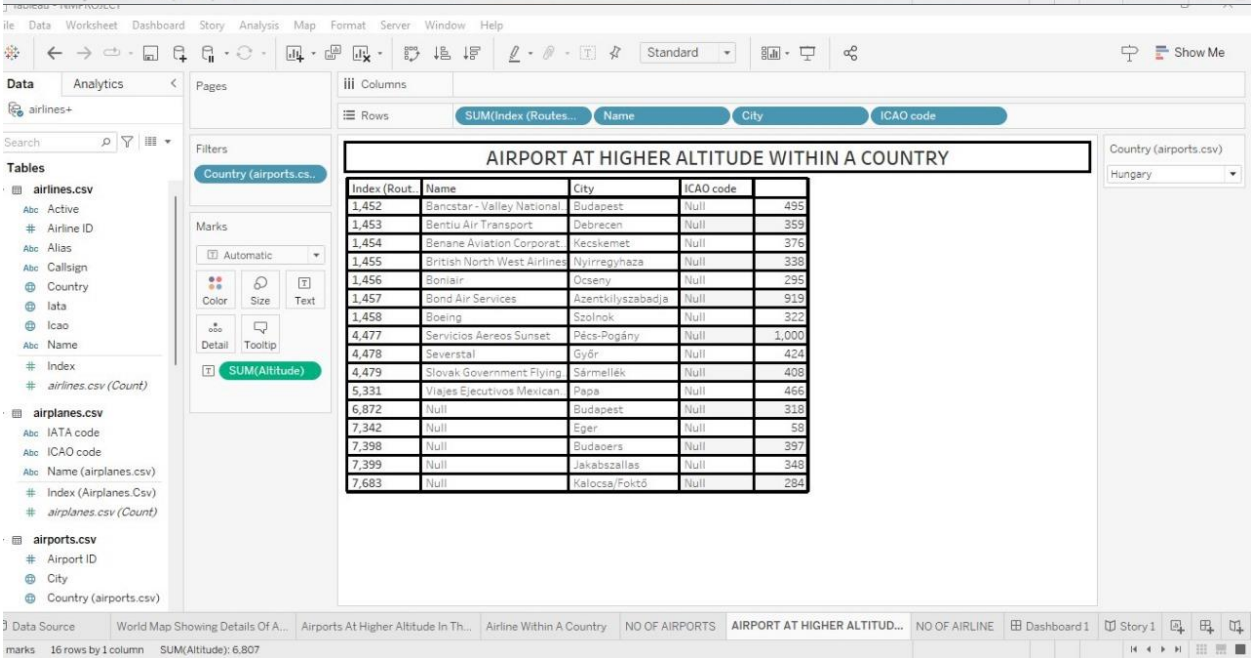


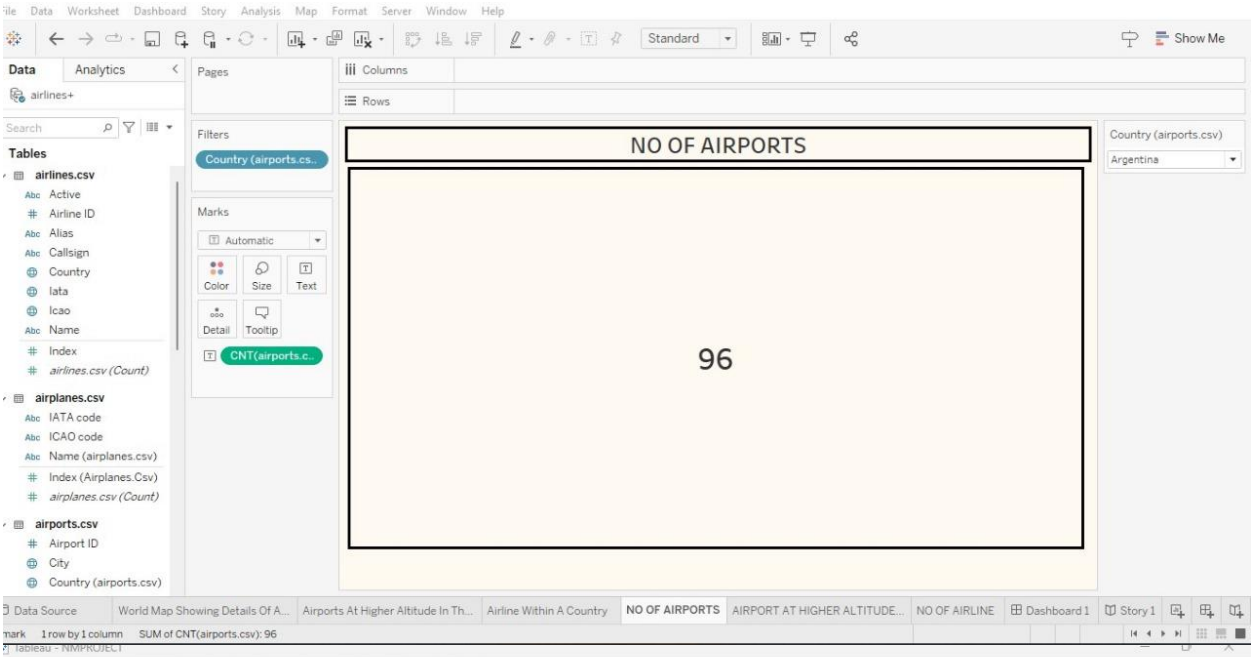
2.2 IDEATION AND BRAINSTORMING MAP

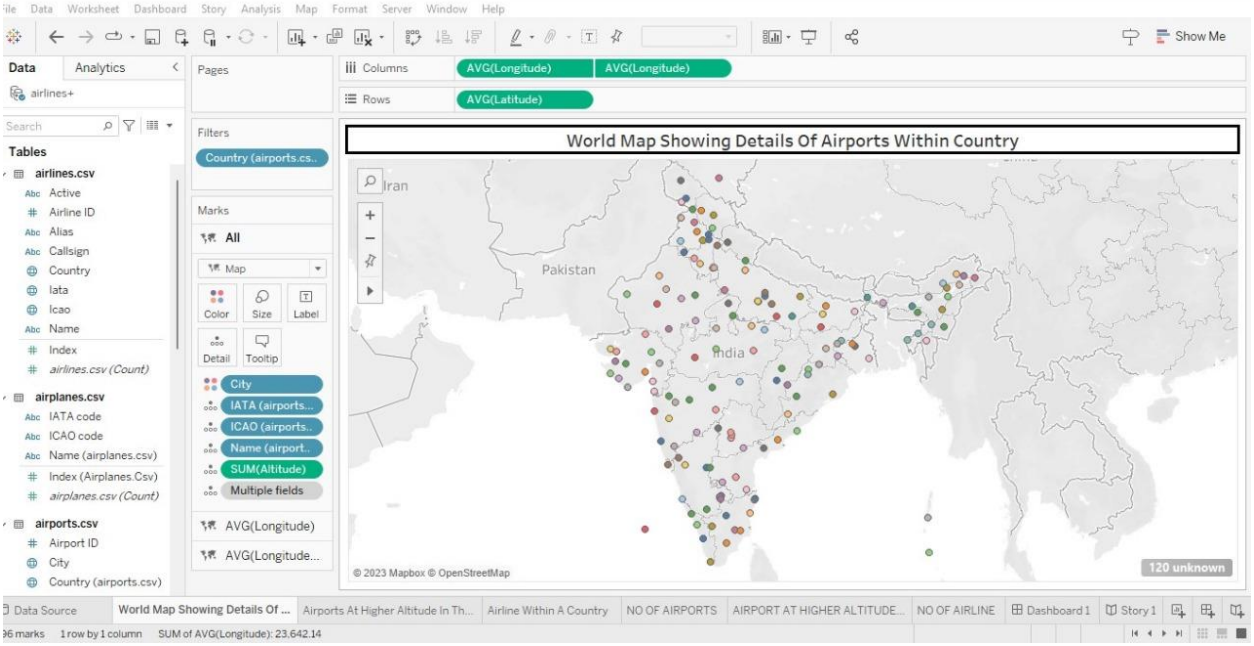


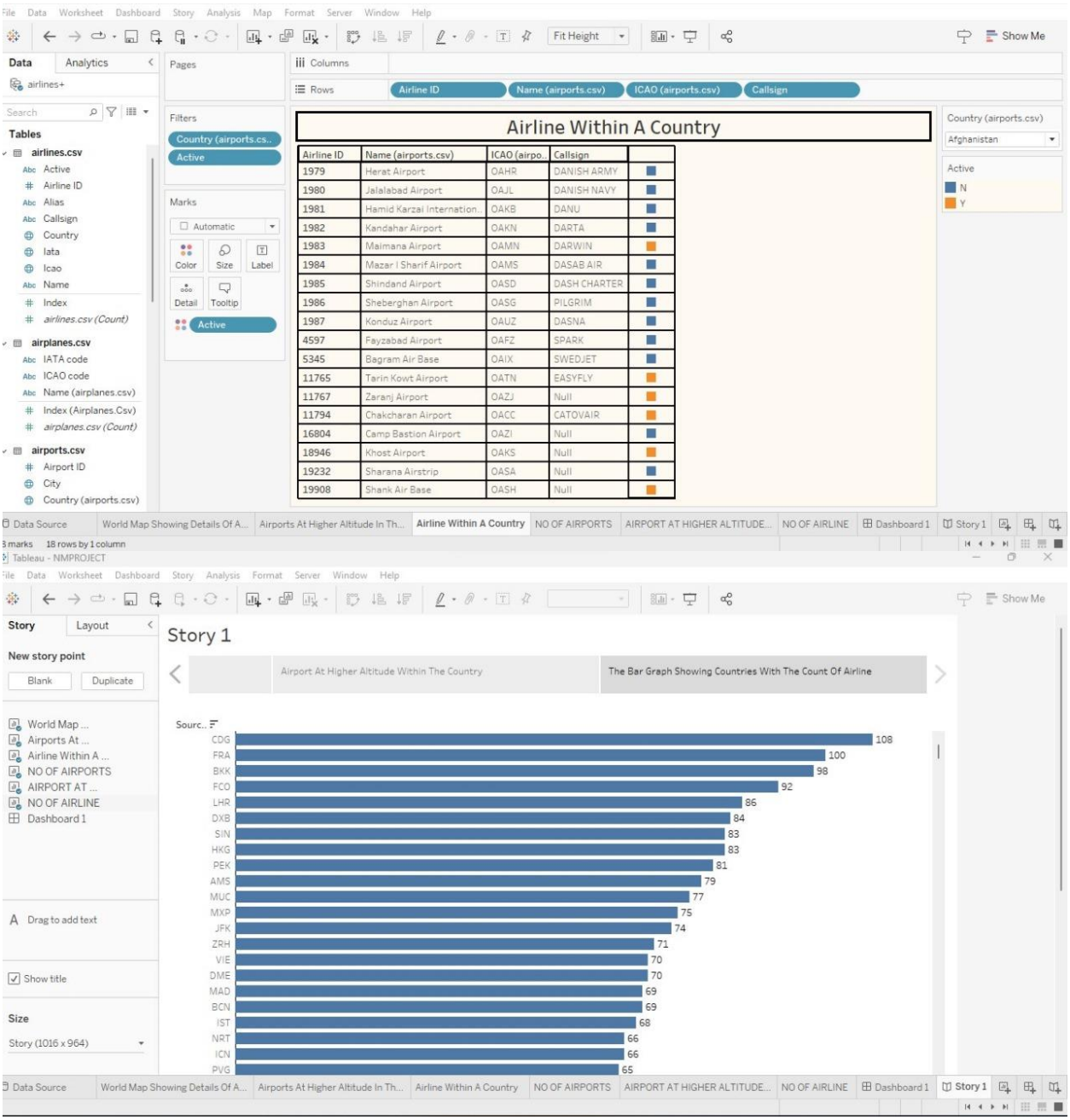
3. RESULT


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


AIRPORT AT HIGHER ALTITUDE WITHIN A COUNTRY
Country (airports.csv)
Hungary
Index (Rout.. | Name | City | ICAO code |
1,452 | Bancstar - Valley National.. | Budapest | Null | 495
1,453 | Bentiu Air Transport | Debrecen | Null | 359
1,454 | Benane Aviation Corporat.. | Kecskemet | Null | 376
1,455 | British North West Airlines | Nyirregyhaza | Null | 338
1,456 | Boniair | Ocseny | Null | 295
1,457 | Bond Air Services | Azentkilyszabadja | Null | 919
1,458 | Boeing | Szolnok | Null | 322
4,477 | Servicios Aereos Sunset | Pécs-Pogány | Null | 1,000
4,478 | Severstal | Győr | Null | 424
4,479 | Slovak Government Flying.. | Sármellék | Null | 408
5,331 | Viajes Ejecutivos Mexican.. | Papa | Null | 466
6,872 | Null | Budapest | Null | 318
7,342 | Null | Eger | Null | 58
7,398 | Null | Budaoers | Null | 397
7,399 | Null | Jakabszallas | Null | 348
7,683 | Null | Kalocsa/Foktő | Null | 284


NO OF AIRPORTS
96
Country (airports.csv)
Argentina
Data
Analytics
airlines+
Tables
airlines.csv
airplanes.csv
airports.csv
Pages
Columns
Rows
Filters
Country (airports.cs..
Marks
Automatic
Color
Size
Text
Detail
Tooltip
CNT(airports.c..
Show Me
Standard
Data Source
World Map Showing Details Of A...
Airports At Higher Altitude In Th...
Airline Within A Country
NO OF AIRPORTS
AIRPORT AT HIGHER ALTITUDE...
NO OF AIRLINE
Dashboard 1
Story 1
1 row by 1 column
SUM of CNT(airports.csv): 96


World Map Showing Details Of Airports Within Country
Columns
AVG(Longitude)
AVG(Longitude)
Rows
AVG(Latitude)
Filters
Country (airports.cs..
Marks
All
Map
Color
Size
Label
Detail
Tooltip
City
IATA (airports...
ICAO (airports..
Name (airport..
SUM(Altitude)
Multiple fields
AVG(Longitude)
AVG(Longitude...
Iran
Pakistan
India
© 2023 Mapbox © OpenStreetMap
120 unknown
Data Source
World Map Showing Details Of ...
Airports At Higher Altitude In Th...
Airline Within A Country
NO OF AIRPORTS
AIRPORT AT HIGHER ALTITUDE...
NO OF AIRLINE
Dashboard 1
Story 1
96 marks
1 row by 1 column
SUM of AVG(Longitude): 23,642.14



4. ADVANTAGES AND DISADVANTAGES

Advantages of Air transportation network

1. High Speed

Air is the type of freight capable of traveling long distances in short periods of time. This makes this model an optimum choice if the client has an urgent need to ship a product or if their freight demands special standards of protection or acclimation. It is the quickest transport mode and is therefore ideal for long-distance transport of goods. It takes less time.

2. Fast Service

Air transportation offers convenient, reliable and fast services of transport. It is considered the cheapest way to ship peregrinated goods. It offers a standard, convenient, reliable and fast service.

3. Send almost everywhere your freight

In regions that are not readily accessible to other modes of transport, air transport is considered to be the only means of transport. Open to all regions, irrespective of land interference. A vast network of airlines covering nearly the whole globe is available for many airlines. This ensures that the package can be sent almost anywhere.

4. High Standard of Security

High standard of protection with a low risk of robbery and injury. Shipping by air has a high degree of security since airport safety restrictions on cargo are strictly enforced. Tightly controlled airport controls also minimise cargo theft and loss.

5. Natural Route

An aircraft can fly to any location without seeing any natural obstacles or barriers. Since customs formalities are easily compiled. It eliminates the need for more time to seek clearance. Air travel is used for relief operations during earthquakes, floods, accidents, and famines.

6. There is less need for heavy packaging

Air exports, in general, entail less hard packaging than ocean shipments. This ensures you save both time and money by not having to provide extra packaging services.

Disadvantages of Air transportation network

1. Risky

Air travel is the riskiest mode of transport, since there can be considerable losses to goods, customer and crews as a result of a minor crash. Compared to other means of travel, the risks of collisions are higher.

2. 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. That's why air travel is so expensive that it gets beyond ordinary people's grasp.

3. Some Product Limitation

There is a whole variety of materials not suitable for such products, from explosives, gases, batteries, fired solids and liquids, which cannot be shipped by air to name but a few.

4. Capacity for Small Carriage

The aircraft have no room and therefore are not ideal for carriage of voluminous and cheaper materials. As is seen for rails, the load volume cannot be raised.

5. Enormous investment

Air travel calls for enormous spending in aerodrome building and servicing. It also calls for professional, qualified and qualified staff that need a significant investment.

5.Application of air transport networks

Modeling air transport networksaims airline companies to organize their routes in a cost-efficient way and therefore maximize their profits.

Air transport network models are also the tool to investigate system robustness.

They help to determine weaknesses of the system in case of various kinds of disruptions.

Once weaknesses are determined, a substitute node which can support all or part of the traffic load can be identified through the alternative strength for the pair.

An alternative application is modeling human disease networks.

Air transport network is used by millions of people every day, therefore it plays key role in the spread of some infections, such as influenza or SARS.

In this sense air transport network is a transmitter similar to sexual networks, which is liable for the spread of AIDS and other sexually transmitted diseases

6.Conclusion

Air transport is an important enabler to achieving economic growth and development. Air transport facilitates 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.

7.Future scope

But major changes to air travel are in development, so hopefully, in the next few decades, traveling by plane will get more affordable, more comfortable, and more environmentally friendly.

Here are some of the ways the future of air travel is expected to change:

1. **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
2. **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 Concorde and high-speed military jets – may also be incorporated in some way into commercial planes.
3. **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-decker economy seats that promise more space for riders, paired with increased capacity for the airline.

4. **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.