GOVERNMENT OF TAMILNADU

Naan Muthalvan - Project-Based Experiential Learning

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK

Submitted by

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Guest Lecture

PG and Research Department of Mathematics

M.V. MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN

(Affiliated To Mother Teresa Women's University, Kodikanal)

Reaccredited with 'A' Grade by NAAC

DINDIGUL-624001.

NOVEMBER-2023

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PG & RESEARCH DEPARTMENT OF MATHEMATICS

BONAFIDE CERTIFICATE

This is to certify that this is a bonafide record of the project entitled, **"UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABLEAU"** done **by Ms. R. JEYA VAISHNAVI (21321ER011), Ms. R. DIVYALAKSHMI (21321ER009), Ms. M. HENSIYA VINCY (21321ER010) and Ms. S. KAVIYARASI (21321ER013)**. This is submitted in partial- fulfillment for the award of the degree of **Bachelor of Science in Mathematics in M.V. MUTHIAH GOVERNMENT ARTS COLLEGE FOR WOMEN DINDIGUL** during the period of June 2023 to November 2023.

B. Lakshmiprabha.

Project Mentor(s)

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Head of the Department

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UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK

1.INTRODUCTION

Air Transport, which represents the next most substantial energy-consuming transport sector, includes passenger and freight airplanes, that is, aircraft configured for transporting passengers, freight, or mail. According to the International Air Transport Association (IATA), in 2017, airlines carried 4.1 billion passengers globally. This value increased by 7.3% over 2016, which represented an additional 280 million trips by air between 2016, and 2017. In addition, as with many of the energy and transport-related statistics in recent times, airlines in the Asia-Pacific region carried the largest number of passengers. According to IATA statistics, the market share of passengers increased from 2016 2017 by region is as follows:

1. Asia-Pacific, 36.3%; 1.5 billion passengers (10.6% increase from 2016).
2. Europe, 26.3%; 1.1 billion passengers (8.2% increase).
3. North America, 23%; 941.8 million passengers (3.2% increase).
4. Latin America, 7%; 286.1 million passengers (4.1% increase).
5. Middle East, 5.3%; 216.1 million passengers (4.6% increase).
6. Africa, 2.2%; 88.5 million passengers (6.6% increase).

In addition, it is noteworthy that the aggregated global number of 4.1 billion has doubled since 2005, and by 2036, IATA anticipates that airlines will carry nearly 8 billion passengers globally.

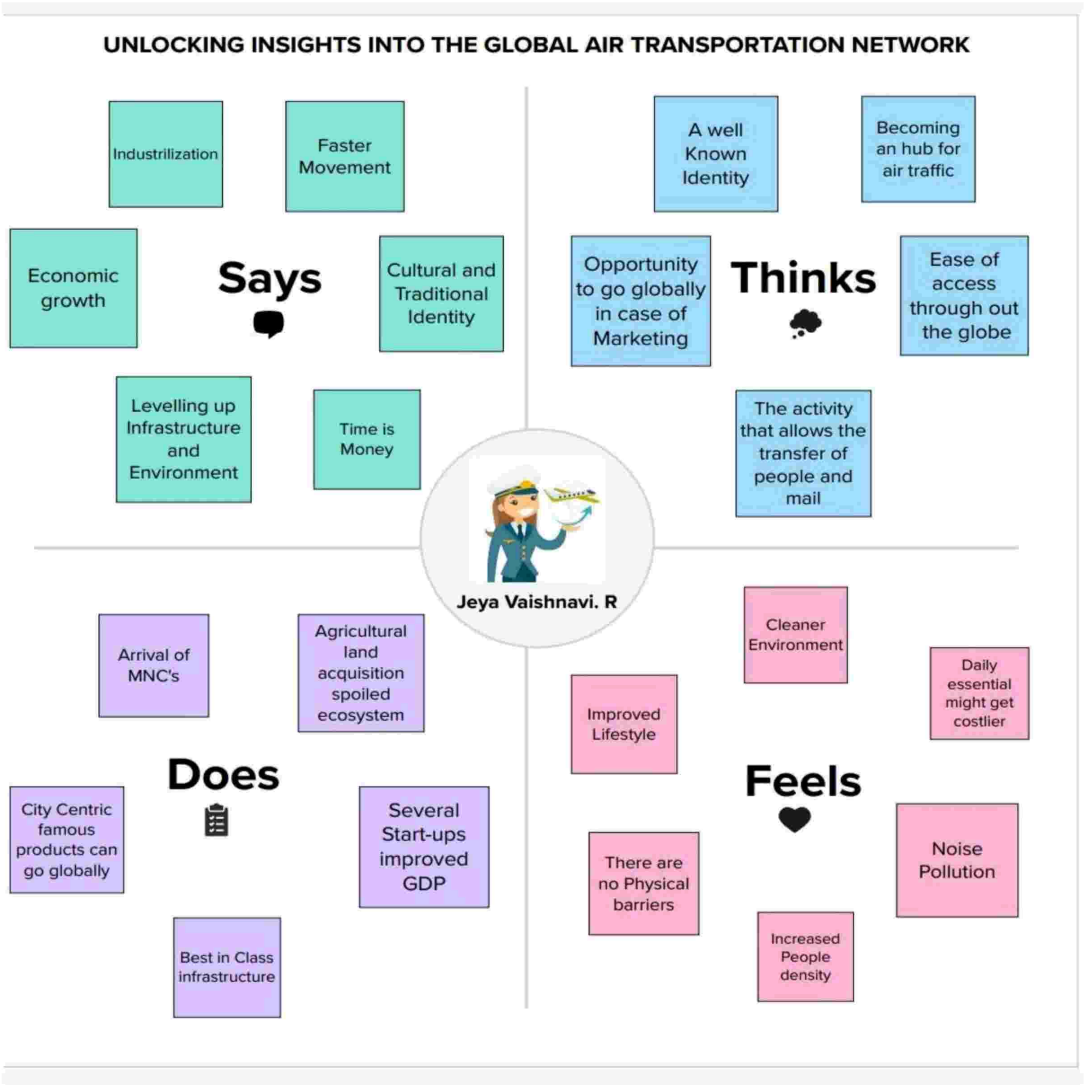
Since airfares are connected to carrier fuel costs (among others), there is an incentive for the industry to reduce fuel consumption as much as possible, both in their aircraft and in their airline infrastructure. According to a 2012 World Bank report, energy efficiency in the air transport sector has come from technology improvements in airframe and engine design, air traffic control, and airport operation.

1.1 Purpose of Global Air Transportation Network

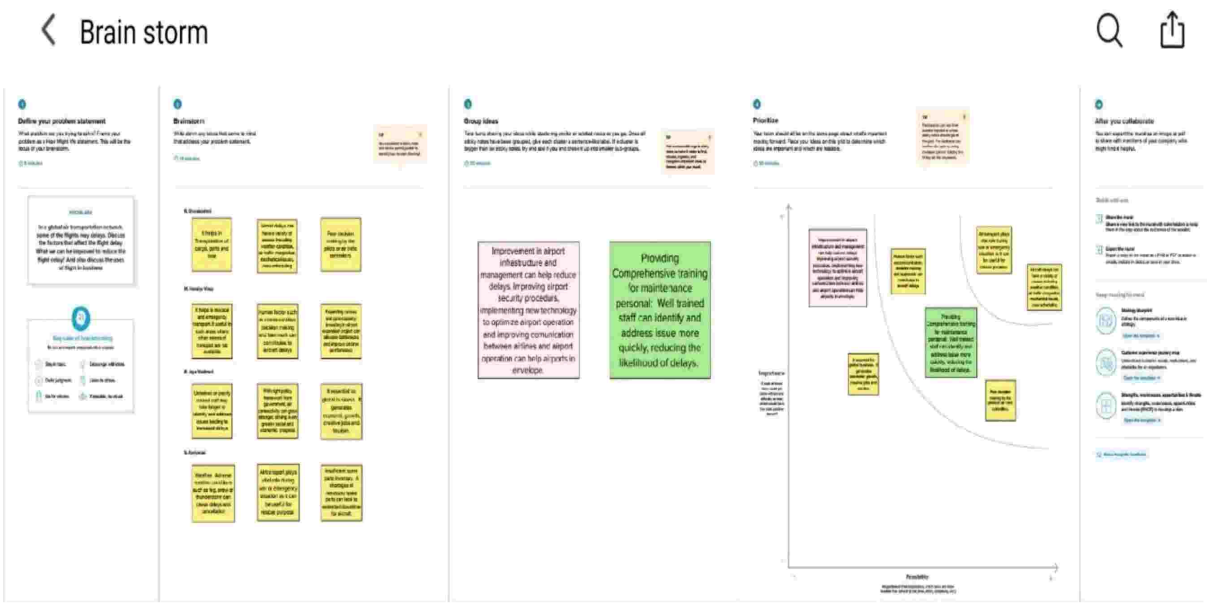
- Air Transport allows people from different countries to cross international boundaries and travel other countries for personal, business, medical and tourism.
- The air transport network is a key infrastructure asset. It is the only worldwide passenger and cargo transportation network, providing an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

2. PROBLEM DEFINING & DESIGN THINKING

2.1 Empathy Map

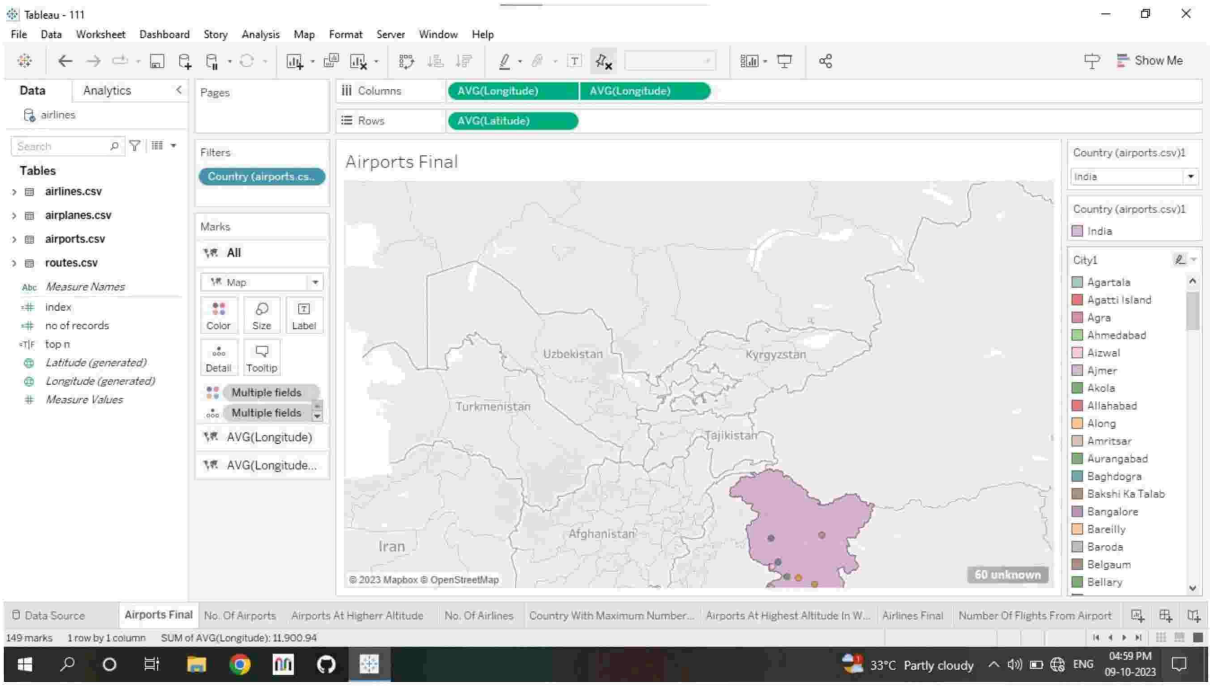


2.2 Brainstorming



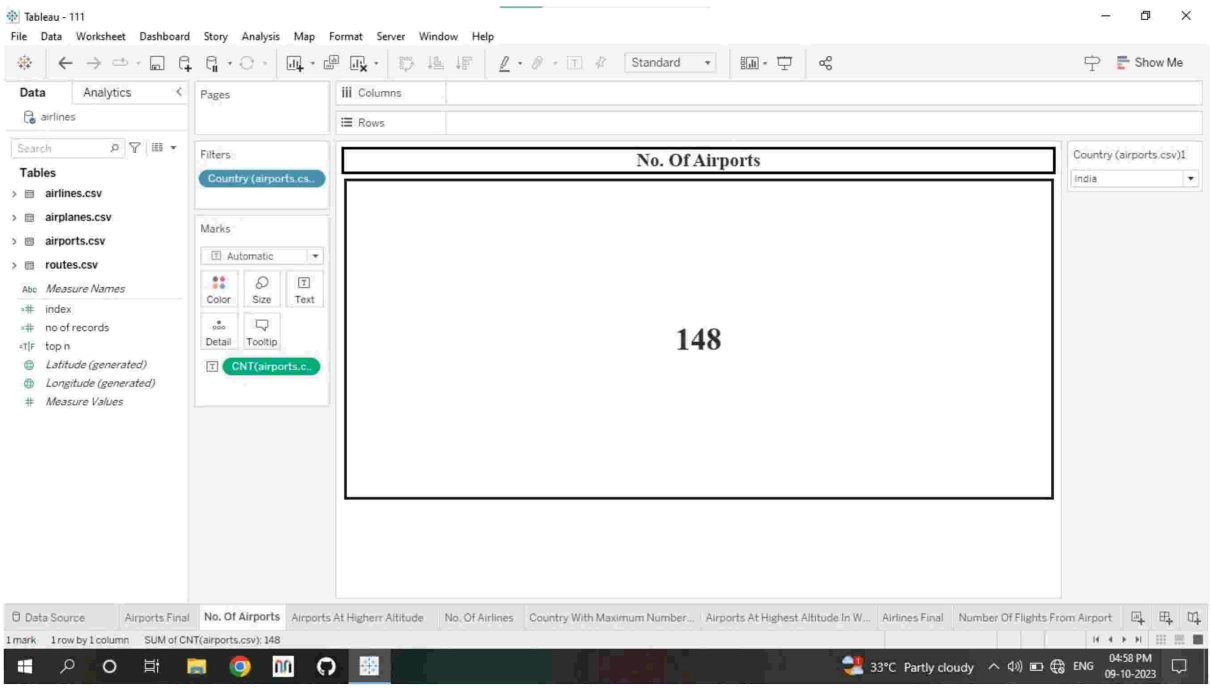
3. RESULT

3.1 Airports Final



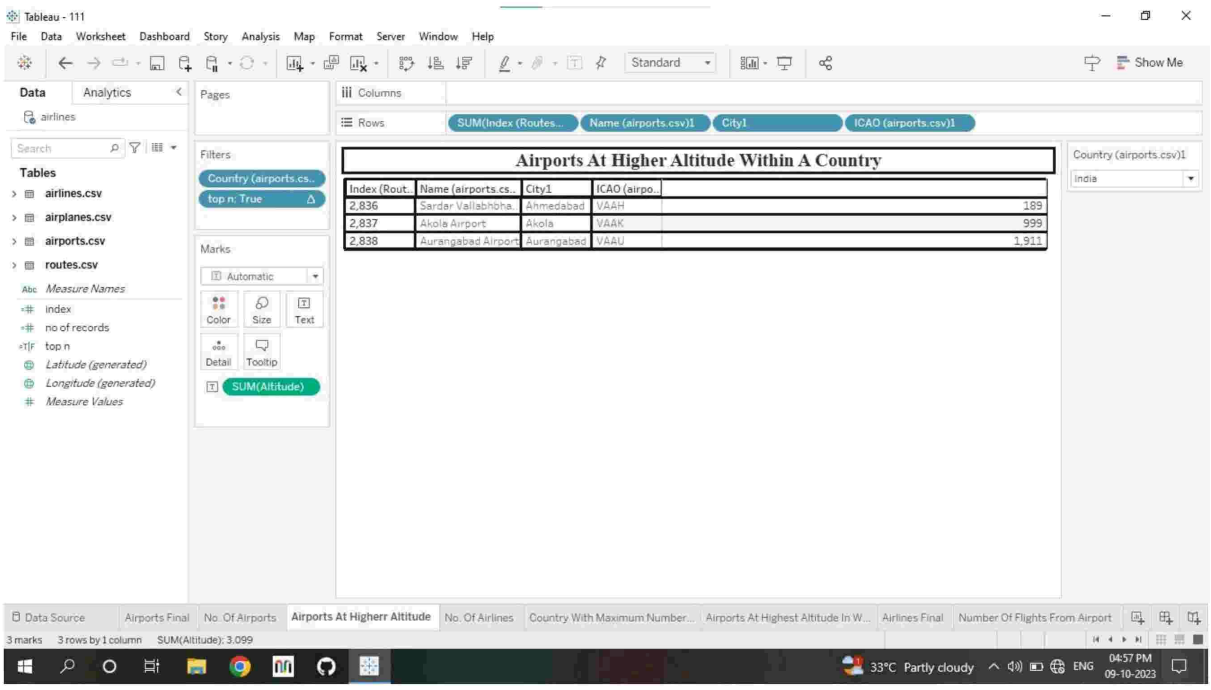
Here the Location of airports in all the countries in the world

3.2 Number of Airports



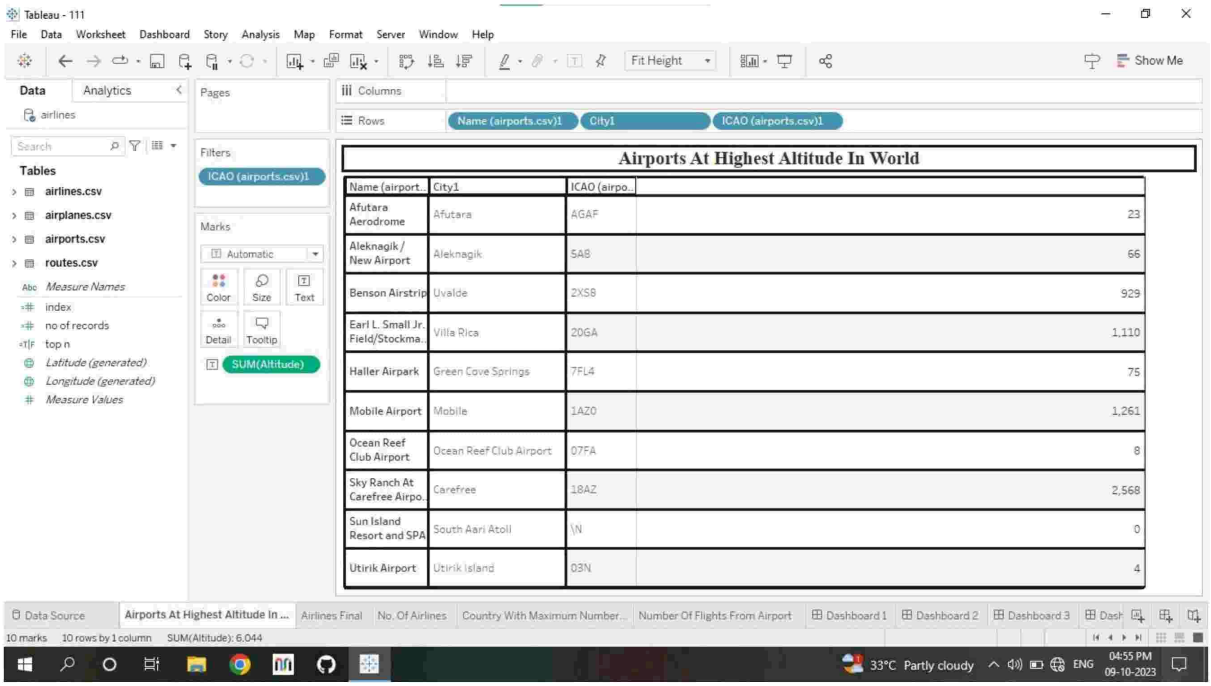
The Count of the Number of airports

3.3 Airports at Higher Altitude Within a Country



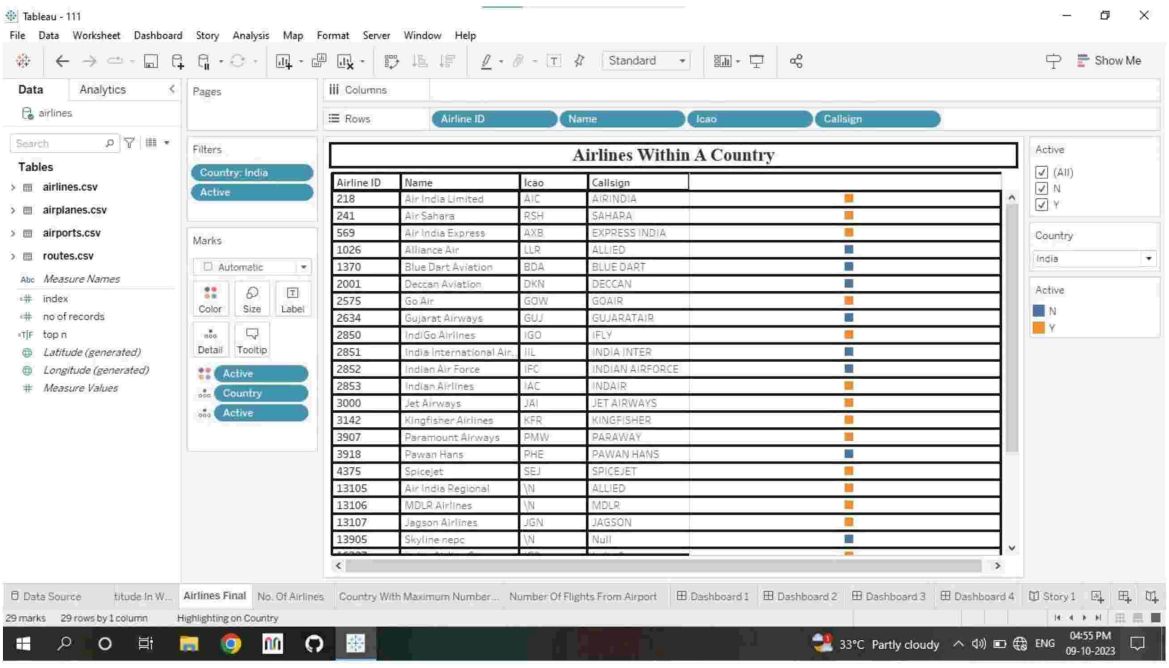
This Sheet shows that the Airports having Higher Altitude Within a Country.

3.4 Airports at Highest Altitude in World



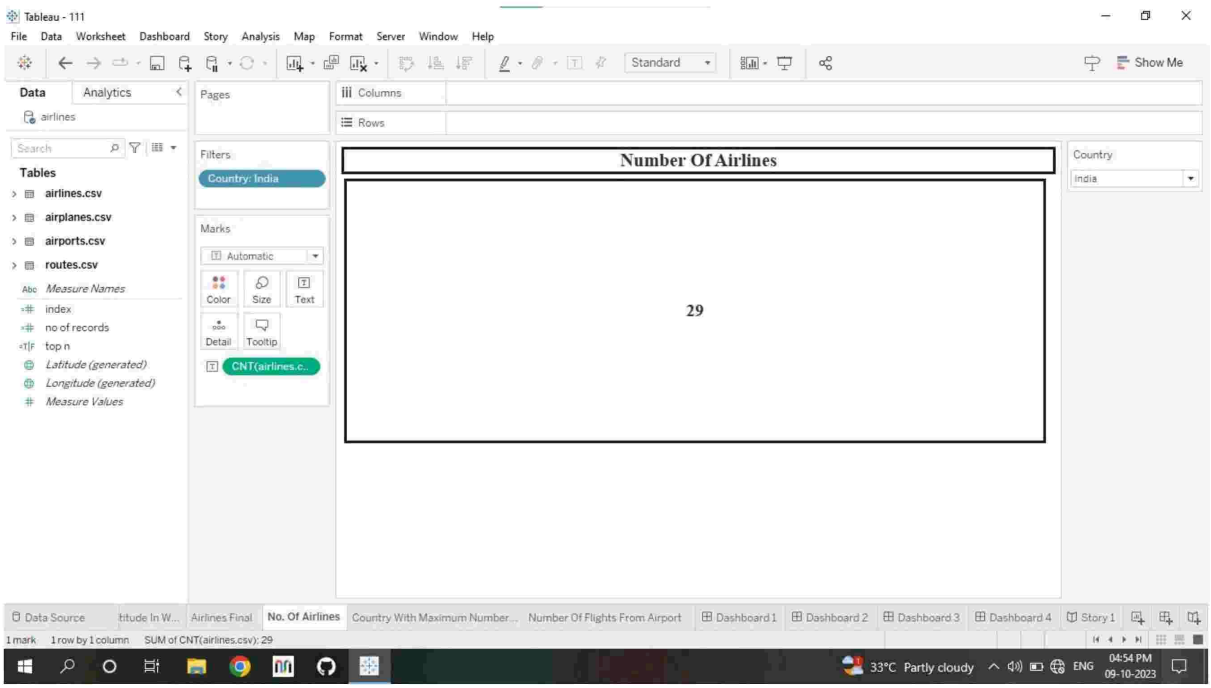
This Sheets shows that the Airports Having Altitude in World

3.5 Airlines Final



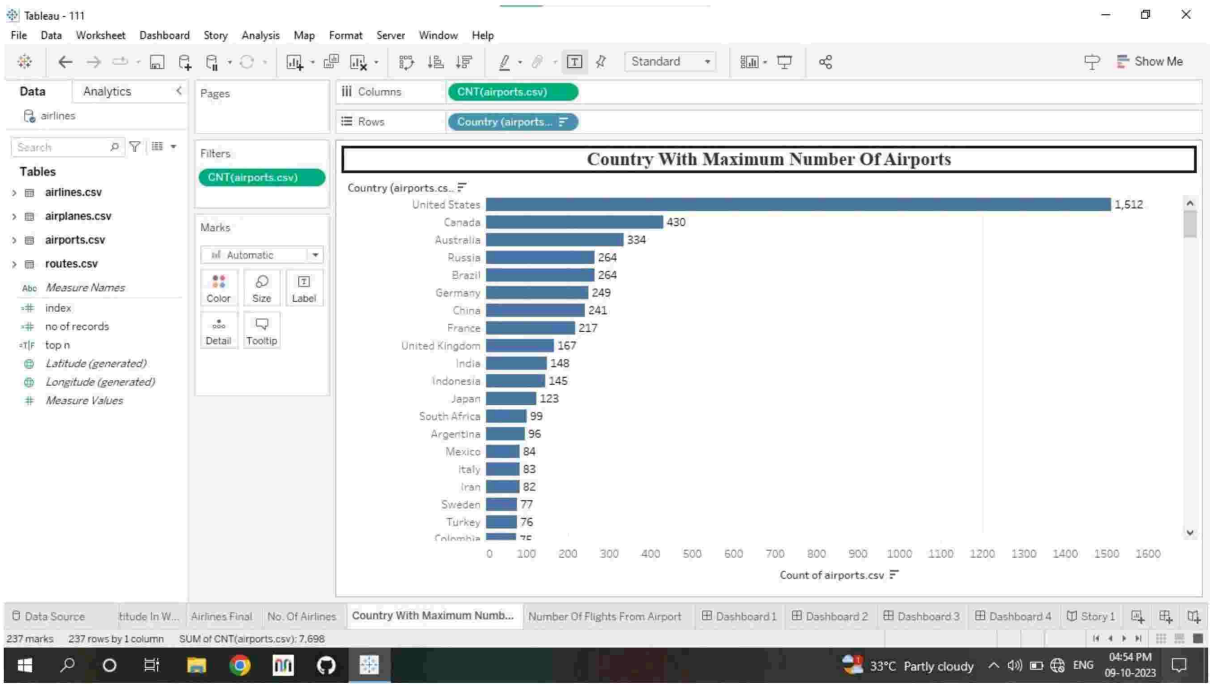
This Sheets Show that Airlines Within the Country.

3.6 Number of Airlines



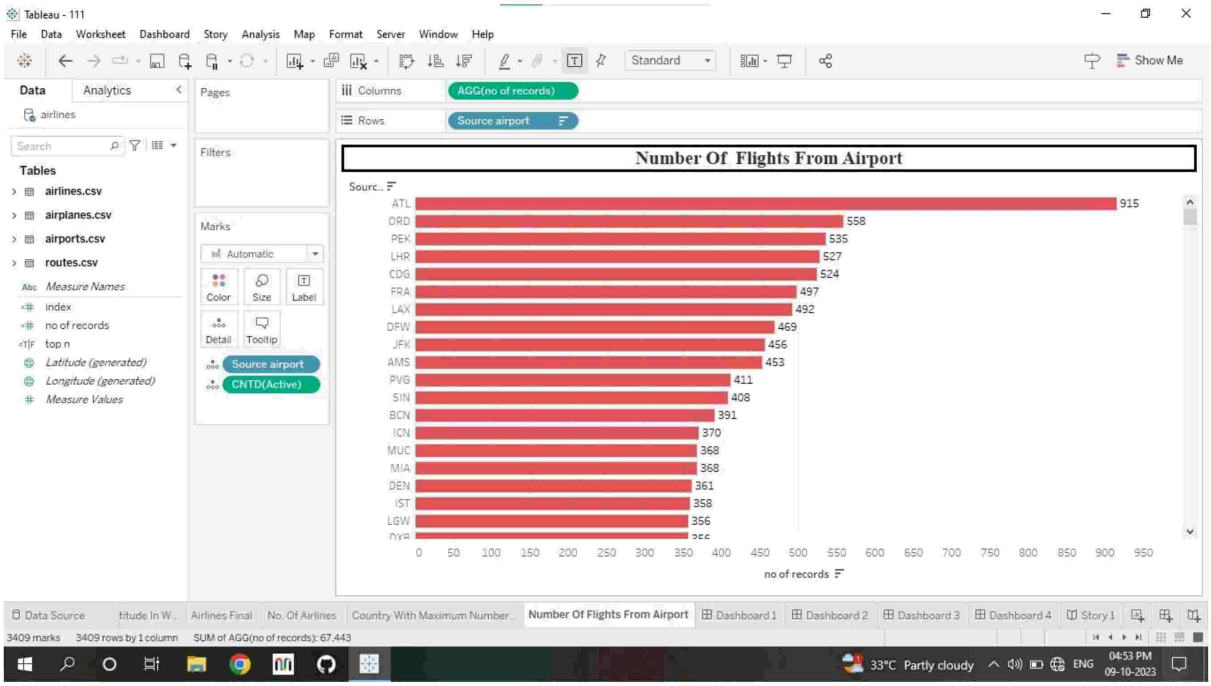
Count of the Airlines

3.7 Countries with Maximum Number of Airports



The Bar Diagram Showing the Countries with Maximum Number of Airports.

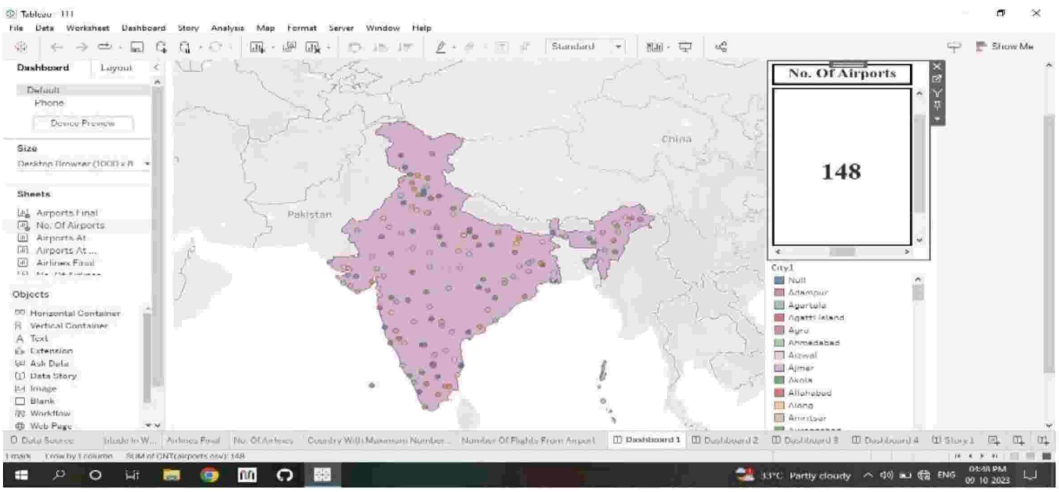
3.8 Number of Flights from Airports



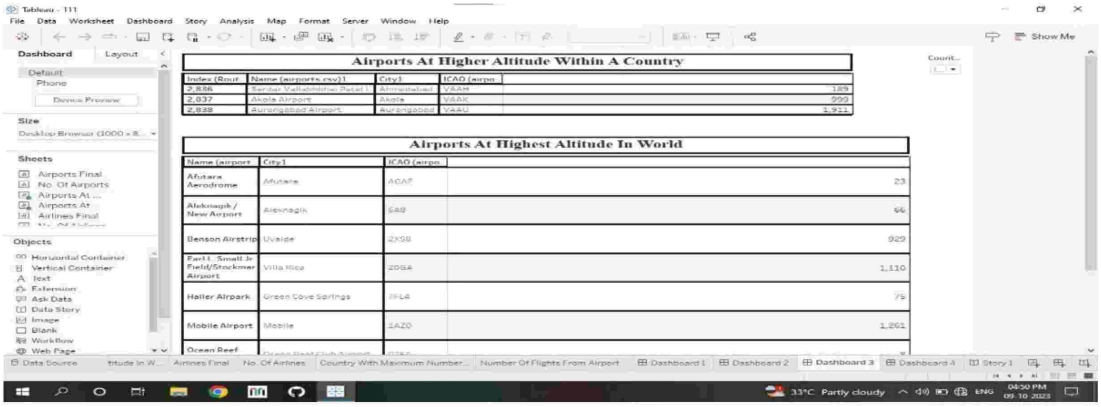
Here The bar Graph Showing the Number of Flights from Airports in the Countries.

4. DASHBOARD

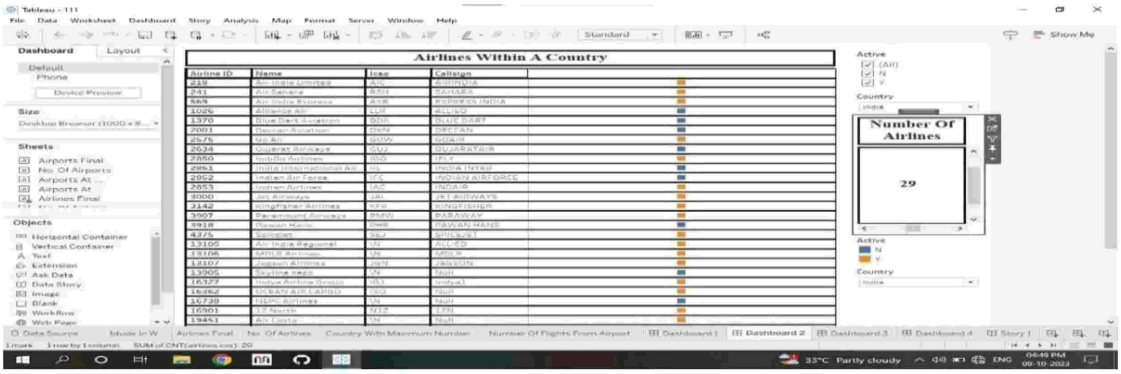
Dashboard1



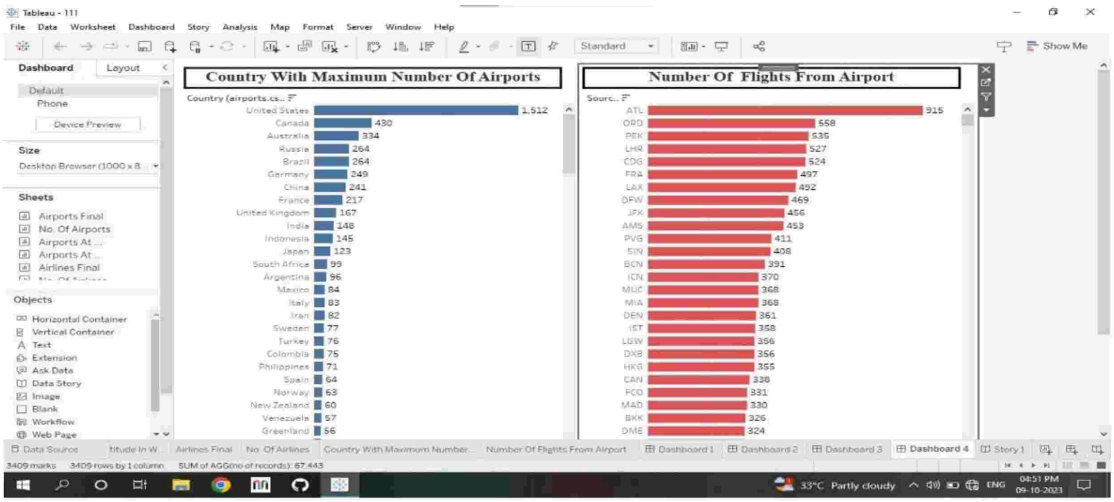
Dashboard2



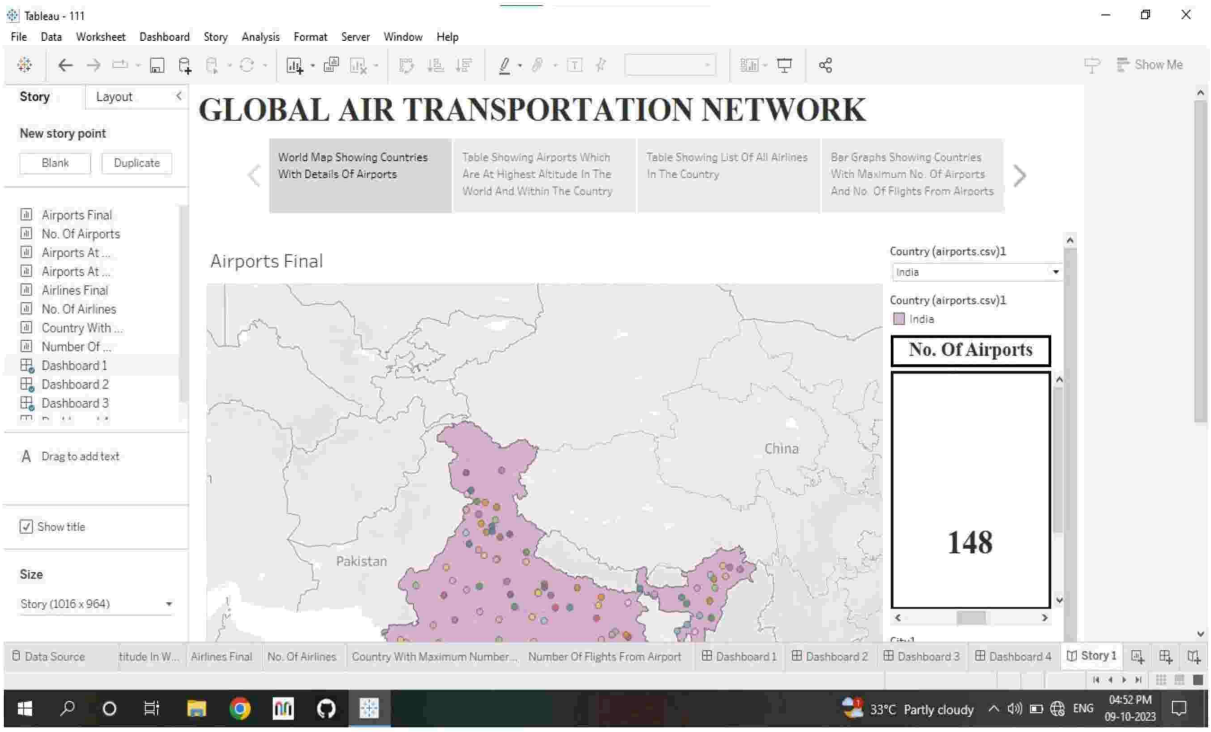
Dashboard3



Dashboard4



5. STORY



- The story Chart contains a four dashboard.
- The First Dashboard contains Airports location and Number of Airports.
- The Second Dashboard contains Airports at Highest altitude within country and Airports at Highest Altitude in the world
- The Third Dashboard Contains Airlines within a country and Number of airlines
- The Fourth Dashboard Contains the Bar graph that showing the Number of Flights from airports and Country with maximum Number of Airports
- The Story Chart Contain all the four Dashboard with caption
- Caption of the First dashboard is “World map showing Countries with details of Airports”
- Caption of the Second dashboard is “Table showing Airports which are at highest altitude in the world and within the Country”

- Caption of the Third dashboard is “Table showing list of Airlines within t/he country”
- Caption of the Fourth dashboard is “Bar graph showing Countries with maximum number of airports and number of flights from airports”
- This is the caption of the story
- This is the story of Global Air Transportation Network.

7. ADVANTAGES

- High Speed
- Fast Service
- Spend Almost Everywhere your freight
- Hugh Standard of Security
- Natural route
- There is less need for Heavy packaging
- Be used for a range of goods
- Give you high levels of security for sensitive items

8. DISADVANTAGES

- Air travel is the riskiest mode of transport
- Air Travel is considered to be the most expensive means of transportation
- Some product Limitation
- Capacity for Small Carriage
- Enormous Investment
- Fuel and currency surcharges will usually be added to freight costs
- You will need to pay taxes at each airport you use

9. APPLICATION

- The main characteristics and advantages of airfreight transport are speed, reliability in terms of cargo security and freedom from limitation to accessing remote location
- Most Companies use air transport to market goods and products internationally or to deliver sample and documents related to foreign trade operation.
- Air transport network is used by millions of people every day therefore it plays key role in the spread of some infections.
- The nodes of the network are the airports and the links represent direct flight routes between two airports

10. FUTURE SCOPE

- The future of the aviation industry in India is likely to see continued growth and expression driven by factors such as a growing middle class, increased tourism, and government policies supporting the industry.
- The roadmap outlined significant benchmarks to achieve the goal of making India the best-performing centre for aviation by 2040, in addition to expanding the country's aviation industry.
- The aviation market is anticipated to expand quickly between 2022 and 2029 throughout the anticipated time period.
- Emerging technologies are reshaping with robotics, artificial intelligence, internet of things, unnamed aircraft systems and the push for hybrid and electric airplanes.
- Experts in aviation can expect to make between INR 2 and INR15 lakhs per year.

11. CONCLUSION

The Air Transport industry 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. Its importance arises not only from its ability to facilities the movement of people but also its ability to expediate the movement of goods.