UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK
A PROJECT REPORT

SUBMITTED BY

JOTHIGA A

UTHAYAKRISHNAN C

BHAVANI M

KARTHIKA P

SOUNDARRAJAN G

BACHELOR OF SCIENCE

IN

MATHEMATICS

KANDSWAMI KANDAR'S COLLEGE, P.VELUR

(Affiliated to PERIYAR UNIVERSCITY, SALEM)

PG & RESEARCH DEPARTMENT OF MATHEMATICS

OCTOBER 20223

TABLE OF CONTENTS

1   INTRODUCTION

1.1 Project Overview

A brief description about your project

1.2 Purpose

The use of this project. What can be achieved using this.

2   PROBLEM DEFINITION & DESJGHN THINKING

2.1 Empathy Map

Paste the empathy map screenshot

2.2 Ideation & Brainstorming map

Paste the Ideation & brainstorming screenshot

3   RESULT

Final finding (output) of the project along with screenshots.

4   ADVANTAGES & DISADVANTAGES

List of advantages and disadvantages of the proposed solution

5   APPLICATIONS

The areas where this solution can be applied

6   CONCLUSION

Conclusion summarizing the entire work and findings

7   FUTURE SCOPE

Enhancements that can be made in the future.

8   APPENDIX

A. Source Code

Attach the code for the solution built.

INTRODUCTION

1.1 PROJECT OVERVIEW

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 and altitudes of airports across the world with detailed time zone and daylight saving time data. Additionally, this includes information about airlines including their IDs, name aliases, IATA and ICAO codes, call signs country of origin and active/inactive status.
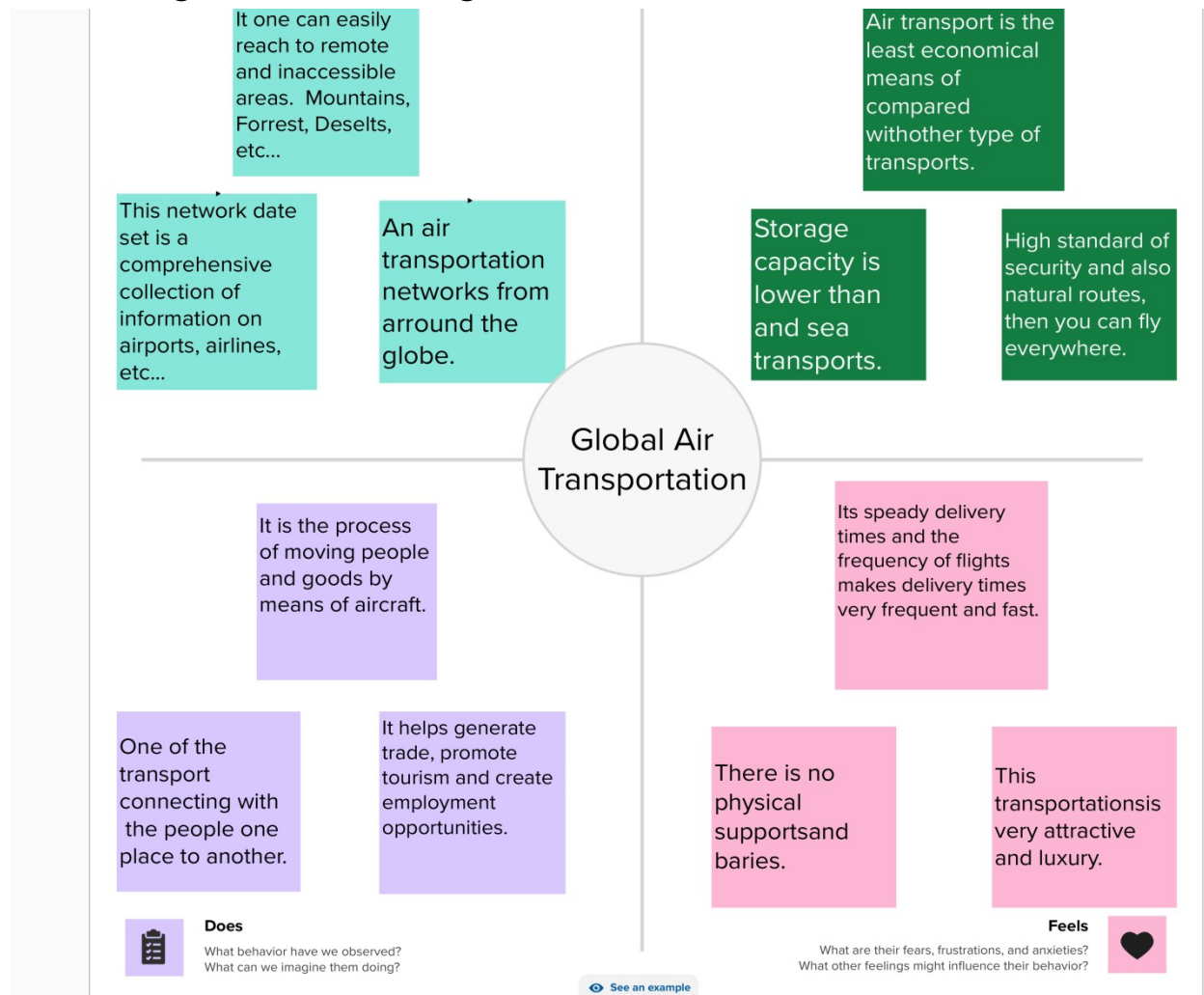
1.2 PURPOSE

Global Air Transportation also covers route details such as airline sources to destination airports along with essential details like code share 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.

PROBLEM DEFINITION & DESIGHN THINKING

2.1 EMPARHY MAP

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behave ours and attitudes. It is a useful tool to helps teams better understand their users.

Creating effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

It one can easily reach to remote and inaccessible areas. Mountains, Forrest, Deselts, etc...

This network date set is a comprehensive collection of information on airports, airlines, etc...

An air transportation networks from arround the globe.

Air transport is the least economical means of compared withother type of transports.

Storage capacity is lower than and sea transports.

High standard of security and also natural routes, then you can fly everywhere.

Global Air Transportation

It is the process of moving people and goods by means of aircraft.

Its speady delivery times and the frequency of flights makes delivery times very frequent and fast.

One of the transport connecting with the people one place to another.

It helps generate trade, promote tourism and create employment opportunities.

There is no physical supportsand baries.

This transportationsis very attractive and luxury.

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

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

See an example

2.2 IDEATION AND BRAINSTORMING

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of – the –box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

⏱ 10 minutes

JOTHIGA.A

- Uncertain and unreliable since weather conditions heavily influence
- 2.5% of global co2 emissions
- Reduce to emission of co2
- Uses of AI to reduce some lacks of aircrafts

UTHAYAKRISHNAN.C

- A consistently high risk of mishaps
- Co2 absorbs radiation
- Change of the weather patterns
- Difficult to carry very large cargo

BHAVANI.M

- Rise of global temperature
- Large investment
- Highly risky and thefts
- To reduce Physical barriers compared with other transports

KARTTHIKA.P

- Geographical changes
- Unemployment and unskill employers
- GHG is rectified global warming
- Limited capacity to moving people, goods and mails

SOUNDARRAJAN.C

- Less capacity of infrastructure and dispatch of aircraft
- Poor people is affects
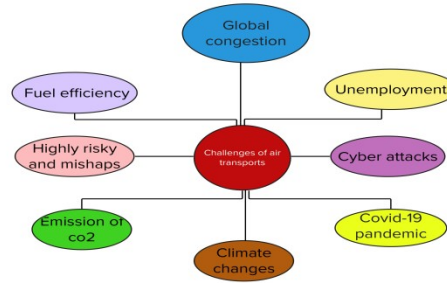- Reliable and fast services
- Covid ¬-19 pandemic

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

⏱ 20 minutes

- Global congestion
- Fuel efficiency
- Unemployment
- Highly risky and mishaps
- Challenges of air transports
- Cyber attacks
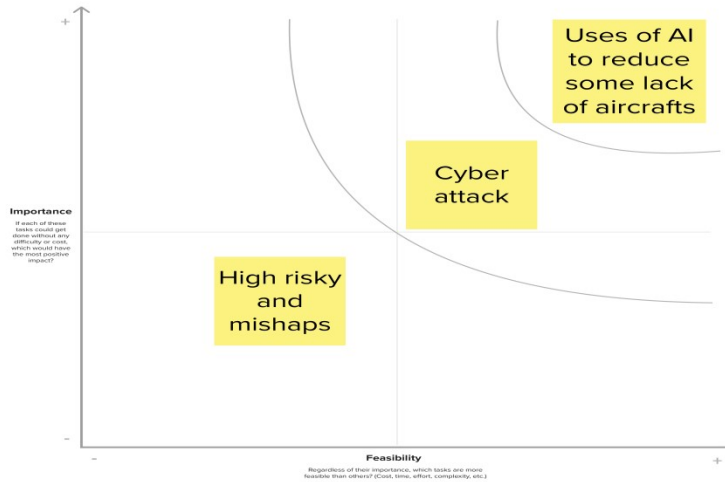- Emission of co2
- Climate changes
- Covid-19 pandemic

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⏱ 20 minutes

Importance

If each of these tasks could get done without any difficulty or cost, which would have the most positive impact?

- Uses of AI to reduce some lack of aircrafts
- Cyber attack
- High risky and mishaps

Feasibility

Regardless of their importance, which tasks are more feasible than others? (Cost, time, effort, complexity, etc.)

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

Share the mural
Share a view link to the mural with stakeholders to keep them in the loop about the outcomes of the session.

Export the mural
Export a copy of the mural as a PNG or PDF to attach to emails, include in slides, or save in your drive.

Keep moving forward

Strategy blueprint
Define the components of a new idea or strategy.
Open the template →

Customer experience journey map
Understand customer needs, motivations, and obstacles for an experience.
Open the template →

Strengths, weaknesses, opportunities & threats
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.
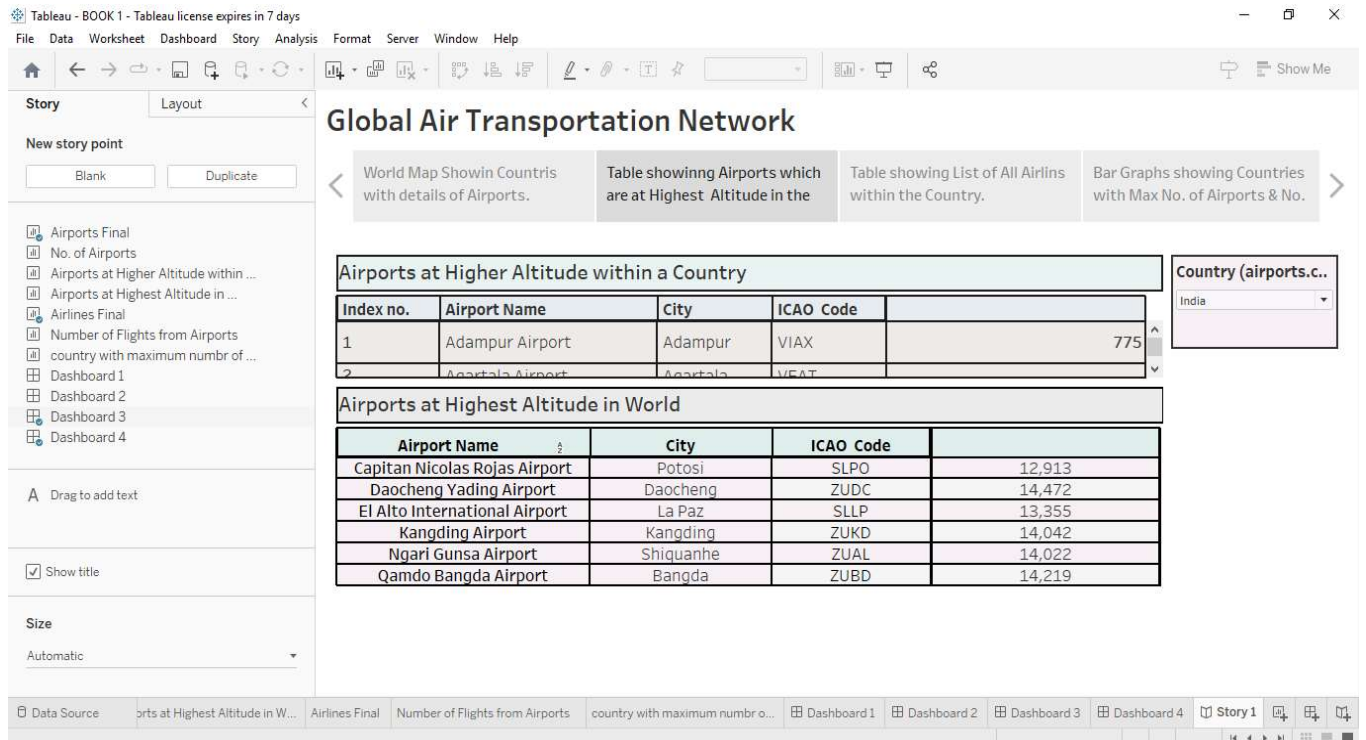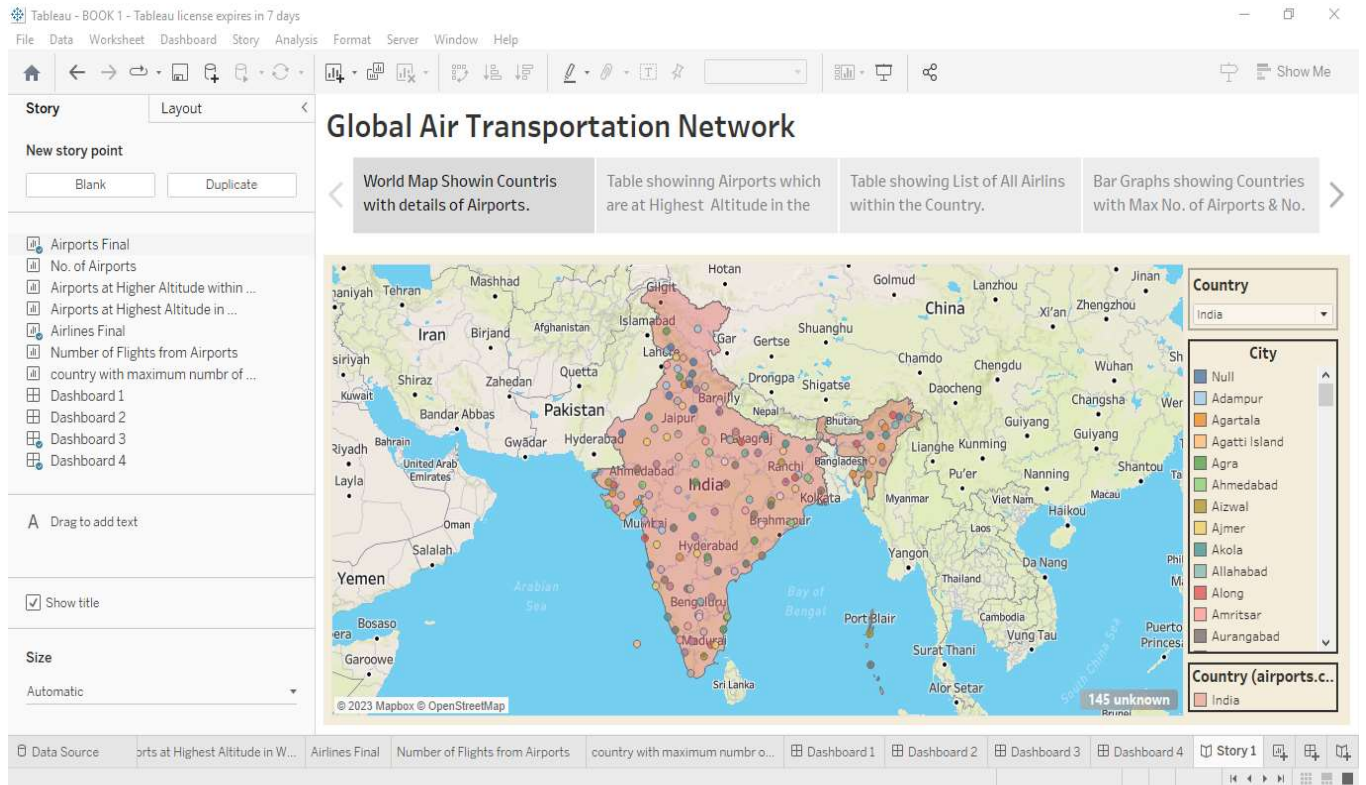Open the template →

Share template feedback

RESULT

OUTPUT

File Data Worksheet Dashboard Story Analysis Format Server Window Help

Global Air Transportation Network

Story	Layout

New story point

Blank	Duplicate

- Airports Final
- No. of Airports
- Airports at Higher Altitude within ...
- Airports at Highest Altitude in ...
- Airlines Final
- Number of Flights from Airports
- country with maximum numbr of ...
- Dashboard 1
- Dashboard 2
- Dashboard 3
- Dashboard 4

A Drag to add text

☑ Show title

Size

Automatic

World Map Showin Countris with details of Airports. | Table showinng Airports which are at Highest Altitude in the | **Table showing List of All Airlins within the Country.** | Bar Graphs showing Countries with Max No. of Airports & No.

Airline ID	Name	Icao	Callsign	Active	
97	Aerofumigaciones Sam	AEG	FUMIGACI..	N	■
171	Aerogala	AGQ	GALASERVI..	N	■
200	Alpine Air Chile	AIH	ALPINE CHI..	N	■
427	Aeromet Servicios	ARS	METSERVI..	N	■
660	Aeropuelche	PUE	PUELCHE	N	■
752	Aerocardal	CDA	CARDAL	N	■
795	Aerovias DAP	DAP	DAP	N	■
809	Aerolineas Del Sur	DLU	DEL SUR	N	■
852	Aerosec	ERK	AEROSEC	N	■
936	Aerohein	HEI	AEROHEIN	N	■
958	Aeroingenieria	ING	AEROINGE	N	■
1100	Aeromet Linea Aerea	MTE	AEROMET	N	■
1670	Carranza	CRR	CARRANZA	N	■
1782	Cirrus	RRU	HELICIRRUS	N	■
1950	DAP Helicopteros	DHE	HELIDAP	N	■
2026	Didier Rousset Buy	DRB	DIDIER	N	■
2190	Empresa Aero-Servici..	PRG	ASPAR	N	■
2201	Enrique Gleisner Viva..	EGV	GLEISNER	N	■
2552	Gestar	GTR	STAR GEST..	N	■
2727	Helicopteros Agrofore..	HAA	AGROFORE..	N	■

Country
Chile

Active
(All)

Active
■ N
■ Y

Data Source | orts at Highest Altitude in W.. | Airlines Final | Number of Flights from Airports | country with maximum numbr o.. | Dashboard 1 | Dashboard 2 | Dashboard 3 | Dashboard 4 | Story 1

File Data Worksheet Dashboard Story Analysis Format Server Window Help

Global Air Transportation Network

Story	Layout

New story point

Blank	Duplicate

- Airports Final
- No. of Airports
- Airports at Higher Altitude within ...
- Airports at Highest Altitude in ...
- Airlines Final
- Number of Flights from Airports
- country with maximum numbr of ...
- Dashboard 1
- Dashboard 2
- Dashboard 3
- Dashboard 4

A Drag to add text

☑ Show title

Size

Automatic

World Map Showin Countris with details of Airports. | Table showinng Airports which are at Highest Altitude in the | Table showing List of All Airlins within the Country. | **Bar Graphs showing Countries with Max No. of Airports & No.**

Country with Maximum Number of Airports

Country (airports.csv)

Country	Value
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

Number of Flights from Airports

Source airp..

Source airport	Value
ATL	915
ORD	558
PEK	535
LHR	527
CDG	524
FRA	497
LAX	492
DFW	469
JFK	456
AMS	453

Data Source | orts at Highest Altitude in W.. | Airlines Final | Number of Flights from Airports | country with maximum numbr o.. | Dashboard 1 | Dashboard 2 | Dashboard 3 | Dashboard 4 | Story 1

ADVANTAGES & DISADVANTAGES

ADVANTAGES

1. Greater and high speed.
2. Very flexible and short route.
3. High standard of security
4. No physical barriers
5. Rapid Service facility
6. Defence services

DISADVANTAGES

1. High operational cost
2. Huge initial investments
3. Limited Capacity
4. Accident prone
5. Undependable and Risky
6. Unfit for cheap and bulky goods

APPLICATION

1. Marketing
2. National defence
3. Global Connectivity
4. Challenges for weather conditions
5. Develop Economic growth

CONCLUSION

In this project we get, we are getting the international economy and the air transport industry, in particular, operate in a dynamic environment that is defined by long-term megatrends and global challenges, such as population growth and the rise of megacities, increasing demand for mobility in the context of increasing globalization, climate change and processes of political transition.

FUTURE SCOPE

1. Emerging technologies are reshaping with robtics, artificial intelligence and internet of things.
2. An unmanned aircraft systems and the push for hybrid and electric airplanes.
3. To continued growth and expansion, driven by factors such as growing middle class, increased tourism and government policies supporting the industry.

APPENDIX

A. SOURCE CODE

Unlocking_Insights_into_the_Global_Air_Transportion_Network_final.pdf