GOVERNMENT ARTS AND SCIENCE COLLEGE – IDAPPADI

DEPARTMENT OF PHYSICS

NAAN MUDHALVAN ONLINE COURSE

Project name:
Unlocking insight into the Global Air Transportation

Team leader
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Team members
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PROJECT REPORT

1.INTRODUCTION

1.1 OVERVIEW

Data Exploration:

Tableau allows you to dive deep into aviation data, such as flight routes, passenger numbers, airports, and more. This enables you to explore patterns, trends, and anomalies in the air transportation network.

1.2 PURPOSE

Data Visualization:

One of the primary purposes is to leverage Tableau's data visualization capabilities to represent the extensive data associated with the air transportation network in an understandable and insightful manner. By creating interactive and visually appealing dashboards, we can make complex information accessible to a wide range of stakeholders, from industry professionals to policymakers and the general public.

2.PROBLEM DEFINITION & DESIGN THANKING

2.1 EMPATHY MAP

Says

What have we heard them say?
What can we imagine them saying?

They said they are unsatisfied that they cannot find the whole package for a vacation in the same place within their budget. And they also that they usually pay a high commision when going to the classic travel agency and usually the area given limited option.

They see others usually using classic platform such as booking,Expedia,Tripadvisor etc.

They see others usually using classic platform such as booking,Expedia,Tripadvisor etc.

Thinks

What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

HOPE:They hope to have an application which could find the best vacation package within their budget.

WANTS: To be able to find the best flight and accommodation within the same place and on their established budget.

NEEDS:To spend limited amount of time to have nice experience and hot a complicated one on the website.

AIR TRANSPORTATION

Does

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

It generates economic growth.

This global air transportation network dataset is a comprehensive collection of information on airport,airlines and their uses.

Aviation provides the only rapid worldwide transportation network which makes essential for global business.

Feels

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

The solution for airlines would be to shift to other models a finance lease or the outright purchase of an aircraft.

FUSTRATIONS:Not being able to find an app which could have the best vacation package on the budget they have to many appplication on the market expensive time consuming.

FEARS:Not having enough options; of having to many options;wasting time &money;complicated websites.

See an example

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- **10 minutes** to prepare
- **1 hour** to collaborate
- **2-8 people** recommended

Need some inspiration?

See a finished version of this template to kickstart your work.

Open example →

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

A. Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B. Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

C. Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

PROBLEM

How might we minimize flight delays and improve operational efficiency ?

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

2 Brainstorm

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

10 minutes

TIP: You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

KOEESWARAN .S

- Utilize data insight to optimize flight schedules and crew assignment based on expected weather conditions and traffic pattern.
- Use historical Weather and traffic data to build predictive models that forecast potential disruptions.
- Develop dashboards in tableau that display real time information on weather contion s.air traffic and airport operation.

LOKESH.A

- Analyze historical data to enhance crew scheduling considering factors like travel time and potential delays.
- Combine weather and travel data.
- Develops scenarious and contigency plans for disruption scenarios.

MATHIYAZHAGAN .V

- Creat a platform where airlines ,air traffic control and airport can share data coordinate effort to minimize disruption collective
- Optimize gate assignment ,runwaay usage and maintenance schedules.
- use tableau to creat passengers facing dashboard or apps that provide update on flight status.

NANEESHWARAN .S

- Encourage airlines and other data insights,fostering a culture of continuous improvements.
- Analyse historical data to itentify optimal flight route based on weather condition and traffic patterns.
- Collect and analyze data on passenger preference and behaviour to provide personalized services.

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

TIP: Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

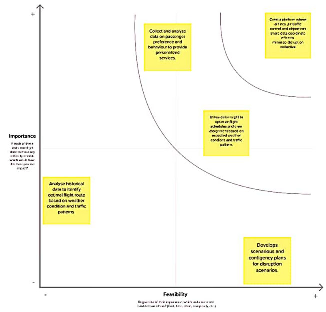
- Combine weather and travel data.
- Collect and analyze data on passenger preference and behaviour to provide personalized services.
- Utilize data insight to optimize flight schedules and crew assignment based on expected weather conditions and traffic pattern.
- Analyse historical data to itentify optimal flight route based on weather condition and traffic patterns.
- Creat a platform where airlines ,air traffic control and airport can share data coordinate effort to minimize disruption collective

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

TIP: Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.



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

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

B. 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

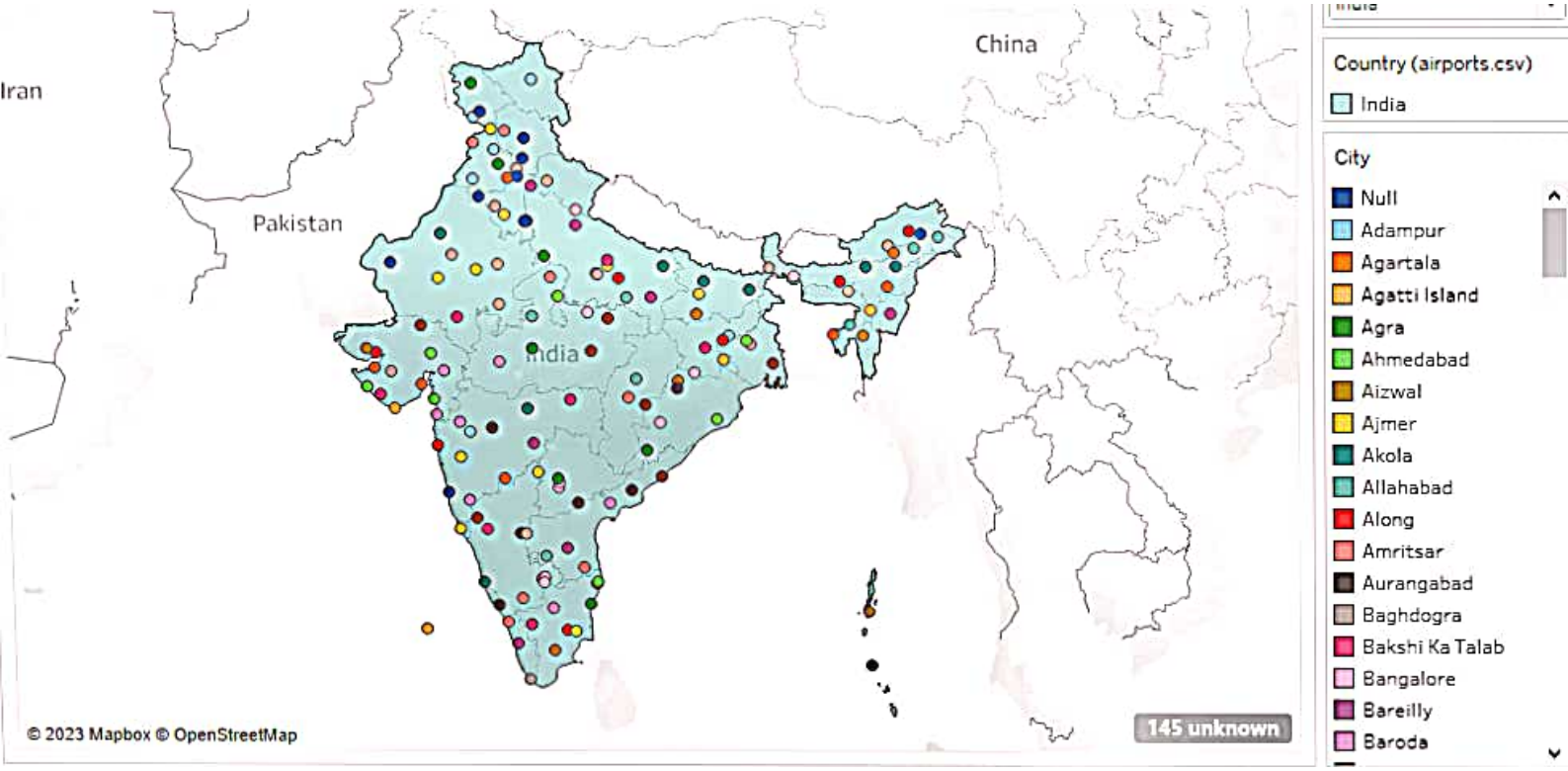
Strategy blueprint
Define the components of a new idea or strategy.
Open the template →

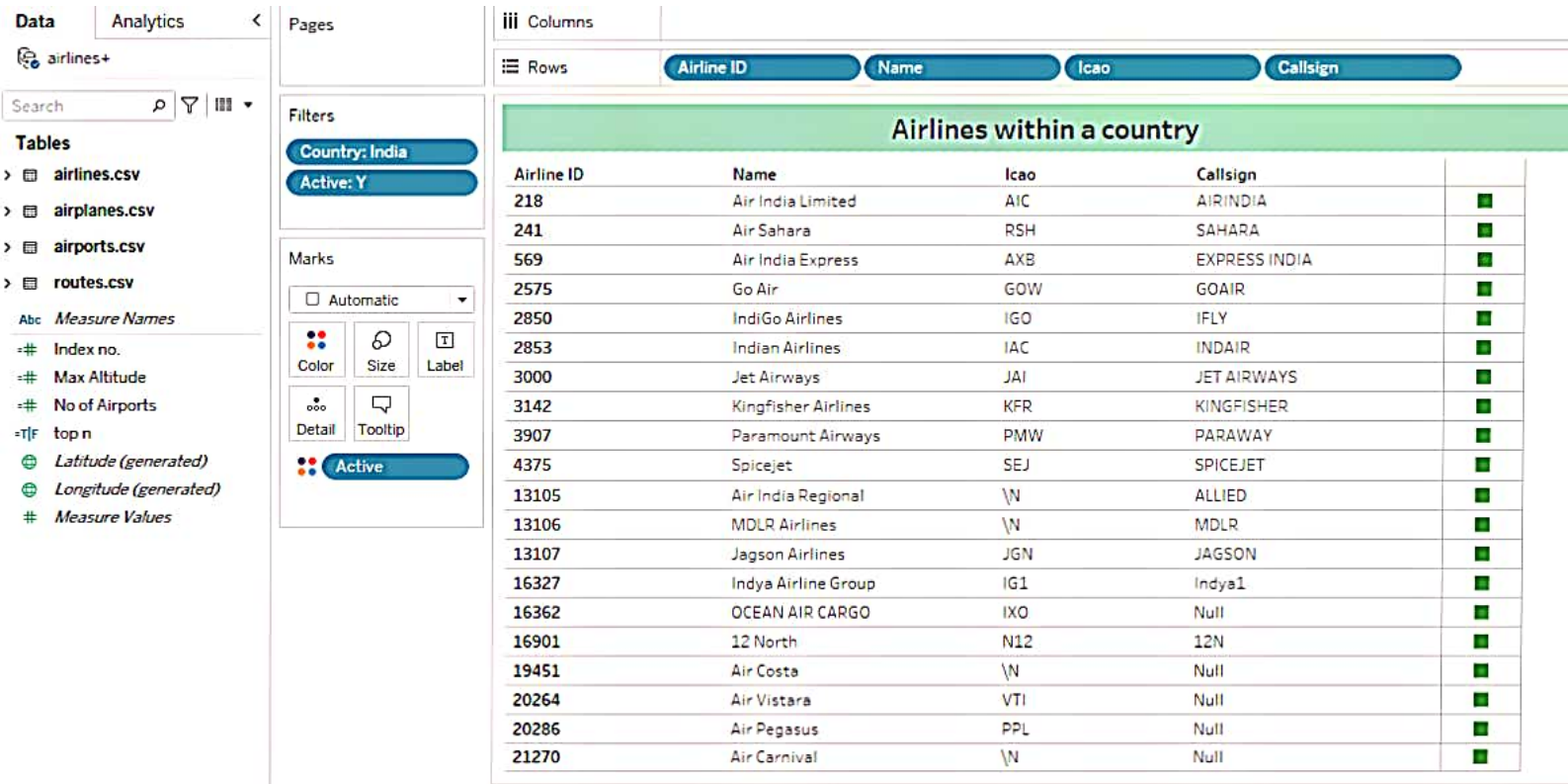
Customer experience journey map
Understand customer needs, motivations, and obstacles for an experience.
Open the template →

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

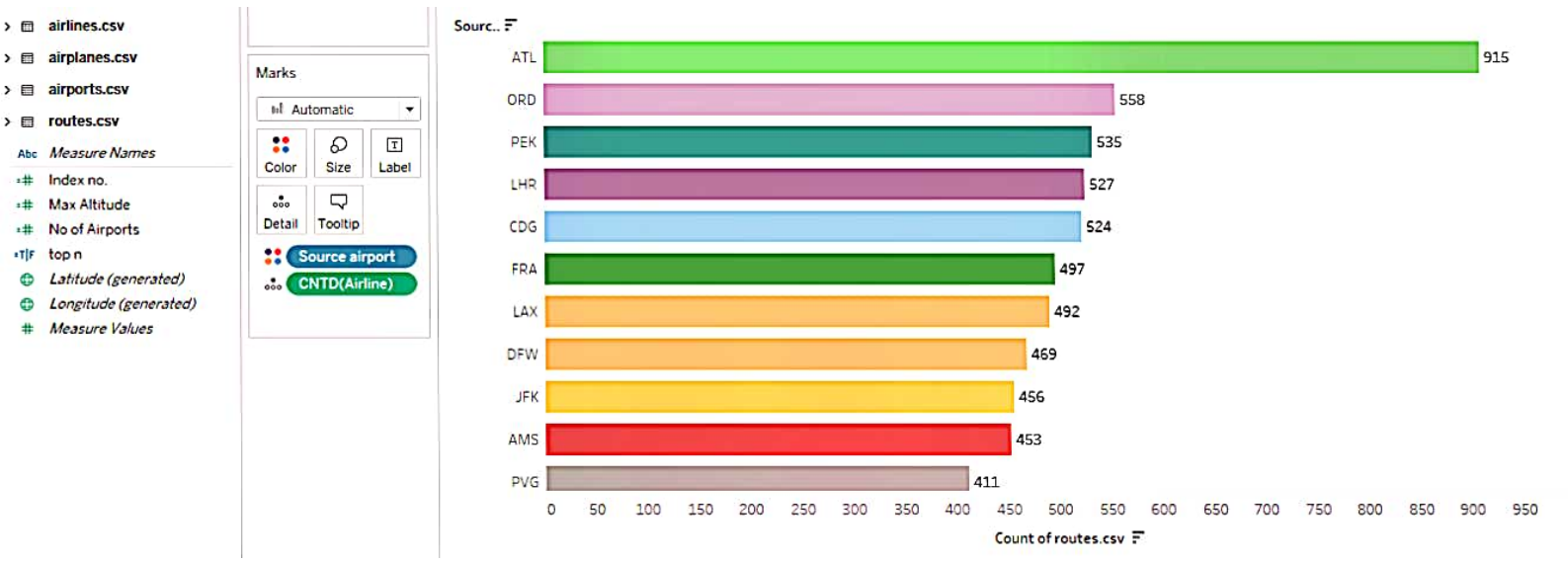
Share template feedback

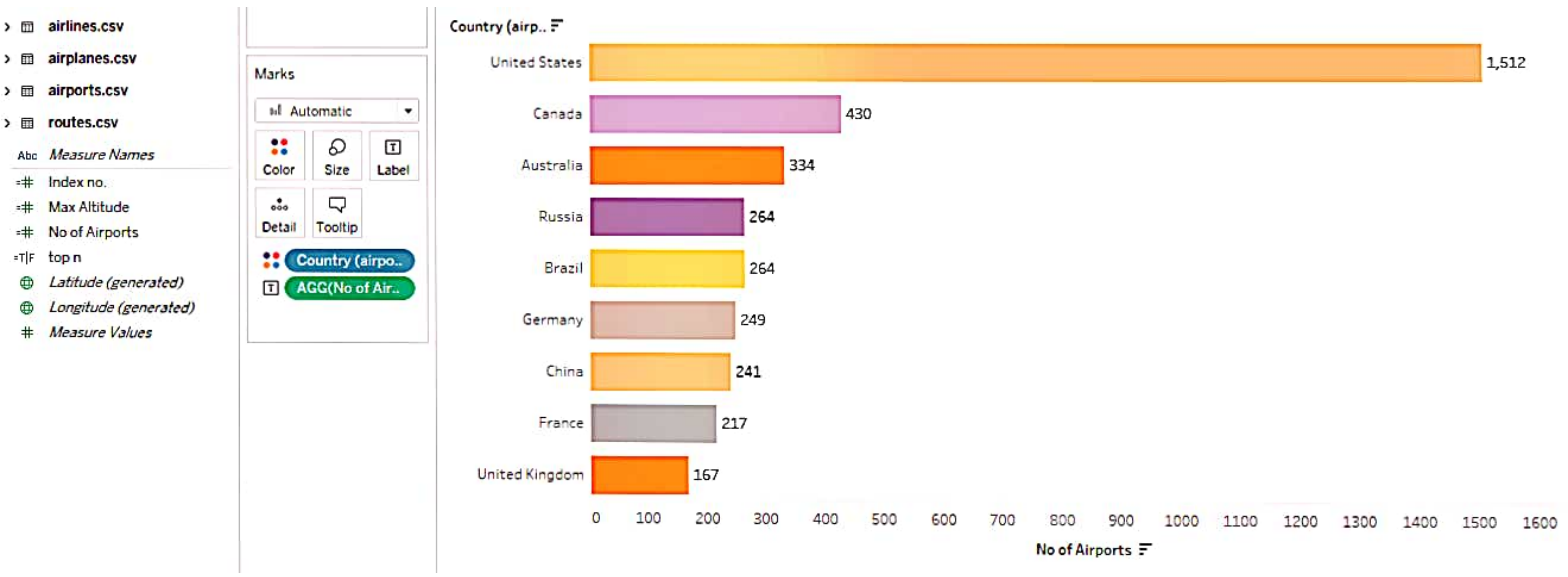
3.RESULT


China
Iran
Pakistan
India
© 2023 Mapbox © OpenStreetMap
145 unknown
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



Airline ID	Name	Icao	Callsign
218	Air India Limited	AIC	AIRINDIA
241	Air Sahara	RSH	SAHARA
569	Air India Express	AXB	EXPRESS INDIA
2575	Go Air	GOW	GOAIR
2850	IndiGo Airlines	IGO	IFLY
2853	Indian Airlines	IAC	INDAIR
3000	Jet Airways	JAI	JET AIRWAYS
3142	Kingfisher Airlines	KFR	KINGFISHER
3907	Paramount Airways	PMW	PARAWAY
4375	Spicejet	SEJ	SPICEJET
13105	Air India Regional	\N	ALLIED
13106	MDLR Airlines	\N	MDLR
13107	Jagson Airlines	JGN	JAGSON
16327	Indya Airline Group	IG1	Indya1
16362	OCEAN AIR CARGO	IXO	Null
16901	12 North	N12	12N
19451	Air Costa	\N	Null
20264	Air Vistara	VTI	Null
20286	Air Pegasus	PPL	Null
21270	Air Carnival	\N	Null


airlines.csv
airplanes.csv
airports.csv
routes.csv
Measure Names
Index no.
Max Altitude
No of Airports
top n
Latitude (generated)
Longitude (generated)
Measure Values
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Source airport
CNTD(Airline)
Sourc..
ATL 915
ORD 558
PEK 535
LHR 527
CDG 524
FRA 497
LAX 492
DFW 469
JFK 456
AMS 453
PVG 411
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950
Count of routes.csv


airlines.csv
airplanes.csv
airports.csv
routes.csv
Measure Names
Index no.
Max Altitude
No of Airports
top n
Latitude (generated)
Longitude (generated)
Measure Values
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Country (airpo..
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Country (airp..
United States
Canada
Australia
Russia
Brazil
Germany
China
France
United Kingdom
1,512
430
334
264
264
249
241
217
167
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
No of Airports

DASHBOARD

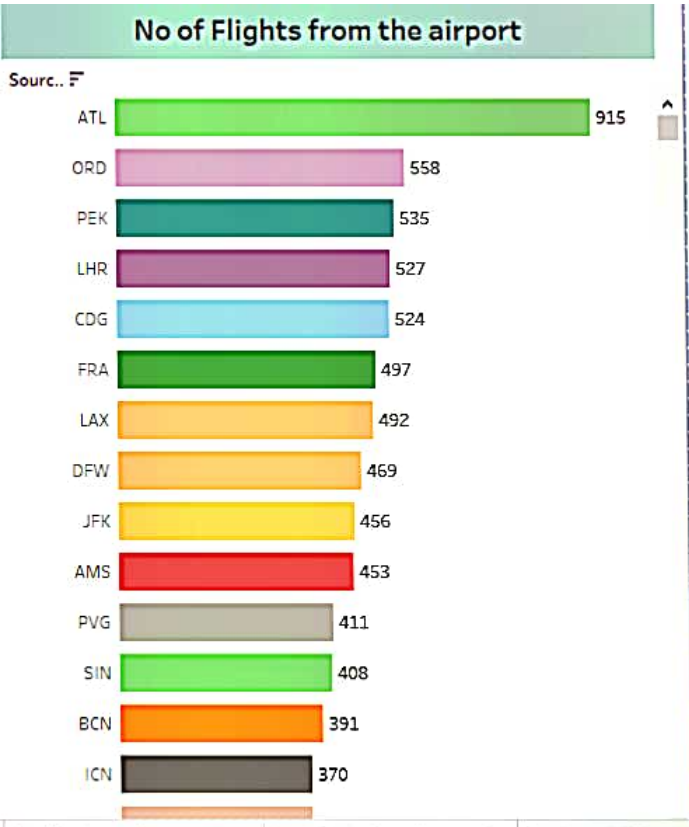
Airports with Higher Altitude within the country

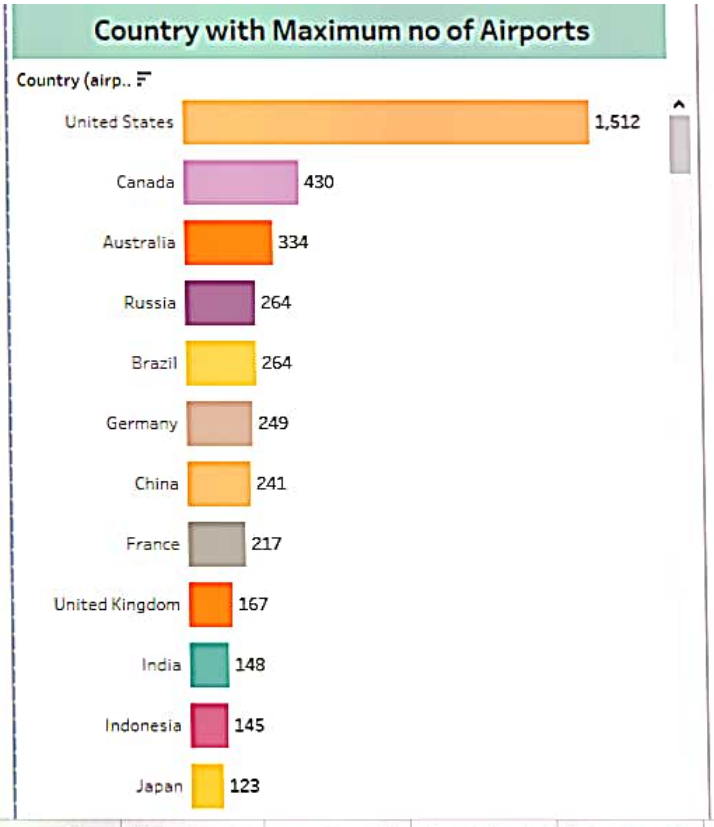
Country (airports.csv): Azerbaijan

Index no.	City	Name (airports.csv)	IATA (airports.csv)	ICAO (airports.csv)	
1	Nakhchivan	Nakhchivan Airport	NAJ	UBBN	2,863
	Stepanakert	Stepanakert Air Base	\N	UB13	2,001
	Zaqatala	Zaqatala International Airport	ZTU	UBBY	1,279

Airports with Higher Altitude in the world

Name (airports.csv)	City	ICAO (airports.csv)	
Daocheng Yading Airport	Daocheng	ZUDC	
Qamdo Bangda Airport	Bangda	ZUBD	
Kangding Airport	Kangding	ZUKD	
Ngari Gunsa Airport	Shiquanhe	ZUAL	


No of Flights from the airport
Sourc..
ATL 915
ORD 558
PEK 535
LHR 527
CDG 524
FRA 497
LAX 492
DFW 469
JFK 456
AMS 453
PVG 411
SIN 408
BCN 391
ICN 370


Country with Maximum no of Airports
Country (airp..
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
Japan 123

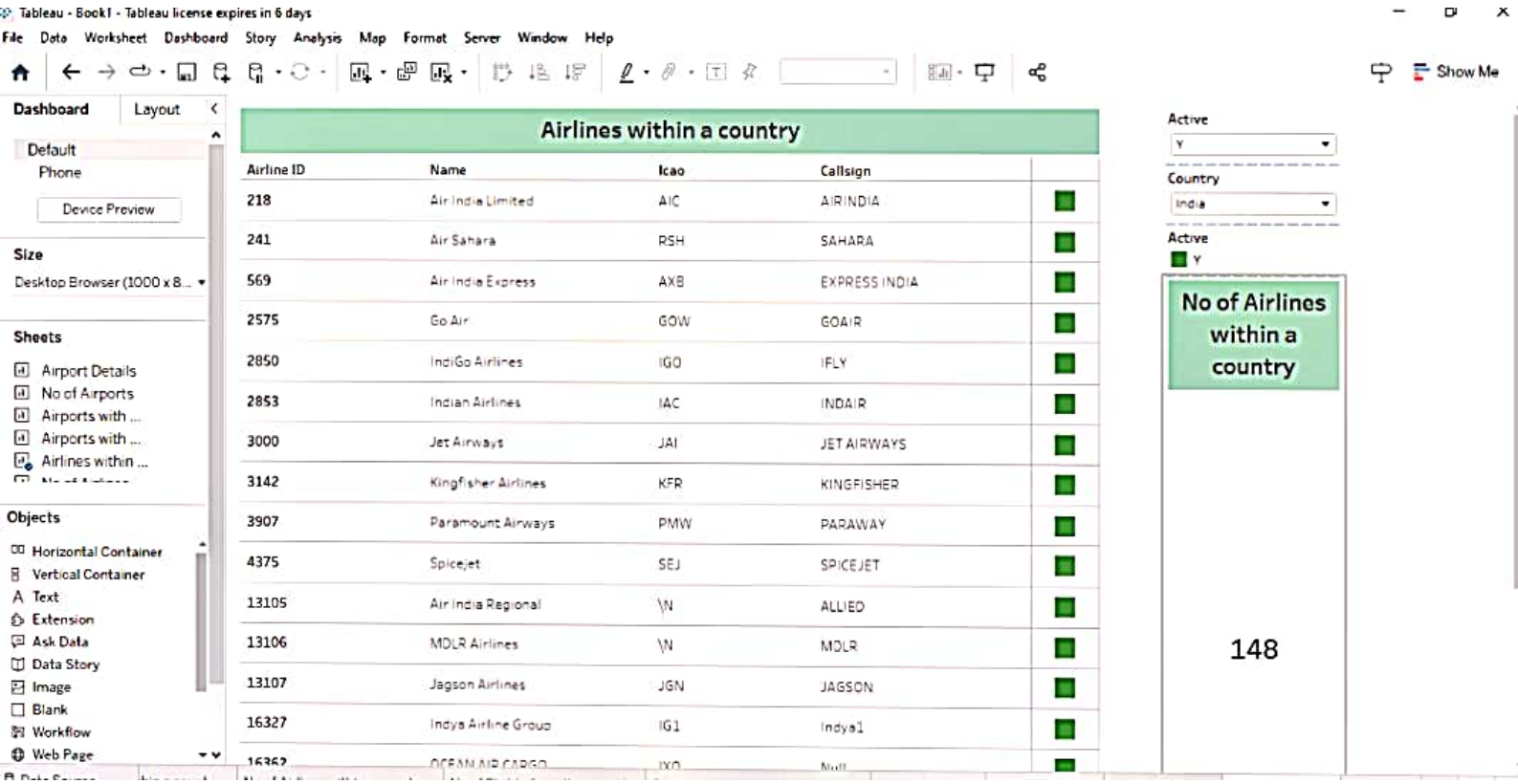


Tableau - Book1 - Tableau license expires in 6 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Dashboard
Layout
Default
Phone
Device Preview
Size
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Airport Details
No of Airports
Airports with ...
Airports with ...
Airlines within ...
Objects
Horizontal Container
Vertical Container
Text
Extension
Ask Data
Data Story
Image
Blank
Workflow
Web Page
Airlines within a country
Airline ID
Name
Icao
Callsign
218 Air India Limited AIC AIRINDIA
241 Air Sahara RSH SAHARA
569 Air India Express AXB EXPRESS INDIA
2575 Go Air GOW GOAIR
2850 IndiGo Airlines IGO IFLY
2853 Indian Airlines IAC INDAIR
3000 Jet Airways JAI JET AIRWAYS
3142 Kingfisher Airlines KFR KINGFISHER
3907 Paramount Airways PMW PARAWAY
4375 Spicejet SEJ SPICEJET
13105 Air India Regional \N ALLIED
13106 MDLR Airlines \N MDLR
13107 Jagson Airlines JGN JAGSON
16327 Indya Airline Group IG1 Indya1
Active
Y
Country
India
Active
Y
No of Airlines within a country
148

STORY

Story 1


No of Airports and its details
Airports with Higher Altitude within the country and in the
No of Flights from the airport and Country with Maximum no of
Airlines within a country and its details
Airlines within a country
Airline ID
Name
Icao
Callsign
218
Air India Limited
AIC
AIRINDIA
241
Air Sahara
RSH
SAHARA
569
Air India Express
AXB
EXPRESS INDIA
2575
Go Air
GOW
GOAIR
2850
IndiGo Airlines
IGO
IFLY
2853
Indian Airlines
IAC
INDAIR
3000
Jet Airways
JAI
JET AIRWAYS
3142
Kingfisher Airlines
KFR
KINGFISHER
3907
Paramount Airways
PMW
PARAWAY
4375
Spicejet
SEJ
SPICEJET
Active
Y
Country
India
Active
Y
No of Airlines within a country

4.ADVANTAGE AND DISADVANTAGE

ADVANTAGE

Real-time Analytics:

Tableau can be set up to provide real-time analytics, which is crucial in monitoring the dynamic air transportation network. This enables airlines, airports, and aviation authorities to make quick decisions based on the most recent data

Geospatial Analysis:

Tableau's mapping capabilities make it ideal for geospatial analysis of flight routes, airport locations, and regional traffic patterns. It can reveal insights into connectivity, congestion, and travel demand.

DISADVANTAGE

COST:

Tableau licenses can be expensive, which may pose a barrier to smaller organizations or individuals interested in using it for analysis

Learning Curve:

Tableau has a learning curve, especially for users new to data visualization and analysis tools. It may take time to become proficient in creating effective visualizations

5.APPLICATIONS

Flight Route Analysis:

Tableau can be used to visualize flight routes, their frequency, and passenger demand. This analysis can help airlines identify profitable routes and make informed decisions about route expansion or reduction

Airport Performance :

Analyze airport data, including passenger traffic, delays, and on-time performance. This can aid airport authorities in optimizing operations, improving passenger experience, and reducing congestion

6.CONCLUSION

In conclusion, Tableau empowers us to dive deep into the global air transportation network, revealing patterns, trends, and anomalies that might otherwise remain hidden. From optimizing flight routes to improving airport operations and enhancing passenger experiences, Tableau's capabilities are invaluable for stakeholders in the aviation industry. By harnessing the power of data and visualization, we can make informed decisions that not only benefit the industry but also contribute to a safer, more efficient, and environmentally sustainable global air transportation network

7.FUTTURE SCOPE

Predictive Analytics:

Use historical data to predict future trends, enabling airlilnes to plan better.

Environmental Impact Analysis:

Analyze emissions data to support sustainability efforts.

8.APPENDIX

A. Source Code

NM2023TMID33948