

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.

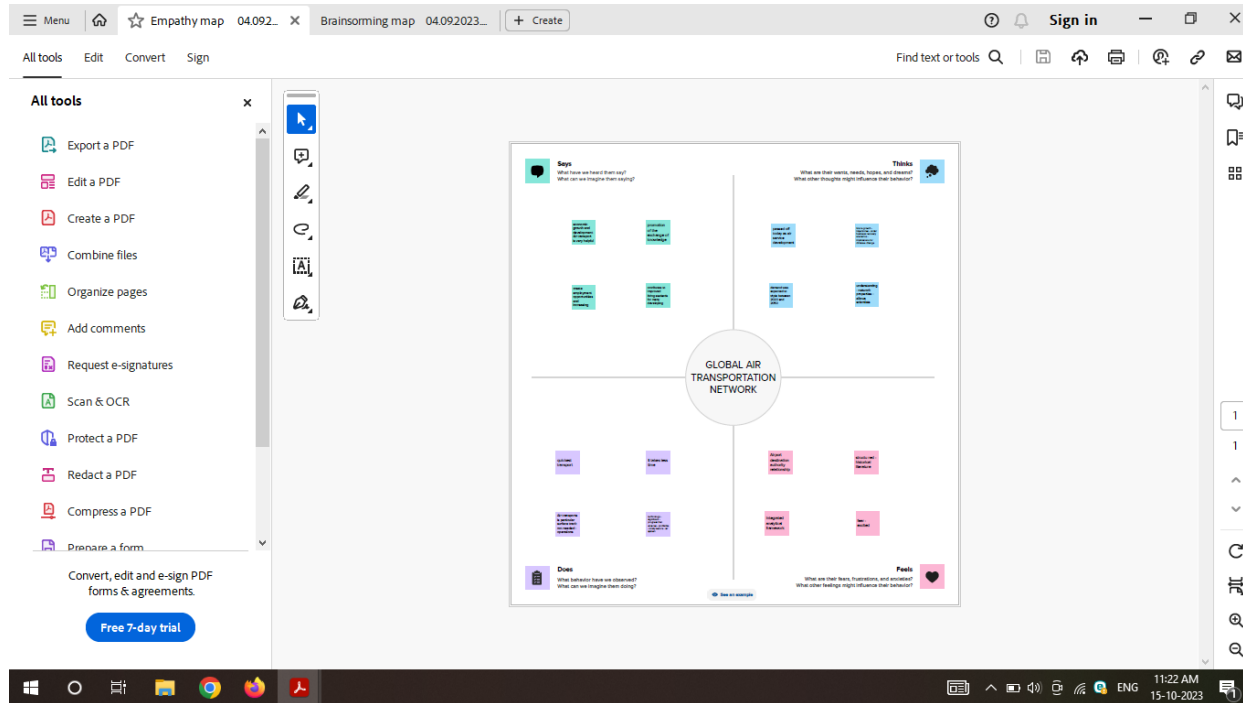
1.2 PURPOSE

Data Visualization:

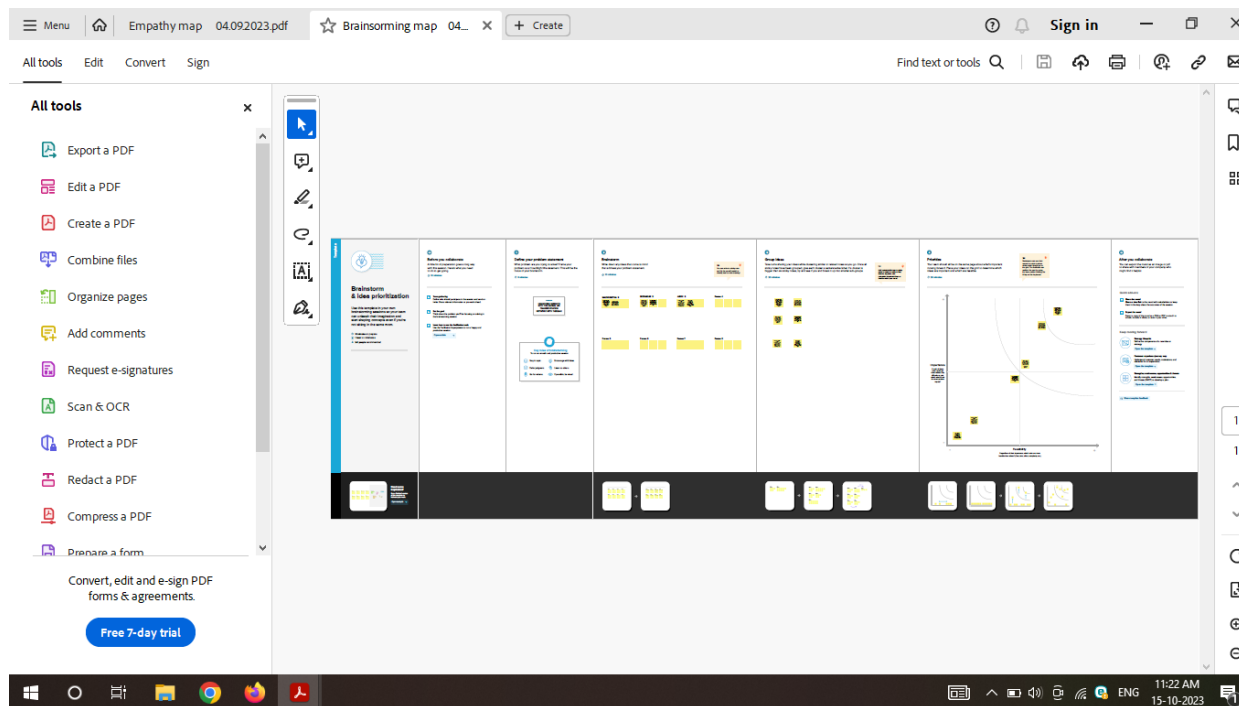
One of the primary purposes is to leverage Tableau's data visualization capabilities to represent the extensive data associated with the air transportation network in an understandable and insightful manner. By creating interactive and visually appealing dashboards, we can make complex information accessible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

2. PROBLEM DEFINITION & DESIGN THINKING

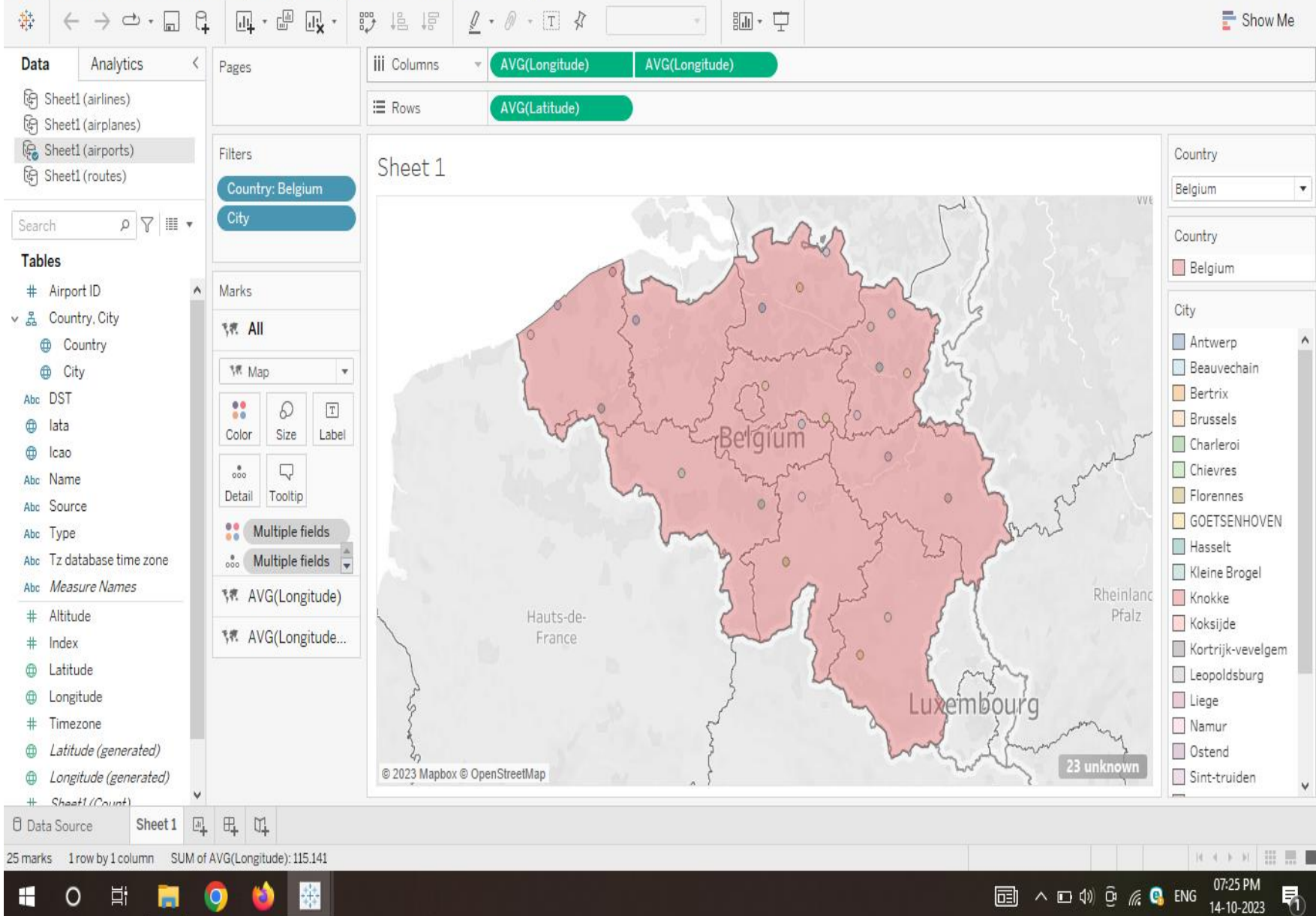
2.1 EMPATHY MAP



2.2 IDEATION & BRAINSTORM MAP



3. RESULT



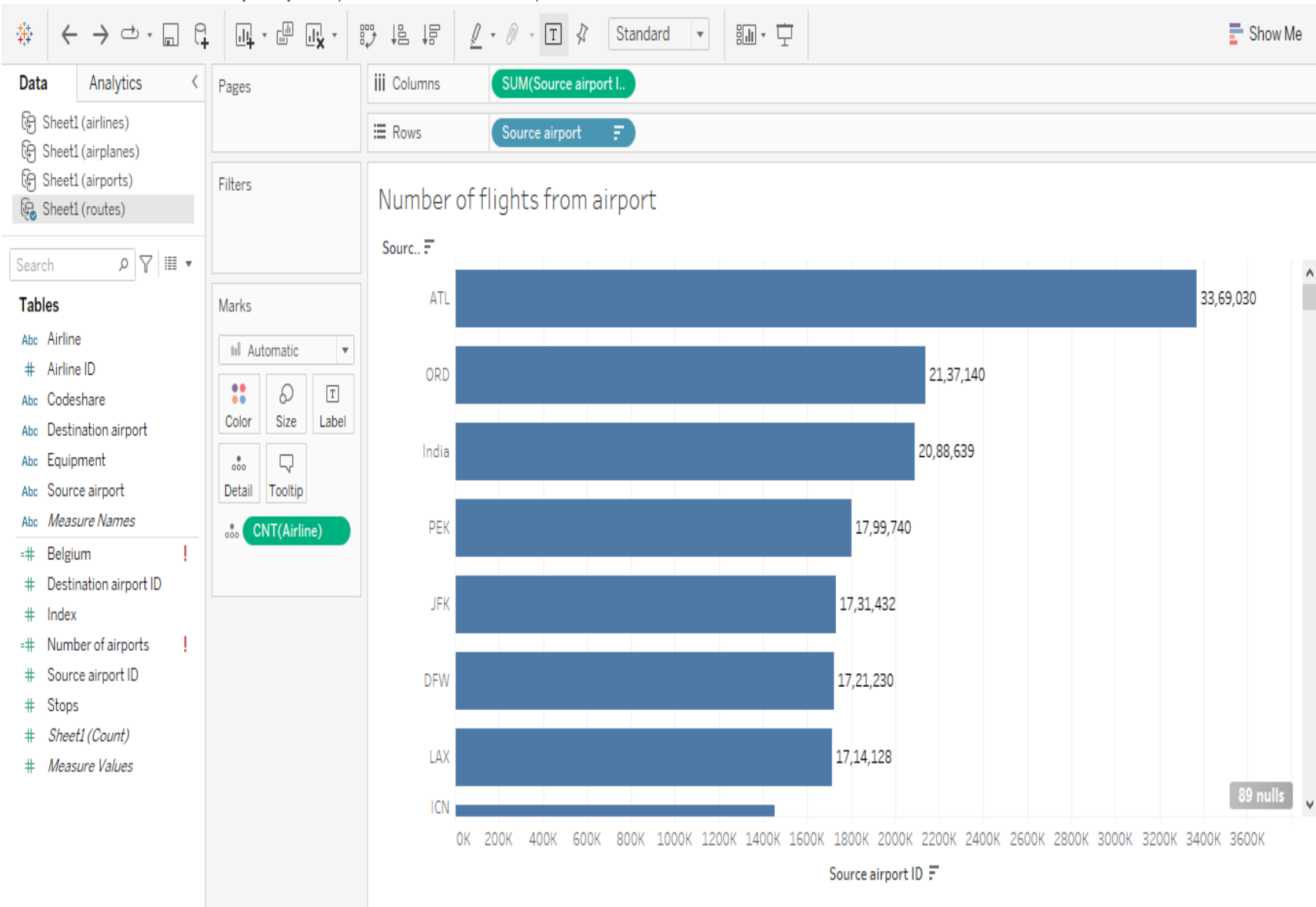


Tableau interface showing a story view titled "Airlines within a Country". The view displays a table of airlines with columns: AIRLINE ID, Name, Icao, and Callsign. The table is filtered by "Country: Colombia" and "Active: Y". The table shows 10 rows of data, including airlines like ACES Colombia, AeroRep, SATENA, TAMPA, EasyFly, CCML Airlines, Fly Colombia (Interliging Flights), VivaColombia, All Colombia, and All America CO. The table is displayed in a grid view with 10 marks and 10 rows by 1 column.

Left sidebar (Data pane):

- Sheet1 (airlines)
- Sheet1 (airplanes)
- Sheet1 (airports)
- Sheet1 (routes)

Search: [Search] [Filter] [List]

Folders:

- Active
- Airline ID
- Alias
- Callsign
- Country
- Iata
- Icao
- Name
- Measure Names
- Index
- index no.
- Latitude (generated)
- Longitude (generated)
- Sheet1 (Count)
- Measure Values

Filters:

- Country: Colombia
- Active: Y

Marks:

- Automatic
- Color
- Size
- Label
- Detail
- Tooltip
- Active

Right sidebar (Active):

- Active
- (All)
- N
- Y

Country:

- Colombia

Active:

- Y

Bottom status bar:

10 marks 10 rows by 1 column

Madhumitha R

07:39 PM 14-10-2023

Data

Analytics

- Sheet1 (airlines)
- Sheet1 (airplanes)
- Sheet1 (airports)
- Sheet1 (routes)

Search

Tables

- # Airport ID
- Country, City
 - Country
 - City
- DST
- Iata
- Icao
- Name
- Source
- Type
- Tz database time zone
- Measure Names
 - Altitude
 - Index
 - Latitude
 - Longitude
 - No of airports
 - Timezone
 - top n
 - top n1

Pages

Filters

Icao

Name

Marks

Automatic

Color

Size

Text

Detail

Tooltip

SUM(Altitude)

Columns

Rows

Name

City

Icao

Airports at Highest Altitude in World

Name	City	Icao	
Daocheng Yading Airport	Daocheng	ZUDC	14,472
Qamdo Bangda Airport	Bangda	ZUBD	14,219
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gunsa Airport	Shiquanhe	ZUAL	14,022
El Alto Intern ational Airpo rt	La Paz	SLLP	13,355
Capitan Nicolas Rojas Airport	Potosi	SLPO	12,913

Tableau interface showing a story titled "Airports at Higher altitude within a country". The view displays a table of airports in Malaysia, filtered by Country and City. The table columns are Index, Country, City, Icao, and Altitude (SUM(Altitude)).

Columns: SUM(Index), Country, City, Icao

Filters: Country: Malaysia, City

Marks: Automatic, Color, Size, Text, Detail, Tooltip, SUM(Altitude)

Index	Country	City	Icao	Altitude (SUM(Altitude))
4,848	Malaysia	Long Datih	WBGF	1,400
4,851	Malaysia	Bakalalan	WBGQ	2,900
4,853	Malaysia	Bario	WBGZ	3,350

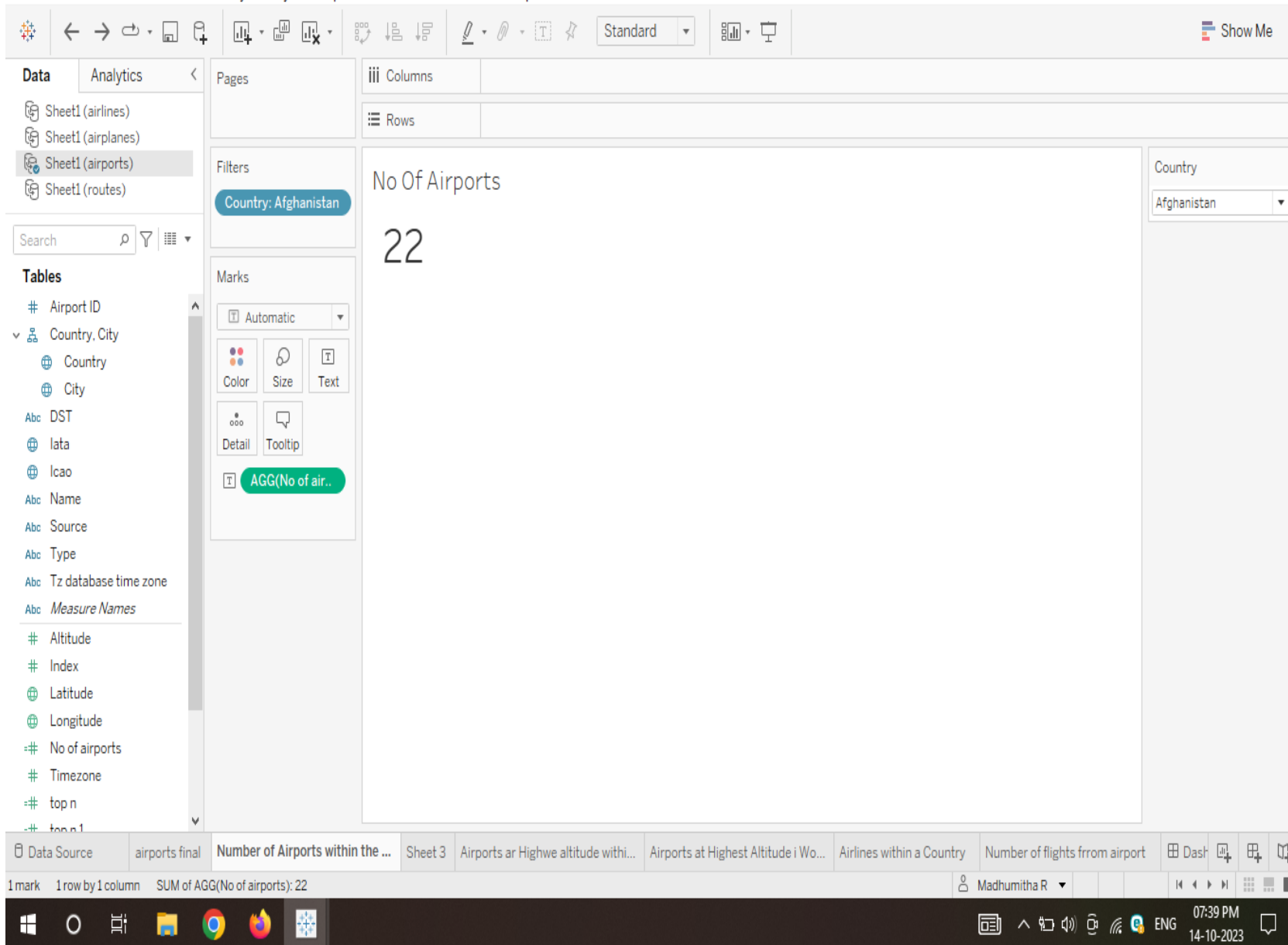
Country List (Right Panel):

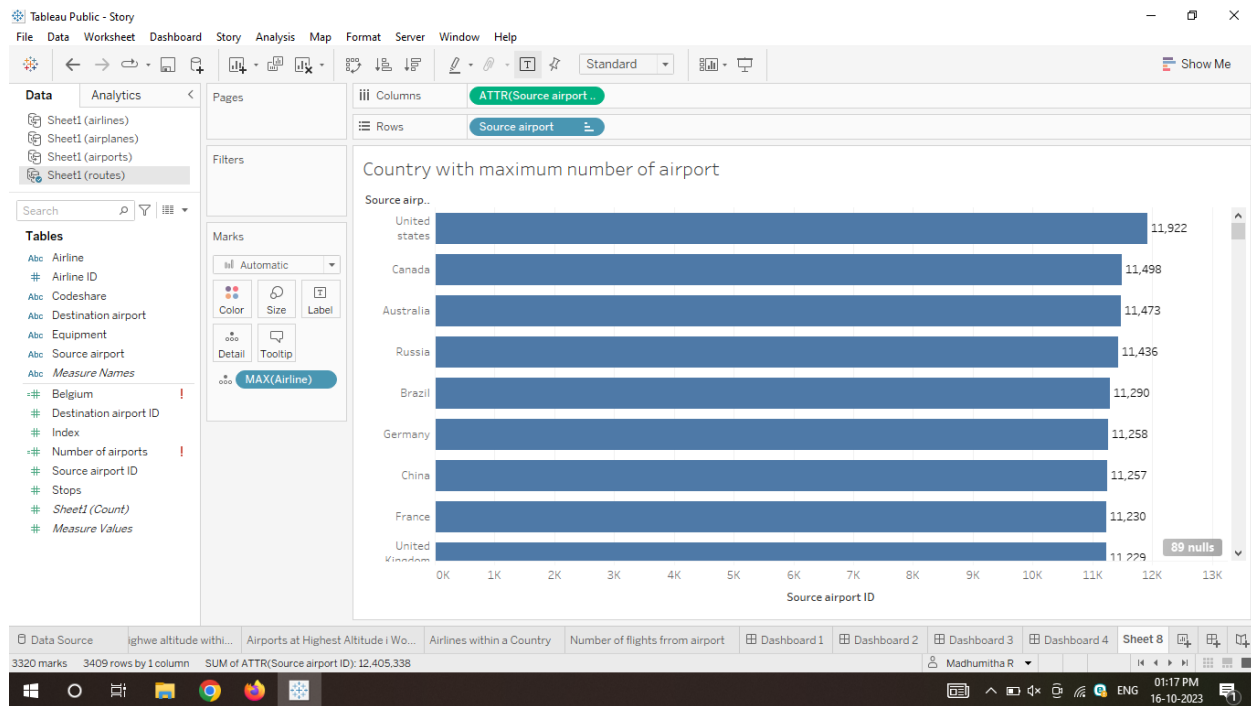
- ☐ (All)
- ☐ Afghanistan
- ☐ Albania
- ☐ Algeria
- ☐ American Samoa
- ☐ Angola
- ☐ Anguilla
- ☐ Antarctica
- ☐ Antigua and Bar...
- ☐ Argentina
- ☐ Armenia
- ☐ Aruba
- ☐ Australia
- ☐ Austria
- ☐ Azerbaijan
- ☐ Bahamas
- ☐ Bahrain
- ☐ Bangladesh
- ☐ Barbados
- ☐ Belarus
- ☐ Belgium
- ☐ Belize
- ☐ Benin
- ☐ Bermuda
- ☐ Bhutan
- ☐ Bolivia

Bottom Bar: 3 marks 3 rows by 1 column SUM(Altitude): 7,650

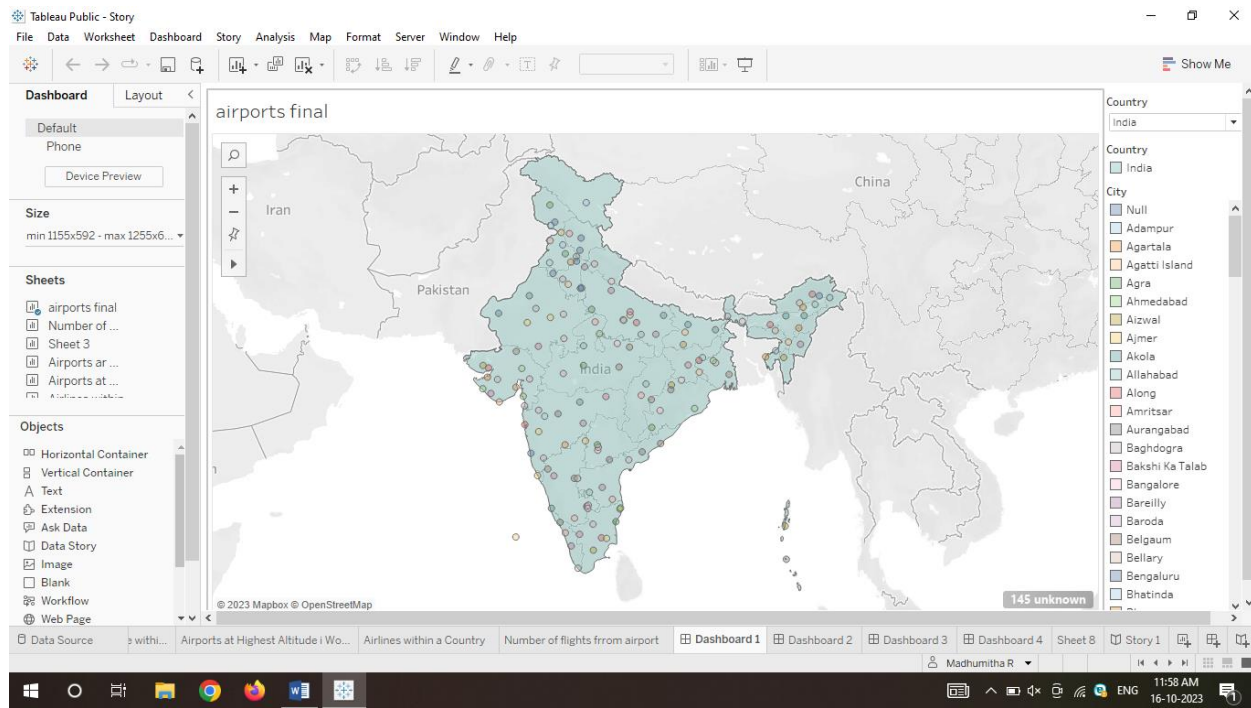
Taskbar: Windows, Chrome, Firefox, Edge, ENG 07:39 PM 14-10-2023

Tableau interface showing the 'No Of Airports' visualization. The left pane displays the 'Data' source (Sheet1 (airports)) and the 'Tables' list (Airport ID, Country, City, DST, Iata, Icao, Name, Source, Type, Tz database time zone, Measure Names, Altitude, Index, Latitude, Longitude, No of airports, Timezone, top n, top n1). The 'Columns' shelf is empty, and the 'Rows' shelf is empty. The 'Marks' shelf is set to 'Automatic'. The 'Filters' shelf is empty. The 'Marks' card shows 'Color', 'Size', 'Text', 'Detail', and 'Tooltip' options. The main view area displays the title 'No Of Airports' and a large empty box with the text 'Drop field here' and 'Drop field here 128'. The bottom status bar shows the current sheet is 'Sheet 3' and the data source is 'airports final'.





DASHBOARD:



Dashboard

Layout <

Default




Phone

Device Preview





Size

min 1155x592 - max 1255x6...

Sheets

 airports final Number of ... Sheet 3 Airports ar ... Airports at ... Airports at ...

Objects

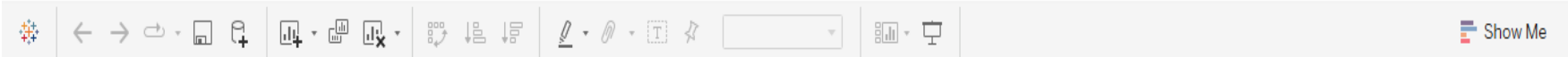
 Horizontal Container Vertical Container Text Extension Ask Data Data Story Image Blank Workflow Web Page

Airports at Higher altitude within a country

Index	Country	City	Icao	
4,848	Malaysia	Long Datih	WBGF	1,400
4,851	Malaysia	Bakalalan	WBGQ	2,900
4,853	Malaysia	Bario	WBGZ	3,350

Airports at Highest Altitude in World

Name	City	Icao	
Daocheng Yading Airport	Daocheng	ZUDC	14,472
Qamdo Bangda Airport	Bangda	ZUBD	14,219
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gunsa Airport	Shiquanhe	ZUAL	14,022
El Alto International Airport	La Paz	SLLP	13,355
Capitan Nicolas Rojas Airpo..	Potosi	SLPO	12,913



Dashboard

Layout <

Default

Phone

Device Preview

Size

Automatic

Sheets

- airports final
- Number of ...
- Sheet 3
- Airports ar ...
- Airports at ...
- Airlines within a Country

Objects

- Horizontal Container
- Vertical Container
- Text
- Extension
- Ask Data
- Data Story
- Image
- Blank
- Workflow
- Web Page

Airlines within a Country

Airline ID	Airline Name	ICAO	Call Sign	Active
110	ACES Colombia	AES	ACES	
1224	AeroRep	RPB	AEROREPUBLICA	
4691	SATENA	NSE	SATENA	
5020	TAMPA	TPA	TAMPA	
11765	EasyFly	EFY	EASYFLY	
16151	CCML Airlines	CCC	Null	
16262	Fly Colombia (Interliging Flights)	3FF	Null	
18946	VivaColombia	VVC	Null	
19813	All Colombia	7KK	Null	
20073	All America CO	7ZC	Null	

Active

- ☐ (All)
- ☐ N
- ☒ Y

Country

Colombia

Active

- Y



Dashboard

Layout

Default

Phone

Device Preview

Size

Automatic

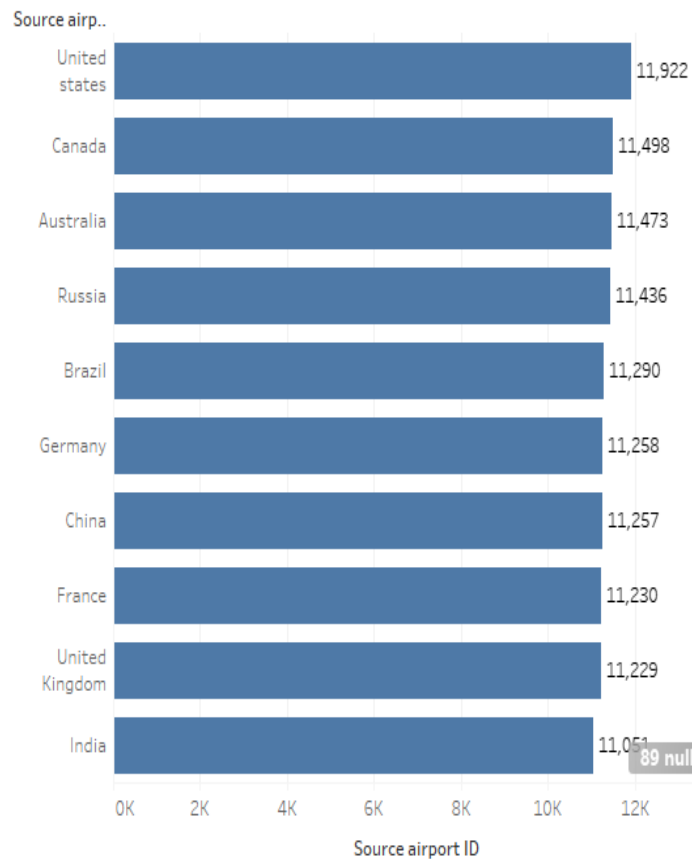
Sheets

- airports final
- Number of ...
- Sheet 3
- Airports ar ...
- Airports at ...
- Airports at ...

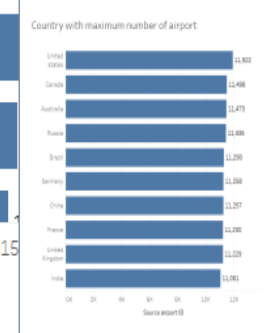
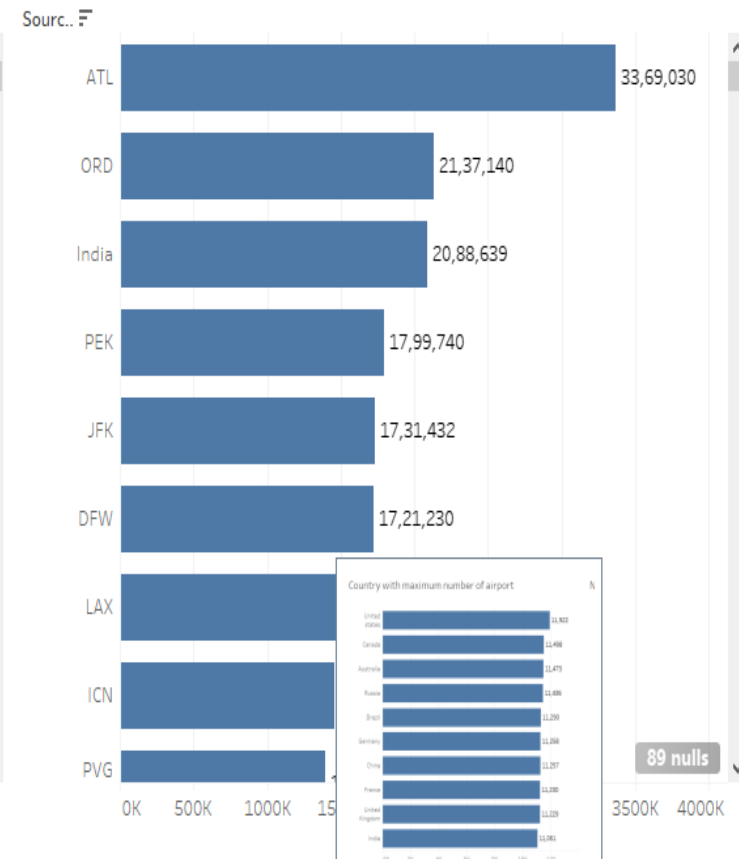
Objects

- Horizontal Container
- Vertical Container
- Text
- Extension
- Ask Data
- Data Story
- Image
- Blank
- Workflow
- Web Page

Country with maximum number of airport



Number of flights from airport



STORY:

Menu

Story 1.pdf

Create

Sign in

Find text or tools

All tools

Edit

Convert

Sign

World Map showing countries with details...

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n..

Active

☐ N
☒ Y

Country

Colombia

Active

☒ Y

AIRLINE ID	NAME	ICAO	Callsign	
110	ACES Colombia	AES	ACES	
1224	AeroRep	RPB	AEROREPUBLICA	
4691	SATENA	NSE	SATENA	
5020	TAMPA	TPA	TAMPA	
11765	EasyFly	EFY	EASYFLY	
16151	CCML Airlines	CCC	Null	
16262	Fly Colombia (Interliging Flights)	3FF	Null	
18946	VivaColombia	VVC	Null	

Convert, edit and e-sign PDF forms & agreements.

Free 7-day trial

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

31

32

33

34

35

36

37

38

39

40

41

42

43

44

45

46

47

48

49

50

51

52

53

54

55

56

57

58

59

60

61

62

63

64

65

66

67

68

69

70

71

72

73

74

75

76

77

78

79

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

Windows Taskbar

System Tray

All tools

- Export a PDF
- Edit a PDF
- Create a PDF
- Combine files
- Organize pages
- Add comments
- Request e-signatures
- Scan & OCR
- Protect a PDF
- Redact a PDF
- Compress a PDF
- Prepare a form

Convert, edit and e-sign PDF forms & agreements.

Free 7-day trial

Story 1

World Map showing countries with details...

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n...

Airports at Higher altitude within a country

Index	Country	City	Icao	
4,848	Malaysia	Long Datih	WBGF	1,400
4,851	Malaysia	Bakalalan	WBGQ	2,900
4,853	Malaysia	Bario	WBGZ	3,350

Airports at Highest Altitude in World

Name	City	Icao	
Daocheng Yading Airport	Daocheng	ZUDC	14,472
Qamdo Bangda Airport	Bangda	ZUBD	14,219
Kangding Airport	Kangding	ZUKD	14,042
Ngari Gonsa Airport	Shiquanhe	ZUAL	14,022
El Alto International Airport	La Paz	SLLP	13,355
Capitan Nicolas Rojas Airpo...	Potosi	SLPO	12,913

2

4

^

v

↺

1:1

+

+

All tools

- Export a PDF
- Edit a PDF
- Create a PDF
- Combine files
- Organize pages
- Add comments
- Request e-signatures
- Scan & OCR
- Protect a PDF
- Redact a PDF
- Compress a PDF
- Prepare a form

Convert, edit and e-sign PDF forms & agreements.

Free 7-day trial

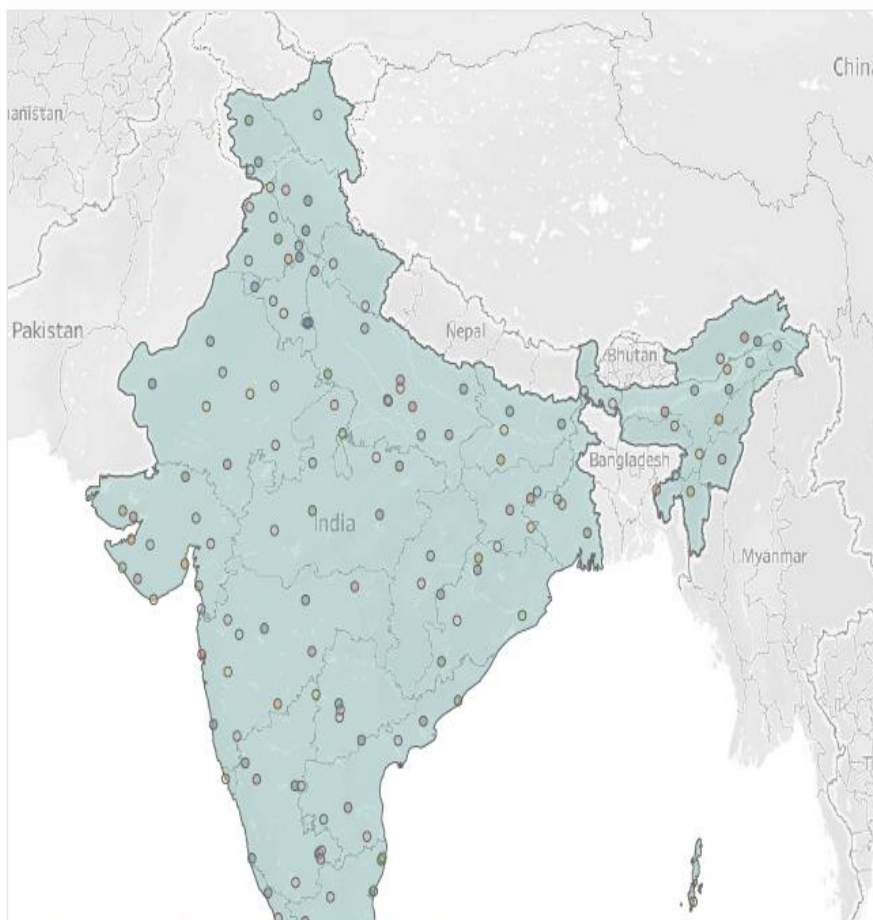
Story 1

World Map showing countries with details...

Table showing airports which are at highest ..

Table showing list of all airlines within the ..

Bar graphs showing countries with max n...



1

4

^

v

↺

↻

🔍

🔍

🔍

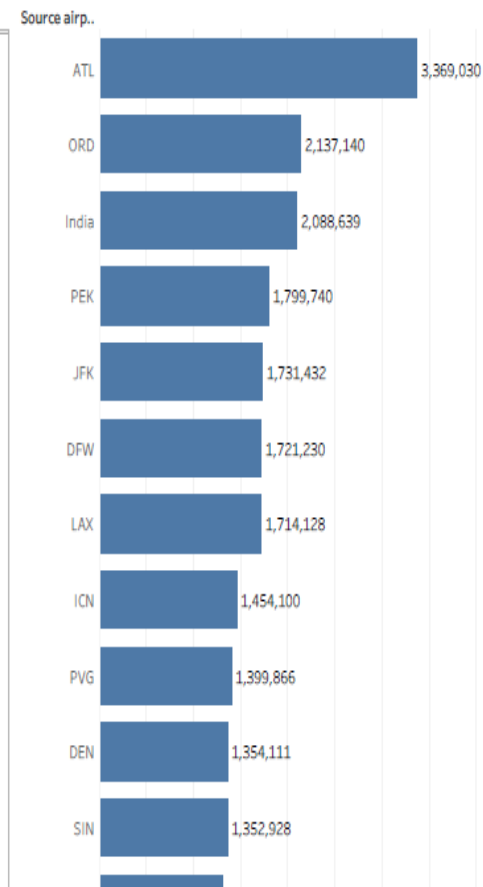
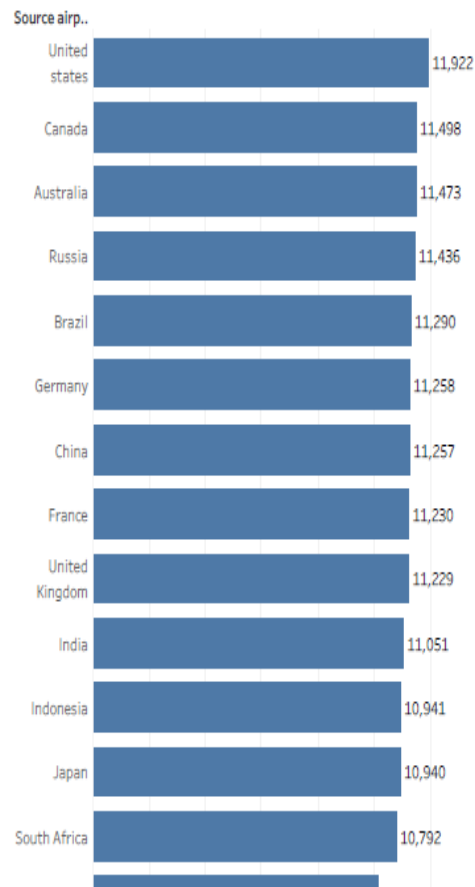
🔍

X

- 

Free 7-day trial

Bar graphs showing countries with max n..



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. FUTURE SCOPE:

Predictive Analytics:

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

Environmental Impact Analysis:

Analyze emissions data to support sustainability efforts.