

# ***Unlocking insights into the global air transportation network with tableau***

## ***Introduction:***

### ***1.1 purpose***

The air transport system generally includes airports, ATC (air traffic control) system, and airlines. The airports represent the ground part of the system's infrastructure handling the aircraft operated by different airlines transporting passengers and freight/cargo shipments.

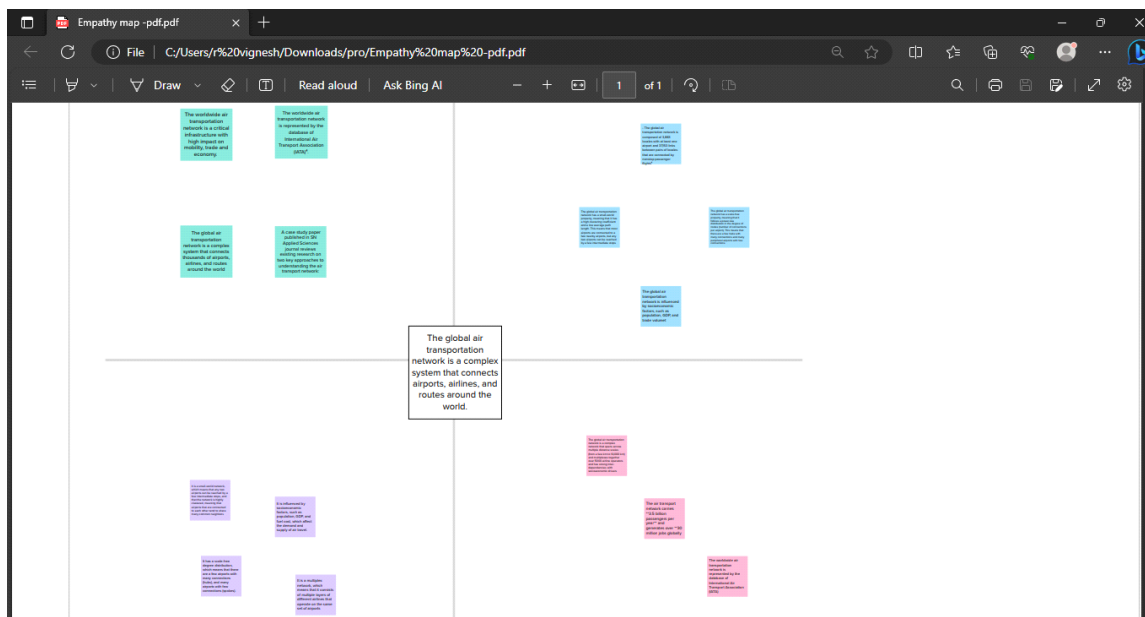
The movement of passengers and cargo by aircraft such as airplanes and helicopters.

### ***1.2 purpose:***

The importance of air transport lies in its ability as an economic engine to generate and support jobs, strengthen trade and connectivity between people and countries, promote tourism, and connect remote communities

## ***problem definition & design thinking:***

### ***2.1 Empathy map:***



## 2.2 Ideation & Brainstorming map:

Unlocking insights into the Global air transportation network with Tableau  
The global air transportation network is a complex system that connects airports, airlines, and routes around the world.

**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.

**Person 1**

- What are the main characteristics of the global air transportation network, such as its size, density, degree distribution, clustering coefficient, modularity, and centrality measures? How do these metrics vary across different regions, countries, and airlines
- How does the global air transportation network influence and interact with other complex systems, such as socioeconomic development, cultural diffusion, infectious disease spread, and environmental impact? How can the network be leveraged to achieve positive outcomes and mitigate negative ones

**Person 2**

- How does the global air transportation network evolve over time, such as its growth rate, structural changes, and community formation? What are the main drivers and challenges for its evolution

**Person 3**

- How can Tableau be used to visualize and analyze the global air transportation network data in an interactive and intuitive way? What are some of the best practices and tips for creating effective dashboards and stories with Tableau

**Person 4**

- What are the main challenges and opportunities for the global air transportation network in the future? How can we leverage technology and innovation to address these challenges and opportunities

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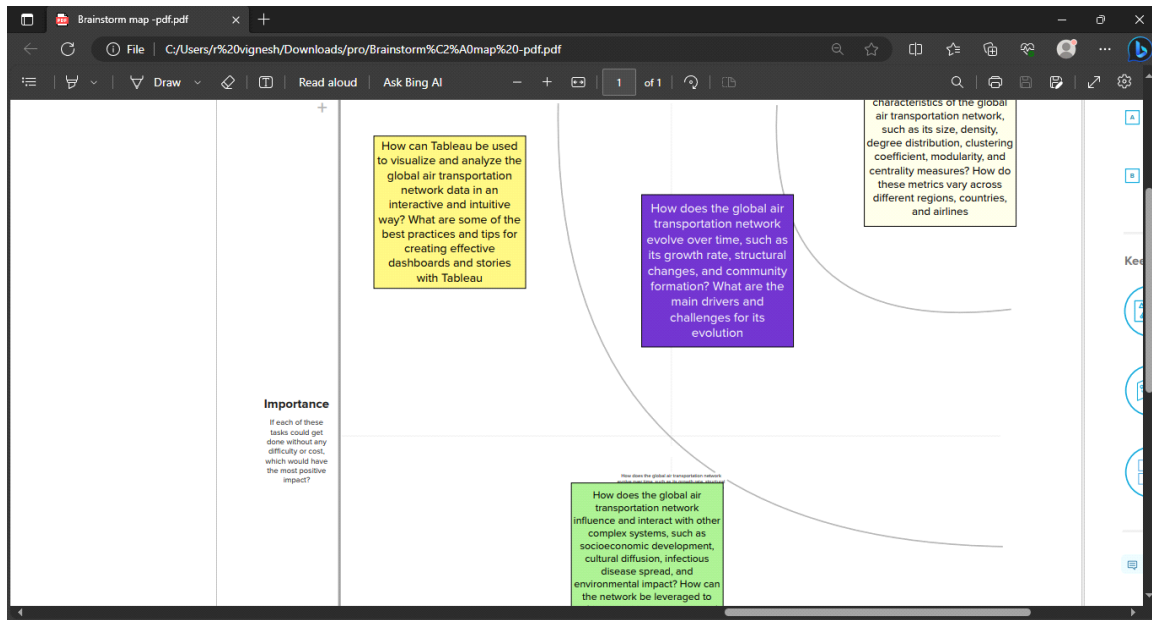
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### 3 Result:

File Data Server Window Help

airlines+

Connections [Add](#)

airlines  
Text file

Files [Add](#)

☐ Use Data Interpreter  
Data Interpreter might be able to clean your Text file workbook.

airlines.csv  
airplanes.csv  
airports.csv  
routes.csv

[New Union](#)  
[New Table Extension](#)

Connection  
☐ Live ☒ Extract [Edit](#) [Refresh](#)  
Extract contains subset of data: 10/15/2023 6:19:01 AM

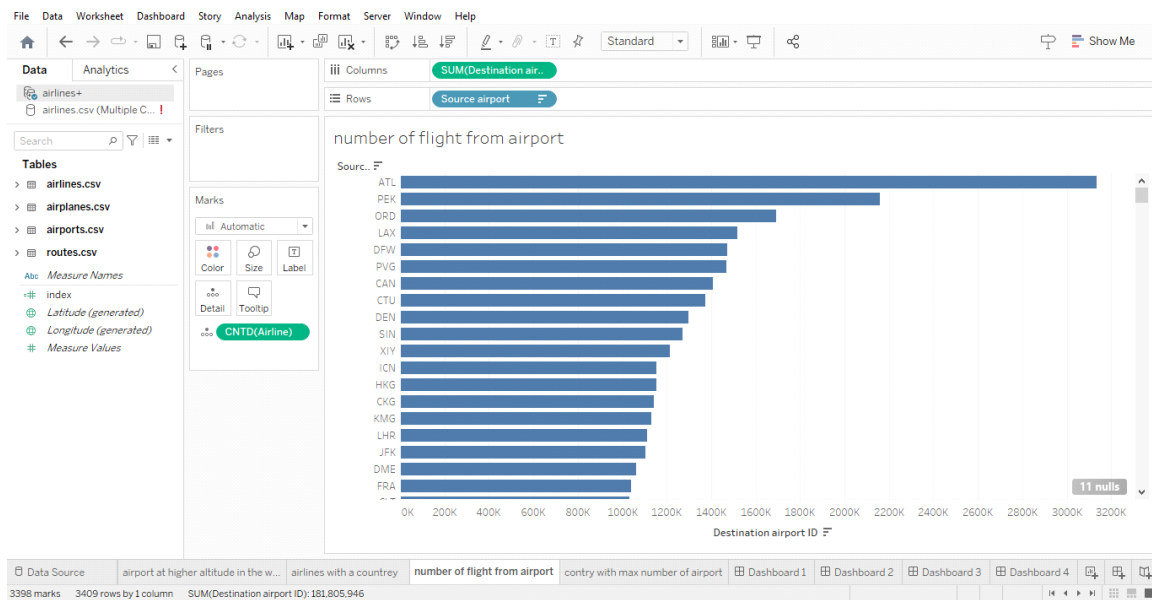
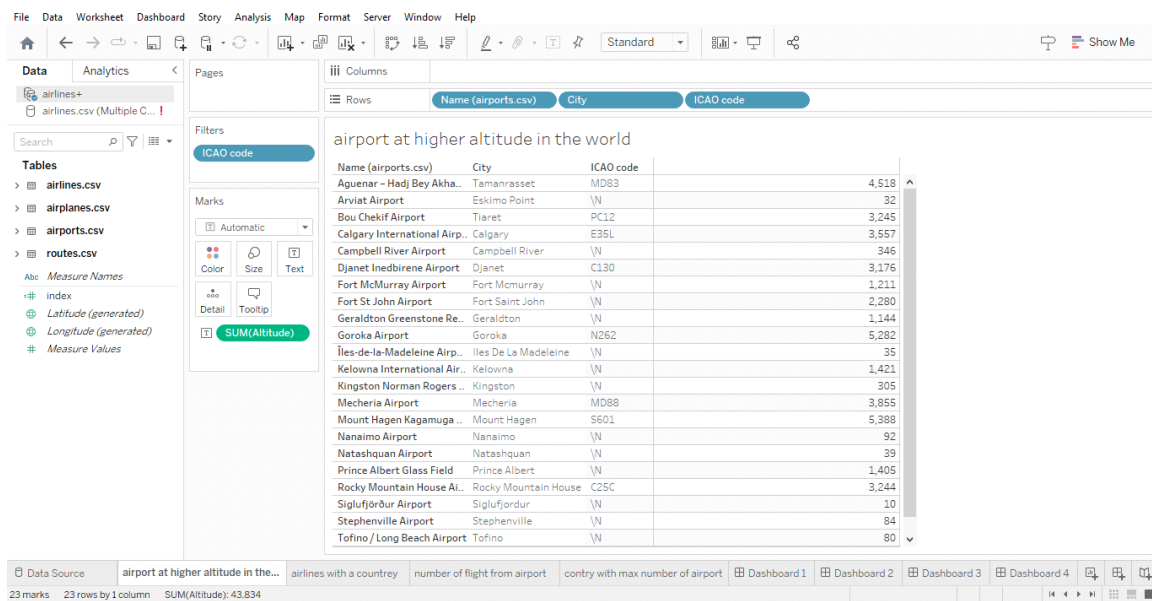
Filters  
0 [Add](#)

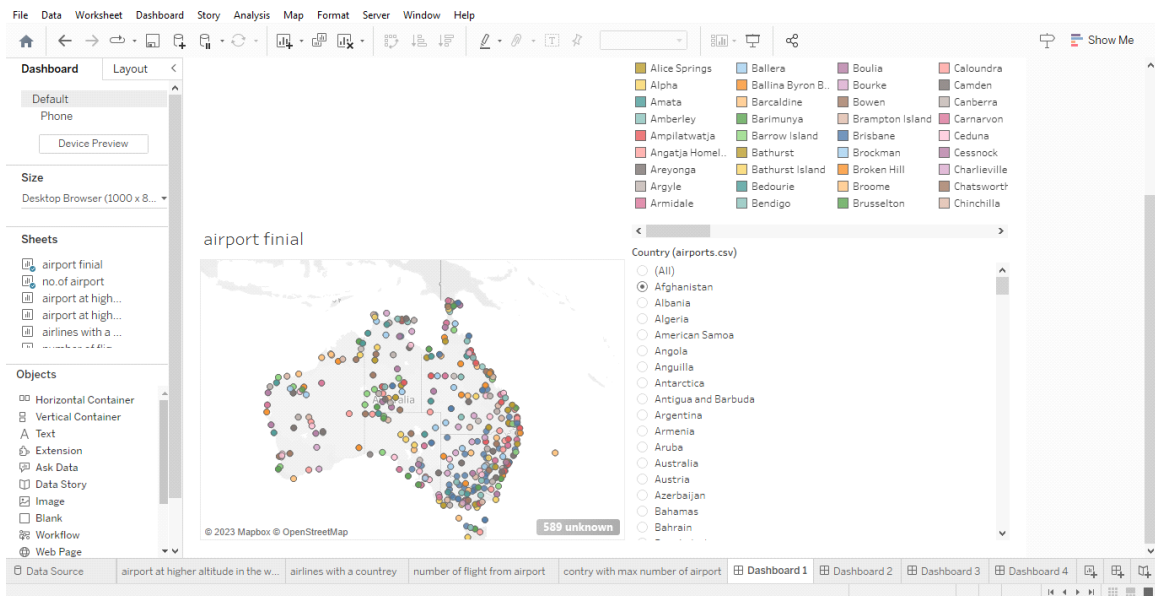
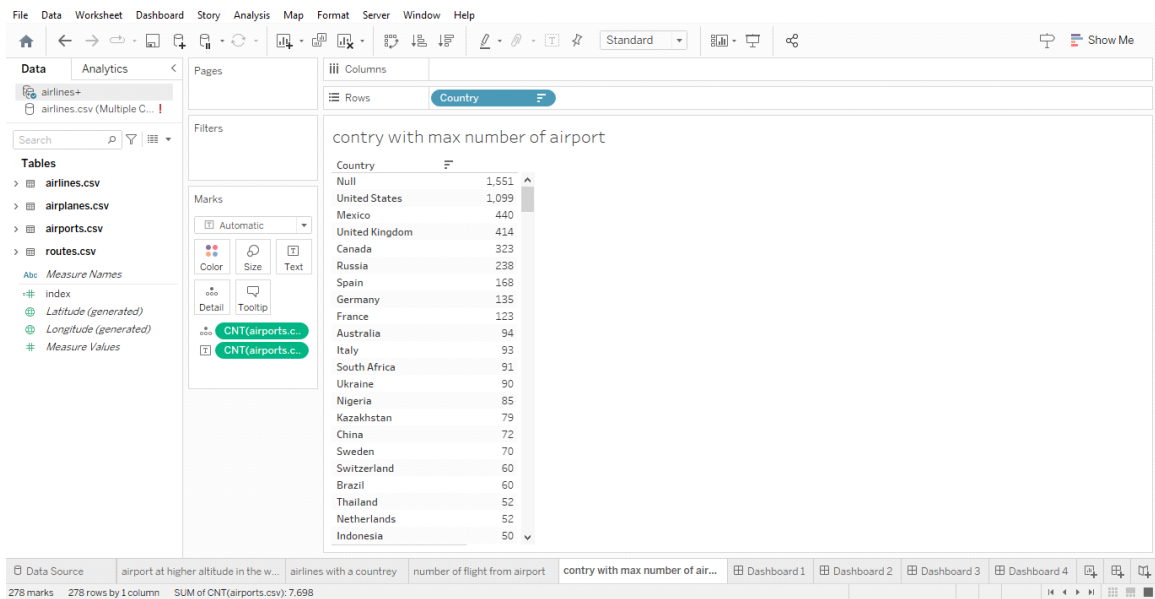
airlines.csv routes.csv airplanes.csv airports.csv

airlines.csv 9 fields 6162 rows 100 rows

#	Index	airlines.csv	airline ID	airlines.csv	airlines.csv	airlines.c...	airlines.csv	airlo
#	Index	airlines.csv	airline ID	airlines.csv	airlines.csv	airlines.c...	airlines.csv	airlo
0	-1	Unknown	\N	-	null	\N		
1	1	Private flight	\N	-	null			
2	2	135 Airways	\N	null	GNL	GE		
3	3	1Time Airline	\N	1T	RNX	NE		
4	4	2 Son No.1 Elementary Flying	\N	null	WYT			

Data Source airport at higher altitude in the w... airlines with a country number of flight from airport contry with max number of airport Dashboard 1 Dashboard 2 Dashboard 3 Dashboard 4





FileDataWorksheetDashboardStoryAnalysisMapFormatServerWindowHelp

DashboardLayout

Default

Phone

Device Preview

Size

Desktop Browser (1000 x 8...)

Sheets

airport final

no of airport

airport at high...

airport at high...

airlines with a ...

Objects

Horizontal Container

Vertical Container

Text

Extension

Ask Data

Data Story

Image

Blank

Workflow

Web Page

airlines with a country

Airline ID	Icao	Name	Callsign	
15	AAB	Abelag Aviation	ABG	
271	ALF	Allied Command Europe (...)	ACEFORCE	
538	XXX	ASL	Null	
634	RVE	Airventure	AIRVENTURE	
1346	BAF	Belgian Air Force	BELGIAN AIRFORCE	
1373	AYB	Belgian Army	BELGIAN ARMY	
1428	BLG	Belgevia	BELGAVIA	
1515	BXI	Brussels International Air...	XENIA	
1531	DAT	Brussels Airlines	BEE-LINE	
1551	NYB	Belgian Navy	BELGIAN NAVY	
2235	EUC	Eurocontrol	Null	
2252	BCS	European Air Transport	EUROTRANS	
2431	FYG	Flying Service	FLYING GROUP	
2528	GDB	Gendarmerie Belge	BELGIAN GENERMERIE	
2800	ITC	International Air Carrier A...	Null	
3032	JAF	Jetairfly	BEAUTY	
3821	OCO	Ostend Air College	AIR COLLEGE	
4445	SIT	SITA	Null	
4734	SKS	Sky Service	SKY SERVICE	
4873	TAY	TNT Airways	QUALITY	
4896	TCW	Thomas Cook Airlines	THOMAS COOK	
5169	Null	Thalys	Null	
5333	VEX	Virgin Express	VIRGIN EXPRESS	
5383	VLM	VLM Airlines	RUBENS	
6002	TUB	TUI Airlines Belgium	BEAUTY	
10224	\N	Zz	Null	

Active

☒ (All)

☒ N

☒ Y

Country

Belgium

Active

☒ N

☒ Y

27 marks27 rows by 1 column

airport at higher altitude in the w...airlines with a countrynumber of flight from airportcontry with max number of airportDashboard 1Dashboard 2Dashboard 3Dashboard 4

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Blank

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Web Page

airport at higher altitude with a contrey

Index	Name (airp...	City	ICAO (airpo...	
Null	Alpha Airpo...	Alpha	YAPH	1
	Amata Airp...	Amata	YAMT	
	Ampillatwat...	Ampillatwat...	YAMJ	
	Ararat Airp...	Null	YARA	1
	Areyonga A...	Areyonga	YARN	
	Atherton Ai...	Atherton	YATN	2
	Bairnsdale...	Bairnsdale	YBNS	
	Bairnald A...	Null	YBRN	
	Barimunya...	Barimunya	YBRY	2
	Benalla Air...	Null	YBLA	
	Beverley Ai...	Mine Site	YBEE	
	Boolgeeda...	Brockman	YBGD	1
	Borroloola...	Borroloola	YBRL	
	Bowen Airp...	Bowen	YBWN	
	Brampton I...	Brampton I...	YBPI	
	Brewarrina...	Null	YBRW	
	Bunbury Air...	Bunbury	YBUN	
	Busselton R...	Brusselton	YBLN	
	Caloundra A...	Caloundra	YCDR	
	Chinchilla A...	Chinchilla	YCCA	1
	Clermont Ai...	Clermont	YCMT	
	Cleve Airport	Null	YCEE	
	Coonabara...	Coonabara...	YCBB	2
	Coonawarr...	Coonawarra	YCNO	
	Coondewan...	Coondewan...	YCWA	2
	Cootamund...	Null	YCTM	1

Country (airports.csv)

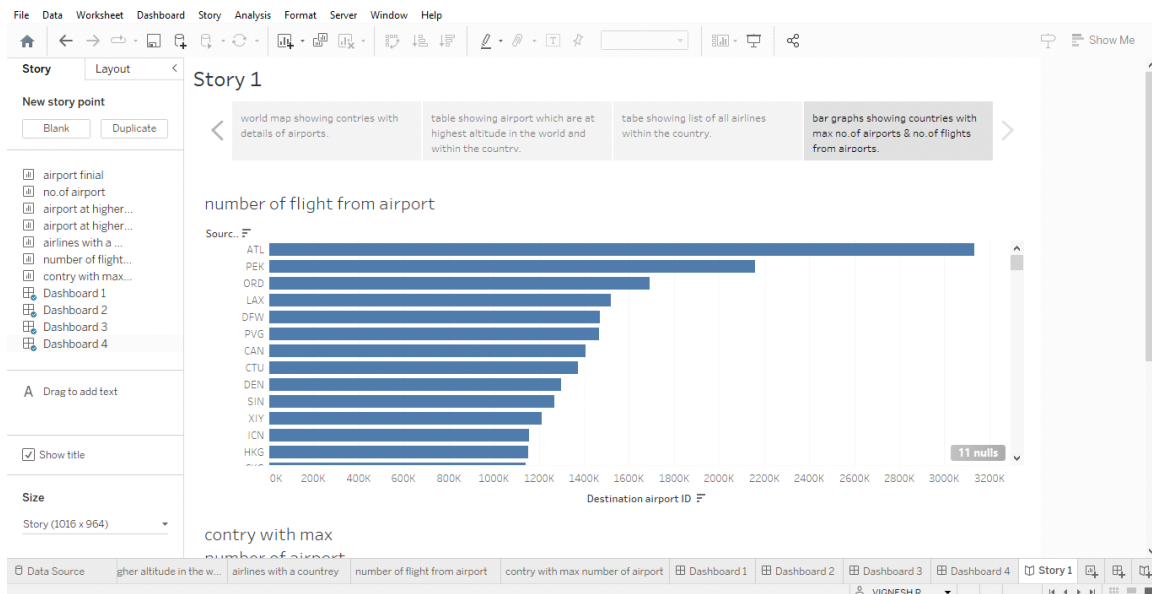
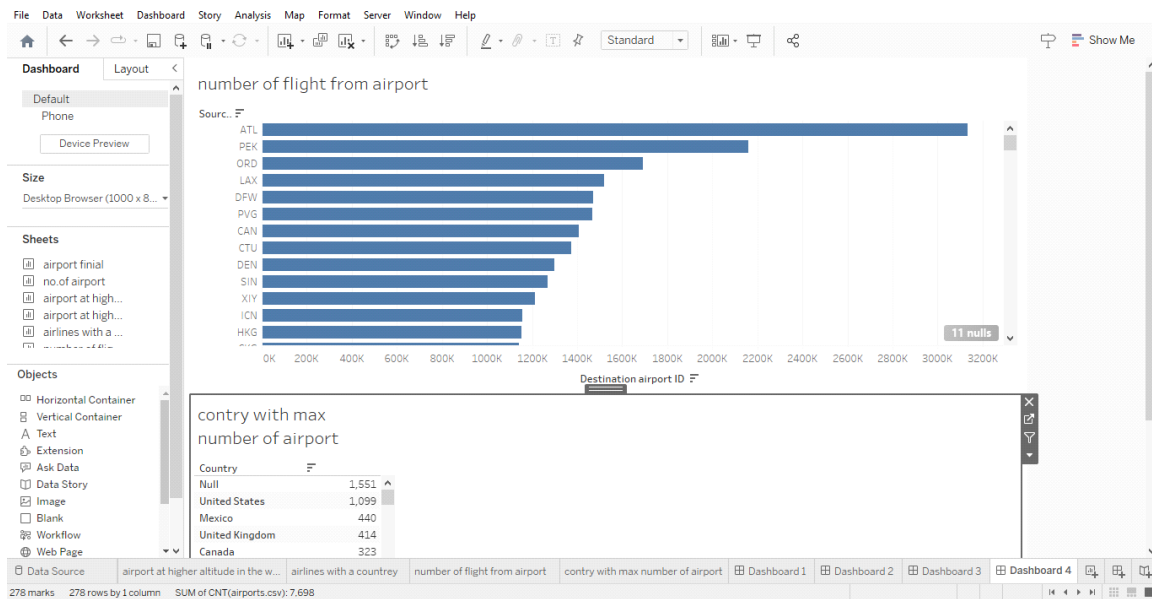
Australia

airport at higher altitude in the world

Name (airp...	City	ICAO code	
Aguenar - ...	Tamanrasset	MD83	4,518
Arviat Airp...	Eskimo Point	\N	32
Bou Chekif...	Tiaret	PC12	3,245
Calgary Int...	Calgary	E35L	3,557
Campbell Ri...	Campbell Ri...	\N	346
Djanet Ined...	Djanet	C130	3,176
Fort McMurr...	Fort McMurr...	\N	1,211
Fort St Joh...	Fort Saint J...	\N	2,280
Geraldton ...	Geraldton	\N	1,144
Goroka Airp...	Goroka	N262	5,282
Îles-de-la-M...	Îles De La M...	\N	35
Kelowna Int...	Kelowna	\N	1,421
Kingston N...	Kingston	\N	305
Mecheria Ai...	Mecheria	MD88	3,855
Mount Hag...	Mount Hag...	S601	5,388
Nanaimo Ai...	Nanaimo	\N	92
Natashqua...	Natashquan	\N	39
Prince Albe...	Prince Albert	\N	1,405
Rocky Mou...	Rocky Mou...	C25C	3,244
Siglufjörðu...	Siglufjörður	\N	10
Stephenvill...	Stephenville	\N	84
Tofino / Lon...	Tofino	\N	80
Williams La...	Williams La...	DC91	3,085

27 marks27 rows by 1 column

airport at higher altitude in the w...airlines with a countrynumber of flight from airportcontry with max number of airportDashboard 1Dashboard 2Dashboard 3Dashboard 4



## 4 Advantages & Disadvantage:

### Advantages of Air Transport

High Speed. Air is the type of freight capable of traveling long distances in short periods of time. ...

Fast Service. ...

Send almost everywhere your freight. ...

High Standard of Security. ...

Natural Route. ...

There is less need for heavy packaging. ...

Risky. ...

Cost.

disadvantages:

Airplanes have limited cargo space compared to ships or trains. This limited capacity can pose challenges for businesses dealing with bulky or oversized shipments. Air transport is best suited for high-value, time-sensitive goods that require swift delivery, rather than large-volume shipments.

## ***5 Application:***

The air transportation network is a complex network which has the properties of small-world networks and scale-free networks. The degree distribution of the nodes displays a heavy-tailed distribution. The hubs of the network have large connectivities and long-distance connectivities at the same time.

## ***6 Conclusion:***

Data visualisation is the process of representing data graphically. A data set represented visually speaks more than just numbers. The human brain is wired to identify itself with visuals rather than numbers. Thus, a pic of a pile of mangoes tempts us more than the raw data point of “there are 100 mangoes in the basket”.

Visualisations include charts, graphs, tables, maps and many more. These elements together in an organised way help users to identify patterns and hidden relationships. The objective is to create a narrative story that benefits the decision-makers

Personally, I have seen that clients are not as much moved by charts and graphs as they are moved by insights. Typically, when we show them the data, the response is lukewarm. But if we show them insights, they give us business.

## ***7 Future scope:***

IATA is the trade association for the world's airlines. It supports many areas of aviation activity and helps formulate industry policy on critical aviation issues.



