UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABLEAU

1. INTRODUCTION

1.1 Overview

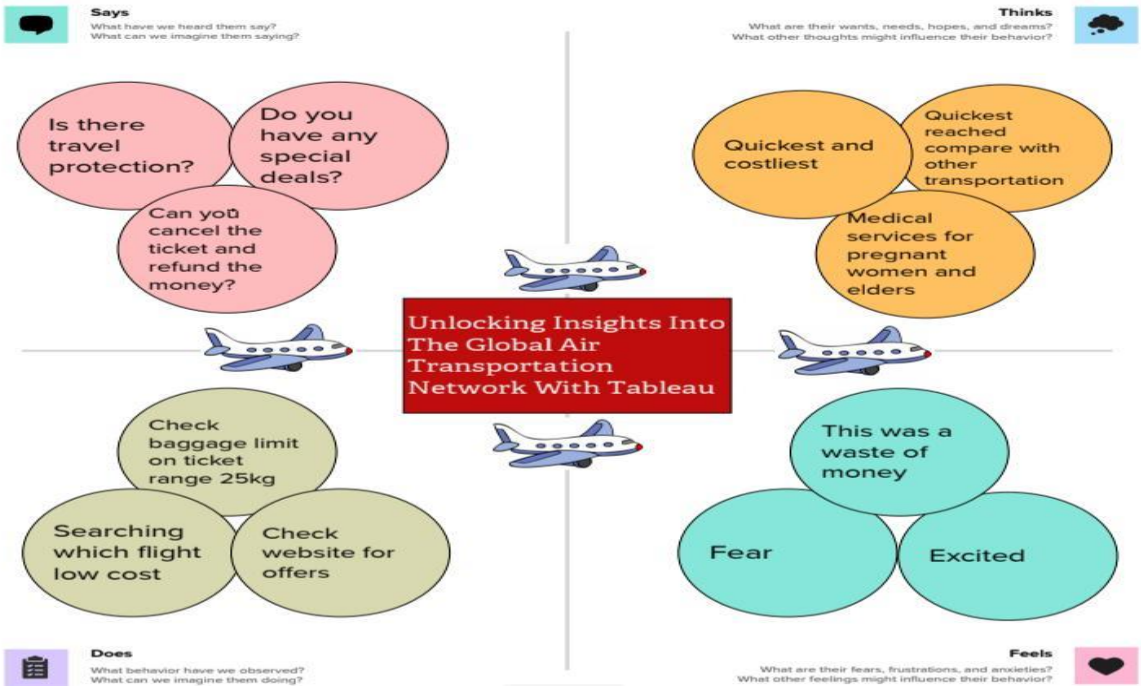
This Global Air Transportation Network dataset is a comprehensive collection of information on airports, airlines and their routes. It contains information such as names, cities, countries, codes (IATA and ICAO) longitudes, latitudes and altitudes of airports across the world with detailed time zone 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. Similarly, it also covers route details such as airline sources to destination airports along with essential details like codeshare 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. It requires your generous donations in order for them to keep updating this data source so please do donate if possible.

1.2 Purpose

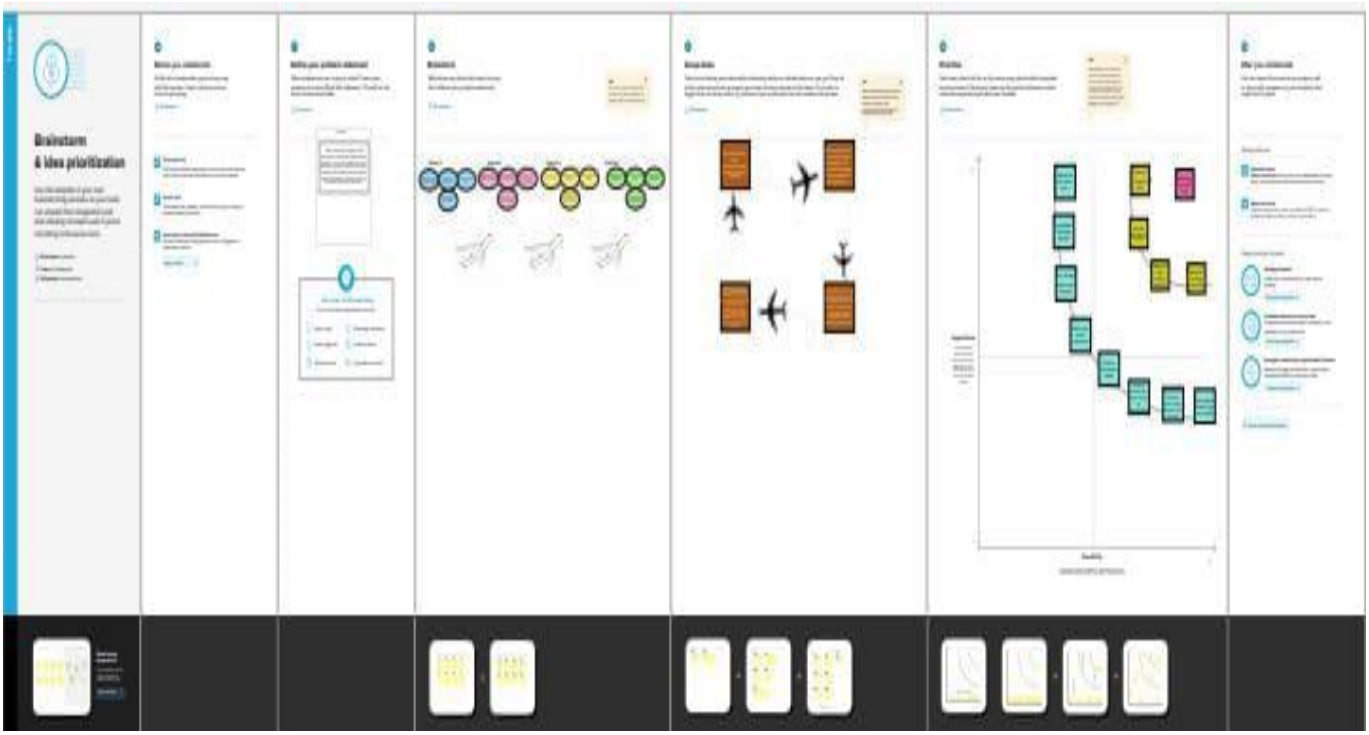
Air transport allows people from different countries to cross international boundaries and travel other countries for personal, business, medical and tourism purposes.

2. Problem Definition & Design Thinking

Empathy Map



2.2 Ideation & Brainstorming Map



3. RESULT

DASHBOARD 1

This visualization explains about the number of airports, world map showing details of all airports within a country, airports at higher altitude in the world and higher in the country.

DASHBOARD 2

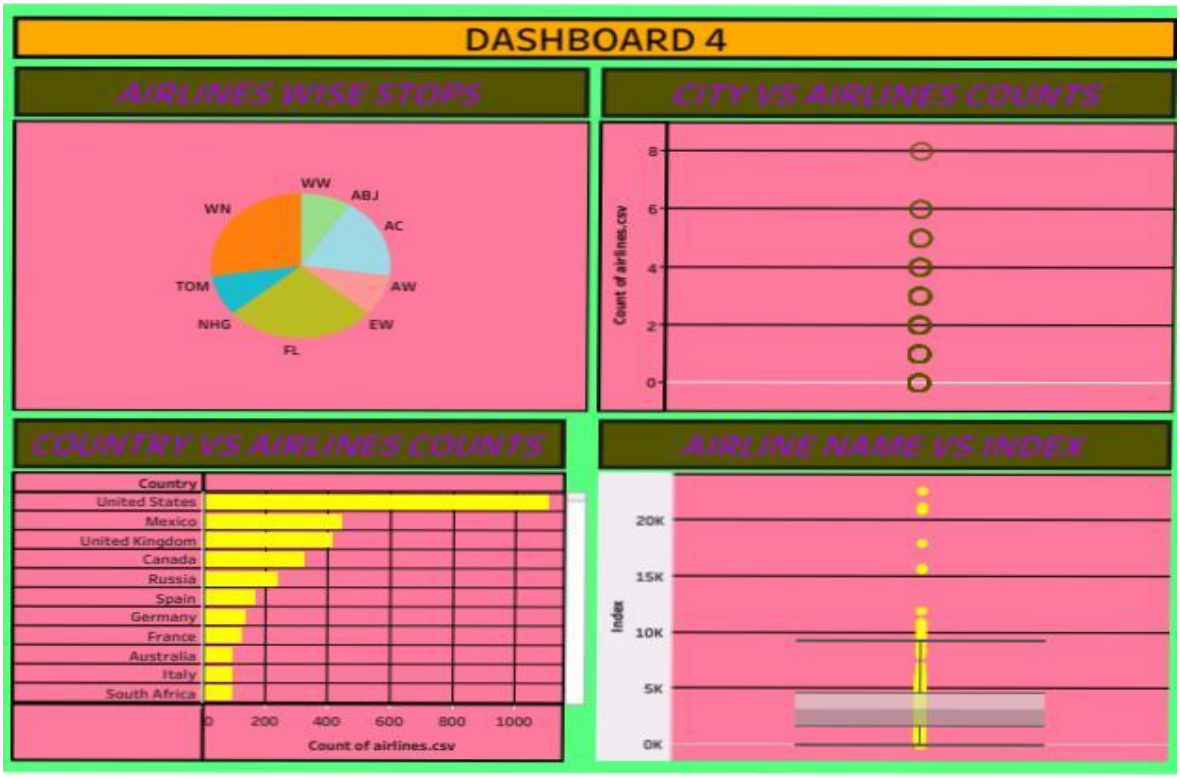
This visualization explains about the airline within a country, number of flight from airport.

DASHBOARD 3

This visualization explains about the airport name wise time zone and altitude of the airport.

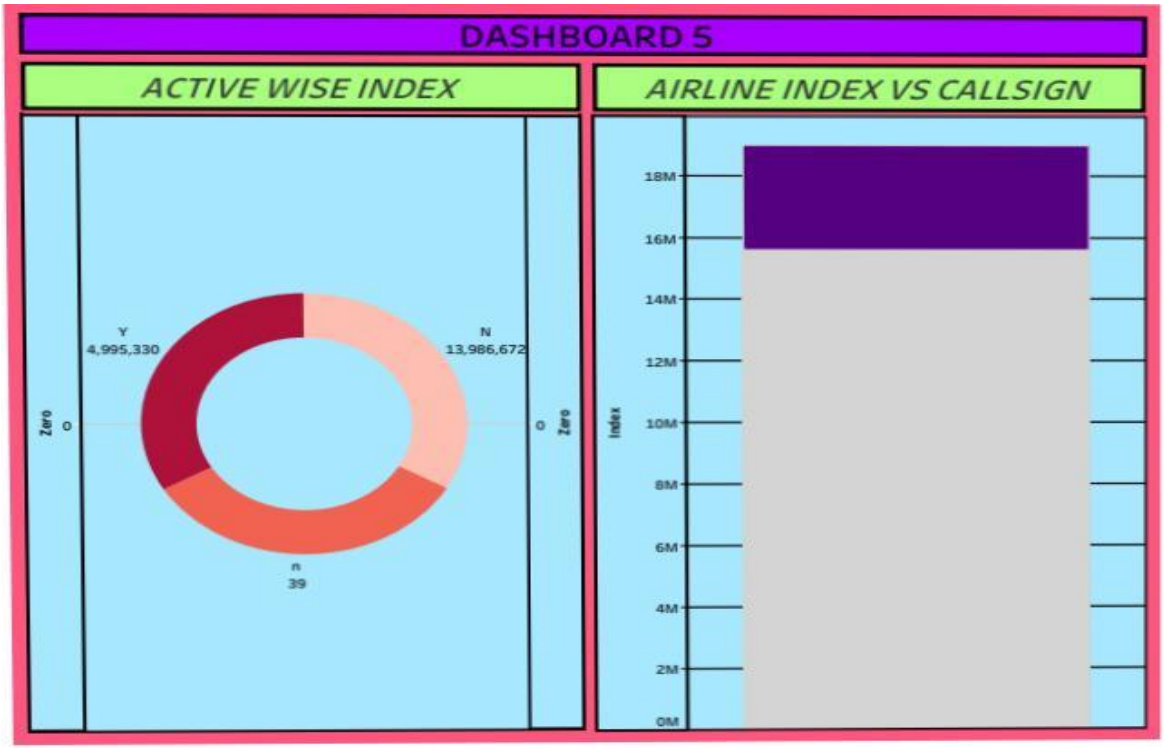
DASHBOARD 4

This visualization explains about the airline wise stops, city wise airline counts, country wise airline counts, airline name with index.



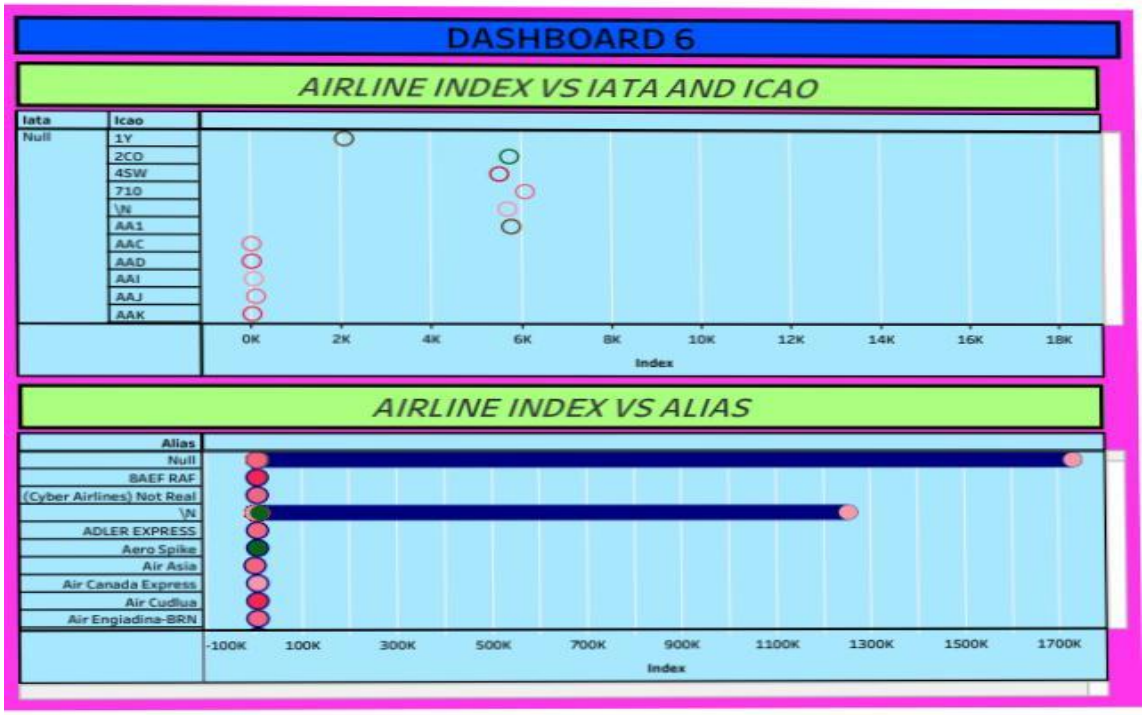
DASHBOARD 5

This visualization explains about the active wise index, airline index with call sign.



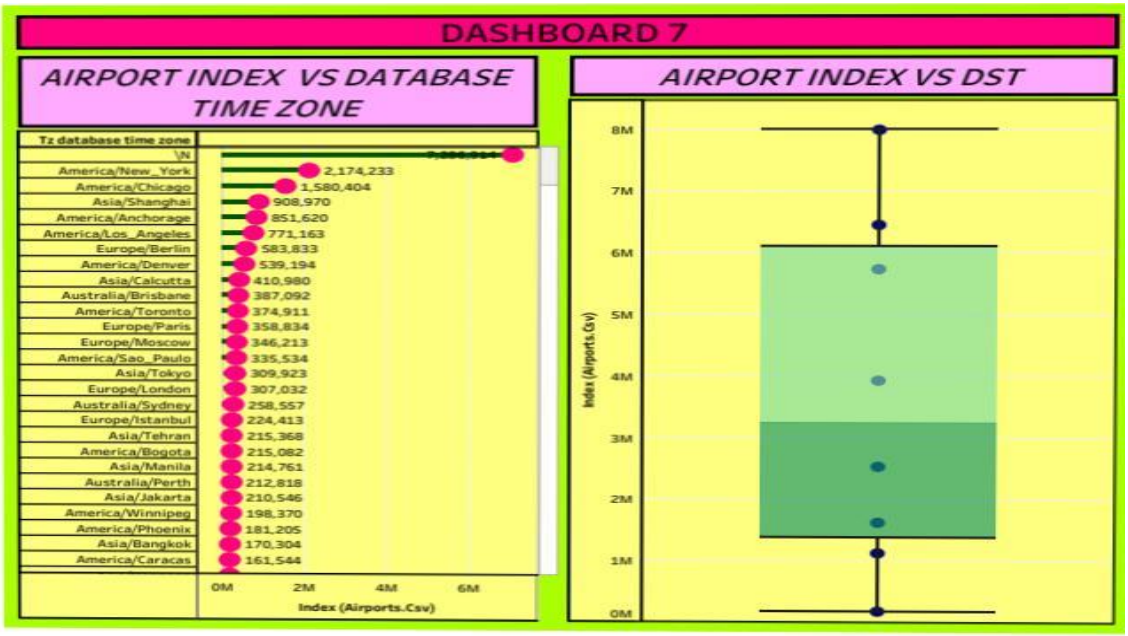
DASHBOARD 6

This visualization explains about the airline based on IATA, Icon and alias.



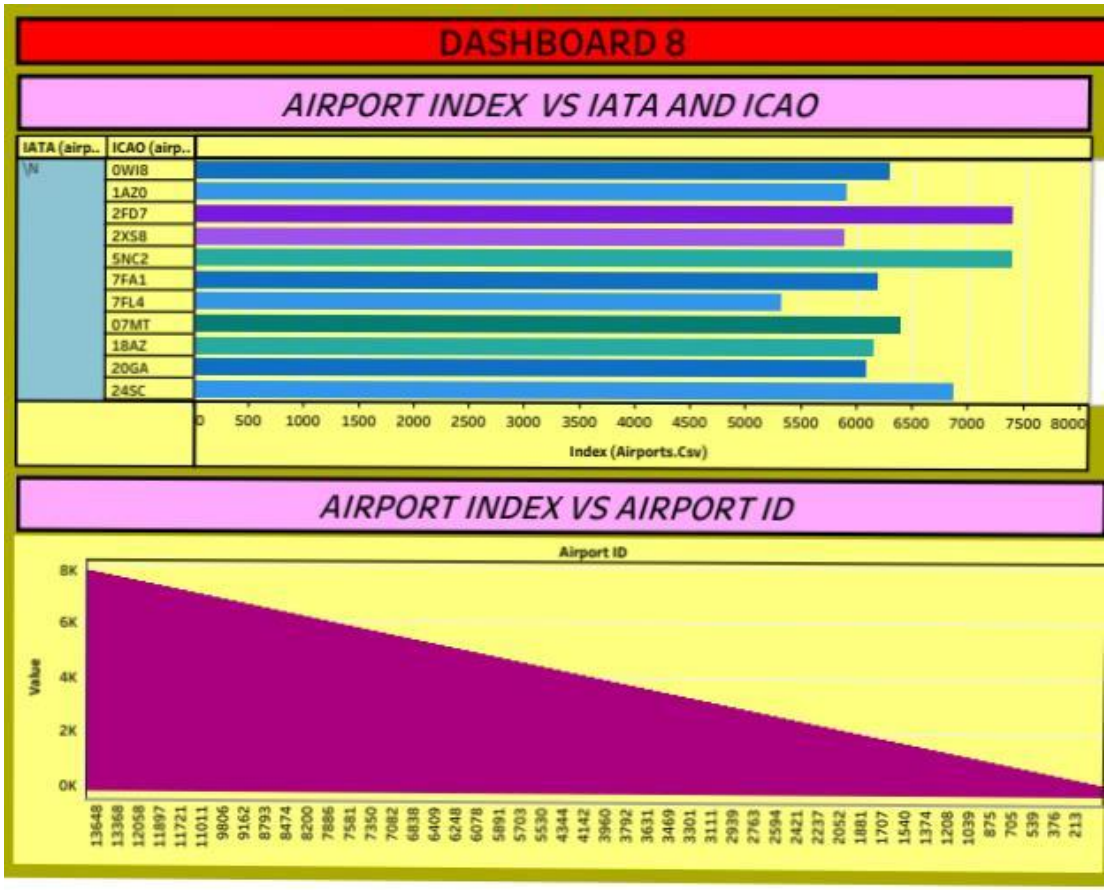
DASHBOARD 7

This visualization explains about the airport index based on database time zone and DST.



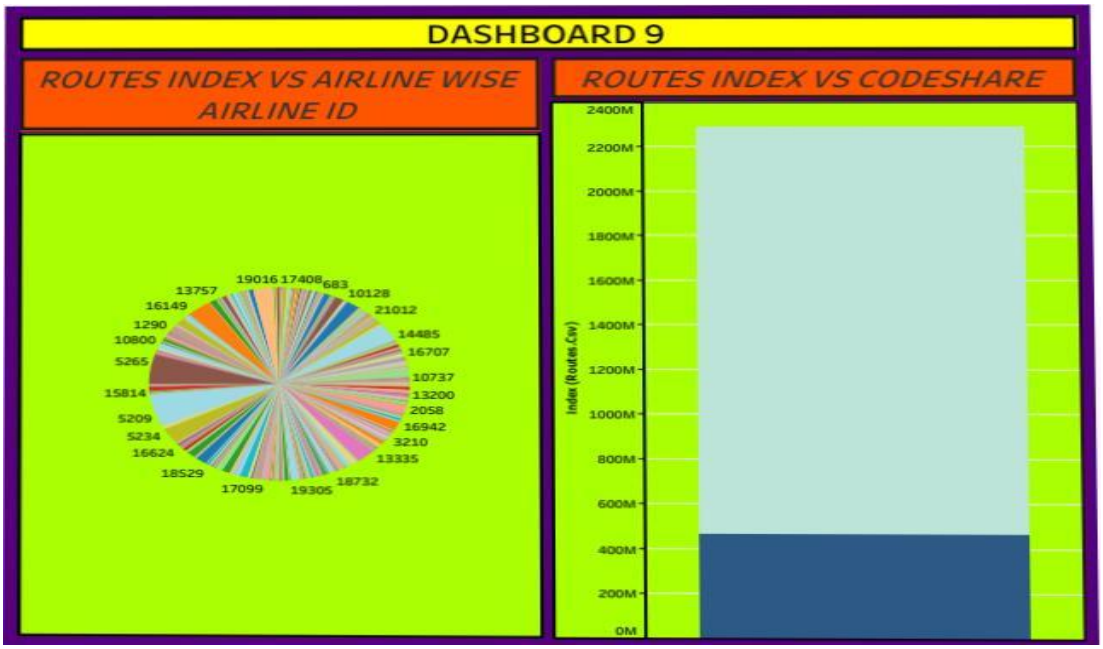
DASHBOARD 8

This visualization explains about the airport index based on IATA, ICAO and airport ID.



DASHBOARD 9

This visualization explains about the index of route based on equipment and source airport,destinatin airport. .



DASHBOARD 10

This visualization explains about the index of route based on equipment and source airport, destination airport.

4. ADVANTAGE

- Fast speed of transport.
- Rapid service facility.
- Low infrastructure required to establish this service.
- No physical barries can affect its speed.

DISADVANTAGE

- Costlier than other modes.
- Limited capacity of people or goods can move.
- Undependable and risky since it depends on weather conditions.
- Requires skill to fly or operate any aircraft.

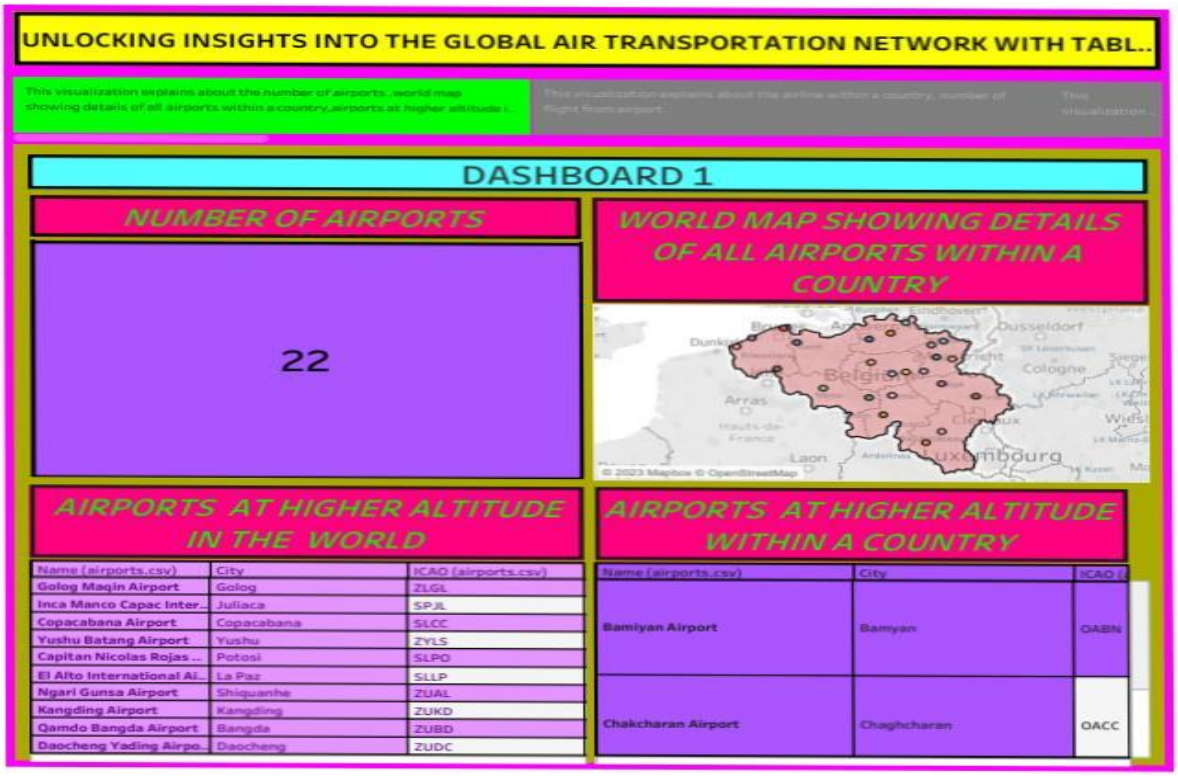
5. APPLICATIONS

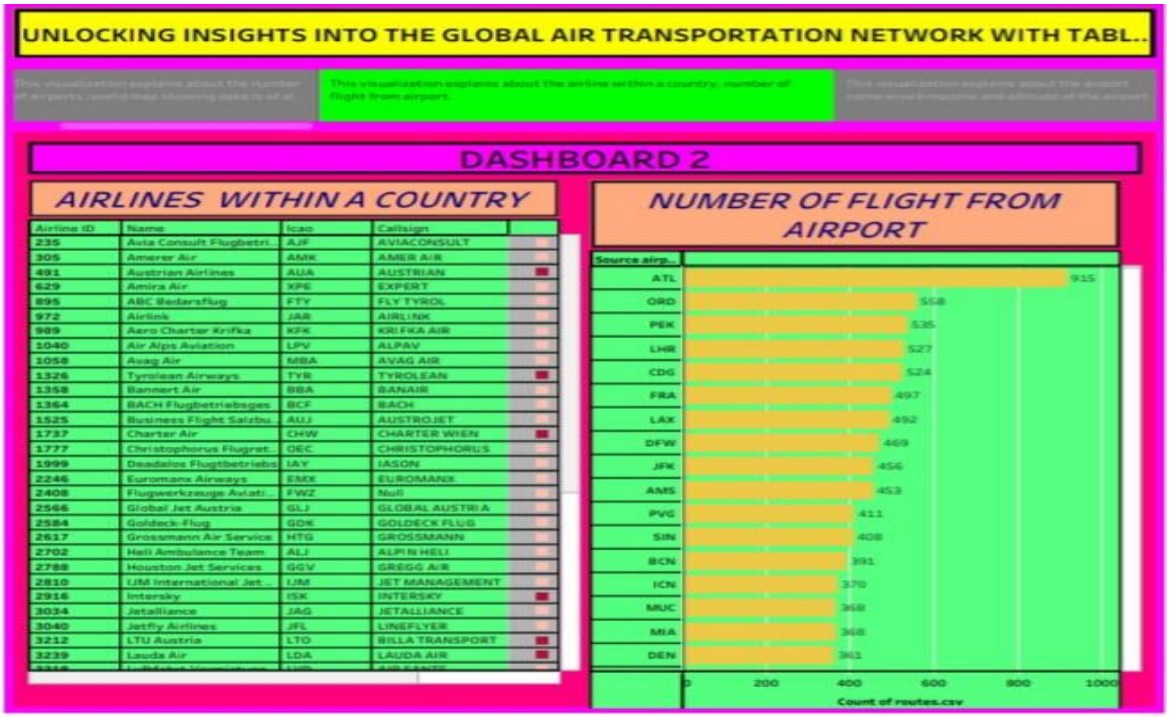
- Air transport is one of the fastest modes of transport.
- It has a few advantages despite being an expensive mode of transportation.
- The development of airways has reduced the travel time between two places.
- Air transport has opened up accessibility to remote areas too.

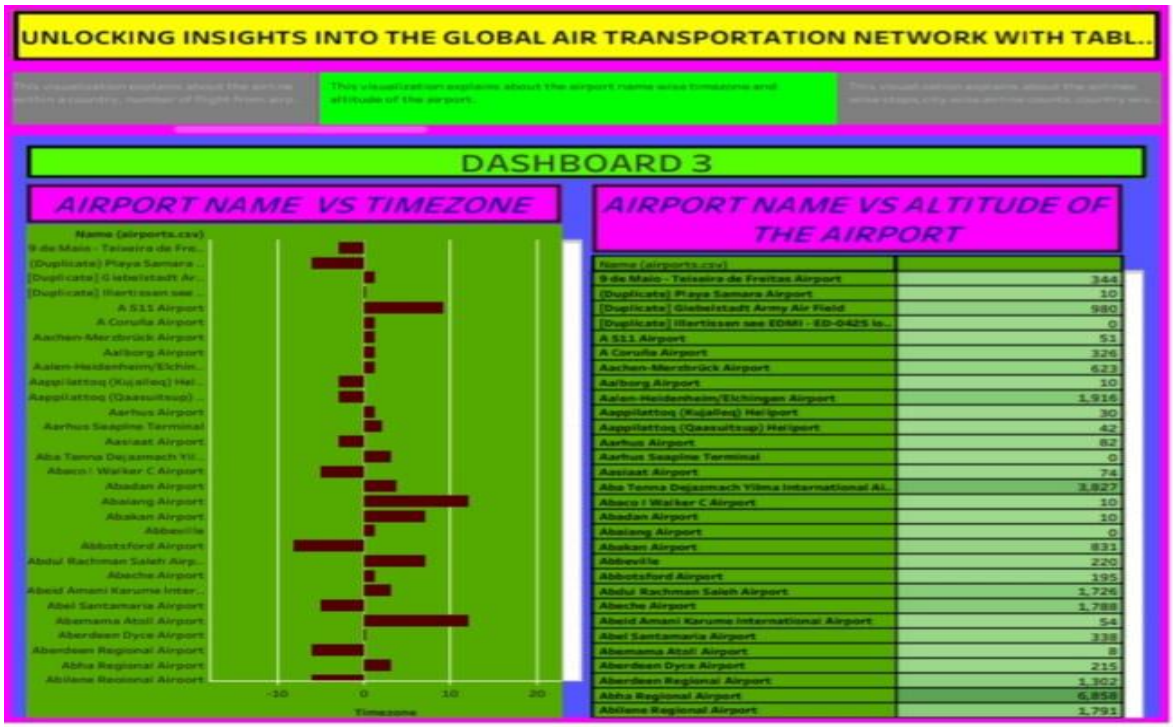
6. CONCLUSION

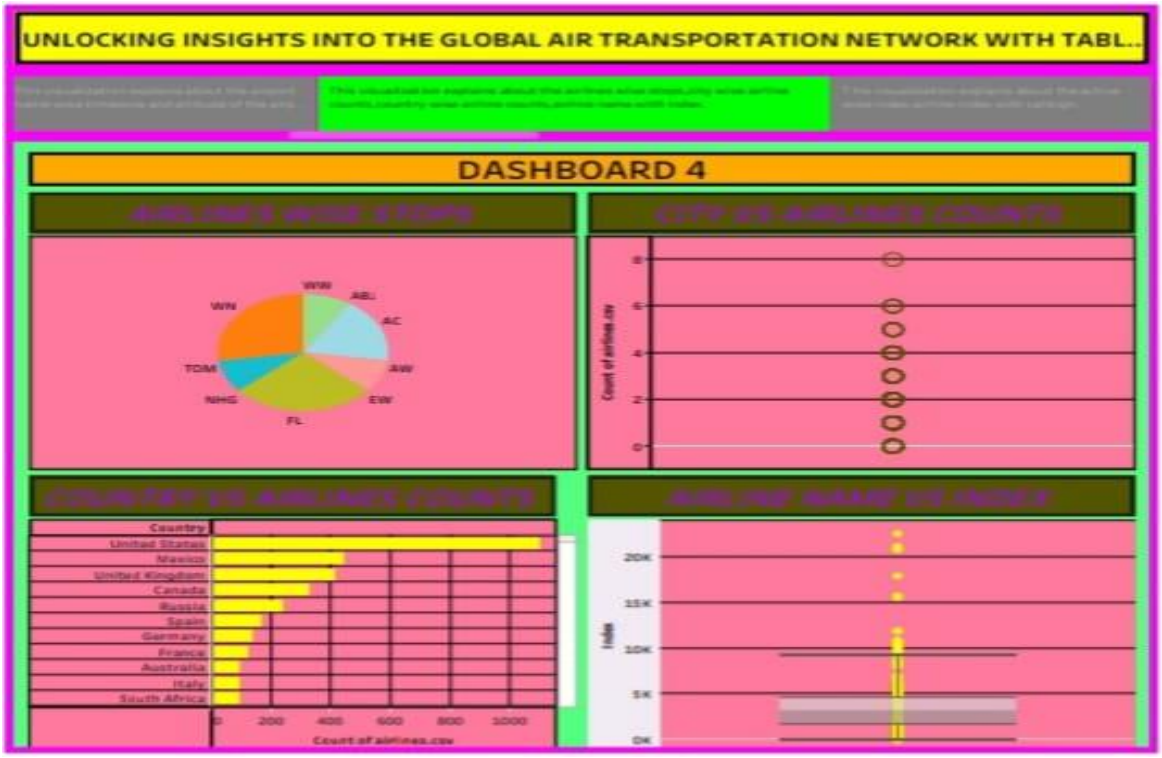
We collected a lot of messages and prepared an empathy map and brainstorm map. We took the necessary data and filled it in columns and row. We got the results in the form of a required sheet. We filled a lot of sheets and prepared dashboards. We filled a lot of dashboard and prepared stories.

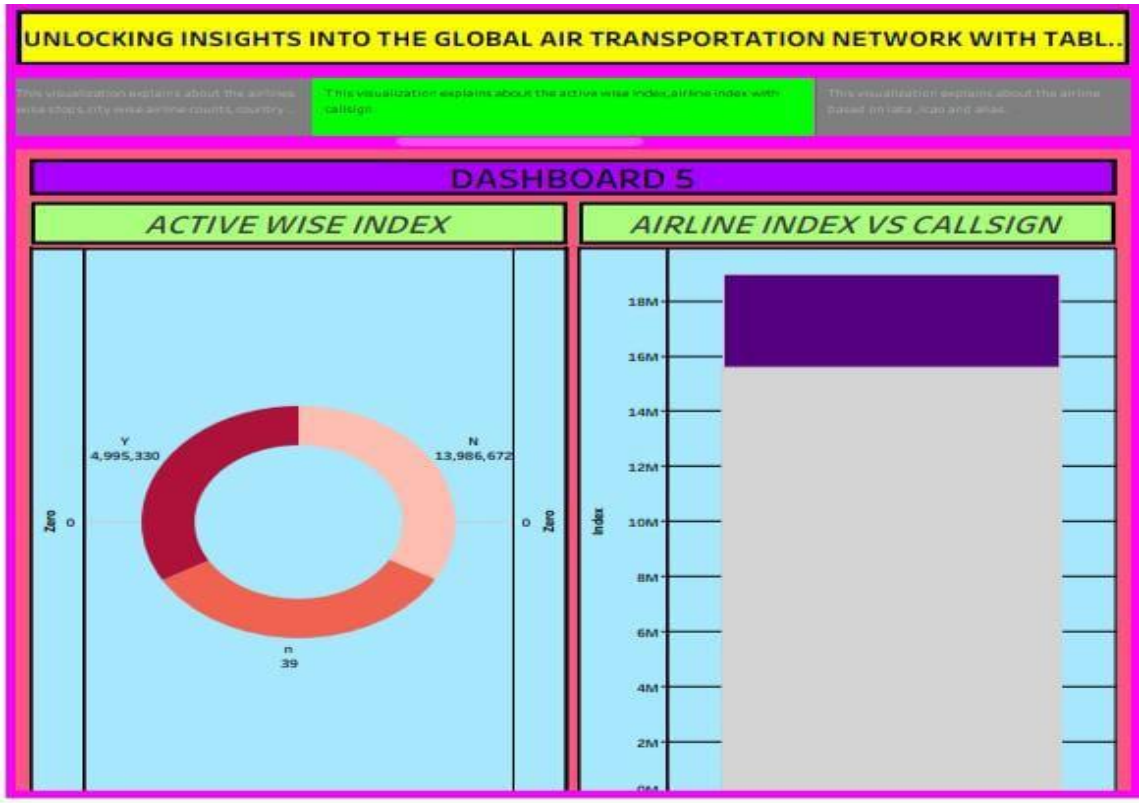
STORY

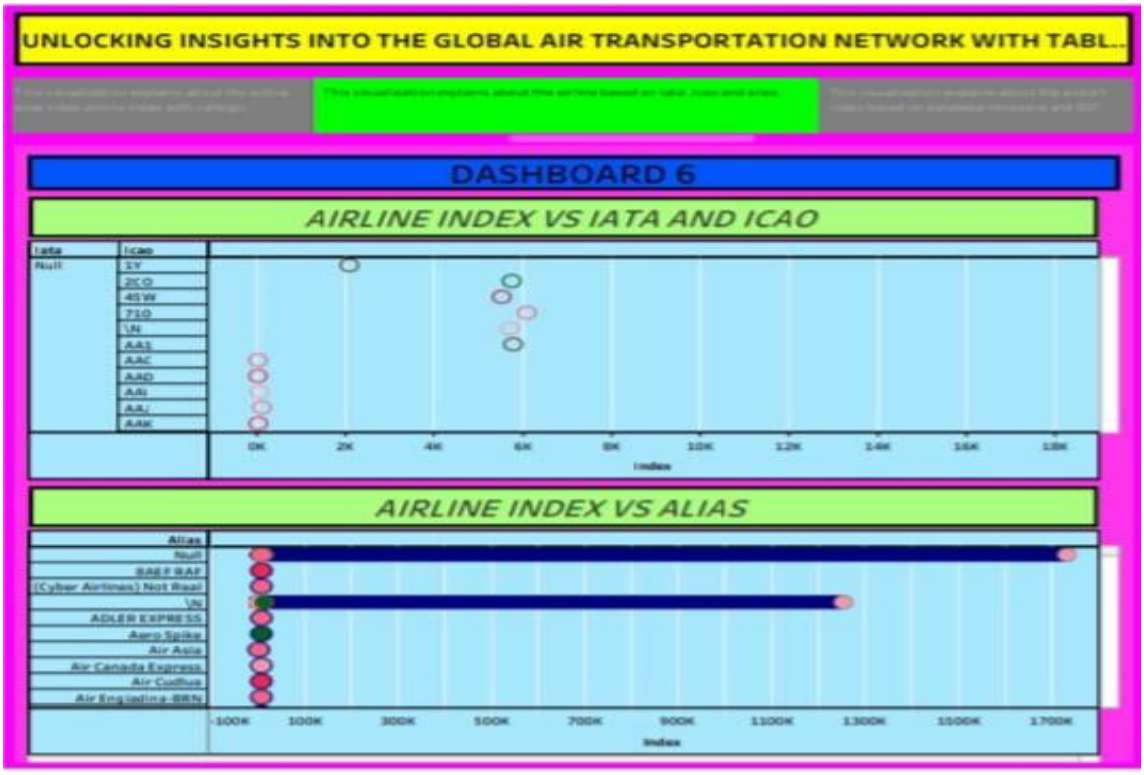

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 1
NUMBER OF AIRPORTS
22
WORLD MAP SHOWING DETAILS OF ALL AIRPORTS WITHIN A COUNTRY
AIRPORTS AT HIGHER ALTITUDE IN THE WORLD
Name (airports.csv) City ICAO (airports.csv)
Golog Maqin Airport Golog ZLGL
Inca Manco Capac Inter... Juliaca SPJL
Copacabana Airport Copacabana SLCC
Yushu Batang Airport Yushu ZYLS
Capitan Nicolas Rojas ... Potosi SLPO
El Alto International Ai... La Paz SLLP
Ngari Gunsa Airport Shiquanhe ZUAL
Kangding Airport Kangding ZUKD
Qamdo Bangda Airport Bangda ZUBD
Daocheng Yading Airpo... Daocheng ZUDC
AIRPORTS AT HIGHER ALTITUDE WITHIN A COUNTRY
Name (airports.csv) City ICAO
Bamiyan Airport Bamyan OABN
Chakcharan Airport Chaghcharan OACC

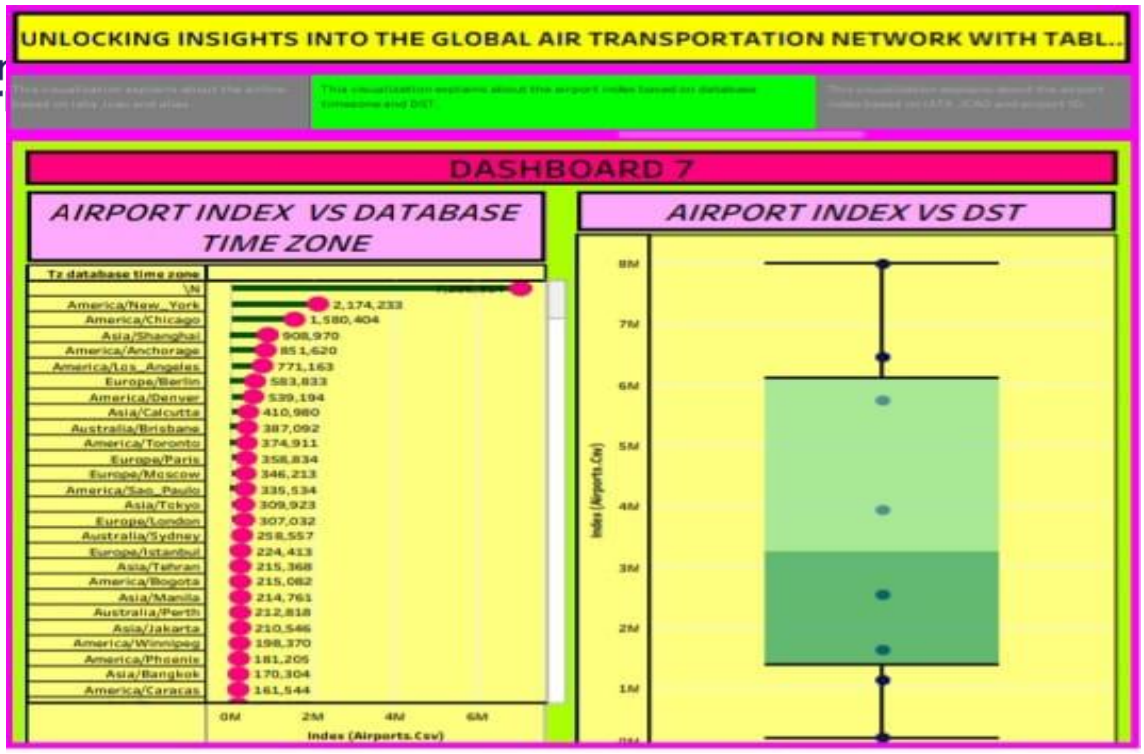

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 2
AIRLINES WITHIN A COUNTRY
Airline ID Name Icao Callsign
235 Avia Consult Flugbetri... AJF AVIACONSULT
305 Amerer Air AMK AMER AIR
491 Austrian Airlines AUA AUSTRIAN
629 Amira Air XPE EXPERT
895 ABC Bedarfflug FTY FLY TYROL
972 Airlink JAR AIRLINK
989 Aero Charter Krifka KFK KRIFKA AIR
1040 Air Alps Aviation LPV ALPAV
1058 Avag Air MBA AVAG AIR
1326 Tyrolean Airways TYR TYROLEAN
1358 Bannert Air BBA BANAIR
1364 BACH Flugbetriebsges BCF BACH
1525 Business Flight Salzbu... AUJ AUSTROJET
1737 Charter Air CHW CHARTER WIEN
1777 Christophorus Flugret... OEC CHRISTOPHORUS
1999 Deadalos Flugtbetriebs IAY IASON
2246 Euromanx Airways EMX EUROMANX
2408 Flugwerkzeuge Aviati... FWZ Null
2566 Global Jet Austria GLJ GLOBAL AUSTRIA
2584 Goldeck-Flug GDK GOLDECK FLUG
2617 Grossmann Air Service HTG GROSSMANN
2702 Heli Ambulance Team ALJ ALPIN HELI
2788 Houston Jet Services GGV GREGG AIR
2810 IJM International Jet ... IJM JET MANAGEMENT
2916 Intersky ISK INTERSKY
3034 Jetalliance JAG JETALLIANCE
3040 Jetfly Airlines JFL LINEFLYER
3212 LTU Austria LTD BILLA TRANSPORT
3239 Lauda Air LDA LAUDA AIR
NUMBER OF FLIGHT FROM AIRPORT
Source airp...
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
MUC 368
MIA 368
DEN 361
0 200 400 600 800 1000
Count of routes.csv

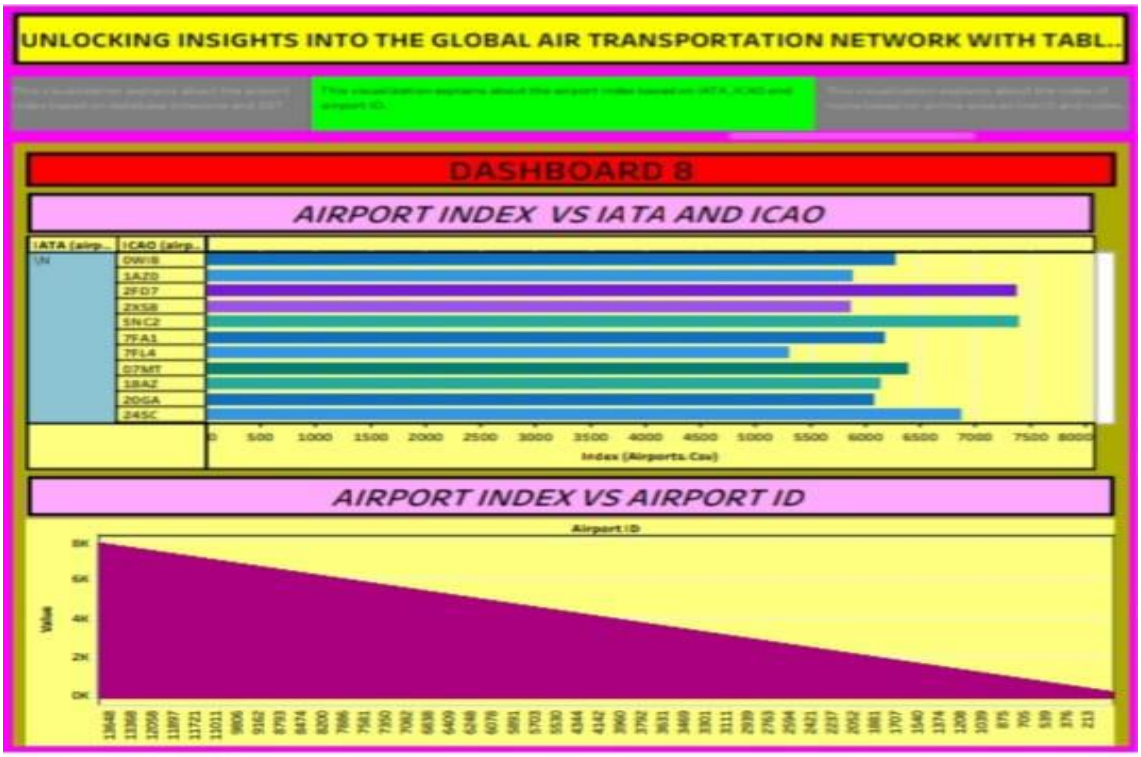

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 3
AIRPORT NAME VS TIMEZONE
AIRPORT NAME VS ALTITUDE OF THE AIRPORT
Name (airports.csv)
Timezone
-10
0
10
20
9 de Maio - Teixeira de Freitas Airport 344
(Duplicate) Playa Samara Airport 10
[Duplicate] Giebelstadt Army Air Field 980
[Duplicate] Illartissen see EDMI - ED-0425 lo... 0
A 511 Airport 51
A Coruña Airport 326
Aachen-Merzbrück Airport 623
Aalborg Airport 10
Aalen-Heidenheim/Elchingen Airport 1,916
Aappilattoq (Kujalleq) Heliport 30
Aappilattoq (Qaasuitsup) Heliport 42
Aarhus Airport 82
Aarhus Seaplne Terminal 0
Aasiaat Airport 74
Abu Tonna Dejazmach Yilma International Ai.. 3,827
Abaco I Walker C Airport 10
Abadan Airport 10
Abalang Airport 0
Abakan Airport 831
Abbeville 220
Abbotsford Airport 195
Abdul Rachman Saleh Airport 1,726
Abeche Airport 1,788
Abeid Amani Karume International Airport 54
Abel Santamaria Airport 338
Abemama Atoll Airport 8
Aberdeen Dyce Airport 215
Aberdeen Regional Airport 1,302
Abha Regional Airport 6,858
Abilene Regional Airport 1,791

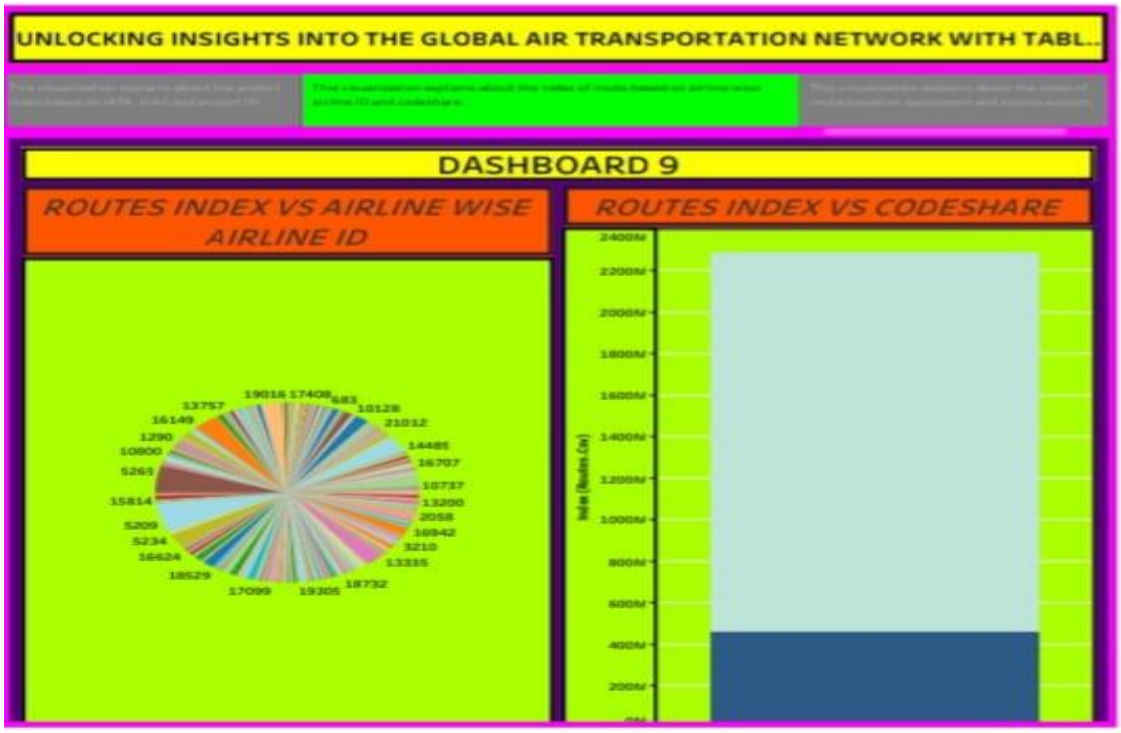

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 4
WW
ABJ
AC
AW
EW
FL
NHG
TDM
Country
United States
Mexico
United Kingdom
Canada
Russia
Spain
Germany
France
Australia
Italy
South Africa
0
200
400
600
800
1000
Count of airlines.csv
Count of airline.csv
0
2
4
6
8
Index
0K
5K
10K
15K
20K

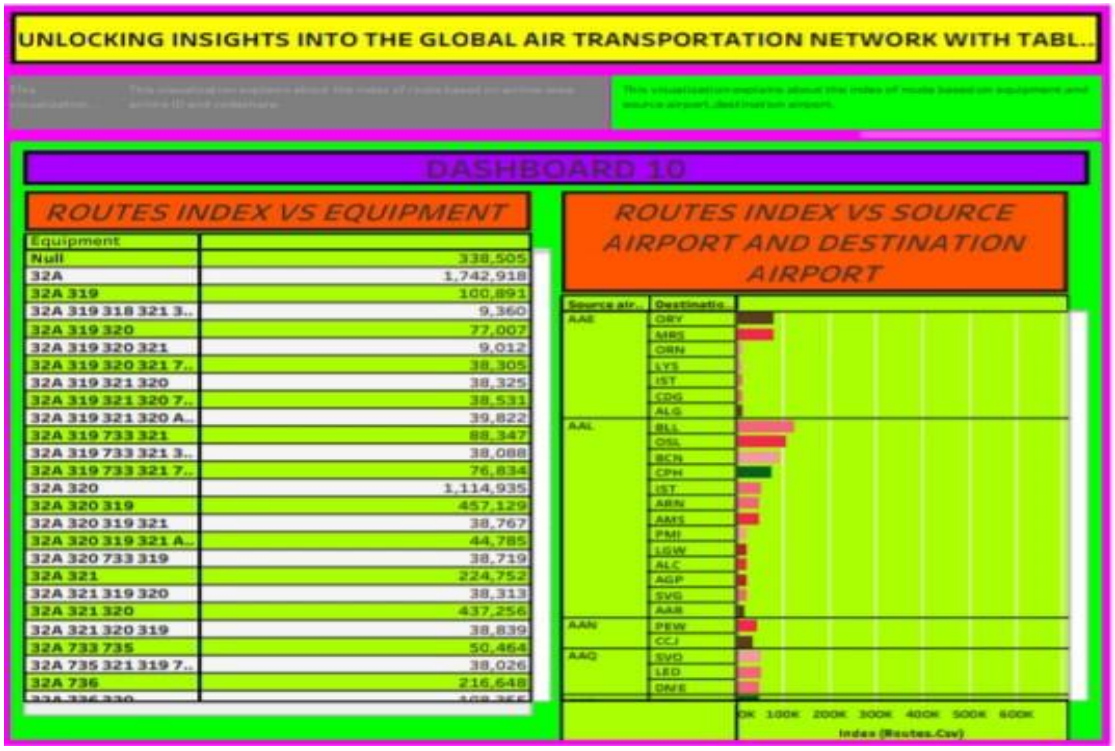

UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 5
ACTIVE WISE INDEX
AIRLINE INDEX VS CALLSIGN
Y
4,995,330
N
13,986,672
n
39
Zero
Index
18M
16M
14M
12M
10M
8M
6M
4M
2M


UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 6
AIRLINE INDEX VS IATA AND ICAO
Iata
Icao
Null
1Y
2C O
45 W
710
\N
AA1
AAC
AAD
AAI
AAJ
AAK
0K
2K
4K
6K
8K
10K
12K
14K
16K
18K
Index
AIRLINE INDEX VS ALIAS
Alias
Null
BAEF BAF
(Cyber Airlines) Not Real
\N
ADLER EXPRESS
Aero Spike
Air Asia
Air Canada Express
Air Cudlua
Air Engiadina-BRN
100K
300K
500K
700K
900K
1100K
1300K
1500K
1700K
Index


UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 7
AIRPORT INDEX VS DATABASE TIME ZONE
Tz database time zone
\N
America/New_York 2,174,233
America/Chicago 1,580,404
Asia/Shanghai 908,970
America/Anchorage 851,620
America/Los_Angeles 771,163
Europe/Berlin 583,833
America/Denver 539,194
Asia/Calcutta 410,980
Australia/Brisbane 387,092
America/Toronto 374,911
Europe/Paris 358,834
Europe/Moscow 346,213
America/Sao_Paulo 335,534
Asia/Tokyo 309,923
Europe/London 307,032
Australia/Sydney 258,557
Europe/Istanbul 224,413
Asia/Tehran 215,368
America/Bogota 215,082
Asia/Manila 214,761
Australia/Perth 212,818
Asia/Jakarta 210,546
America/Winnipeg 198,370
America/Phoenix 181,205
Asia/Bangkok 170,304
America/Caracas 161,544
0M 2M 4M 6M
Index (Airports.Csv)
AIRPORT INDEX VS DST
Index (Airports.Csv)
8M 7M 6M 5M 4M 3M 2M 1M


UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 8
AIRPORT INDEX VS IATA AND ICAO
IATA (airp..
ICAO (airp..
\N
0W1B
1AZ0
2FD7
2XS8
5NC2
7FA1
7FL4
07MT
18AZ
20GA
24SC
0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 5500 6000 6500 7000 7500 8000
Index (Airports.Csv)
AIRPORT INDEX VS AIRPORT ID
Airport ID
Value
8K 6K 4K 2K 0K
13648 13368 12056 11897 11721 11011 9806 9162 8793 8474 8200 7866 7561 7350 7082 6838 6459 6248 6078 5891 5703 5530 4344 4142 3960 3792 3631 3469 3301 3111 2939 2763 2594 2421 2237 2052 1881 1707 1540 1374 1208 1039 875 705 539 376 213


UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 9
ROUTES INDEX VS AIRLINE WISE AIRLINE ID
ROUTES INDEX VS CODESHARE
19016
17408
683
10128
21012
14485
16707
10737
13200
2058
16942
3210
13335
18732
19305
17099
18529
16624
5234
5209
15814
5265
10800
1290
16149
13757
2400M
2200M
2000M
1800M
1600M
1400M
1200M
1000M
800M
600M
400M
200M
Index (Routes.Csv)


UNLOCKING INSIGHTS INTO THE GLOBAL AIR TRANSPORTATION NETWORK WITH TABL..
DASHBOARD 10
ROUTES INDEX VS EQUIPMENT
Equipment
Null 338,505
32A 1,742,918
32A 319 100,891
32A 319 318 321 3.. 9,360
32A 319 320 77,007
32A 319 320 321 9,012
32A 319 320 321 7.. 38,305
32A 319 321 320 38,325
32A 319 321 320 7.. 38,531
32A 319 321 320 A.. 39,822
32A 319 733 321 88,347
32A 319 733 321 3.. 38,088
32A 319 733 321 7.. 76,834
32A 320 1,114,935
32A 320 319 457,129
32A 320 319 321 38,767
32A 320 319 321 A.. 44,785
32A 320 733 319 38,719
32A 321 224,752
32A 321 319 320 38,313
32A 321 320 437,256
32A 321 320 319 38,839
32A 733 735 50,464
32A 735 321 319 7.. 38,026
32A 736 216,648
ROUTES INDEX VS SOURCE AIRPORT AND DESTINATION AIRPORT
Source air..
Destinatio..
AAE
ORV
MRS
ORN
LYS
IST
CDG
ALG
AAL
BLL
OSL
BCN
CPH
IST
ARN
AMS
PMI
LGW
ALC
AGP
SVG
AAB
AAN
PEW
CCJ
AAQ
SVO
LED
DME
0K 100K 200K 300K 400K 500K 600K
Index (Routes.Csv)

7. FUTURE SCOPE

Emerging technologies are reshaping with robotics, artificial intelligence, the internet of things, unmanned aircraft systems and the push for hybrid and electric airplanes – just to name a few. Alternative fuels can significantly change the current scenario of aviation in support of the environmental protection.