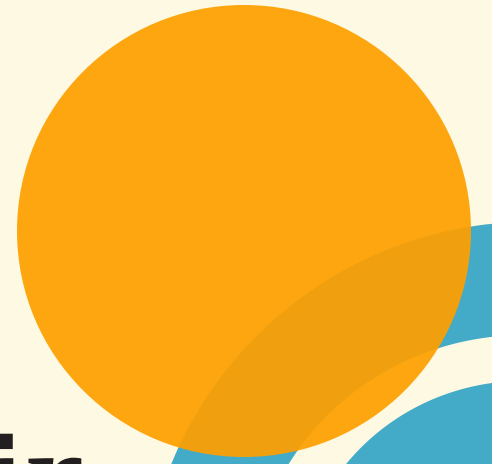


Identification of new air travel routes in emerging markets





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Our team

Karthik Arunkumar

Software Engineer

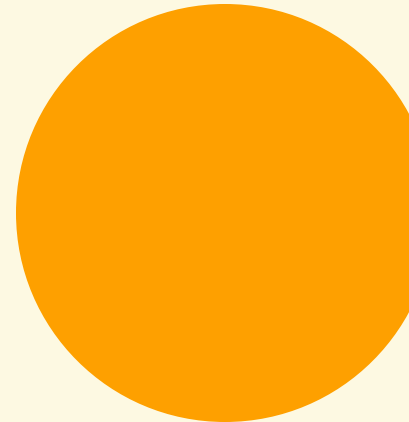


Bhagyashree Gohiya

Analyst – Software Engineer



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Senior Software Engineer



Agenda

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databricks

PySpark



TOOLS AND TECHNOLOGIES



+tableau®



5

ETL PIPELINE



**Dataset is taken
from Kaggle**



**Scrapped data
is now
extracted,
transformed and
made ready for
visualization
using Jupyter
and Databricks**



**The
Transformed
Data is
Visualized for
the further
analysis**



Introduction

To identify new route opportunities in the emerging markets by tracking macro-economic activities and data from other means of transport. The focus is on tier II cities from India. Aviation sector is showcasing intriguing growth rate in the emerging economies like India and other APAC nations. Due to various government initiatives, new aviation infrastructure is being developed in India. There is a push to provide affordable air travel for wider population. In addition, the economic growth of India is leading to distribution of economic activities across tier-II cities, which wasn't necessarily the case in the recent past.



An abstract graphic design on a light cream background. It features several thick, rounded lines: a red line in the top right corner, a green line that starts from the left, curves down, and then continues horizontally across the bottom, and a blue line that starts from the bottom, curves up, and then continues horizontally across the bottom. There are two small black dots: one on the green line where it curves, and another on the blue line where it curves. A large orange circle is positioned on the left side of the image.

Problem Statement



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Problem Statement

In this fast-growing market, we need to develop new air- travel connectivity for faster and more profits to the economy. By this we might connect with the across tier-II cities and between metro / tier-I cities. And there will be better connectivity among narrow and wider body segments.

An abstract graphic design on a light cream background. It features a thick green line that starts from the left edge, curves 90 degrees down, and then continues horizontally to the right. A thick blue line starts from the bottom edge, curves 90 degrees up, and then continues horizontally to the left, overlapping the green line. A thick red line starts from the top edge, curves 90 degrees down, and then continues horizontally to the right. A large orange circle is positioned on the left side of the green line. Two small black dots are located on the green line: one on the vertical segment and one on the horizontal segment. The word "Solution" is written in a bold, dark blue font in the upper right quadrant.

Solution



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Solution

We will analyze the Marco - economic data and the number of Travellers in Tier 1 cities and will be compared them with the Tier 2 cities. By this, we will conclude where tier 2 cities lag and what needs to be improved to increase the air travel routes.

An abstract graphic design on a light cream background. It features several thick, rounded lines in green, blue, and red. A green line starts from the left, curves down, and then continues horizontally. A blue line starts from the bottom, curves up, and then continues horizontally, overlapping the green line. A red line starts from the top right and curves down. There are two small black dots: one on the green line and one on the blue line. A large orange circle is positioned on the left side of the image.

Summary

Data Scrapping

Datasets have been downloaded from Kaggle

Dataset link --->> [International Airtraffic to and from India](#)

---->> [List of companies](#)

---->> [Tourism](#)





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Data Transformation

- **Here the datasets are being cleaned.**
- **Applying the required filter conditions on the datasets.**
- **Making the datasets ready for visualization.**

**12**

Data Transformation

Here are the code snippets of transformation

```
#df9=df4.withColumnRenamed("Name of the Monument","Location")
Tourismdf=df4.select("Circle","Name of the Monument ", "Domestic-2019-20", "Domestic-2020-21")
Tourismdf1=Tourismdf.withColumnRenamed("Circle","City Name")
Tourismdf2=Tourismdf1.where((col("Domestic-2019-20") != 0) & (col("Domestic-2020-21") != 0))
Tourismdf3=Tourismdf2.filter(col("City Name") != "Total")
Tourismdf4=Tourismdf3.filter(col("City Name") != "Grand Total")
display(Tourismdf4)
#Tourismdf4.write.option("header",True).csv("/FileStore/tables/Torism_data_csv")
```

```
from pyspark.sql.functions import regexp_replace
Companydf1 = Companydf.withColumn("Headquater", regexp_replace("Headquater", "\\+", ""))
#Companydf = Companydf.withColumn("location", F.split("location", "\\+")[0])
```

```
df5.show()
companydf=df5.select("Company Name", "Location", "Salary")
companydf1=companydf.withColumnRenamed("Location", "City Name")
display(companydf1)
companydf1.count()
```

An abstract graphic design on a light cream background. It features several thick, rounded lines in green, blue, and red. A green line enters from the left, curves down, and then continues horizontally. A blue line enters from the bottom, curves up, and then continues horizontally, overlapping the green line. A red line enters from the top right and curves down. There are two small black dots: one on the green line and one on the blue line. A large orange circle is positioned on the left side of the image.

Data Visualization

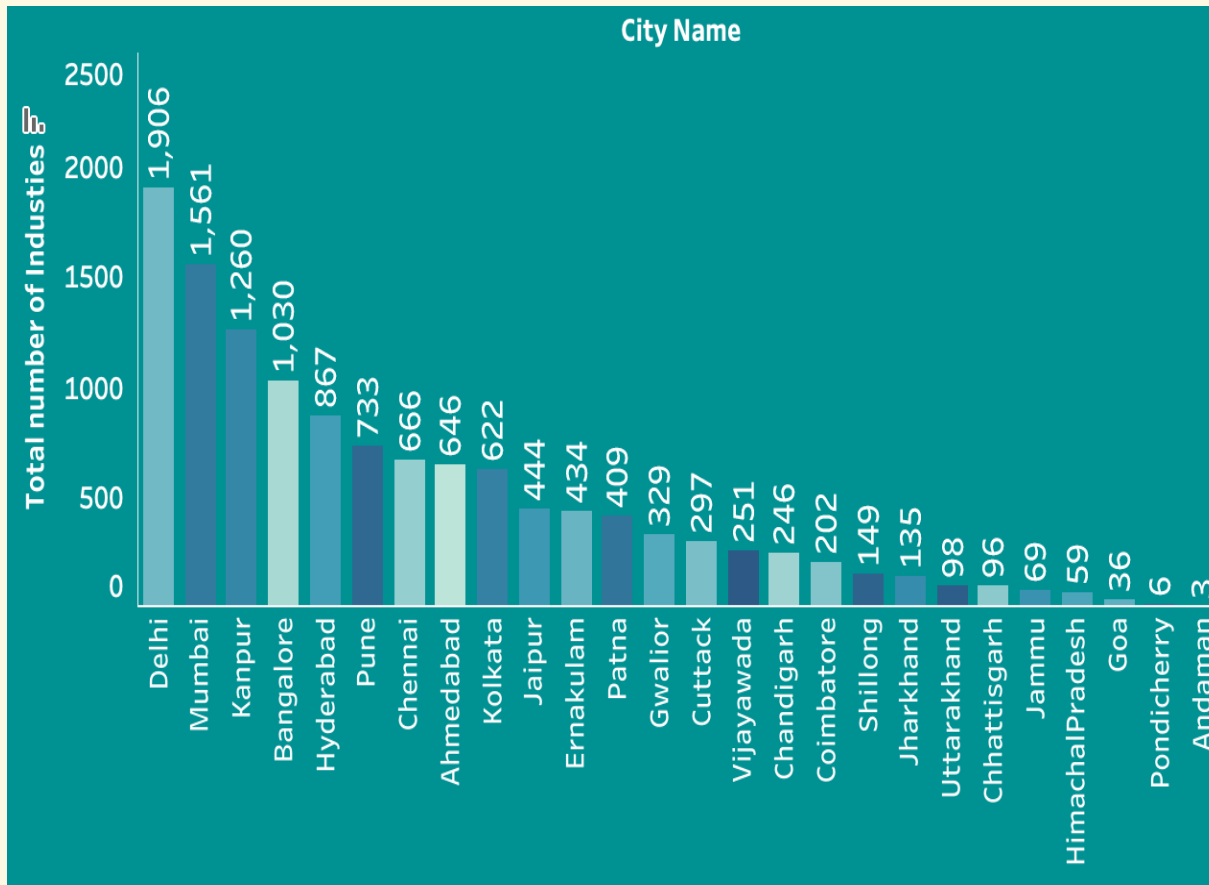
Data Visualization

- **Tourism plays an important role in a city's economy.**
- **It is evident that there are some tourist places in tier-II cities like: Vadodara, Indore, Jaipur etc.**
- **But people prefer to visit Tier-I since the mode of transport is highly available and easy commuting.**





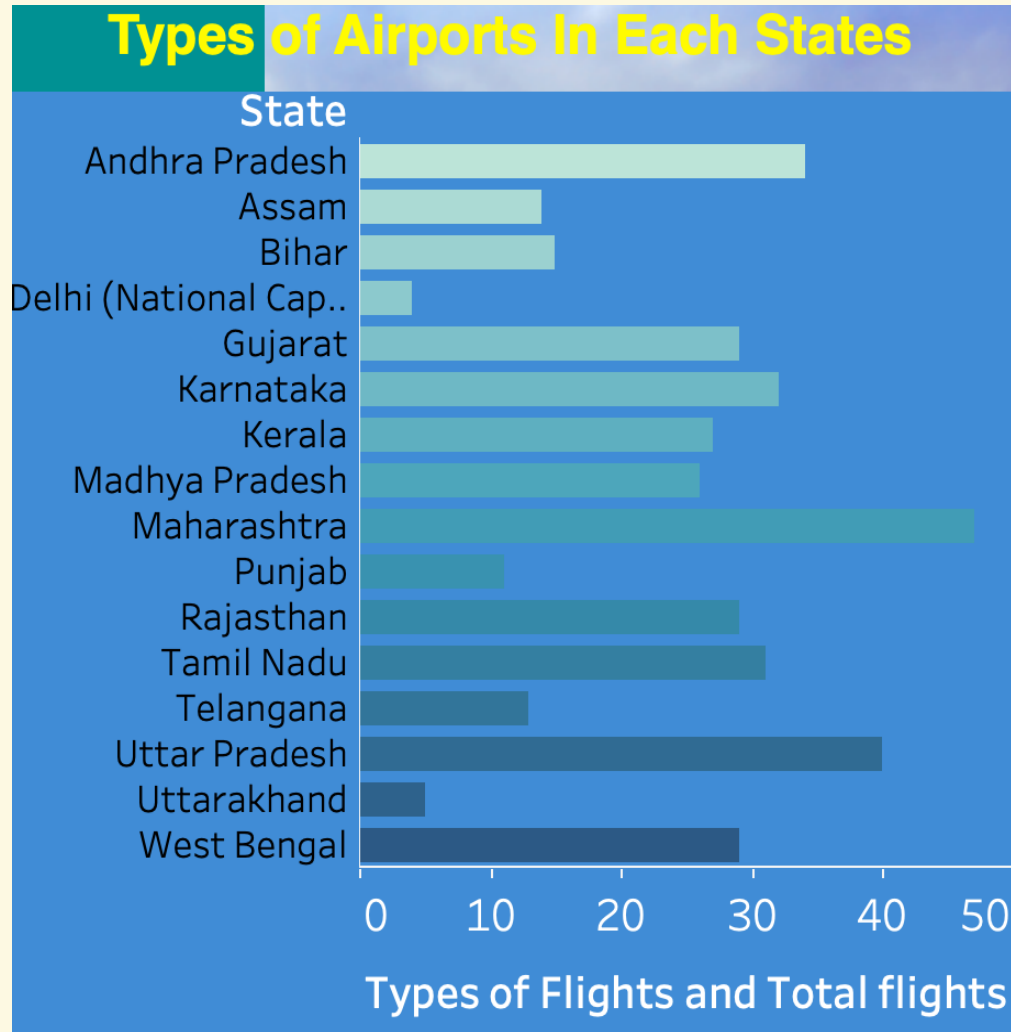
Industries in India



- From the visualization we can say, Delhi has more industries and Andaman has the least, This might be the major factor why people's population is lesser in tier-II



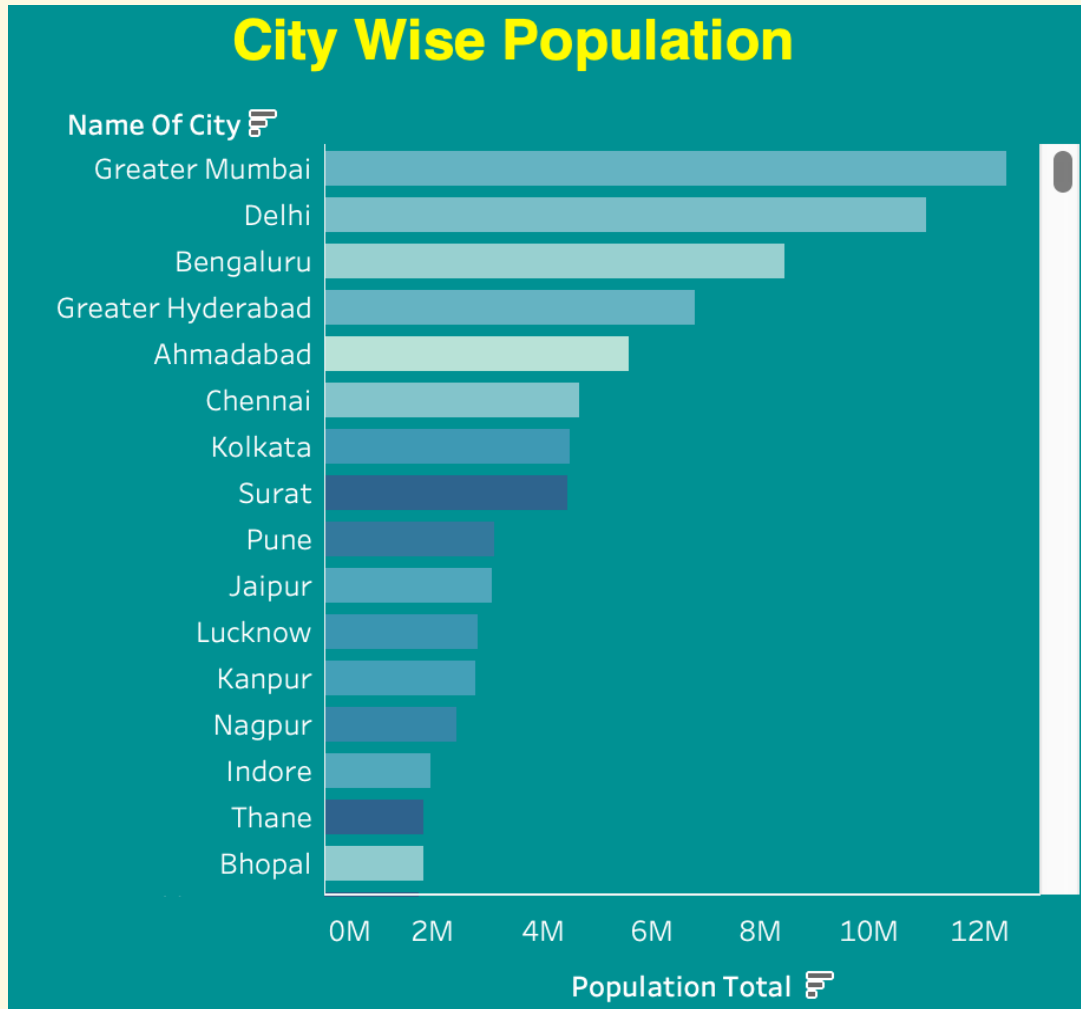
Airports in Individual States



- **There are many airports in all major and minor cities where we can say, tier-II cities have many airstrips , heliport etc. But unfortunately, many of them are closed and it is kind of evident from our visualization.**



City-wise Population

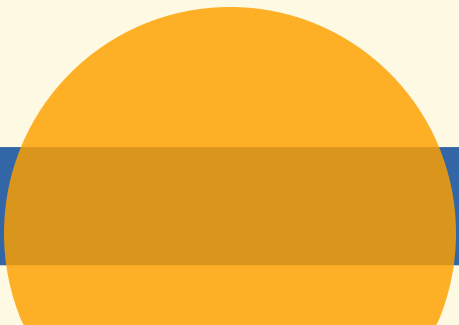


- From this, we can conclude population is higher in tier-I rather than tier-II.

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Conclusion

- **After all the visualization , we can conclude that , tourism, GDP, Airport connectivity, Industries plays a major role in macro-economy.**
- **And People tend to be in comfort zone and look for quick commuting for daily life.**
- **It is very much evident that , people choose the cities which has more industry.**
- **Cities which have very good monuments are helping to attract the international tourist to visit and helps in economic growth.**



From all the research and analysis we did, and putting up the problem statement "To improve and identify the new air travel routes" we are concluding that to improve the air travel the government must invest half of its high GDP cities economy to the tier-II cities, this will make the people to travel to those cities and which may lead to more economic gain for each state. And it is also notable that all tier-II cities too have the tourist places to visit but the major drawback is the mode of transport. So, we must look to improve the transportation for easy communication to nearby urbanized cities. We also noted that there is many airports, airstrips, heliports which has been closed and not maintained well. If we are able to re-open it for small airports, use it for the transit purpose and it will automatically lead to new air travel routes.





Thank you

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