

## EXPLORATORY DATA ANALYSIS OF SAN FRANCISCO INTERNATIONAL AIRPORT (SFO) USING TABLEAU 2020.4

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### ABSTRACT

San Francisco International airport is an international airport located in San Mateo County and spread over 11 miles in downtown San Francisco, California. It is providing services to major parts of Asia, the Middle East, North America, Europe, and Australia. It is the second busiest airport in California after Los Angeles International Airport(LAX). A model that visualizes the Key Performance Indicators(KPI) of airline services from San Francisco International airport has been designed.

### I. INTRODUCTION

Tableau is a data visualization tool used to represent a large amount of data or information in different pictorial representations like maps, graphs, pie charts, and correlations. Data visualization helps makes it easy to understand the data and find the insights, trends, and patterns. Tableau is one of the most popular Data Visualization tools used by many enterprises and businesses to gain better insights into their data to offer the best customer experience. In this model, we use the open source data of san Fransisco international airport available on the web to determine key performance indicators and visualize them using different pictorial representations.

### II. BLOCK DIAGRAM

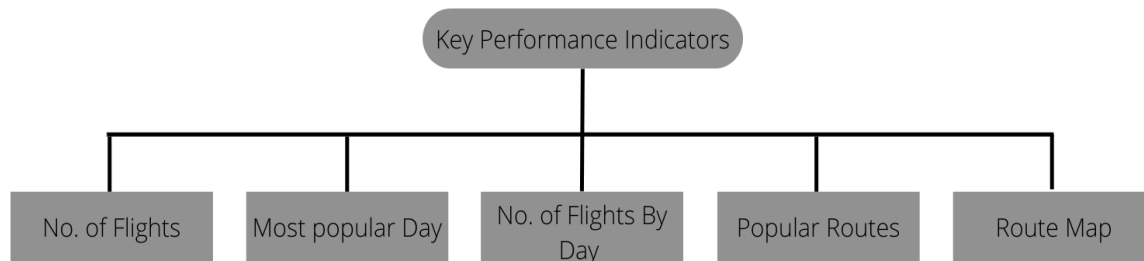


Figure 1: Block Diagram(i)

### STEP-BY-STEP PROCEDURE

1. Install Tableau 2020.4
2. Data collection
  - Collect dataset
3. Data Processing
  - Import dataset
  - Understanding data types
4. Data cleaning
5. Creating Makepoint
6. Creating Makeline
7. Creating worksheets for all key performance indicators

### III. METHODOLOGY

#### Step 1: Create the workbook

- Launch the Tableau 2020.4 software
- Create a new notebook by clicking on the "new" button on the top right corner of the page

**Step 2: Data Handling**

- Import the dataset
- Understanding the data types
- Text splitting

**Step 3: Creating Worksheets**

- Create a worksheet for every KPI

**STEP 4: Data visualization**

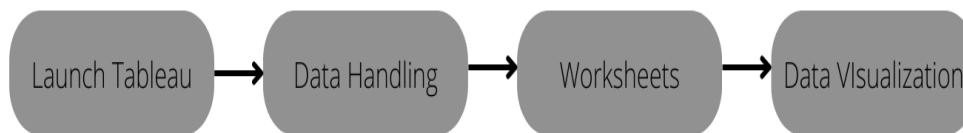


Figure 2: Block Diagram(ii)

**IV. RESULTS AND DISCUSSION**

**MOST NUMBER OF FLIGHTS PER ROUTE(Busiest Routes):**

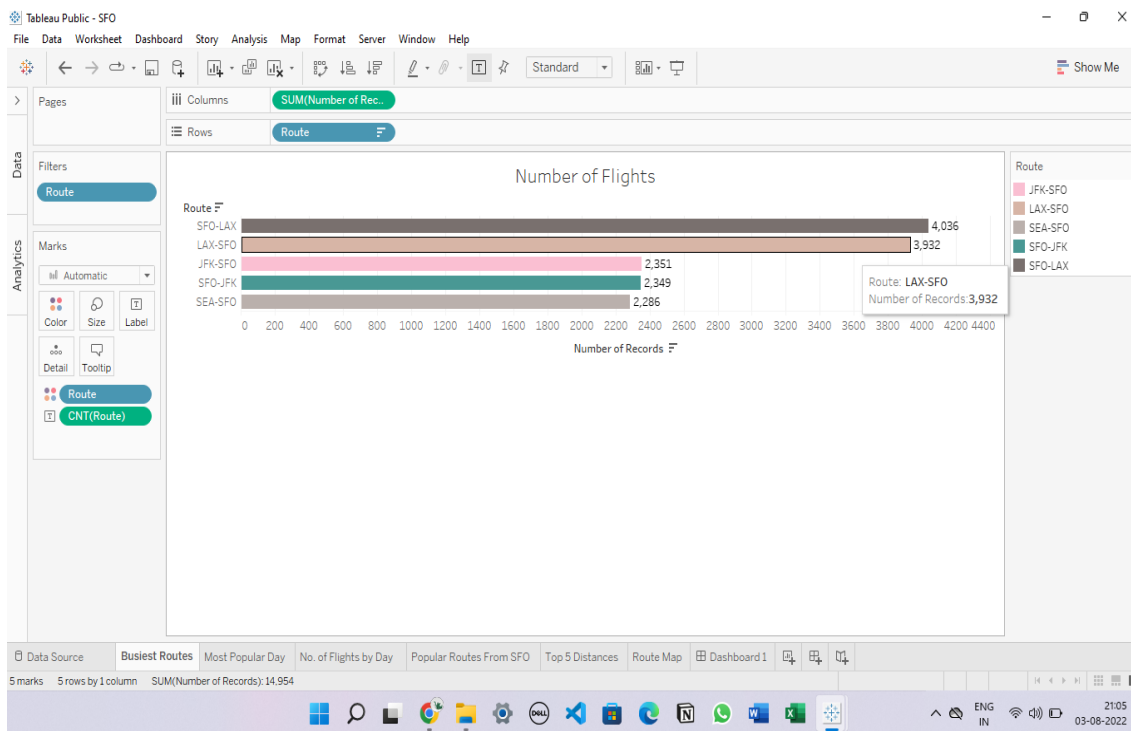
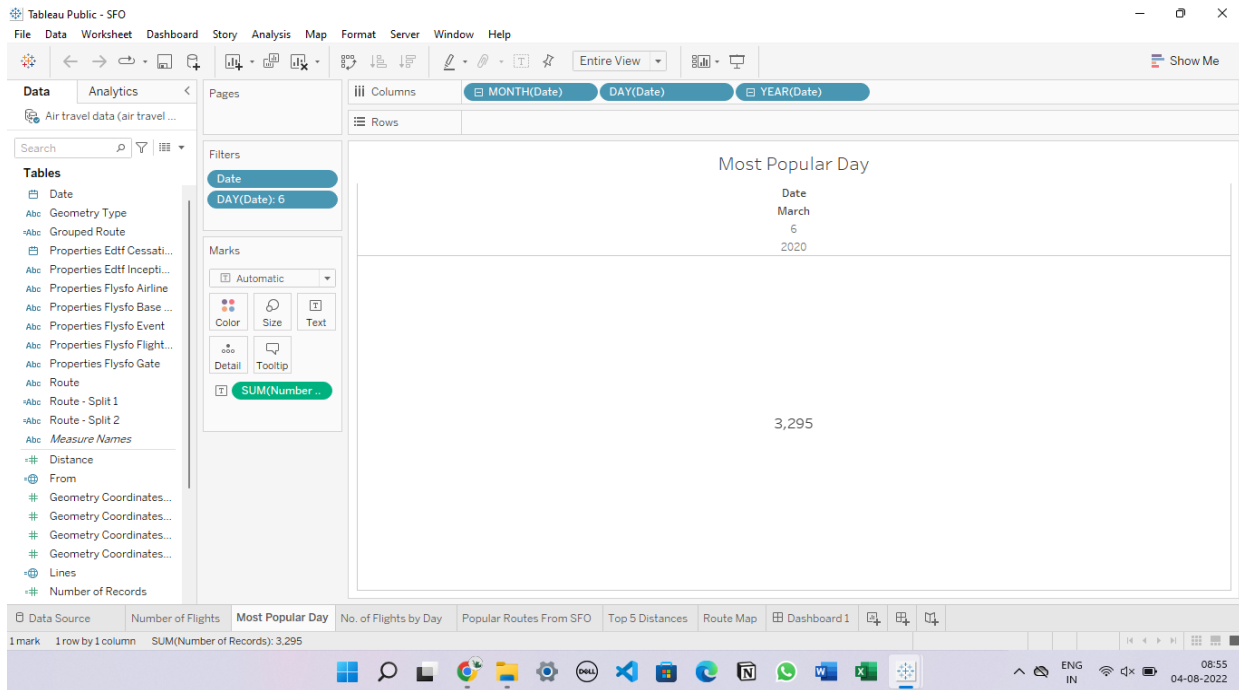


Figure 3: Busiest Routes From SFO

- In this step, a bar graph has been plotted to find out the busiest routes from the SFO international airport and the results are filtered to display the top 5 destinations.
- To make the plot more attractive drag and drop the route into the color option in the marks menu.
- The same can be done with the labels. More than 4000 flights departed from the SFO to LAX.

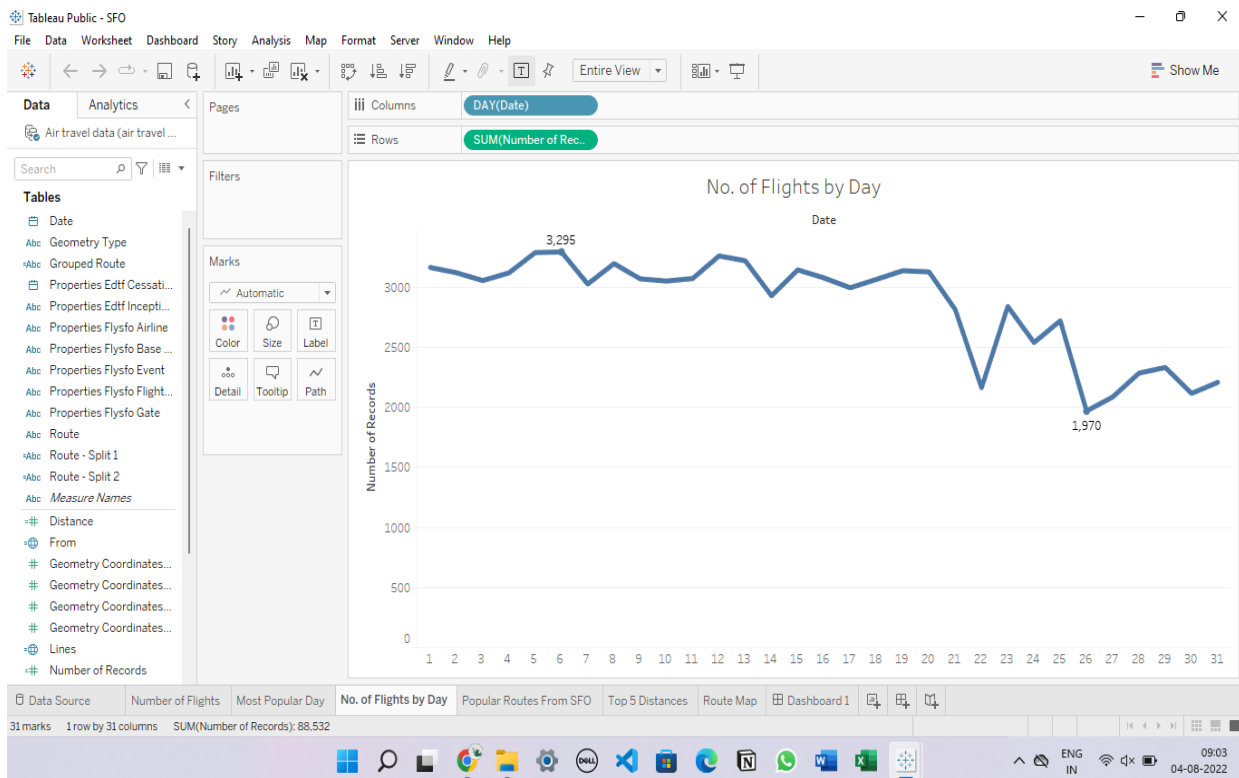
**MOST POPULAR DAY**



**Figure 4: Most Popular Day**

- Drag the Date from the tables 3 times and drop them on the columns.
- Select Date, Month, year respectively by clicking on each of them.
- Drag Routes onto the labels and set measure to sum to find out the total number of flights from the SFO international airport on that particular date.

**NUMBER OF FLIGHTS BY DAY**



**Figure 5: Number Of Flights By Day**

- Drag and drop date into the columns and number of records into the rows as dimensions and measures
- select a discrete line graph from the show me option at the top right-hand corner of the screen
- This graph shows the total number of flights on each day of the month
- It is evident that the first of the month has been busy
- The highest and lowest recorded days are highlighted on the graph on the 6th and 26th respectively

**ROUTE MAP FROM SFO**

- To make a route map first we need to determine the make-point and makeline
- To create a make-point and makeline we need to create a new calculated field
- **MAKEPOINT:** A function that allows using latitude and longitude to create spatial relations between 2 locations. we need to create 2 different make points (i)to make-point (ii)from make-point



**Figure 6:** To Makepoint



**Figure 7:** From Makepoint

- **MAKELINE:** This function enables us to join the make-points we created in the previous step with a spatial line

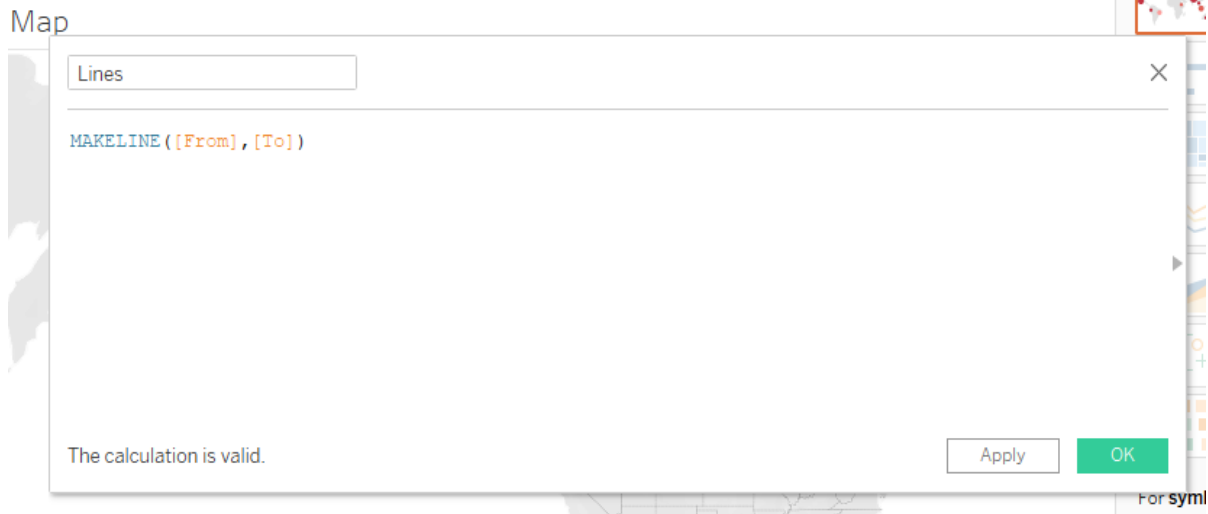


Figure 8: MAKELINE

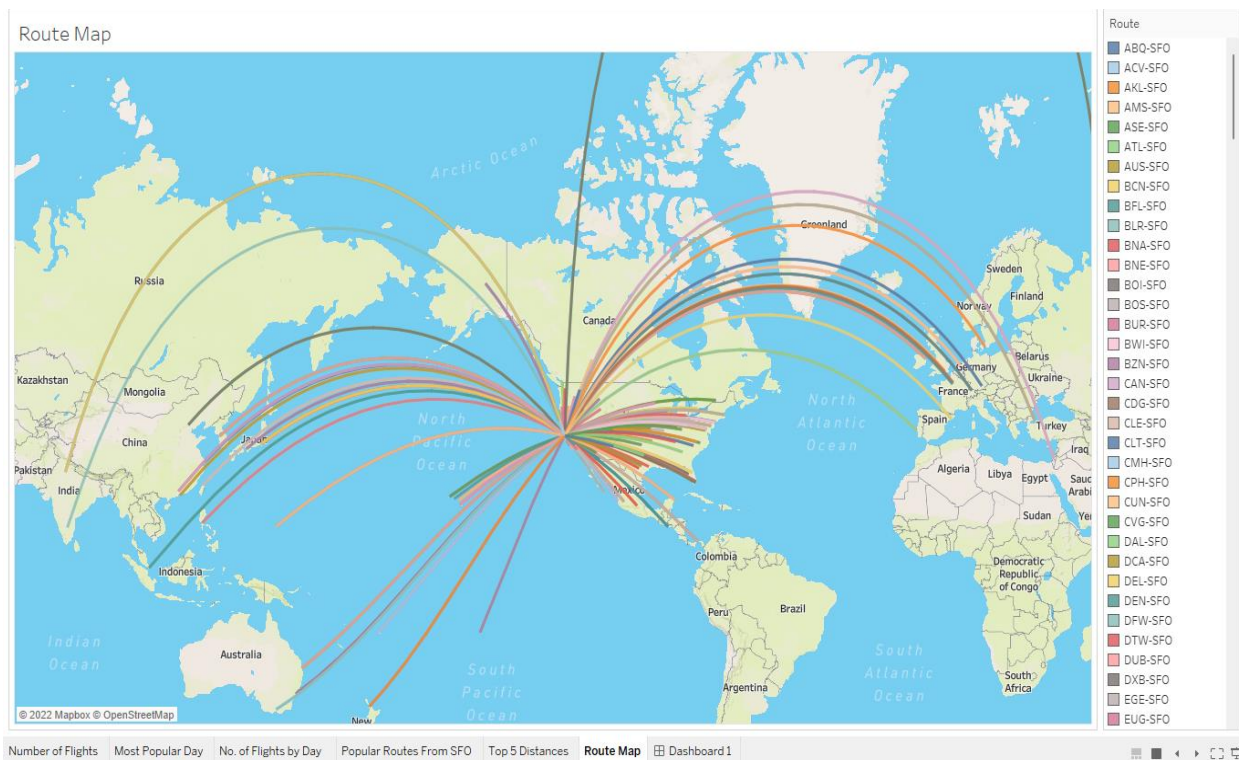


Figure 9: Route Map

## V. CONCLUSION

All these visualizations are aimed at understanding the dataset of SAN FRANCISCO INTERNATIONAL AIRPORT. This will give information about different key performance indicators like busiest routes, the number of flights by day, and flight routes using different graphical representations like bar charts, discrete lines, and route maps. A dashboard has been prepared and all the key performance indicators are displayed

## VI. REFERENCES

- [1] <https://intellipaat.com/blog/what-is-tableau/>
- [2] [https://help.tableau.com/current/pro/desktop/en-us/functions\\_functions\\_spatial.htm](https://help.tableau.com/current/pro/desktop/en-us/functions_functions_spatial.htm)
- [3] <https://www.thedataschool.co.uk/matthew-armstrong/how-to-makepoint-and-makeline-in-tableau-desktop>
- [4] Learning Tableau 4th edition by Joshua N.Milligan,2020