The Tragedy of Flight: A Comprehensive crash analysis

Milestone 1: Define Problem / Problem Understanding

Activity 1: Specify the business problem

An airplane crash analysis is a detailed investigation into the causes of an aviation accident. The goal of an airplane crash analysis is to identify any factors that contributed to the accident, with the ultimate goal of improving safety and preventing future accidents. The process of conducting an airplane crash analysis typically involves the collection and analysis of a wide range of data, including information about the aircraft and its systems, the operators, and any other relevant factors. This data is typically collected from Kaggle. Once the data has been collected, it is analysed through tableau, to identify any potential causes of the accident. The results of an airplane crash analysis are typically published in a report, which may include recommendations for improving safety and preventing similar accidents in the future. These recommendations may be implemented by the relevant authorities or industry organizations.

Activity 2: Business requirements

A business requirement for a comprehensive crash analysis of The Tragedy of Flight would likely include the following elements:

. Detailed information about the crash, including the date, time, location, and weather conditions at the time of the incident.

. A thorough analysis of the events leading up to the crash, including any mechanical failures or human errors that may have contributed to the incident.

. A review of the flight data and cockpit voice recordings to gather additional information about the events leading up to the crash.

. Interviews with the flight crew, passengers, and any witnesses to the crash to gather additional information about the incident.

Activity 3: Literature Survey (Student Will Write)

A literature survey is a method of researching existing literature and studies related to a specific topic. In the context of analysing the airplane crash, a literature survey would involve reviewing studies and articles that have been published on the topic of airplane crash, as well as studies specific to crash analysis. The literature survey would include sources such as academic journals, industry reports, and online articles. The literature survey would also explore any existing research on airplane crash, and would aim to identify any unique challenges or opportunities that to overcome crash.

Activity 4: Social and Business Impact.

Social Impact: The analysis can provide closure to the families and loved ones of the victims of the crash, as well as to the broader public. It can also help to improve public confidence in the aviation industry by identifying and addressing any safety issues that may have contributed to the incident.

Business Impact: The analysis can have significant business implications for the airline and aircraft manufacturer involved in the incident. If the analysis finds that the crash was caused by mechanical or design issues, the manufacturer may be liable for damages and may face significant financial losses. The airline may also face legal claims and reputational damage.

Milestone 2: Data Collection & Extraction from Database

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes and generate insights from the data.

Activity 1: Collect the dataset

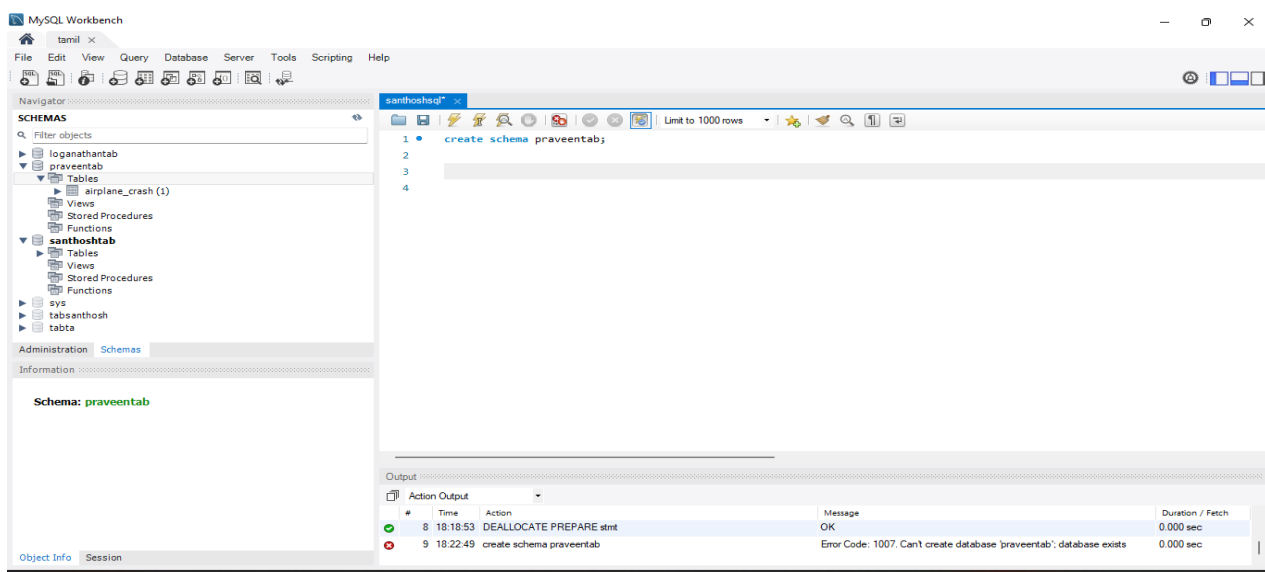|	Date	Location	Operator	Route	Type	Aboard	Fatalities	Ground
1	Date	Location	Operator	Route	Type	Aboard	Fatalities	Ground
2	09/17/1908	Fort Myer, Virginia	Military - U.S. Army	Demonstration	Wright Flyer III	2	1	0
3	07-12-1912	AtlantiCity, New Jers	Military - U.S. Navy	Test flight	Dirigible	5	5	0
4	08-06-1913	Victoria, British Colu	Private		Curtiss seaplane	1	1	0
5	09-09-1913	Over the North Sea	Military - German Navy		Zeppelin L-1 (airship	20	14	0
6	10/17/1913	Near Johannisthal, G	Military - German Navy		Zeppelin L-2 (airship	30	30	0
7	03-05-1915	Tienen, Belgium	Military - German Navy		Zeppelin L-8 (airship	41	21	0
8	09-03-1915	Off Cuxhaven, Germ	Military - German Navy		Zeppelin L-10 (airshi	19	19	0
9	07/28/1916	Near Jambol, Bulger	Military - German Army		Schutte-Lanz S-L-10	20	20	0
10	09/24/1916	Billericay, England	Military - German Navy		Zeppelin L-32 (airshi	22	22	0
11	10-01-1916	Potters Bar, England	Military - German Navy		Zeppelin L-31 (airshi	19	19	0
12	11/21/1916	Mainz, Germany	Military - German Army		Super Zeppelin (airsi	28	27	0
13	11/28/1916	Off West Hartlepool,	Military - German Navy		Zeppelin L-34 (airshi	20	20	0
14	03-04-1917	Near Gent, Belgium	Military - German Army		Airship	20	20	0
15	03/30/1917	Off Northern German	Military - German Navy		Schutte-Lanz S-L-9 (	23	23	0
16	05/14/1917	Near Texel Island, N	Military - German Navy		Zeppelin L-22 (airshi	21	21	0
17	06/14/1917	Off Vlieland Island, I	Military - German Navy		Zeppelin L-43 (airshi	24	24	0
18	08/21/1917	Off western Denmark	Military - German Navy		Zeppelin L-23 (airshi	18	18	0
19	10/20/1917	Near Luneville, Fran	Military - German Navy		Zeppelin L-44 (airshi	18	18	0
20	04-07-1918	Over the Mediterrane	Military - German Navy		Zeppelin L-59 (airshi	23	23	0
21	05-10-1918	Off Helgoland Island	Military - German Navy		Zeppelin L-70 (airshi	22	22	0
22	08-11-1918	Ameland Island, Nor	Military - German Navy		Zeppelin L-53 (airshi	19	19	0
23	12/16/1918	Elizabeth, New Jerse	US Aerial Mail Service		De Havilland DH-4	1	1	0
24	05/25/1919	Cleveland, Ohio	US Aerial Mail Service		De Havilland DH-4	1	1	0
25	07/19/1919	Dix Run, Pennsylvan	US Aerial Mail Service		De Havilland DH-4	1	1	0

Activity 1.1: Understand the data

Data contains all the meta information regarding the columns described in the CSV files. we have provided 8 CSV files:

1. Date

2. Location

3. Operators

4. Route

5. Type

6. Aboard

7. Fatalities

8. Ground

Column Description for Date:

1. date: This column represents the dates.

2. Location: This column represents the accident locations.

3. Operators: This column represents the accidents which made by operators.

4. Route: This column represents the airplane route.

5. Type: This column represents the airplane type.

6. Aboard: This column represents the count of people aboard.

7. Fatalities: This column represents the count of death.

8. Ground: This column represents the count of people grounded.

Activity 2: Storing Data in DB & Perform SQL Operations

Activity 3: Connect DB with Tableau

Milestone 3: Data Preparation

Activity 1: Prepare the Data for Visualization (Refer this video to understand about data preparation)

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete. This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.

Milestone 4: Data Visualization

Data visualization is the process of creating graphical representations of data in order to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data.
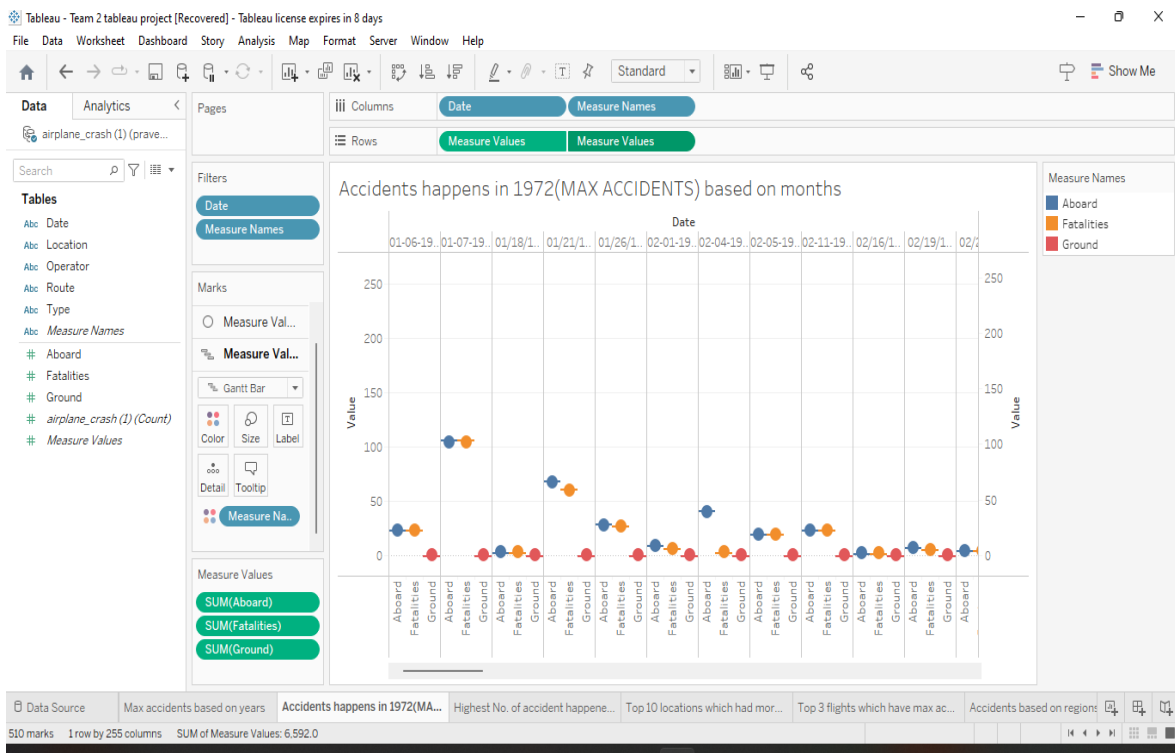
Activity 1: Comparing Aboard vs Fatalities vs Ground
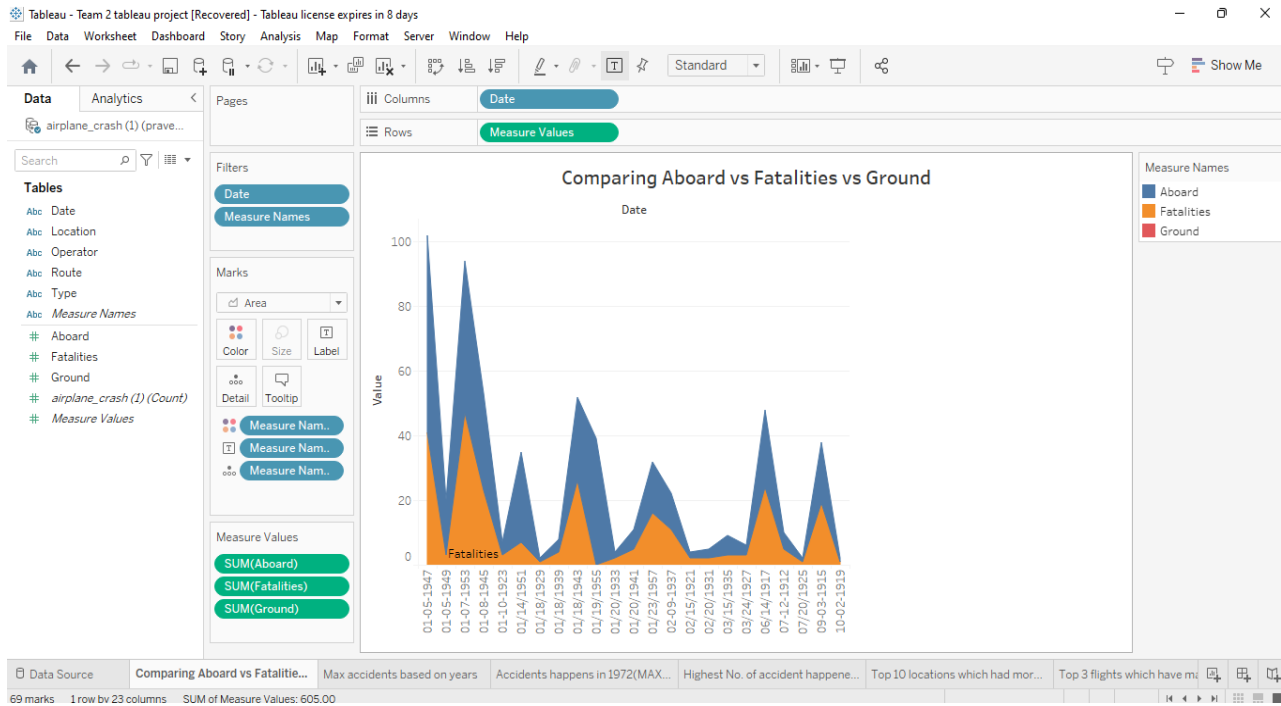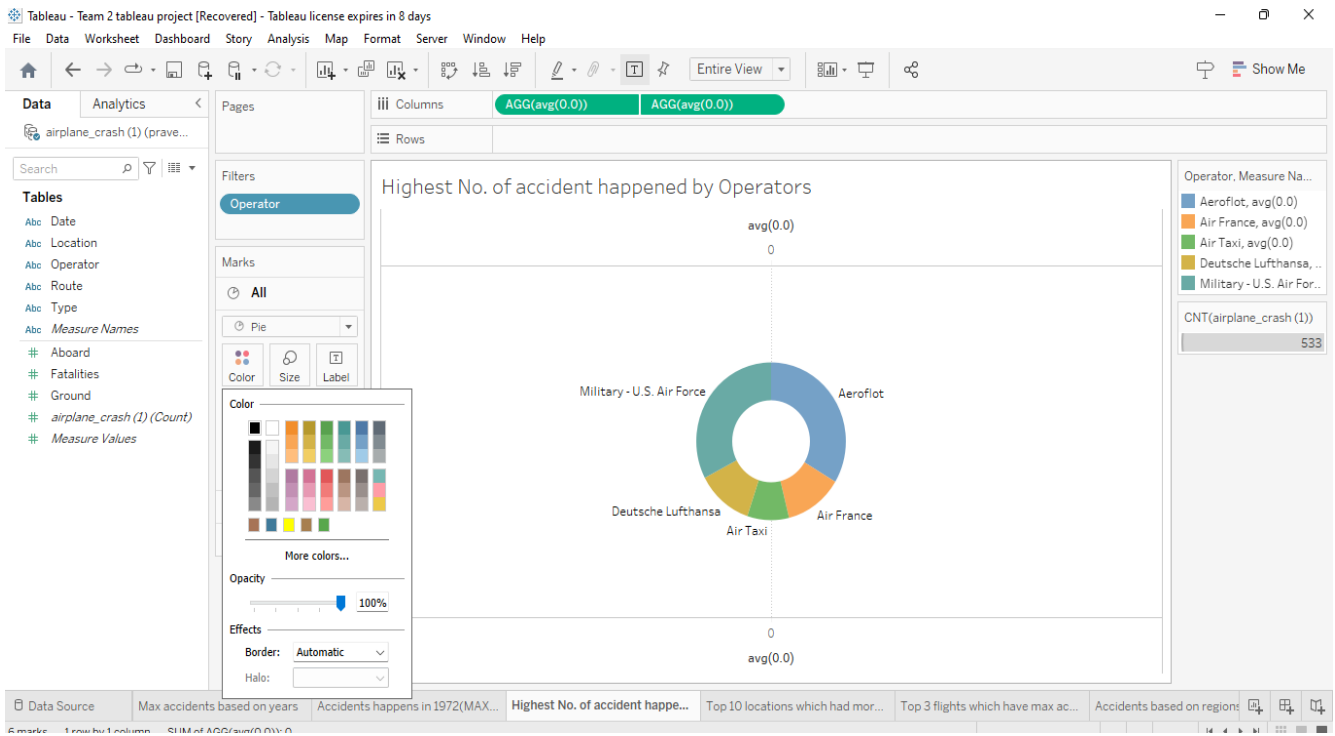
Activity 2: Max accidents based on years
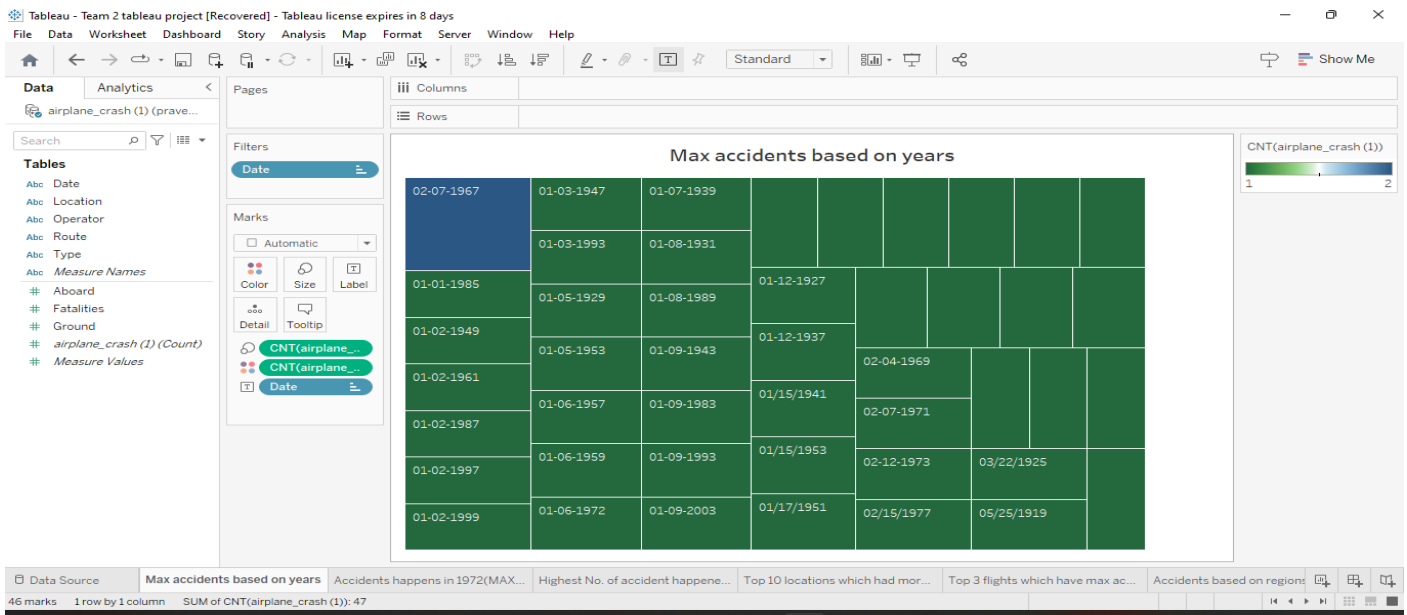
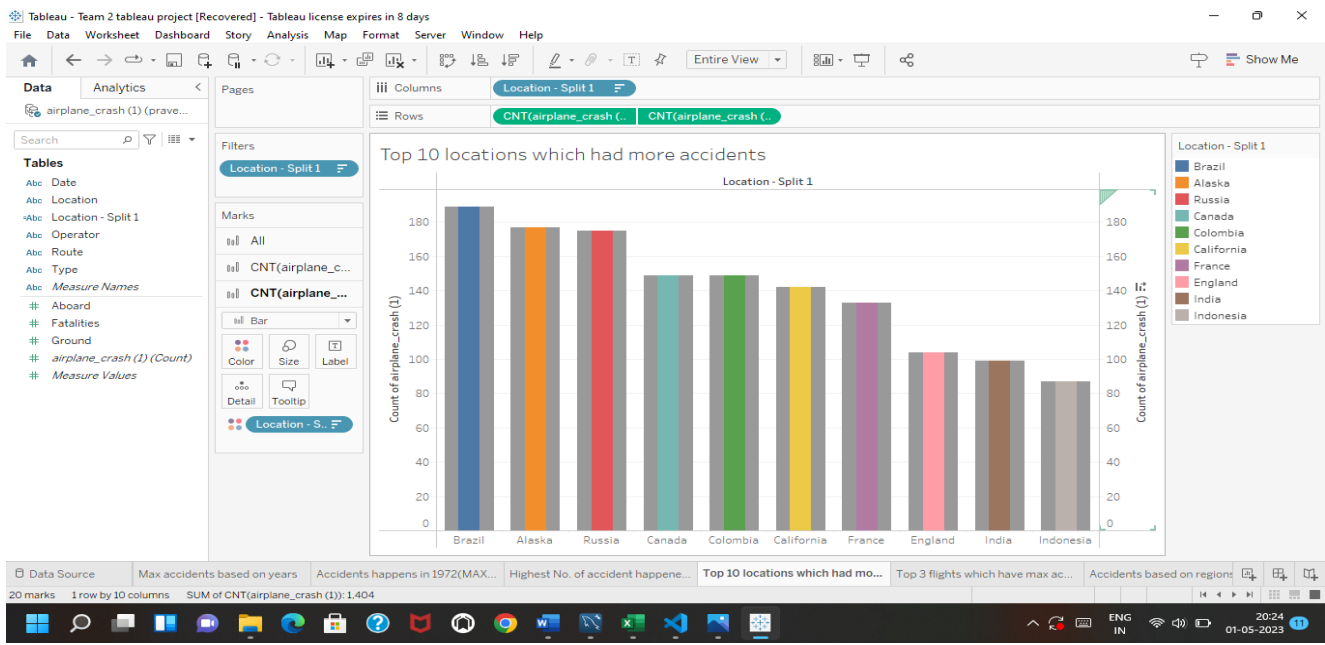# Activity 3: Accidents happened in 1972 (MAX ACCIDENTS) based onmonths

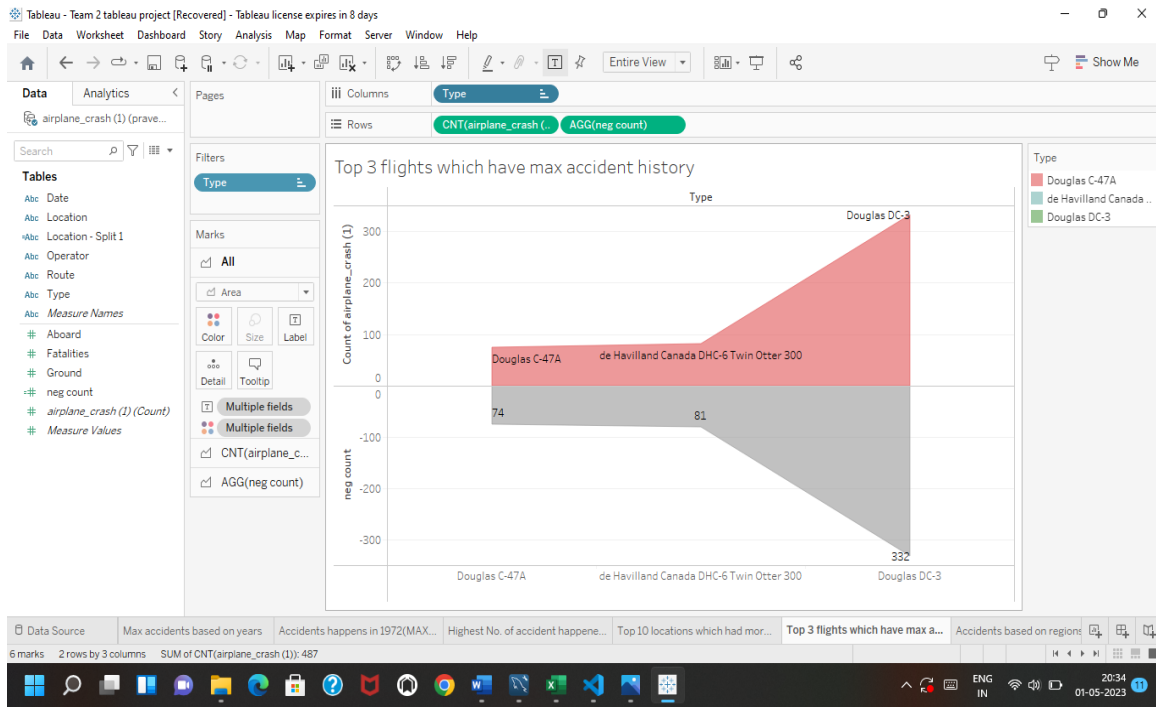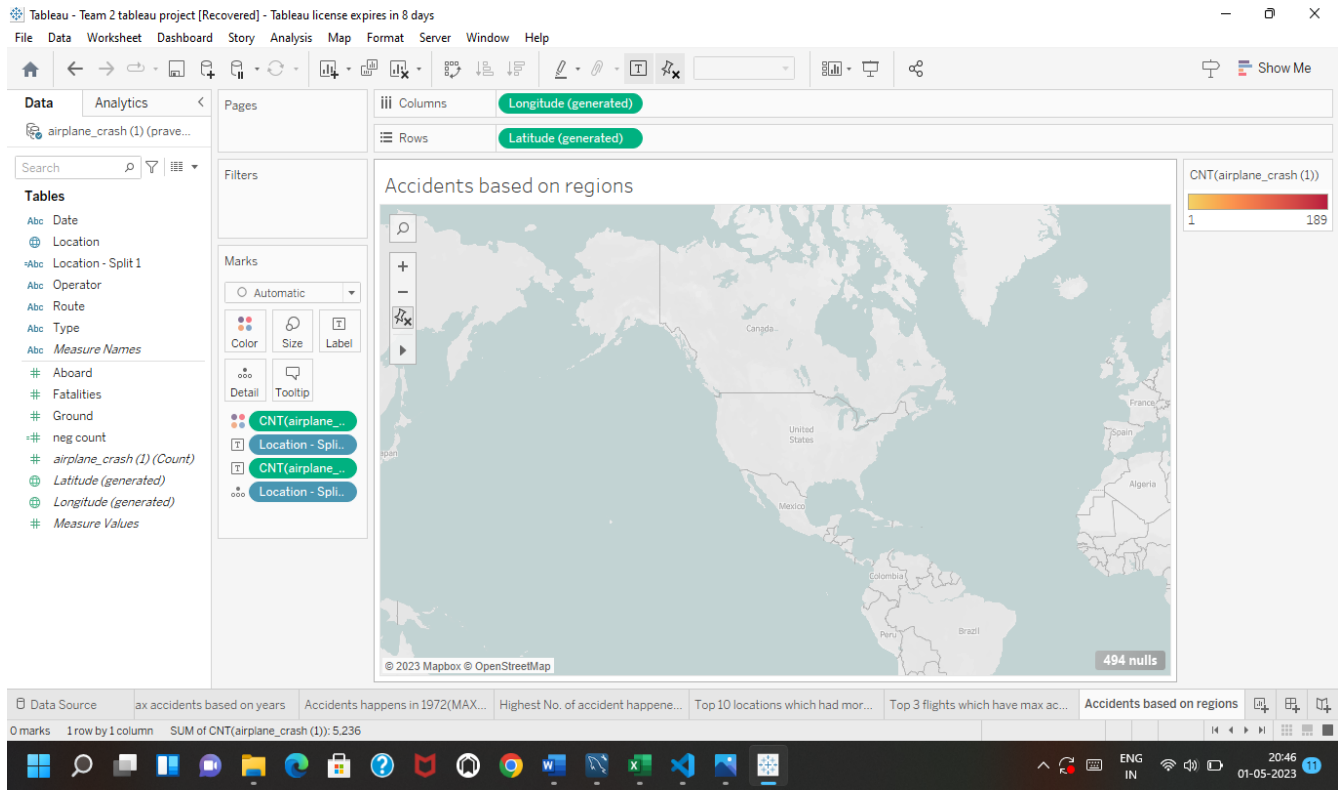# Activity 4: Highest No. of accident happened by Operators

Activity 5: Top 10 locations which had more accidents

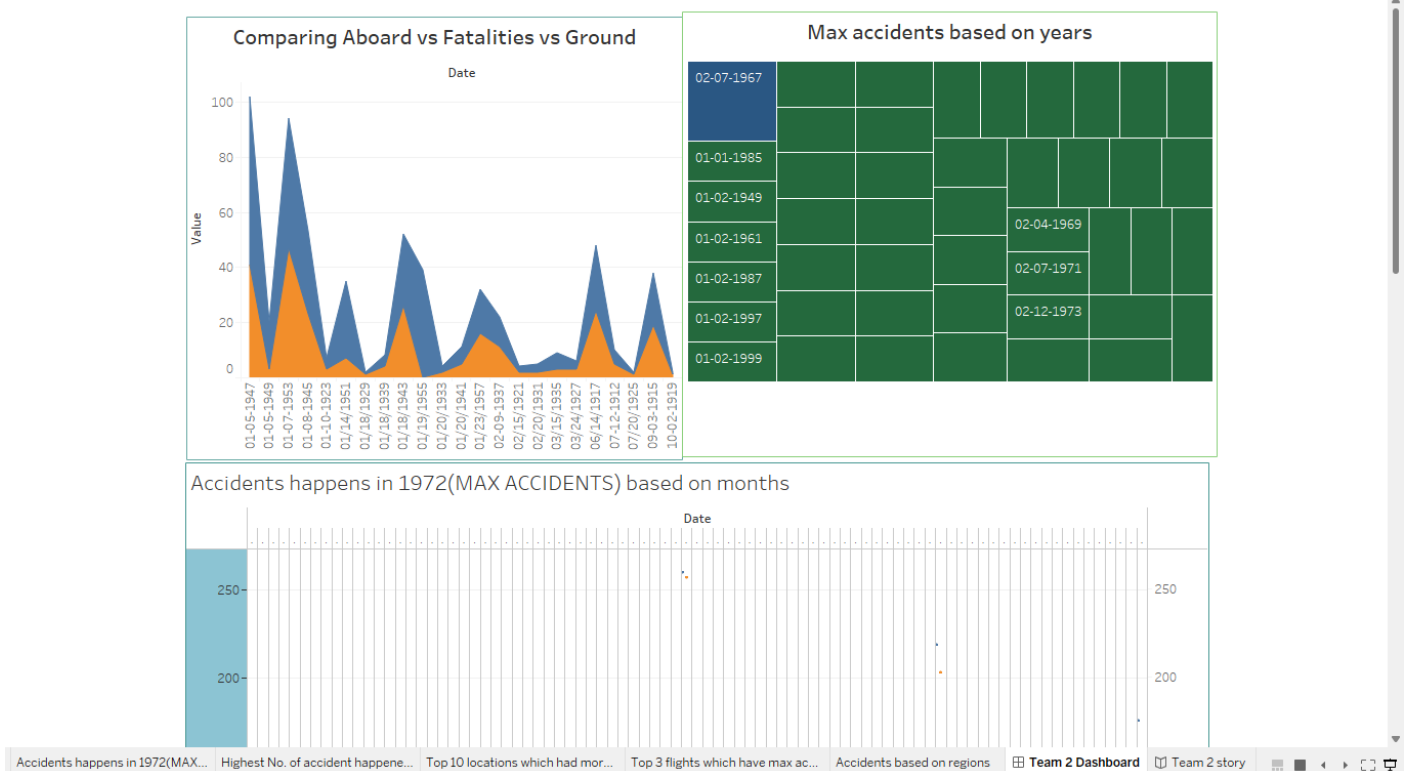## Activity 6: Top 3 flights which have max accident history

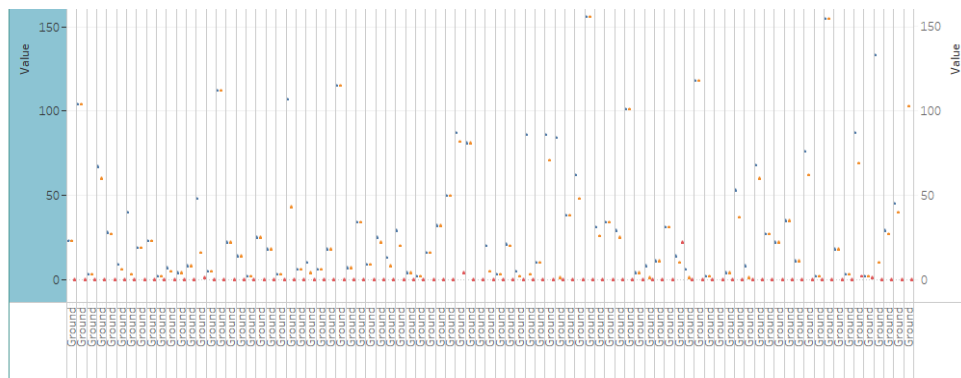## Activity 7: Accidents based on regions
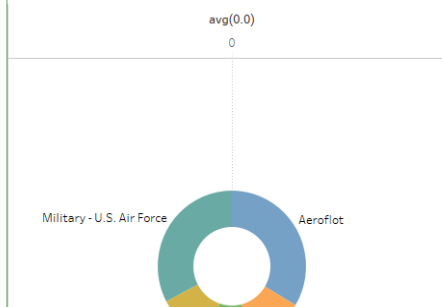
Milestone 5: Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data, and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries. They can be used to track key performance indicators (KPIs), monitor performance metrics, and display data in the form of charts, graphs, and tables.
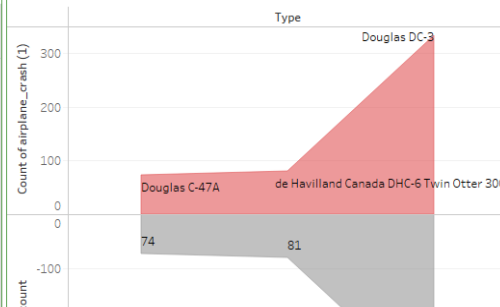
Activity :1- Responsive and Design of Dashboard

Highest No. of accident happened by Operators

avg(0.0)

0

Military - U.S. Air Force   Aeroflot

Top 3 flights which have max accident history

Type

Douglas DC-3

Douglas C-47A   de Havilland Canada DHC-6 Twin Otter 300

74   81

Accidents happens in 1972(MAX... | Highest No. of accident happene... | Top 10 locations which had mor... | Top 3 flights which have max ac... | Accidents based on regions | Team 2 Dashboard | Team 2 story

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Military - U.S. Air Force   Aeroflot

Deutsche Lufthansa   Air France

Air Taxi

avg(0.0)

Douglas C-47A   de Havilland Canada DHC-6 Twin Otter 300

74   81

Douglas C-47A   de Havilland Canada DHC-6 Twin Otter 300   Douglas DC-3

332

Accidents based on regions

Greenland

Norway

Top 10 locations which had more accidents
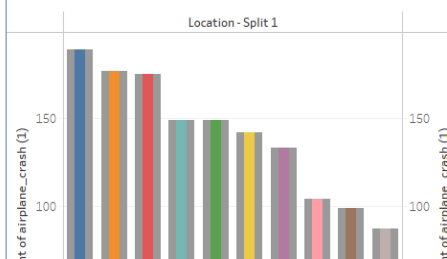
Location - Split 1

Accidents happens in 1972(MAX... | Highest No. of accident happene... | Top 10 locations which had mor... | Top 3 flights which have max ac... | Accidents based on regions | Team 2 Dashboard | Team 2 story

12
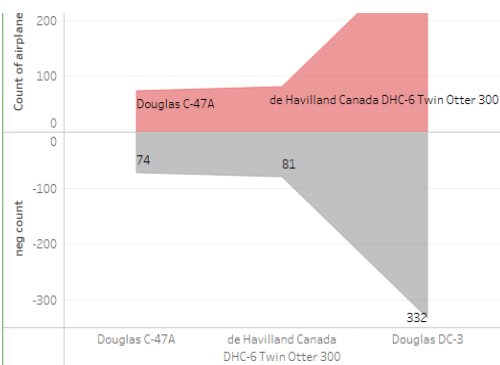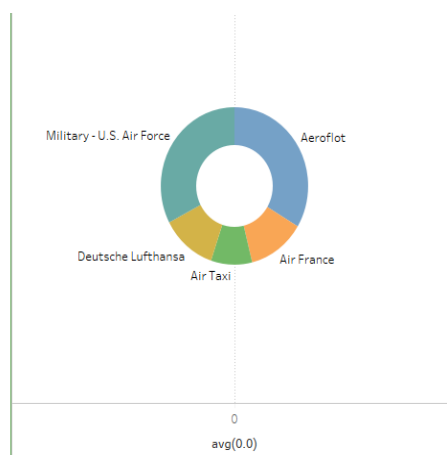
Milestone 6: Story

A data story is a way of presenting data and analysis in a narrative format, with the goal of making theinformation more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.
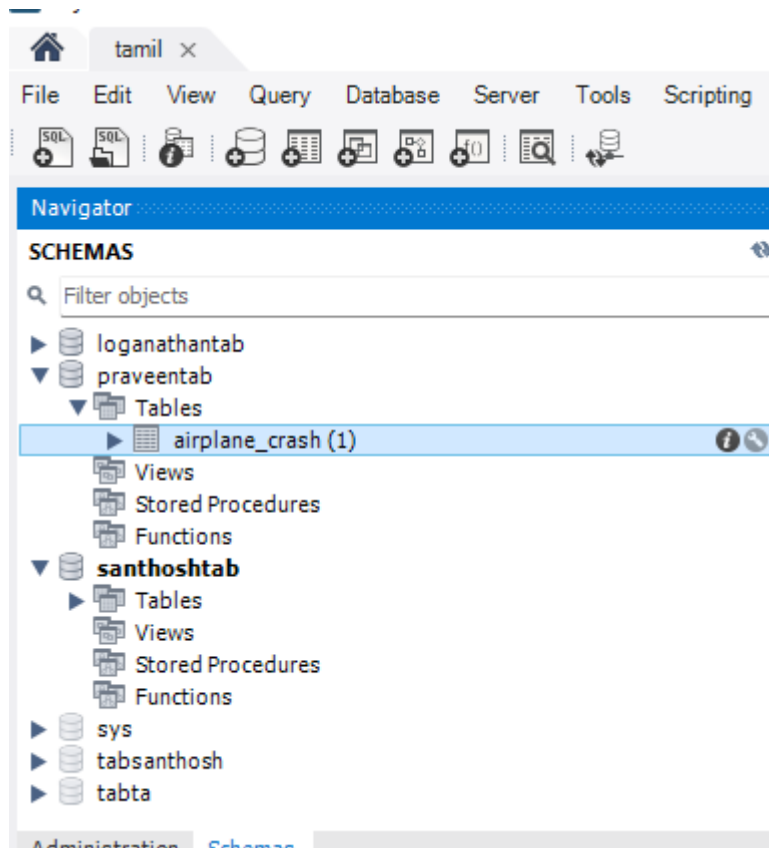
Activity:1- No of Scenes of Story
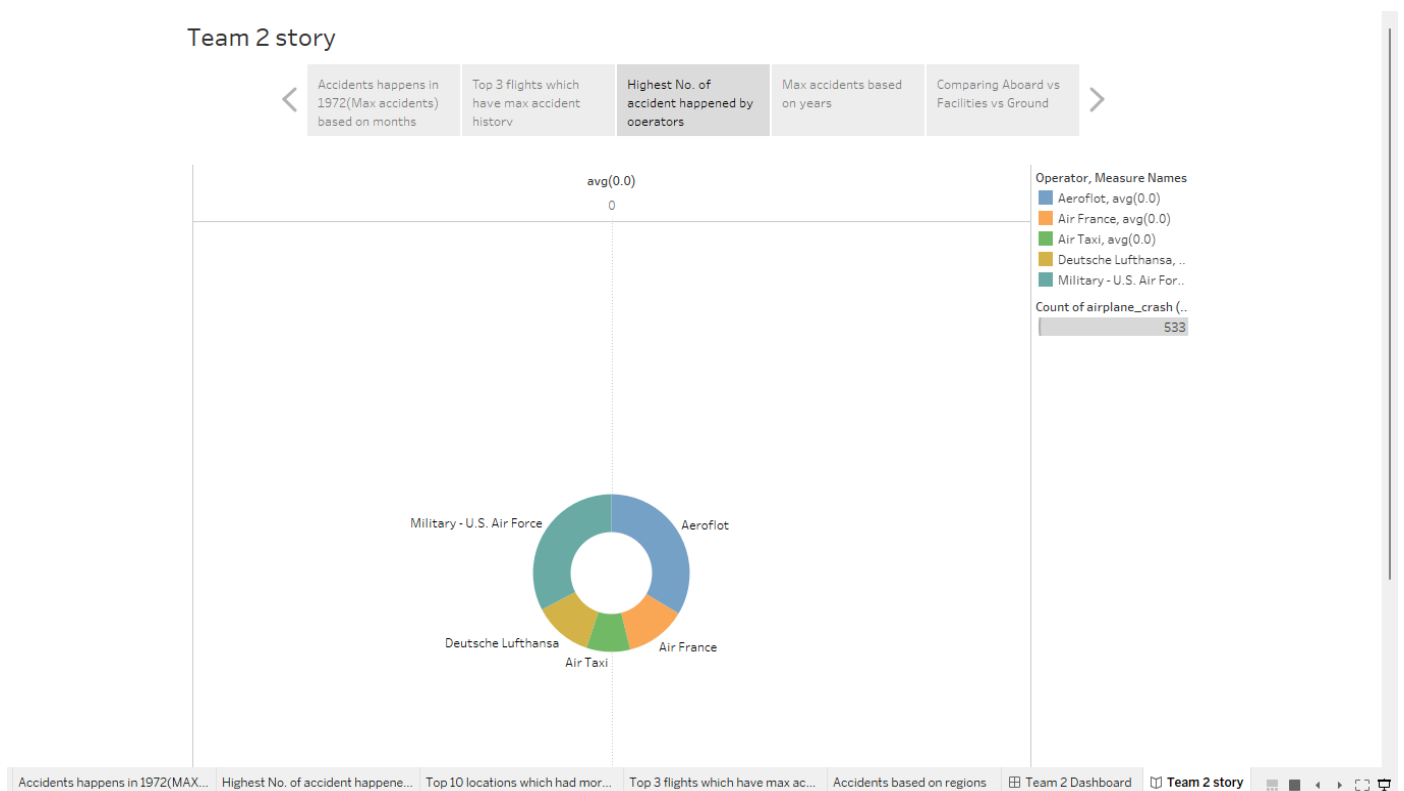
Milestone 7: Performance Testing

Activity 1: Amount of Data Rendered to DB

- The amount of data that is rendered to a database depends on the size of the dataset and the capacity of the database to store and retrievedata.

- Open the MySQL Workbench, go to the database then click to expand the tables,select the table and click on (i) button to get the information related to table such as column count,table rows etc.

Activity 2: Utilization of Data Filters
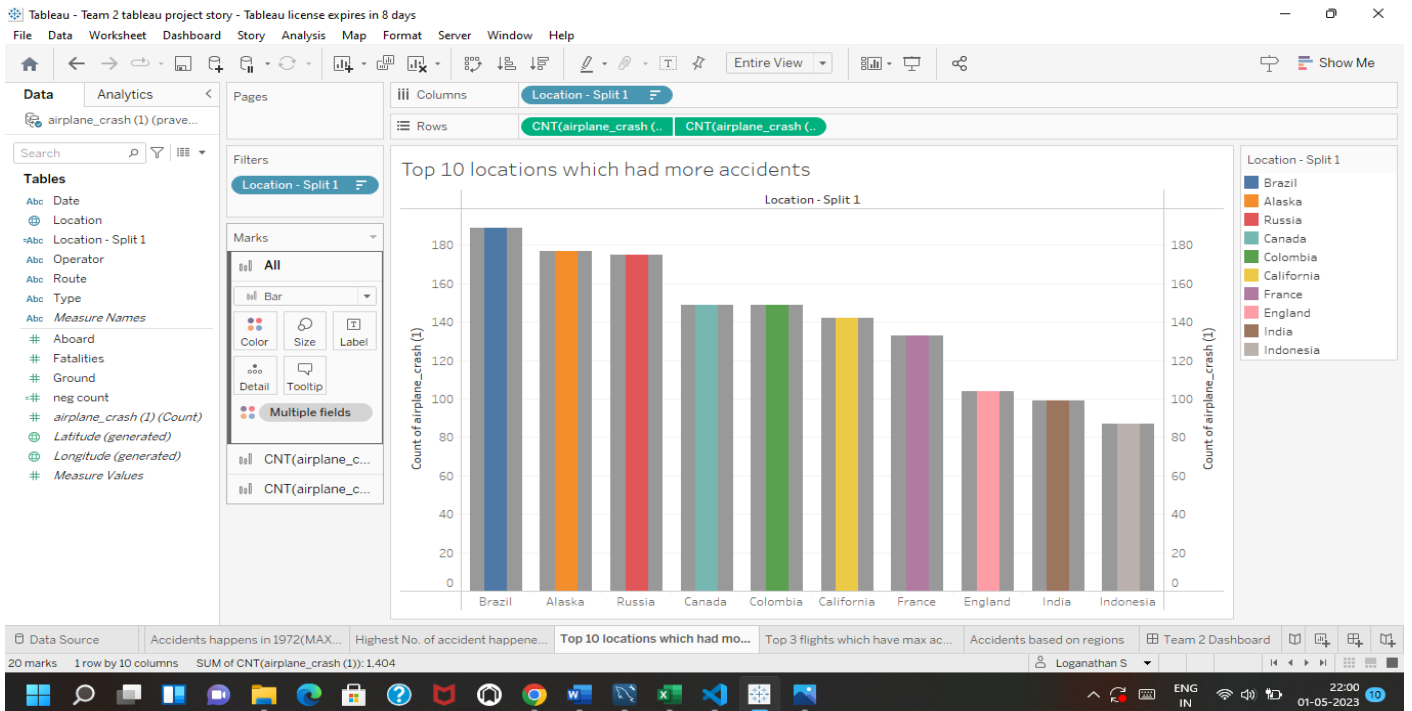
Activity 3: No of Calculation Fields

Abc   Date
Abc   Location
Abc   Operator
Abc   Route
Abc   Type
Abc   *Measure Names*

\#   Aboard
\#   Fatalities
\#   Ground
\#   *airplane_crash (1) (Count)*
\#   *Measure Values*

Activity 4: No of Visualizations/ Graphs

1. Comparing Aboard vs Fatalities vs Ground
2. Max accidents based on years
3. Accidents happened in 1972 (MAX ACCIDENTS) based on months
4. Highest No. of accident happened by Operators
5. Top 10 locations which had more accidents
6. Top 3 flights which have max accident history
7. Accidents based on regions

Milestone 8: Web integration

Publishing helps us to track and monitor key performance metrics, to communicate results and progress. help a publisher stay informed, make better decisions, and communicate their performance to others.

Publishing dashboard and reports to tableau public

Step 1: Go to Dashboard/story, click on share button on the top ribbon
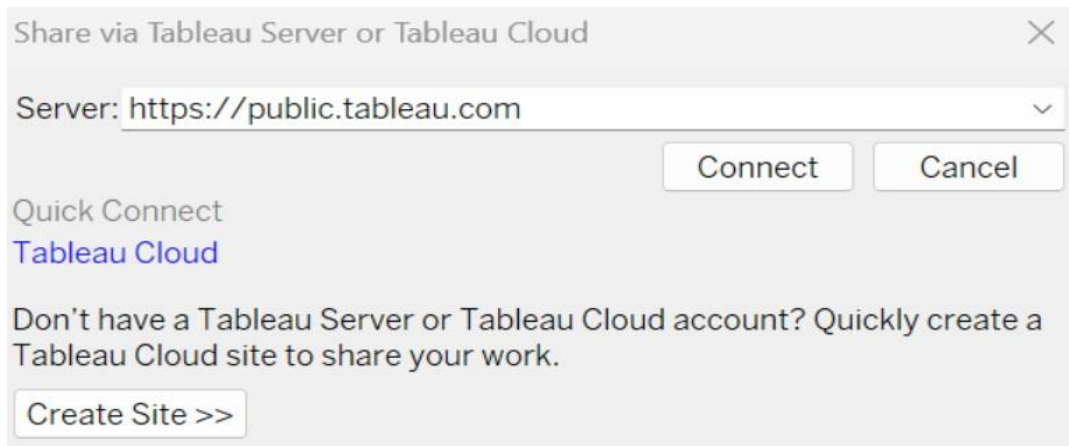
Give the server address of your tableau public account and click on connect.

Step 2: Once you click on connect it will ask you for tableau public user name and password

Once you login into your tableau public using the credentials, the particular visualization will be published into tableau public

Note: While publishing the visualization to the public, the respective sheet will get published when you click on share option.

Activity 1: Dashboard and Story embed with UI With Flask

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Airplane Crash analysis

Airplane Crashes and Fatalities Since 1908

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ABOUT PROJECT

An aviation accident is defined by the Convention on International Civil Aviation Annex 13 as an occurrence associated with the operation of an aircraft, which takes place from the time any person boards the aircraft with the intention of flight until all such persons have disembarked, and in which
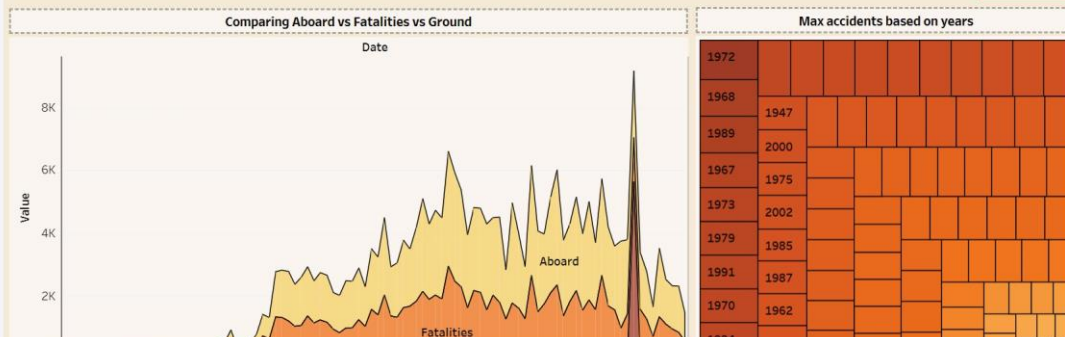
- a) a person is fatally or seriously injured,
- b) the aircraft sustains significant damage or structural failure, or
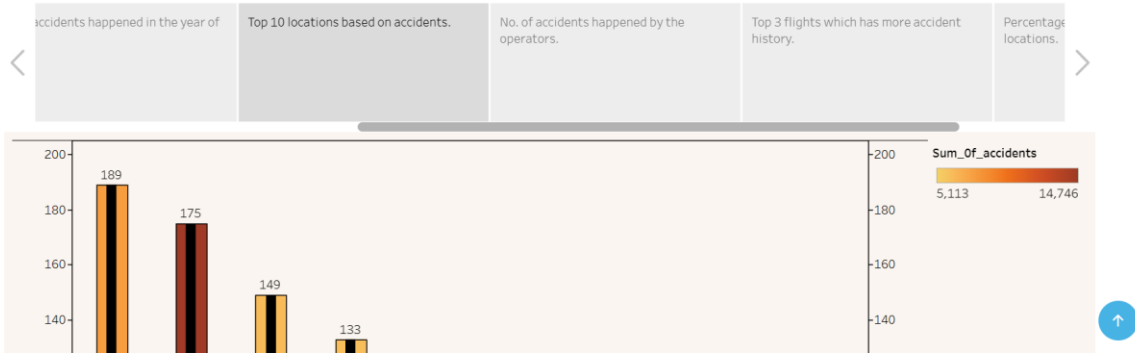- c) the aircraft goes missing or becomes completely inaccessible.

This dataset includes:

- All civil and commercial aviation accidents of scheduled and non-scheduled passenger airliners worldwide, which resulted in a fatality (including all U.S. Part 121 and Part 135 fatal accidents)
- All cargo, positioning, ferry and test flight fatal accidents.
- All military transport accidents with 10 or more fatalities.
- All commercial and military helicopter accidents with greater than 10 fatalities.
- All civil and military airship accidents involving fatalities.
- Aviation accidents involving the death of famous people.

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DASHBOARD

Airplane Crash Analysis   Next

Comparing Aboard vs Fatalities vs Ground   **Max accidents based on years**

Date

Value
8K
6K
4K
2K

Aboard

Fatalities

1972
1968
1989 1947
1967 2000
1973 1975
1979 2002
1991 1985
1970 1987
1994 1962

Story 1

| accidents happened in the year of | Top 10 locations based on accidents. | No. of accidents happened by the operators. | Top 3 flights which has more accident history. | Percentage locations. |

Sum_Of_accidents
5,113   14,746

189
175
149
133

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