

THE TRAGEDY OF FLIGHT: A COMPREHENSIVE CRASH ANALYSIS

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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 chronology of major air disasters since 1998:

2021

9 January : A Boeing 737, operated by Sriwijaya Air, crashes into the Java Sea minutes after taking off from Jakarta. All 62 people on board are killed, including seven children and three babies. **Officials say a problem with the aircraft's autothrottle had been reported a few days before the crash.**

2020

22 May : An Airbus A320 carrying 91 passengers and eight members of crew crashes in a residential area of the southern Pakistani city of Karachi, killing more than 90 people. At least two passengers survive the crash.



Flight PK8303 crashed just short of the perimeter at Karachi's Jinnah International Airport

8 January : Ukraine International Airlines flight PS752 crashes shortly after taking off from the Iranian capital Tehran, killing all 176 passengers and crew members on board. The incident took place amid escalating tensions between the US and Iran, and **the Iranian government eventually admitted it had downed the plane "unintentionally"**.

2019

10 March : An Ethiopian Airlines Boeing 737 Max crashes six minutes after take-off from Addis Ababa. All 157 people onboard are killed. The victims come from more than 30 countries.

2018

29 October : A Boeing 737 Max, operated by Lion Air, crashes into the Java Sea shortly after taking off from Jakarta, Indonesia. All 189 passengers and crew are killed, and a volunteer diver dies in the subsequent recovery operation. Investigators said the plane - which had had technical problems on previous flights - should have been grounded.

18 May : A Boeing 737 passenger plane crashes shortly after take-off from Jose Marti International Airport in Havana, killing 112 people. One passenger survives.

11 April : A military plane crashes shortly after take-off near the Algerian capital Algiers, killing all 257 people on board, including 10 crew members. Most of the dead are soldiers and their families.

12 March : A plane carrying 71 passengers and crew crashes on landing at Kathmandu airport. More than 50 people are killed when the Bombardier Dash 8 turboprop comes down.

18 February : A passenger plane crashes into the Zagros mountains in Iran killing all 66 people on board. The Aseman Airlines ATR turboprop crashes about an hour after taking off in the capital, Tehran, heading for the south-western city of Yasuj.

11 February : A Russian passenger plane crashes minutes after leaving Moscow's Domodedovo airport with 71 people on board. The Antonov An-148 belonging to Saratov Airlines was en route to the city of Orsk in the Ural mountains when it crashed near the village of Argunovo, about 80km (50 miles) south-east of Moscow.

2017

There were no passenger jet crashes in **2017 - the safest year in the history of commercial airlines.**

2016

25 December : A Russian military Tu-154 jet airliner crashes in the Black Sea, with the loss of all 92 passengers and crew. The plane came down soon after take-off from an airport near the city of Sochi. It was carrying artistes due to give a concert for Russian troops in Syria, along with journalists and military.



Bereaved residents of the Black Sea resort of Sochi must now come to terms with the latest air disaster

7 December : All 48 people on board a Pakistan International Airlines (PIA) plane were killed when it crashed in the north of the country. The national airline - accused of safety failures in the past - insisted this time

that strict checks on Flight PK-661 from Chitral to Islamabad left "no room for any technical error".



All 48 people on board the Pakistan International Airlines plane were killed when it crashed in the north of the country on 7 December

28 November : The plane carrying the football team of the Brazilian club Chapecoense runs out of fuel and crashes near Medellin, Colombia, killing 71 people, including most of the players and management. Three players were among the six survivors, while nine did not travel.

19 May : French President Francois Hollande confirms that an EgyptAir flight reported missing between Paris and Cairo has crashed, with 66 people on board.

19 March : A FlyDubai Boeing 737-800 crashes in Rostov-on-Don, Russia, killing all 62 people on board.

2015

31 October : An Airbus A321, operated by Russian airline Kogalymavia, crashes over central Sinai some 22 minutes after taking off from Sharm el-Sheikh, killing all 224 people on board. The Islamic State group's local affiliate **later says it brought down the plane in response to Russian intervention in Syria.**

30 June : Indonesian Hercules C-130 military transport plane crashes into a residential area of Medan. The army says all 122 people on board died, along with at least 19 on the ground.

24 March : Germanwings Airbus A320 airliner crashes in the French Alps near Digne, on a flight from Barcelona to Dusseldorf. All 148 people on board were feared dead.

2014

28 December : AirAsia QZ8501 flying from Surabaya in Indonesia to Singapore goes missing over the Java sea. The pilot radioed for permission to divert around bad weather but no mayday alert was issued. There were 162 passengers and crew on board.

24 July : Air Algerie AH5017 disappears over Mali amid poor weather near the border with Burkina Faso. The McDonnell Douglas MD-83 was operated by Spain's Swiftair, and was heading from Ouagadougou to Algiers carrying 116 passengers - 51 of them French. All are thought to have died.

23 July : Forty-eight people die when a Taiwanese ATR-72 plane crashes into stormy seas during a short flight. TransAsia Airways GE222 was carrying 54 passengers and four crew to the island of Penghu. It made an abortive attempt to land before crashing on a second attempt.



Malaysia Airlines Flight MH17 was travelling from Amsterdam to Kuala Lumpur when it was believed to have been shot down over conflict-hit Ukraine

17 July : Malaysia Airlines flight MH17 crashes near Grabove in eastern Ukraine, killing all 298 people on board, 193 of them Dutch. Pro-Russian rebels are widely accused of shooting the plane down using a surface-to-air missile - they deny responsibility.

8 March : The disappearance of Malaysia Airlines MH370 during a flight from Kuala Lumpur to Beijing leads to the largest and most expensive search in aviation history. Despite vast effort, notably in the hostile South Indian Ocean, nothing was found until July 2015, when an aircraft wing part washed up on Reunion Island. French officials confirmed the debris was from MH370.

11 February : A military transport plane - a Hercules C-130 - carrying 78 people crashes in a mountainous part of north-eastern Algeria.

Reports suggest there is one survivor from among the military personnel, family members and crew.

2013

17 November : Tatarstan Airlines Boeing 737 crashes on landing in Kazan, Russia, killing all 50 people on board.

16 October : Forty-nine people, including foreigners from some 10 countries as well as Laotian nationals, die when a Lao Airlines ATR 72-600 plunges into the Mekong River as it came in to land.

2012

3 June : A Dana Air passenger plane with about 150 people on board crashes in a densely populated area of Nigeria's largest city, Lagos.

20 April : A Bhoja Air Boeing 737 crashes on its approach to the main airport in the Pakistani capital Islamabad, killing all 121 passengers and six crew.

2011

26 July : Some 78 people are killed when a Moroccan military C-130 Hercules crashes into a mountain near Guelmim in Morocco. Officials blamed bad weather.



The pilot of the IranAir Boeing 727 which crashed near the north-western city of Orumiyeh reported a technical failure before trying to land

8 July : A Hewa Bora Airways plane crash-lands in bad weather in Democratic Republic of Congo, killing 74 of the 118 people on board.

9 January : An IranAir Boeing 727 breaks into pieces near the city of Orumiyeh, killing 77 of the 100 people on board. The pilots had reported a technical failure before trying to land.

2010

5 November : An Aerocaribbean passenger turboprop crashes in mountains in central Cuba, killing all 68 people on board.

28 July : A Pakistani plane on an Airblue domestic flight from Karachi crashes into a hillside while trying to land at Islamabad airport, killing all 152 people on board.

22 May : An Air India Express Boeing 737 overshot a hilltop airport in Mangalore, southern India, and crashed into a valley, bursting into flames and killing 158.

12 May : An Afriqiyah Airways Airbus 330 crashes while trying to land near Tripoli airport in Libya, killing more than 100 people.

10 April : A Tupolev 154 plane carrying Polish President Lech Kaczynski crashes near the Russian airport of Smolensk, killing more than 90 people on board.

25 January : Ethiopian Airlines passenger jet crashes into the sea with 89 people on board shortly after take-off from Beirut.

2009

15 July : A Caspian Airlines Tupolev plane crashes in the north of Iran en route to Armenia. All 168 passengers and crew are reported dead.

30 June : A Yemeni passenger plane, an Airbus 310, crashes in the Indian Ocean near the Comoros archipelago. Only one of the 153 people on board survives.

1 June : An Air France Airbus 330 travelling from Rio de Janeiro to Paris crashes into the Atlantic with 228 people on board. Search teams later recover some 50 bodies in the ocean.



All 168 passengers and crew were reported dead when a Caspian Airlines Tupolev plane crashed in the north of Iran en route to Armenia

20 May : An Indonesian army C-130 Hercules transport plane crashes into a village on eastern Java, killing at least 97 people.

12 February : A passenger plane crashes into a house in Buffalo, New York, killing all 49 people on board and one person on the ground.

2008

14 September: A Boeing-737 crashes on landing near the central Russian city of Perm, killing all 88 passengers and crew members on board.

24 August : A passenger plane crashes shortly after take-off from Kyrgyzstan's capital, Bishkek, killing 68 people.

20 August : A Spanair plane veers off the runway on take-off at Madrid's Barajas airport, killing 154 people and injuring 18.

2007

30 November : All 56 people on board an Atlasjet flight are killed when it crashes near the town of Keciborlu in the mountainous Isparta province, about 12km (7.5 miles) from Isparta airport.

16 September : At least 87 people are killed after a One-Two-Go plane crashed on landing in bad weather at the Thai resort of Phuket.

17 July : A TAM Airlines jet crashes on landing at Congonhas airport in Sao Paulo, in Brazil's worst-ever air disaster. A total of 199 people are killed - all 186 on board and 13 on the ground.

5 May : A Kenya Airways Boeing 737-800 crashes in swampland in southern Cameroon, killing all 114 on board. The official inquiry is yet to report on the cause of the disaster.

1 January : An Adam Air Boeing 737-400 carrying 102 passengers and crew comes down in mountains on Sulawesi Island on a domestic Indonesian flight. All on board are presumed dead.

2006

29 September : A Boeing 737 carrying 154 passengers and crew crashed into the Amazon rainforest in Brazil, killing all on board, after colliding with a private jet in mid-air.

22 August : A Russian Tupolev-154 passenger plane with 170 people on board crashes north of Donetsk, in eastern Ukraine.

9 July : A Russian S7 Airbus A-310 skids off the runway during landing at Irkutsk airport in Siberia. A total of 124 people on board die, but more than 50 survive the crash.

3 May : An Armavia Airbus A-320 crashes into the Black Sea near Sochi, killing all 113 people on board.

2005

10 December : A Sosoliso Airlines DC-9 crashes in the southern Nigerian city of Port Harcourt, killing 103 people on board.

6 December : A C-130 military transport plane crashes on the outskirts of the Iranian capital Tehran, killing 110 people, including some on the ground.



A mass funeral was held for those who died when a Mandala Airlines plane with 112 passengers and five crew on board crashed after take-off in the Indonesian city of Medan

22 October : A Bellview airlines Boeing 737 carrying 117 people on board crashes soon after take-off from the Nigerian city of Lagos, killing everyone on board.

5 September : A Mandala Airlines plane with 112 passengers and five crew on board crashes after take-off in the Indonesian city of Medan, killing almost all on board and dozens on the ground.

16 August : A Colombian plane operated by West Caribbean Airways crashes in a remote region of Venezuela, killing all 160 people on board. The airliner, heading from Panama to Martinique, was packed with residents of the Caribbean island.

14 August : A Helios Airways flight from Cyprus to Athens with 121 people on board crashes north of the Greek capital Athens, apparently after a drop in cabin pressure.

16 July : An Equatair plane crashes soon after take-off from Equatorial Guinea's island capital, Malabo, west of the mainland, killing all 60 people on board.

3 February : The wreckage of Kam Air Boeing 737 flight is located in high mountains near the Afghan capital Kabul, two days after the plane vanished from radar screens in heavy snowstorms. All 104 people on board are feared dead.

2004

21 November : A passenger plane crashes into a frozen lake near the city of Baotou in the Inner Mongolia region of northern China, killing all 53 on board and two on the ground, officials say.

3 January : An Egyptian charter plane belonging to Flash Airlines crashes into the Red Sea, killing all 141 people on board. Most of the passengers are thought to be French tourists.

2003

25 December : A Boeing 727 crashes soon after take-off from the West African state of Benin, killing at least 135 people en route to Lebanon.

8 July : A Boeing 737 crashes in Sudan shortly after take-off, killing 115 people on board. Only one passenger, a small child survived.



The Benin air crash happened when a Boeing 727 dropped out of the sky soon after take-off, killing at least 135 people travelling to Lebanon

26 May : A Ukrainian Yak-42 crashes near the Black Sea resort of Trabzon in north-west Turkey, killing all 74 people on board - most of them Spanish peacekeepers returning home from Afghanistan.

8 May : As many as 170 people are reported dead in DR Congo after the rear ramp of an old Soviet plane, an Ilyushin 76 cargo plane, apparently falls off, sucking them out.

6 March : An Algerian Boeing 737 crashes after taking off from the remote Tamanrasset airport, leaving up to 102 people dead.

19 February : An Iranian military transport aircraft carrying 276 people crashes in the south of the country, killing all on board.

8 January : A Turkish Airlines plane with 76 passengers and crew on board crashes while coming in to land at Diyarbakir.

2002

23 December : An Antonov 140 commuter plane carrying aerospace experts crashes in central Iran, killing all 46 people aboard. The delegation had been due to review an Iranian version of the same plane built under licence.

27 July : A fighter jet crashes into a crowd of spectators in the west Ukrainian town of Lviv, killing 77 people, in what is the world's worst air show disaster.

1 July : Seventy-one people, many of them children die when a Russian Tupolev 154 aircraft on a school trip to Spain collides with a Boeing 757 transport plane over southern Germany.

25 May : A Boeing 747 belonging to Taiwan's national carrier - China Airlines - crashes into the sea near the Taiwanese island of Penghu, with 225 passengers and crew on board.

7 May : China Northern Airlines plane carrying 112 people crashes into the sea near Dalian in north-east China.

7 May : On the same day, an EgyptAir Boeing 735 crash lands near Tunis with 55 passengers and up to 10 crew on board. Most people survive.

4 May : A BAC1-11-500 plane operated by EAS Airlines crashes in the Nigerian city of Kano, killing 148 people - half of them on the ground.

15 April : Air China flight 129 crashes on its approach to Pusan, South Korea, with over 160 passengers and crew on board.

12 February : A Tupolev 154 operated by Iran Air crashes in mountains in the west of Iran, killing all 117 on board.

29 January : A Boeing 727 from the Ecuadorean TAME airline crashes in mountains in Colombia, killing 92 people.

2001

12 November : An American Airlines A-300 bound for the Dominican Republic crashes after takeoff in a residential area of the borough of Queens, New York, killing all 260 people on board and at least five people on the ground.

8 October : A Scandinavian Airlines System (SAS) airliner collides with a small plane in heavy fog on the runway at Milan's Linate airport, killing 118 people.



The crashed American Airlines flight of November 2000 left much of the Rockaway neighbourhood of New York enveloped by smoke

4 October : A Russian Sibir Airlines Tupolev 154, en route from Tel Aviv to Novosibirsk in Siberia, explodes in mid-air and crashes into the Black Sea, killing 78 passengers and crew.

3 July : A Russian Tupolev 154, en route from Yekaterinburg in the Ural mountains to the Russian port of Vladivostok, crashes near the Siberian city of Irkutsk, killing 133 passengers and 10 crew.

2000

30 October : A Singapore Airlines Boeing 747 bound for Los Angeles crashes after take-off from Taipei airport in Taiwan, killing 78 of the 179 people on board.

23 August : A Gulf Air Airbus crashes into the sea as it comes in to land in Bahrain, killing all 143 people on board.

25 July : Air France Concorde en route for New York crashes into a hotel outside Paris shortly after takeoff, killing 113 people, including four on the ground.



The Singapore Airlines Boeing 747 heading for Los Angeles crashed soon after take-off from Taipei airport in Taiwan

17 July : Alliance Air Boeing 737-200 crashes into houses attempting to land at Patna, India, killing 51 people on board and four on the ground.

19 April : Air Philippines Boeing 737-200 from Manila to Davao crashes on approach to landing, killing all 131 people on board.

31 January : Alaska Airlines MD-83 from Mexico to San Francisco plunges into ocean off southern California, killing all 88 people on board.

30 January : Kenya Airways A-310 crashes into Atlantic Ocean shortly after takeoff from Abidjan, Ivory Coast, en route for Lagos, Nigeria. All but 10 of the 179 people on board die.

1999

31 October : EgyptAir Boeing 767 crashes into Atlantic Ocean after taking off from John F. Kennedy Airport in New York on flight to Cairo, Egypt, killing all 217 on board.

24 February : China Southwest Airlines plane crashes in a field in China's coastal Zhejiang province after a mid-air explosion. All 61 people on board the Russian-built TU-154 flying from Chongqing to the south-eastern city of Wenzhou are killed.

1998

11 December : Thai Airways International A-310 crashes on a domestic flight during its third attempt to land at Surat Thani, Thailand, killing 101 people.

2 September: Swissair MD-11 from New York to Geneva crashes in the Atlantic Ocean off Canada killing all 229 people on board.

16 February : Airbus A-300 owned by Taiwan's China Airlines crashes near Taipei's Chiang Kai-shek airport while trying to land in fog and rain after a flight from Bali, Indonesia. All 196 on board and seven people on ground are killed.

2 February : Cebu Pacific Air DC-9 crashes into mountain in southern Philippines, killing all 104 people aboard.

Activity-3 : Literature Survey

Globally, the risk of a commercial aircraft accident is low. The fatal accident rate of about 0.65 per million flights at the start of the 1990 s decreased to an average of one per 2.75 million flights for the five-year period 2010–2015. Research related to factors that can impact the health outcomes of occupants and the preparedness and response to aviation mass casualty accidents is rather limited. The aim of the study was to expand this knowledge and to determine the impact of maximum take-off weight (MTOW), flight phases and aircraft damage on the survivability of occupants in commercial passenger aircraft accidents. Two thousand one hundred accidents from the period 1990–2014, included in the accident database of the International Civil Aviation Organization (ICAO), met the inclusion criteria of the study. Results of the study showed that the survivability was lower and the casualty rate and the rate of seriously and fatally injured was higher in accidents that occurred during the approach phase, involving smaller aircrafts and in which the aircraft was destroyed. Approximately two-thirds of the accidents happened at the airport or in its immediate vicinity. Empirical data on the casualty rate, the rate of seriously and fatally injured and the survivability of occupants involved in commercial passenger aircraft accidents can help to optimize the preparedness and response of emergency medical services and hospitals in the accident area.

An aircraft accident is defined on the basis of injury severity and aircraft damage. An aircraft accident is “an occurrence associated with the operation of an aircraft between boarding and disembarkation time in which a person is fatally or seriously injured, or

the aircraft is destroyed or sustained substantial damage . A fatal accident indicates an accident where at least one person perished .Aircraft accidents may be classified according to survivability. Using this classification, accidents can be categorized into three groups:

- a fatal or non-survivable accident in which the impact forces are beyond human tolerance and all onboard are killed instantly;
- a partially or technically survivable accident, in which some of the passengers or crew survive; and
- a non-fatal or survivable accident, in which all the passengers and crew survive.

Surviving an aircraft accident is the result of many factors. An increase in the survivability of occupants in aircraft accidents can be achieved either by preventing accidents before they occur or by improving the survival factors, i.e. impact survival, timely and safe evacuation and post-crash survival.

Activity-4: Social and Business Impact

Aviation is a fast growing sector of the economy. It is associated with a number of social and economic benefits and a range of environmentally damaging consequences. It is also associated with a significant and growing contribution to the global inventory of greenhouse gases which are thought to be implicated in climate change. This report sets out to provide a clear basis of evidence for a wider and deeper public debate on these issues and concludes with a number of policy recommendations that are intended to ensure that aviation continues to contribute to the economy in a way that does not threaten environmental quality either globally or locally.

The debate about aviation and its strong growth trajectory is very poorly developed. There is an unquestioning acceptance in government that the rising demand for air travel will continue and that the land use planning implications (especially more terminals and runways) of this can be managed with minimal harm to the environment. The aviation industry has been very successful in its adoption of an environmental agenda (environmental reports, support of exotic, threatened environments, appointment of environmental managers, financial support for a professorship of "sustainable aviation") but has been less forthcoming on questions of growth and the need for reductions in greenhouse gases.

The industry has benefited from a well developed system of public support. Airports can expect to be linked at public expense by very expensive infrastructure to the motorway system, aviation fuel is not taxed and a great deal of public money at EU and UK levels goes into air traffic control systems. Equally the industry does become

involved in direct funding of this infrastructure eg the Heathrow Express. Nevertheless in the language of environmental economics aviation does not meet the full external costs generated by its own activities (noise and pollution) and fails to pay for direct costs generated by the activity itself (eg the motorway links to Manchester and Heathrow airports).

This report is intended to raise levels of awareness about the growth of aviation and its environmental consequences. This is especially important in the UK. The United Kingdom is one of the most important aviation markets in Europe with the biggest airline (British Airways), the largest airport (Heathrow), a very dynamic market (new low-budget airlines) and high passenger growth rates. Road based transport has recently emerged from a similar process of debate and reflection which has led to a greater understanding of the links between providing new roads and the growth in road traffic and the economic benefits of improved road access. A better understanding of both areas has resulted in a scaling down of new road construction. The time is now right for a similar process of reflection and debate for air transport. The report is organised in six sections. Section 2 looks at the growth of aviation.

There are a number of predictions of the future level of demand for aviation in the years 2015 and 2050. The growth forecasts vary but the middle of the range indicates at least a doubling of the miles flown by 2015 on a 1995 base. Section 3 describes the impact of aviation on noise and on ground level emissions (aircraft and road transport associated with airports). In both cases it reviews the evidence on the links between these environmental problems and human health. Section 4 deals with the impact of aviation on climate change and Section 5 on the economic impact of aviation and airport development.

Section 6 deals with the policy implications of the analysis carried out in the first 5 sections. Currently there is no coherent policy and section 6 makes clear recommendations to fill this gap.

The report is intended to stimulate a public and a policy debate around aviation and its growth. Government policy in transport has made great progress in recent years in its recognition of the importance of integration and in its espousal of demand side and supply solutions to transport problems. It is now time to extend these principles to aviation and through an informed debate to identify the main elements of a new approach to aviation in the UK, the European Union and globally. This approach should be firmly rooted in changes to UK policy (the main target of this report) and through UK policy into European and global debates where changes also need to be made if a coherent approach to aviation is to be achieved.

Milestone 2: Data Collection & Extraction from Database

Activity 1: Collect the dataset

To download the given dataset by using the link.

airplane_crash.csv								
Open with ▾								
	A	B	C	D	E	F	G	H
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 (airs	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, t	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								

Activity 1.1: Understand the data

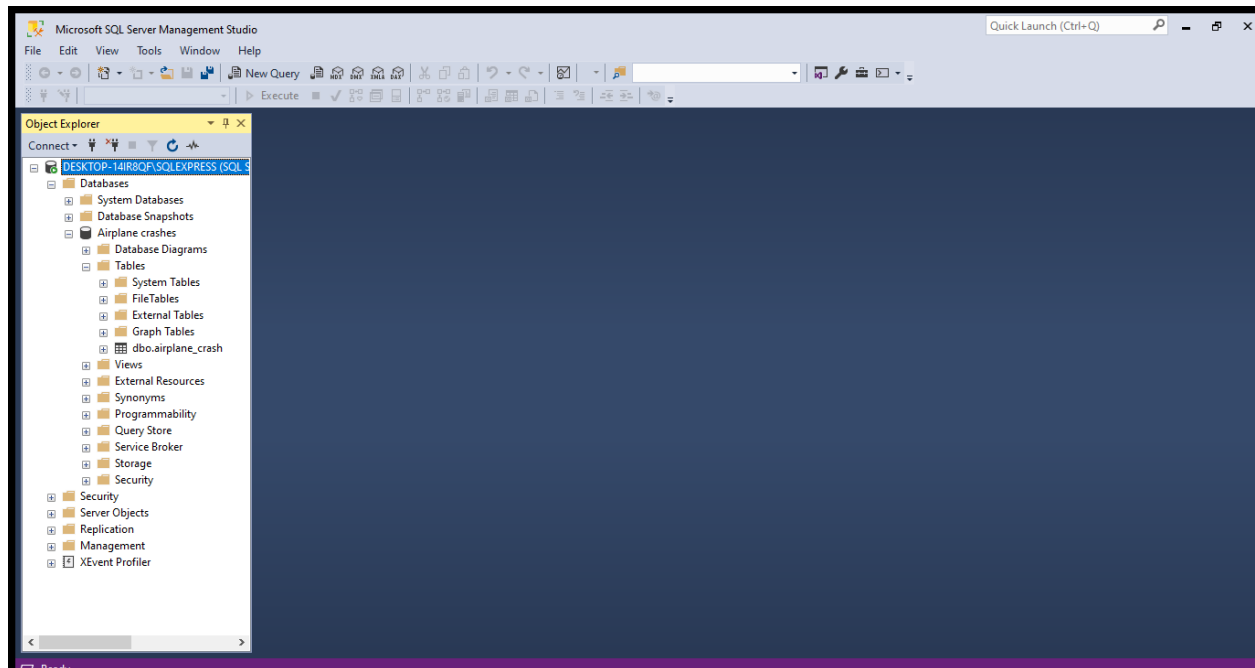
Data contains all the meta information regarding the columns described in the CSV files. we have provided 8 CSV files:

1. Date
2. Location
3. Operators
4. Route
5. Type
6. Aboard
7. Fatalities
8. Ground

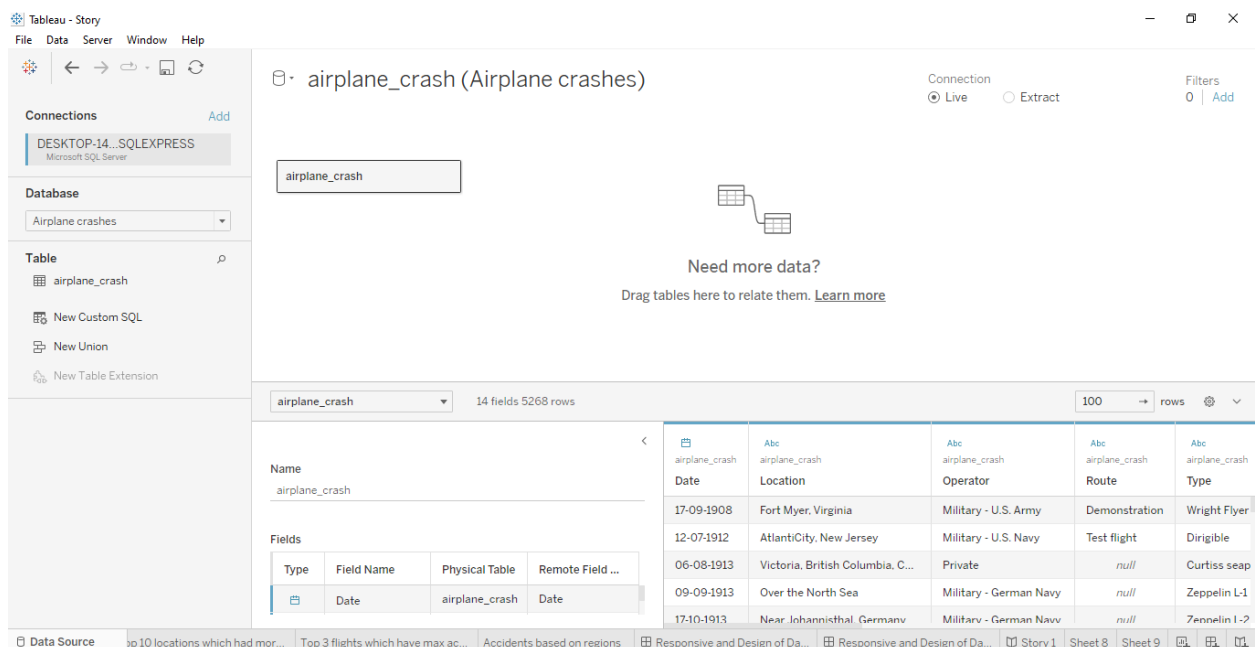
Column Description for Date:

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

The screenshot shows the Tableau Desktop interface. On the left, the 'Connections' pane lists 'DESKTOP-14...SQLEXPRESS' as a Microsoft SQL Server. Below it, the 'Database' is set to 'Airplane crashes'. The 'Table' list includes 'airplane_crash', 'New Custom SQL', 'New Union', and 'New Table Extension'. The main workspace displays a card for 'airplane_crash (Airplane crashes)' with a 'Need more data?' prompt. Below the card, a data preview table is shown with 14 fields and 5268 rows. The preview table has columns: Name, Date, Location, Operator, Route, and Type. The data rows show various aircraft crashes, including 'Wright Flyer', 'Dirigible', 'Curtiss seap', 'Zeppelin L-1', and 'Zennelin I-2'.

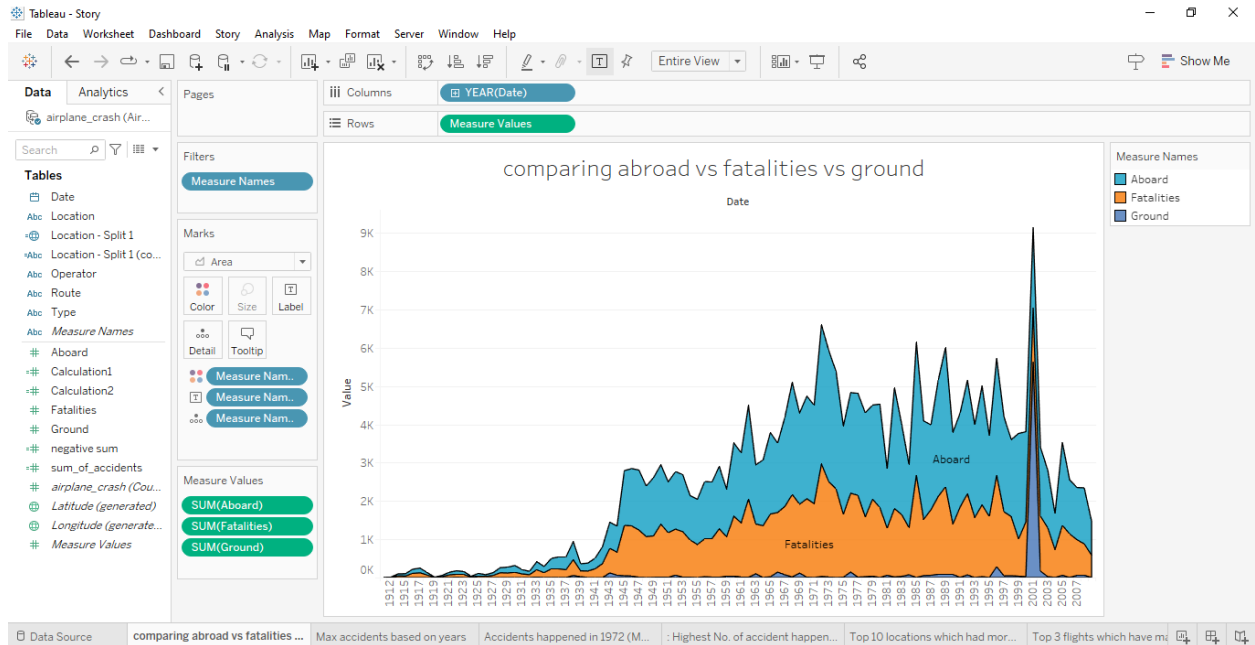
Name	Date	Location	Operator	Route	Type
airplane_crash	17-09-1908	Fort Myer, Virginia	Military - U.S. Army	Demonstration	Wright Flyer
airplane_crash	12-07-1912	AtlantiCity, New Jersey	Military - U.S. Navy	Test flight	Dirigible
airplane_crash	06-08-1913	Victoria, British Columbia, C...	Private	null	Curtiss seap
airplane_crash	09-09-1913	Over the North Sea	Military - German Navy	null	Zeppelin L-1
airplane_crash	17-10-1913	Near, Jhannisthal, Germanv	Military - German Navv	null	Zennelin I-2

The screenshot shows the 'Save Extract As' dialog box. The breadcrumb path is '<< My Tableau Re... > Datasources >'. The 'Organize' section shows a file explorer view with columns 'Name', 'Date modified', and 'Type'. The files listed are '2023.1' (File folder), 'Archive' (File folder), and 'airplane_crash (Airplane crashes)' (Tableau Extract). The 'File name' field is set to 'airplane_crash (Airplane crashes)' and the 'Save as type' is set to 'Tableau Data Extract (*.hyper)'.

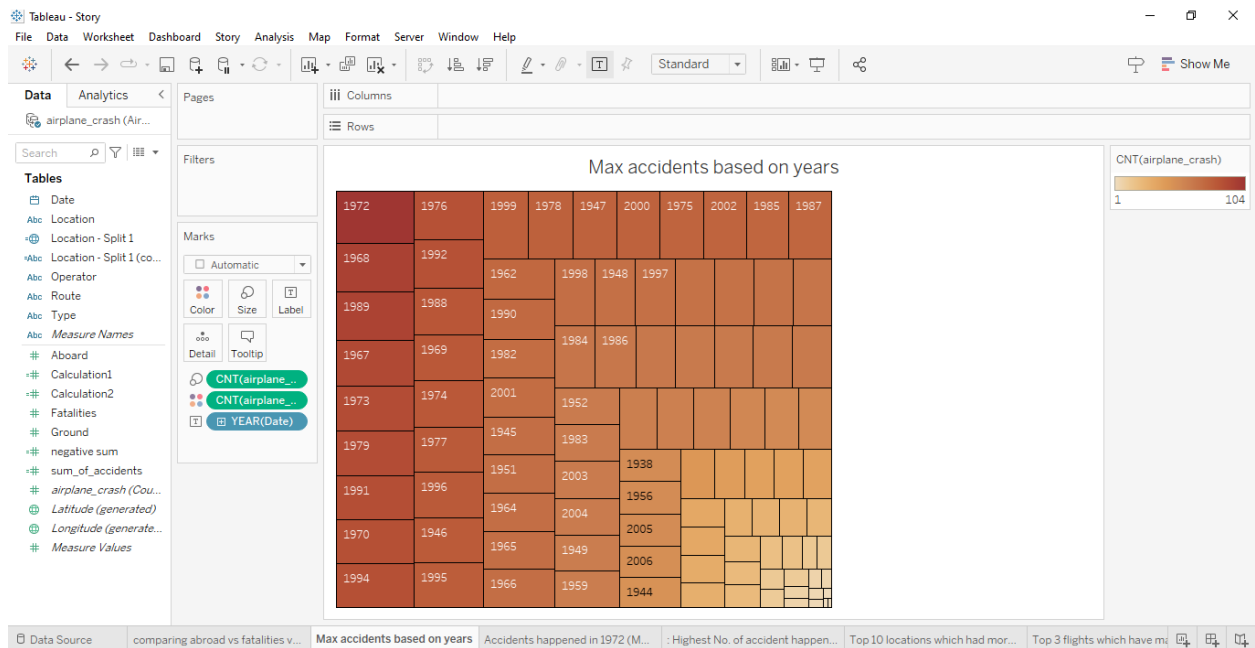
Name	Date modified	Type
2023.1	11-04-2023 16:39	File folder
Archive	11-04-2023 16:39	File folder
airplane_crash (Airplane crashes)	12-04-2023 08:00	Tableau Extract

Milestone 4: Data Visualization

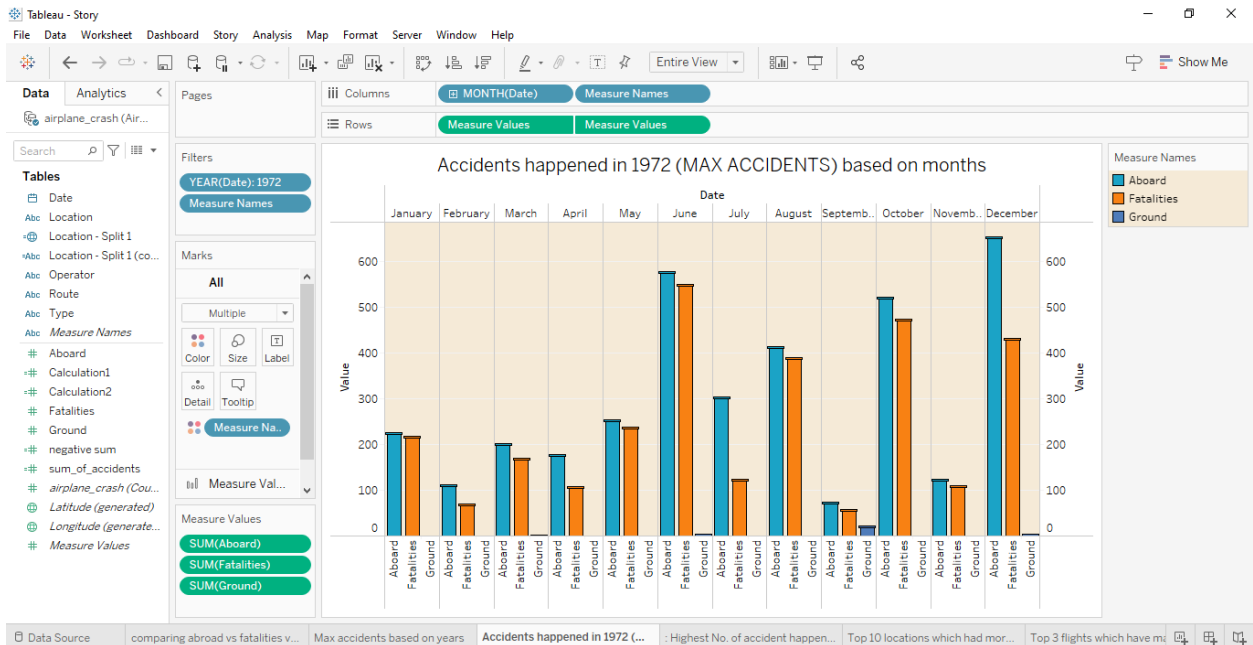
Activity 1: Comparing Aboard vs Fatalities vs Ground



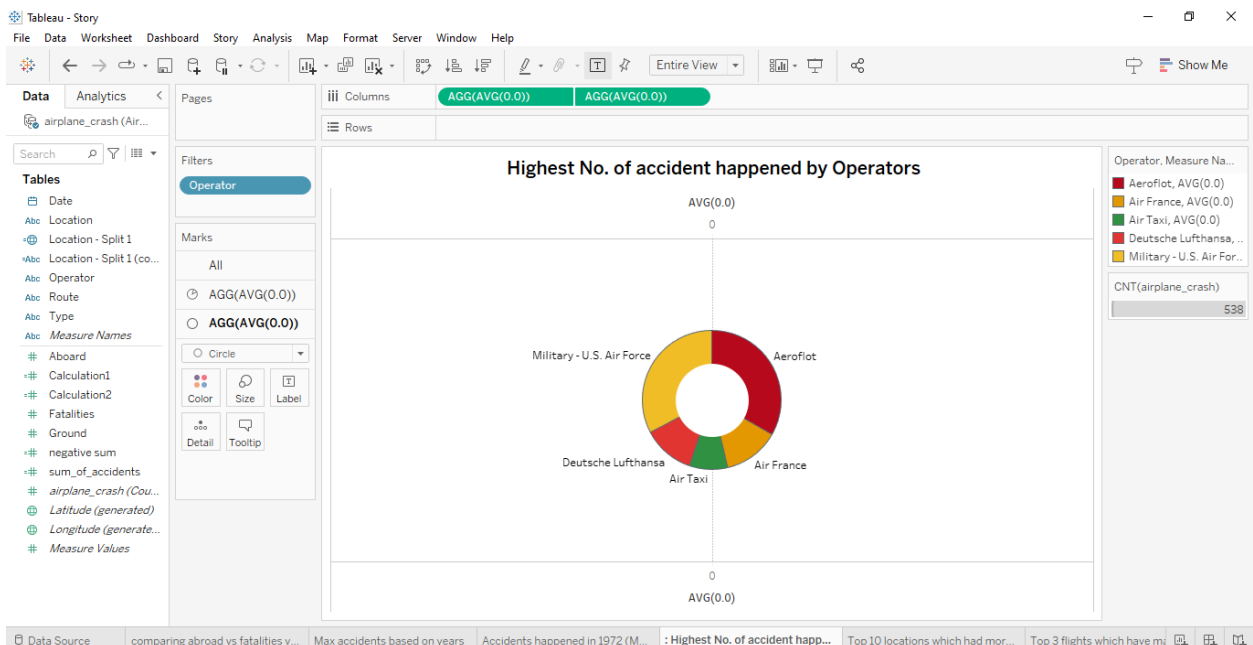
Activity 2: Max accidents based on years



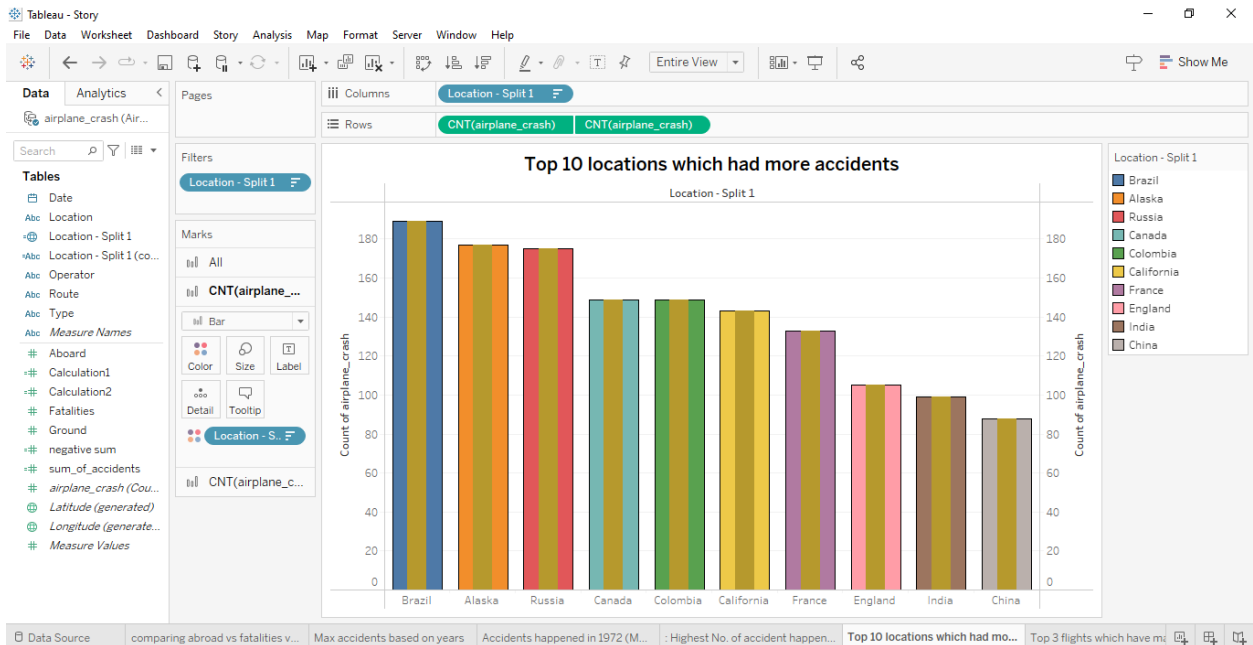
Activity 3: Accidents happened in 1972 (MAX ACCIDENTS) based on months



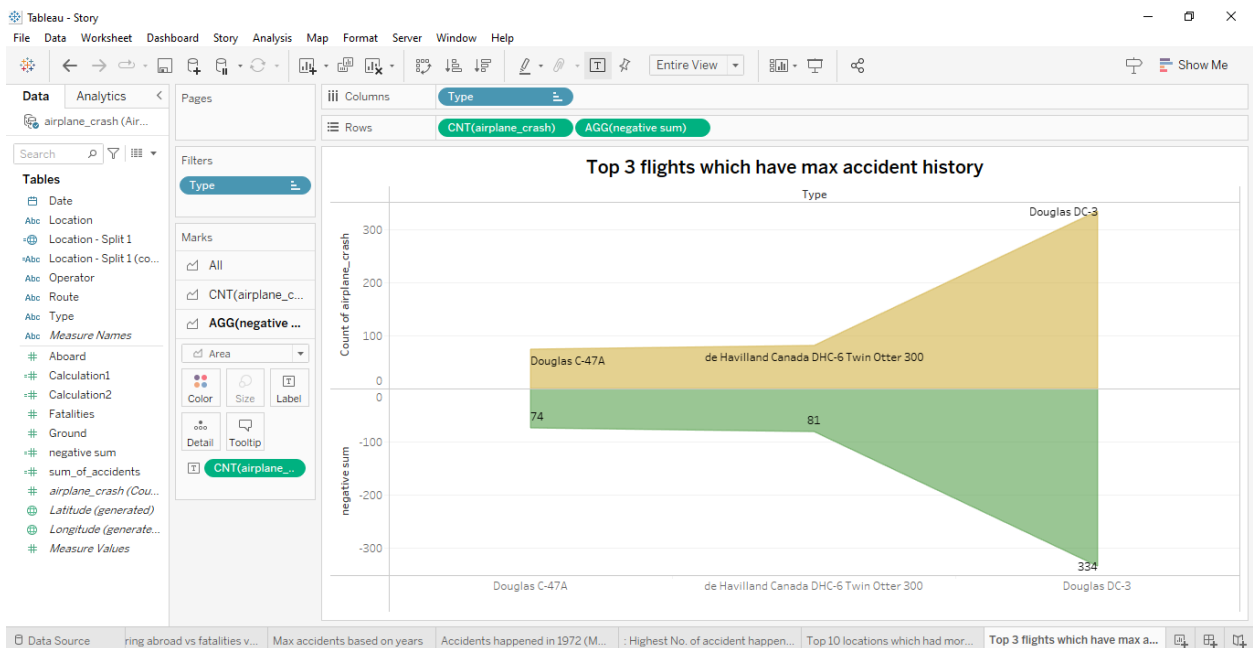
Activity 4: Highest No. of accident happened by Operators



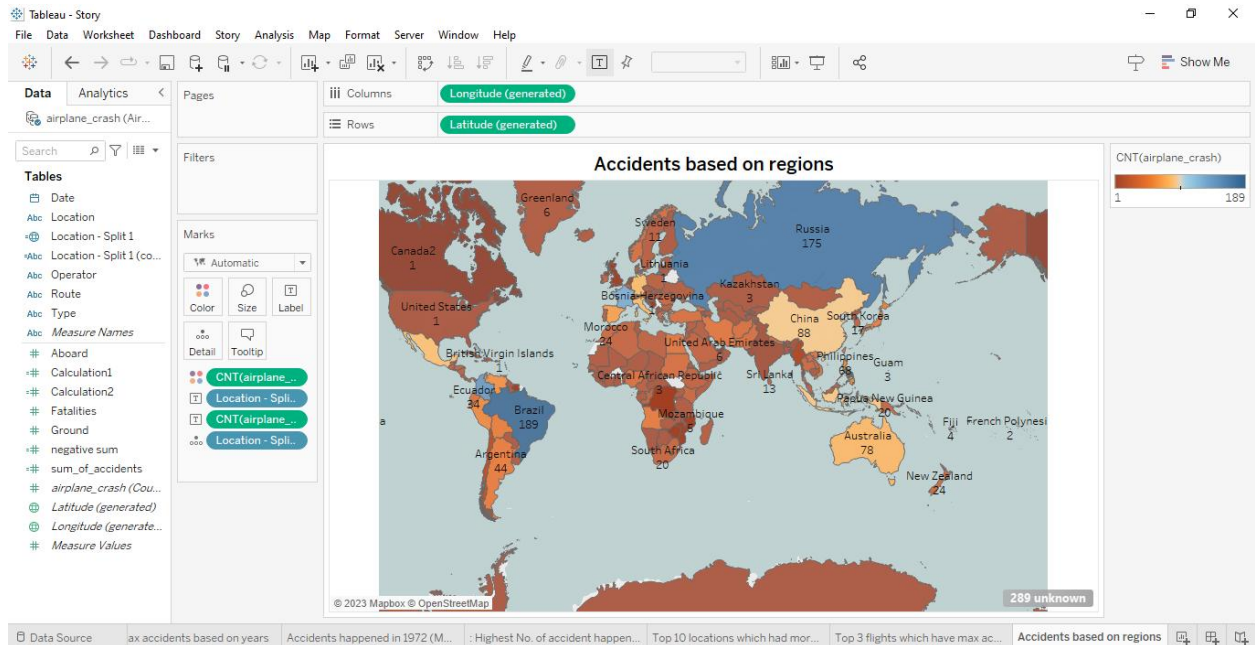
Activity 5: Top 10 locations which had more accidents



Activity 6: Top 3 flights which have max accident history

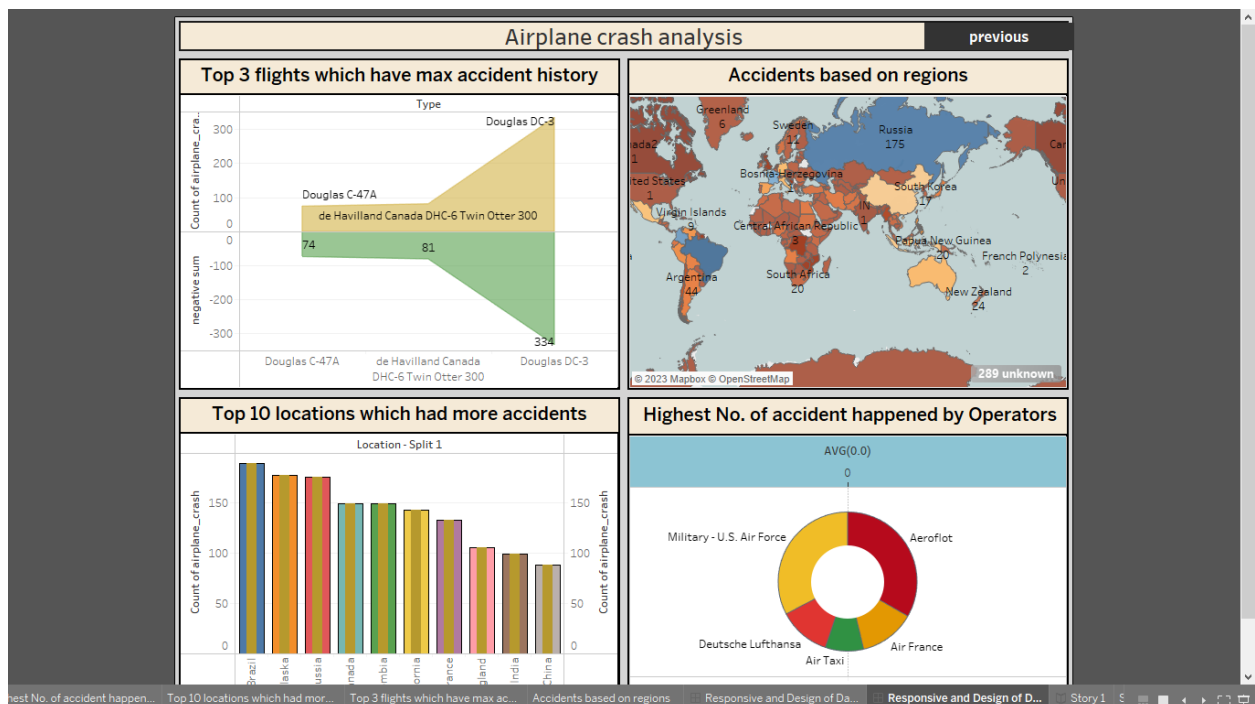
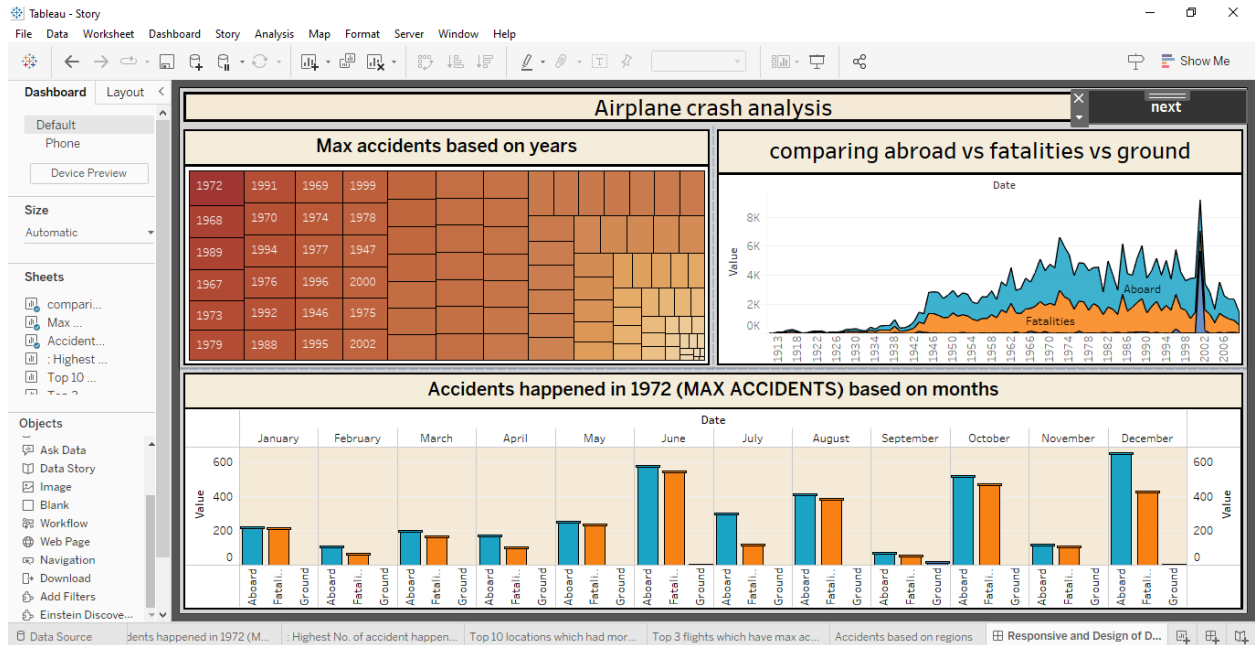


Activity 7: Accidents based on regions



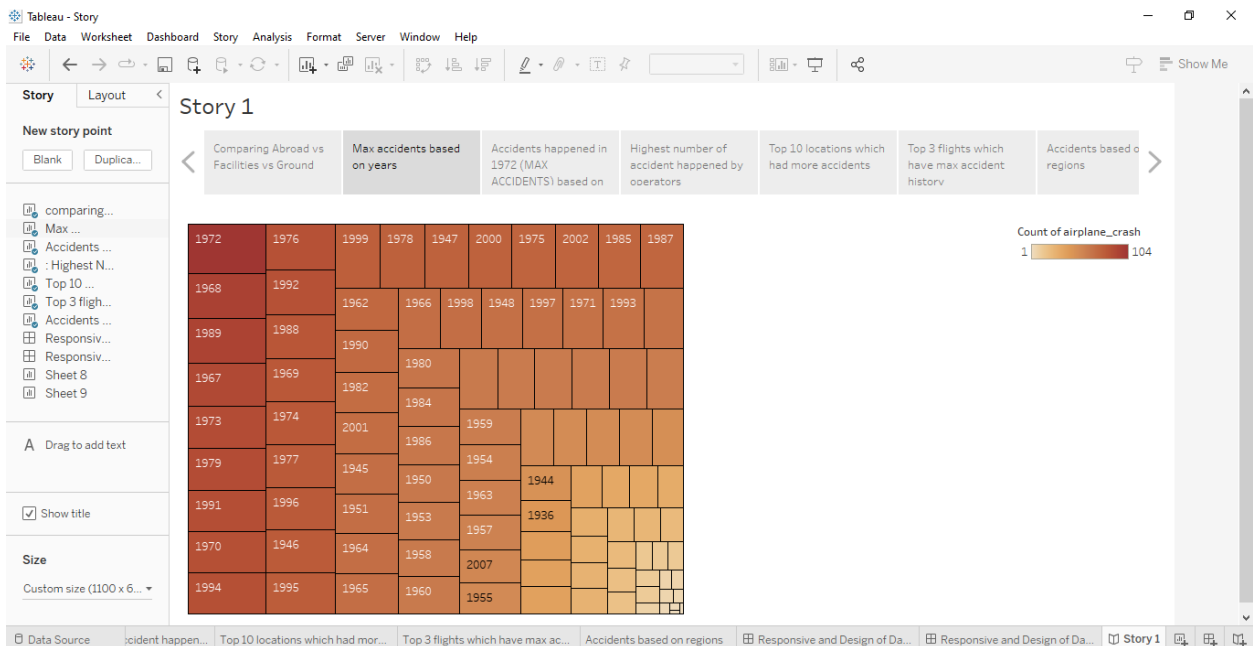
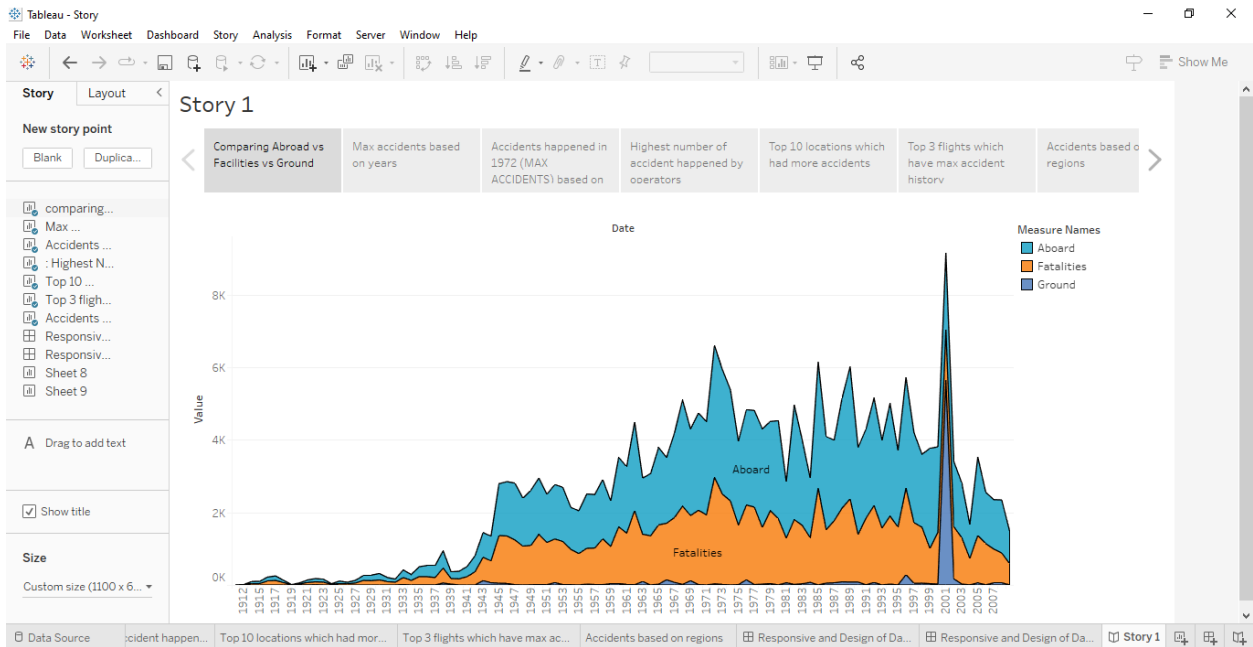
Milestone 5: Dashboard

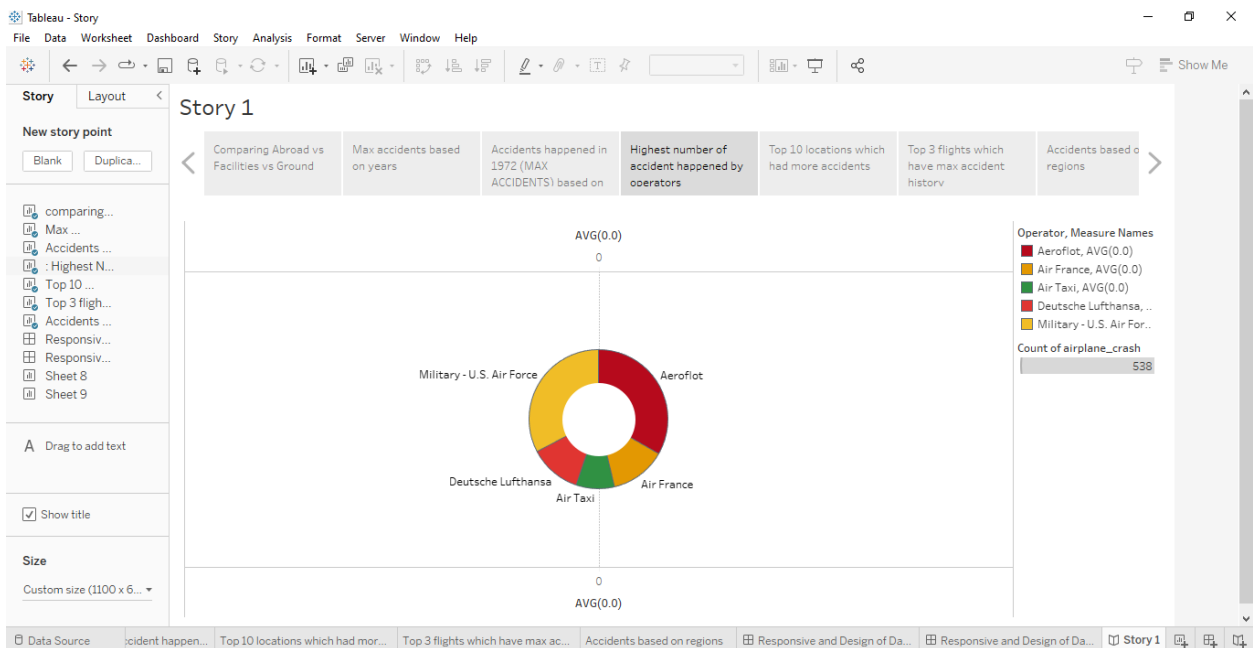
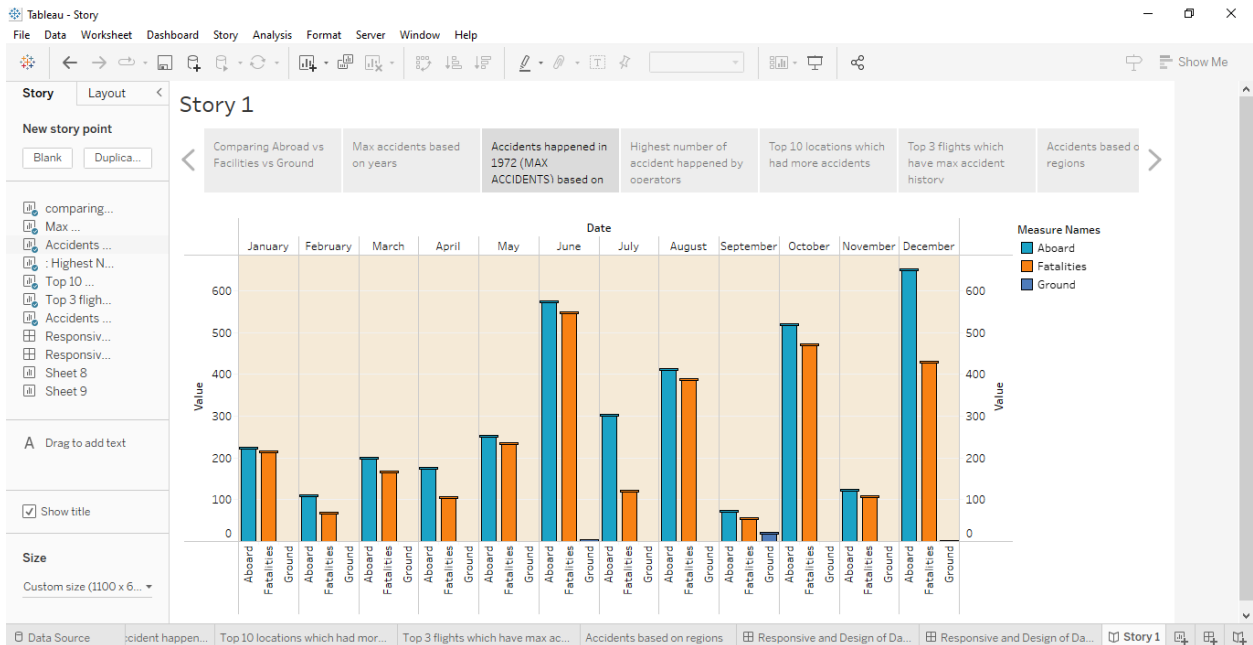
Activity :1- Responsive and Design of Dashboard

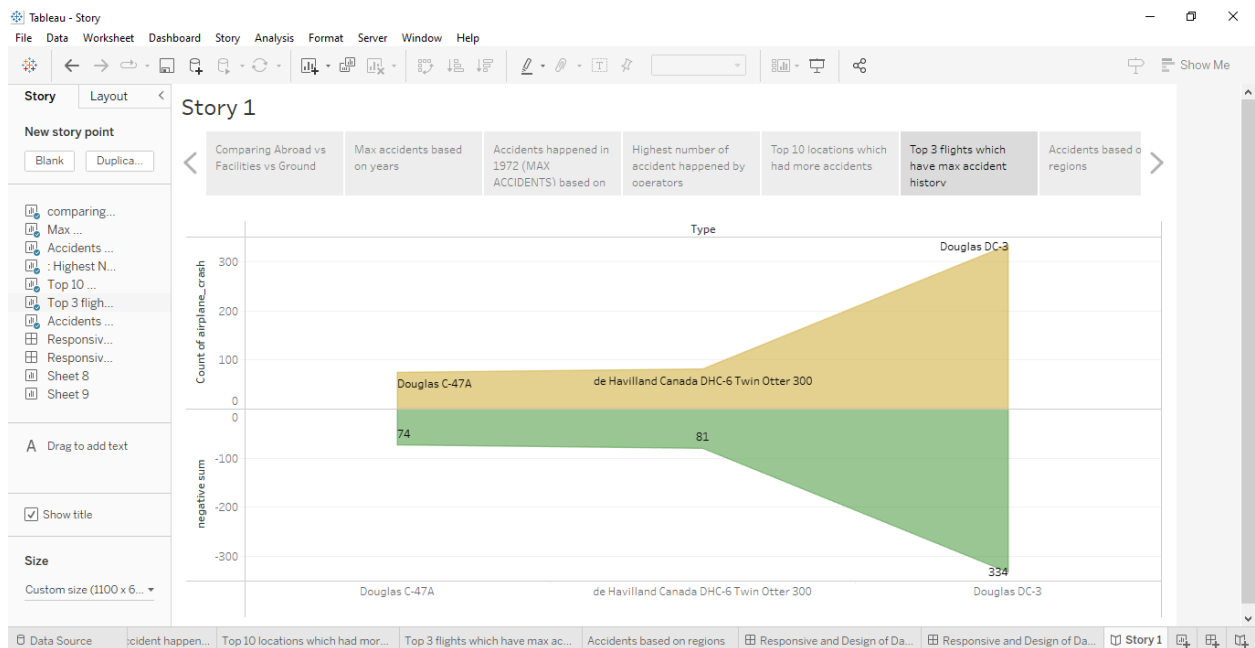
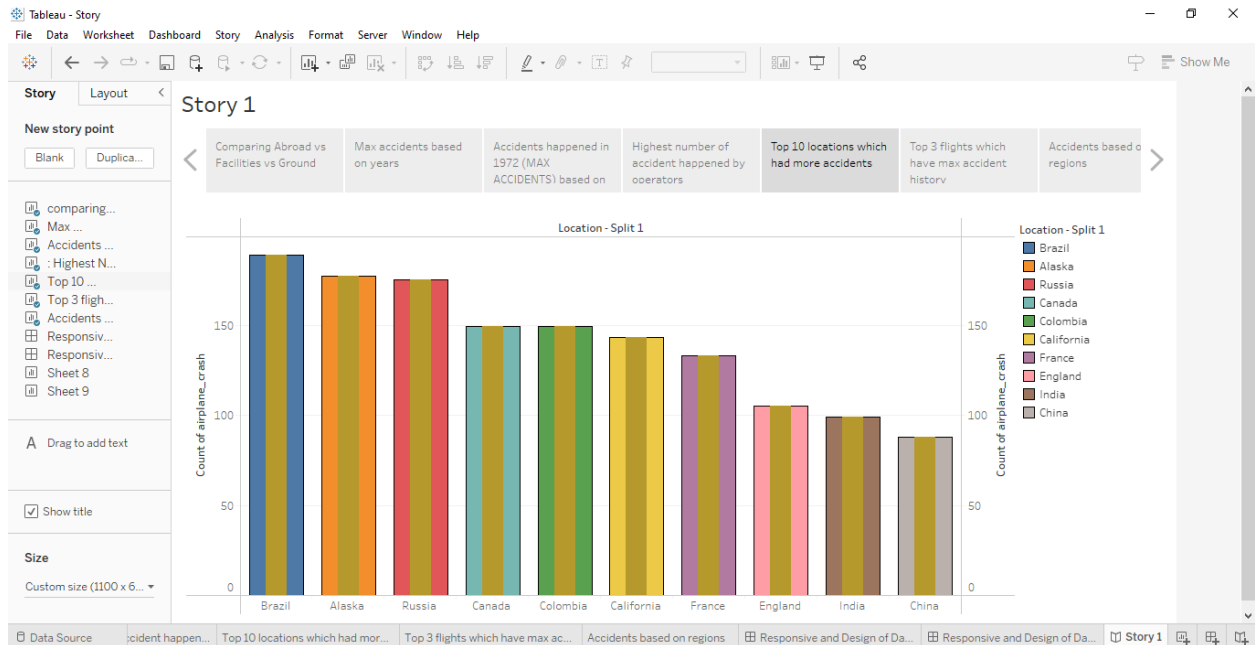


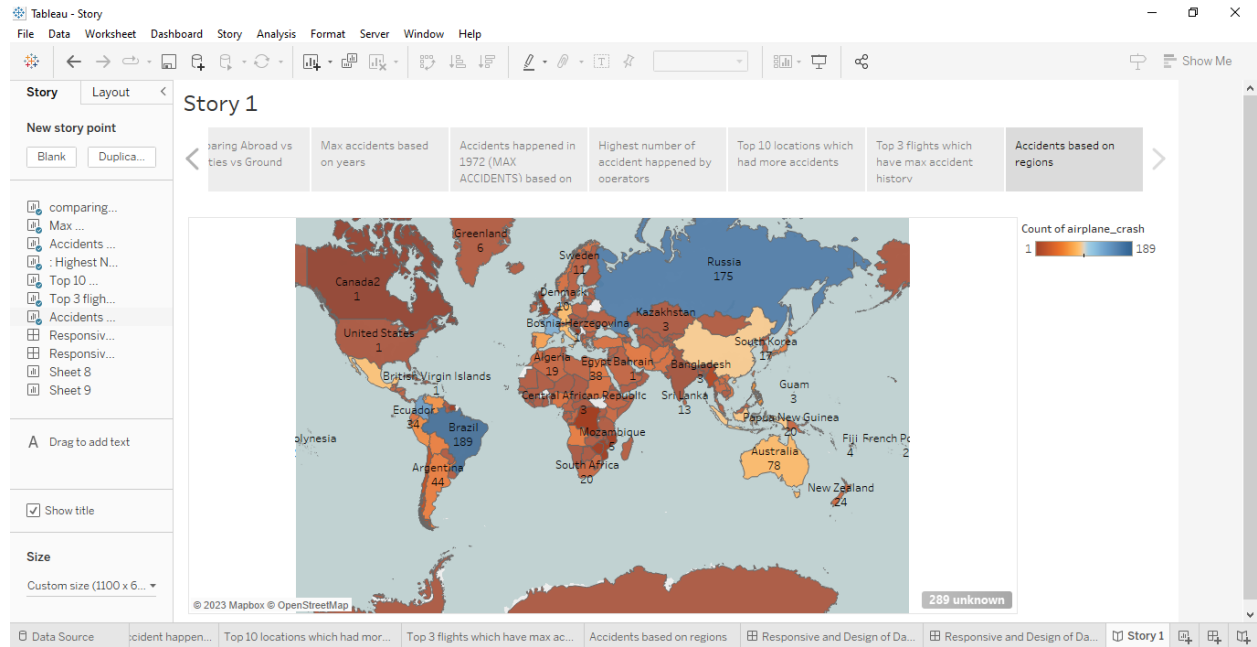
Milestone 6: Story

Activity:1- No of Scenes of Story



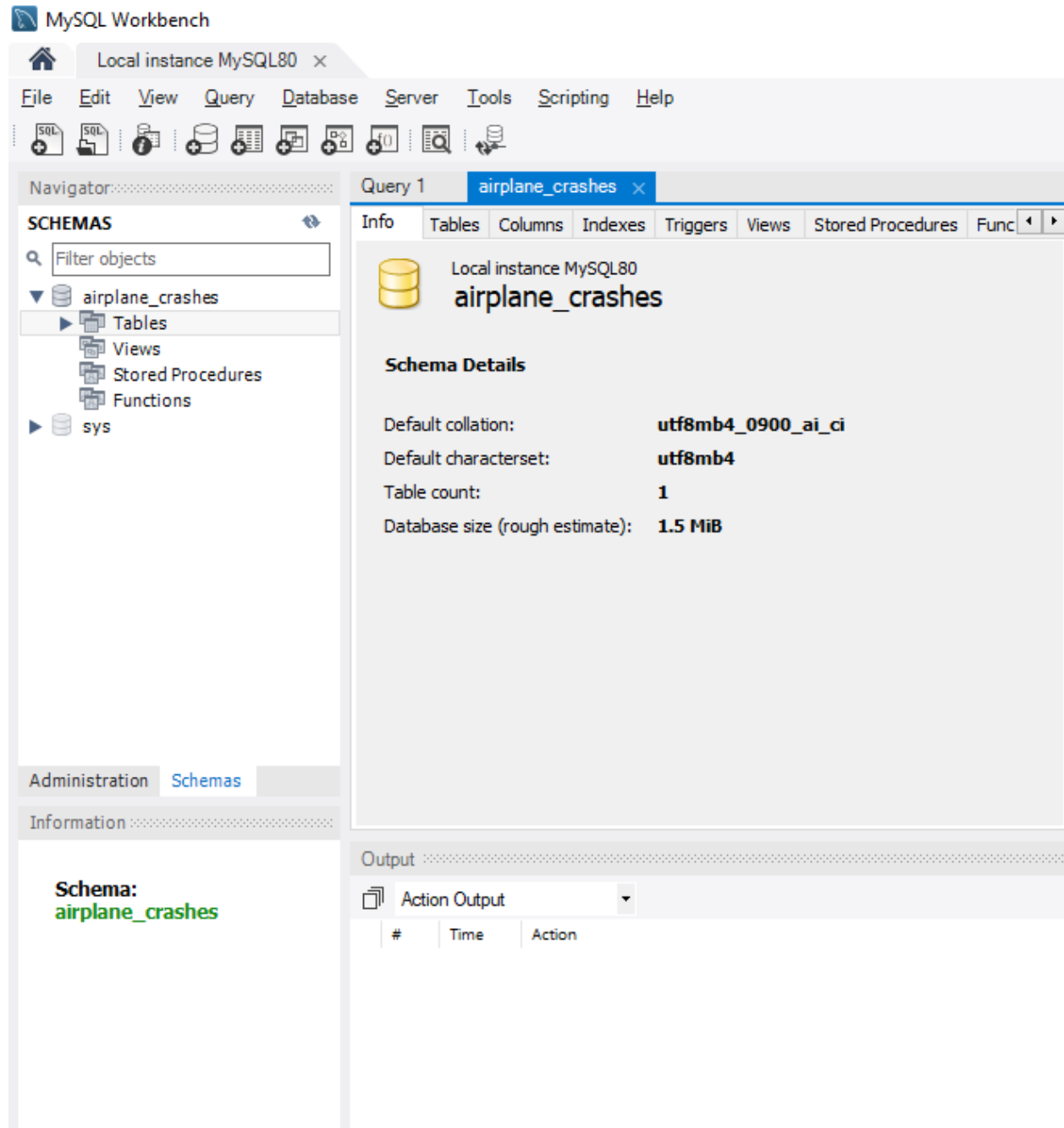




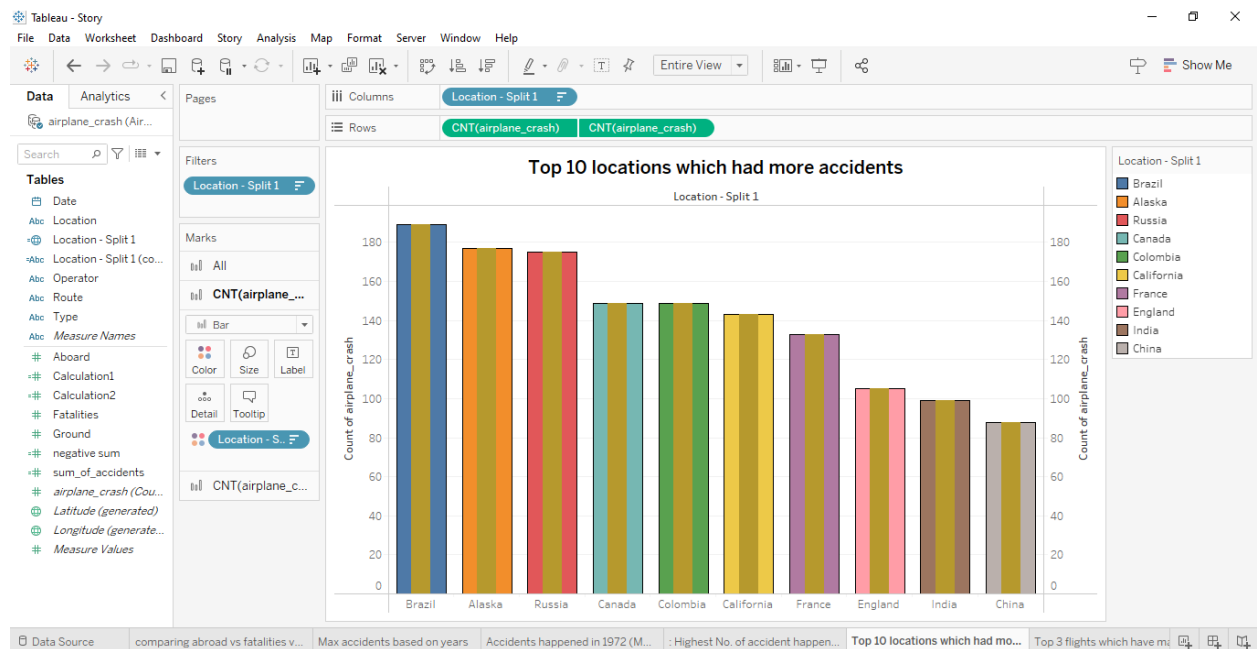


Milestone 7: Performance Testing

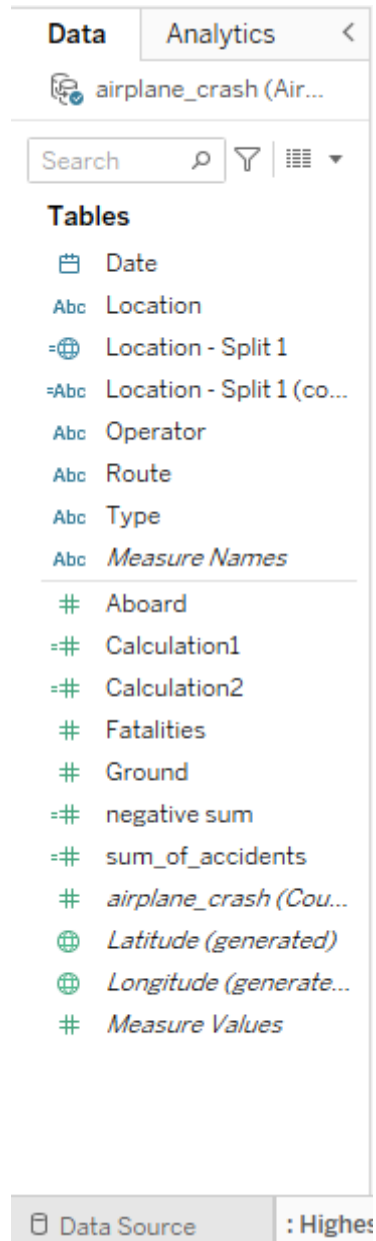
Activity 1: Amount of Data Rendered to DB



Activity 2: Utilization of Data Filter



Activity 3: No of Calculation Fields

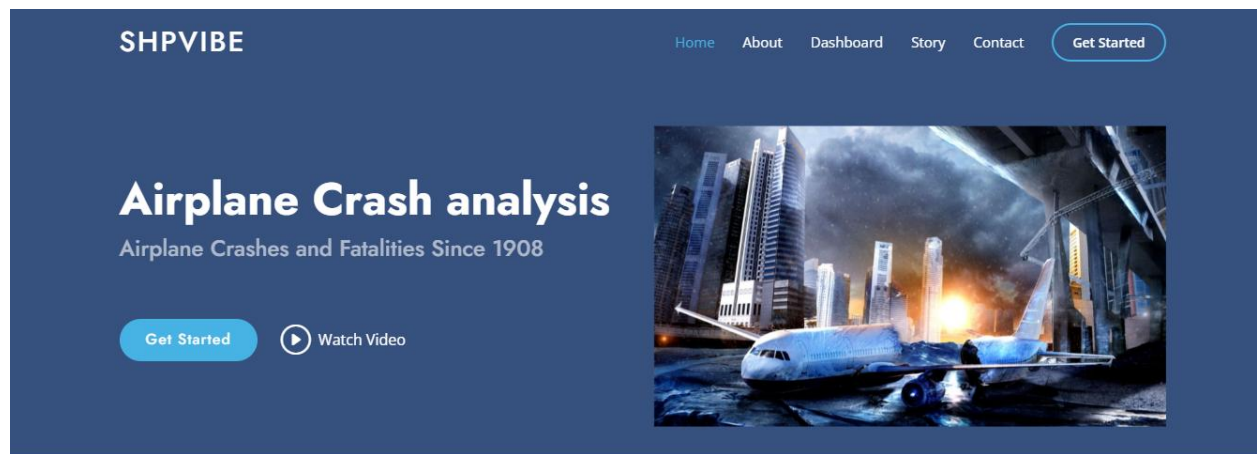


Activity 4: No of Visualizations/ Graphs

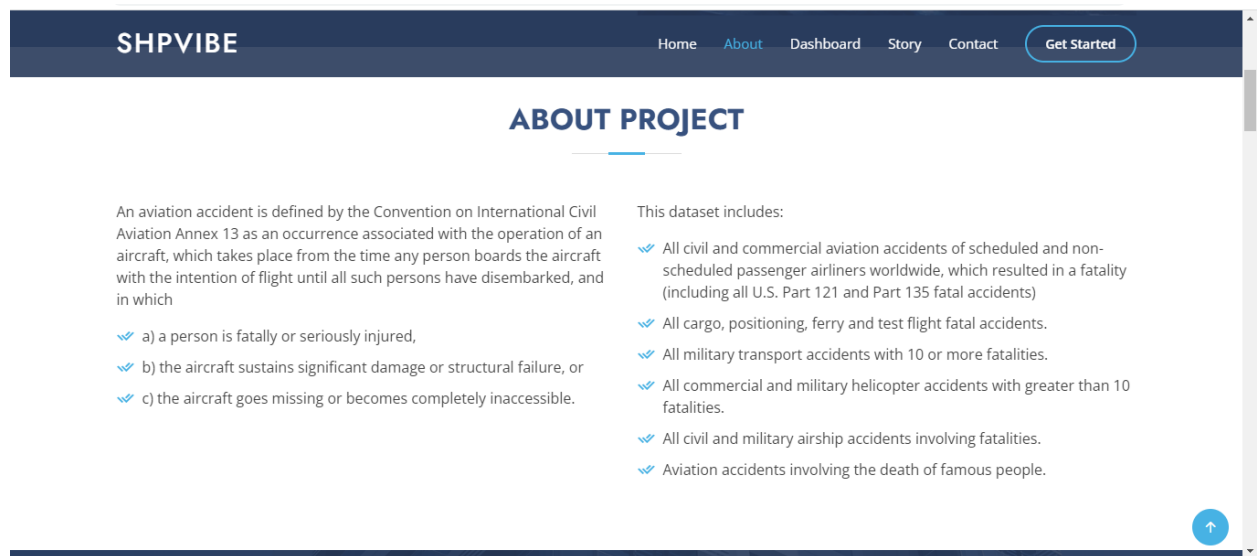
1. Comparing Aboard vs Fatalities vs Ground
2. Max accidents based on years
3. Accidents happened in 1972 (MAX ACCIDENTS) based on months
4. Highest No. of accident happened by Operators
5. Top 10 locations which had more accidents
6. Top 3 flights which have max accident history
7. Accidents based on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

Milestone 8: Web integration

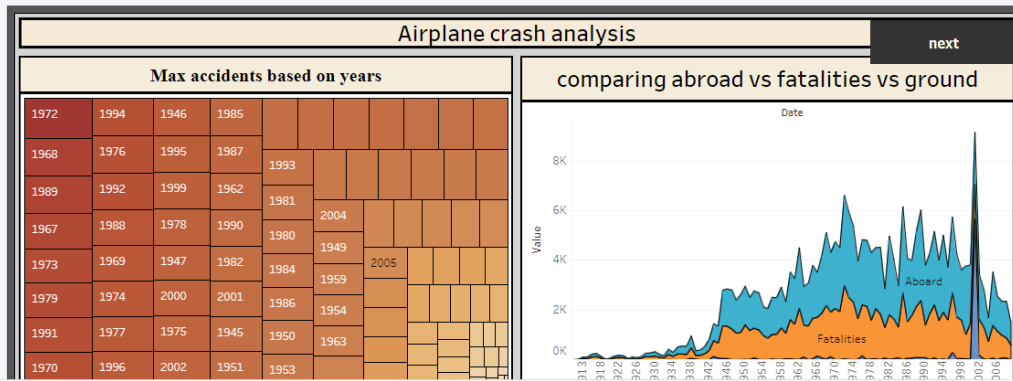
Activity 1: Dashboard and Story embed with UI With Flask



ABOUT PROJECT



DASHBOARD



STORY

Story 1



