PROJECT REPORT

THE TRAGEDY OF FLIGHT: A COMPREHENSIVE CRASH ANALYSIS

1. INTRODUCTION

1.1 Overview

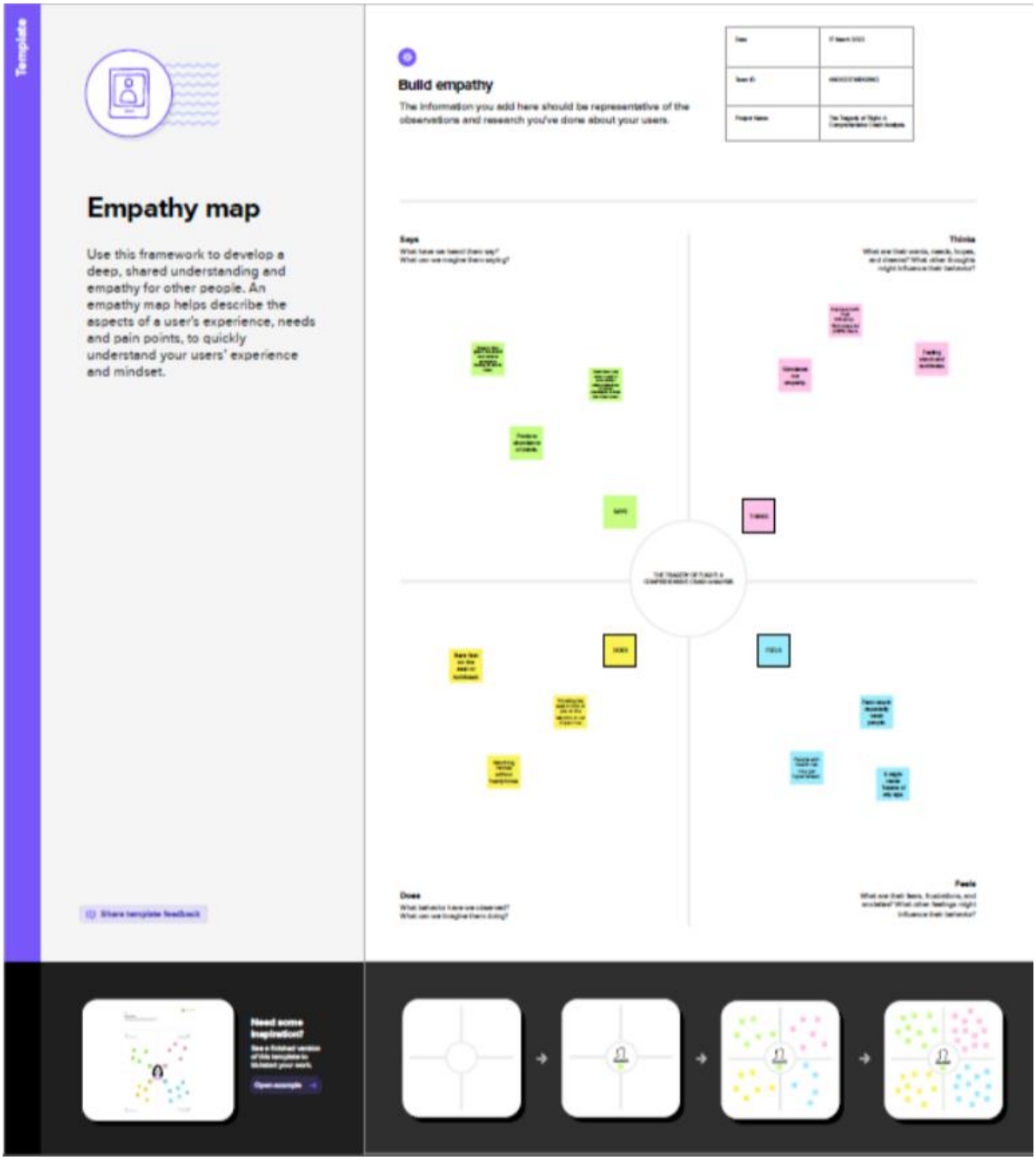
An airplane crash analysis is a detailed investigation into the causes of an aviation accident. The goal of an airplane crash analysis is to identify any factors that contributed to the accident, with the ultimate goal of improving safety and preventing future accidents. The process of conducting an 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.

1.2 Purpose

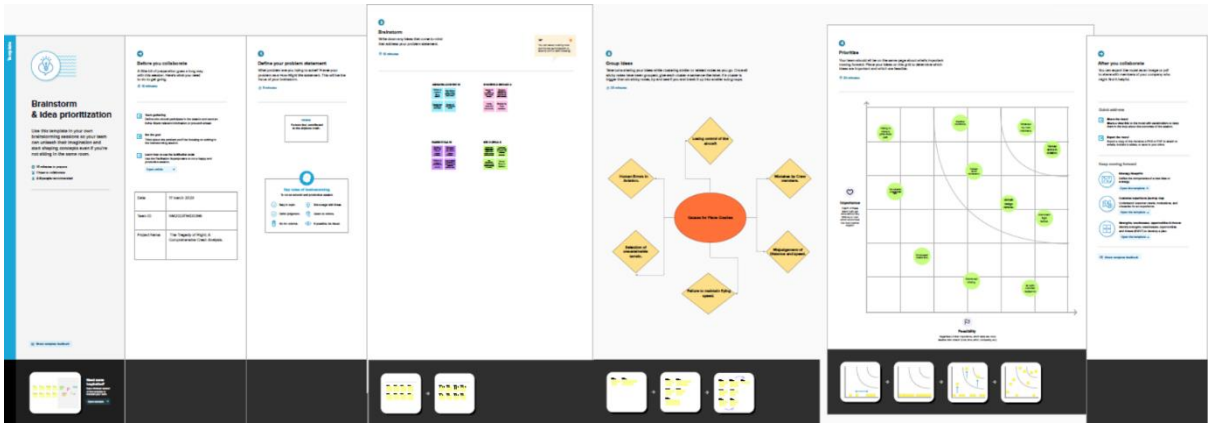
- To prevent an aircraft crash in future.
- To raise awareness of Plane crash.
- Improve aircraft safety precautions.
- It makes the crew pay more attention.
- To prevent any manufacturing flaws.

2. PROBLEM DEFINITION AND DESIGN THINKING

2.1 Empathy Map



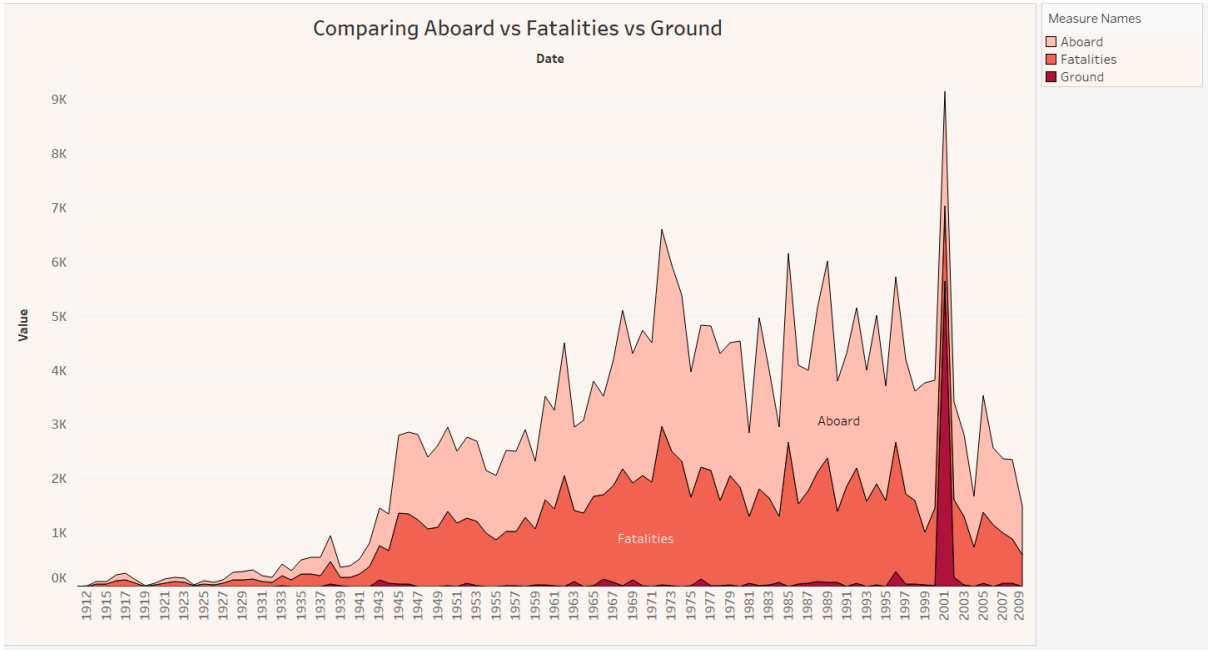
2.2 Ideation and Brainstorming Map

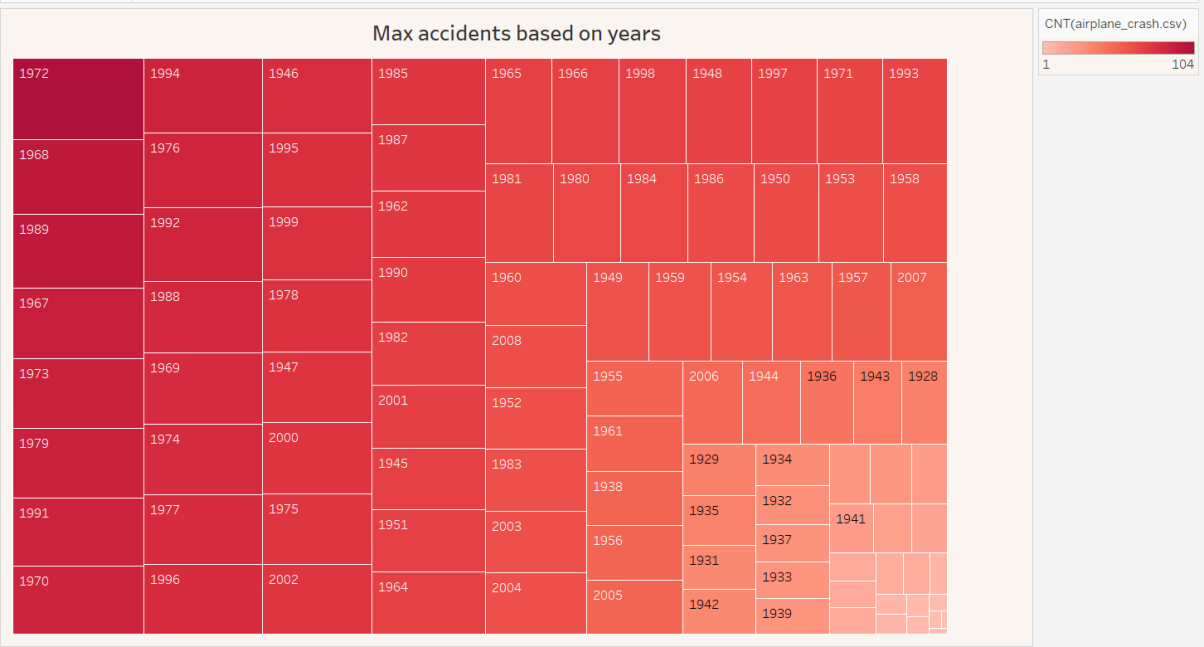


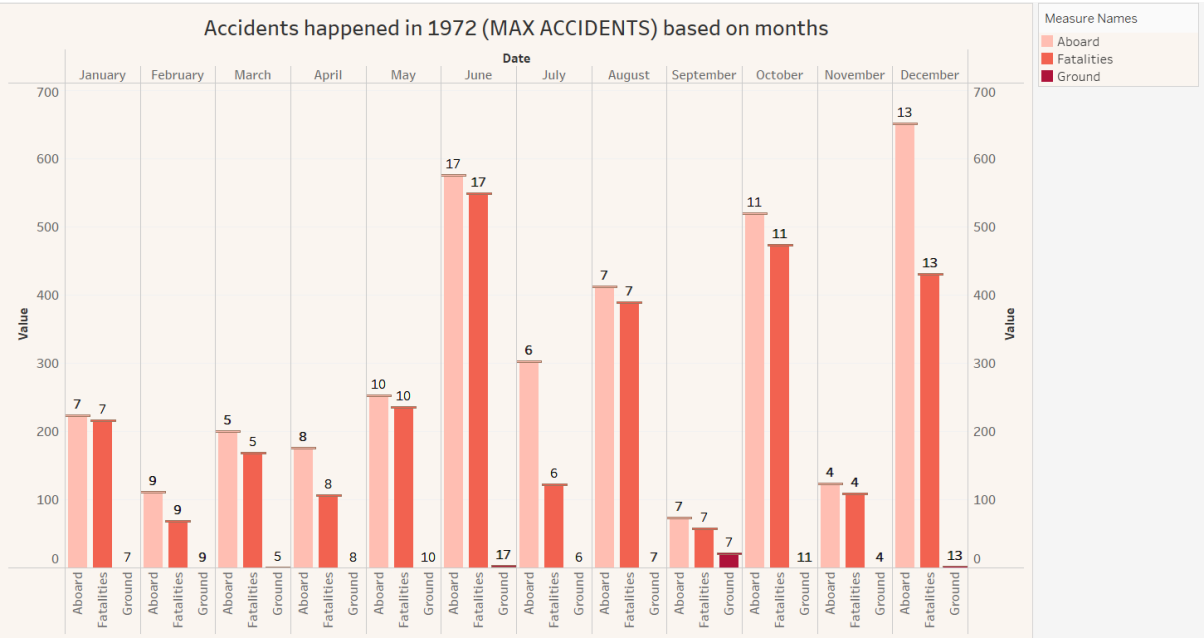
3. DATASET

[airplane_crash.csv - Google Drive]

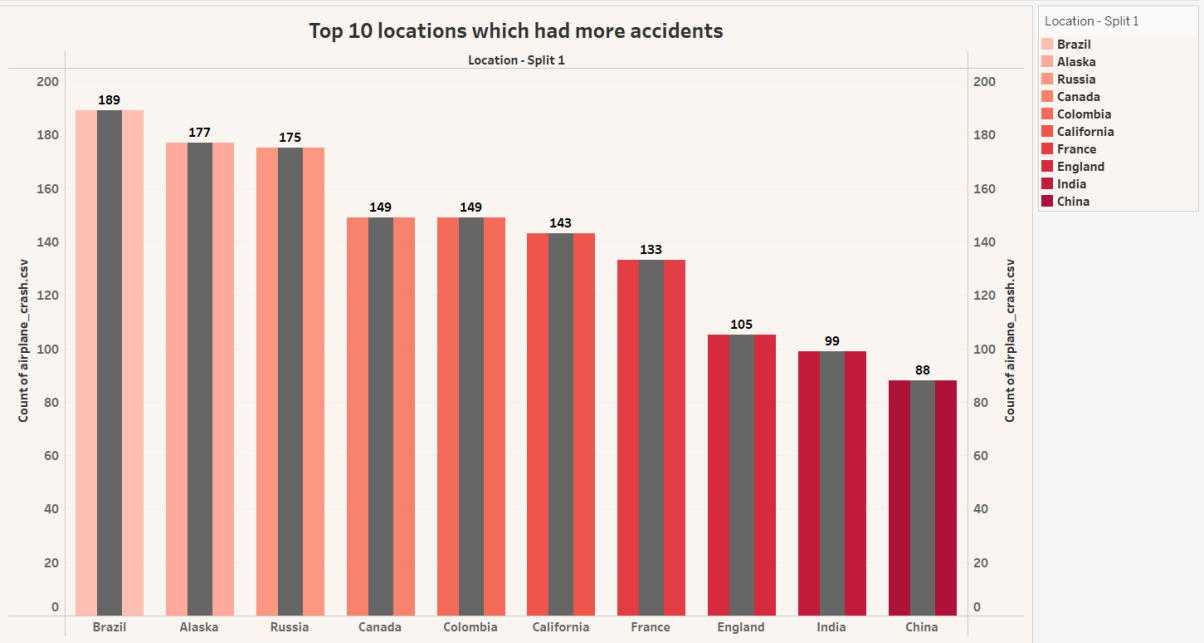
4. RESULT

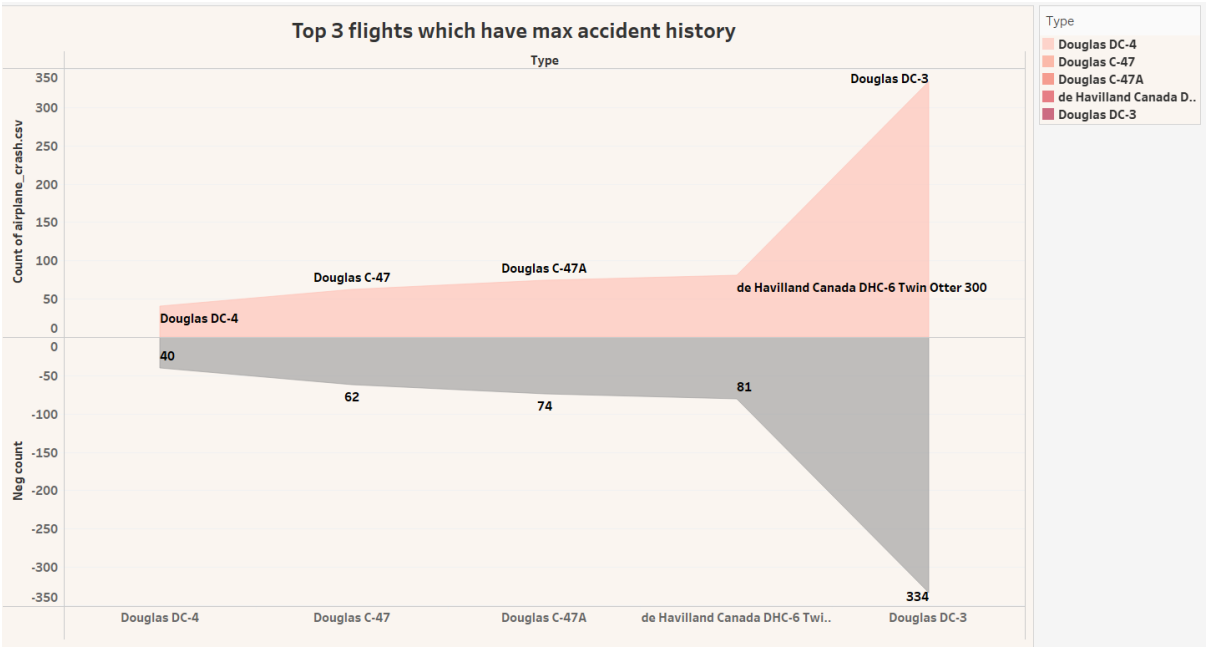


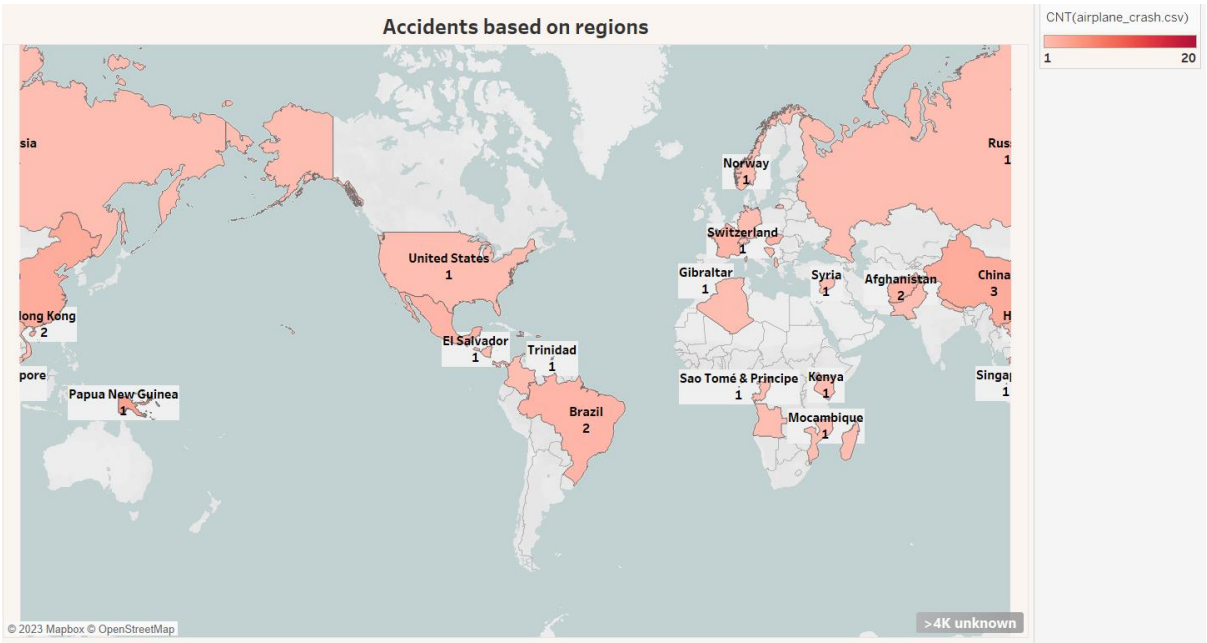

Max accidents based on years
CNT(airplane_crash.csv)
1
104
1972
1994
1946
1985
1965
1966
1998
1948
1997
1971
1993
1968
1976
1995
1987
1981
1980
1984
1986
1950
1953
1958
1989
1992
1999
1962
1967
1988
1978
1990
1960
1949
1959
1954
1963
1957
2007
1973
1969
1947
1982
2008
1955
2006
1944
1936
1943
1928
1979
1974
2000
2001
1952
1961
1929
1934
1991
1977
1975
1945
1983
1938
1935
1932
1941
1951
2003
1956
1931
1937
1970
1996
2002
1964
2004
2005
1942
1933
1939

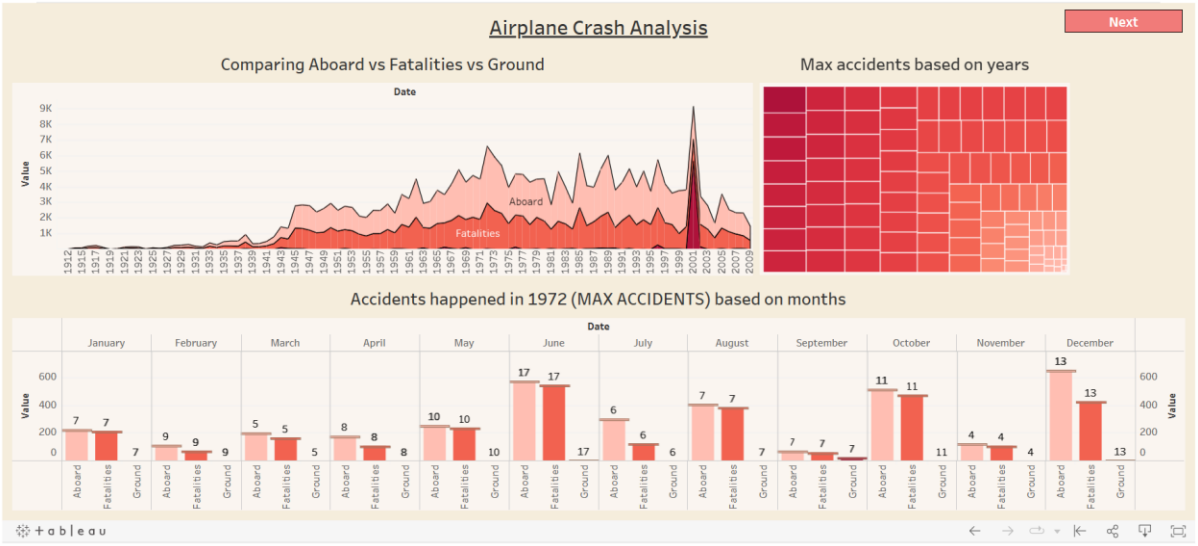

Accidents happened in 1972 (MAX ACCIDENTS) based on months
Measure Names
Aboard
Fatalities
Ground
Date
January
February
March
April
May
June
July
August
September
October
November
December
Value
700
600
500
400
300
200
100
0
Aboard
Fatalities
Ground
7
7
7
9
9
9
5
5
5
8
8
8
10
10
10
17
17
17
6
6
6
7
7
7
7
7
7
11
11
11
4
4
4
13
13
13

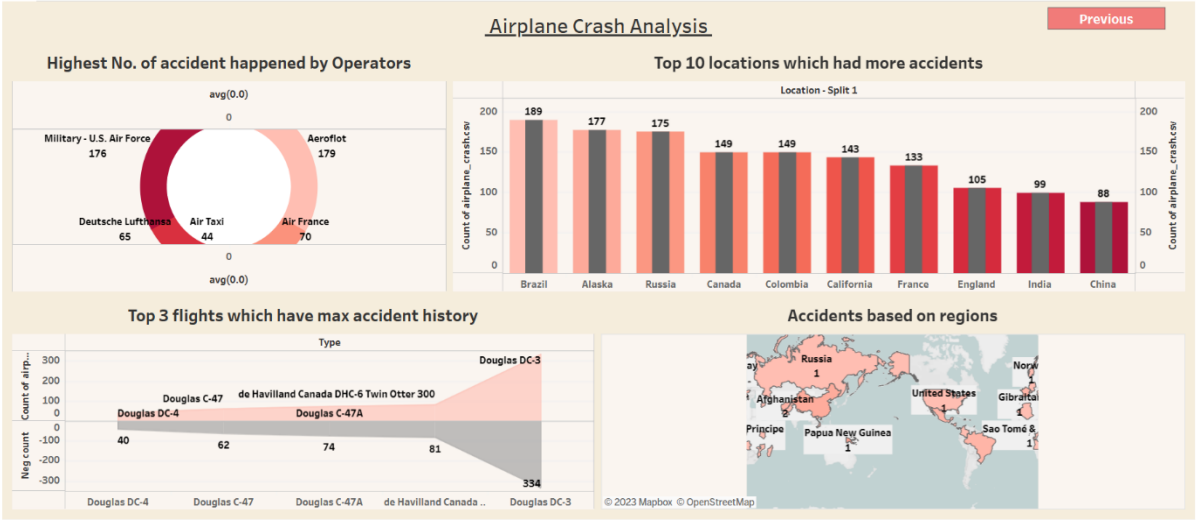
Highest No. of accident happened by Operators
avg(0.0)
0
Military - U.S. Air Force
176
Aeroflot
179
Deutsche Lufthansa
65
Air Taxi
44
Air France
70
0
avg(0.0)
Operator, Measure Na...
Aeroflot, avg(0.0)
Air France, avg(0.0)
Air Taxi, avg(0.0)
Deutsche Lufthansa, a..
Military - U.S. Air Forc..
CNT(airplane_crash.csv)
534

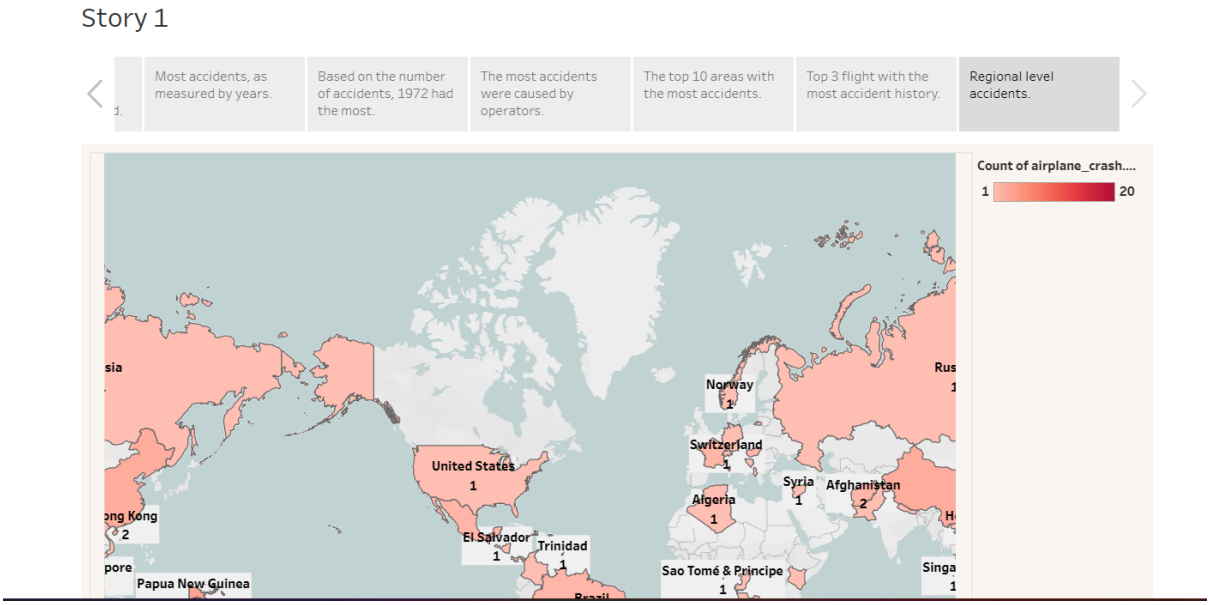

Top 10 locations which had more accidents
Location - Split 1
Count of airplane_crash.csv
200
180
160
140
120
100
80
60
40
20
0
189
177
175
149
149
143
133
105
99
88
Brazil
Alaska
Russia
Canada
Colombia
California
France
England
India
China
Location - Split 1
Brazil
Alaska
Russia
Canada
Colombia
California
France
England
India
China


Top 3 flights which have max accident history
Type
Count of airplane_crash.csv
Neg count
Douglas DC-4
Douglas C-47
Douglas C-47A
de Havilland Canada DHC-6 Twin Otter 300
Douglas DC-3
40
62
74
81
334
Douglas DC-4
Douglas C-47
Douglas C-47A
de Havilland Canada DHC-6 Twi..
Douglas DC-3
Type
Douglas DC-4
Douglas C-47
Douglas C-47A
de Havilland Canada D..
Douglas DC-3


Accidents based on regions
CNT(airplane_crash.csv)
1
20
Norway
1
Switzerland
1
Gibraltar
1
Syria
1
Afghanistan
2
China
3
United States
1
El Salvador
1
Trinidad
1
Brazil
2
Papua New Guinea
1
Sao Tomé & Principe
1
Kenya
1
Mocambique
1
© 2023 Mapbox © OpenStreetMap
>4K unknown


Airplane Crash Analysis
Next
Comparing Aboard vs Fatalities vs Ground
Max accidents based on years
Date
Value
Aboard
Fatalities
Accidents happened in 1972 (MAX ACCIDENTS) based on months
January
February
March
April
May
June
July
August
September
October
November
December
Aboard
Fatalities
Ground
+ableau


Airplane Crash Analysis
Previous
Highest No. of accident happened by Operators
avg(0.0)
Military - U.S. Air Force
176
Aeroflot
179
Deutsche Lufthansa
65
Air Taxi
44
Air France
70
Top 10 locations which had more accidents
Location - Split 1
Count of airplane_crash.csv
Brazil
Alaska
Russia
Canada
Colombia
California
France
England
India
China
Top 3 flights which have max accident history
Type
Douglas DC-3
Douglas C-47
de Havilland Canada DHC-6 Twin Otter 300
Douglas DC-4
Douglas C-47A
Accidents based on regions
Russia
Afghanistan
United States
Papua New Guinea
© 2023 Mapbox © OpenStreetMap



5. ADVANTAGES AND DISADVANTAGES

ADVANTAGES	*DISADVANTAGES*
➢ Reduction in accidents.	➢ It is no longer an abstraction of a concrete situation.
➢ Confirm that there are no unexpected negative side effects of deployment.	➢ Just an exceeding of the theoretical limits.
➢ Evaluates the safety outcome of system deployment.	➢ Limited by analysis based on linear methods.
➢ Helps to provide an understanding of the most effective solutions.	➢ It isn't a complete method for accident analysis.
➢ Safety issues are identified and fixed before they become more significant problems.	➢ Supported by the nonlinearity of the considered function or restrictions.

6. APPLICATIONS

- ✓ Data analytic techniques are used to build a prediction model for airplane accident.
- ✓ Air crew make sure to use in real time scenarios to create some policies and avoid accident.
- ✓ Different analytical tools have been used to analyse risks and potential hazards that might occur, forming the process of incident/accident analysis.
- ✓ They have been extensively applied in analysing major incidents within healthcare and other safety-critical domains.
- ✓ Manufacturing firm apply this to produce vehicle design in a better way.

7. CONCLUSION

In this Analysis Faults are identified, then data are collected and extracted from database. Data are prepared for visualization and presented as

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

Using these above charts Dashboard and Story are created.

8. FUTURE SCOPE

In future if anything gone wrong during aviation the results are pre-predicted and precaution measures are taken. Using this analyses the loopholes are identified and rectified. If any aircraft accident happens throughout the world, it could be thoroughly studied and analysed.

9. APPENDIX

A. Source code

SHPVIBE - Airplane Crash

HTML Link

```
   <!DOCTYPE html>
<html lang="en">

<head>
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0" name="viewport">

  <title>SHPVIBE - Airplane Crash</title>
  <meta content="" name="description">
  <meta content="" name="keywords">

  <!-- Favicons -->
  <link href="assets/img/favicon.png" rel="icon">
  <link href="assets/img/apple-touch-icon.png" rel="apple-touch-icon">

  <!-- Google Fonts -->
  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,400i,600,
600i,700,700i|Jost:300,300i,400,400i,500,500i,600,600i,700,700i|Poppins:300,30
0i,400,400i,500,500i,600,600i,700,700i" rel="stylesheet">

  <!-- Vendor CSS Files -->
  <link href="assets/vendor/aos/aos.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap/css/bootstrap.min.css" rel="stylesheet">
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css"
rel="stylesheet">
  <link href="assets/vendor/boxicons/css/boxicons.min.css" rel="stylesheet">
  <link href="assets/vendor/glightbox/css/glightbox.min.css" rel="stylesheet">
  <link href="assets/vendor/remixicon/remixicon.css" rel="stylesheet">
  <link href="assets/vendor/swiper/swiper-bundle.min.css" rel="stylesheet">
```

```
  <!-- Template Main CSS File -->
  <link href="assets/css/style.css" rel="stylesheet">

  <!-- =======================================================
  * Template Name: Arsha - v4.9.1
  * Template URL: https://bootstrapmade.com/arsha-free-bootstrap-html-
template-corporate/
  * Author: BootstrapMade.com
  * License: https://bootstrapmade.com/license/
  ======================================================= -->
</head>

<body>

  <!-- ======= Header ======= -->
  <header id="header" class="fixed-top ">
    <div class="container d-flex align-items-center">

      <h1 class="logo me-auto"><a href="index.html">SHPVIBE</a></h1>
      <!-- Uncomment below if you prefer to use an image logo -->
      <!-- <a href="index.html" class="logo me-auto"><img
src="assets/img/logo.png" alt="" class="img-fluid"></a>-->

      <nav id="navbar" class="navbar">
        <ul>
          <li><a class="nav-link scrollto active" href="#hero">Home</a></li>
          <li><a class="nav-link scrollto" href="#about">About</a></li>


          <li><a class="nav-link scrollto" href="#team">Dashboard</a></li>

          <li><a class="nav-link scrollto" href="#pricing">Story</a></li>

          <li><a class="nav-link scrollto" href="#contact">Contact</a></li>
          <li><a class="getstarted scrollto" href="#about">Get
Started</a></li>
        </ul>
        <i class="bi bi-list mobile-nav-toggle"></i>
      </nav><!-- .navbar -->

    </div>
  </header><!-- End Header -->

  <!-- ======= Hero Section ======= -->
  <section id="hero" class="d-flex align-items-center">

    <div class="container">
      <div class="row">
```

```
        <div class="col-lg-6 d-flex flex-column justify-content-center pt-4
pt-lg-0 order-2 order-lg-1" data-aos="fade-up" data-aos-delay="200">
          <h1>Airplane Crash analysis</h1>
          <h2>Airplane Crashes and Fatalities Since 1908</h2>
          <div class="d-flex justify-content-center justify-content-lg-start">
            <a href="#about" class="btn-get-started scrollto">Get Started</a>
            <a href="https://www.youtube.com/@thesmartbridge/videos"
class="glightbox btn-watch-video"><i class="bi bi-play-circle"></i><span>Watch
Video</span></a>
          </div>
        </div>
        <div class="col-lg-6 order-1 order-lg-2 hero-img" data-aos="zoom-in"
data-aos-delay="200">
          <img src="assets/img/a1.jpg" class="img-fluid animated" alt="">
        </div>
      </div>
    </div>

  </section><!-- End Hero -->

  <main id="main">
        <!-- ======= About Us Section ======= -->
    <section id="about" class="about">
      <div class="container" data-aos="fade-up">

        <div class="section-title">
          <h2>About Project</h2>
        </div>

        <div class="row content">
          <div class="col-lg-6">
            <p>
              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
            </p>
            <ul>
              <li><i class="ri-check-double-line"></i> a) a person is fatally
or seriously injured, </li>
              <li><i class="ri-check-double-line"></i> b) the aircraft
sustains significant damage or structural failure, or </li>
              <li><i class="ri-check-double-line"></i> c) the aircraft goes
missing or becomes completely inaccessible.</li>
            </ul>
          </div>
          <div class="col-lg-6 pt-4 pt-lg-0">
```

```
            <p>
              This dataset includes:
            <ul>
              <li><i class="ri-check-double-line"></i> 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)</li>
              <li><i class="ri-check-double-line"></i> All cargo, positioning,
ferry and test flight fatal accidents.</li>
              <li><i class="ri-check-double-line"></i> All military transport
accidents with 10 or more fatalities.</li>
              <li><i class="ri-check-double-line"></i> All commercial and
military helicopter accidents with greater than 10 fatalities.</li>
              <li><i class="ri-check-double-line"></i> All civil and military
airship accidents involving fatalities.</li>
              <li><i class="ri-check-double-line"></i> Aviation accidents
involving the death of famous people.</li>
               </ul>
            </p>
             </div>
        </div>

      </div>
    </section><!-- End About Us Section -->

    <!-- ======= Cta Section ======= -->
    <section id="cta" class="cta">
      <div class="container" data-aos="zoom-in">

        <div class="row">
          <div class="col-lg-9 text-center text-lg-start">
            <h3>Call To Action</h3>
            </div>
          <div class="col-lg-3 cta-btn-container text-center">
            <a class="cta-btn align-middle" href="#">Call To Action</a>
          </div>
        </div>

      </div>
    </section><!-- End Cta Section -->
    <!-- ======= Team Section ======= -->
    <section id="team" class="team section-bg">
      <div class="container" data-aos="fade-up">

        <div class="section-title">
          <h2>Dashboard</h2>
           </div>
```

```
        <div class='tableauPlaceholder' id='viz1671640028467' style='position:
relative'><noscript><a href='#'><img alt='Airplane Crash Analysis '
src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;Ai&#47;Airpl
ane_Crash&#47;Dashboard1&#47;1_rss.png' style='border: none'
/></a></noscript><object class='tableauViz'  style='display:none;'><param
name='host_url' value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param
name='embed_code_version' value='3' /> <param name='site_root' value=''
/><param name='name' value='Airplane_Crash&#47;Dashboard1' /><param
name='tabs' value='no' /><param name='toolbar' value='yes' /><param
name='static_image'
value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;Ai&#47;Air
plane_Crash&#47;Dashboard1&#47;1.png' /> <param name='animate_transition'
value='yes' /><param name='display_static_image' value='yes' /><param
name='display_spinner' value='yes' /><param name='display_overlay' value='yes'
/><param name='display_count' value='yes' /><param name='language' value='en-
US' /><param name='filter' value='publish=yes'
/></object></div>                <script
type='text/javascript'>                    var divElement =
document.getElementById('viz1671640028467');                    var vizElement
= divElement.getElementsByTagName('object')[0];                    if (
divElement.offsetWidth > 800 ) {
vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*
0.75)+'px';} else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='100%';vizElement.style.height=(divElement.offsetWidth*
0.75)+'px';} else {
vizElement.style.width='100%';vizElement.style.height='1027px';}
      var scriptElement =
document.createElement('script');                    scriptElement.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';                    viz
Element.parentNode.insertBefore(scriptElement,
vizElement);                </script>
      </div>
    </section><!-- End Team Section -->

    <!-- ======= Pricing Section ======= -->
    <section id="pricing" class="pricing">
      <div class="container" data-aos="fade-up">

        <div class="section-title">
          <h2>Story</h2>
          </div>
          <div class='tableauPlaceholder' id='viz1681290610927'
style='position: relative'><noscript><a href='#'><img alt='Story 1 '
src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;Th&#47;TheTr
agedyofFlightaComprehensivecrashanalysis0604&#47;Story1&#47;1_rss.png'
style='border: none' /></a></noscript><object
class='tableauViz'  style='display:none;'><param name='host_url'
value='https%3A%2F%2Fpublic.tableau.com%2F' /> <param
```

```
name='embed_code_version' value='3' /> <param name='site_root' value=''
/><param name='name'
value='TheTragedyofFlightaComprehensivecrashanalysis0604&#47;Story1' /><param
name='tabs' value='no' /><param name='toolbar' value='yes' /><param
name='static_image'
value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;Th&#47;The
TragedyofFlightaComprehensivecrashanalysis0604&#47;Story1&#47;1.png' /> <param
name='animate_transition' value='yes' /><param name='display_static_image'
value='yes' /><param name='display_spinner' value='yes' /><param
name='display_overlay' value='yes' /><param name='display_count' value='yes'
/><param name='language' value='en-US' /><param name='filter'
value='publish=yes' /></object></div>                <script
type='text/javascript'>                    var divElement =
document.getElementById('viz1681290610927');                    var vizElement
=
divElement.getElementsByTagName('object')[0];                    vizElement.st
yle.width='1016px';vizElement.style.height='991px';                    var
scriptElement =
document.createElement('script');                    scriptElement.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';                    viz
Element.parentNode.insertBefore(scriptElement,
vizElement);                </script>
    </section><!-- End Pricing Section -->


    <!-- ======= Contact Section ======= -->
    <section id="contact" class="contact">
      <div class="container" data-aos="fade-up">

        <div class="section-title">
          <h2>Contact</h2>
          </div>

        <div class="row">

          <div class="col-lg-5 d-flex align-items-stretch">
            <div class="info">
              <div class="address">
                <i class="bi bi-geo-alt"></i>
                <h4>Location:</h4>
                <p>xxxxxx Street, xxx, xx 53xxx2</p>
              </div>

              <div class="email">
                <i class="bi bi-envelope"></i>
                <h4>Email:</h4>
                <p>info@example.com</p>
              </div>
```

```
              <div class="phone">
                <i class="bi bi-phone"></i>
                <h4>Call:</h4>
                <p>+1 5xxx 5xxx8 5xs</p>
              </div>

              <iframe
src="https://www.google.com/maps/embed?pb=!1m14!1m8!1m3!1d12097.433213460943!2d-
74.0062269!3d40.7101282!3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x0%3A0xb89d1fe6bc499443!2sDowntown+Conference+Center!5e0!3m2!1smk!2sbg!4v1539943755621"
frameborder="0" style="border:0; width: 100%; height: 290px;"
allowfullscreen></iframe>
            </div>

          </div>

          <div class="col-lg-7 mt-5 mt-lg-0 d-flex align-items-stretch">
            <form action="forms/contact.php" method="post" role="form"
class="php-email-form">
              <div class="row">
                <div class="form-group col-md-6">
                  <label for="name">Your Name</label>
                  <input type="text" name="name" class="form-control"
id="name" required>
                </div>
                <div class="form-group col-md-6">
                  <label for="name">Your Email</label>
                  <input type="email" class="form-control" name="email"
id="email" required>
                </div>
              </div>
              <div class="form-group">
                <label for="name">Subject</label>
                <input type="text" class="form-control" name="subject"
id="subject" required>
              </div>
              <div class="form-group">
                <label for="name">Message</label>
                <textarea class="form-control" name="message" rows="10"
required></textarea>
              </div>
              <div class="my-3">
                <div class="loading">Loading</div>
                <div class="error-message"></div>
                <div class="sent-message">Your message has been sent. Thank
you!</div>
              </div>
```

```
              <div class="text-center"><button type="submit">Send
Message</button></div>
            </form>
          </div>

        </div>

      </div>
    </section><!-- End Contact Section -->

  </main><!-- End #main -->

  <!-- ======= Footer ======= -->
  <footer id="footer">

    <div class="footer-newsletter">
      <div class="container">
        <div class="row justify-content-center">
          <div class="col-lg-6">
            <h4>Join Our Newsletter</h4>

            <form action="" method="post">
              <input type="email" name="email"><input type="submit"
value="Subscribe">
            </form>
          </div>
        </div>
      </div>
    </div>

    <div class="footer-top">
      <div class="container">
        <div class="row">



          <div class="col-lg-3 col-md-6 footer-links">
            <h4>Useful Links</h4>
            <ul>
              <li><i class="bx bx-chevron-right"></i> <a
href="#hero">Home</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#about">About</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#portfolio">Charts</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#team">Dashboard</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#pricing">Story</a></li>
```

```
            </ul>
          </div>

          <div class="col-lg-3 col-md-6 footer-links">
            <h4></h4>
            <ul>

            </ul>
          </div>
          <div class="col-lg-3 col-md-6 footer-links">
            <h4></h4>
            <ul>

            </ul>
          </div>

          <div class="col-lg-3 col-md-6 footer-links">
            <h4>Our Social Networks</h4>

            <div class="social-links mt-3">
              <a href="https://www.linkedin.com/in/hariprabu741/"
class="linkedin"><i class="bx bxl-linkedin"></i></a>
              <a href="#" class="twitter"><i class="bx bxl-twitter"></i></a>
              <a href="#" class="facebook"><i class="bx bxl-facebook"></i></a>
              <a href="#" class="instagram"><i class="bx bxl-
instagram"></i></a>
              <a href="#" class="google-plus"><i class="bx bxl-skype"></i></a>

            </div>
          </div>

        </div>
      </div>
    </div>

    <div class="container footer-bottom clearfix">
      <div class="copyright">
        &copy; Copyright <strong><span>SHPVIBE</span></strong>. All Rights
Reserved
      </div>
      <div class="credits">
        <!-- All the links in the footer should remain intact. -->
        <!-- You can delete the links only if you purchased the pro version. -
->
        <!-- Licensing information: https://bootstrapmade.com/license/ -->
        <!-- Purchase the pro version with working PHP/AJAX contact form:
https://bootstrapmade.com/arsha-free-bootstrap-html-template-corporate/ -->
        Designed by <a href="https://bootstrapmade.com/">SHPVIBE</a>
```

```
      </div>
    </div>
  </footer><!-- End Footer -->

  <div id="preloader"></div>
  <a href="#" class="back-to-top d-flex align-items-center justify-content-
center"><i class="bi bi-arrow-up-short"></i></a>

  <!-- Vendor JS Files -->
  <script src="assets/vendor/aos/aos.js"></script>
  <script src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script>
  <script src="assets/vendor/glightbox/js/glightbox.min.js"></script>
  <script src="assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
  <script src="assets/vendor/swiper/swiper-bundle.min.js"></script>
  <script src="assets/vendor/waypoints/noframework.waypoints.js"></script>
  <script src="assets/vendor/php-email-form/validate.js"></script>

  <!-- Template Main JS File -->
  <script src="assets/js/main.js"></script>

</body>

</html>
```