

## AGURCHAND MANMULL JAIN COLLEGE

Meenambakkam, Chennai – 600 061



### The Department of Electronics and Communication Science

## Naan Mudhalvan - Project Based Experiential Learning Program

## **COURSE - Data Analytics with Tableau**

CLASS: FINAL YEAR B.Sc. ECS Year: 2022-23 MENTOR: Dr.R.RAJ MOHAN

**TEAM ID** : NM2023TMID00397

TEAM SIZE : 4

TITLE OF THE PROJECT:

The Tragedy of Flight: A Comprehensive Crash Analysis

**Project – Team lead** 

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## The Tragedy of Flight: A Comprehensive crash analysis

## 1. INTRODUCTION

## 1.1 Overview

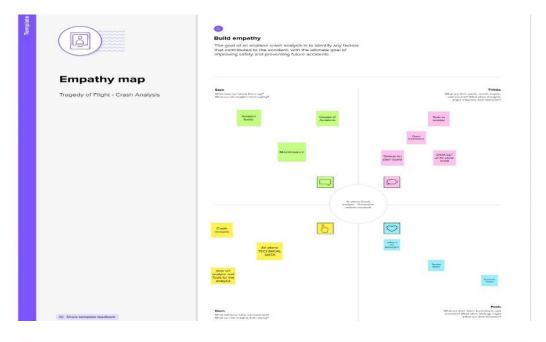
An airplane crash analysis is a detailed investigation into the causes of an aviation accident. The goal of an airplane crash analysis is to identify any factors that contributed to the accident, with the ultimate goal of improving safety and preventing future accidents. The process of conducting an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

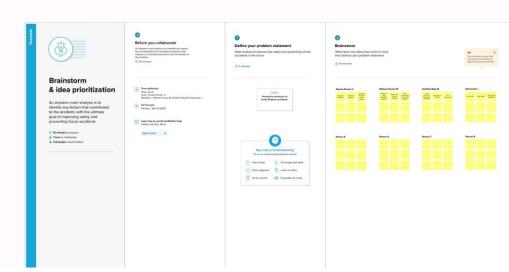
## 1.2 Purpose

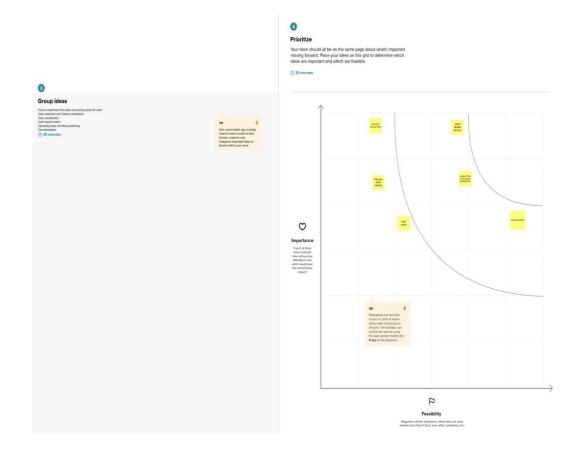
The goal of an airplane crash analysis is to identify any factors that contributes to the accident, with the ultimate goal of improving safety and preventing future accidents.

## 2. PROBLEM DEFINITION & DESIGN THINKING

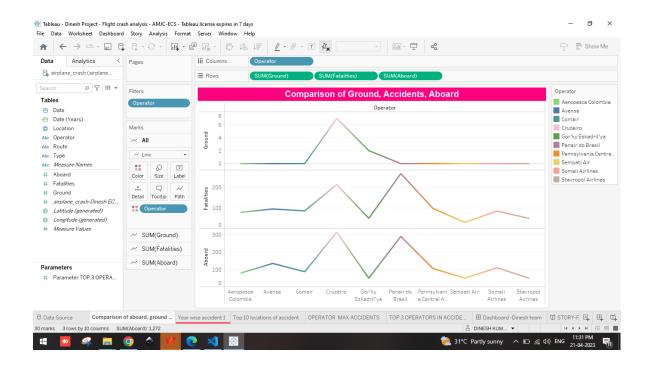
# 2.1 Empathy Map

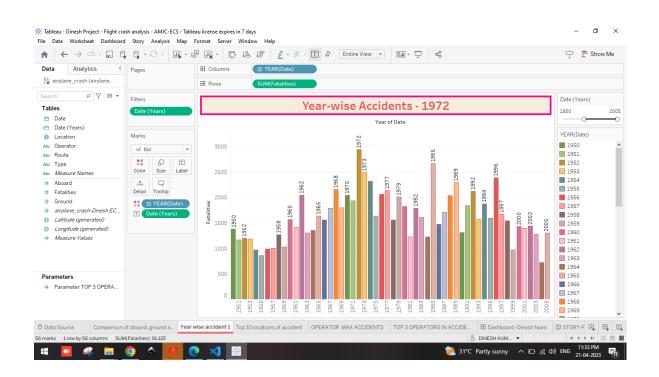


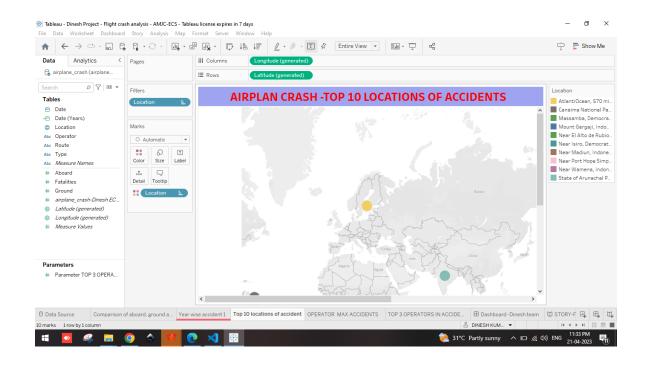


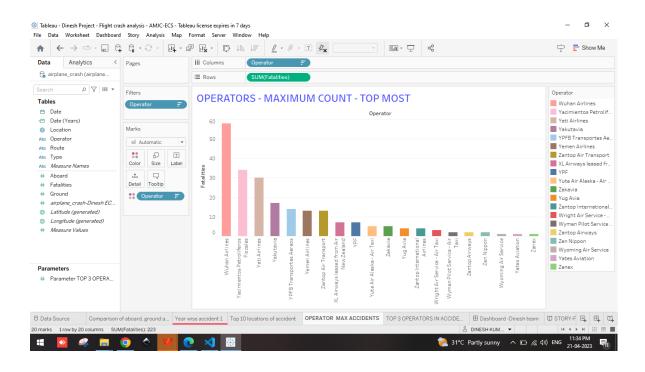


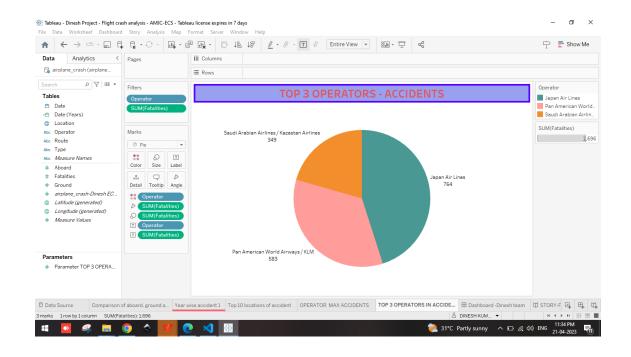
## 2.2 Ideation and brainstorming Map

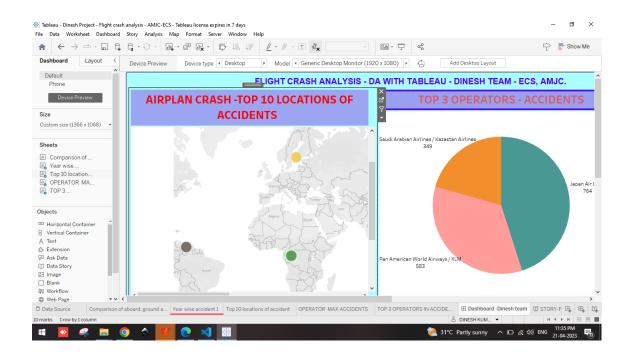


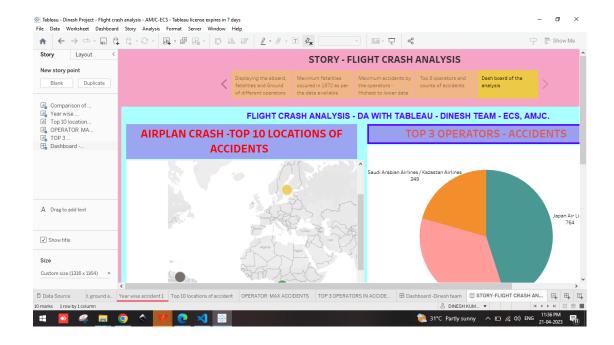












### 3. RESULT

The result of a comprehensive crash analysis could be used to improve training and education for pilots, air traffic controllers, and other aviation professionals. Lessons learned from accidents could be incorporated into training programs to help prevent similar accidents from occurring in the future.

#### 4. ADVANTAGES & DISADVANTAGES

#### 4.1 ADVANTAGES

Identification of Root Causes: A comprehensive crash analysis can help identify the underlying factors that contributed to the accident. By thoroughly examining the evidence, the analysis can identify root causes, such as mechanical failures, pilot error, or air traffic control issues.

Improved Safety: By identifying the causes of the accident, recommendations can be made to improve safety in the future. This could include changes in training, equipment, or regulations to prevent similar accidents from occurring.

Legal and Regulatory Compliance: A comprehensive crash analysis can also help ensure compliance with legal and regulatory requirements.

Public Perception: A transparent and thorough investigation can help improve public perception of the safety of air travel. By demonstrating a commitment to safety and a willingness to learn from accidents, airlines and aviation authorities can help reassure passengers and the public that air travel is safe.

Insights for Future Research: A comprehensive crash analysis can also provide insights for future research into aviation safety. By analyzing accident data and identifying trends, researchers can develop new safety technologies and strategies to improve air travel safety.

## 4.2 DISADVANTAGES

Time and Cost: Conducting a comprehensive crash analysis can be a lengthy and costly process. The investigation may involve a large team of experts, extensive data collection and analysis, and coordination with multiple agencies and organizations.

Bias: There is a risk of bias in any investigation, including a crash analysis. Investigators may have personal or organizational biases that could influence their findings or recommendations.

Privacy Concerns: A comprehensive crash analysis may involve the collection of sensitive or personal information, such as medical records or cockpit voice recorder data. There may be concerns about privacy and confidentiality, particularly for victims and their families.

Legal Implications: The findings of a comprehensive crash analysis could have legal implications, such as determining liability or contributing to litigation. There may be concerns about the impact of the investigation on legal proceedings or settlements.

Reputation: A high-profile accident and subsequent comprehensive analysis could damage the reputation of the airline or aviation authority involved. Negative media coverage and public perception could have long-lasting effects on the organization's reputation and financial performance.

## **5. APPLICATIONS**

Safety Improvements: One of the primary applications of a comprehensive crash analysis is to identify safety issues and make recommendations for improvements. These could include changes to equipment, procedures, training, or regulations.

Legal and Regulatory Compliance: A comprehensive crash analysis could be used to demonstrate compliance with legal and regulatory requirements. For example, aviation authorities may require an investigation after an accident, and the analysis could help ensure that all necessary steps have been taken.

Public Relations: A thorough and transparent investigation could help improve public perception of the safety of air travel. The analysis could be used to demonstrate a commitment to safety and a willingness to learn from accidents.

Research and Development: The findings of a comprehensive crash analysis could provide valuable insights for future research and development in aviation safety. The analysis could identify trends or areas of concern that could inform new safety technologies or strategies.

Training and Education: The results of a comprehensive crash analysis could be used to improve training and education for pilots, air traffic controllers, and other aviation professionals. Lessons learned from accidents could be incorporated into training programs to help prevent similar accidents from occurring in the future.

### 6. CONCLUSIONS

By investigating accidents and identifying their root causes, a comprehensive crash analysis can help prevent similar accidents from occurring in the future. The analysis can also provide valuable insights for research and development in aviation safety and improve training and education for aviation professionals.

However, conducting a comprehensive crash analysis can be a costly and time-consuming process, and there are potential concerns about bias, privacy, legal implications, and reputation. Despite these challenges, the benefits of a comprehensive crash analysis outweigh the potential disadvantages, and it is an essential tool for improving aviation safety and preventing tragedies in the future.

## 7. FUTURE SCOPE

Increased Use of Automation: As aviation becomes more automated, there may be opportunities to use data and artificial intelligence (AI) to improve crash analysis. Machine learning algorithms could be used to identify patterns and trends in accident data and help investigators identify contributing factors.

Integration of Big Data: With the increasing availability of data, comprehensive crash analysis could be expanded to incorporate a wider range of data sources, such as weather patterns, air traffic control data, and maintenance records. This could provide a more holistic view of accidents and help identify underlying causes.

Collaboration Across Borders: Aviation safety is a global concern, and there may be opportunities for greater collaboration and sharing of data and best practices across international borders. This could help improve safety standards and prevent accidents.

Focus on Human Factors: While advances in technology and equipment can improve safety, human error remains a significant factor in aviation accidents. Future comprehensive crash analysis could place a greater emphasis on human factors, such as crew communication, fatigue management, and situational awareness.

Predictive Analytics: With the increasing availability of data and machine learning capabilities, there may be opportunities for predictive analytics in aviation safety. By analysing data from previous accidents and near-misses, predictive models could be developed to identify potential safety issues and prevent accidents before they occur.

#### 8. APPENDIX

#### A. SOURCE CODE

```
<!DOCTYPE html>
<html lang="en">
  <meta charset="utf-8">
  <meta content="width=device-width, initial-scale=1.0"</pre>
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-</pre>
icon">
  <!-- Google Fonts -->
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,
400,400i,600,600i,700,700i|Jost:300,300i,400,400i,500,500i,600,60
0i,700,700i|Poppins:300,300i,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"</pre>
rel="stylesheet">
  <link href="assets/vendor/bootstrap-icons/bootstrap-icons.css"</pre>
rel="stylesheet">
  <link href="assets/vendor/boxicons/css/boxicons.min.css"</pre>
rel="stylesheet">
  <link href="assets/vendor/glightbox/css/glightbox.min.css"</pre>
rel="stylesheet">
  <link href="assets/vendor/remixicon/remixicon.css"</pre>
rel="stylesheet">
  <link href="assets/vendor/swiper/swiper-bundle.min.css"</pre>
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 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">
       <l
         <a class="nav-link scrollto active"</li>
href="#hero">Home</a>
         <a class="nav-link scrollto"</li>
href="#about">About</a>
         <a class="nav-link scrollto"</li>
href="#team">Dashboard</a>
         <a class="nav-link scrollto"</li>
href="#pricing">Story</a>
         <a class="nav-link scrollto"</li>
href="#contact">Contact</a>
         <a class="getstarted scrollto" href="#about">Get</a>
Started</a>
       <i class="bi bi-list mobile-nav-toggle"></i></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-</pre>
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-</pre>
content-lg-start">
            <a href="#about" class="btn-get-started scrollto">Get
Started</a>
href="https://www.youtube.com/@thesmartbridge/videos"
class="glightbox btn-watch-video"><i class="bi bi-play-</pre>
circle"></i><span>Watch Video</span></a>
          </div>
        </div>
        <div class="col-lg-6 order-1 order-lg-2 hero-img" data-</pre>
aos="zoom-in" data-aos-delay="200">
          <img src="assets/img/a1.jpg" class="img-fluid animated"</pre>
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">
              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
            <l
              <i class="ri-check-double-line"></i> a) a
person is fatally or seriously injured,
```

```
<i class="ri-check-double-line"></i> b) the
aircraft sustains significant damage or structural failure, or
<i class="ri-check-double-line"></i> c) the
aircraft goes missing or becomes completely inaccessible.
           </div>
         <div class="col-lg-6 pt-4 pt-lg-0">
             This dataset includes:
           <u1>
             <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)
             <i class="ri-check-double-line"></i> All cargo,
positioning, ferry and test flight fatal accidents.
             <i class="ri-check-double-line"></i> All
military transport accidents with 10 or more fatalities.
             <i class="ri-check-double-line"></i> All
commercial and military helicopter accidents with greater than 10
fatalities.
             <i class="ri-check-double-line"></i> All civil
and military airship accidents involving fatalities.
             <i class="ri-check-double-line"></i> Aviation
accidents involving the death of famous people.
              </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 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>
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alt='Airplane Crash Analysis '
src='https://public.tableau.com/static/images&#47
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value='Airplane Crash/Dashboard1' /><param name='tabs'</pre>
value='no' /><param name='toolbar' value='yes' /><param
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value='yes' /><param name='language' value='en-US' /><param</pre>
name='filter' value='publish=yes'
/></object></div>
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if ( divElement.offsetWidth > 800 ) {
vizElement.style.width='100%';vizElement.style.height=(divElement
.offsetWidth*0.75)+'px';} else if ( divElement.offsetWidth > 500
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.offsetWidth*0.75)+'px';} else {
vizElement.style.width='100%';vizElement.style.height='1027px';}
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                                                     scriptElemen
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                           </script>-->
vizElement);
```

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CRASH ANALYSIS - DA WITH TABLEAU - DINESH TEAM - ECS, AMJC. '
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} else if ( divElement.offsetWidth > 500 ) {
vizElement.style.width='1366px';vizElement.style.height='1095px';
} else {
vizElement.style.width='100%';vizElement.style.height='1627px';}
                    var scriptElement =
document.createElement('script');
                                                      scriptElemen
t.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';
         vizElement.parentNode.insertBefore(scriptElement,
vizElement);
                            </script>
      </div>
    </section><!-- End Team Section -->
    <!-- ===== Pricing Section ====== -->
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```

```
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          </div>
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style='border: none' /></a></noscript><object</pre>
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value='no' /><param name='toolbar' value='yes' /><param</pre>
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value='https://public.tableau.com/static/images&#
47;Ai/Airplane Crash story/Story1/1.png' /> <param
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/></object></div>
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type='text/javascript'>
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ar vizElement =
divElement.getElementsByTagName('object')[0];
vizElement.style.width='100%';vizElement.style.height=(divElement
.offsetWidth*0.75)+'px';
                                            var scriptElement =
document.createElement('script');
                                                      scriptElemen
t.src =
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vizElement);
                            </script>-->
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- FLIGHT CRASH ANALYSIS
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/></a></noscript><object
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Flightcrashanalysis-AMJC-ECS/STORY-FLIGHTCRASHANALYSIS'
/><param name='tabs' value='no' /><param name='toolbar'</pre>
```

```
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47; Di/ DineshProject-Flightcrashanalysis-AMJC-ECS/ STORY-
FLIGHTCRASHANALYSIS/1.png' /> <param</pre>
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name='display_static_image' value='yes' /><param</pre>
name='display spinner' value='yes' /><param</pre>
name='display_overlay' value='yes' /><param name='display_count'</pre>
value='yes' /><param name='language' value='en-US' /><param</pre>
name='filter' value='publish=yes'
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t.src =
'https://public.tableau.com/javascripts/api/viz v1.js';
         vizElement.parentNode.insertBefore(scriptElement,
vizElement);
                            </script>
      </div>
    </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></i>
                <h4>Location:</h4>
                A.M Jain College, Meenambakam, Chennai -
600114
              </div>
              <div class="email">
                <i class="bi bi-envelope"></i></i>
                <h4>Email:</h4>
                udineshkumar@gmail.com
```

```
</div>
              <div class="phone">
                <i class="bi bi-phone"></i></i>
                <h4>Call:</h4>
                +91 6369797554
              </div>
              <iframe
src="https://www.google.com/maps/embed?pb=!1m18!1m12!1m3!1d7775.6
38779293302!2d80.17292246204052!3d12.983400917227229!2m3!1f0!2f0!
3f0!3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x3a525e0305be150f%3A0x85a0
453c427fd349!2sAGURCHAND%20MANMULL%20JAIN%20COLLEGE!5e0!3m2!1sen!
2sin!4v1682074001225!5m2!1sen!2sin" 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-</pre>
stretch">
            <form action="forms/contact.php" method="post"</pre>
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-</pre>
control" id="name" required>
                </div>
                <div class="form-group col-md-6">
                  <label for="name">Your Email</label>
                  <input type="email" class="form-control"</pre>
name="email" id="email" required>
                </div>
              </div>
              <div class="form-group">
                <label for="name">Subject</label>
                <input type="text" class="form-control"</pre>
name="subject" id="subject" required>
              </div>
              <div class="form-group">
                <label for="name">Message</label>
                <textarea class="form-control" name="message"</pre>
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>
  </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</pre>
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>
            <u1>
              <i class="bx bx-chevron-right"></i> <a</pre>
href="#hero">Home</a>
              <i class="bx bx-chevron-right"></i> <a</pre>
href="#about">About</a>
              <i class="bx bx-chevron-right"></i> <a</pre>
href="#portfolio">Charts</a>
              <i class="bx bx-chevron-right"></i> <a</pre>
href="#team">Dashboard</a>
```

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<i class="bx bx-chevron-right"></i> <a</pre>
href="#pricing">Story</a>
            </div>
          <div class="col-lg-3 col-md-6 footer-links">
            <h4></h4>
            <l
            </div>
          <div class="col-lg-3 col-md-6 footer-links">
            <h4></h4>
           <l
            </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/"</pre>
class="linkedin"><i class="bx bxl-linkedin"></i></a>
              <a href="#" class="twitter"><i class="bx bxl-</pre>
twitter"></i></a>
              <a href="#" class="facebook"><i class="bx bxl-</pre>
facebook"></i></a>
              <a href="#" class="instagram"><i class="bx bxl-</pre>
instagram"></i></a>
              <a href="#" class="google-plus"><i class="bx bxl-</pre>
skype"></i>></a>
            </div>
          </div>
       </div>
     </div>
    </div>
    <div class="container footer-bottom clearfix">
      <div class="copyright">
        © 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>
src="assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></script</pre>
  <script
src="assets/vendor/glightbox/js/glightbox.min.js"></script>
  <script src="assets/vendor/isotope-</pre>
layout/isotope.pkgd.min.js"></script>
  <script src="assets/vendor/swiper/swiper</pre>
bundle.min.js"></script>
  <script
src="assets/vendor/waypoints/noframework.waypoints.js"></script>
  <script src="assets/vendor/php-email-</pre>
form/validate.js"></script>
  <!-- Template Main JS File -->
  <script src="assets/js/main.js"></script>
</body>
</html>
```