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Unearthing the Environmental Impact of Human Activity: A Global CO2 Emission Analysis

1. Introduction:

Global Warming is one of the biggest challenges currently being faced by the human race. Although correlation is not causation, a likely cause of global warming is due to increased atmospheric carbon dioxide from human activities

1.1-Overview:

CO2 Emission refers to carbon dioxide emitted throughout the world. This will help researchers and environment experts to predict global warming. So countries should set a goal to decrease this amount years. The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to an increase in CO2 every year.

1.2 purpose:

Analysis global CO2 emission across countries from 1975 to 2020. This dataset contains a record of CO2 emission by each country and region of earth, here are going to analyse and visualise country wise, region wise and overall CO2 emission on earth.

2.Problem Definition & Design Thinking

In this case, the users could be scientists, policymakers, or the general public who are interested in understanding the impact of human activity on the environment.

The problem definition involves analyzing the impact of human activity on global CO2 emissions. This is a complex problem that requires a multifaceted approach, including data collection, analysis, and interpretation.

One approach is to use design thinking, which involves empathizing with the users or stakeholders affected by the problem and brainstorming innovative solutions based on their needs.

2.1-Empathy Map



2.2-Ideation & Brain Storming Map



3. Result

- ✚ Data collection & Extraction from database
- ✚ Data Visualization
- ✚ Dashboard
- ✚ Story
- ✚ web Integration

3.1-Data collection & Extraction from database

Dataset consists CO2 emissions in metric ton per capita of every country around the world. The data is collected from 1975 to 2020. In this dataset Countries and regions are included. Data is initially pre-processed using.

The dataset contains

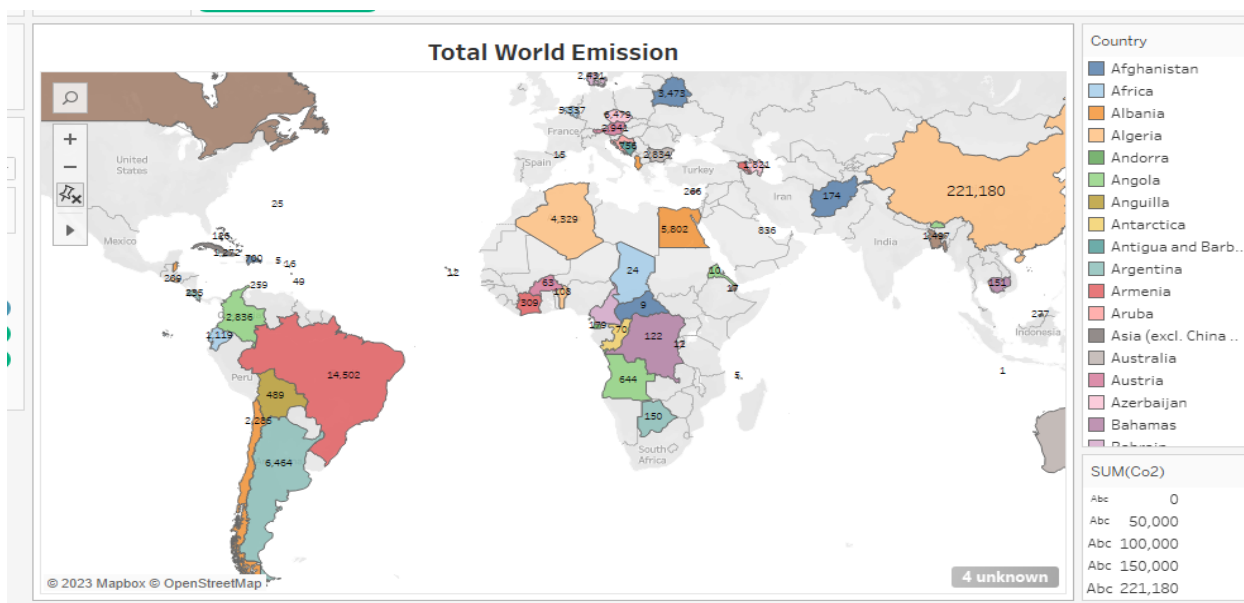
- ✚ Country- Country for which Co2 is Recorded
- ✚ Year- Year the data was recorded
- ✚ Co2 Emission (In Million Metric Tons)
- ✚ Co2 Growth per Capita
- ✚ Co2 Per Capita
- ✚ Cumulative Co2
- ✚ Several Fossil Fuels rate of Emission

3.2 Data Visualization

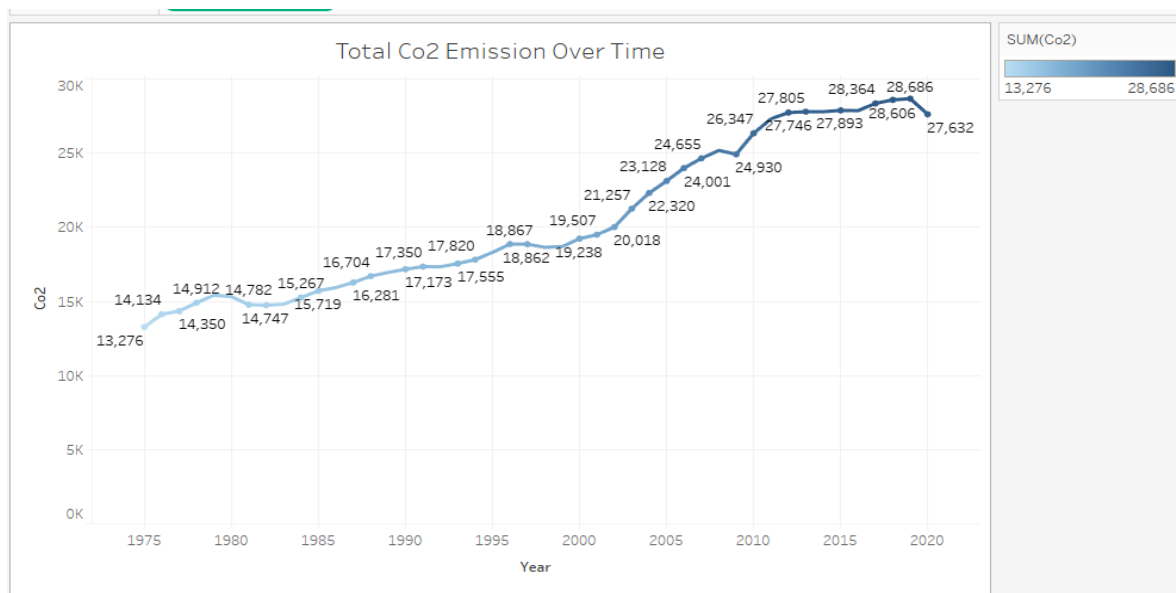
Data visualization is the process of creating graphical representations of data in order to help people understand and explore the information. The goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual

elements such as charts, graphs, and maps, data visualizations can help people quickly identify patterns, trends, and outliers in the data. Some common types of visualizations that can be used to analyze the Co2 Emission include bar charts, line charts, Tree Map, scatter plots, pie charts, Maps etc. These visualizations can be used to compare performance, track changes over time, show Emission, and relationships between variables, breakdown of factors and emission by countries and continents.

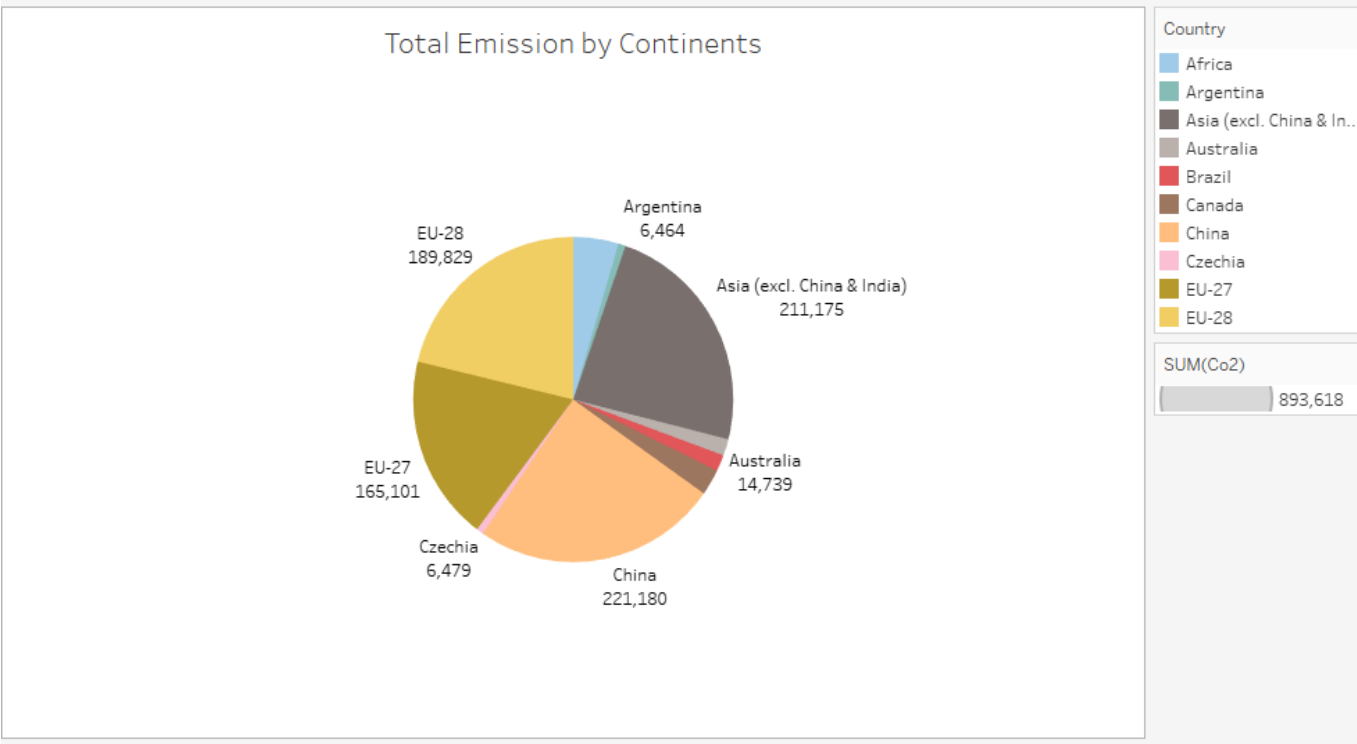
3.2.1 Total world emission



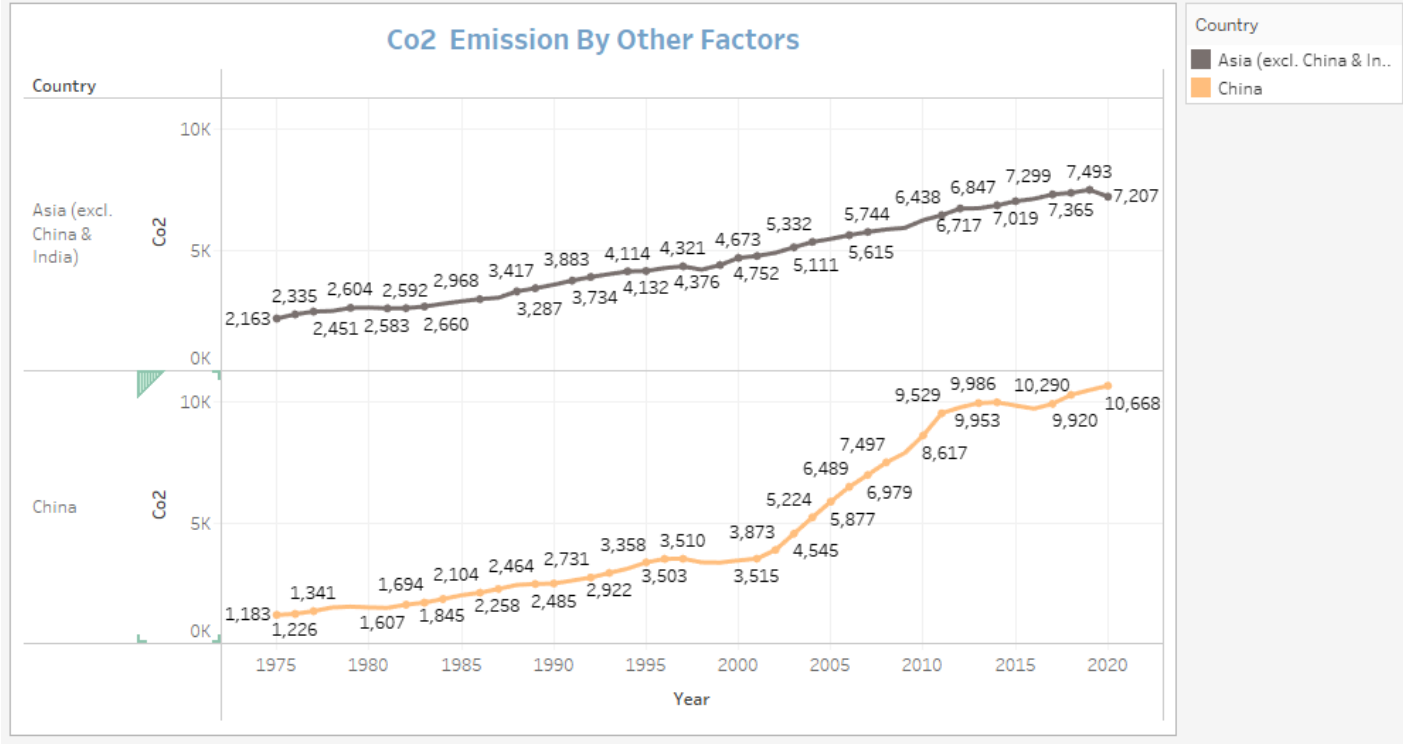
3.2.2 Total Co2 Emission Over Times



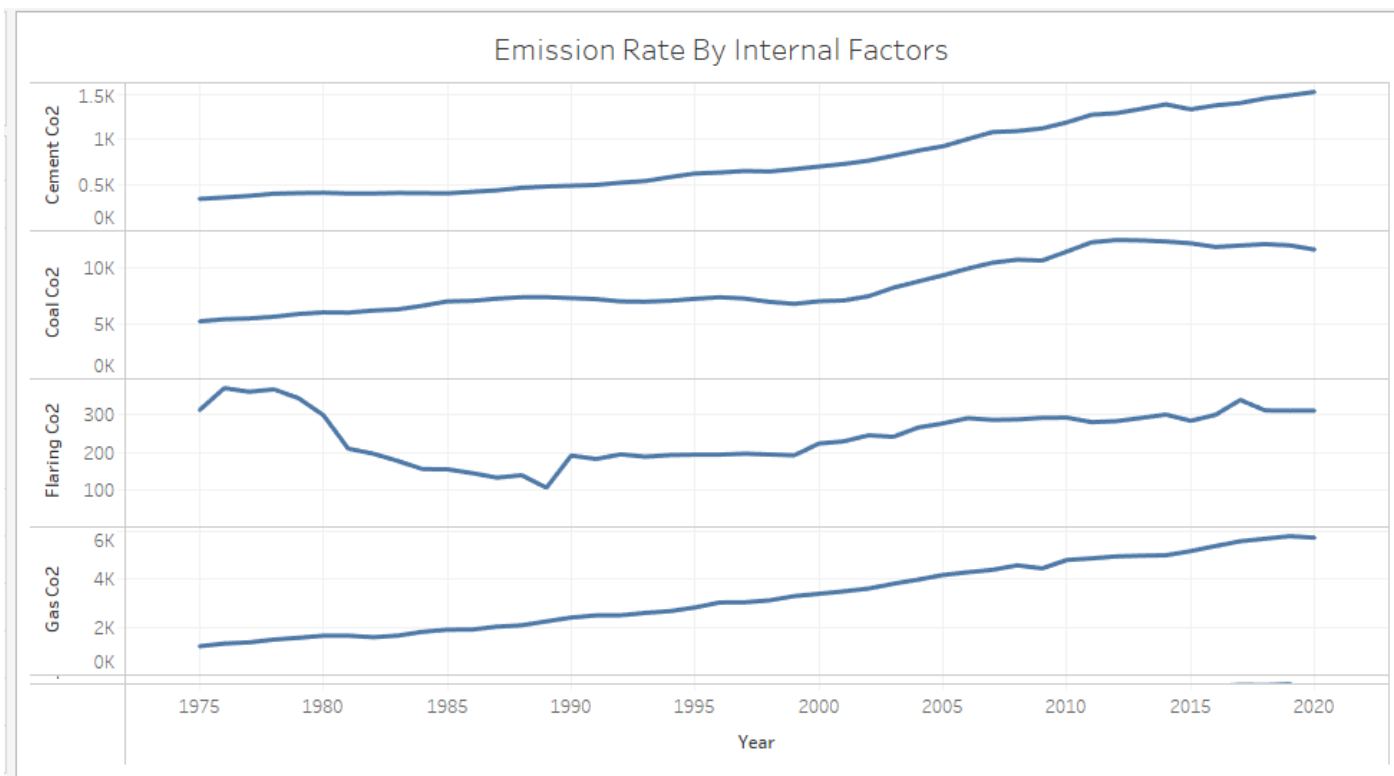
3.2.3 Top Emission by Continents



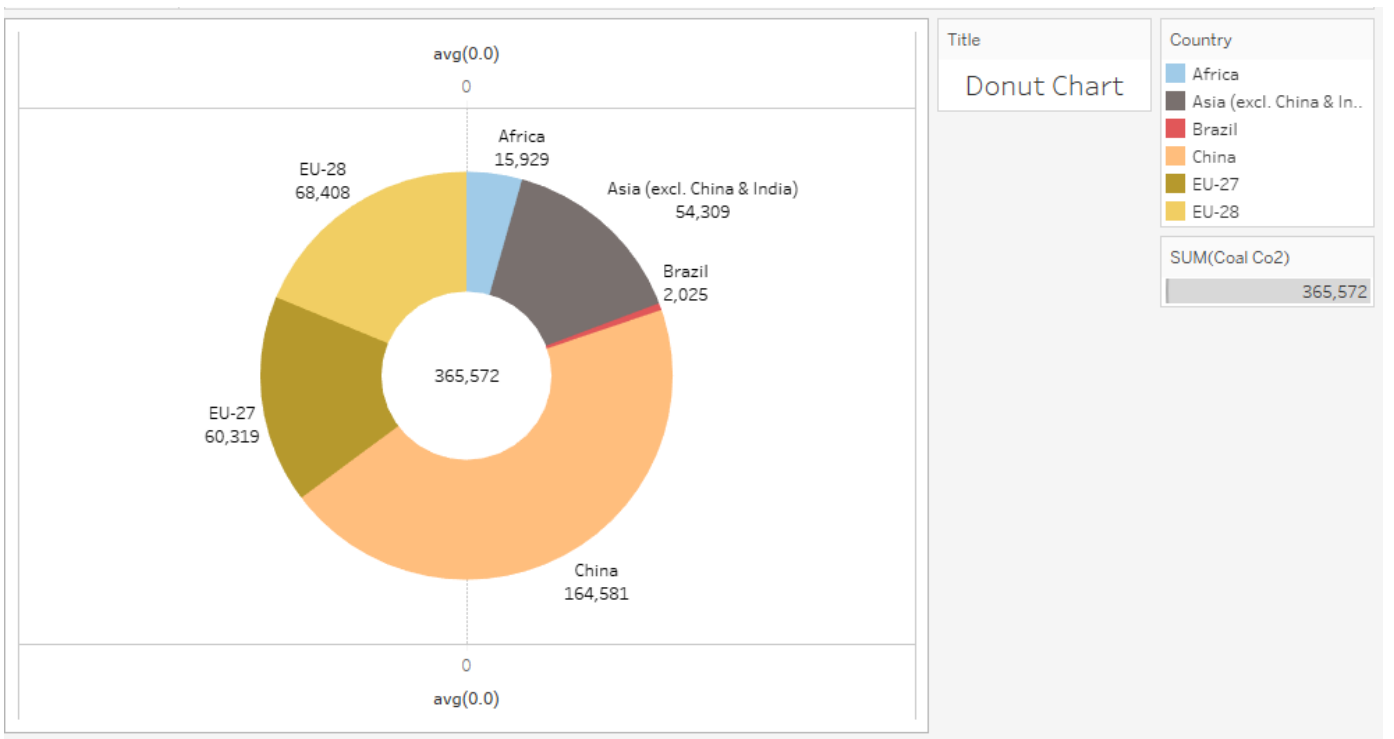
3.2.4 Co2 Emission by other Factors



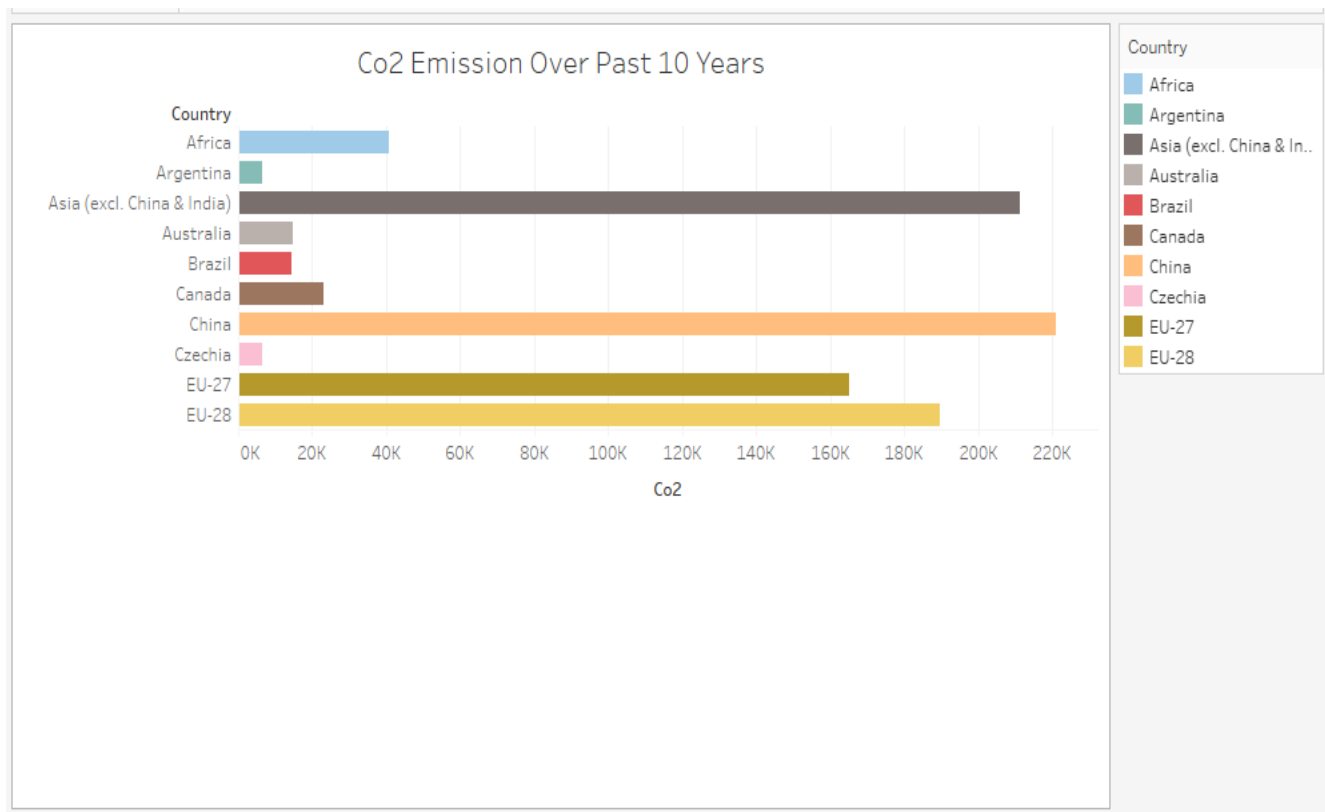
3.2.5 Emission Rate by Internal Factor



3.2.6 Dount Chart



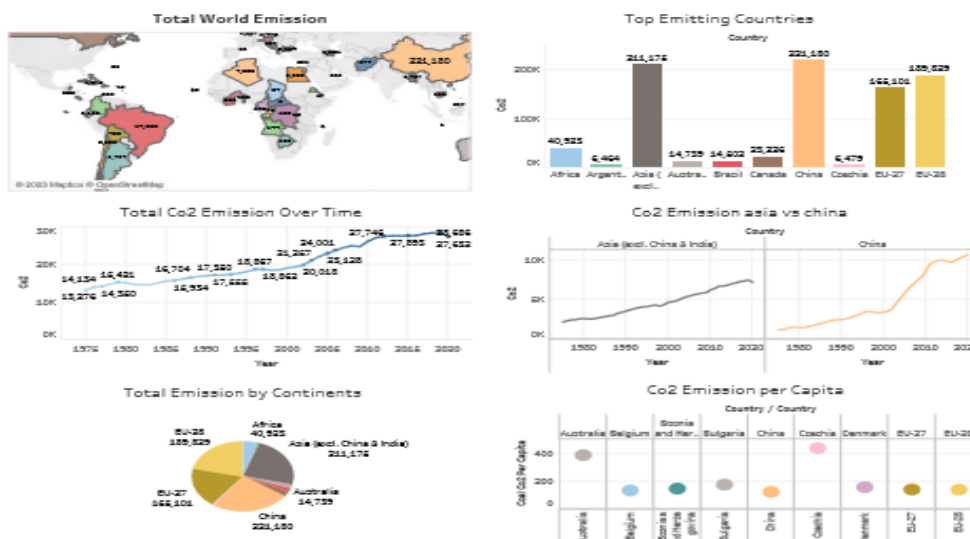
3.2.7 Co2 Emission Over the past 10 Years



3.3 Dashboard

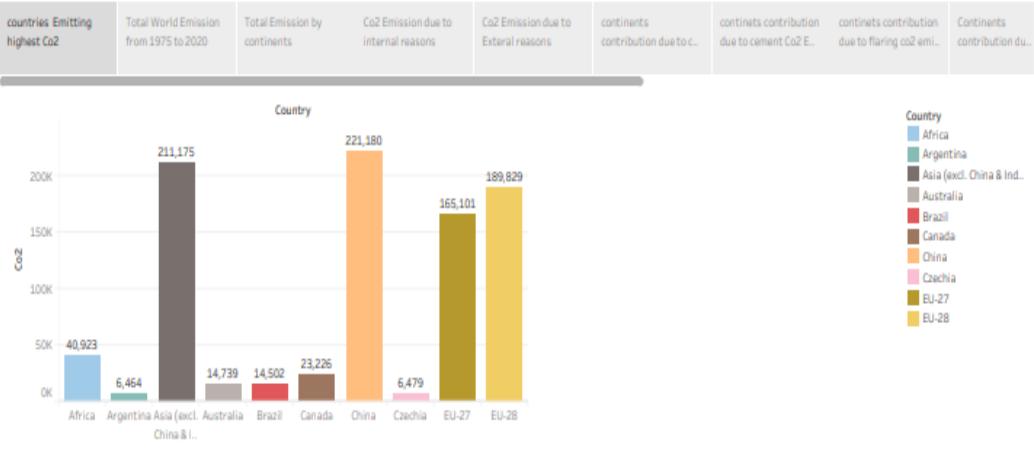
A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data, and are typically designed for a specific purpose or use case.

Dashboard 1

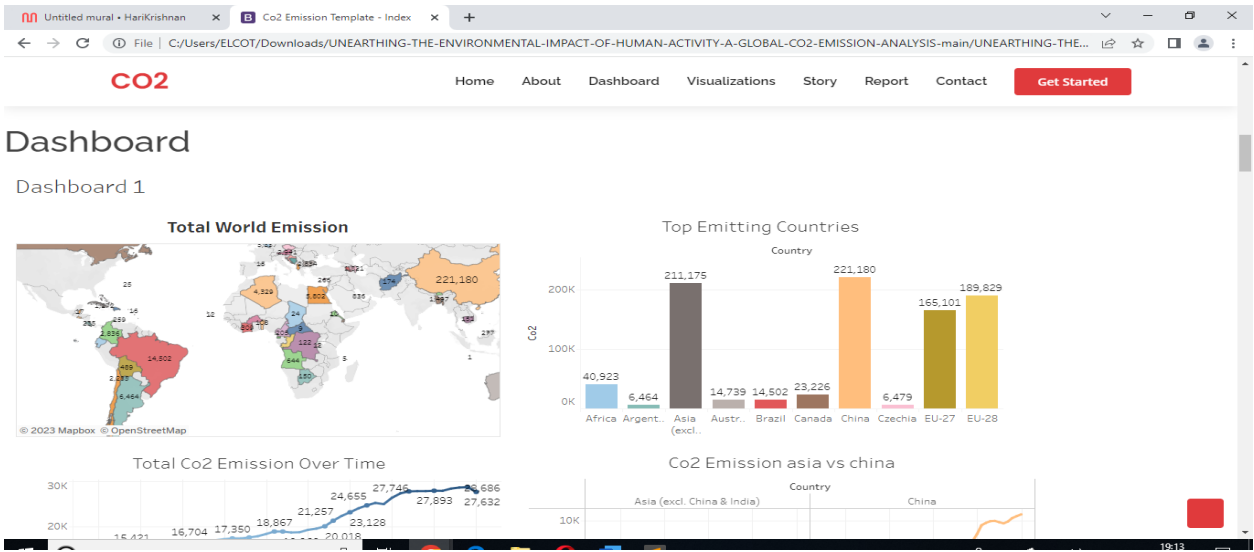


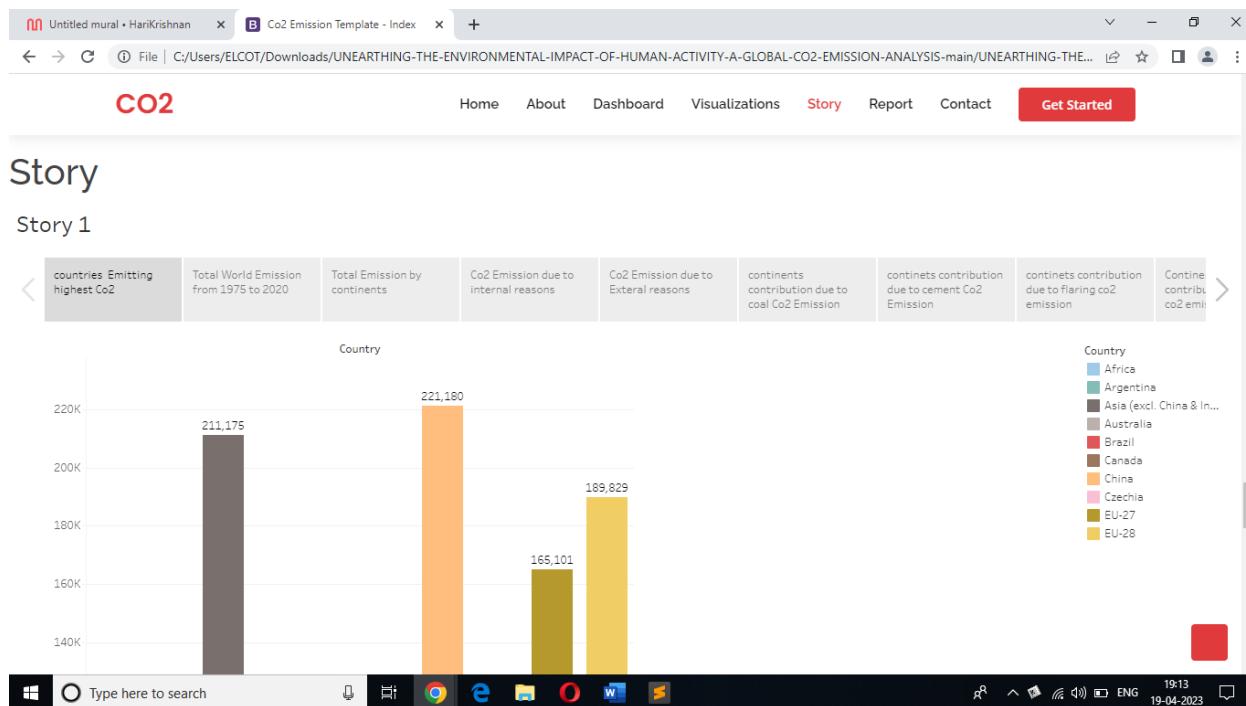
3.4 Story

Story 1



3.5 web Integration





4. ADVANTAGES & DISADVANTAGES

+ Advantages of CO2 Emissions:

1.CO2 is a naturally occurring gas and is essential for plant growth, which is important for maintaining the balance in the ecosystem.

2.CO2 emissions are also associated with economic growth, as industries and factories produce CO2 as a by product of their operation. This can provide employment and economic benefits to a region.

3.In some cases, CO2 emissions can be used to generate electricity and power, which can be a useful source of energy.

+ Disadvantages of CO2 Emissions:

1.CO2 emissions are a major contributor to climate change and global warming, which can have negative impacts on the environment, human health, and the economy.

2.CO2 emissions can also contribute to air pollution, which can be harmful to human health and the environment.

3.The continued use of fossil fuels for energy production, which is a major source of CO2 emissions, is unsustainable in the long term and can lead to depletion of resources.

4.Overall, while CO2 emissions have some advantages, it's important to consider the significant negative impacts they can have and work towards reducing them to mitigate the effects of climate change.

5.APPLICATION

The amount of CO2 emissions from applications can vary depending on factors such as the type of application, the size of the data centers that run the application, and the type of energy sources used to power those data centers. For example, applications that require significant processing power and data storage may consume more energy and have a higher carbon footprint compared to simpler applications.

I can explain that CO2 emissions from applications refer to the amount of carbon dioxide released into the atmosphere as a result of the energy consumption and activities of various software applications. This is an important topic due to the growing concern about the impact of greenhouse gases on the environment and climate change.

To reduce the CO2 emissions from applications, developers and users can take steps such as optimizing code and reducing energy consumption, using renewable energy sources, and practicing sustainable digital habits such as reducing unnecessary data storage and turning off devices when not in use.

6.CONCLUSION

Carbon dioxide is one of the major causes of climate change. There are several harmful effects of carbon dioxide on humans, animals, and plants. Reducing human activities that release carbon dioxide into the

atmosphere will reduce the effects of global warming. Global warming is a major concern for the coming years.

7. FUTURE SCOPE:

No climate policies:

projected future emissions if no climate policies were implemented; this would result in an estimated 4.1 to 4.8°C warming by 2100 (relative to pre-industrial temperatures);

Current climate policies:

projected warming of 2.8 to 3.2°C by 2100 based on current implemented climate policies;

National pledges:

If all countries achieve their current targets/pledges set within the Paris climate agreement, it's estimated average warming by 2100 will be 2.5 to 2.8°C. This will go well beyond the overall target of the Paris Agreement to keep warming “well below 2°C”.

2°C consistent:

There are a range of emissions pathways that would be compatible with limiting average warming to 2°C by 2100. This would require a significant increase in ambition of the current pledges within the Paris Agreement.

8. APPENTIX

Html source code:

```
<!DOCTYPE html>
```

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

<head>

<meta charset="utf-8">

<meta content="width=device-width, initial-scale=1.0" name="viewport">

<title>Co2 Emission Template - Index</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|Raleway:300,300i,400,400i,500,500i,600,600i,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" 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: Presento
```

```
* Updated: Mar 10 2023 with Bootstrap v5.2.3
```

```
* Template URL: https://bootstrapmade.com/presento-bootstrap-corporate-template/
```

```
* Author: BootstrapMade.com
```

```
* License: https://bootstrapmade.com/license/
```

```
===== --
```

```
>
```

```
</head>
```

```
<body>
```

```

<!-- ===== Header ===== -->

<header id="header" class="fixed-top d-flex align-items-center">
  <div class="container d-flex align-items-center">
    <h1 class="logo me-auto"><a
href="index.html"><span>C02</span></a></h1>

    <!-- Uncomment below if you prefer to use an image logo -->
    <!-- <a href="index.html" class="logo me-auto"></a>-->

  </div>

  <nav id="navbar" class="navbar order-last order-lg-0">
    <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="#dashboard">Dashboard</a></li>
      <li><a class="nav-link scrollto "
href="#portfolio">Visualizations</a></li>
      <li><a class="nav-link scrollto" href="#story">Story</a></li>
      <li><a class="nav-link scrollto" href="#report">Report</a></li>
      <li><a class="nav-link scrollto" href="#contact">Contact</a></li>
    </ul>
    <i class="bi bi-list mobile-nav-toggle"></i>
  </nav><!-- .navbar -->

  <a href="#about" class="get-started-btn scrollto">Get Started</a>

```

</div>

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

<!-- ===== Hero Section ===== -->

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

<div class="container" data-aos="zoom-out" data-aos-delay="100">

<div class="row">

<div class="col-xl-6">

<h1>Welcome to Global Co2 Emission Analysis for Year 2020</h1>

<h2>Carbon dioxide emissions are the primary driver of global climate change.It's widly recognised that to avoid the worst impacts of climate change , the world needs to urgently reduce emissions.</h2>

Get Started

</div>

</div>

</div>

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

<main id="main">

<!-- ===== About Section ===== -->

<section id="about" class="about">

<div class="container" data-aos="fade-up">

<div class="section-title">

<h2>About Us</h2>

</div>

<div class="row content">

<div class=" ">

<p>Carbon dioxide emissions the those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid,liquid,and gas fuels and gas flaring.

</p>

<p> Global carbon dioxide (CO2) emissions from fossil fuels and industry have increased considerably since 2000,and in 2019 reached a record high of 36.7 billion metric tons of CO2.In 2020,the COVID-19 pandemic caused global CO2 emissions to plummet five percent to 34.81 billion metric tons.

<p>

<p> Historically,major global events cause emission reductions.The 2009 global recession caused worldwide CO2 emissions to fall by approximately 460 million metric tons.But this pales in comparison to the emission reductions in 2020 .Countries around the world were put under strict lockdowns ,meaning transportation and industrial activities were significantly reduced.CO2 emission levels in india dropped for the first time in four decades in the year ending March 2020.Global CO2 emissions per capita also experienced a substantial decline in 2020,falling to an average of 4.47 metric tons per person.<p>

</div>

</div>

</div>

</section>

<!-- End About Section -->

<!-- ===== Dashboard Section ===== -->

<section id="dashboaard">

<h1>Dashboard</h1>

<div>

<div class='tableauPlaceholder' id='viz1681910266691' style='position: relative'><noscript></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='Book33_16816464452860/Dashboard1' /><param name='tabs' value='no' /><param name='toolbar' value='yes' /><param name='static_image' value='https://public.tableau.com/static/images/

```

Bo&#47;Book33_16816464452860&#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('viz1681910266691');                var vizElement
= divElement.getElementsByTagName('object')[0];                if (
divElement.offsetWidth > 800 ) {
vizElement.style.width='1144px';vizElement.style.height='3919px';} else if (
divElement.offsetWidth > 500 ) {
vizElement.style.width='1144px';vizElement.style.height='3919px';} else {
vizElement.style.width='100%';vizElement.style.height='5027px';}
var scriptElement = document.createElement('script');
scriptElement.src = 'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement);
</script>

</div>

</div>
</section>

<!--End Dashboard Section -->

<!-- ===== Visualization Section ===== -->
<section id="portfolio" class="portfolio">

<div class="container" data-aos="fade-up">

<div class="section-title">

```

```
<h2>VISUALIZATIONS</h2>
```

```
</div>
```

```
<div class="row portfolio-container" data-aos="fade-up" data-aos-  
delay="200">
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-app">
```

```
<div class="portfolio-wrap">
```

```

```

```
</div>
```

```
</div>
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-web">
```

```
<div class="portfolio-wrap">
```

```

```

```
</div>
```

```
</div>
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-app">
```

```
  <div class="portfolio-wrap">
```

```
    
```

```
  </div>
```

```
</div>
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-card">
```

```
  <div class="portfolio-wrap">
```

```
    
```

```
  </div>
```

```
</div>
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-web">
```

```
  <div class="portfolio-wrap">
```

```
    
```

```
  </div>
```

```
</div>
```

```
<div class="col-lg-4 col-md-6 portfolio-item filter-app">
```

```
<div class="portfolio-wrap">
```

```

```

```
</div>
```

```
</div>
```

```
</div>
```

```
</div>
```

```
</section><!-- End Visualization Section -->
```

```
<!-- ===== Story Section =====>
```

```
<section id="story">
```

```
<h1>Story</h1>
```

```
<div>
```

```
<div class='tableauPlaceholder' id='viz1681910004922' style='position:
relative'><noscript><a href='#'><img alt='Story 1 '
src='https://public.tableau.com/static/images/Bo
&Book33_16816464452860&Story1&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='Book33_16816464452860&#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;
Bo&#47;Book33_16816464452860&#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('viz1681910004922');          var vizElement
= divElement.getElementsByTagName('object')[0];
vizElement.style.width='100%';vizElement.style.height=(divElement.offset
Width*0.75)+'px';          var scriptElement =
document.createElement('script');          scriptElement.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';
vizElement.parentNode.insertBefore(scriptElement, vizElement);
</script>

    </div>

</div>

</section>

<!--End Story Section -->

<!-- ===== Report Section =====>

<section id="report">

    <h1>Report</h1>

```

```
<div class="content">
```

```
<h4>Top Co2 Emitting countries for Past 10 Years</h4>
```

```
<p>China is the highest Co2 Emitting among the other countries.</p>
```

```
<p>United States is the second highest Co2 Emitting country.</p>
```

```
<p>India is the Third Co2 Emitting country.</p>
```

```
<h4>Continents Contribution towards Co2 Emission</h4>
```

```
<p>Asian is the highest Co2 Emitting country among the other  
continents.</p>
```

```
<p>Europe is the second highest Co2 Emitting continent.</p>
```

```
<p>Antartica is the lowest Co2 Emitting countries because of low human  
activity/existence in the continent.</p>
```

```
<h4>Ovarall India Contribution towards Co2 Emission</h4>
```

```
<p>Coal is the highest factor of Co2 Emission.</p>
```

```
</div>
```

```
</section> <!--End Report Section -->
```

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

```
<!-- 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>A108 Adam Street, New York, NY 535022</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 5589 55488 55s</p>
```

```
</div>
```

```
</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-->
```

```
<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/purecounter/purecounter_vanilla.js"></script>

<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/php-email-form/validate.js"></script>

<!-- Template Main JS File -->

<script src="assets/js/main.js"></script>