SMARTBRIDGE INTERNSHIP PROGRAM

DATA ANALYTICS PROJECT

UNEARTHING THE ENVIRONMENTAL IMPACTS OF HUMAN ACTIVITY: A GLOBAL CO2 EMISSION ANALYSIS.

BY:

G. PARAMESWAR REDDY
20A31A4436

1 INTRODUCTION

1.1 Overview

The environmental impact of human activity, particularly in the form of greenhouse gas emissions, has become a critical global concern. Among the various greenhouse gases, carbon dioxide (CO2) is the primary contributor to climate change. It is released into the atmosphere through numerous human activities, including burning fossil fuels, deforestation, industrial processes, and agricultural practices. Understanding and analysing global CO2 emissions are crucial steps in assessing the magnitude of the environmental challenges we face. The topic "Unearthing the Environmental Impacts of Human Activity: A Global CO2 Emission Analysis" aims to delve into the extent of CO2 emissions worldwide and their implications for the environment. The analysis encompasses multiple dimensions, including the sources of emissions, geographical distribution, temporal trends, and the associated environmental consequences.

Sources of CO2 Emissions:

The study examines the major sources of CO2 emissions, focusing on sectors such as energy production, transportation, industry, oil, coal,cement and environment changes. It explores the processes and activities within each sector that contribute to CO2 emissions and quantifies their relative importance.

Geographical Distribution:

The analysis takes a global perspective to evaluate the distribution of CO2 emissions across countries and regions. It identifies the top contributors to global CO2 emissions, highlighting both developed and developing nations. By examining regional disparities, the study aims to shed light on the disproportionate impact of emissions on different parts of the world.

Temporal Trends:

The research investigates the historical trends of CO2 emissions over time. It analyzes changes in emission levels, identifies key periods of growth or decline, and examines the driving factors behind these trends. Additionally, the study explores the influence of various socio-economic factors and policy measures on emissions.

By providing a comprehensive overview of global CO2 emissions and their environmental impacts, this analysis aims to enhance our understanding of the magnitude of human-induced climate change. The findings can inform policymakers, researchers, and the general public about the urgency of adopting sustainable practices, mitigating emissions, and developing effective climate change mitigation strategies.

1.2 Purpose

The outcome of these visualisations can be used in various sectors:

Assessing the Magnitude of the Problem: By understanding the scale of these emissions, we can comprehend the extent to which human activity contributes to climate change and its associated environmental impacts.

Identifying Key Sources and Sectors: The analysis helps identify the major sources of CO2 emissions, such as coal, transportation, industry, cement, and other fossil fuels. By pinpointing these sectors, it becomes possible to target specific areas for mitigation efforts and policy interventions to reduce emissions effectively.

Understanding Geographical Disparities: Examining the geographical distribution of CO2 emissions allows us to identify countries and regions with the highest emission levels. This understanding is essential for international cooperation, policy formulation, and equitable burden-sharing in addressing climate change. It also helps highlight the potential impacts on vulnerable regions and populations.

Tracking Temporal Trends: Analyzing historical trends of CO2 emissions provides insights into how human activity has evolved over time and its impact on climate change. It helps identify periods of significant growth or decline in emissions, assess the effectiveness of past mitigation measures, and project future emission scenarios.

Raising Awareness and Urgency: By disseminating the findings of the analysis, it increases public awareness about the environmental impacts of human activity and the urgent need for action. It helps educate individuals, communities, and organizations about the consequences of CO2 emissions, fostering a sense of responsibility and encouraging sustainable behaviors and lifestyle changes.

2 LITERATURE SURVEY

2.1 Existing problem

The project aims to explore and understand how human activities are affecting the environment, focusing specifically on the emission of carbon dioxide (CO2) on a global scale. The project seeks to analyze data to uncover patterns, trends, and connections, providing insights into the extent of human-driven CO2 emissions and their impact on the environment.

The project analyses the primary sources of CO2 emissions worldwide, the change in CO2 emissions over time, the current emission levels, significant variations in CO2 emissions between different regions, and tries to find the respective factors contributing to it.

The project aims to provide valuable insights into the global landscape of CO2 emissions. This information can assist environmental organizations, and researchers in making informed decisions and formulating effective strategies to address climate change and reduce human impacts on the environment.

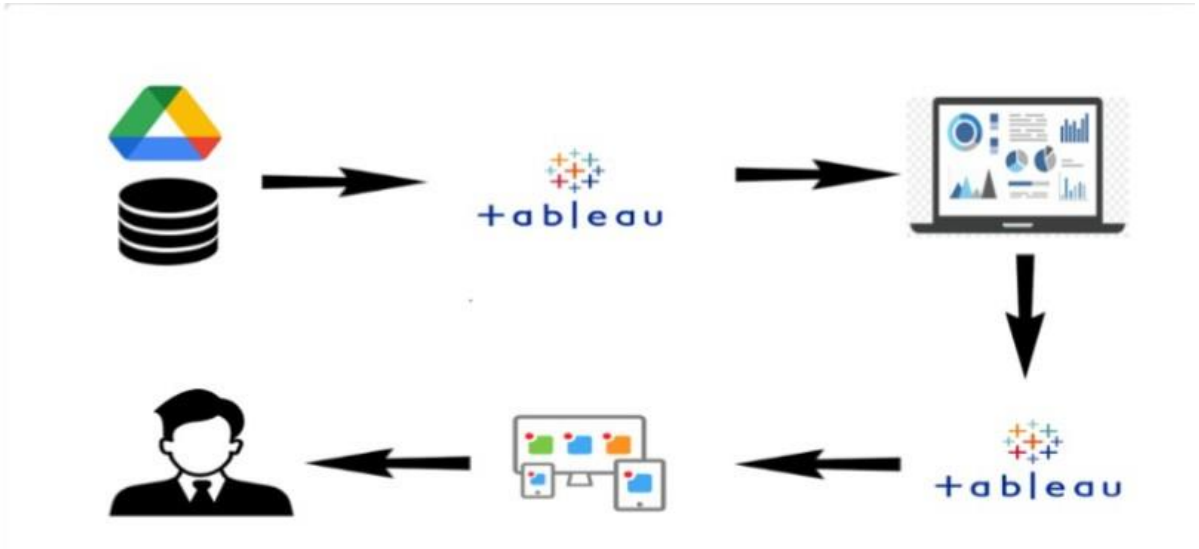
2.2 Proposed solution

By using Data Analytics techniques, the long-term trends and patterns in CO2 emissions, such as increasing or decreasing emission rates over time, causes and variations in CO2 emissions between different regions help to visualise and understand the historical trajectory of emissions and provide a basis for future projections. By examining geographical variations in emission levels and growth rates, we can identify regions with high emissions and those with relatively lower emissions.

This analysis enables policymakers to allocate resources and implement region-specific mitigation strategies where they are most needed. Strict control measures to reduce CO2 emissions could also be made so that the emission rates are reduced. By analysing the correlations and relationships between CO2 emissions, insights could be made to find direct and indirect effects of CO2 emissions on the environment, helping to assess the severity and urgency of the problem.

3 THEORETICAL ANALYSIS

3.1 Block diagram



3.2 Hardware / Software designing

Hardware Requirements:

Microsoft Windows 8/8.1, Windows 10 (x64)
2 GB memory
1.5 GB minimum free disk space
CPUs must support SSE4.2 and POPCNT instruction sets

Software Requirements:

Tableau Desktop for visualising data.
MySQL Workbench 8.0 for data cleaning and integrating the database with Tableau.
Tableau Public Account to publish the Dashboards and the Story.
VSCode for web integration using html,css,js and flask.

4 EXPERIMENTAL INVESTIGATIONS

Dataset:

- We found Continents, International factors, World are in Country Column, thereby a preprocessing or filtration during visualizing is needed to avoid misleading content.
- We can see that data has missing values / cells, thereby no need to do data imputation.

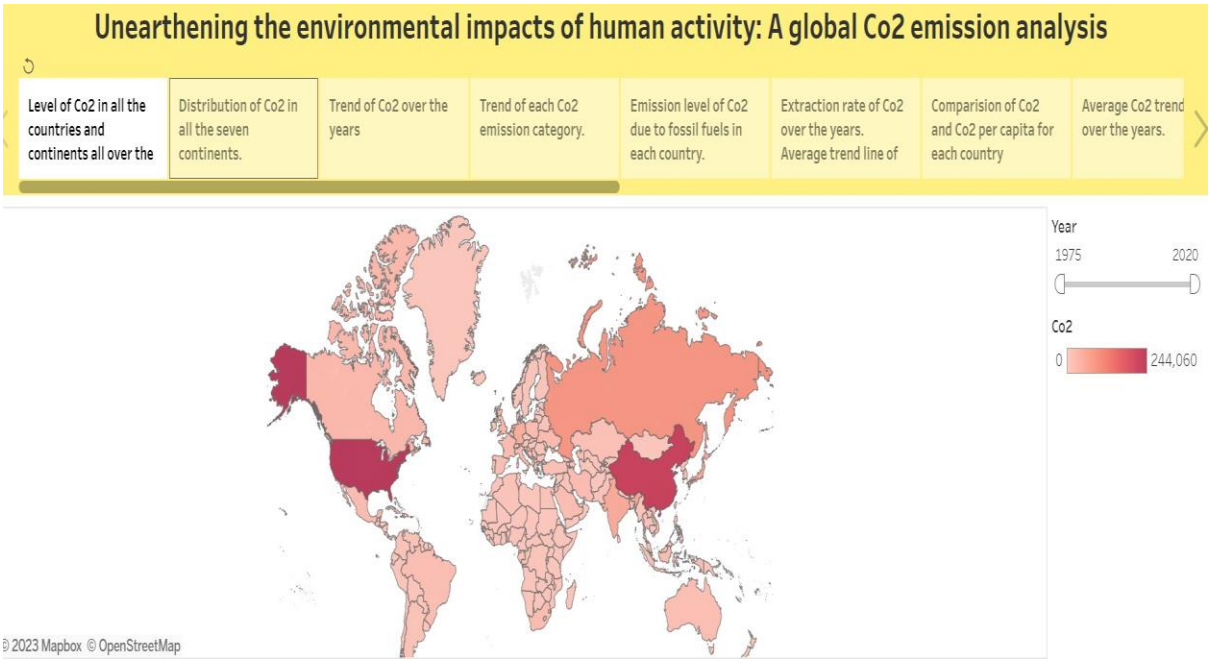
MySQL:

We loaded the dataset in MySQL by creating a schema and then connected it with Tableau with the required connections and credentials.

Tableau:

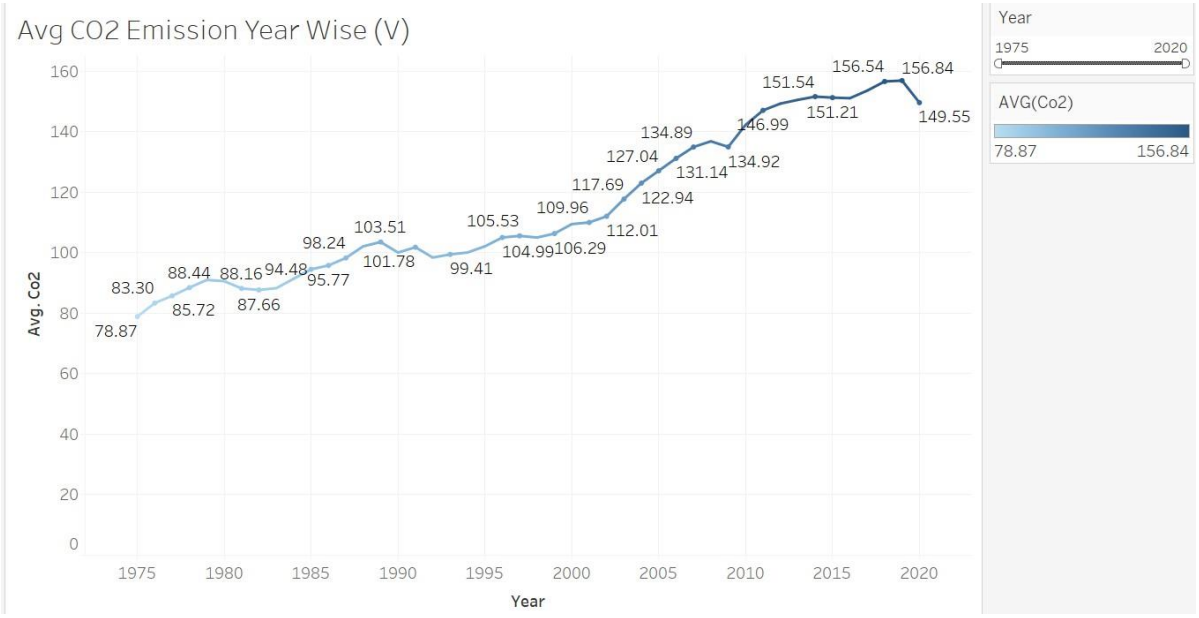
- **Total World Emission**

To get the Map in Tableau, keep the generated latitude and longitude in rows and columns respectively. Then place the Sum of Co2 Column into Color for better visualization and color variation. Further we can have a range based year wise filtration over the data.



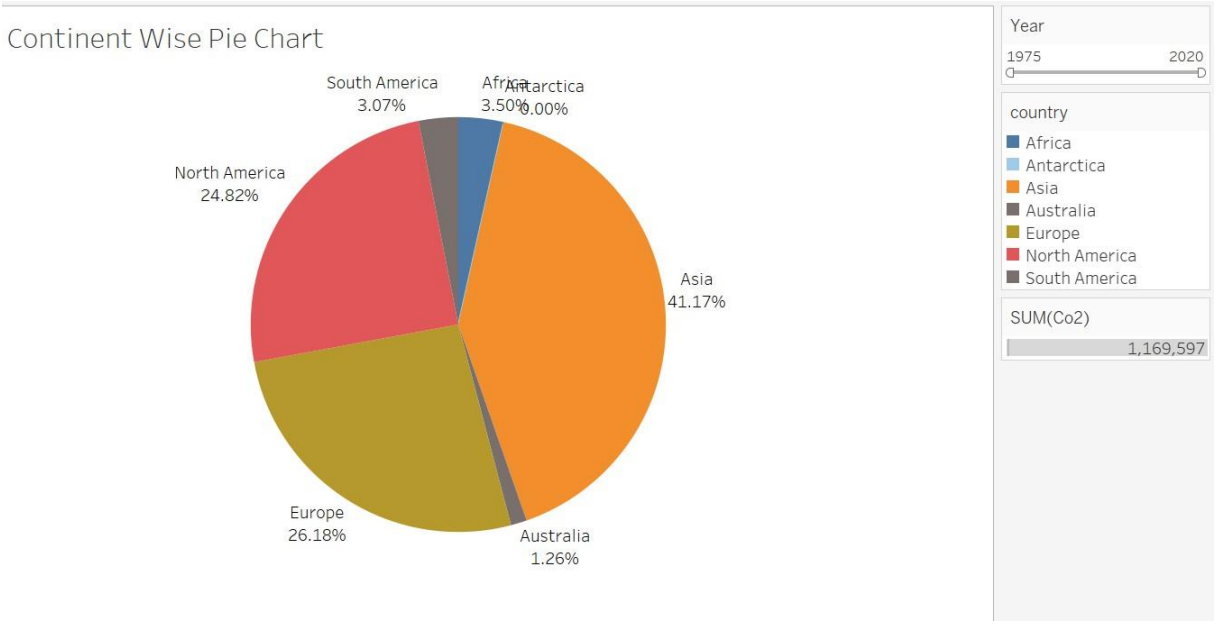
- **Total CO2 emission overtime**

To get the Visualization in Tableau, keep the year in column and Avg Co2 in Rows. Then place the Avg of Co2 Column into Color for better visualization and color variation. Further we can have a range based year wise filtration over the data.



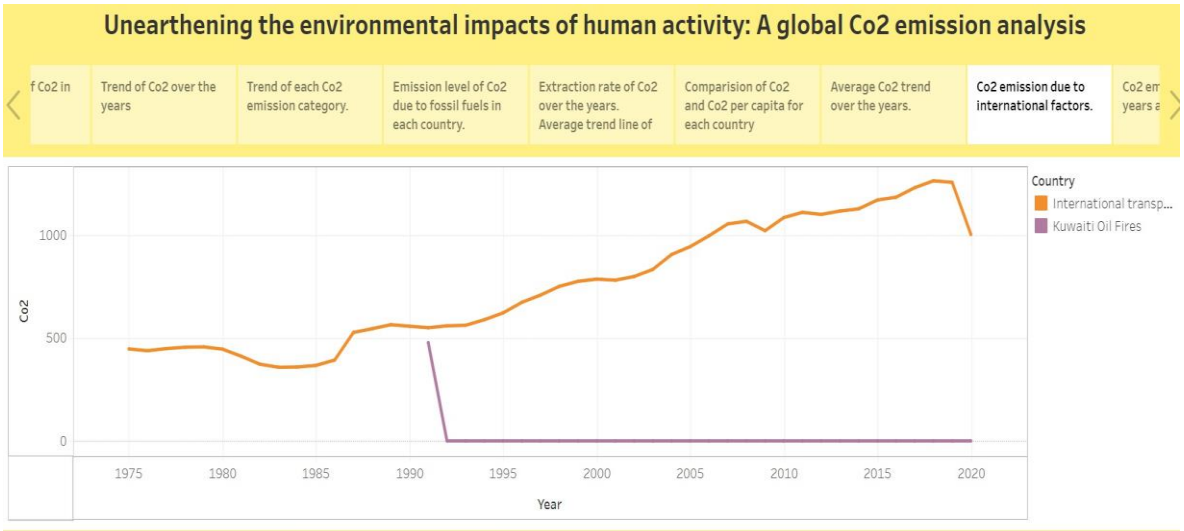
- **Total emission by continents**

To get the Visualization in Tableau, keep the Country in column and Sum of Co2 in Rows. Then filter only the 7 continents from the country field. Further we can have a range based year wise filtration over the data.



- **CO2 emission by international factors**

To get the Visualization in Tableau, keep the Country in column and Avg of Co2 in Rows. Then filter only the 2 international factors from the country field. Further we need to merge the axis for a clearcut direct comparison.



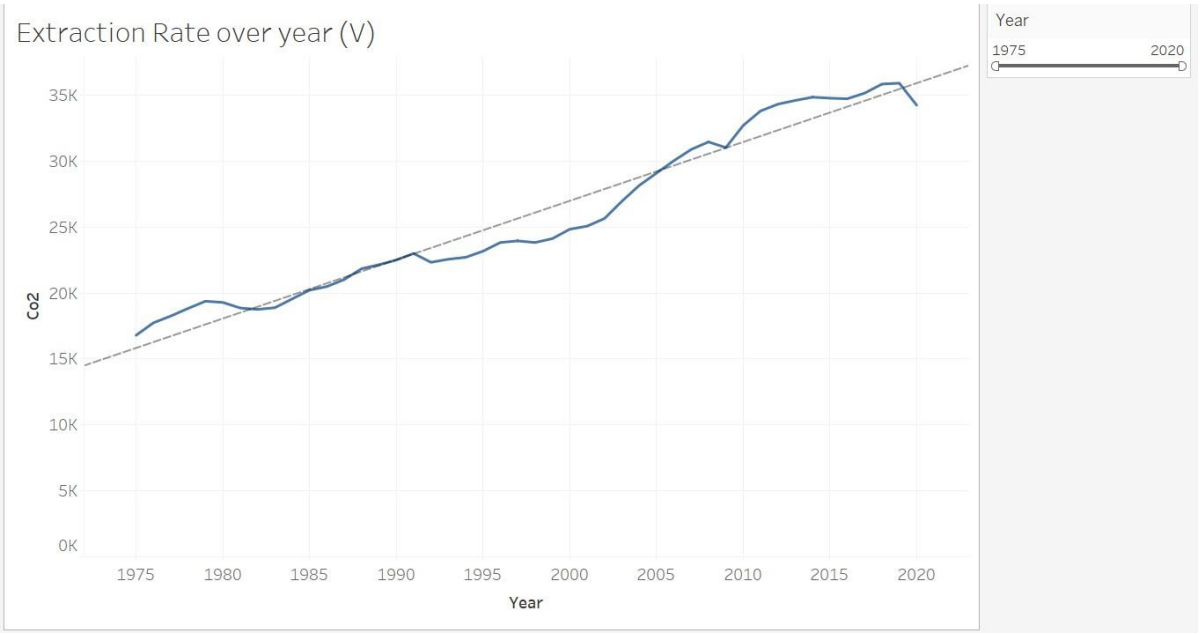
CO2 emission over past 10 years

To get the Visualisation in Tableau, keep the year in column and Avg Co2 in Rows. Then place the Avg of Co2 Column into Color for better visualisation and colour variation. Further we can have a range based year wise filtration over the data.

The Adjustment in the Year filter can help us to visualise Past 10 Years Data.

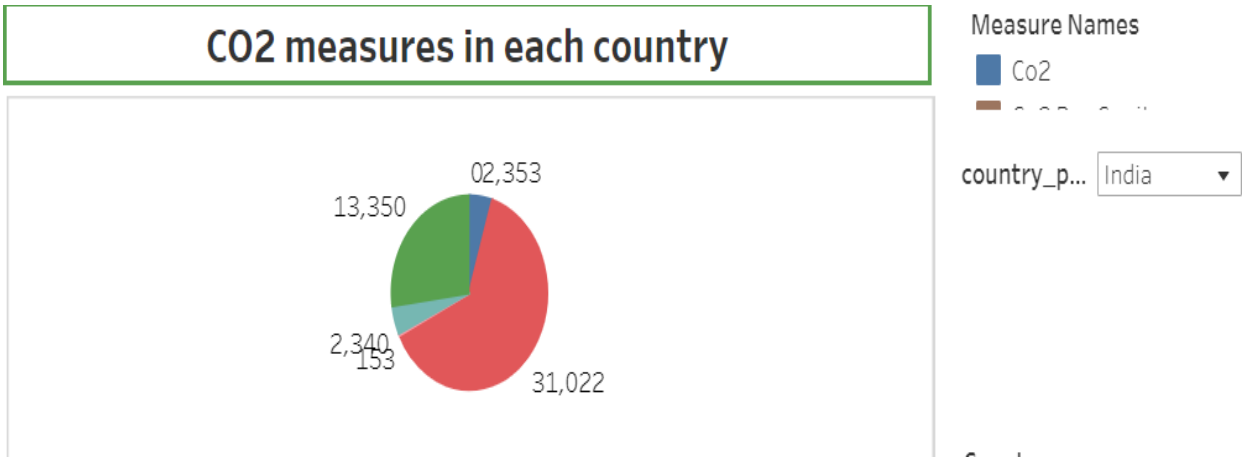
- **Emission Rate Over Years**

To get the Visualisation in Tableau, keep the year in column and Sum of Co2 in Rows. We can use the trendline in the analytics tab to get the rate of growth in y = mx + c format. Further we can have a range based year wise filtration over the data.



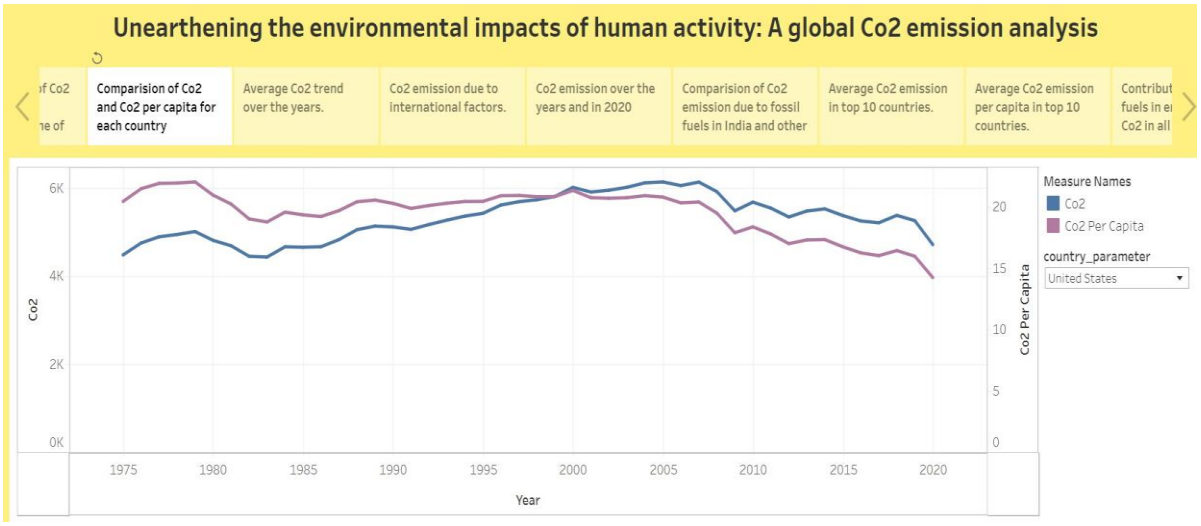
- **Co2 contribution by different fossil fuels**

This is the composition of each Co2 Emission category given the country as a parameter. To get the Visualisation in Tableau, keep the Measures Names in column and Measures Values in Rows. Then filter only the needed fields. Further we can have a parameter to select the countries.



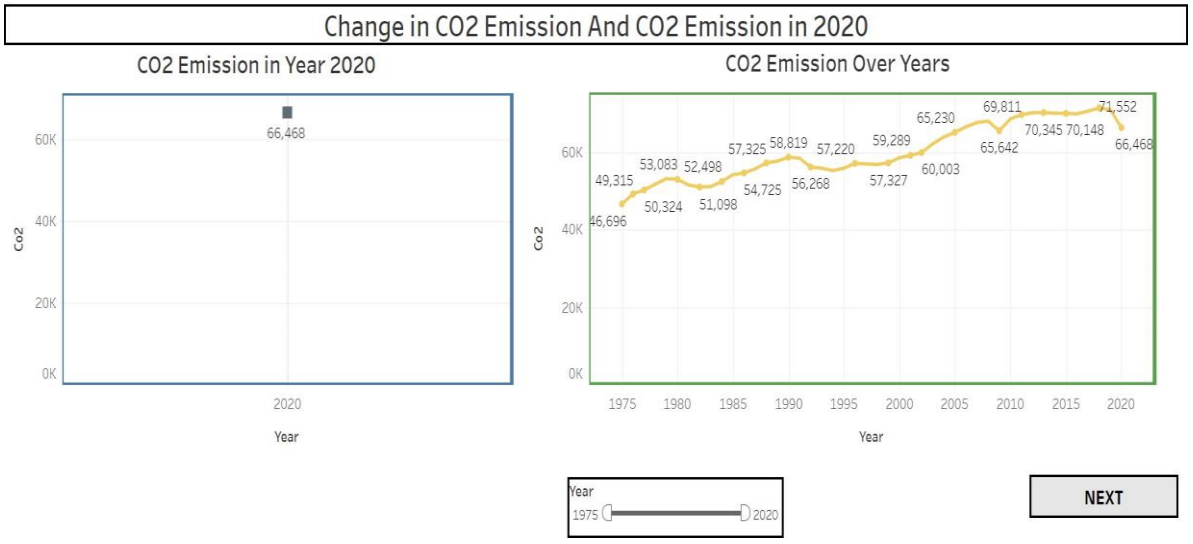
Trend of CO2and CO2 per capita country wise

To get the Visualisation in Tableau, keep the year in column and Average Co2 Per Capita and Average Co2 in Rows. Further we can have a parameter for the country selection. We need to merge the axis for both of them for better visual appearance and clearcut comparisons.



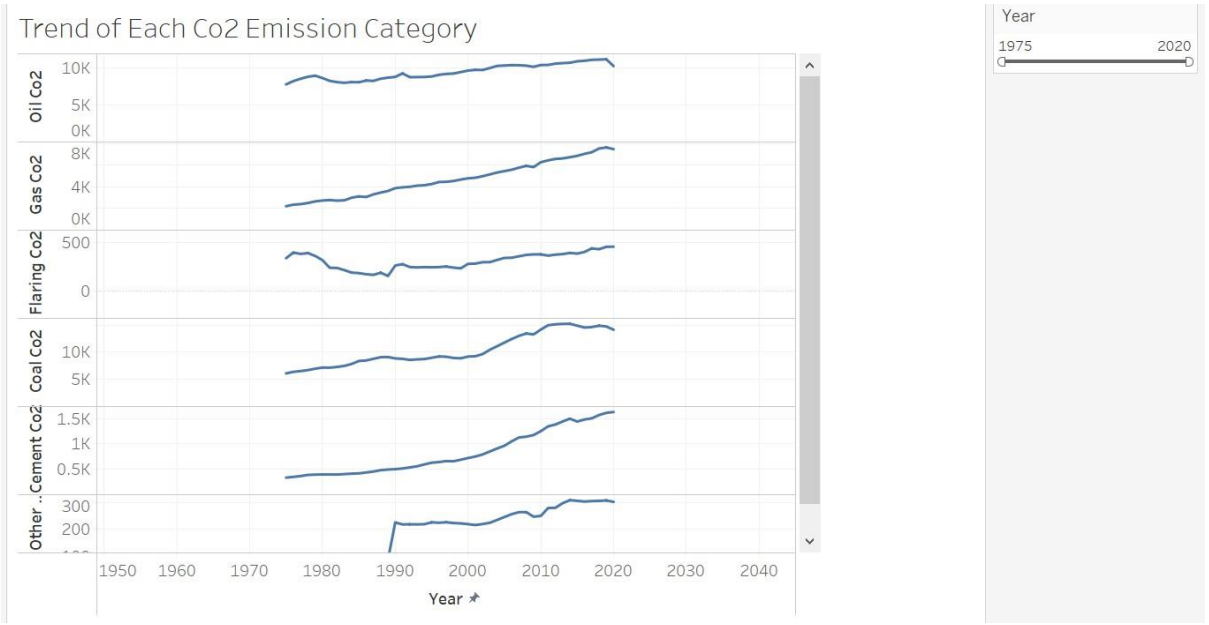
- ## CO2 emission in 2020 and over the years

To get the Visualisation in Tableau, we need to create 2 separate visualisations and merge them onto a dashboard for better visual appeal. We need to Keep Avg Co2 on Rows and Year on Column. In viz1, we need only the year 2020, so filter that year alone. In viz2, we can further have a range based year wise filter to get deeper specific analysis.



- **Trend of Each Co2 Emission Category**

To get the Visualisation in Tableau, keep the year in column and 6 Categories Co2 Emission in row. Further we can have a range based year wise filtration over the data.

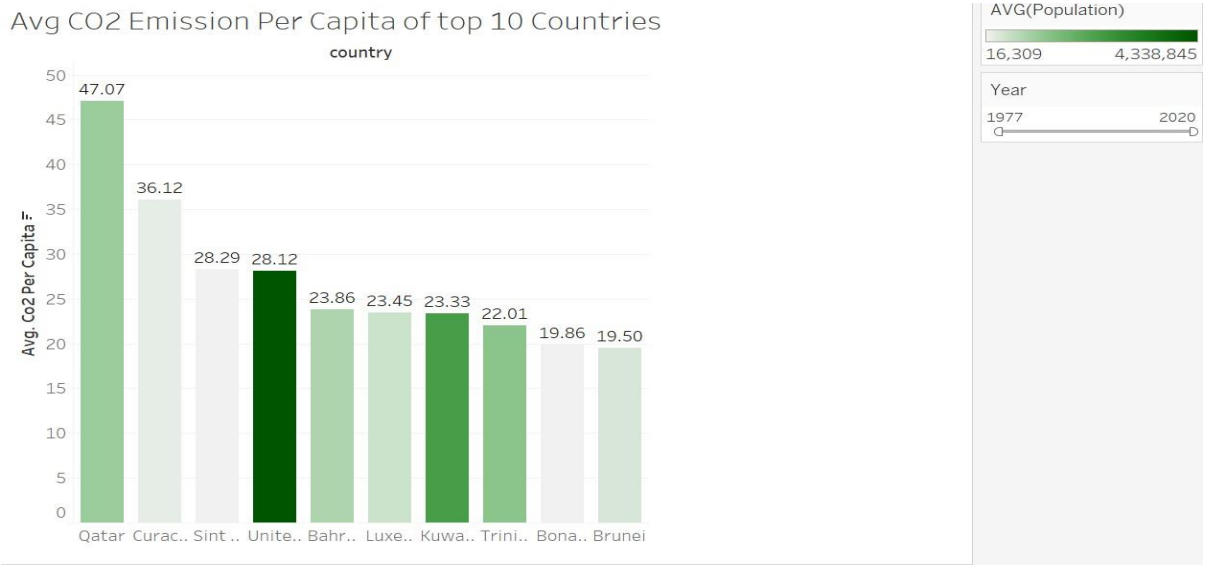


Overall contribution by India in CO2 emission compared to other countries.

To get the Visualisation in Tableau, keep the country India Co2 Emission in one row and 5 Categories in column in one pane and another pane keep the X Country's Co2 Emission and 5 Categories into another column.. Further we can have a parameter to select the country on the next pane.

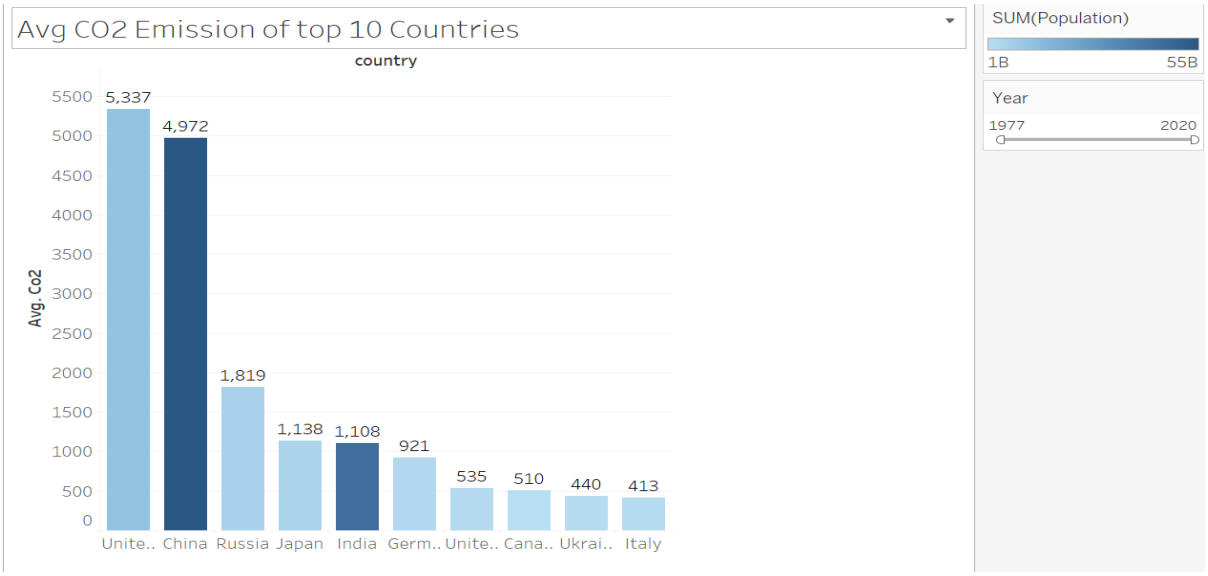
- **Average CO2 per capita in top 10 countries**

To get the Visualisation in Tableau, keep the country in column and Avg Co2 Per Capita in Rows. Then place the Avg of Population Column into Color for better visualisation and colour variation. Further we can have a range based year wise filtration over the data.



- **Average CO2 in top 10 countries**

To get the Visualisation in Tableau, keep the country in column and Avg Co2 in Rows. Then place the Avg of Population Column into Color for better visualisation and colour variation. Further we can have a range based year wise filtration over the data.


Avg CO2 Emission of top 10 Countries
country
Avg. Co2
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
5,337
4,972
1,819
1,138
1,108
921
535
510
440
413
Unite..
China
Russia
Japan
India
Germ..
Unite..
Cana..
Ukrai..
Italy
SUM(Population)
1B
55B
Year
1977
2020

DASHBOARD:

Creating a dashboard in Tableau allows you to combine multiple visualizations and present them in a cohesive and interactive manner. Here's a step-by-step guide on how to create a dashboard in Tableau:

Connect to Data:

- Start by connecting Tableau to your dataset "Global Fossil CO2 Emissions by Country 2002-2022" by selecting the appropriate data source.
- Follow the prompts to import or connect to the dataset and ensure that the necessary fields (e.g., country, year, CO2 emissions) are available in Tableau.

Create Visualizations:

- Build the individual visualizations that you want to include in your dashboard. You can use the drag-and-drop interface to select fields and choose chart types.
- Explore various visualization options such as bar charts, line graphs, maps, or scatter plots to represent the data effectively.
- Customize each visualization by adjusting formatting, adding labels, or applying filters as needed.

Arrange Visualizations:

- Once you have created the desired visualizations, go to the Dashboard tab in Tableau.
- Drag the visualisations from the left-hand pane onto the dashboard canvas. You can position them by dragging and resizing the elements.
- Use the layout containers and grids provided by Tableau to align and organize the visualizations.

Add Interactivity:

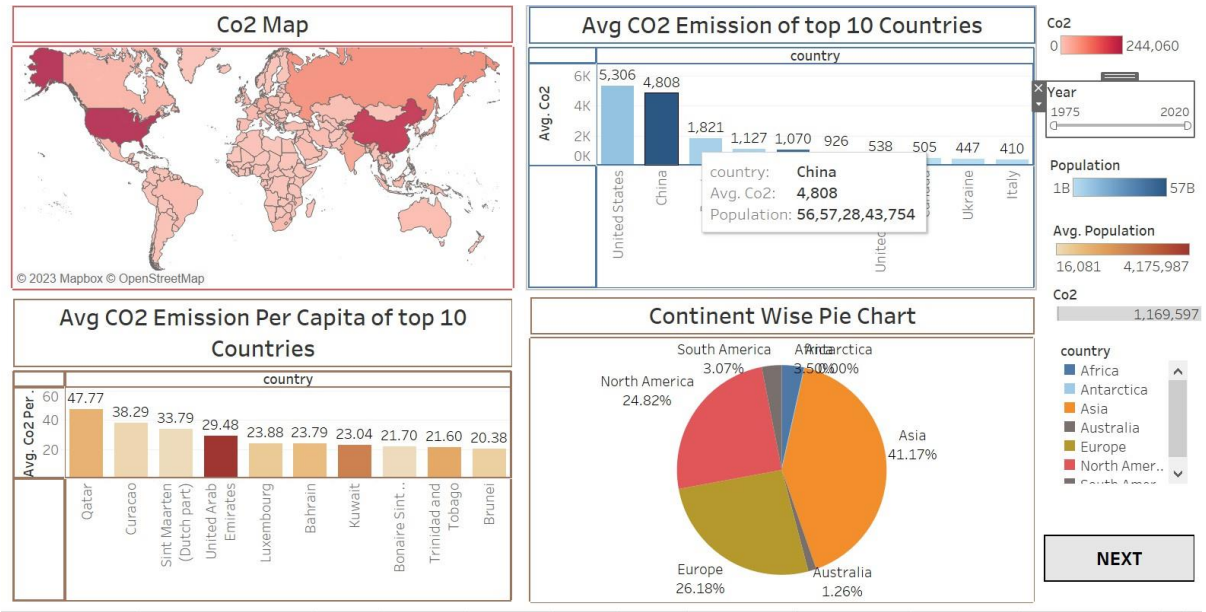
- Enhance your dashboard's interactivity by incorporating filters, parameters, and actions.
- Use filters to allow users to select specific countries, years, or other variables to dynamically update the visualizations.
- Include parameters to enable users to change certain aspects of the analysis, such as selecting different aggregation methods or thresholds.
- Create actions to link different visualizations, enabling users to interactively explore the data and navigate between related views.

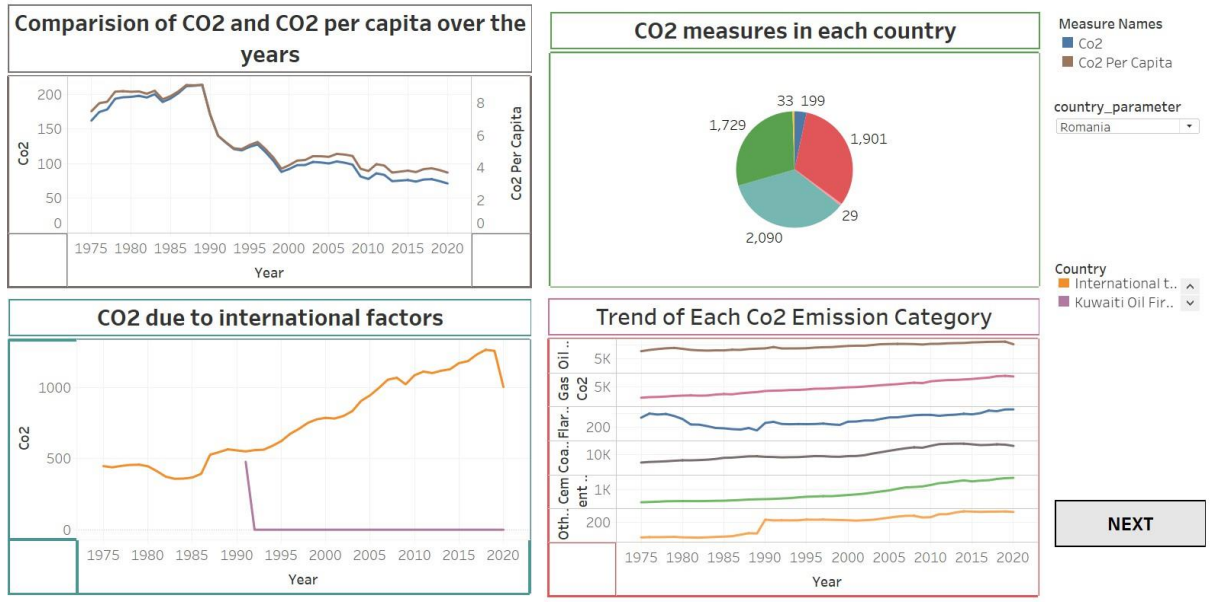
Customise and Format:

- Refine the appearance of your dashboard by customizing the layout, colors, fonts, and other visual elements.
- Apply consistent formatting across all visualizations to maintain a cohesive look.
- Add titles, captions, and annotations to provide context and guide users through the dashboard.

Test and Publish:

- Test the functionality of your dashboard by interacting with it and ensuring that the visualizations update as expected.
- Optimize the performance by checking for any unnecessary calculations or heavy data queries.
- Once you are satisfied with your dashboard, publish it to Tableau Server or Tableau Public to share it with others or embed it in a website or presentation.




Comparision of CO2 and CO2 per capita over the years
Co2
Co2 Per Capita
Year
CO2 measures in each country
33 199
1,729
1,901
29
2,090
Measure Names
Co2
Co2 Per Capita
country_parameter
Romania
Country
International t..
Kuwaiti Oil Fir..
CO2 due to international factors
Co2
Year
Trend of Each Co2 Emission Category
Oil ..
Gas
Co2
Flar..
Cem
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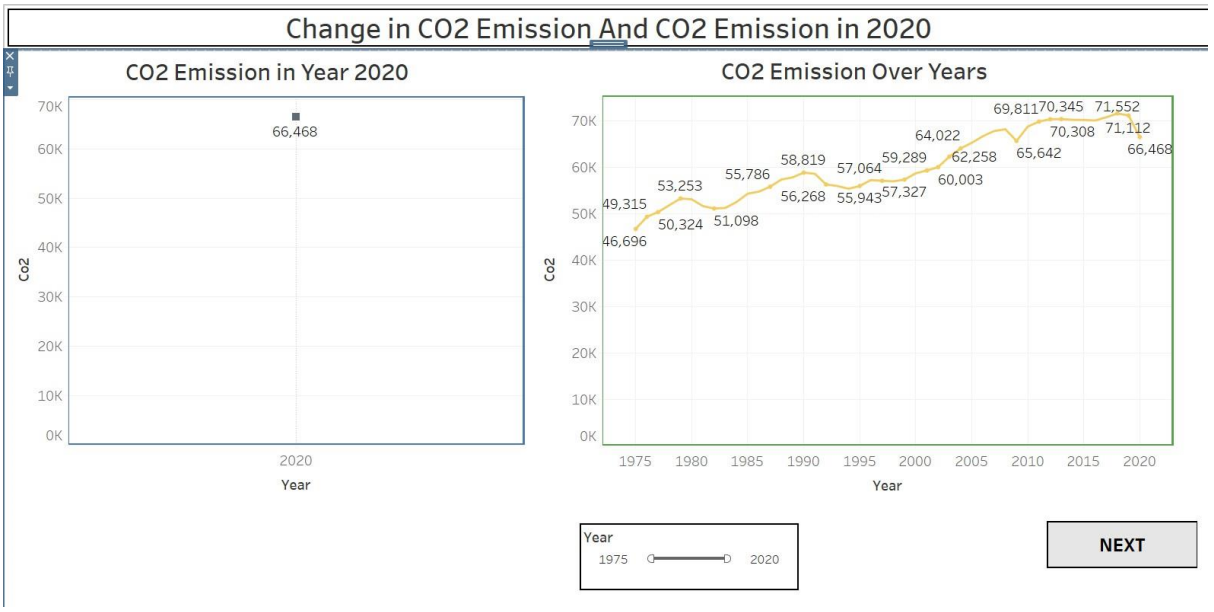
ent..
Oth..
Year
NEXT


Change in CO2 Emission And CO2 Emission in 2020
CO2 Emission in Year 2020
66,468
Co2
2020
Year
CO2 Emission Over Years
46,696
49,315
50,324
53,253
51,098
55,786
56,268
58,819
55,943
57,064
57,327
59,289
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62,258
69,811
65,642
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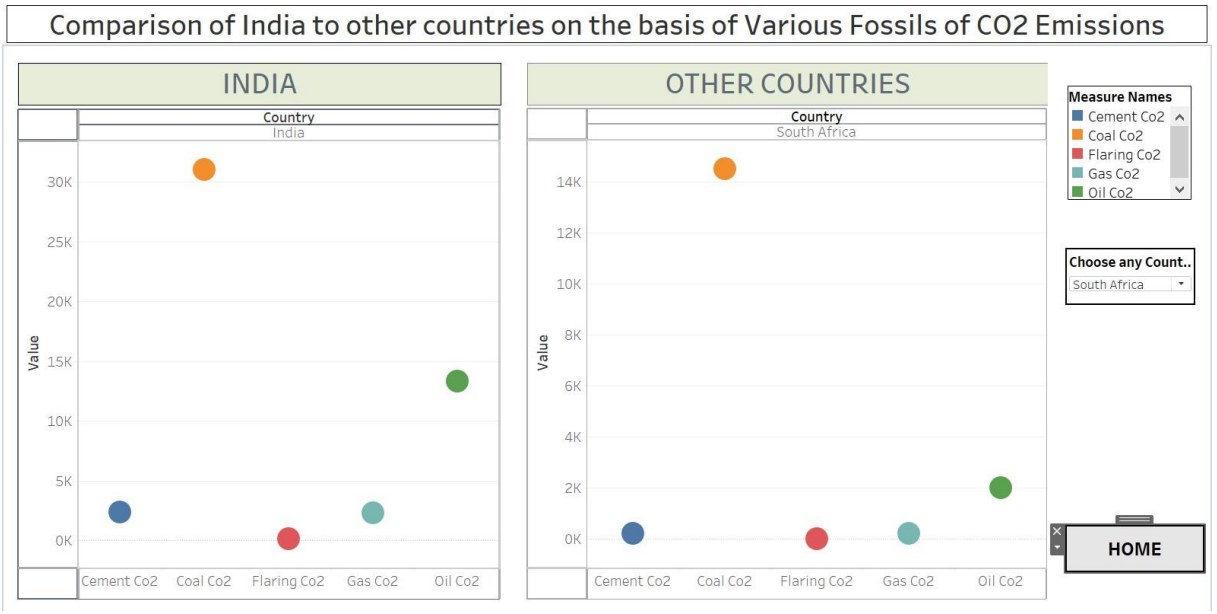
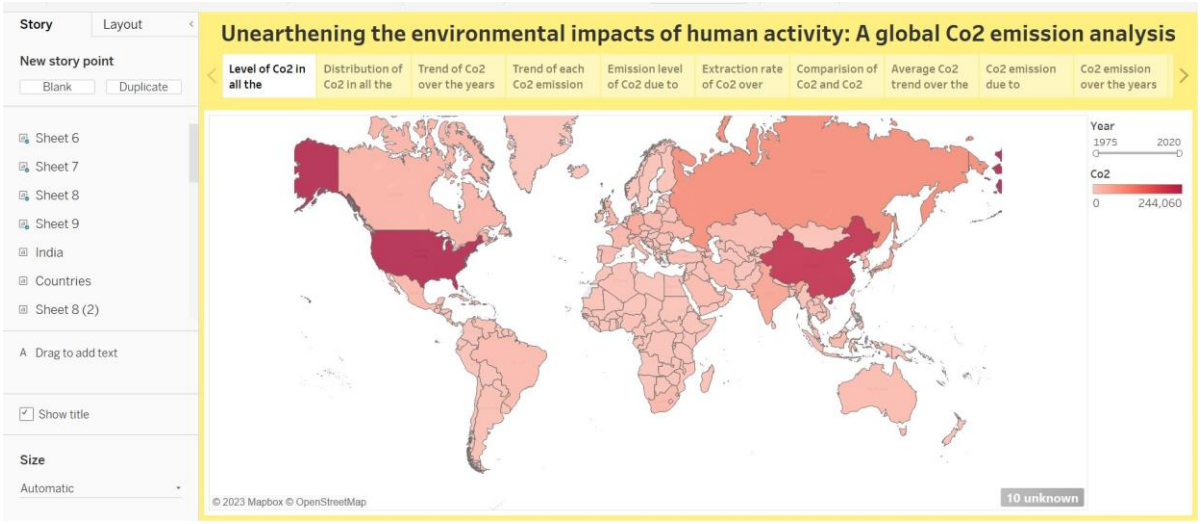
NEXT



STORY:

Creating a story in Tableau allows you to present a sequence of visualizations and narratives that guide viewers through your data analysis and findings. Here's a step-by-step guide on how to create a story in Tableau.

- Connect to your dataset in Tableau.
- Create the visualizations that support your analysis and key messages.
- Arrange the visualizations in a logical sequence on the dashboard canvas.
- Add captions, titles, and annotations to provide context and insights.
- Switch to the Story tab in Tableau.
- Drag the visualizations from the dashboard onto the story canvas in the desired order.
- Insert text boxes between visualizations to explain and guide the viewer.
- Customize the layout, colors, and formatting to enhance visual appeal and consistency.
- Preview and refine the story for clarity and coherence.
- Present and share the story within Tableau or export it as a PDF or image file.


Story
Layout
New story point
Blank
Duplicate
Sheet 6
Sheet 7
Sheet 8
Sheet 9
India
Countries
Sheet 8 (2)
Drag to add text
Show title
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Automatic
Unearthening the environmental impacts of human activity: A global Co2 emission analysis
Level of Co2 in all the
Distribution of Co2 in all the
Trend of Co2 over the years
Trend of each Co2 emission
Emission level of Co2 due to
Extraction rate of Co2 over
Comparision of Co2 and Co2
Average Co2 trend over the
Co2 emission due to
Co2 emission over the years
Year
1975
2020
Co2
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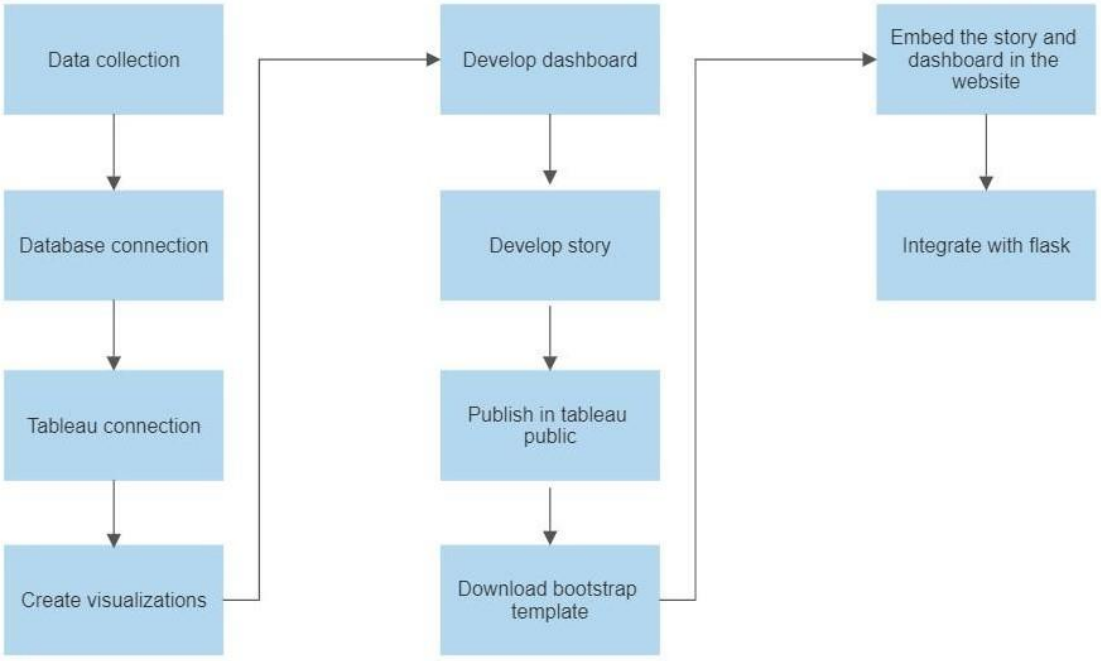
244,060
© 2023 Mapbox © OpenStreetMap
10 unknown

5 FLOWCHART


Data collection
Database connection
Tableau connection
Create visualizations
Develop dashboard
Develop story
Publish in tableau public
Download bootstrap template
Embed the story and dashboard in the website
Integrate with flask

2 RESULT

Tableau Public - Story:

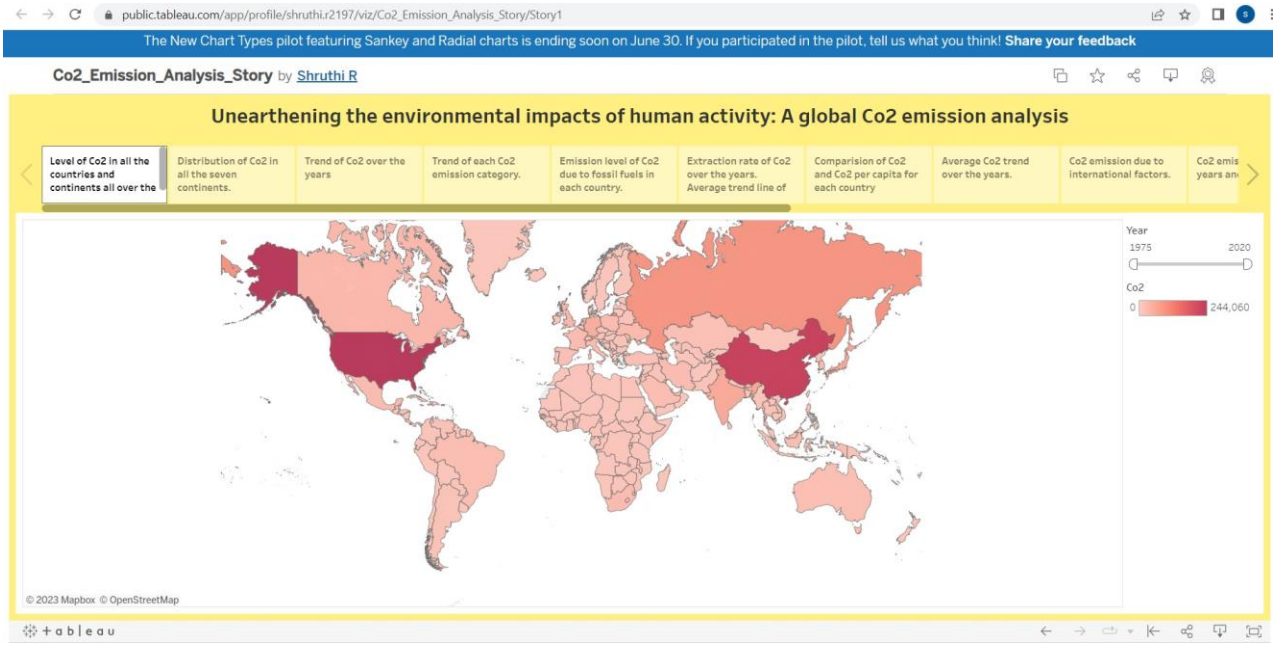
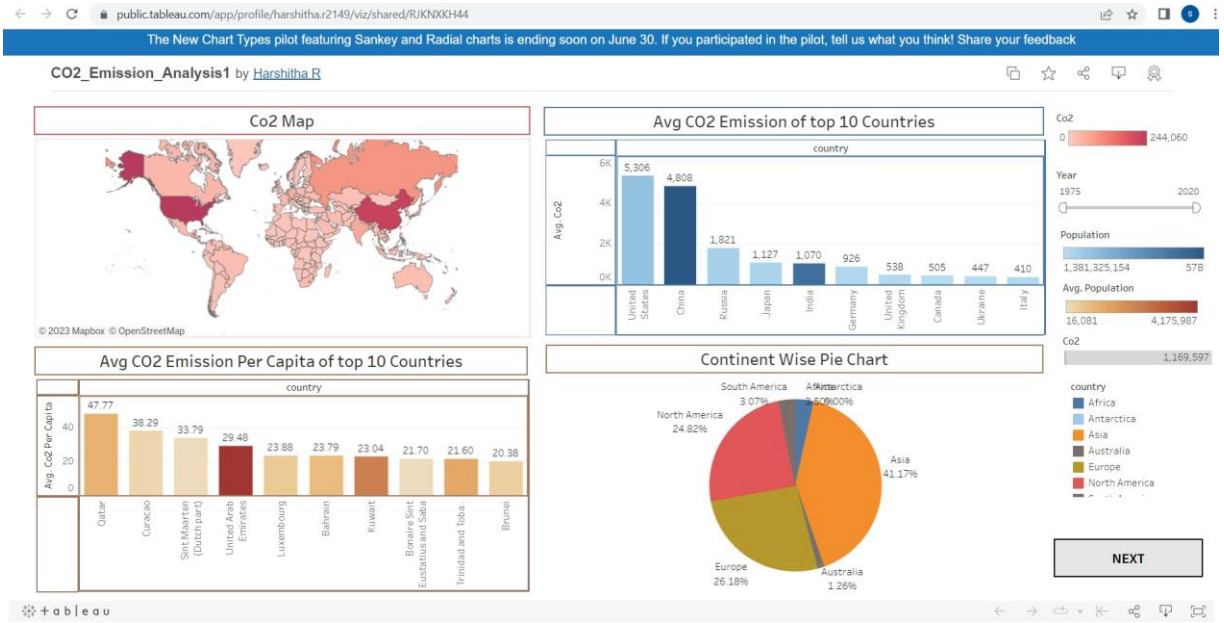
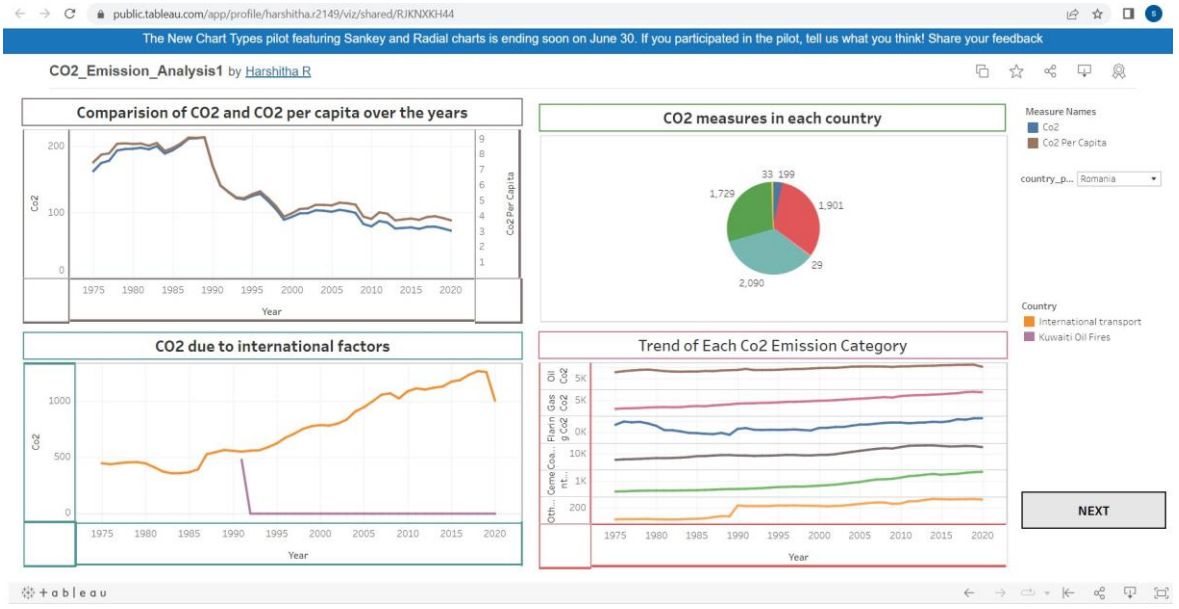


Tableau Public - Dashboard:




public.tableau.com/app/profile/harshitha.r2149/viz/shared/RJKNXKH44
The New Chart Types pilot featuring Sankey and Radial charts is ending soon on June 30. If you participated in the pilot, tell us what you think! Share your feedback
CO2_Emission_Analysis1 by Harshitha R
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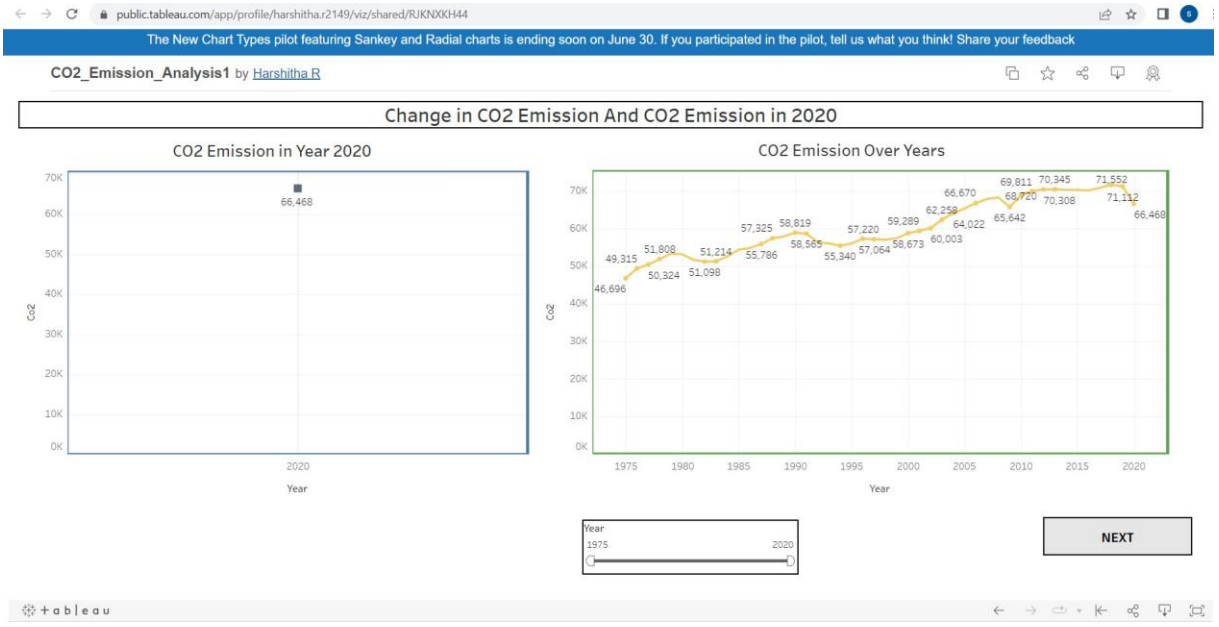
Co2 Per Capita
country_p...
Romania
Country
International transport
Kuwaiti Oil Fires
CO2 due to international factors
Trend of Each Co2 Emission Category
NEXT
+ableau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55,340
57,220
57,064
59,289
58,673
62,258
60,003
64,022
66,670
65,642
68,720
69,811
70,308
70,345
71,112
71,552
66,468
Year
1975
2020
NEXT
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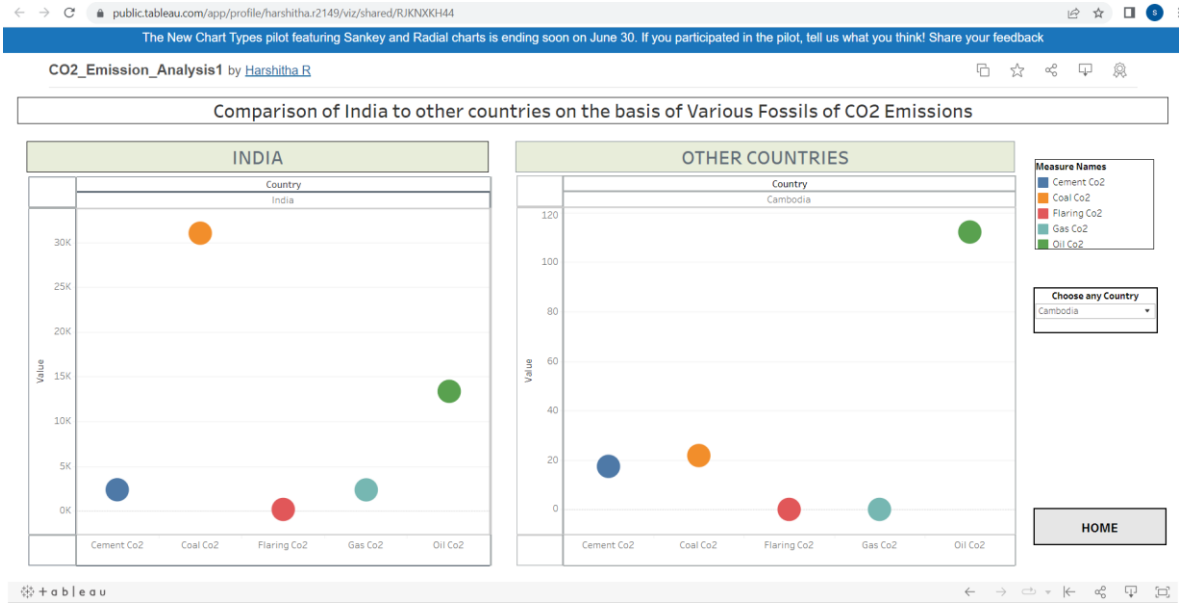
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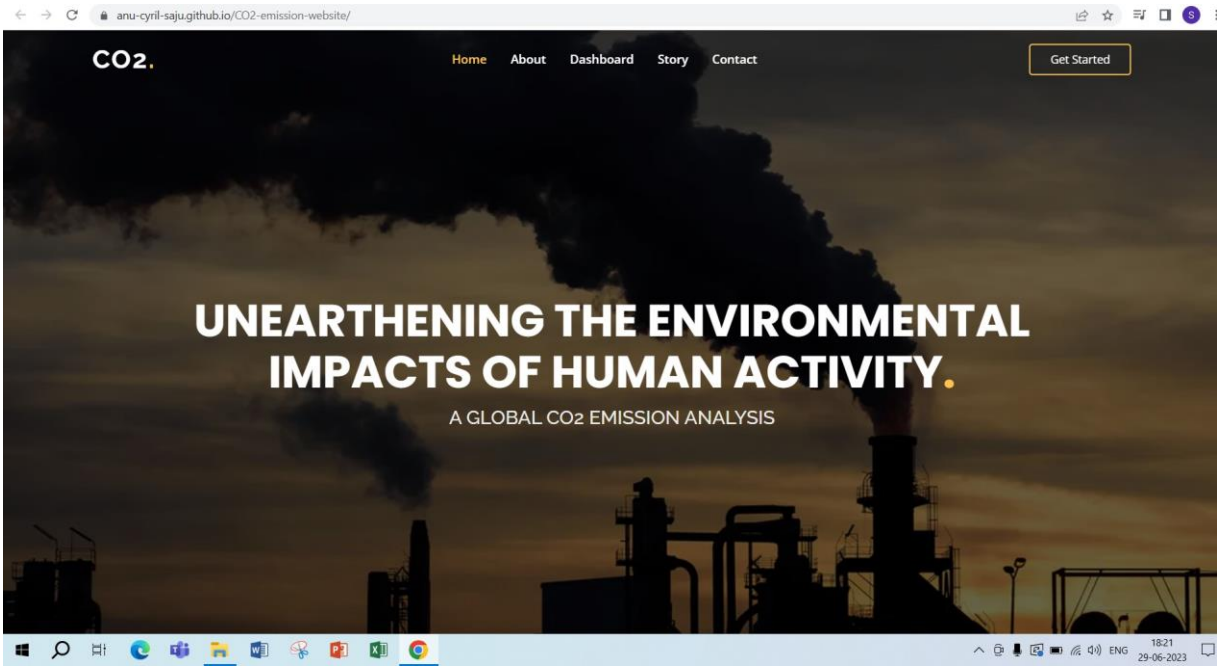
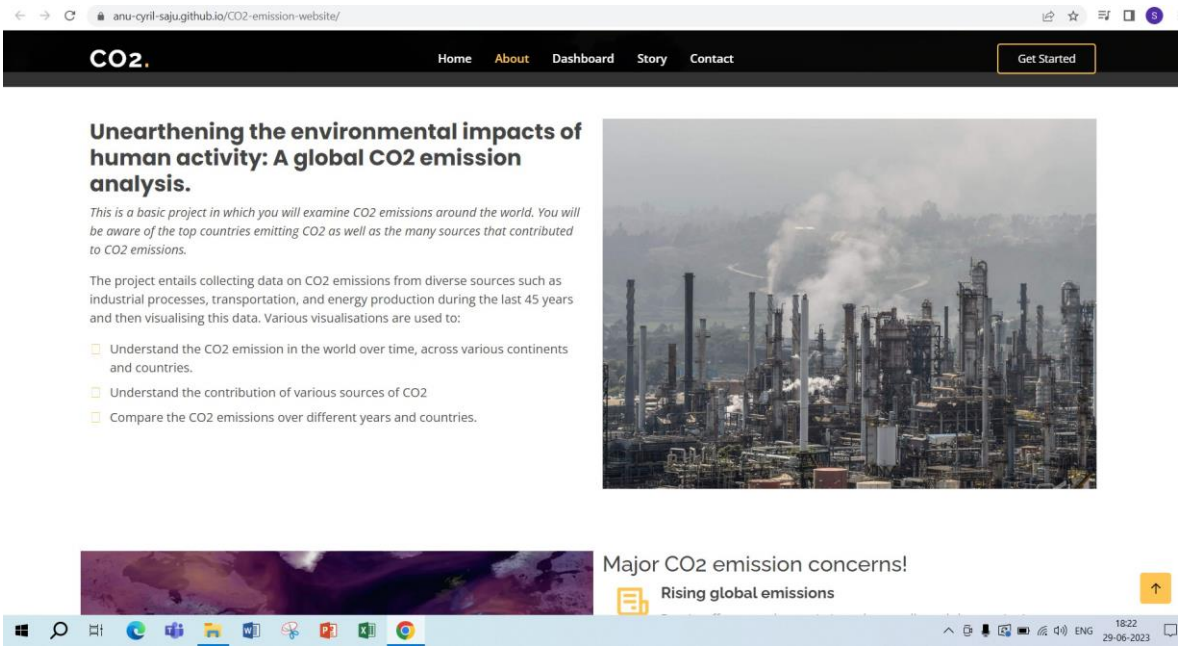
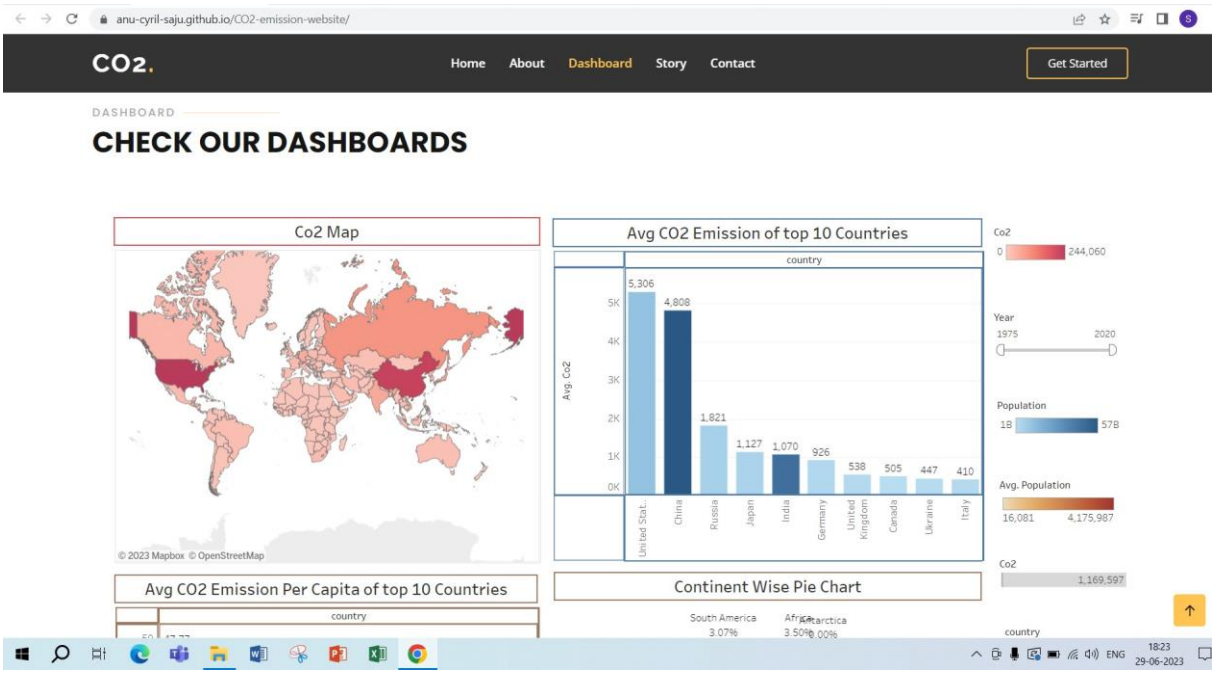
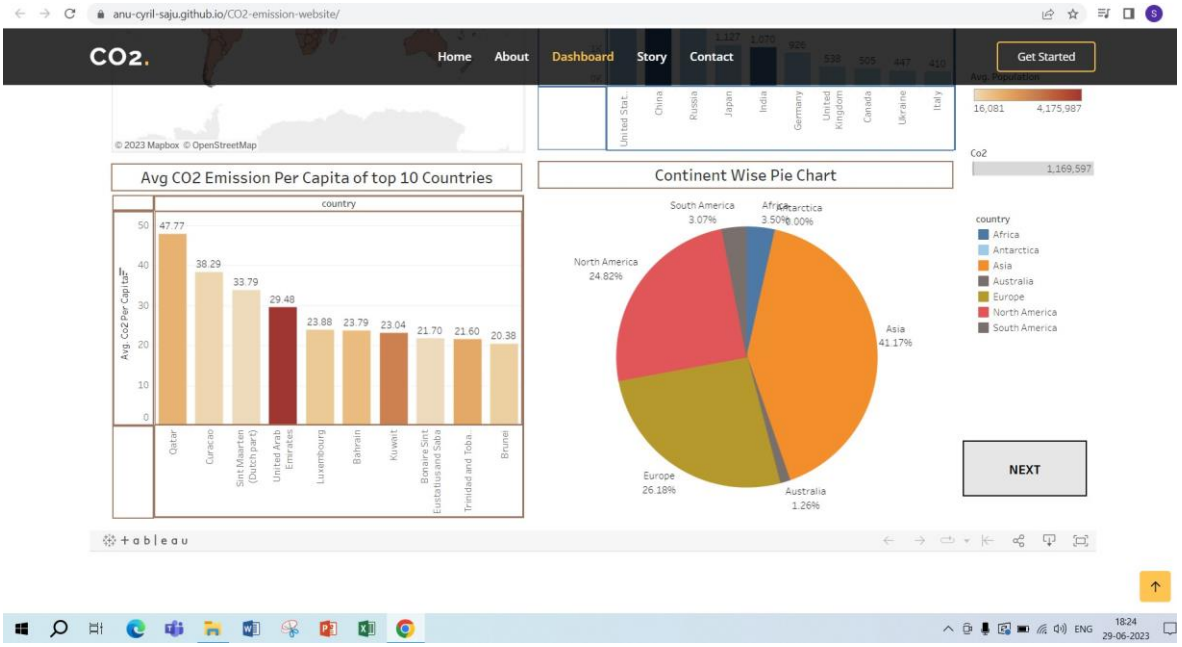
Comparison of India to other countries on the basis of Various Fossils of CO2 Emissions
INDIA
OTHER COUNTRIES
Country
India
Cambodia
Value
Cement Co2
Coal Co2
Flaring Co2
Gas Co2
Oil Co2
Measure Names
Choose any Country
Cambodia
HOME
+ableau

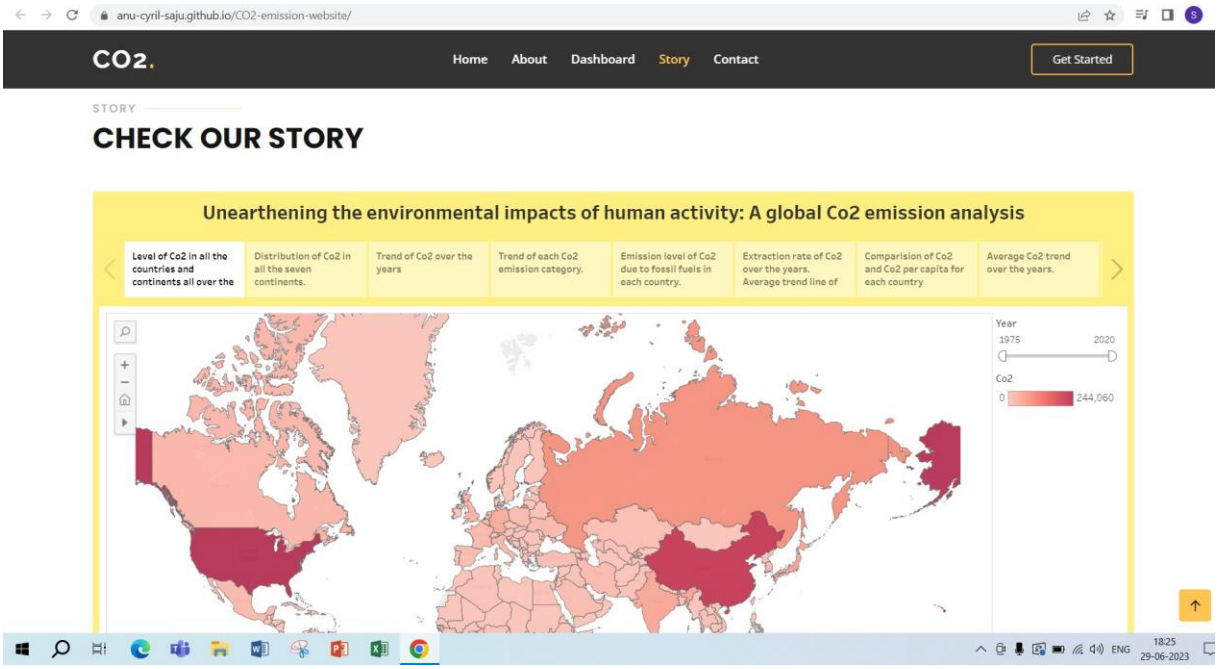
Website:


anu-cyril-saju.github.io/CO2-emission-website/
CO2.
Home
About
Dashboard
Story
Contact
Get Started
UNEARTHENING THE ENVIRONMENTAL IMPACTS OF HUMAN ACTIVITY.
A GLOBAL CO2 EMISSION ANALYSIS
ENG
18:21
29-06-2023


anu-cyril-saju.github.io/CO2-emission-website/
CO2.
Home
About
Dashboard
Story
Contact
Get Started
Unearthening the environmental impacts of human activity: A global CO2 emission analysis.
This is a basic project in which you will examine CO2 emissions around the world. You will be aware of the top countries emitting CO2 as well as the many sources that contributed to CO2 emissions.
The project entails collecting data on CO2 emissions from diverse sources such as industrial processes, transportation, and energy production during the last 45 years and then visualising this data. Various visualisations are used to:
Understand the CO2 emission in the world over time, across various continents and countries.
Understand the contribution of various sources of CO2
Compare the CO2 emissions over different years and countries.
Major CO2 emission concerns!
Rising global emissions
ENG
18:22
29-06-2023


anu-cyril-saju.github.io/CO2-emission-website/
CO2.
Home
About
Dashboard
Story
Contact
Get Started
DASHBOARD
CHECK OUR DASHBOARDS
Co2 Map
© 2023 Mapbox © OpenStreetMap
Avg CO2 Emission of top 10 Countries
country
Avg. Co2
5,306
4,808
1,821
1,127
1,070
926
538
505
447
410
United Stat.
China
Russia
Japan
India
Germany
United Kingdom
Canada
Ukraine
Italy
Co2
0
244,060
Year
1975
2020
Population
1B
57B
Avg. Population
16,081
4,175,987
Co2
1,169,597
Avg CO2 Emission Per Capita of top 10 Countries
country
Continent Wise Pie Chart
South America
3.07%
Africa
3.50%
Antarctica
0.00%
country
18:23
29-06-2023


anu-cyril-saju.github.io/CO2-emission-website/
CO2.
Home
About
Dashboard
Story
Contact
Get Started
© 2023 Mapbox © OpenStreetMap
Avg CO2 Emission Per Capita of top 10 Countries
country
Avg. Co2 Per Capita
47.77
38.29
33.79
29.48
23.88
23.79
23.04
21.70
21.60
20.38
Qatar
Curacao
Sint Maarten (Dutch part)
United Arab Emirates
Luxembourg
Bahrain
Kuwait
Bonaire Sint Eustatius and Saba
Trinidad and Tob.
Brunei
Continent Wise Pie Chart
South America
3.07%
Africa
3.50%
Antarctica
0.00%
North America
24.82%
Asia
41.17%
Europe
26.18%
Australia
1.26%
country
Africa
Antarctica
Asia
Australia
Europe
North America
South America
NEXT
+ableau
18:24
29-06-2023



1 ADVANTAGES & DISADVANTAGES

Advantages:

The general public can better understand the severity of the issue and the need for individual and collective action.

It helps guide investment decisions towards sustainable solutions and supports the development and deployment of clean technologies. This can spur economic growth, create green jobs, and drive technological advancements in climate change mitigation.

It supports the development of global agreements and initiatives aimed at reducing carbon dioxide emissions.

By addressing the highest-emitting areas, resources and efforts can be utilized more efficiently for maximum impact.

Disadvantages:

While CO2 emissions are an essential factor in climate change, they are not the only environmental impact of human activity. Other factors such as deforestation, water pollution, and bio diversity loss can also have significant effects on the environment. A CO2 emissions analysis may not provide a complete picture of the environmental impact of human activity.

A CO2 emissions analysis can provide valuable information about the amount of CO2 released into the atmosphere, but it may not provide context for why emissions are occurring or what actions can be taken to reduce them. Without this context, it may be challenging to develop effective solutions for reducing emission.

Determining the responsibility for emissions associated with imported or exported goods and services can be complex. Attribution challenges can lead to inaccuracies in allocating emissions and hinder the accurate assessment of emissions from specific sectors or regions.

Conducting CO2 analysis requires significant resources, including financial resources, technical expertise, and time. The collection, processing, and analysis of data can be costly and time-consuming. This can pose challenges, particularly for developing countries or organizations with limited resources, hindering their capacity to perform comprehensive CO2 analysis.

2 APPLICATIONS

Education: The assignment can be used as an educational tool to teach students about the impact of human activity on the environment, particularly with regards to CO2 emissions. The analysis can help students understand the extent of human activity that contributes to climate change and what measures can be taken to reduce emissions.

Public Awareness and Education: CO2 emission analysis findings can be utilized to raise public awareness about the environmental impacts of human activity and the need for emission reductions.

Environmental Impact Assessments: CO2 emission analysis can be integrated into environmental impact assessments for infrastructure projects, industrial developments, and other activities with potential environmental consequences.

Advocacy: The assignment can be used to create awareness among the general public about the impact of human activity on the environment. The analysis can be shared through various mediums, such as social media, to encourage individuals to take action to reduce their own carbon footprint and make more sustainable choices.

3 CONCLUSION

The Global Co2 emission analysis involves a wide analysis of Co2 emission. We have worked on worksheets where we gave charts and graphs regarding CO2 emission and made a dashboard and story using the following charts.

Total World Emission

CO2 emission overtime

Total emission by continents

CO2 emission by international factors

CO2 emission per capita

Avg CO2 emission of top 10 countries

Emission rate over the years

Trend of Each Co2 Emission Category

CO2 contribution by different fossil fuels

CO2 emission over past 10 years

Change in CO2 emission and CO2 emission in 2020

By using data analytics tools we have observed the major contributors and factors all over the world. CO2 emission over the past 10 years shows that China ranks first in CO2 emission followed by the United States and India ranks third in this emission.

The internal factors include coal CO2, gas CO2, cement CO2, flaring CO2 and other industry CO2. By compressing the major factors and contributors of CO2 emission, a way to solve the problem can reduce the emission by switching to clean energy, implementation of carbon capture and storage and planting more trees.

4 FUTURE SCOPE

The future scope of a global CO2 emission analysis project lies in the continual refinement of methodologies, data collection, and modelling techniques, integration with other environmental impact indicators, technological advancements, global collaboration, and policy integration. These advancements can enhance our understanding of the environmental impacts of human activity and contribute to more effective and targeted mitigation efforts to address climate change. Carbon stories in soil and vegetation through pilot programs for climate friendly land use. Public transportation or carpooling can be encouraged. Usage of alternative sources of energy instead of fossil fuels. Reducing emission gives a sustainable society.

APPENDIX

A. Source Code

index.html

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

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

  <title>CO2 analysis</title>
  <meta content="" name="description">
  <meta content="" name="keywords">

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

  <!-- Google Fonts -->
  <link
href="https://fonts.googleapis.com/css?family=Open+Sans:300,300i,400,40
0i,600,600i,700,700i|Raleway:300,300i,400,400i,500,500i,600,600i,700,70
0i|Poppins:300,300i,400,400i,500,500i,600,600i,700,700i"
rel="stylesheet">

  <!-- Vendor CSS Files -->
```

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

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

  <!-- =======================================================
  * Template Name: Gp
  * Updated: May 30 2023 with Bootstrap v5.3.0
  * Template URL:
https://bootstrapmade.com/gp-free-multipurpose-html-bootstrap-template/
  * 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
justify-content-lg-between">

      <h1 class="logo me-auto me-lg-0"><a
href="index.html">CO2<span>.</span></a></h1>
      <!-- Uncomment below if you prefer to use an image logo -->
      <!-- <a href="index.html" class="logo me-auto me-lg-0"><img
src="static/assets/img/logo.png" alt="" class="img-fluid"></a>-->

      <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="#services">Dashboard</a></li>
          <li><a class="nav-link scrollto "
href="#portfolio">Story</a></li>
          <!-- <li><a class="nav-link scrollto"
href="#team">Team</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
justify-content-center">
    <div class="container" data-aos="fade-up">

      <div class="row justify-content-center" data-aos="fade-up"
data-aos-delay="150">
        <div class="col-xl-10 col-lg-8">
          <h1>UNEARTHENING THE ENVIRONMENTAL IMPACTS OF HUMAN
ACTIVITY<span>.</span></h1>
          <h2>A GLOBAL CO2 EMISSION ANALYSIS</h2>
        </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="row">
          <div class="col-lg-6 order-1 order-lg-2" data-aos="fade-left"
data-aos-delay="100">
            <img src="static/assets/img/about.jpg" class="img-fluid"
alt="">
          </div>
          <div class="col-lg-6 pt-4 pt-lg-0 order-2 order-lg-1 content"
data-aos="fade-right" data-aos-delay="100">
            <h3>Unearthening the environmental impacts of human
activity: A global CO2 emission analysis.</h3>
            <p class="fst-italic">
              This is a basic project in which you will examine CO2
emissions around the world. You will be aware of the top countries
emitting CO2 as well as the many sources that contributed to CO2
emissions.
            </p>
            <p>
              The project entails collecting data on CO2 emissions from
diverse sources such as industrial processes, transportation, and
energy production during the last 45 years and then visualising this
data.
              Various visualisations are used to:
            </p>
            <ul>
              <li><i class="ri-check-double-line"></i>Understand the
CO2 emission in the world over time, across various continents and
countries.</li>
              <li><i class="ri-check-double-line"></i>Understand the
contribution of various sources of CO2 </li>
              <li><i class="ri-check-double-line"></i>Compare the CO2
emissions over different years and countries.</li>
            </ul>

          </div>
        </div>

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

    <!-- ======= Features Section ======= -->
    <section id="features" class="features">
      <div class="container" data-aos="fade-up">
```

```
        <div class="row">
          <div class="image col-lg-6" style='background-image:
url("static/assets/img/features.webp");' data-aos="fade-right"></div>
          <div class="col-lg-6" data-aos="fade-left"
data-aos-delay="100">
            <div class="icon-box mt-5 mt-lg-0" data-aos="zoom-in"
data-aos-delay="150">
              <i class="bx bx-receipt"></i>
              <h4>Rising global emissions</h4>
              <p>Despite efforts to reduce emissions, the overall trend
shows a rise in greenhouse gas emissions, primarily driven by
industrialization, population growth, and increased energy
consumption.</p>
            </div>
            <div class="icon-box mt-5" data-aos="zoom-in"
data-aos-delay="150">
              <i class="bx bx-cube-alt"></i>
              <h4>Impact on climate change</h4>
              <p>The excessive release of CO2 and other greenhouse
gases into the atmosphere leads to the trapping of heat, resulting in
global warming.
                his warming contributes to various climate-related
impacts such as extreme weather events, sea-level rise, disruptions in
ecosystems, and shifts in agricultural patterns.</p>
            </div>
            <div class="icon-box mt-5" data-aos="zoom-in"
data-aos-delay="150">
              <i class="bx bx-images"></i>
              <h4>International cooperation and policy challenges</h4>
              <p>Negotiating and implementing effective climate
agreements, policies, and regulations among countries with different
economic priorities and development levels pose challenges in achieving
ambitious emission reduction targets.</p>
            </div>
          </div>
        </div>

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

    <!-- ======= Services Section ======= -->
    <section id="services" class="services">
```

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

        <div class="section-title">
          <h2>Dashboard</h2>
          <p>Check our Dashboards</p>
        </div>
        <div class='tableauPlaceholder' id='viz1687843098194'
style='position: relative'>
          <noscript><a href='#'><img alt='Dashboard 1 '
src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;WY&#4
7;WYPJ3XBFK&#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='path' value='shared&#47;WYPJ3XBFK' />
            <param name='toolbar' value='yes' />
            <param name='static_image'
value='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;WY&
#47;WYPJ3XBFK&#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' />
          </object>
        </div>
        <script type='text/javascript'>
          var divElement = document.getElementById('viz1687843098194');
          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='1677px';
          }
          var scriptElement = document.createElement('script');
          scriptElement.src =
'https://public.tableau.com/javascripts/api/viz_v1.js';
          vizElement.parentNode.insertBefore(scriptElement,
vizElement);
        </script>
      </div>
    </section><!-- End Services Section -->



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

        <div class="section-title">
          <h2>Story</h2>
          <p>Check our Story</p>
        </div>
        <div class='tableauPlaceholder' id='viz1687843407553'
style='position: relative'>
          <noscript><a href='#'><img alt='Unearthening the
environmental impacts of human activity: A global Co2 emission analysis
'
src='https:&#47;&#47;public.tableau.com&#47;static&#47;images&#47;Co&#4
7;Co2_Emission_Analysis_Story&#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='Co2_Emission_Analysis_Story&#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;Co&
#47;Co2_Emission_Analysis_Story&#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' />
          </object>
        </div>
        <script type='text/javascript'>
          var divElement = document.getElementById('viz1687843407553');
          var vizElement =
divElement.getElementsByTagName('object')[0];

vizElement.style.width='100%';vizElement.style.height=(divElement.offse
tWidth*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>
    </section><!-- End Portfolio Section -->


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

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

        <div class="row mt-5">

          <div class="col-lg-4">
            <div class="info">
              <div class="address">
                <i class="bi bi-geo-alt"></i>
                <h4>Location:</h4>
                <p>Pragati Engineering College, Andhra Pradesh</p>
```

```
              </div>

              <div class="email">
                <i class="bi bi-envelope"></i>
                <h4>Email:</h4>
                <p>guruguriparameswarareddy9.5@gmail.com
                </p>
              </div>

              <div class="phone">
                <i class="bi bi-phone"></i>
                <h4>Call:</h4>
                <p>+91 7981437891</p>

            </div>

          </div>

          <div class="col-lg-8 mt-5 mt-lg-0">

            <form action="forms/contact.php" method="post" role="form"
class="php-email-form">
              <div class="row">
                <div class="col-md-6 form-group">
                  <input type="text" name="name" class="form-control"
id="name" placeholder="Your Name" required>
                </div>
                <div class="col-md-6 form-group mt-3 mt-md-0">
                  <input type="email" class="form-control" name="email"
id="email" placeholder="Your Email" required>
                </div>
              </div>
              <div class="form-group mt-3">
                <input type="text" class="form-control" name="subject"
id="subject" placeholder="Subject" required>
              </div>
              <div class="form-group mt-3">
```

```
                <textarea class="form-control" name="message" rows="5"
placeholder="Message" 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-top">
      <div class="container">
        <div class="row">

          <div class="col-lg-3 col-md-6">
            <div class="footer-info">
              <h3>Gp<span>.</span></h3>
              <p>Pragati Engineering College
                <br> Andhra Pradesh<br><br>
                <strong>Phone:</strong> +91 7981437891<br>
                <strong>Email:</strong>
                <p>guruguriparameswarareddy9.5@gmail.com</p>
              </p>
              <div class="social-links mt-3">
```

```
                <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>
                <a href="#" class="linkedin"><i class="bx
bxl-linkedin"></i></a>
              </div>
            </div>
          </div>

          <div class="col-lg-2 col-md-6 footer-links">
            <h4>Useful Links</h4>
            <ul>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Home</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">About
us</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Services</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Terms
of service</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Privacy policy</a></li>
            </ul>
          </div>

          <div class="col-lg-3 col-md-6 footer-links">
            <h4>Our Services</h4>
            <ul>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Web
Design</a></li>
              <li><i class="bx bx-chevron-right"></i> <a href="#">Web
Development</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Product Management</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Marketing</a></li>
              <li><i class="bx bx-chevron-right"></i> <a
href="#">Graphic Design</a></li>
```

```
            </ul>
          </div>

          <div class="col-lg-4 col-md-6 footer-newsletter">
            <h4>Our Newsletter</h4>
            <p>Click here to subscribe to our newsletter</p>
            <form action="" method="post">
              <input type="email" name="email"><input type="submit"
value="Subscribe">
            </form>

          </div>

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

    <div class="container">
      <div class="copyright">
        &copy; Copyright <strong><span>Gp</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/gp-free-multipurpose-html-bootstrap-template/
-->
        Designed by <a
href="https://bootstrapmade.com/">BootstrapMade</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="static/assets/vendor/purecounter/purecounter_vanilla.js"></script>
  <script src="static/assets/vendor/aos/aos.js"></script>
  <script
src="static/assets/vendor/bootstrap/js/bootstrap.bundle.min.js"></scrip
t>
  <script
src="static/assets/vendor/glightbox/js/glightbox.min.js"></script>
  <script
src="static/assets/vendor/isotope-layout/isotope.pkgd.min.js"></script>
  <script
src="static/assets/vendor/swiper/swiper-bundle.min.js"></script>
  <script
src="static/assets/vendor/php-email-form/validate.js"></script>

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

</body>

</html>
```

App.py

```
from flask import Flask, render_template

app = Flask(__name__)

@app.route("/")
def home():
    return render_template("index.html")

if __name___ == "__main__":
    app.run(debug=False,port=8090)
```