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

PROJECT REPORT

INTRODUCTION

OVERVIEW:

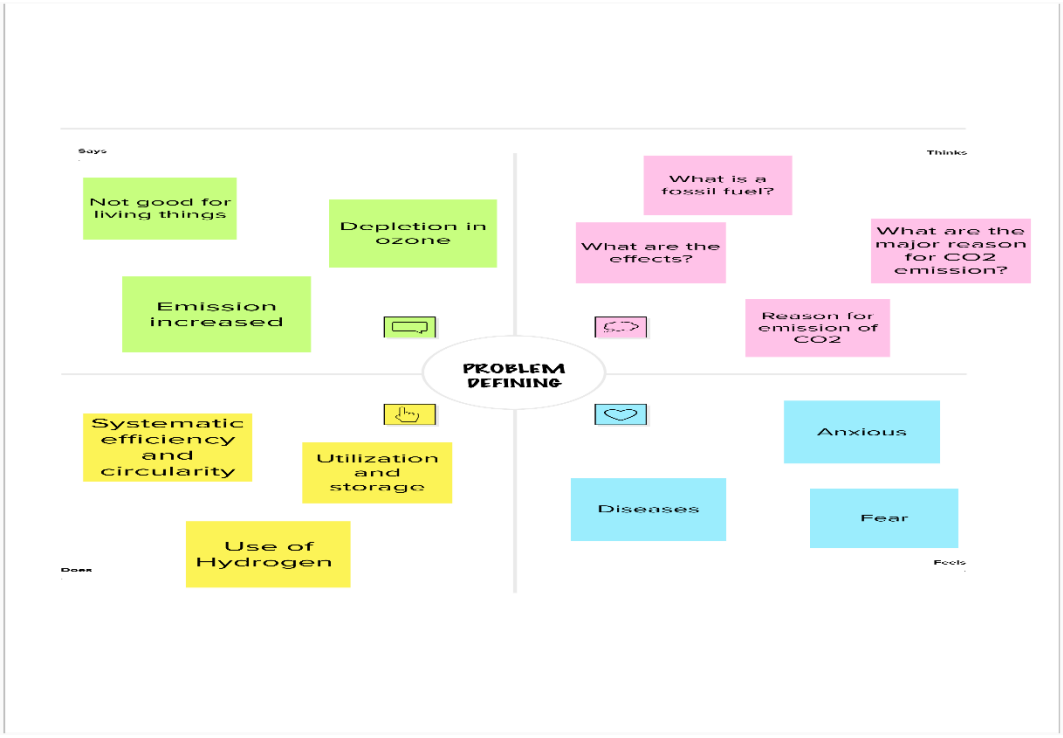
Analyzing Global Co2 Emission across countries from 1975 to 2020. This dataset contains a record of Co2 Emission by each Country and Region of Earth, here we are going to Analyse and visualize Country wise, Region wise and Overall Co2 Emission on Earth.

PURPOSE:

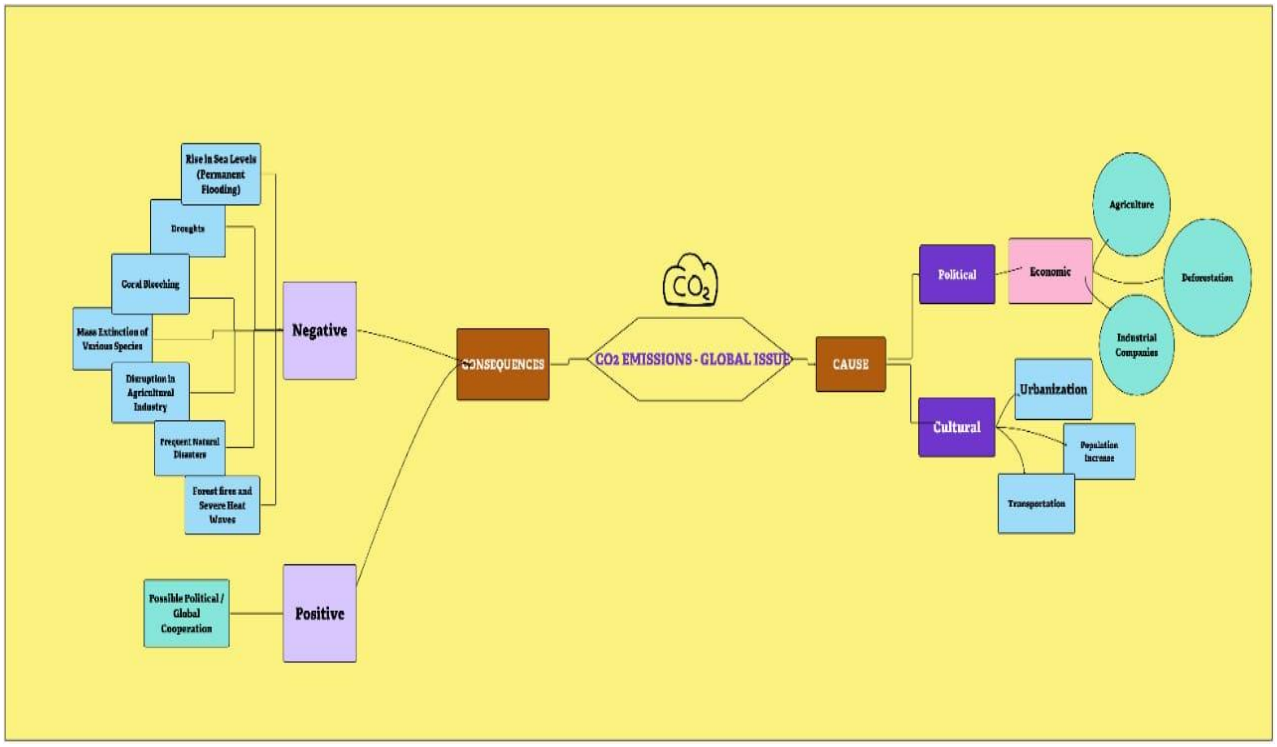
The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to an increase in CO2 every year. This will help researchers and environment experts to predict global warming. So, countries should set a goal to decrease this amount yearly.

PROBLEM DEFINITION AND DESIGN THINKING

EMPATHY MAP:

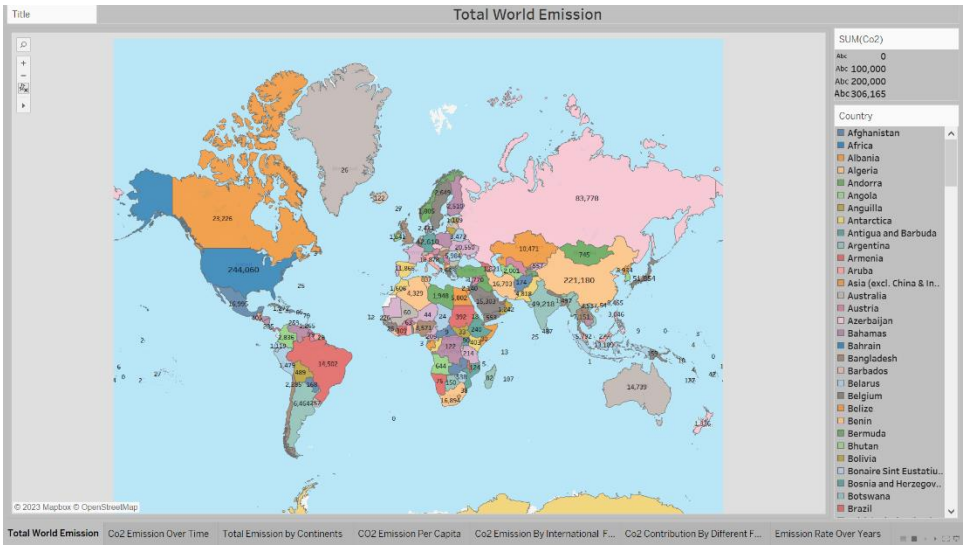


IDEATION AND BRAINSTORMING:

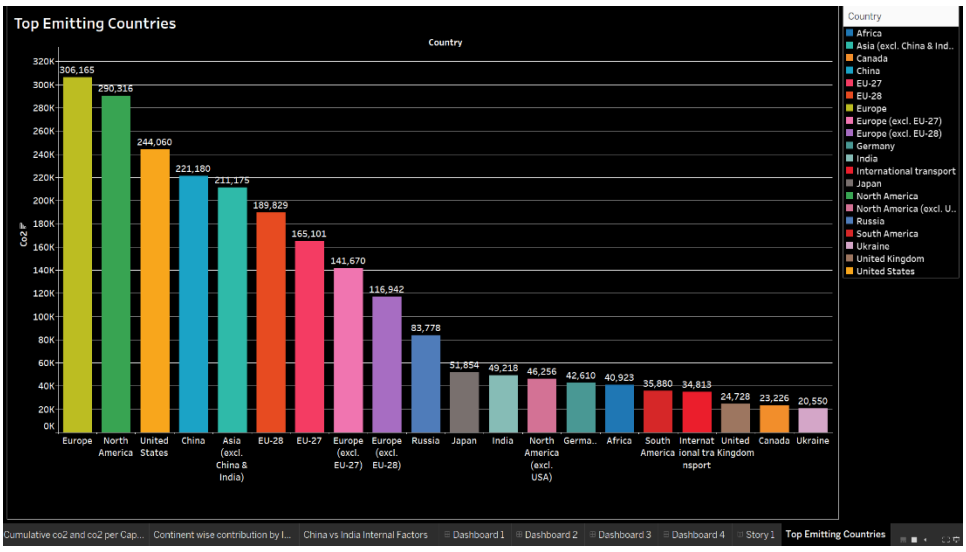


RESULTS

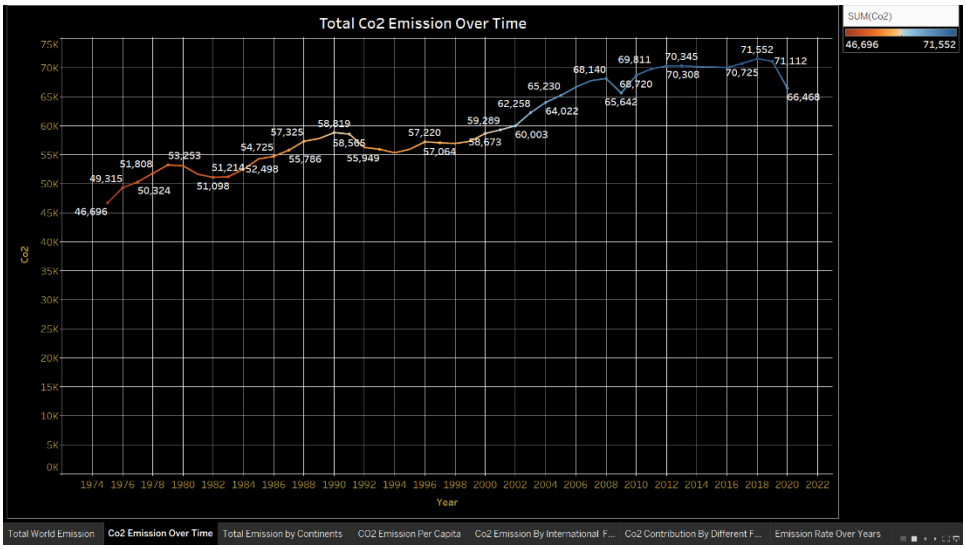
Top World Emission



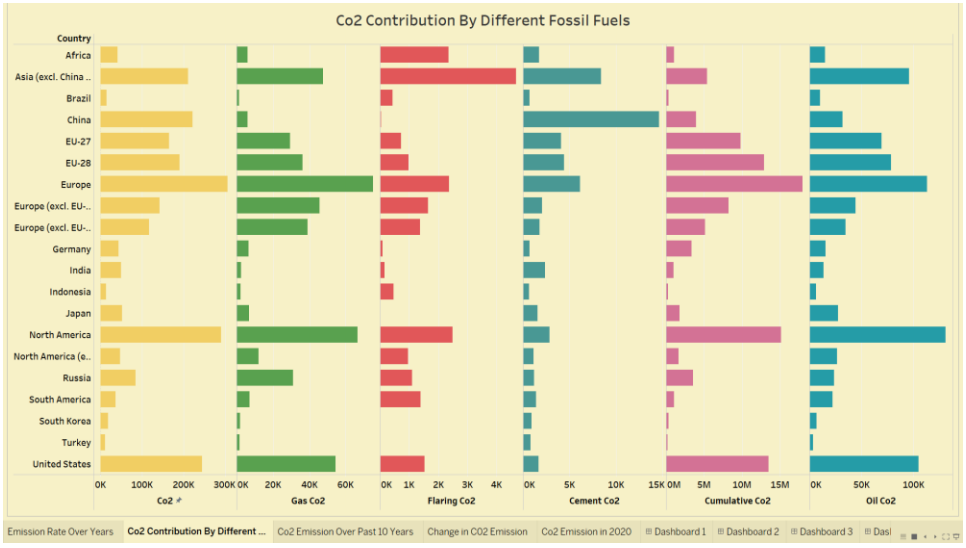
Top Emitting Countries



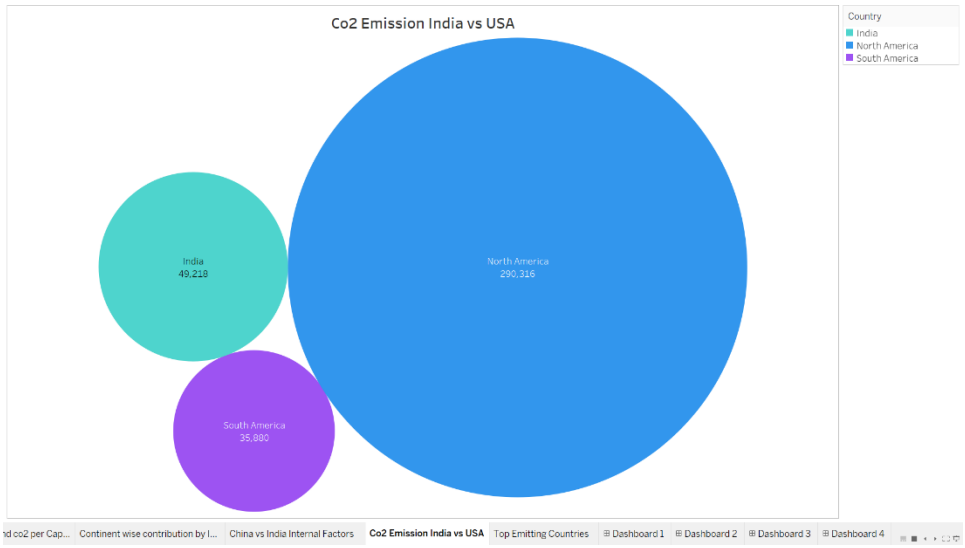
Co2 Emission over Time



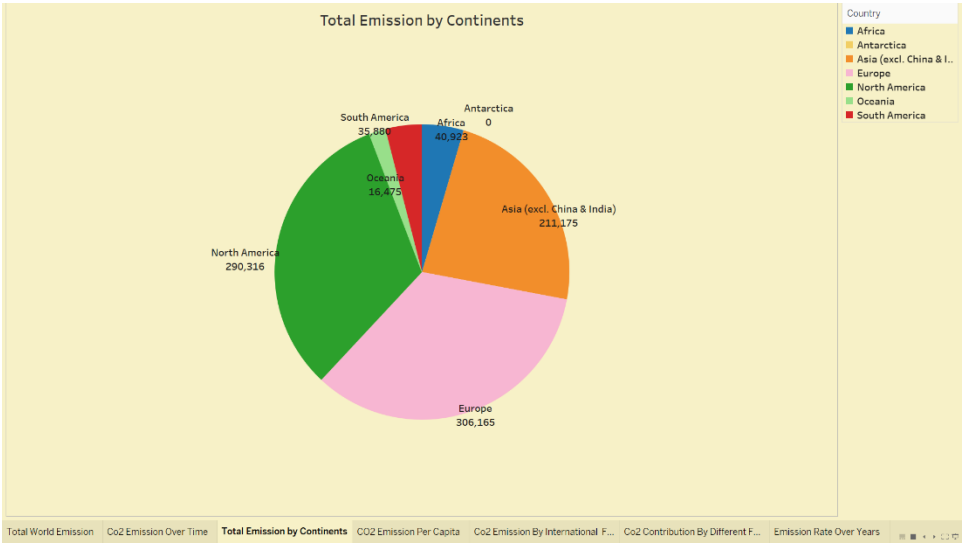
Co2 Contribution by different Fossil Fuels



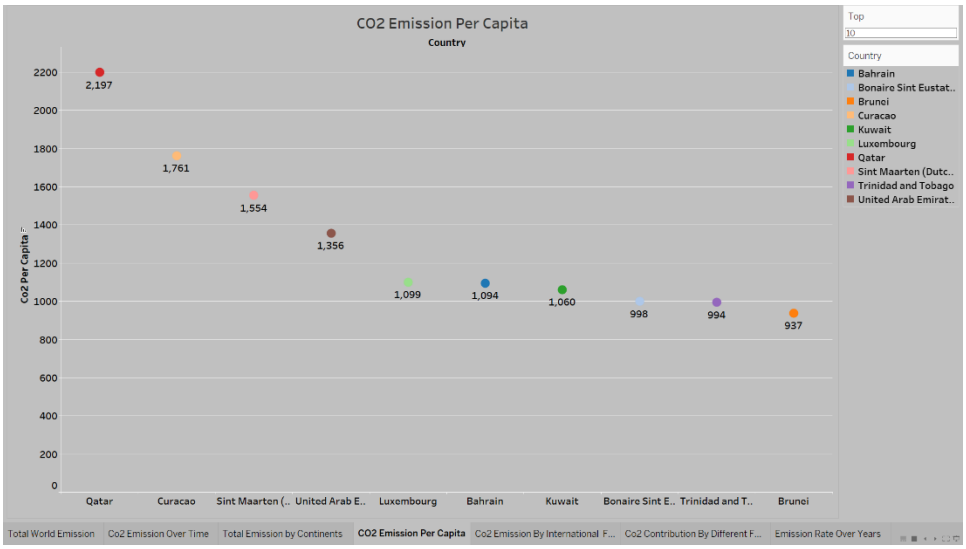
Co2 Emission India vs USA



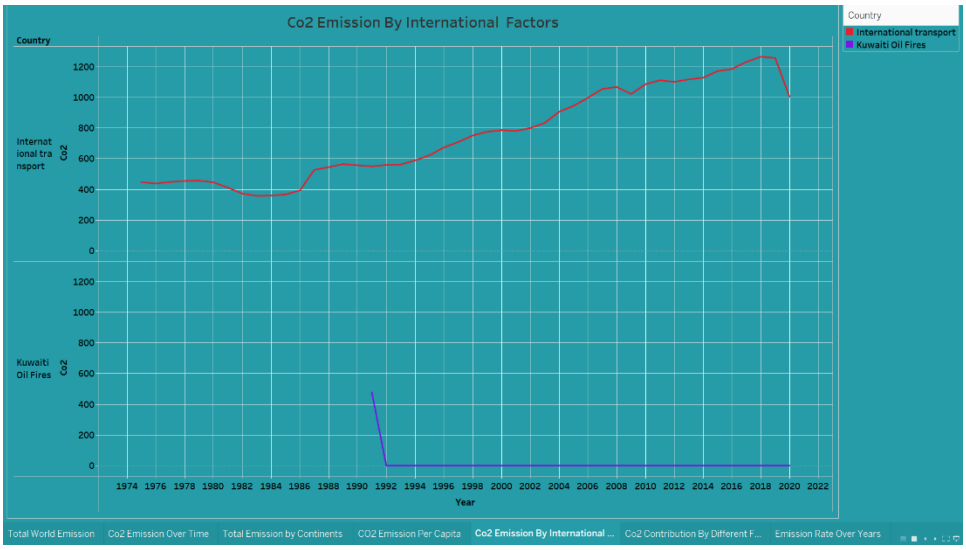
Total Emission by Continents



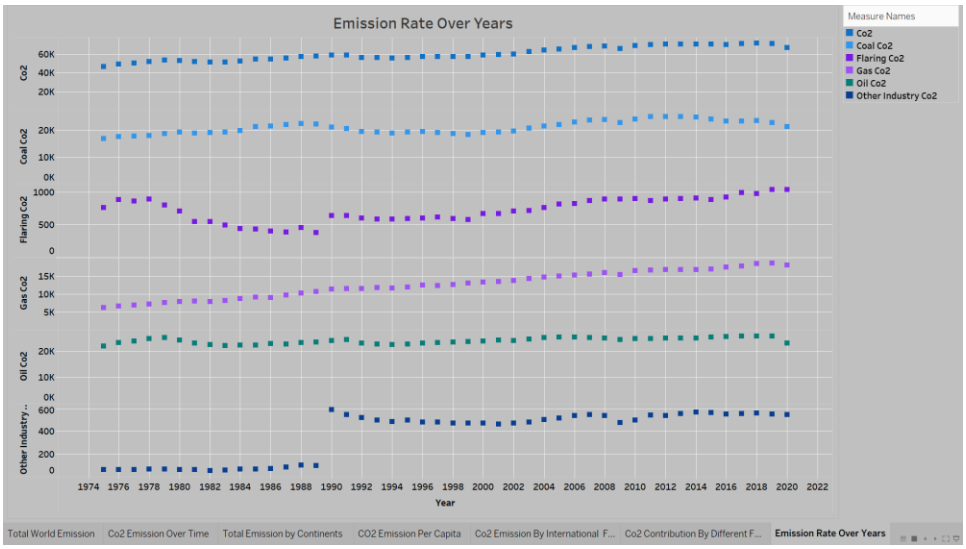
Co2 Emission per Capita



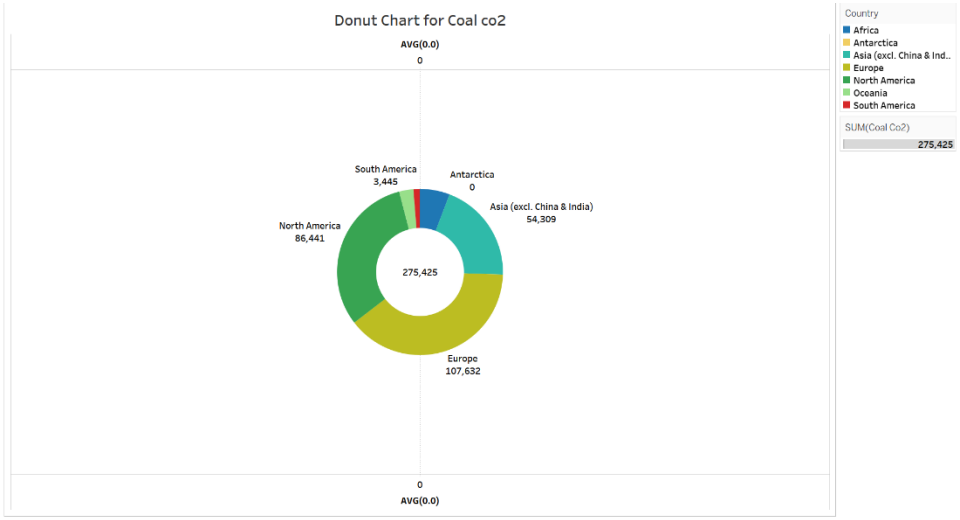
Co2 Emission by International Factors

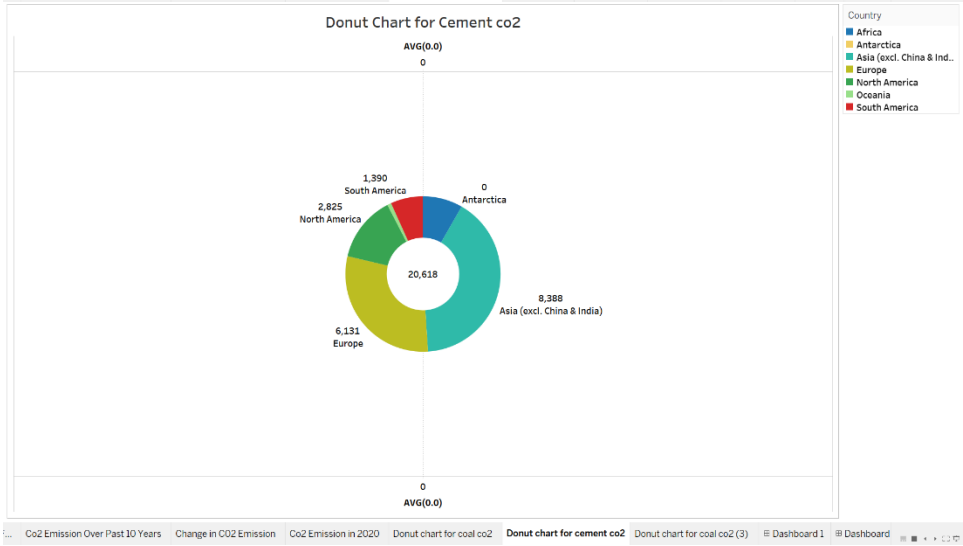


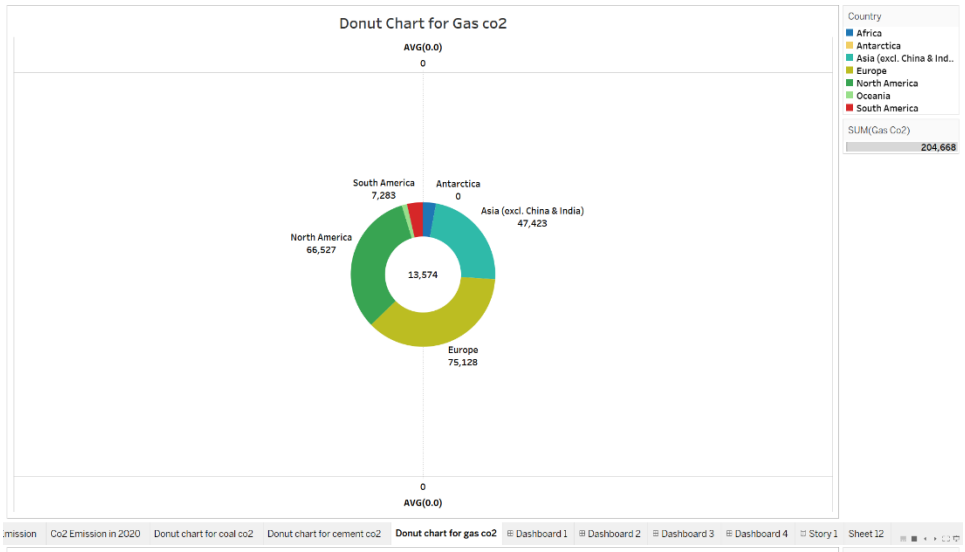
Emission Rate over Years

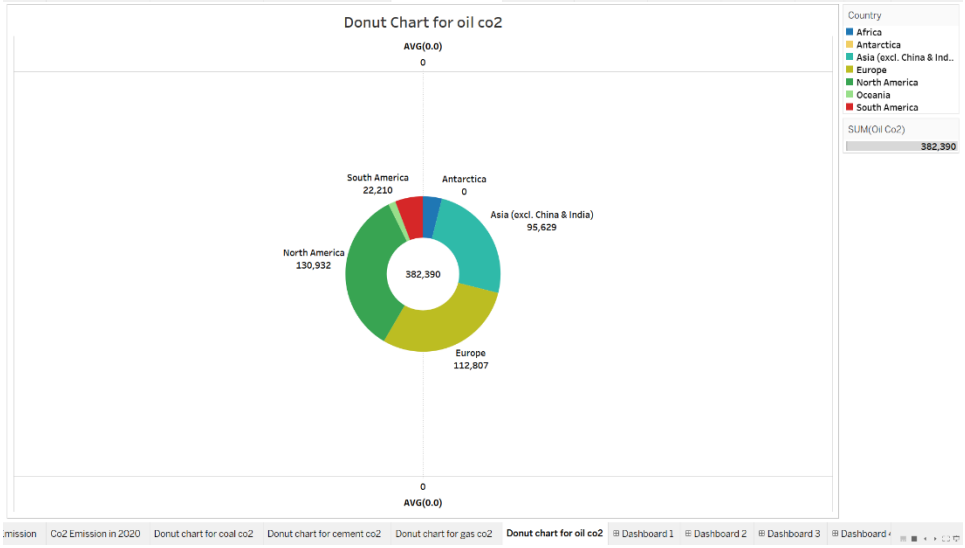


Donut Charts-Coal Co2, Cement Co2, Gas Co2, Oil Co2

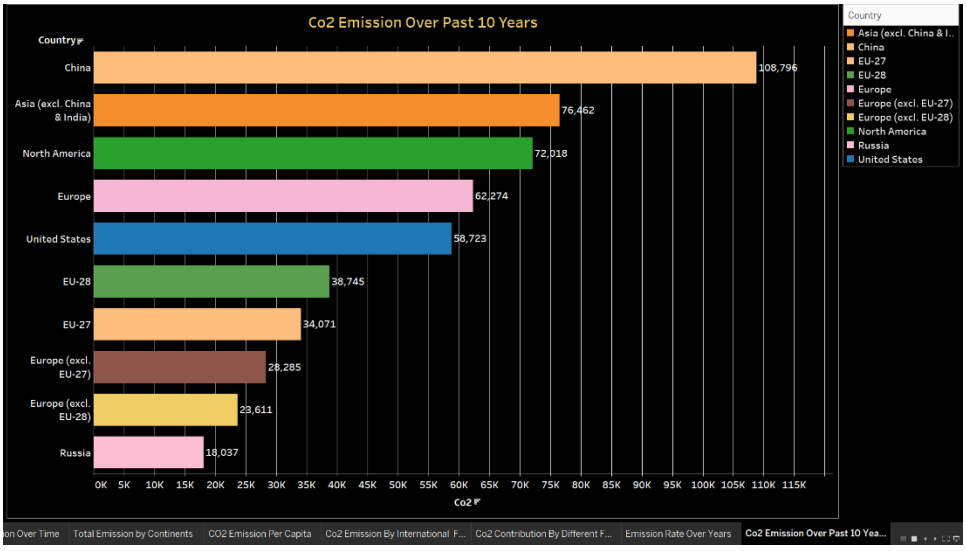




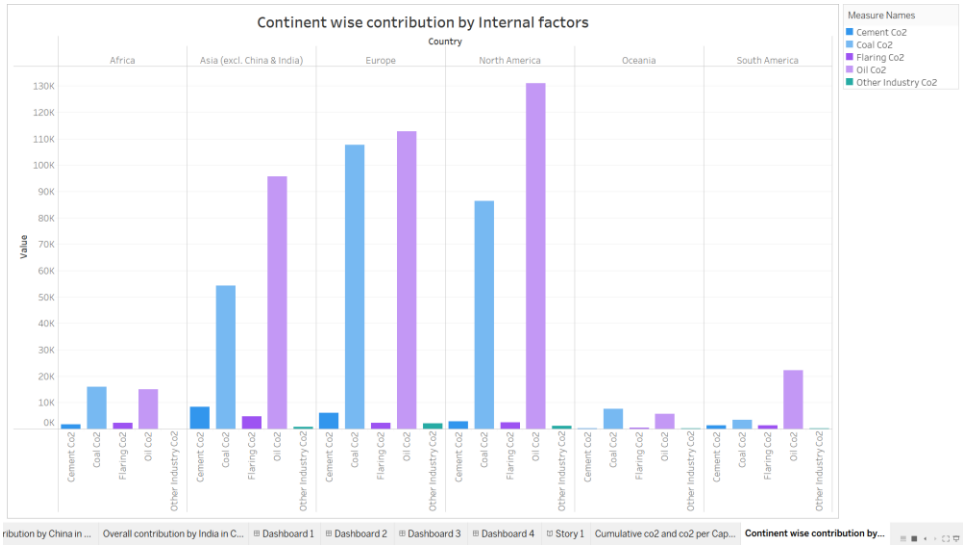




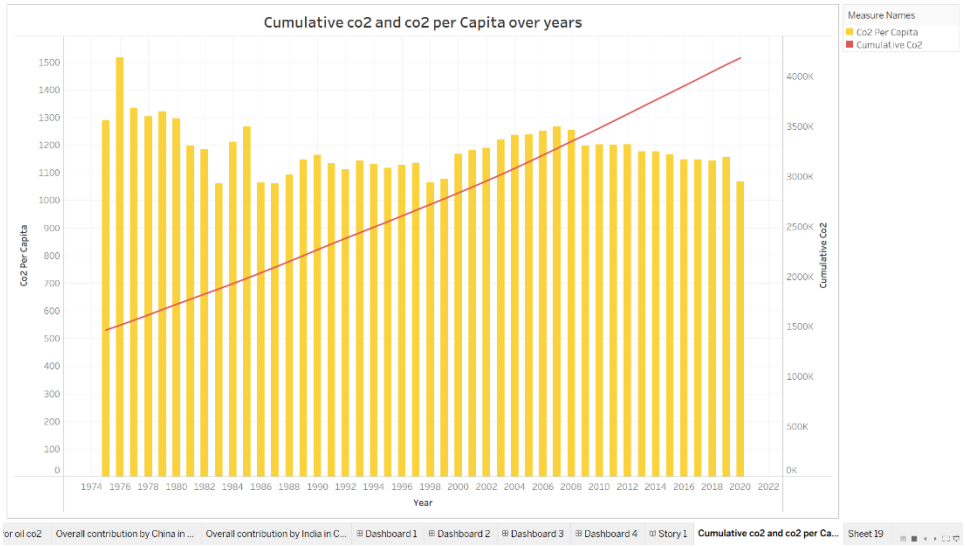
Co2 Emission over past 10 years



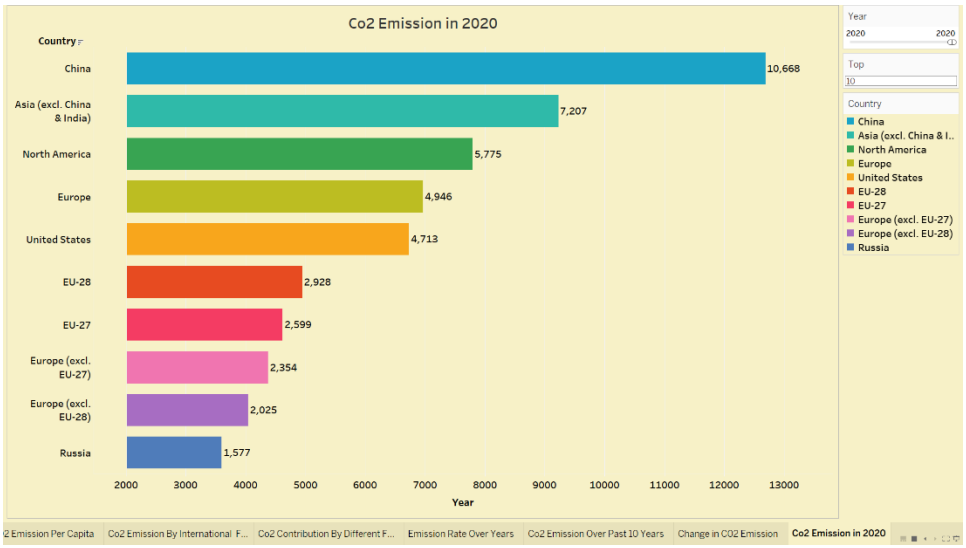
Continent Contribution in Co2 Emission



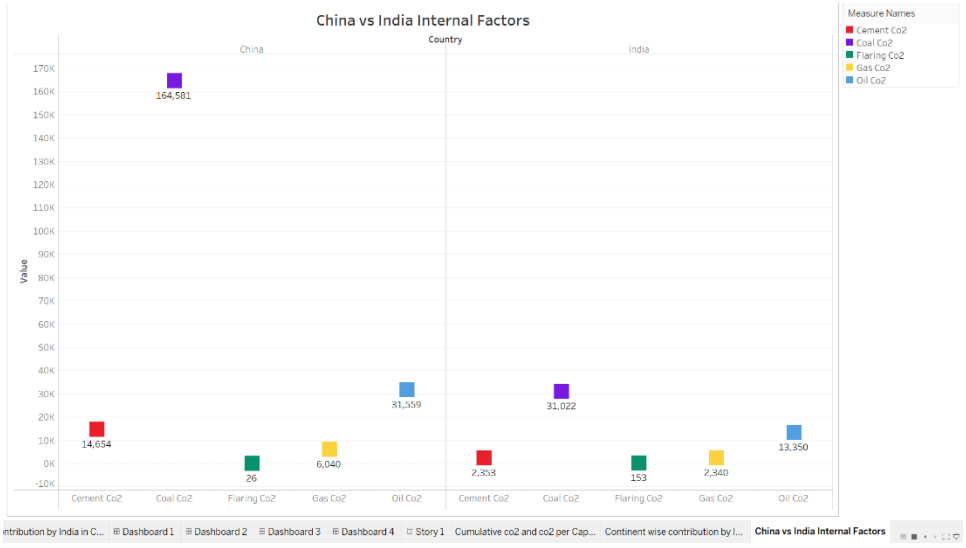
Cumulative Co2 and Co2 per Capita



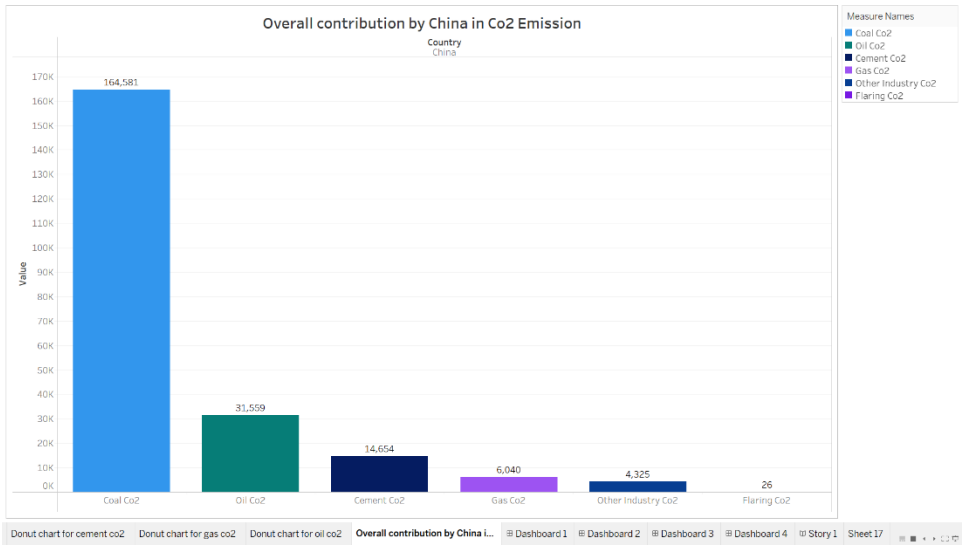
Co2 Emission in 2020



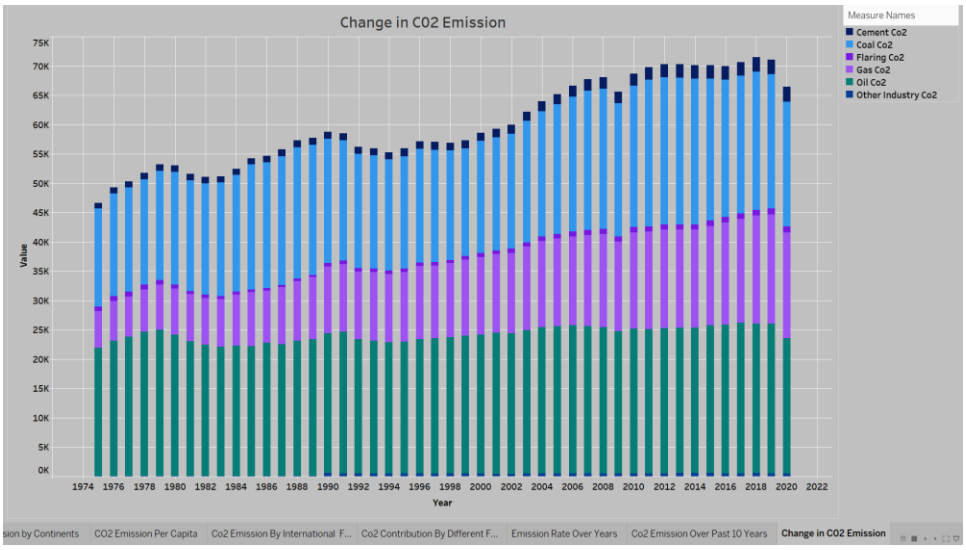
China vs India Co2 emission due to internal factors



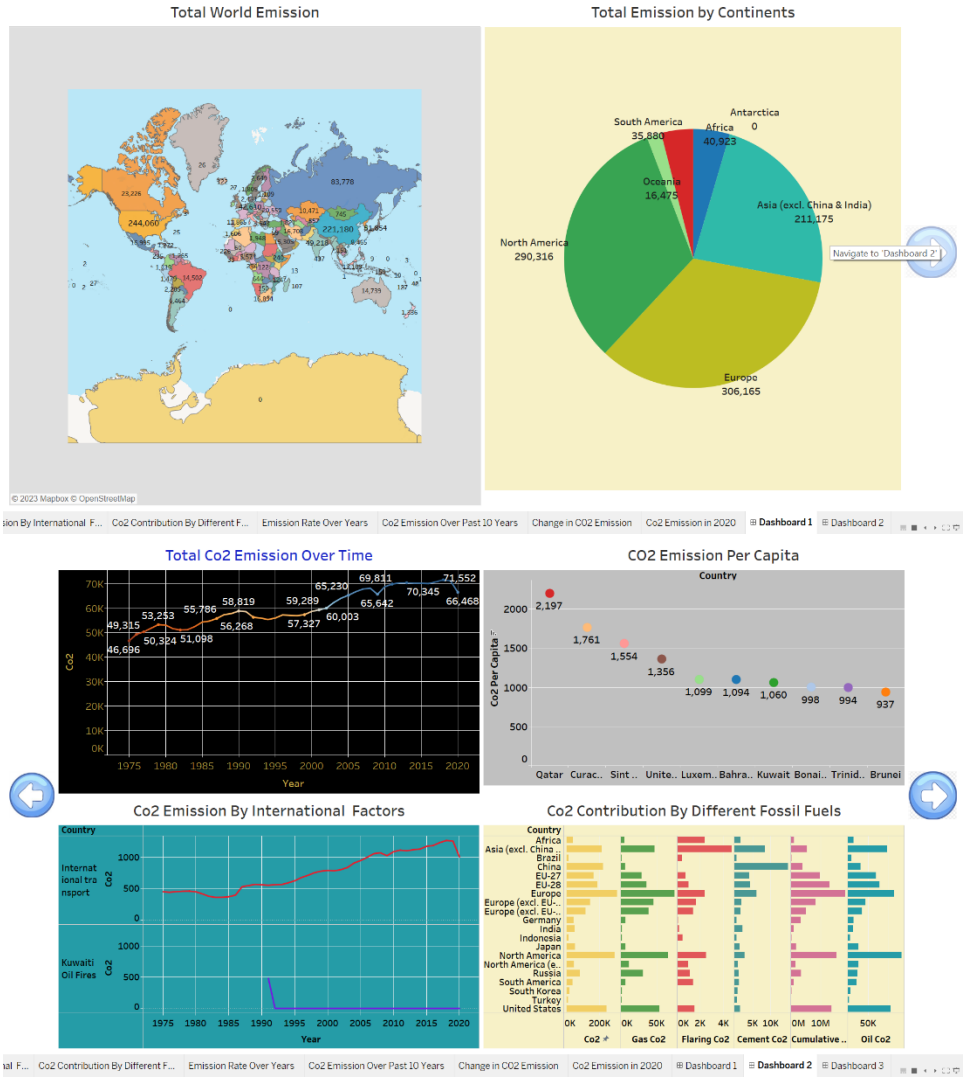
Overall Contribution by China in Co2 Emission

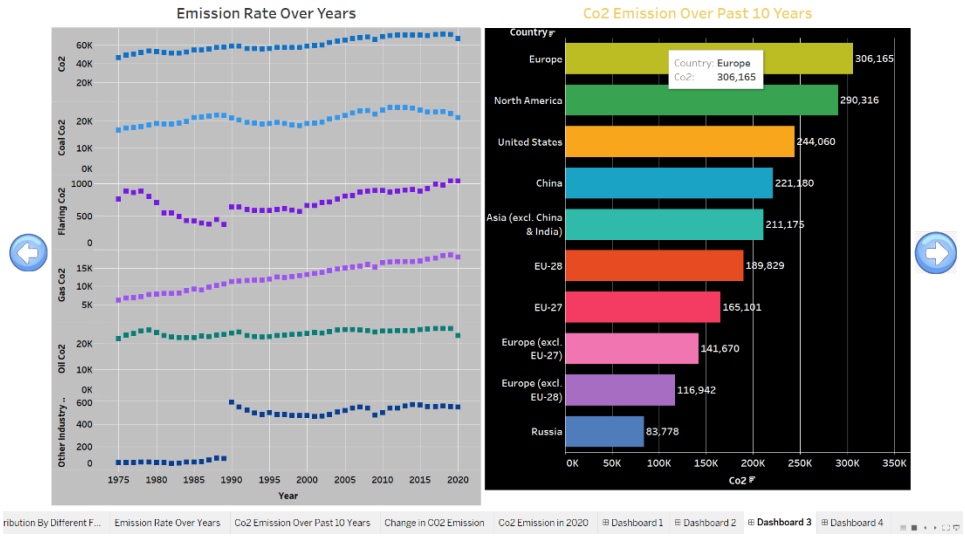


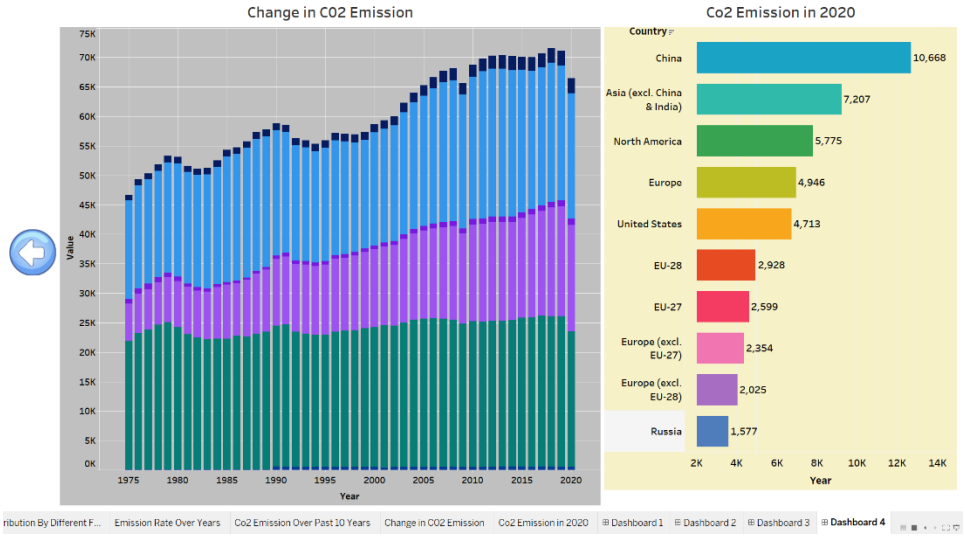
Change in Co2 Emission



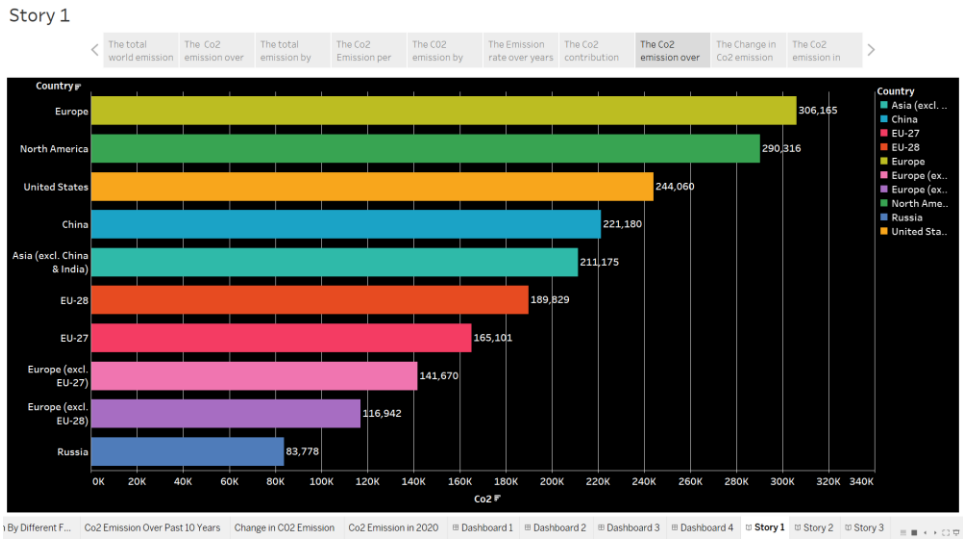
DASHBOARD


Total World Emission
Total Emission by Continents
South America
35,880
Antarctica
0
Africa
40,923
Oceania
16,475
Asia (excl. China & India)
211,175
North America
290,316
Europe
306,165
Navigate to "Dashboard 2"
© 2023 Mapbox © OpenStreetMap
Total Co2 Emission Over Time
CO2 Emission Per Capita
Co2
Year
Country
Co2 Per Capita
Qatar
Curac..
Sint ..
Unite..
Luxem..
Bahra..
Kuwait
Bonai..
Trinid..
Brunei
Co2 Emission By International Factors
Co2 Contribution By Different Fossil Fuels
Internat ional tra nsport
Kuwaiti Oil Fires
Africa
Asia (excl. China ..
Brazil
China
EU-27
EU-28
Europe
Europe (excl. EU-..
Europe (excl. EU-..
Germany
India
Indonesia
Japan
North America
North America (e..
Russia
South America
South Korea
Turkey
United States
Co2
Gas Co2
Flaring Co2
Cement Co2
Cumulative ..
Oil Co2
ion By International F...
Co2 Contribution By Different F...
Emission Rate Over Years
Co2 Emission Over Past 10 Years
Change in CO2 Emission
Co2 Emission in 2020
Dashboard 1
Dashboard 2
Dashboard 3


Emission Rate Over Years
Co2
Coal Co2
Flaring Co2
Gas Co2
Oil Co2
Other Industry ...
Year
Co2 Emission Over Past 10 Years
Country
Europe
North America
United States
China
Asia (excl. China & India)
EU-28
EU-27
Europe (excl. EU-27)
Europe (excl. EU-28)
Russia
306,165
290,316
244,060
221,180
211,175
189,829
165,101
141,670
116,942
83,778
Co2
Ribution By Different F...
Emission Rate Over Years
Co2 Emission Over Past 10 Years
Change in C02 Emission
Co2 Emission in 2020
Dashboard 1
Dashboard 2
Dashboard 3
Dashboard 4


Change in C02 Emission
Value
Year
Co2 Emission in 2020
Country
China
Asia (excl. China & India)
North America
Europe
United States
EU-28
EU-27
Europe (excl. EU-27)
Europe (excl. EU-28)
Russia
10,668
7,207
5,775
4,946
4,713
2,928
2,599
2,354
2,025
1,577
Year
Ribution By Different F...
Emission Rate Over Years
Co2 Emission Over Past 10 Years
Change in C02 Emission
Co2 Emission in 2020
Dashboard 1
Dashboard 2
Dashboard 3
Dashboard 4

STORY


Story 1
The total world emission
The Co2 emission over
The total emission by
The Co2 Emission per
The C02 emission by
The Emission rate over years
The Co2 contribution
The Co2 emission over
The Change in Co2 emission
The Co2 emission in
Country
Europe
North America
United States
China
Asia (excl. China & India)
EU-28
EU-27
Europe (excl. EU-27)
Europe (excl. EU-28)
Russia
306,165
290,316
244,060
221,180
211,175
189,829
165,101
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116,942
83,778
Co2
Asia (excl. ...
China
EU-27
EU-28
Europe
Europe (ex..
Europe (ex..
North Ame..
Russia
United Sta..
By Different F...
Co2 Emission Over Past 10 Years
Change in C02 Emission
Co2 Emission in 2020
Dashboard 1
Dashboard 2
Dashboard 3
Dashboard 4
Story 1
Story 2
Story 3

ADVANTAGES OF REDUCING CO2 EMISSION:

Air Quality:

With Co2 Emission reduction, Air Quality will improve and result in an across-the-Board increase in the health of our Entire Planet.

Economic Growth:

In Conjunction with the improvement of public health, the Global economy will also benefit from a cleaner Environment through a reduction in Co2 Emission.

Reduce Climate Change:

The most impactful aspect of Co2 emission reduction is the overall slowed climate change and environmentally beneficial practices that will be implemented.

Cost Savings:

When it comes to cost savings, the simple reduction of energy usage both shrinks your organizational carbon footprint and your operating expenses themselves.

Improved External relations:

When your organization takes direct actions towards reducing Co2 output. The casual increase in quality and depth of relationship with potential partners and external business connection is invaluable.

DISADVANTAGES OF CO2 EMISSION:

Poor Air Quality:

High Co2 Levels can cause poor air quality and can even estinguish pilot lights on gas-powered appliances.

Health Problems:

Exposure to co2 can produce a variety of health effects. These may include headaches, dizziness, increased heart rate, coma, asphyxia and convulsions.

Geographical changes:

High Co2 Emissions can be partly the result of Geographical disadvantage. In future negotiations, Geographical differences across countries should be taken more into account.

Shrinking Changes of water supplies:

When there is an increased level of Co2 in the Atmosphere, Oceans increase the absorption of Co2 in a process called Ocean Acidification.

Changes in Food supplies:

Rising levels of Atmospheric carbon dioxide reduce the concentrations of Protein and Essential minerals in most Plant species, including wheat, Soybeans, and rice.

APPLICATIONS:

1. **Co2 - derived Fuels**

The carbon in Co2 can be used to produce Fuels that are in use today, including Methane, Methanol, Gasoline and Aviation fuels.

2. **Co2 – derived Chemicals**

The carbon in Co2 can be used as an alternative to fossil fuels in the production of chemicals, including Plastics, Fibers and synthetic rubber.

3. **Building materials from minerals and Co2**

Co2 can be used in the production of building materials to replace water in concrete, called Co2 curing, or as a raw material in its constituents.

4. **Building materials from waste and Co2**

Producing building materials from waste and Co2 can be competitive as it offsets the cost associated with conventional waste disposal.

5. **Crop yield boosting with Co2**

The application of Co2 with low temperature heat in industrial Greenhouses is the most mature yield-boosting application today and can increase yields by 25% to 30%.

CONCLUSION

The entire project talks about the Global Analysis of Co2 emission from 1975 to 2020 across the countries. This also includes the visualizations of Co2 emissions per capita, Co2 Emission by International Factors, Emission rate over years and so on. The entire project helps us to find challenges and difficulties that can be caused due to Co2 emission and the solutions to reduce co2 emission.

FUTURE SCOPE

This project can be further developed by adding the current updates to Emission rate globally. Additional visualization, dashboard and stories can be made for the CO2 emission rate in future. Also, the websites may be updated according to future results.

APPENDIX

SOURCE CODE FOR WEB INTEGRATION:

```
 <!DOCTYPE html>
<html lang="en">
<head>
<title>A Global Co2 Emission</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
* {
  box-sizing: border-box;
}

/* Style the body */
body {
  font-family: Times New Roman, Helvetica, sans-serif;
  margin: 0;
}

/* Header/logo Title */
.header {
  padding: 80px;
  text-align: center;
```

```
  background-color: #FFCC22;
  background-image: url("co2.png");
  background-position: center;
  background-size: cover;
  color: BLACK;
}

/* Increase the font size of the heading */
.header h1 {
  font-size: 35px;
}

/* Sticky navbar - toggles between relative and fixed, depending on the scroll position. It is positioned relative until a given offset position is met in

the viewport - then it "sticks" in place (like position:fixed). The sticky value is not supported in IE or Edge 15 and earlier versions. However, for these

versions the navbar will inherit default position */
.navbar {
  overflow: hidden;
  background-color: #999999;
  position: sticky;
  position: -webkit-sticky;
  top: 0;
}
```

```
/* Style the navigation bar links */
.navbar a {
  float: left;
  display: block;
   color: White;
  text-align: center;
  padding: 14px 20px;
  text-decoration: none;
}

/* Right-aligned link */
.navbar a.right {
  float: right;
}

/* Change color on hover */
.navbar a:hover {
background-color: white;
  color: black;
}

/* Active/current link */
.navbar a.active {
  background-color: white;
  color: Black;
}
```

```
/* Column container */
.row {
  display: -ms-flexbox; /* IE10 */
  display: flex;
  -ms-flex-wrap: wrap; /* IE10 */
  flex-wrap: wrap;
}

/* Create two unequal columns that sits next to each other */
/* Sidebar/left column */
.side {
  -ms-flex: 30%; /* IE10 */
  flex: 30%;
  background-color: #FFB6C1;
  padding: 20px;
}

/* Main column */
.main {
  -ms-flex: 70%; /* IE10 */
  flex: 70%;
  background-color: white;
  padding: 20px;
}
```

```
/* Fake image, just for this example */
.fakeimg {
  background-color: #505050;
  width: 100%;
  padding: 20px;
}

/* Footer */
.footer {
  padding: 1px;
  text-align: center;
  background: #999999;
}

/* Responsive layout - when the screen is less than 700px wide, make the two columns stack on top of each other instead of next to each other */
@media screen and (max-width: 700px) {
  .row {
    flex-direction: column;
  }
}

/* Responsive layout - when the screen is less than 400px wide, make the navigation links stack on top of each other instead of next to each other */
@media screen and (max-width: 400px) {
  .navbar a {
```

```
    float: none;
    width: 100%;
  }
}
</style>
</head>
<body>
<div class="header">
<br>
  <h1>UNEARTHING THE ENVIRONMENTAL IMPACT OF HUMAN ACTIVITY:  A GLOBAL CO2 EMISSION</h1>
  <p> 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.</p></p>
</div>

<div class="navbar">
  <a href="#" class="active">Home</a>
  <a href="Dashboard2.html">Dashboard</a>
  <a href="Story2.html">Story</a>
<a href=">Visualization</a>
  <a href="#" class="right">About</a>
</div>

<div class="row">
```

<h2>Design</h2>

The Graphs and Charts used in here for visualisation will be more understanding at a quick glance.

<h2>Dashboard</h2>

The Dashboard that is created in the responsive and dynamic dashboard that you can use to analyze and understand more.

<h2>Story</h2>

The Narration of data based the visualization and analysis is super engaging.

<h2> A GLOBAL CO2 EMISSION</h2>

CO2 Emission refers to the Carbon Dioxide emitted throughout the world. For this analysis we will be focusing on CO2 Emissions and its effect on the

world we live in as well as some key factors and stats that may play a role in the emission of CO2 globally. For this analysis we will be focusing on CO2

Emissions and its effect on the world we live in as well as some key factors and stats that may play a role in the emission of CO2 globally. Fossil fuel use

is the primary source of CO2. The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to an increase in CO2 every

year. This will help researchers and environment experts to predict global warming.

<h2>DATA VISUALIZATION</h2>

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.

<h2>MAIN SOURCE OF CO2 EMISSION</h2>

 Fossil fuel use is the primary source of CO2. The data throws light onto how much fossil fuels are burnt, per year per nation, which amounts to

an increase in CO2 every year. This will help researchers and environment experts to predict global warming. So countries should set a goal to decrease this

amount yearly.

<h2>RESPONSIVE DESIGN OF DASHBOARD</h2>

The responsiveness and design of a dashboard for analyzing the globally Co2 Emission. It is crucial to ensure that the information is easily

understandable and actionable. Key considerations for designing a responsive and effective dashboard include user-centred design, clear and concise

information, interactivity, data-driven approach, accessibility, customization.

<h2>NO. OF. SCENES OF STORY</h2>

The number of scenes in a storyboard for a data visualization analysis of the Co2 Emission will depend on the complexity of the analysis and the specific

insights that are trying to be conveyed. A storyboard is a visual representation of the data analysis process and it breaks down the analysis into a series

of steps or scenes.

  <h2>Contact us</h2>

</body>

</html>