Dhanalakshmi Srinivasan Arts and Science
(Co-Education) College
(Affiliated to University of Madras)

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

A PROJECT REPORT SUBMITTED BY

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1.INTRODUCTION:

The increasing average atmospheric temperature has led to global warming, which drives a set of changes to the Earth's climate and weather systems. These swift changes are happening as humans continue to emit heat-trapping greenhouse gases (GHG) to the atmosphere [1]. Among these emissions, carbon dioxide (CO2) is the critical anthropogenic greenhouse gas due to its abundance and its ability to remain in the atmosphere for thousands of years.

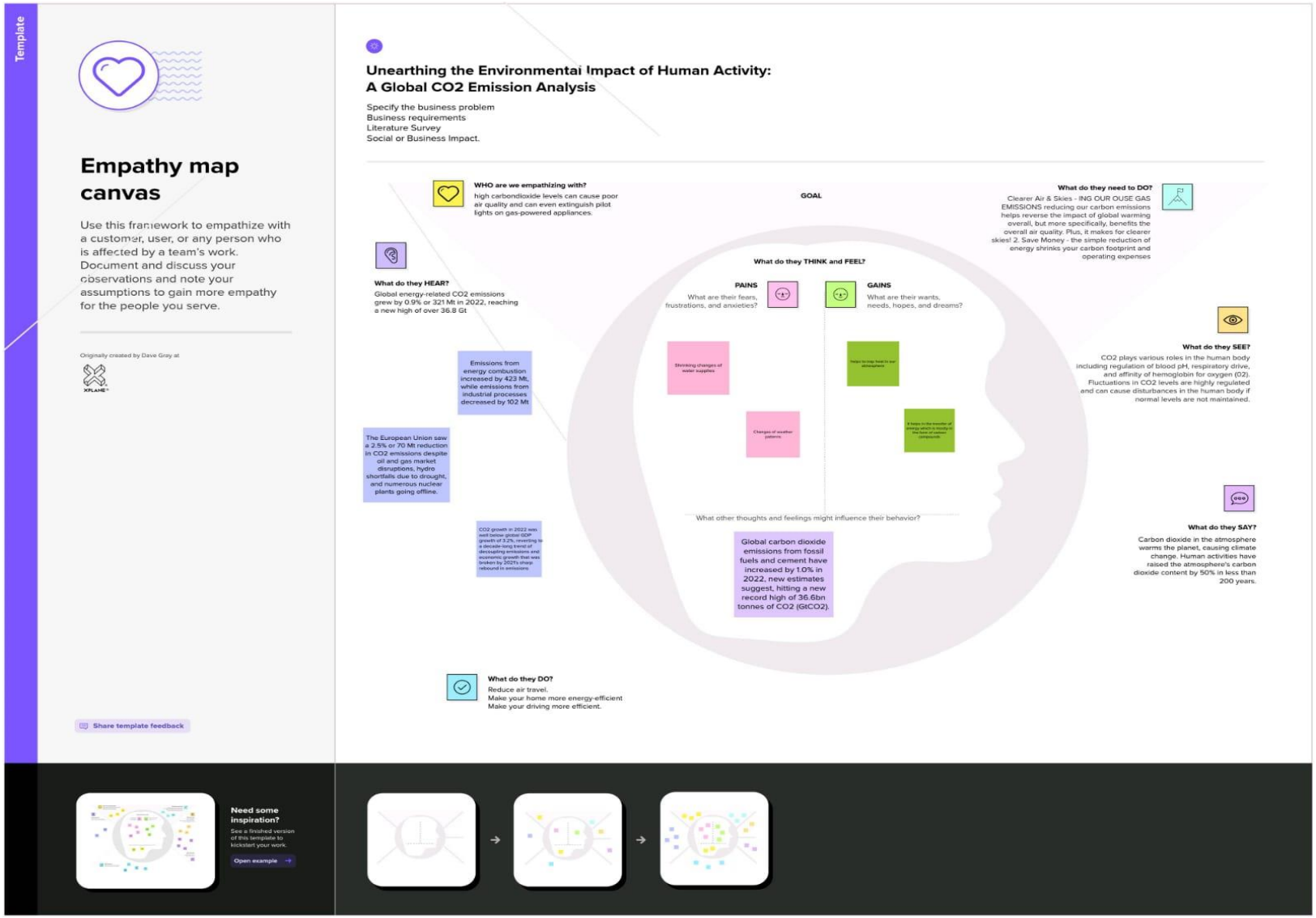
1.1 OVERVIEW:

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.

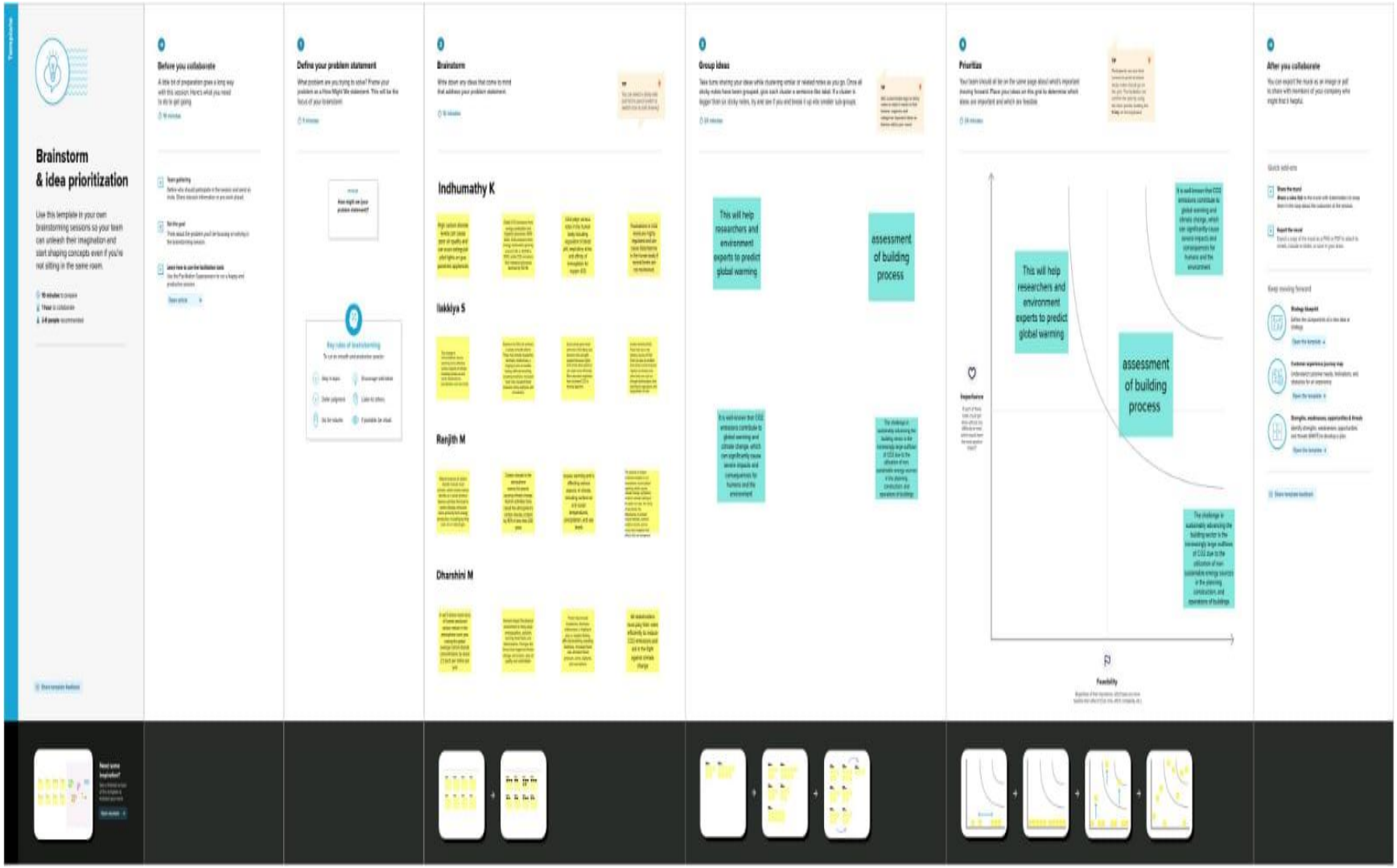
1.2 PURPOSE:

- The challenge in sustainably advancing the building sector is the increasingly large outflows of CO2 due to the utilization of non-sustainable energy sources in the planning, construction, and operations of buildings.
- It is well-known that CO2 emissions contribute to global warming and climate change, which can significantly cause severe impacts and consequences for humans and the environment.
- Key words: co2 emissions; building sector; impacts; mitigations.

Milestone 1: Define problem/ Problem understanding

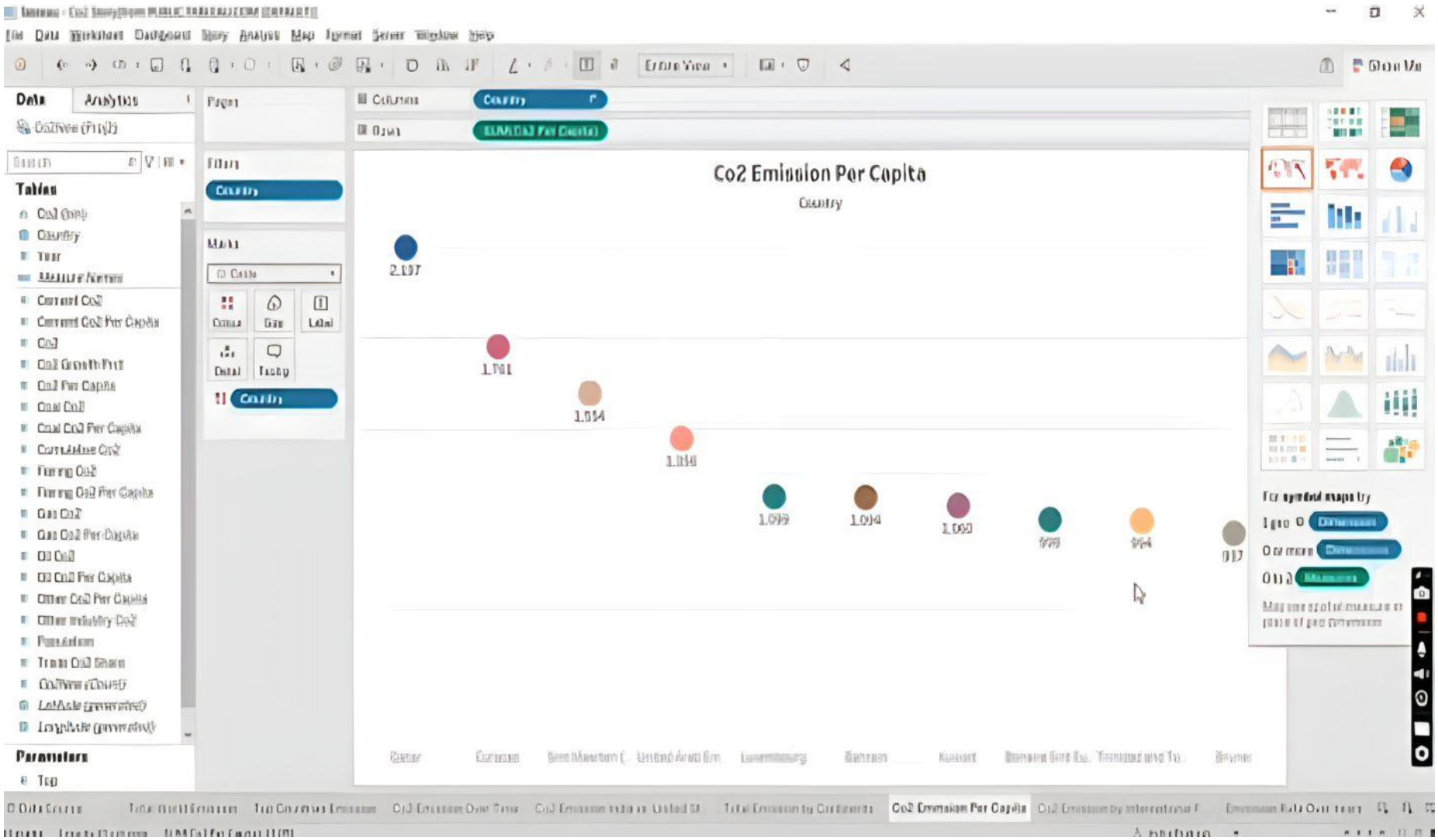


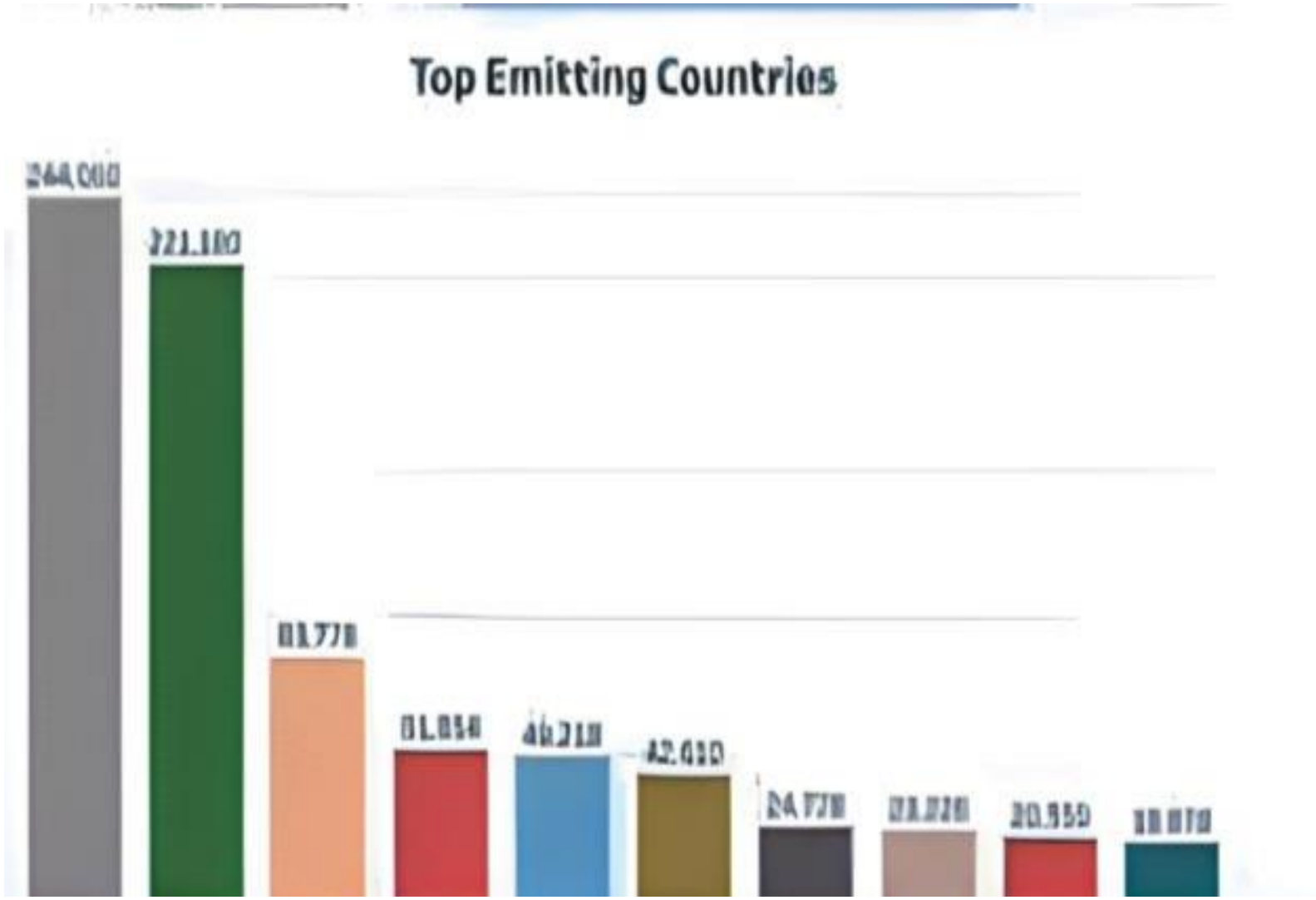
1.2 BRAINSTORMING:



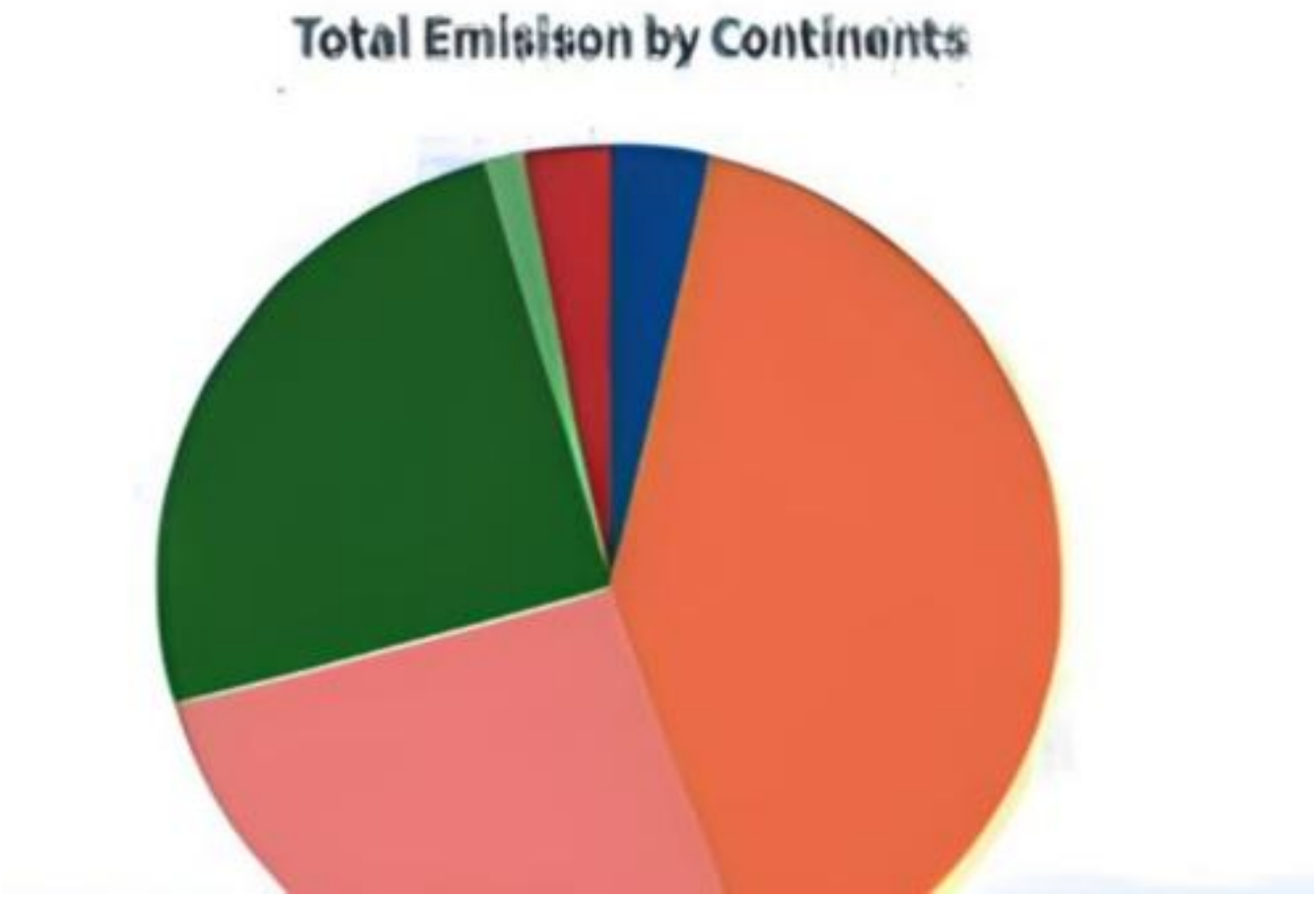
Milestone: 2

Activity: 1

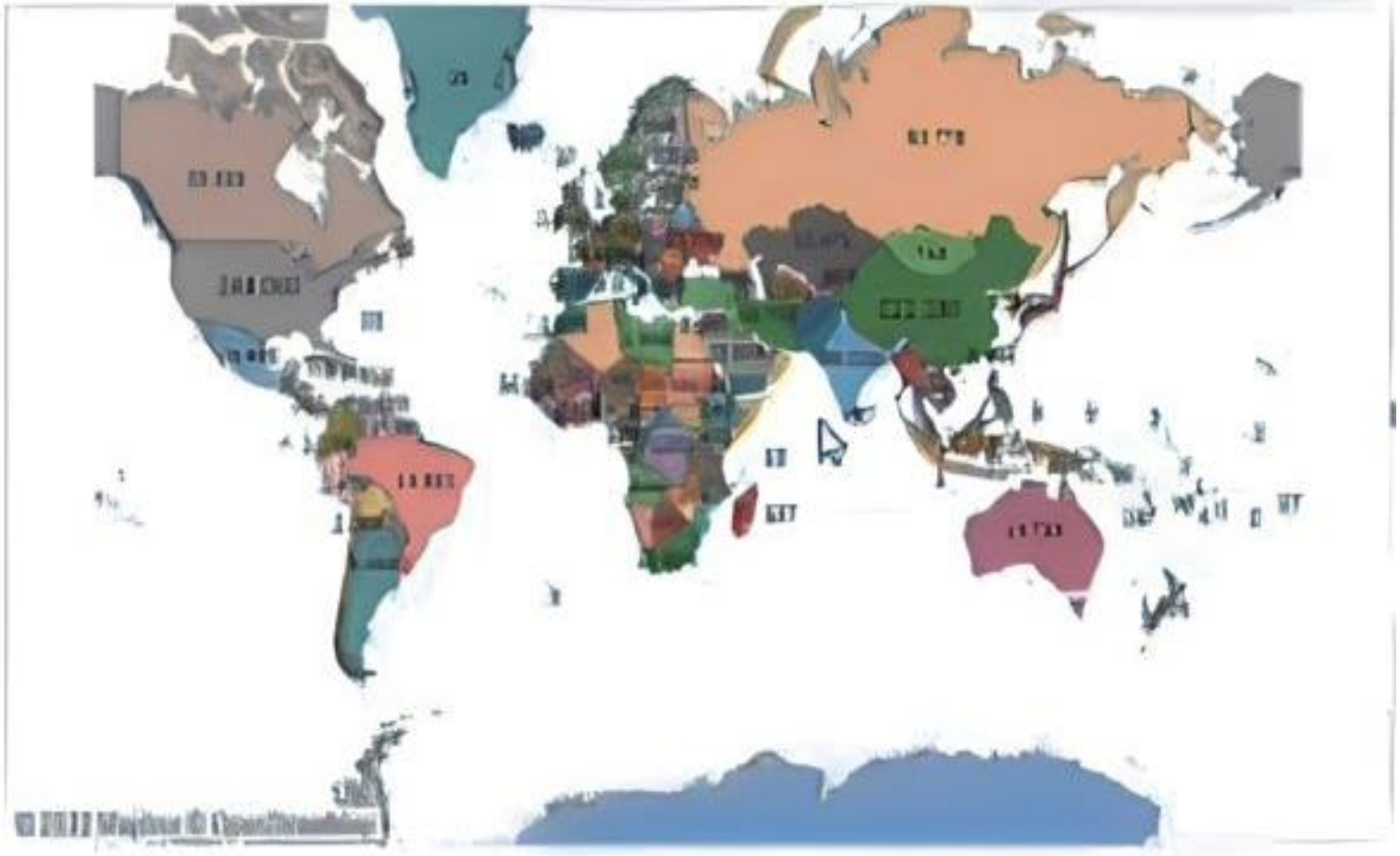



Top Emitting Countries

Activity 2:



Total World Emission



Milestone 3:

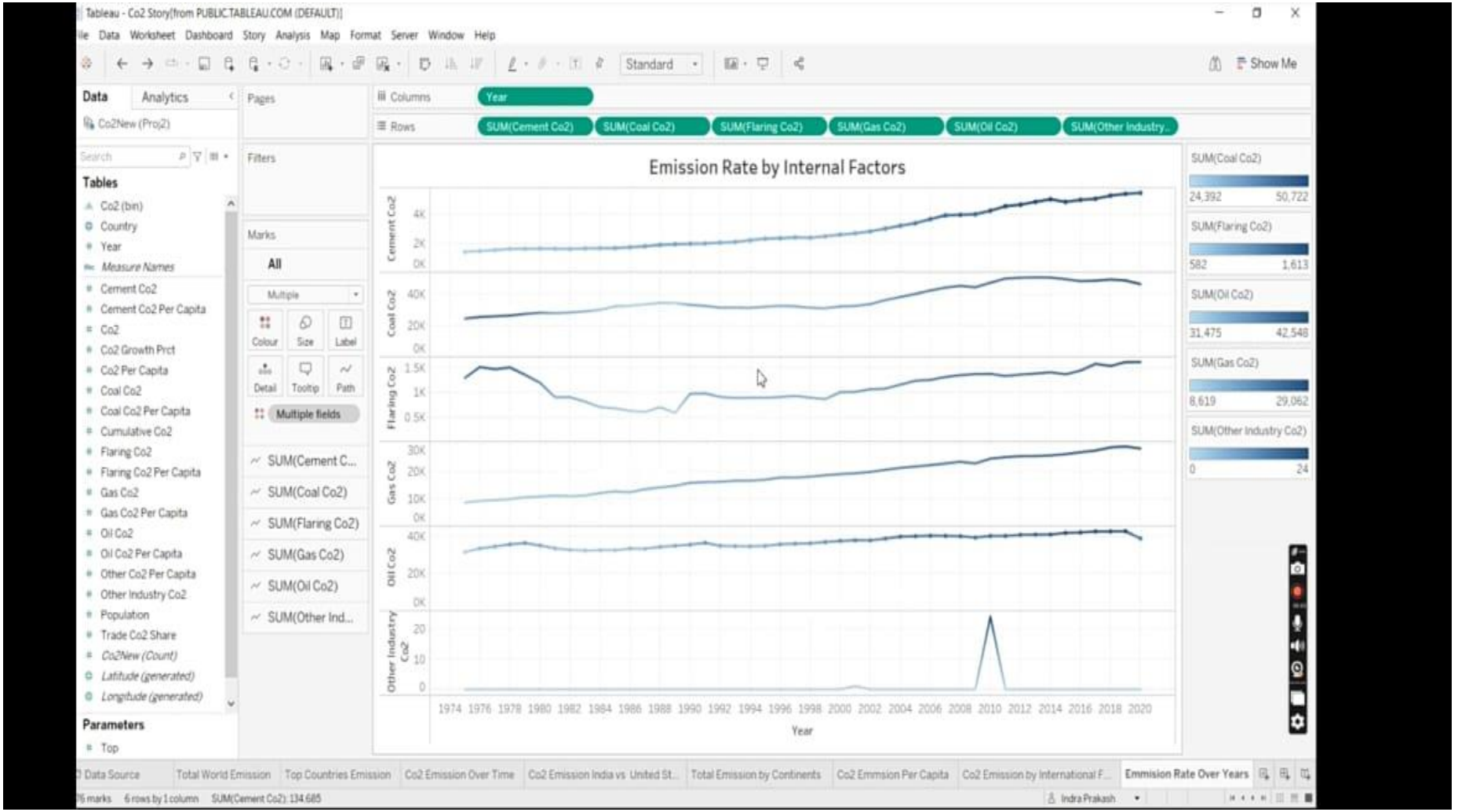


Tableau - Co2 Story(from PUBLIC.TABLEAU.COM (DEFAULT))
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Co2New (Proj2)
Pages
Filters
Marks
All
Multiple
Colour
Size
Label
Detail
Tooltip
Path
Multiple fields
SUM(Cement C...
SUM(Coal Co2)
SUM(Flaring Co2)
SUM(Gas Co2)
SUM(Oil Co2)
SUM(Other Ind...
Tables
Co2 (bin)
Country
Year
Measure Names
Cement Co2
Cement Co2 Per Capita
Co2
Co2 Growth Prct
Co2 Per Capita
Coal Co2
Coal Co2 Per Capita
Cumulative Co2
Flaring Co2
Flaring Co2 Per Capita
Gas Co2
Gas Co2 Per Capita
Oil Co2
Oil Co2 Per Capita
Other Co2 Per Capita
Other Industry Co2
Population
Trade Co2 Share
Co2New (Count)
Latitude (generated)
Longitude (generated)
Parameters
Top
Columns
Year
Rows
SUM(Cement Co2)
SUM(Coal Co2)
SUM(Flaring Co2)
SUM(Gas Co2)
SUM(Oil Co2)
SUM(Other Industry..
Emission Rate by Internal Factors
Cement Co2
Coal Co2
Flaring Co2
Gas Co2
Oil Co2
Other Industry Co2
1974 1976 1978 1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020
Year
SUM(Coal Co2)
24,392
50,722
SUM(Flaring Co2)
582
1,613
SUM(Oil Co2)
31,475
42,548
SUM(Gas Co2)
8,619
29,062
SUM(Other Industry Co2)
0
24
Data Source
Total World Emission
Top Countries Emission
Co2 Emission Over Time
Co2 Emission India vs United St...
Total Emission by Continents
Co2 Emmsion Per Capita
Co2 Emission by International F...
Emmision Rate Over Years
6 marks
6 rows by 1 column
SUM(Cement Co2): 134,685
Indra Prakash

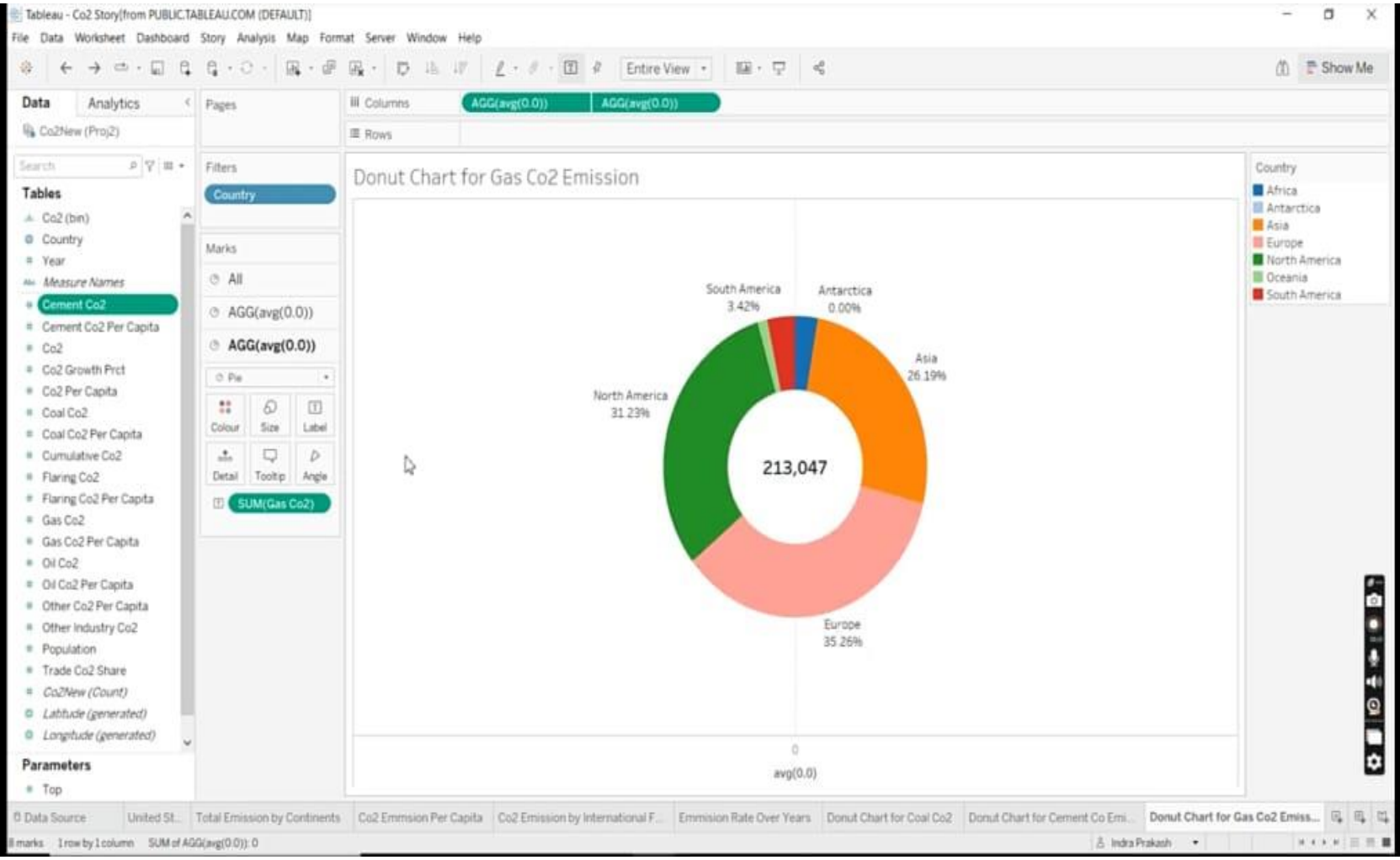


Tableau - Co2 Story(from PUBLIC.TABLEAU.COM (DEFAULT))
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Entire View
Show Me
Data
Analytics
Co2New (Proj2)
Pages
Columns
AGG(avg(0.0))
AGG(avg(0.0))
Rows
Filters
Country
Marks
All
AGG(avg(0.0))
AGG(avg(0.0))
Pie
Colour
Size
Label
Detail
Tooltip
Angle
SUM(Gas Co2)
Tables
Co2 (bin)
Country
Year
Measure Names
Cement Co2
Cement Co2 Per Capita
Co2
Co2 Growth Prct
Co2 Per Capita
Coal Co2
Coal Co2 Per Capita
Cumulative Co2
Flaring Co2
Flaring Co2 Per Capita
Gas Co2
Gas Co2 Per Capita
Oil Co2
Oil Co2 Per Capita
Other Co2 Per Capita
Other Industry Co2
Population
Trade Co2 Share
Co2New (Count)
Latitude (generated)
Longitude (generated)
Parameters
Top
Donut Chart for Gas Co2 Emission
South America
3.42%
Antarctica
0.00%
Asia
26.19%
North America
31.23%
213,047
Europe
35.26%
0
avg(0.0)
Country
Africa
Antarctica
Asia
Europe
North America
Oceania
South America
Data Source
United St...
Total Emission by Continents
Co2 Emmsion Per Capita
Co2 Emission by International F...
Emmision Rate Over Years
Donut Chart for Coal Co2
Donut Chart for Cement Co Emi...
Donut Chart for Gas Co2 Emiss...
8 marks
1 row by 1 column
SUM of AGG(avg(0.0)): 0
Indra Prakash

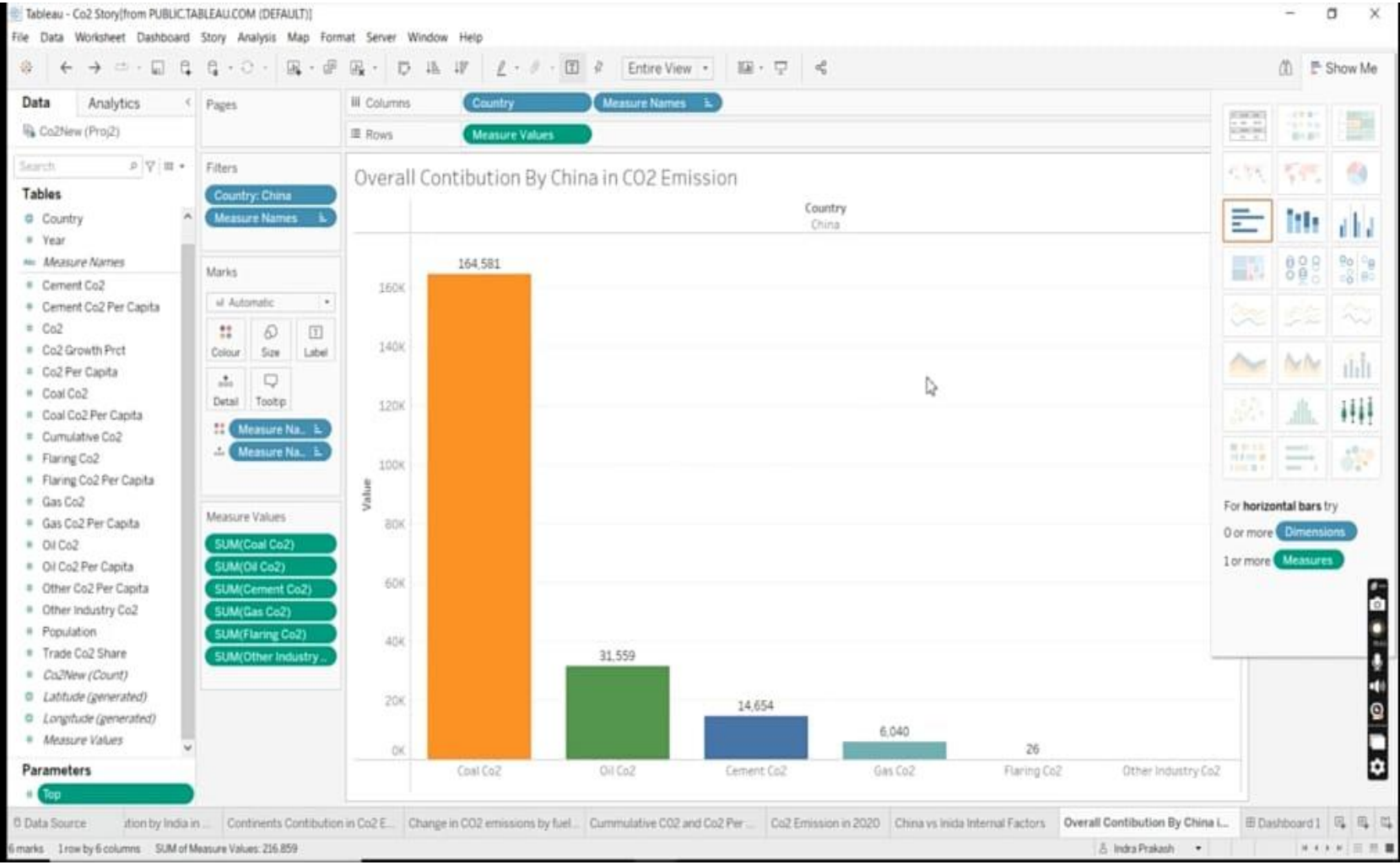


Tableau - Co2 Story[from PUBLIC.TABLEAU.COM (DEFAULT)]
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Entire View
Show Me
Data
Analytics
Co2New (Proj2)
Search
Tables
Country
Year
Measure Names
Cement Co2
Cement Co2 Per Capita
Co2
Co2 Growth Prct
Co2 Per Capita
Coal Co2
Coal Co2 Per Capita
Cumulative Co2
Flaring Co2
Flaring Co2 Per Capita
Gas Co2
Gas Co2 Per Capita
Oil Co2
Oil Co2 Per Capita
Other Co2 Per Capita
Other Industry Co2
Population
Trade Co2 Share
Co2New (Count)
Latitude (generated)
Longitude (generated)
Measure Values
Parameters
Top
Pages
Filters
Country: China
Measure Names
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Measure Na..
Measure Na..
Measure Values
SUM(Coal Co2)
SUM(Oil Co2)
SUM(Cement Co2)
SUM(Gas Co2)
SUM(Flaring Co2)
SUM(Other Industry ..
Columns
Country
Measure Names
Rows
Measure Values
Overall Contibution By China in CO2 Emission
Country
China
164,581
31,559
14,654
6,040
26
160K
140K
120K
100K
80K
60K
40K
20K
0K
Value
Coal Co2
Oil Co2
Cement Co2
Gas Co2
Flaring Co2
Other Industry Co2
For horizontal bars try
0 or more Dimensions
1 or more Measures
Data Source
Continents Contibution in Co2 E...
Change in CO2 emissions by fuel ...
Cummulative CO2 and Co2 Per ...
Co2 Emission in 2020
China vs Inida Internal Factors
Overall Contibution By China i...
Dashboard 1
6 marks
1 row by 6 columns
SUM of Measure Values: 216,859
Indra Prakash

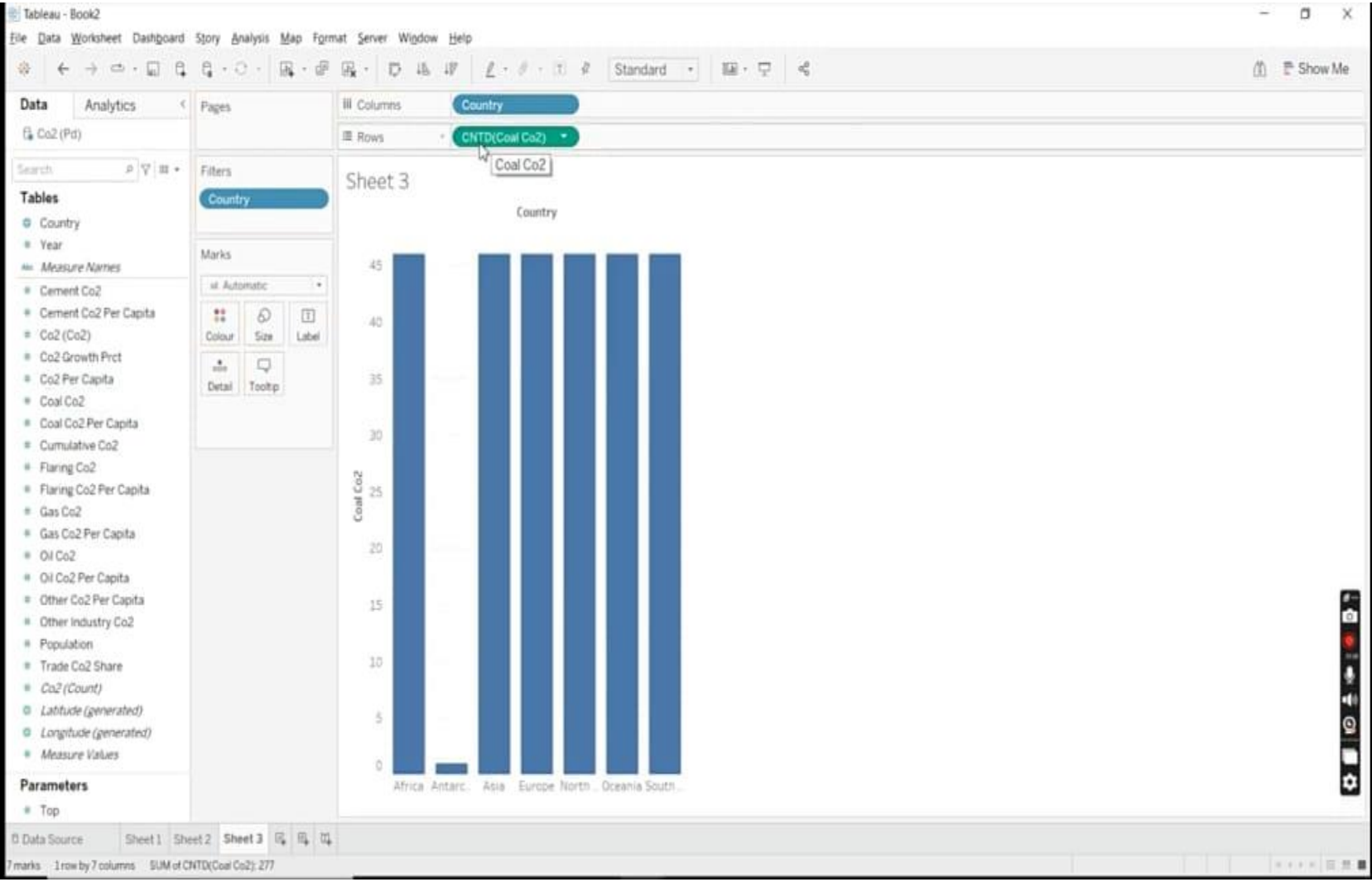
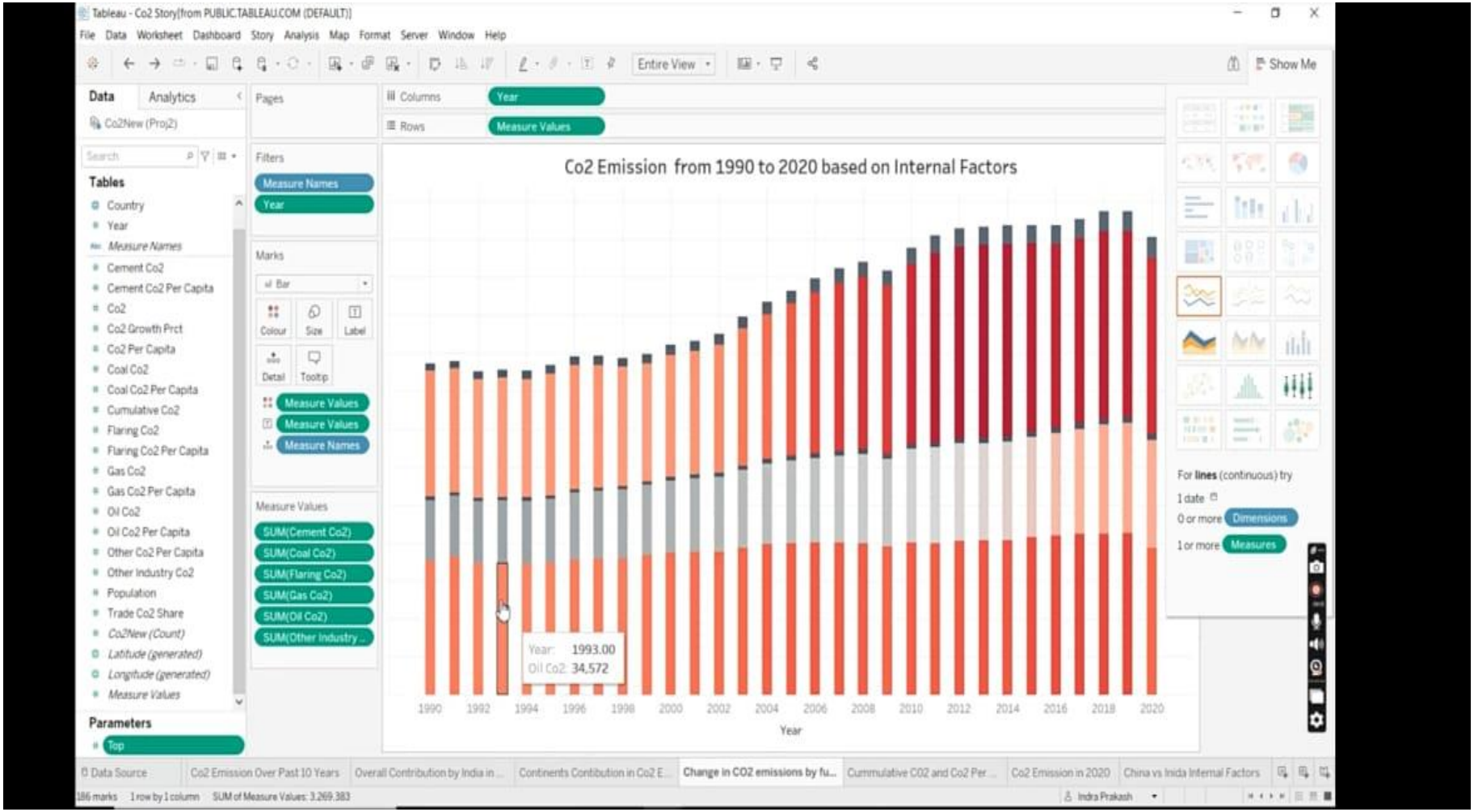


Tableau - Book2
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
Co2 (Pd)
Search
Tables
Country
Year
Measure Names
Cement Co2
Cement Co2 Per Capita
Co2 (Co2)
Co2 Growth Prct
Co2 Per Capita
Coal Co2
Coal Co2 Per Capita
Cumulative Co2
Flaring Co2
Flaring Co2 Per Capita
Gas Co2
Gas Co2 Per Capita
Oil Co2
Oil Co2 Per Capita
Other Co2 Per Capita
Other Industry Co2
Population
Trade Co2 Share
Co2 (Count)
Latitude (generated)
Longitude (generated)
Measure Values
Parameters
Top
Pages
Filters
Country
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Columns
Country
Rows
CNTD(Coal Co2)
Coal Co2
Sheet 3
Country
Coal Co2
45
40
35
30
25
20
15
10
5
0
Africa
Antarc..
Asia
Europe
North ..
Oceania
South..
Data Source
Sheet 1
Sheet 2
Sheet 3
7 marks
1 row by 7 columns
SUM of CNTD(Coal Co2): 277

Milestone 4:

Activity 1:



Activity 2 :

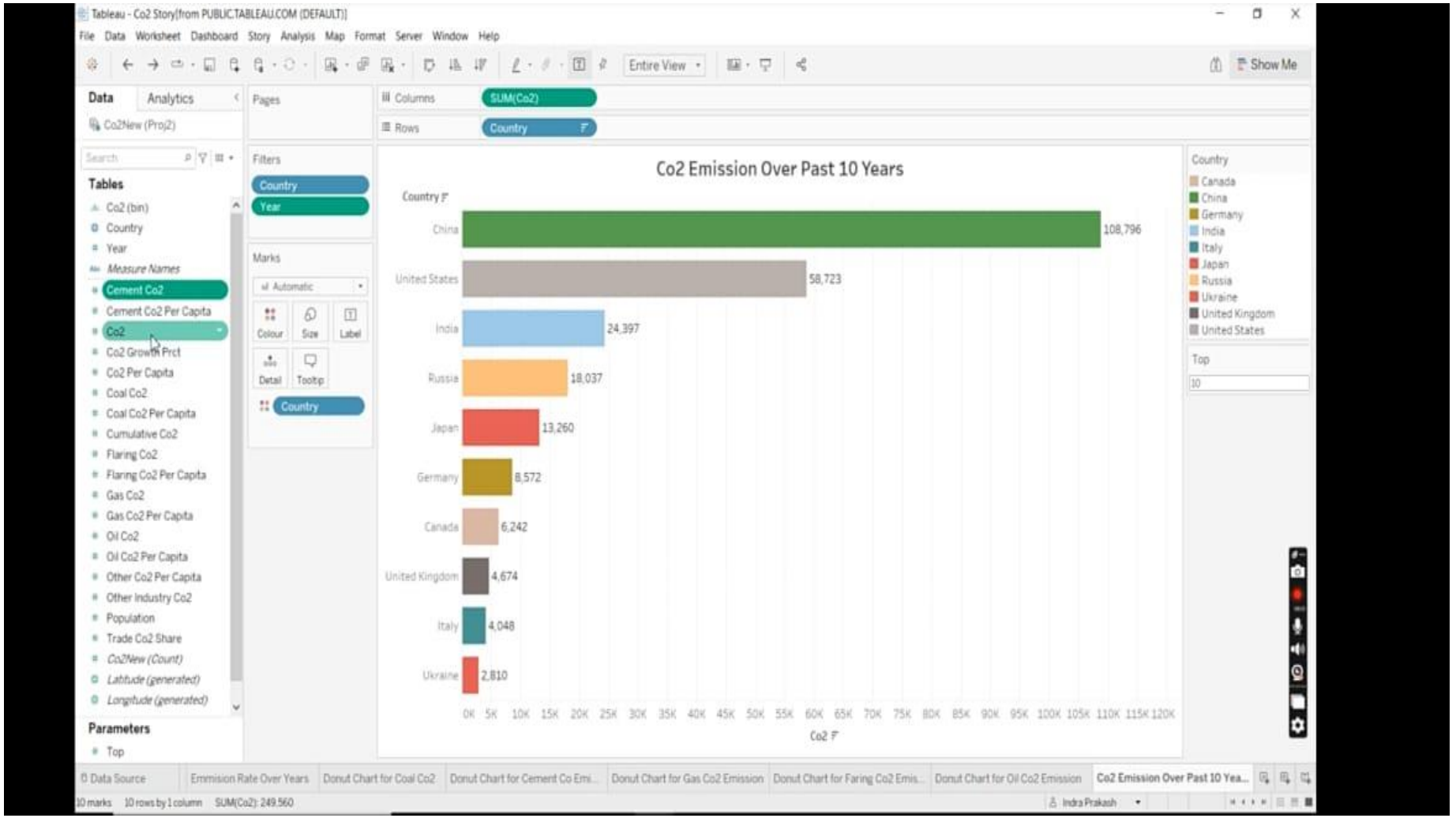
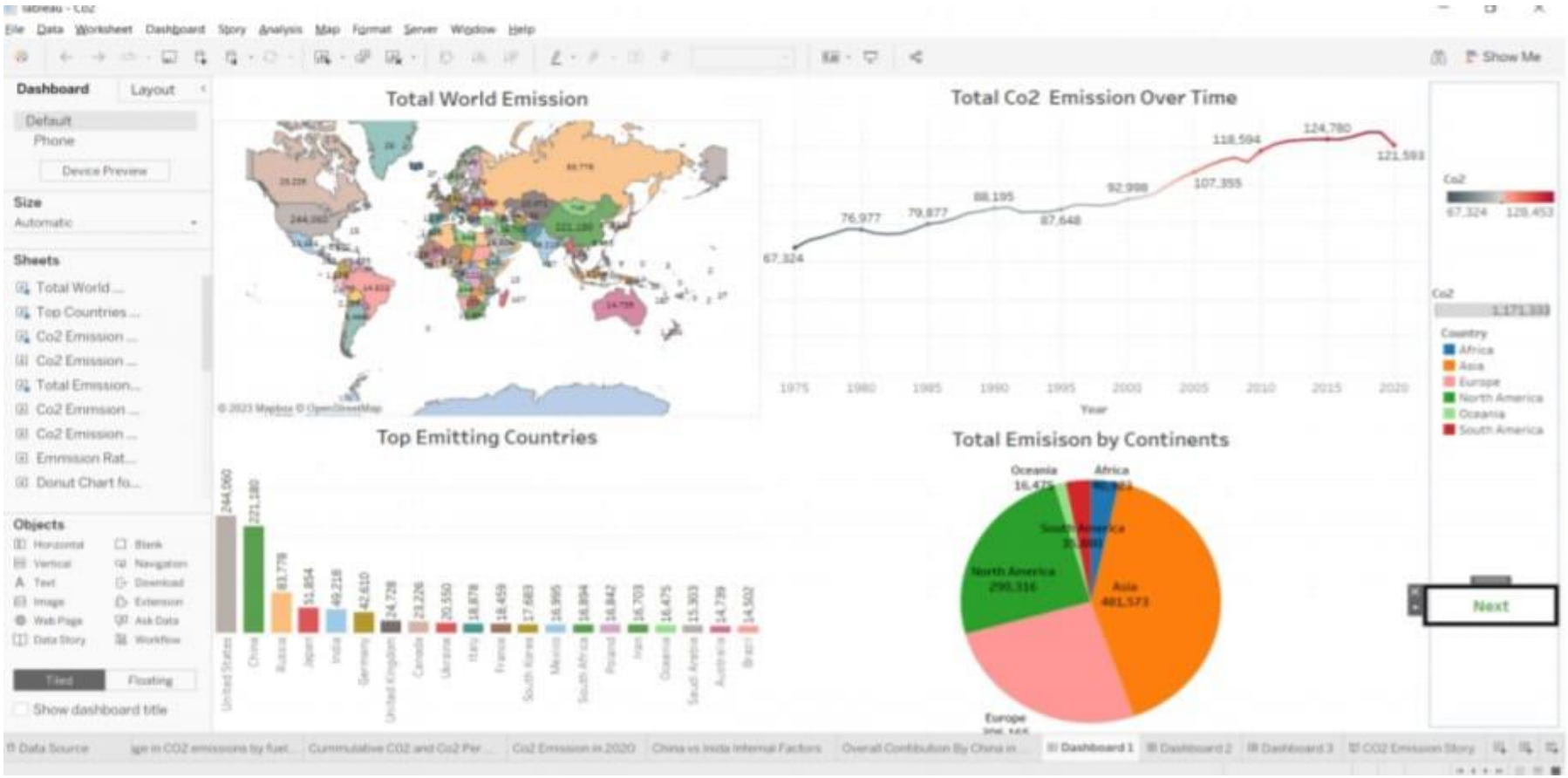


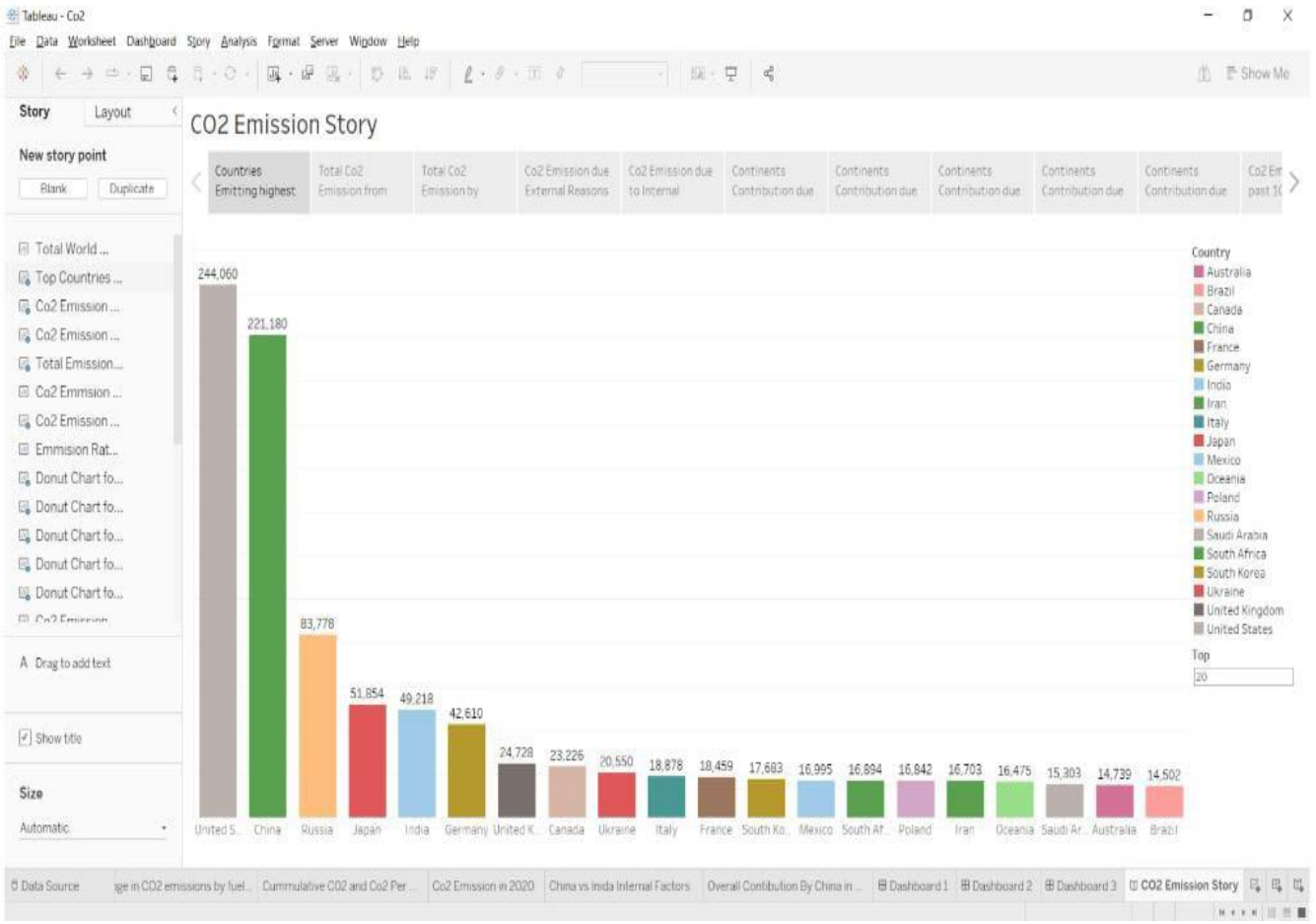
Tableau - Co2 Story(from PUBLIC.TABLEAU.COM (DEFAULT))
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Entire View
Show Me
Data
Analytics
Co2New (Proj2)
Tables
Co2 (bin)
Country
Year
Measure Names
Cement Co2
Cement Co2 Per Capita
Co2
Co2 Growth Prct
Co2 Per Capita
Coal Co2
Coal Co2 Per Capita
Cumulative Co2
Flaring Co2
Flaring Co2 Per Capita
Gas Co2
Gas Co2 Per Capita
Oil Co2
Oil Co2 Per Capita
Other Co2 Per Capita
Other Industry Co2
Population
Trade Co2 Share
Co2New (Count)
Latitude (generated)
Longitude (generated)
Parameters
Top
Pages
Filters
Country
Year
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Country
Columns
SUM(Co2)
Rows
Country
Co2 Emission Over Past 10 Years
Country
China
United States
India
Russia
Japan
Germany
Canada
United Kingdom
Italy
Ukraine
108,796
58,723
24,397
18,037
13,260
8,572
6,242
4,674
4,048
2,810
0K 5K 10K 15K 20K 25K 30K 35K 40K 45K 50K 55K 60K 65K 70K 75K 80K 85K 90K 95K 100K 105K 110K 115K 120K
Co2
Country
Canada
China
Germany
India
Italy
Japan
Russia
Ukraine
United Kingdom
United States
Top
10
Data Source
Emmision Rate Over Years
Donut Chart for Coal Co2
Donut Chart for Cement Co Emi...
Donut Chart for Gas Co2 Emission
Donut Chart for Faring Co2 Emis...
Donut Chart for Oil Co2 Emission
Co2 Emission Over Past 10 Yea...
10 marks
10 rows by 1 column
SUM(Co2): 249,560
Indra Prakash

Milestone 5 : Dashboard
Activity 1



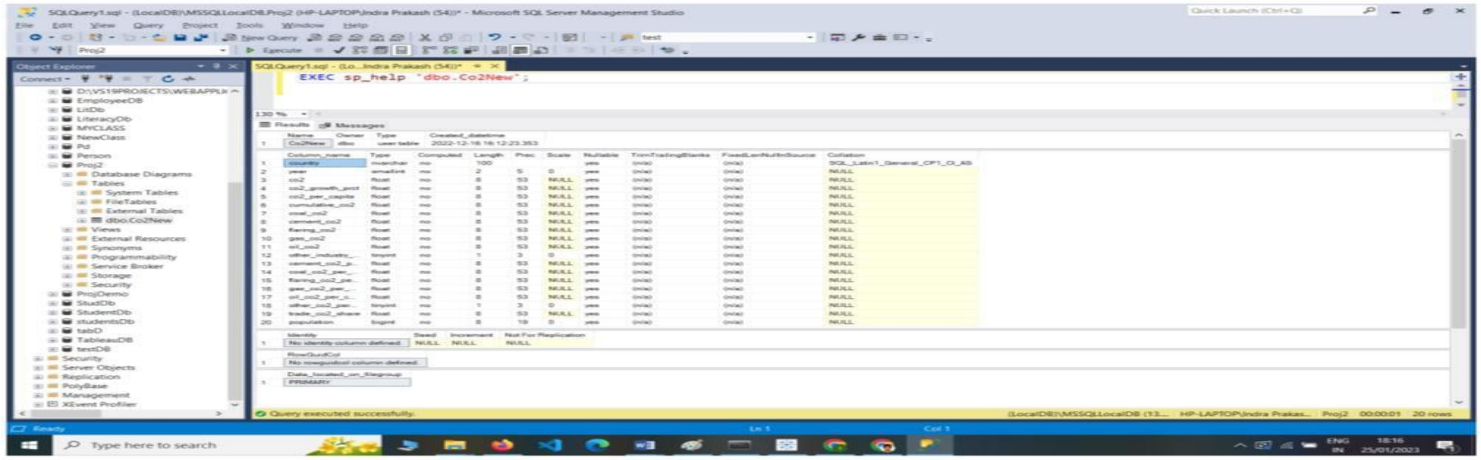
Milestone 6: Story

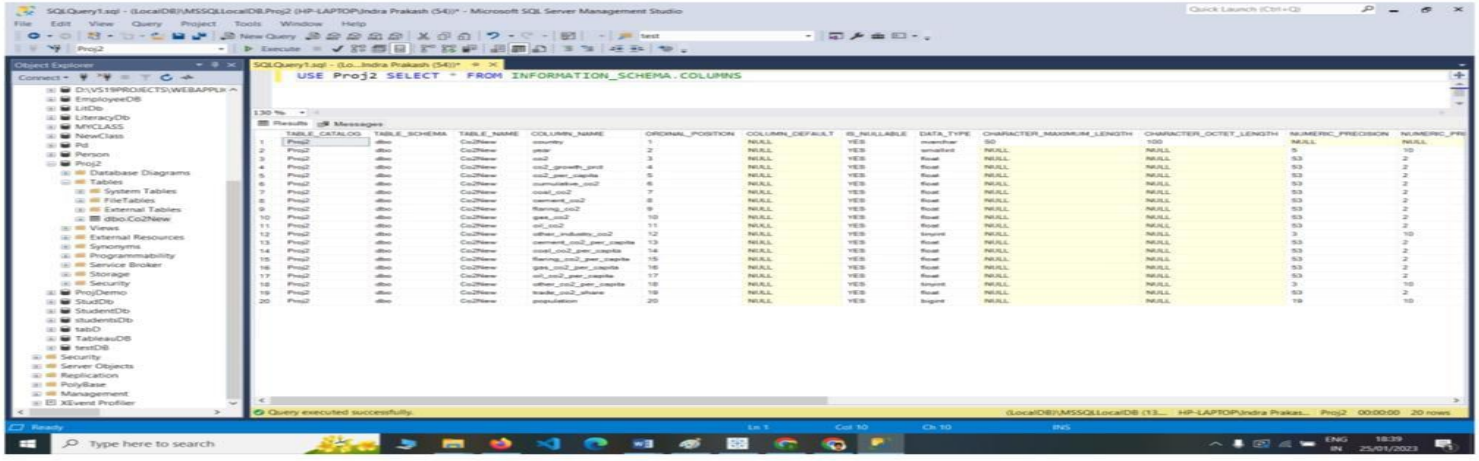
Activity 1:



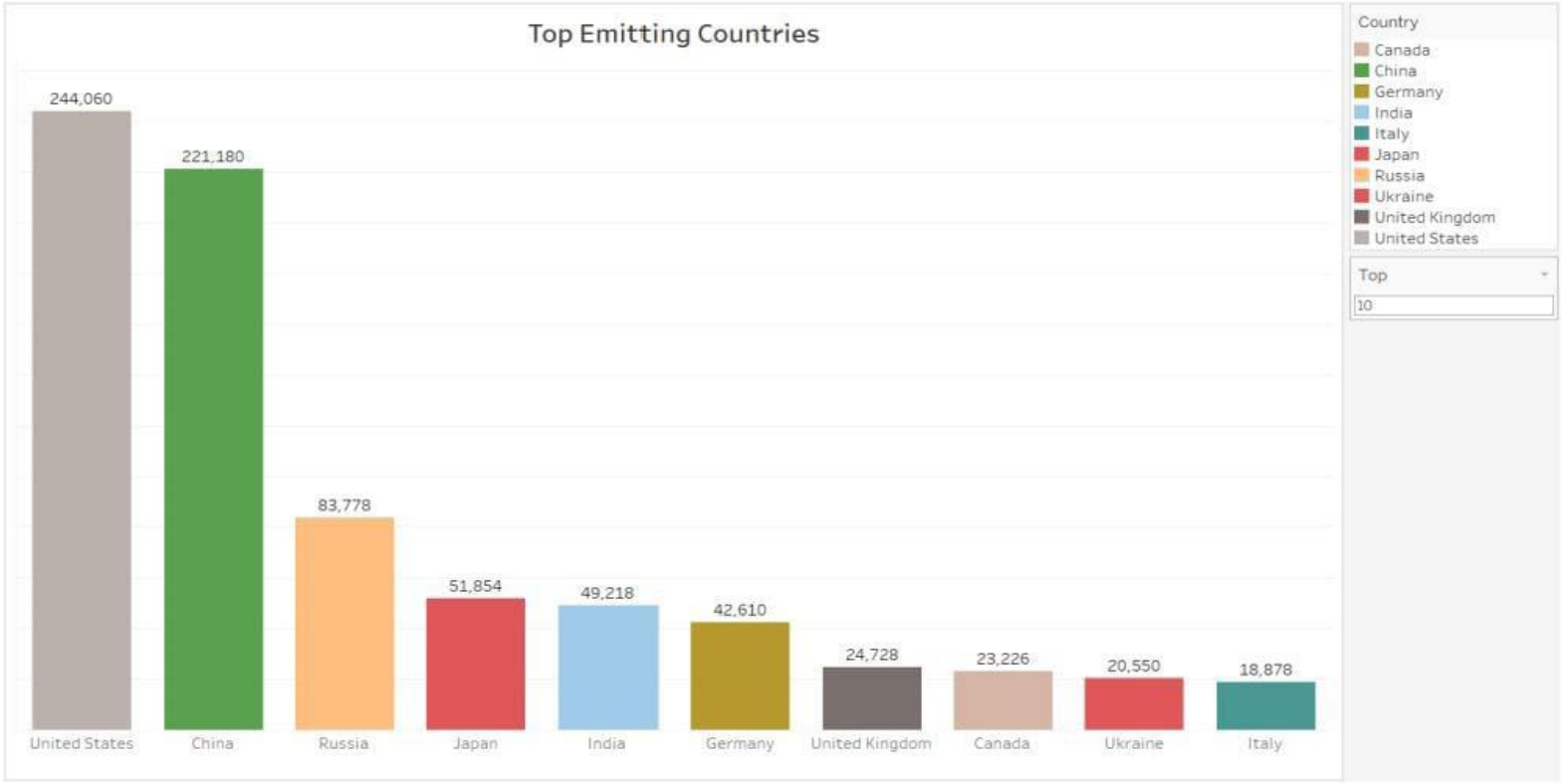
Milestone 7: Performance Testing

Activity 1:





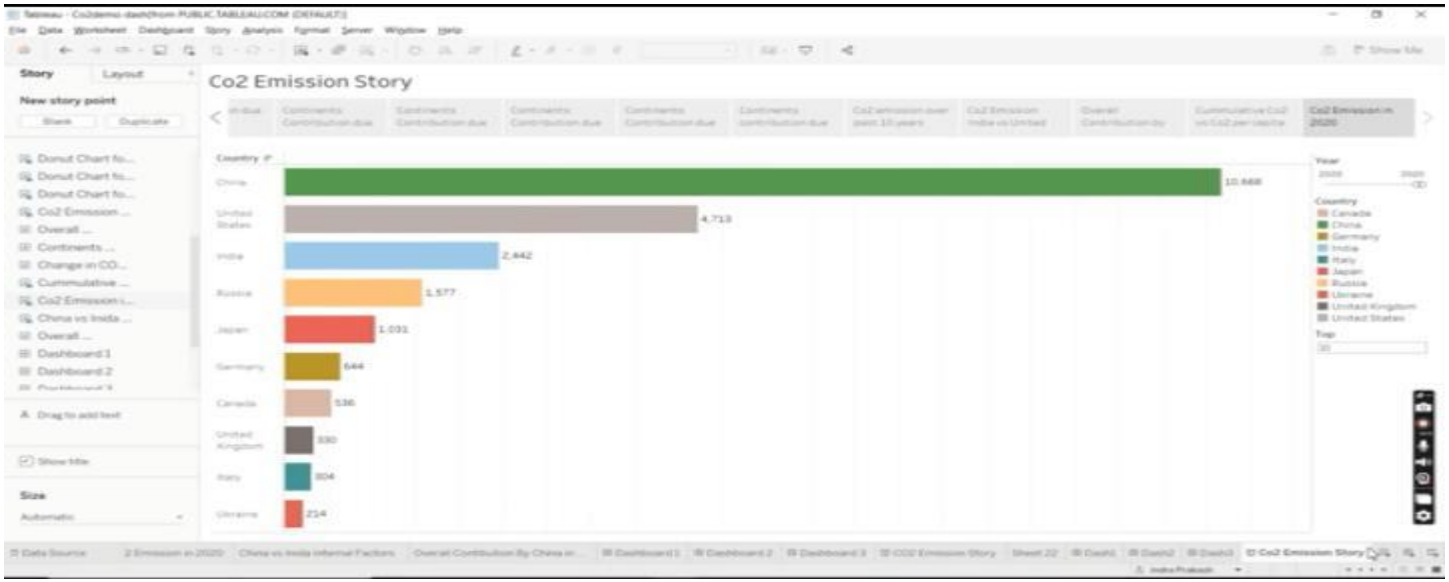
Activity 2:

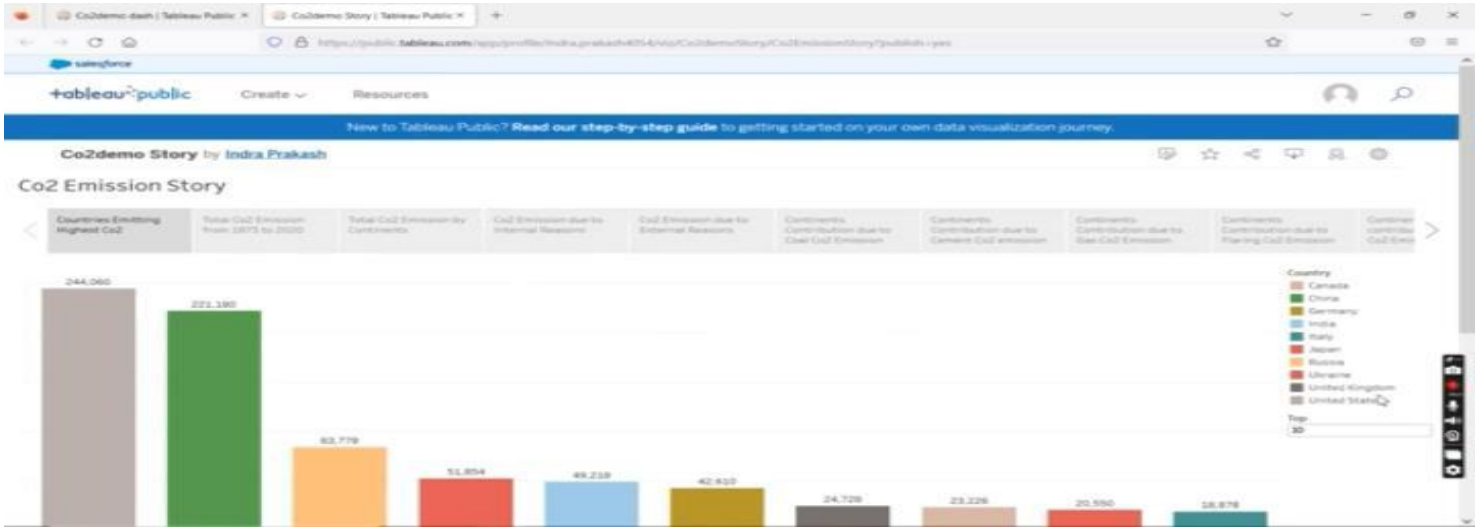

Top Emitting Countries
244,060
221,180
83,778
51,854
49,218
42,610
24,728
23,226
20,550
18,878
United States
China
Russia
Japan
India
Germany
United Kingdom
Canada
Ukraine
Italy
Country
Canada
China
Germany
India
Italy
Japan
Russia
Ukraine
United Kingdom
United States
Top
10

Activity 3 :

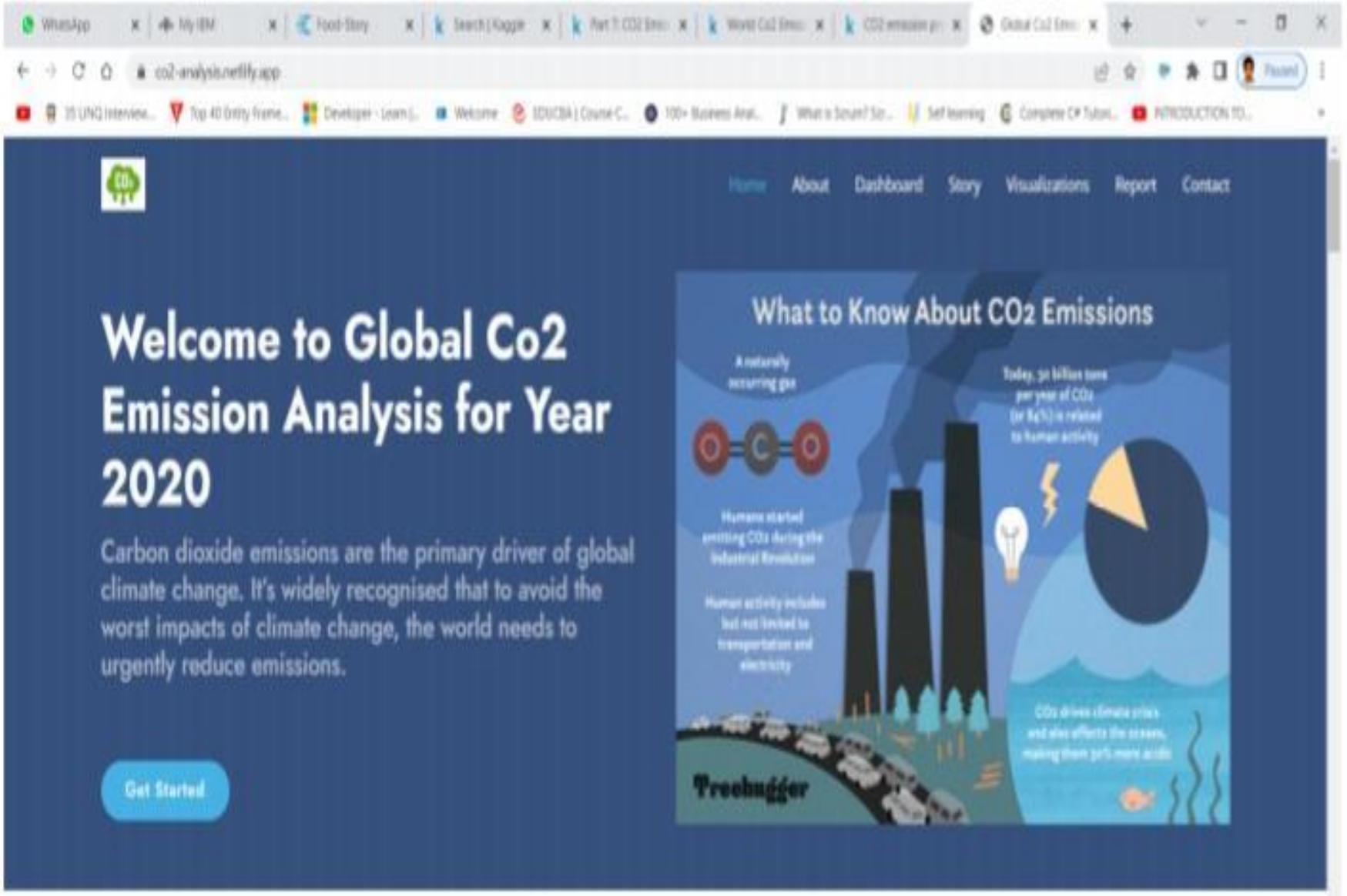
- 1. Top World Emission
- 2. Top Emitting Countries
- 3. Co2 Emission over Time
- 4. Co2 Emission India vs USA
- 5. Total Emission by Continents
- 6. Co2 Emission per Capita
- 7. Co2 Emission by International Factors
- 8. Emission Rate over Years
- 9. Donut Charts-Coal Co2,Cement Co2,Gas Co2,Oil Co2
- 10. Co2 Emission over past 10 years
- 11. Continent Contribution in Co2 Emission
- 12. Cumulative Co2 and Co2 per Capita
- 13. Co2 Emission in 2020
- 14. China vs India Co2 emission due to internal factors
- 15. Overall Contribution by China in Co2 Emission

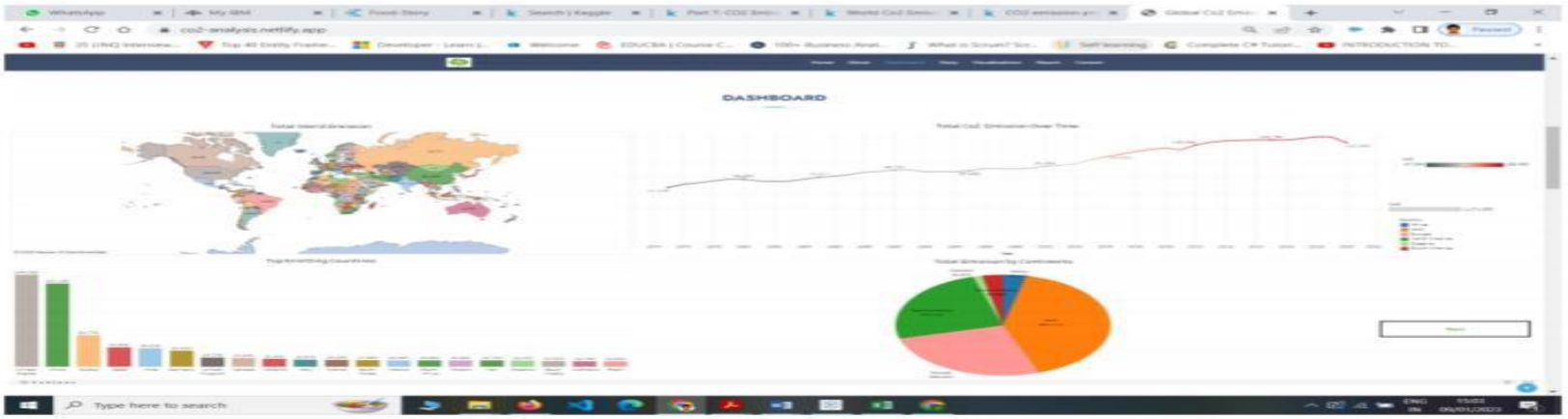
Milestone 8: Web integration

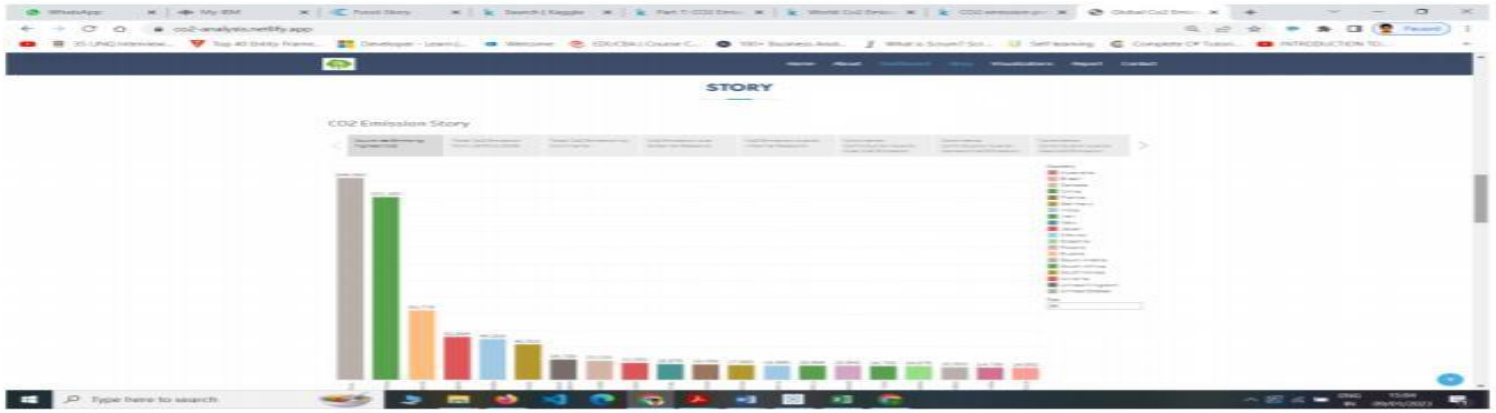


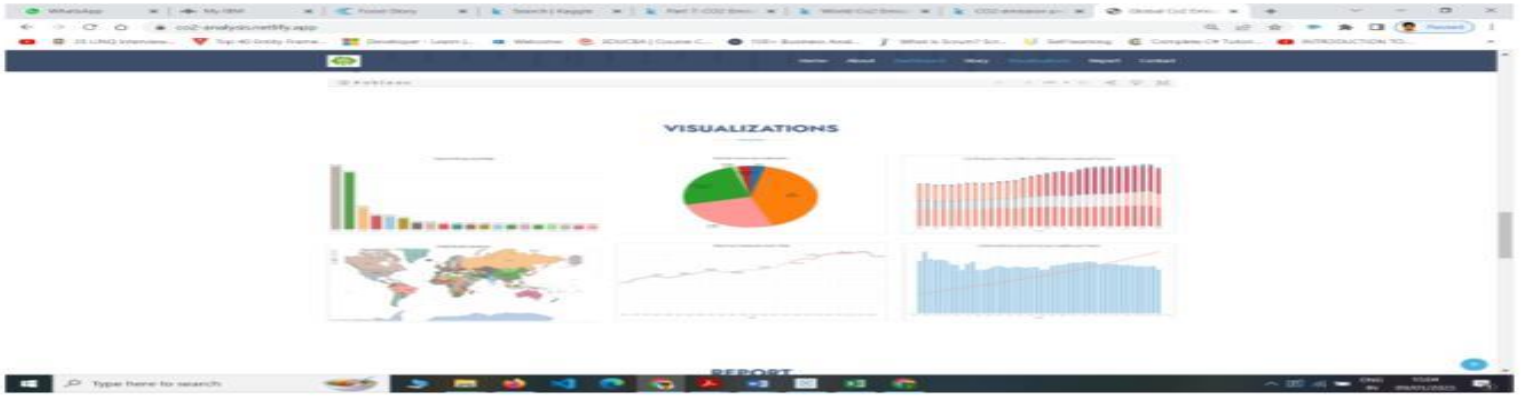


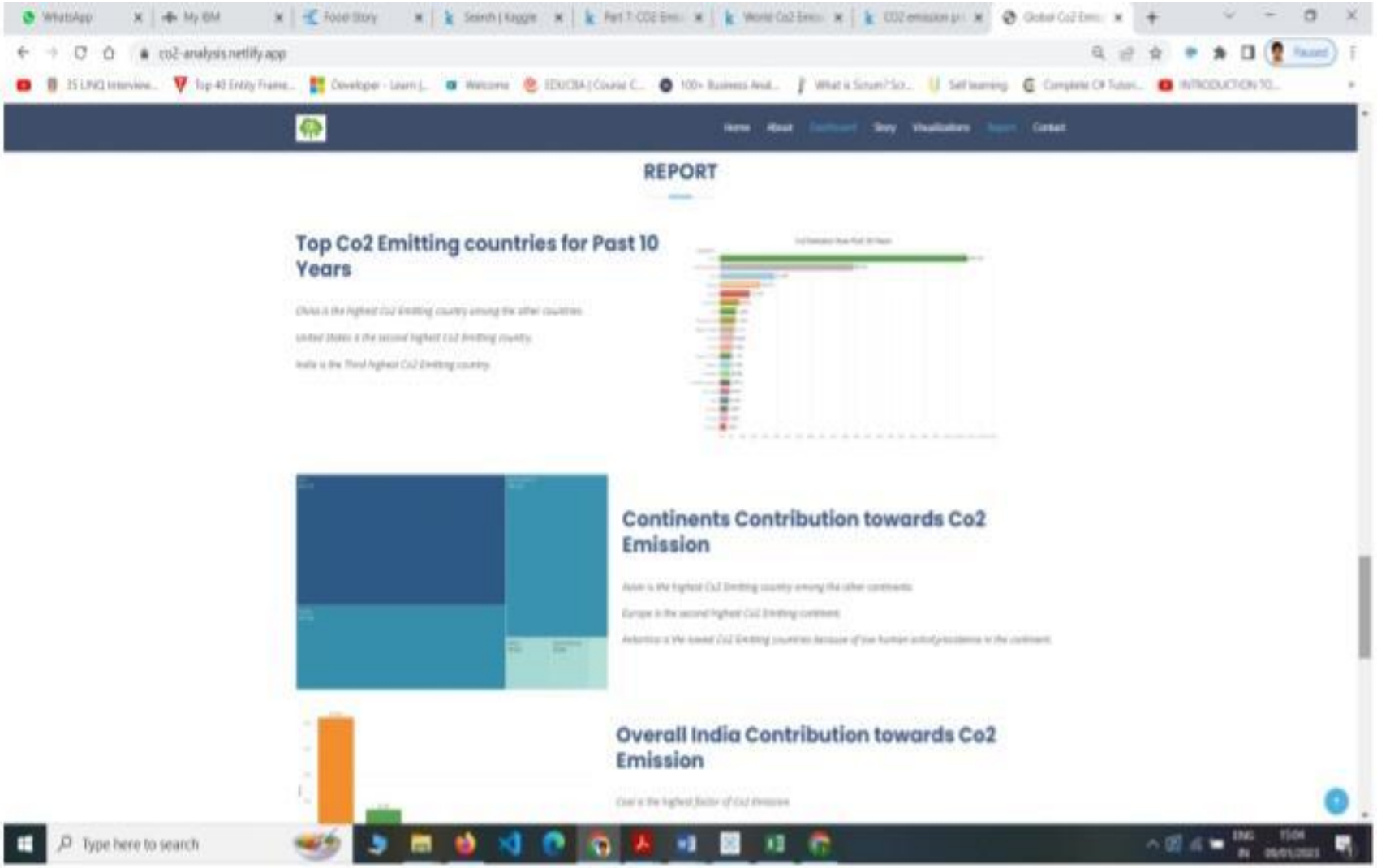
Activity 1:


co2-analysis.netlify.app
Home
About
Dashboard
Story
Visualizations
Report
Contact
Welcome to Global Co2 Emission Analysis for Year 2020
Carbon dioxide emissions are the primary driver of global climate change. It's widely recognised that to avoid the worst impacts of climate change, the world needs to urgently reduce emissions.
Get Started
What to Know About CO2 Emissions
A naturally occurring gas
Humans started emitting CO2 during the Industrial Revolution
Human activity includes but not limited to transportation and electricity
Today, 32 billion tons per year of CO2 (or 84%) is related to human activity
CO2 drives climate crisis and also affects the oceans, making them 30% more acidic
Treehugger


DASHBOARD


STORY
CO2 Emission Story


VISUALIZATIONS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Home
About
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Visualizations
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Contact
REPORT
Top Co2 Emitting countries for Past 10 Years
China is the highest Co2 Emitting country among the other countries
United States is the second highest Co2 Emitting country
India is the Third highest Co2 Emitting country
Continents Contribution towards Co2 Emission
Asian is the highest Co2 Emitting country among the other continents
Europe is the second highest Co2 Emitting continent
Antartica is the lowest Co2 Emitting countries because of low human activity/existence in the continent
Overall India Contribution towards Co2 Emission
Coal is the highest factor of Co2 emission
Type here to search

Advantages:

GREENHOUSE EFFECT PROMOTES LIFE

Greenhouse gases keep our planet liveable by holding onto some of Earth's heat energy so that it does not all escape into space. This heat-trapping is known as the greenhouse effect. The greenhouse effect helps to maintain a certain temperature level on Earth's surface, making it habitable for living beings. Thanks to the greenhouse gases, the earth is warm enough to sustain life.

PROTECTION FROM DANGER

Greenhouse gases protect all living things on Earth from dangerous solar radiation. They block those parts of the solar radiation which are harmful to our existence and bounce them back into the atmosphere. The greatest example is that of UV or UltraViolet radiation. Ozone, which is one of the main greenhouse gases, acts as a shield against the UV rays entering the earth. In the absence of the ozone layer, there will be no resistance to the UV rays, and they would reach us directly

Disadvantages:

GLOBAL WARMING

This is by far the greatest disadvantage of the greenhouse effect. Global warming is the long-term warming of the planet's overall temperature. Though this warming trend has been going on for a long time, its pace has significantly increased in the last hundred years due to the burning of fossil fuels. As the human population continues to increase, so has the volume of fossil fuels being burnt.

RISE IN SEA LEVELS

As the Earth continues to warm due to the greenhouse gases, water heats up and expands causing sea levels to rise. The effects of sea-level rise are already being felt, and the forecasts are not very hopeful. First, **water is increasingly invading coastal areas**, causing soil erosion and threatening farmland, housing, or recreation areas. The flooding of wetlands and pollution of aquifers also occur, affecting the flora and fauna of each place, causing the loss of habitat for fish, birds, plants, and many other species.

CONCLUSION :

- The building sector plays a significant part in the emissions of CO_2 globally. The tremendous production and release of CO_2 have led to severe consequences and repercussions contributing to climate change. The adverse effects of the non-sustainable built environment have not only put a strain on the environment but also have affected humanity.

Description:

- CO_2 emissions act like a blanket in the air, trapping heat in the atmosphere, and warming up the Earth.

- This layer prevents the Earth from cooling, and thus raises global temperatures

- Global warming would affect environmental conditions, food and water supplies, weather pattern, and sea levels.

Thank You