CHRISTOPHER ARTS & SCIENCE COLLEGE (WOMEN)

KALAKAD ROAD, SURANGUDI, NANGUNERI (TLK), TIRUNELVELI-627108.

III B.Sc PHYSICS

DATA ANALYTICS WITH TABLEAU

PROJECT TITLE: PLUGGING INTO THE FUTURE: AN EXPLORATION OF ELECTRICITY CONSUMPTION PATTERNS

INTRODUCTION:

Energy efficiency and conservation have numerous benefits for both the environment and human health.it can reduce the demand for nuclear power as well as for fossil fuels such as coal, oil, natural gas and propane. saving electricity look like a difficult task due to the nature of electricity, which remains invisible right from its discovery and perhaps due to consumers attitude and behavior. This will drive consumers to pay more attention to unnecessary use to electricity and most probably change their everyday behavior.The use of best available technology with best practice behaviour has been estimated to reduce consumption by 1300kwh/year per European households.This can be achieved through proper education and knowledge on basic features of electricity.Using tableau and MYSQL software we analyse and the energy consumption patterns for overall states.

1.OVERVIEW:

- **(i)** Define the problem/Problem understanding
- **(ii)** Data collection & Exaction from database
- **(iii)** Data preparation
- **(iv)** Data visualization
- **(v)** Dashboard
- **(vi)** Story
- **(vii)** Web integration
- **(viii)** Project demonstration & Documentation

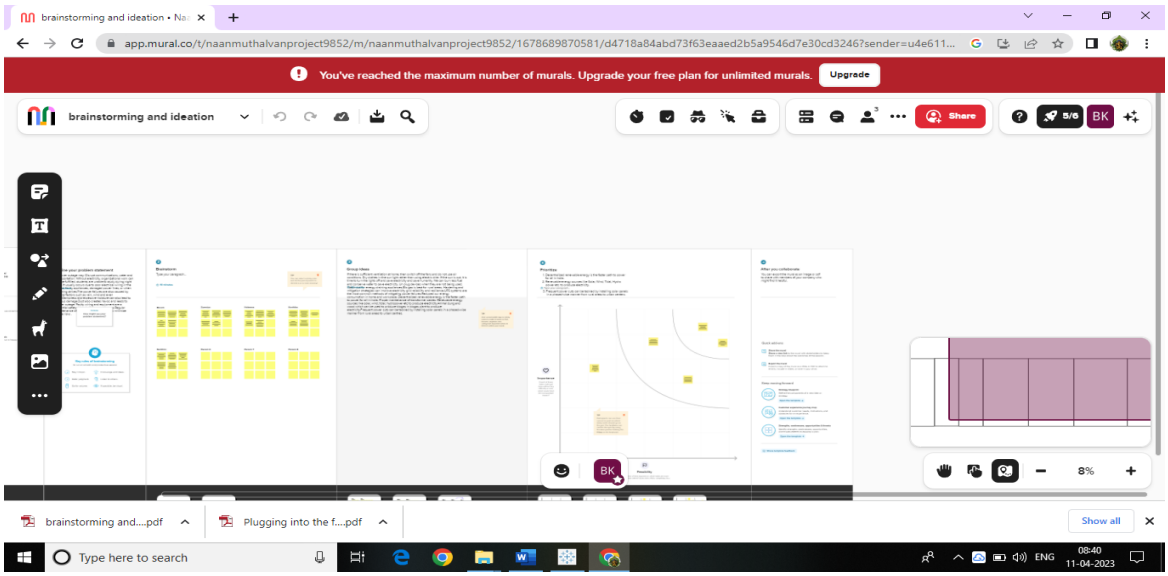
2. PURPOSE:

We analyze the electricity consumption patterns for different states and region in

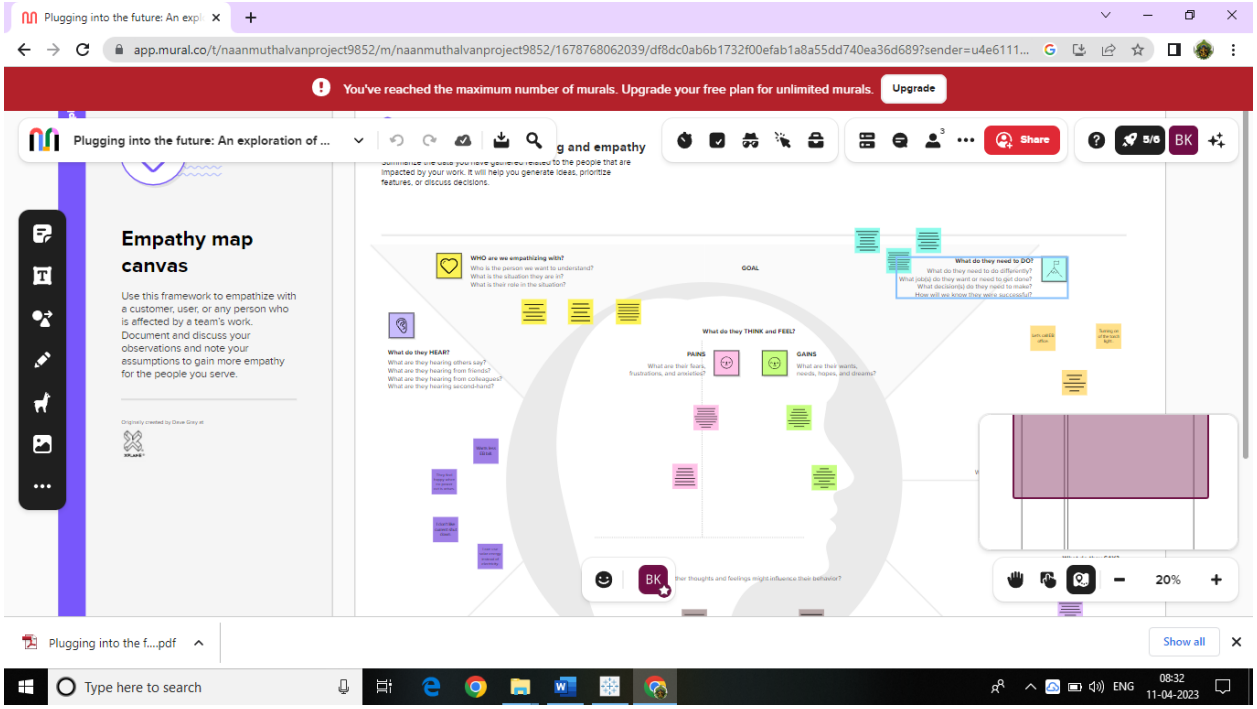
2019 & 2020 before and after lockdown.

2.Problem defining and design thinking

2.1. Empathy Map

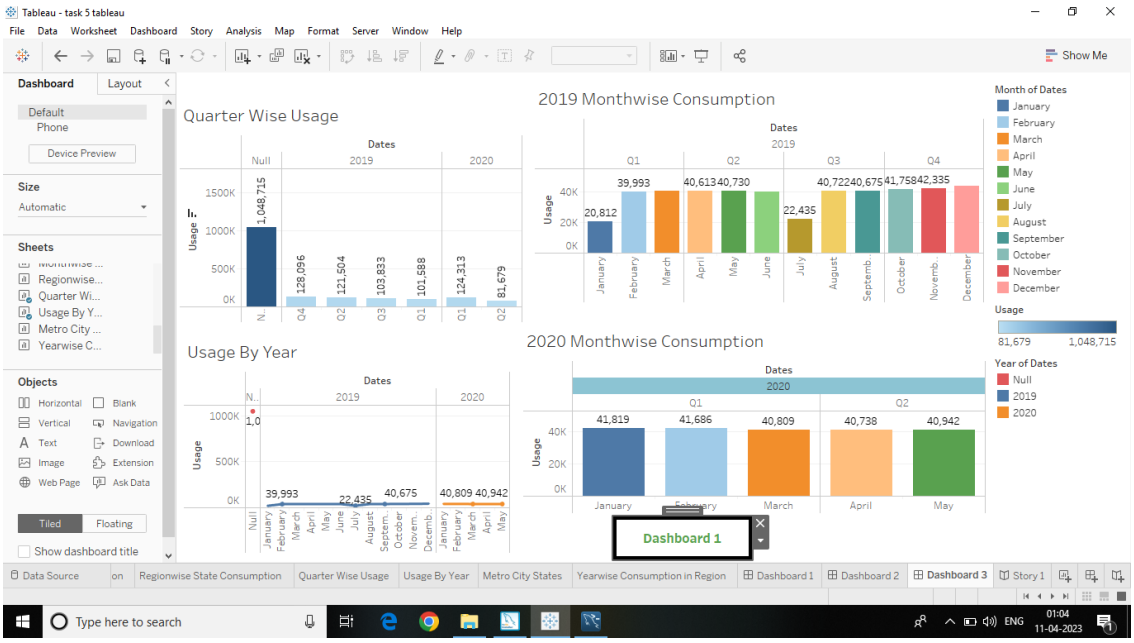


2.2 Indexation & Brainstorming:

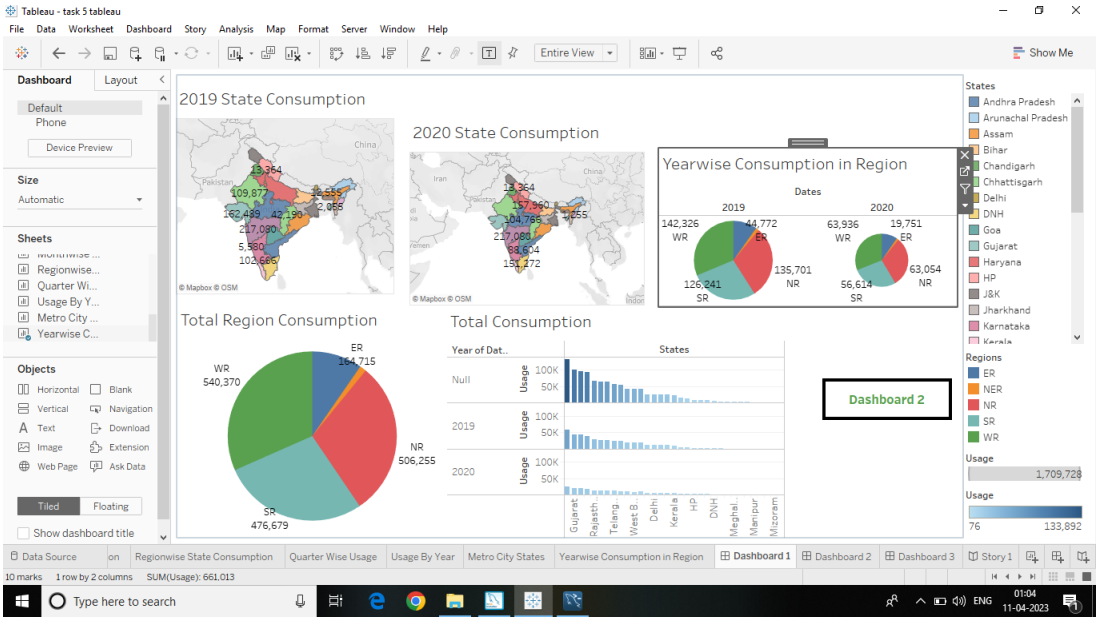


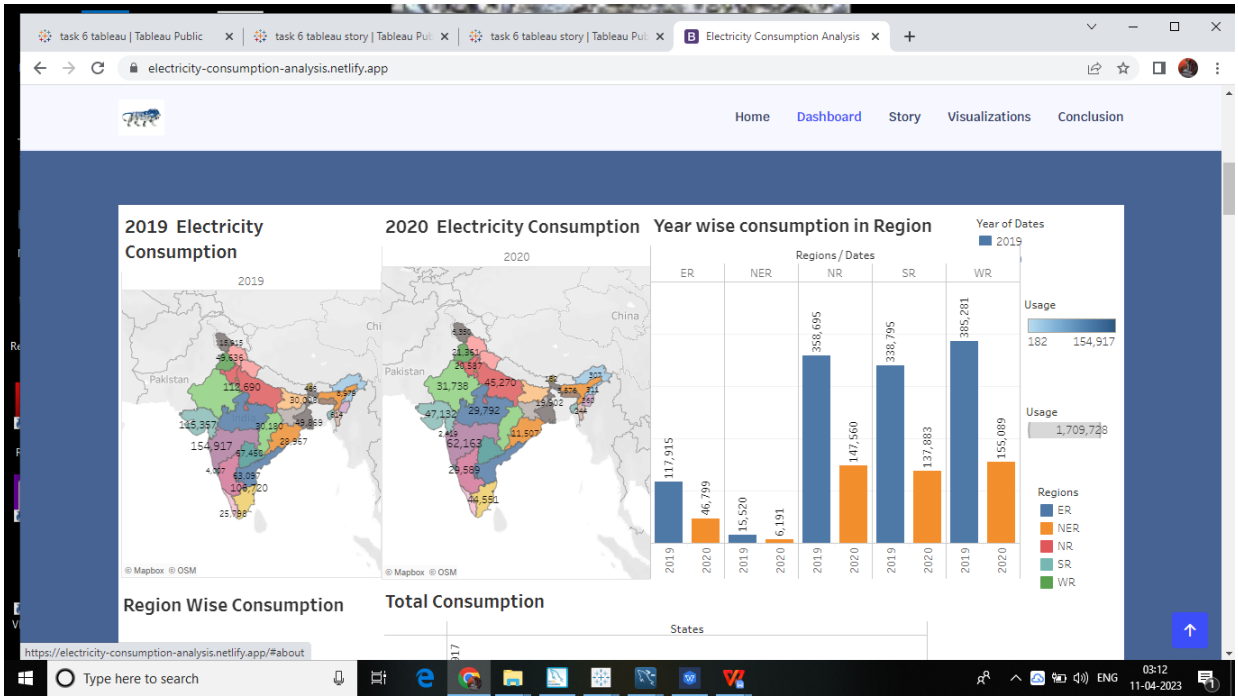
3.Results:

Dashboard 1



Dashboard 2




task 6 tableau | Tableau Public
task 6 tableau story | Tableau Pu
task 6 tableau story | Tableau Pu
Electricity Consumption Analysis
electricity-consumption-analysis.netlify.app
Home
Dashboard
Story
Visualizations
Conclusion
2019 Electricity Consumption
2020 Electricity Consumption
Year wise consumption in Region
Year of Dates
2019
Regions / Dates
ER
NER
NR
SR
WR
Usage
182
154,917
1,709,728
Regions
Region Wise Consumption
Total Consumption
States
https://electricity-consumption-analysis.netlify.app/#about
Type here to search
ENG
03:12
11-04-2023

Dashboard 3

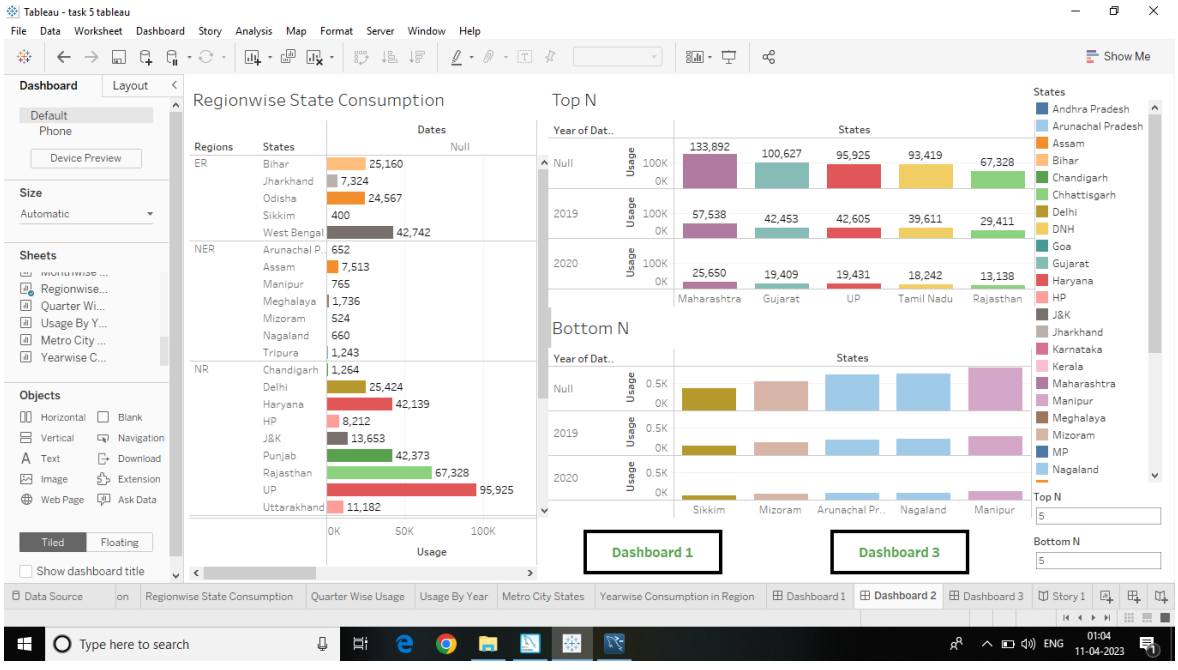


Tableau - task 5 tableau
File
Data
Worksheet
Dashboard
Story
Analysis
Map
Format
Server
Window
Help
Show Me
Dashboard
Layout
Regionwise State Consumption
Top N
Bottom N
States
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Delhi
DNH
Goa
Gujarat
Haryana
HP
J&K
Jharkhand
Karnataka
Kerala
Maharashtra
Manipur
Meghalaya
Mizoram
MP
Nagaland
Dashboard 1
Dashboard 3
Type here to search
ENG
01:04
11-04-2023

Stories

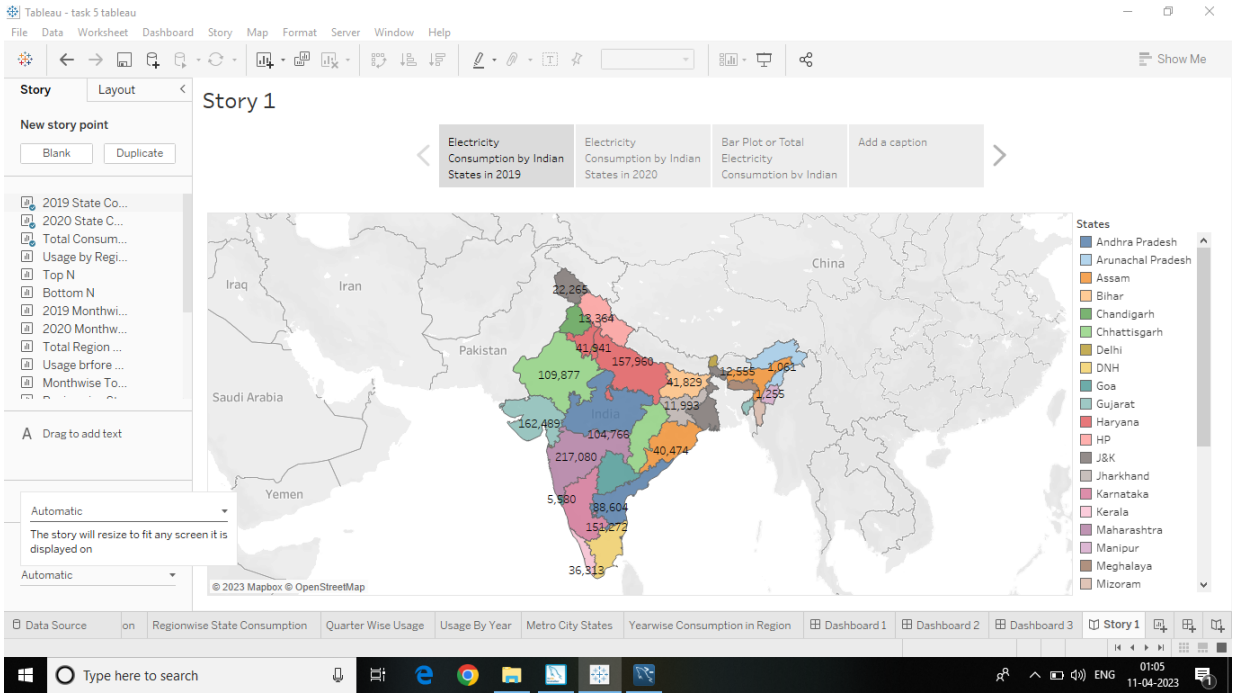


Tableau - task 5 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
Story 1
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Add a caption
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Automatic
The story will resize to fit any screen it is displayed on
Automatic
China
Iraq
Iran
Pakistan
Saudi Arabia
India
Yemen
12,265
13,364
41,941
157,960
109,877
41,829
12,555
1,061
1,295
11,993
162,489
104,766
40,474
217,080
5,580
88,604
151,272
36,313
© 2023 Mapbox © OpenStreetMap
States
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Delhi
DNH
Goa
Gujarat
Haryana
HP
J&K
Jharkhand
Karnataka
Kerala
Maharashtra
Manipur
Meghalaya
Mizoram
Data Source
Regionwise State Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story 1
Type here to search
ENG
01:05
11-04-2023

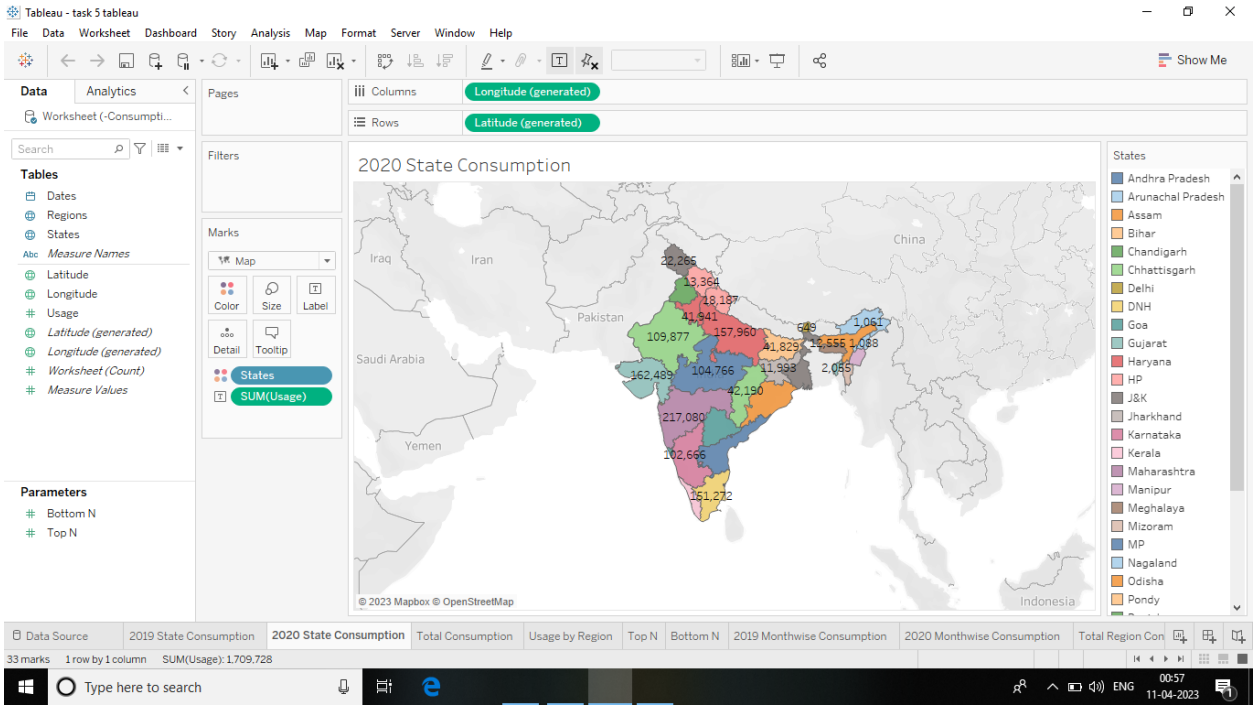


Tableau - task 5 tableau
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Data
Analytics
Worksheet (-Consumpti...
Search
Tables
Dates
Regions
States
Measure Names
Latitude
Longitude
Usage
Latitude (generated)
Longitude (generated)
Worksheet (Count)
Measure Values
Parameters
Bottom N
Top N
Pages
Filters
Marks
Map
Color
Size
Label
Detail
Tooltip
States
SUM(Usage)
Columns
Longitude (generated)
Rows
Latitude (generated)
2020 State Consumption
China
Iraq
Iran
Pakistan
Saudi Arabia
Yemen
Indonesia
22,265
13,364
18,187
41,941
157,960
109,877
41,829
549
1,061
15,555
1,088
2,085
11,993
162,489
104,766
42,190
217,080
102,666
151,272
© 2023 Mapbox © OpenStreetMap
States
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Delhi
DNH
Goa
Gujarat
Haryana
HP
J&K
Jharkhand
Karnataka
Kerala
Maharashtra
Manipur
Meghalaya
Mizoram
MP
Nagaland
Odisha
Pondy
Data Source
2019 State Consumption
2020 State Consumption
Total Consumption
Usage by Region
Top N
Bottom N
2019 Monthwise Consumption
2020 Monthwise Consumption
Total Region Con
33 marks
1 row by 1 column
SUM(Usage): 1,709,728
Type here to search
ENG
00:57
11-04-2023

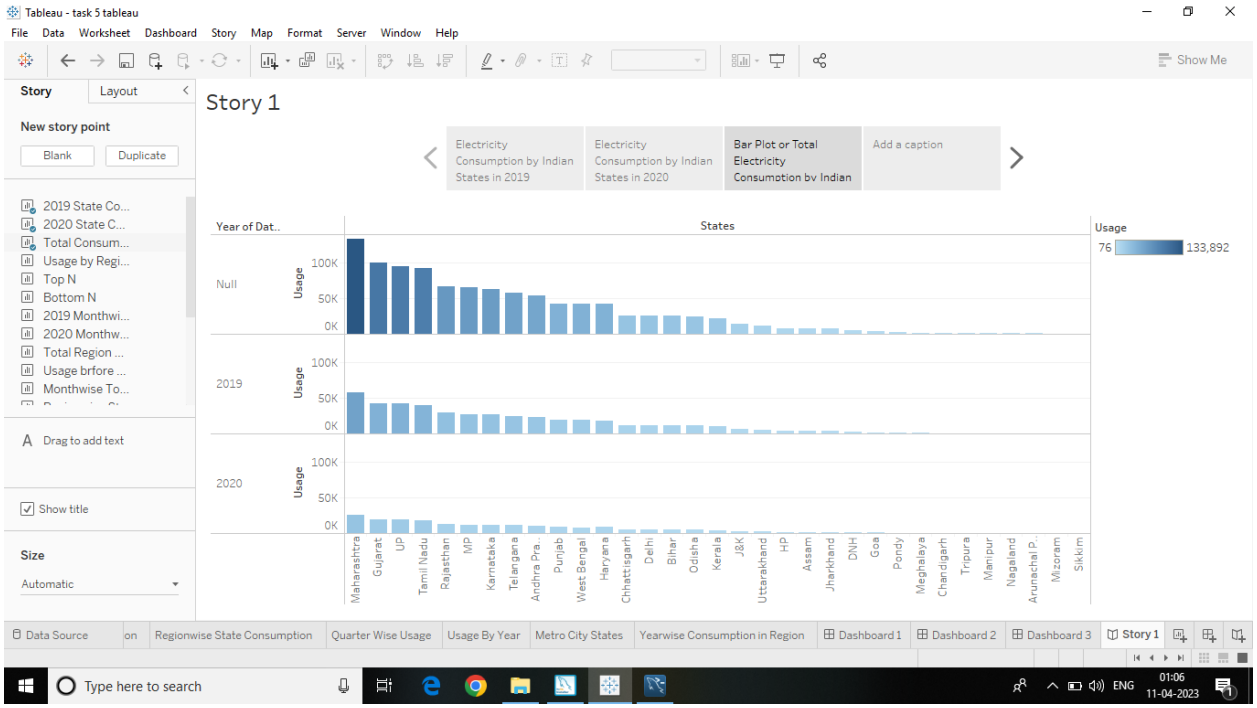


Tableau - task 5 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story 1
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Add a caption
Year of Dat..
States
Usage
76
133,892
Null
2019
2020
100K
50K
0K
Maharashtra
Gujarat
UP
Tamil Nadu
Rajasthan
MP
Karnataka
Telangana
Andhra Pra.
Punjab
West Bengal
Haryana
Chhattisgarh
Delhi
Bihar
Odisha
Kerala
J&K
Uttarakhand
HP
Assam
Jharkhand
DNH
Goa
Pondy
Meghalaya
Chandigarh
Tripura
Manipur
Nagaland
Arunachal P..
Mizoram
Sikkim
Data Source
Regionwise State Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story 1
Type here to search
ENG
01:06
11-04-2023

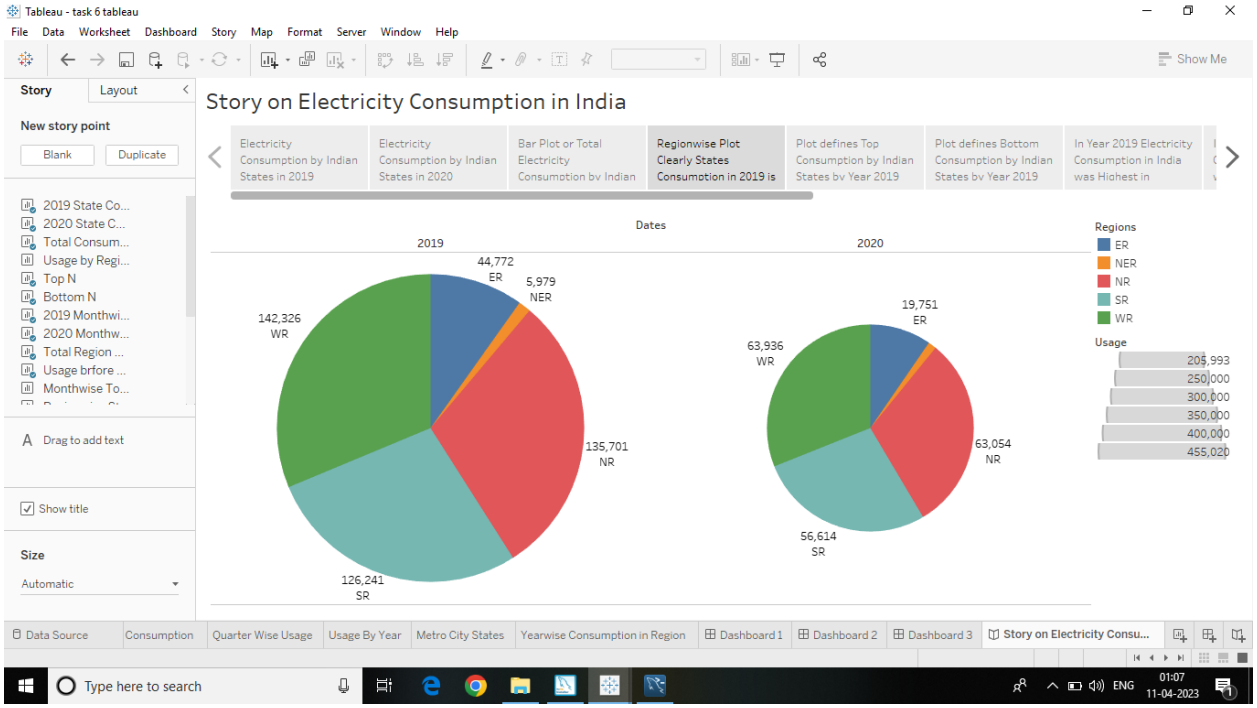


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
Dates
2019
2020
44,772
ER
5,979
NER
142,326
WR
135,701
NR
126,241
SR
19,751
ER
63,936
WR
63,054
NR
56,614
SR
Regions
ER
NER
NR
SR
WR
Usage
205,993
250,000
300,000
350,000
400,000
455,020
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:07
11-04-2023

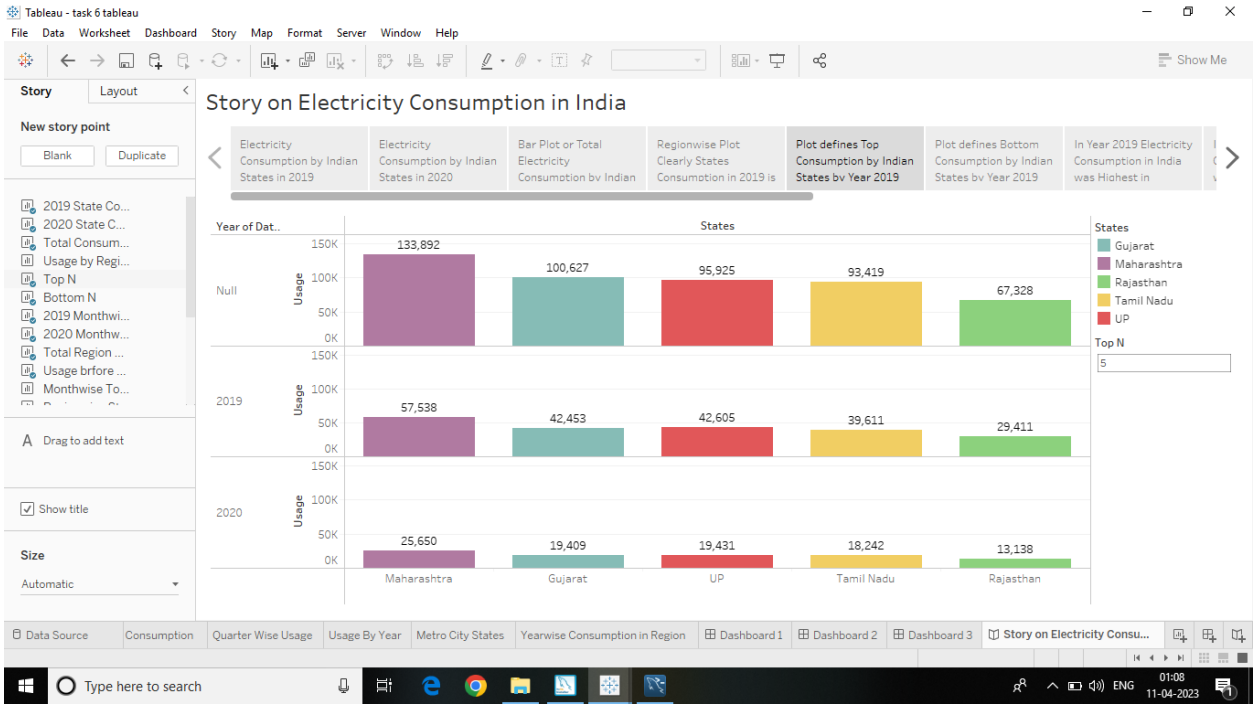


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
Year of Dat..
States
Null
2019
2020
Usage
150K
100K
50K
0K
133,892
100,627
95,925
93,419
67,328
57,538
42,453
42,605
39,611
29,411
25,650
19,409
19,431
18,242
13,138
Maharashtra
Gujarat
UP
Tamil Nadu
Rajasthan
States
Gujarat
Maharashtra
Rajasthan
Tamil Nadu
UP
Top N
5
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023

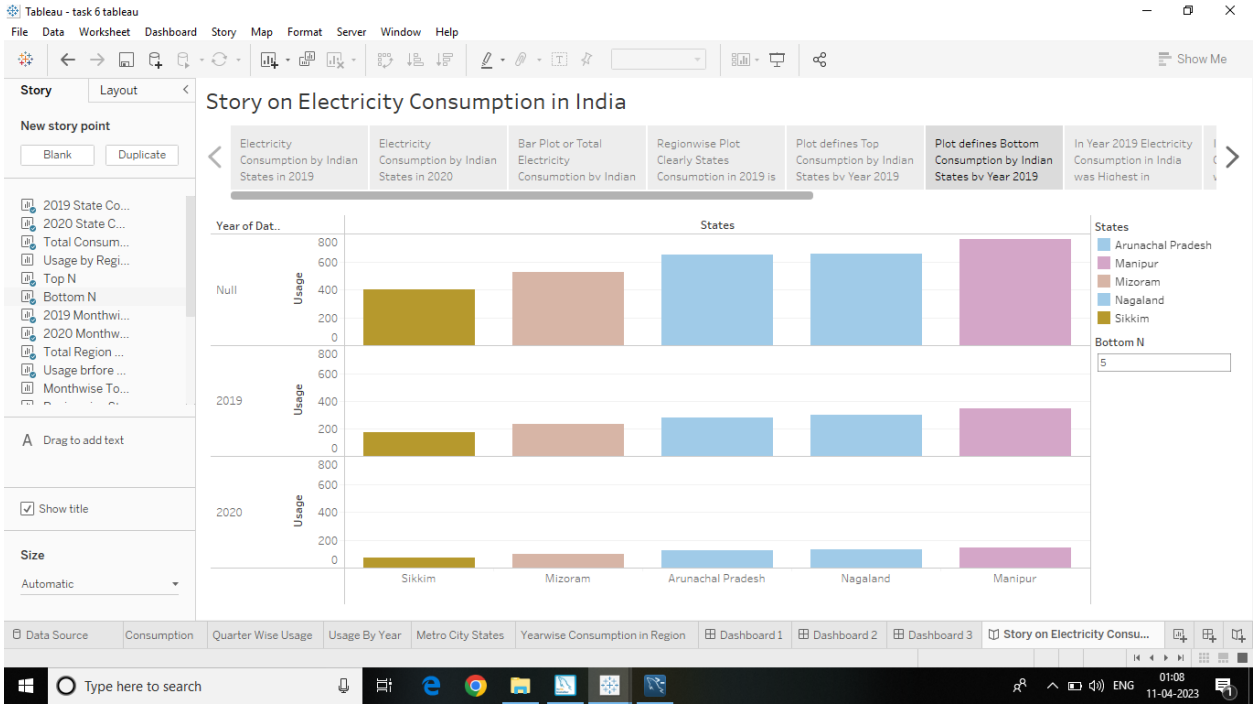


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
Year of Dat..
States
Null
2019
2020
Usage
800
600
400
200
0
Sikkim
Mizoram
Arunachal Pradesh
Nagaland
Manipur
States
Arunachal Pradesh
Manipur
Mizoram
Nagaland
Sikkim
Bottom N
5
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023

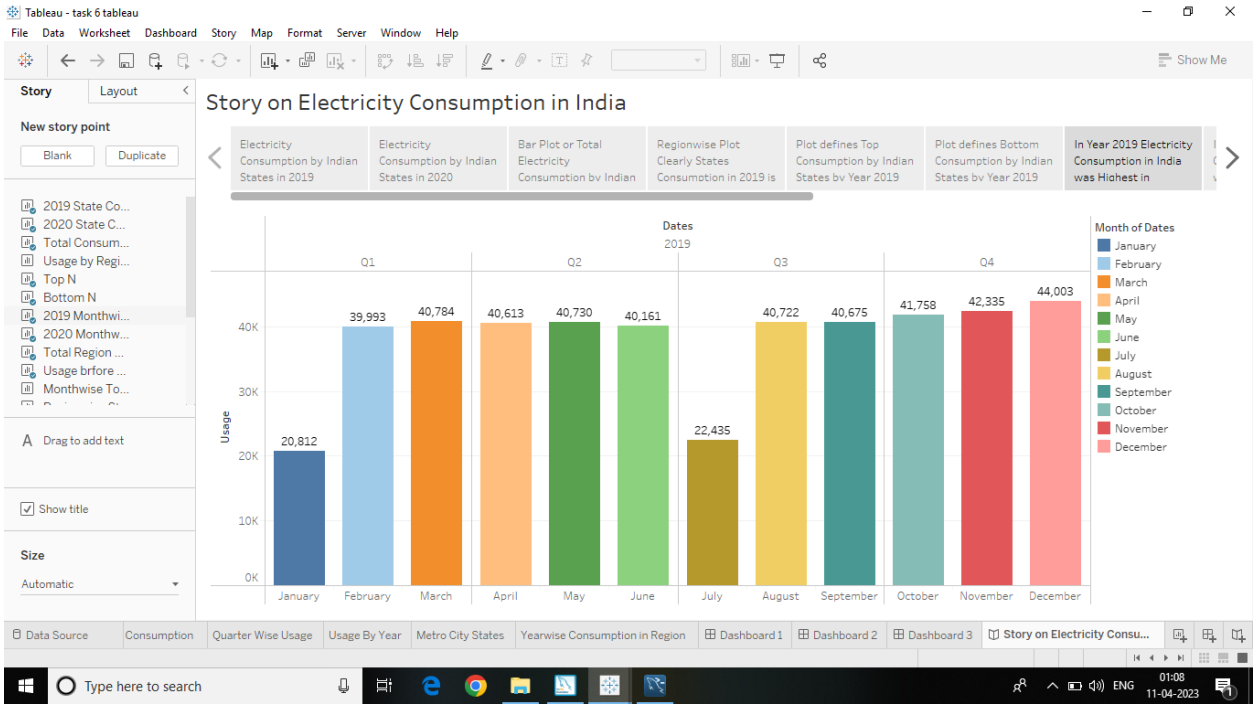
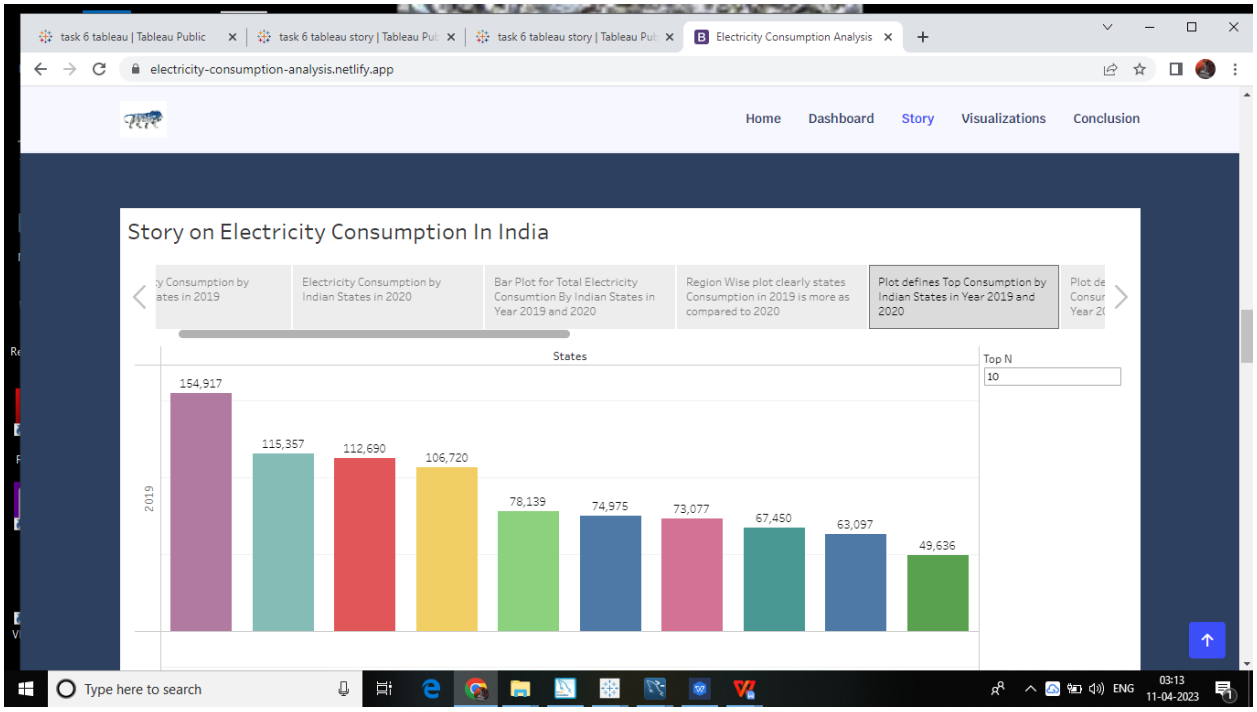


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
Dates
2019
Q1
Q2
Q3
Q4
Usage
0K
10K
20K
30K
40K
20,812
39,993
40,784
40,613
40,730
40,161
22,435
40,722
40,675
41,758
42,335
44,003
January
February
March
April
May
June
July
August
September
October
November
December
Month of Dates
January
February
March
April
May
June
July
August
September
October
November
December
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023


task 6 tableau | Tableau Public
task 6 tableau story | Tableau Pul
task 6 tableau story | Tableau Pul
Electricity Consumption Analysis
electricity-consumption-analysis.netlify.app
Home
Dashboard
Story
Visualizations
Conclusion
Story on Electricity Consumption In India
Electricity Consumption by Indian States in 2020
Bar Plot for Total Electricity Consumtion By Indian States in Year 2019 and 2020
Region Wise plot clearly states Consumption in 2019 is more as compared to 2020
Plot defines Top Consumption by Indian States in Year 2019 and 2020
States
2019
Top N
10
154,917
115,357
112,690
106,720
78,139
74,975
73,077
67,450
63,097
49,636
Type here to search
ENG
03:13
11-04-2023

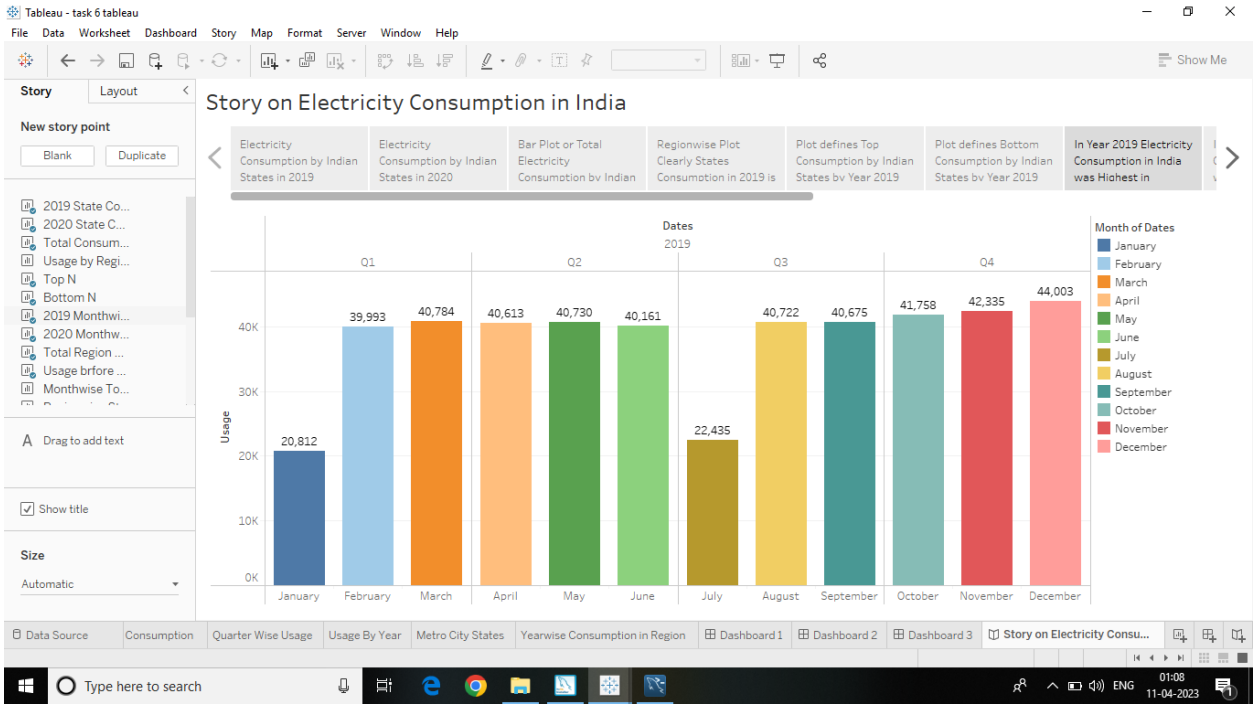


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Electricity Consumption by Indian States in 2019
Electricity Consumption by Indian States in 2020
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
Dates
2019
Q1
Q2
Q3
Q4
Usage
0K
10K
20K
30K
40K
20,812
39,993
40,784
40,613
40,730
40,161
22,435
40,722
40,675
41,758
42,335
44,003
January
February
March
April
May
June
July
August
September
October
November
December
Month of Dates
January
February
March
April
May
June
July
August
September
October
November
December
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023

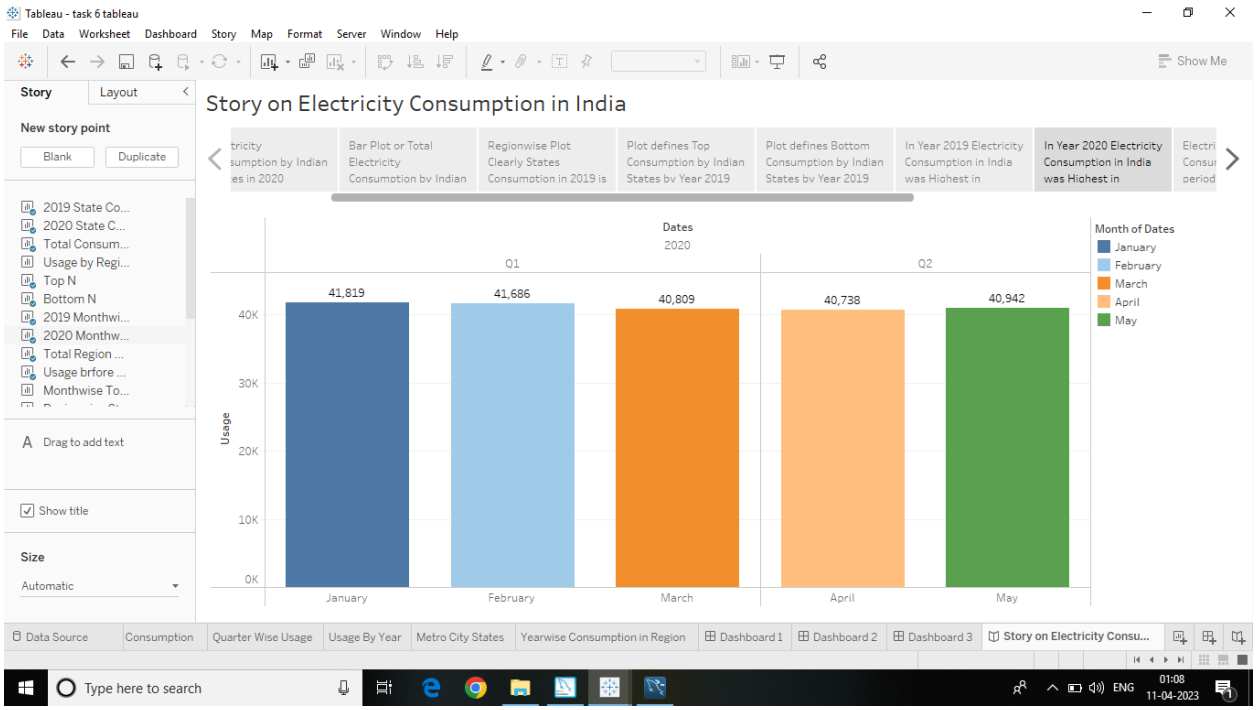


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Bar Plot or Total Electricity Consumption by Indian
Regionwise Plot Clearly States Consumption in 2019 is
Plot defines Top Consumption by Indian States by Year 2019
Plot defines Bottom Consumption by Indian States by Year 2019
In Year 2019 Electricity Consumption in India was Highest in
In Year 2020 Electricity Consumption in India was Highest in
Dates
2020
Q1
Q2
Usage
0K
10K
20K
30K
40K
41,819
41,686
40,809
40,738
40,942
January
February
March
April
May
Month of Dates
January
February
March
April
May
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023

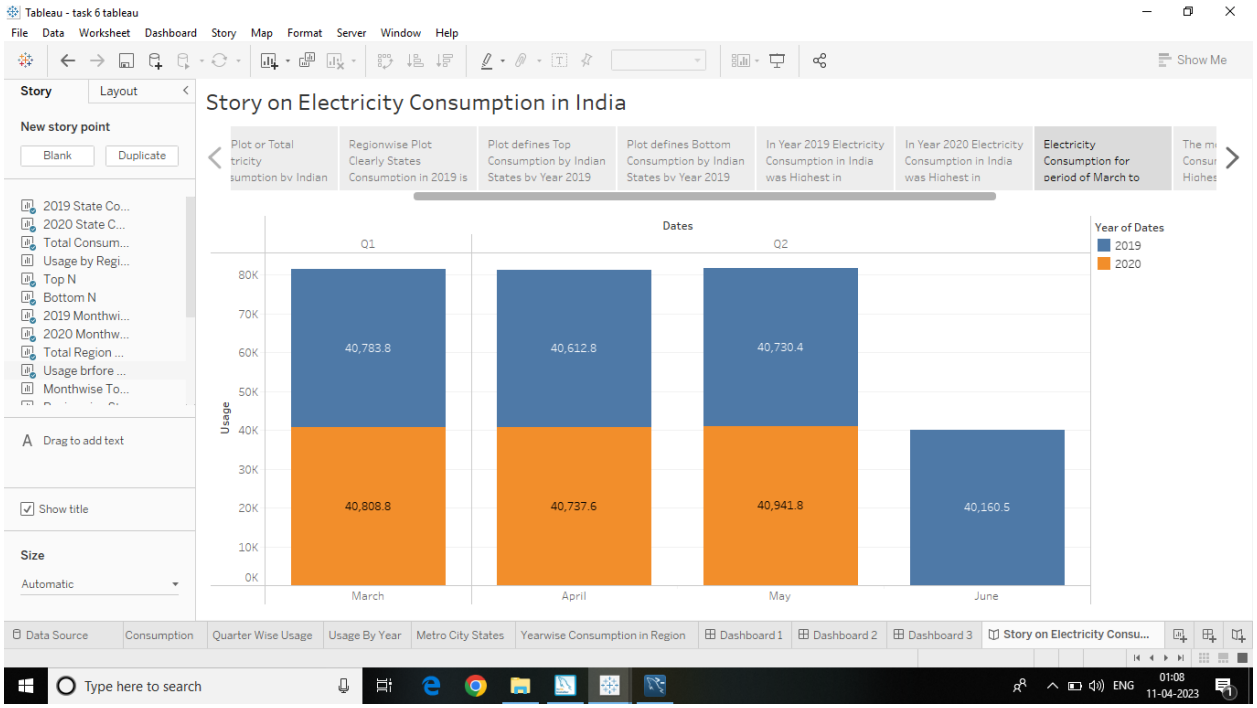


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
Plot or Total tricity sumotion bv Indian
Regionwise Plot Clearly States Consumotion in 2019 is
Plot defines Top Consumption by Indian States bv Year 2019
Plot defines Bottom Consumption by Indian States bv Year 2019
In Year 2019 Electricity Consumption in India was Highest in
In Year 2020 Electricity Consumption in India was Highest in
Electricity Consumption for period of March to
Dates
Q1
Q2
Year of Dates
2019
2020
Usage
80K
70K
60K
50K
40K
30K
20K
10K
0K
40,783.8
40,612.8
40,730.4
40,808.8
40,737.6
40,941.8
40,160.5
March
April
May
June
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023

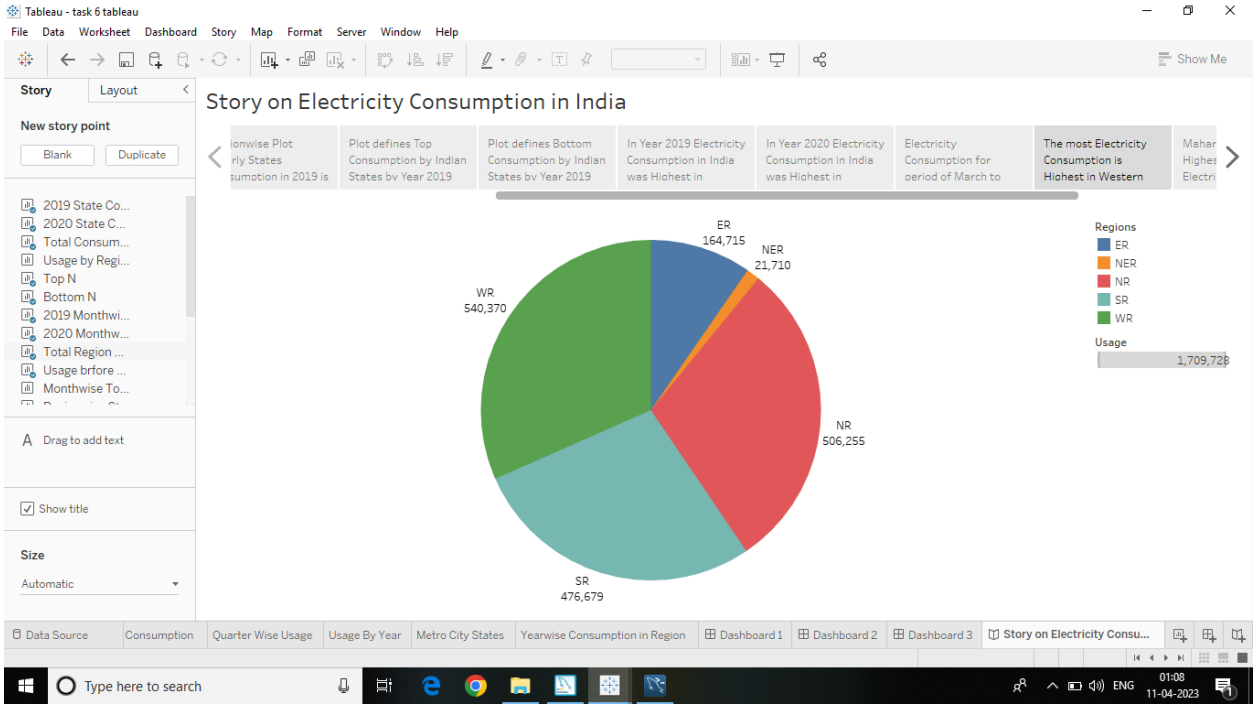
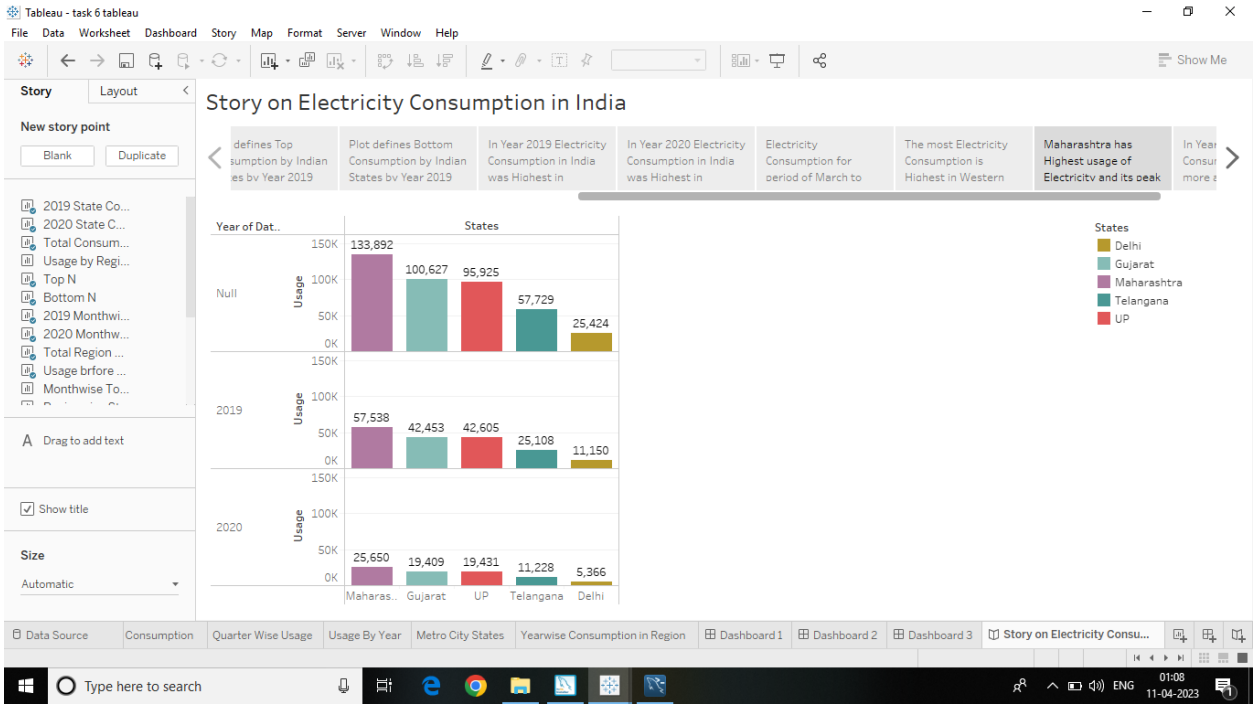
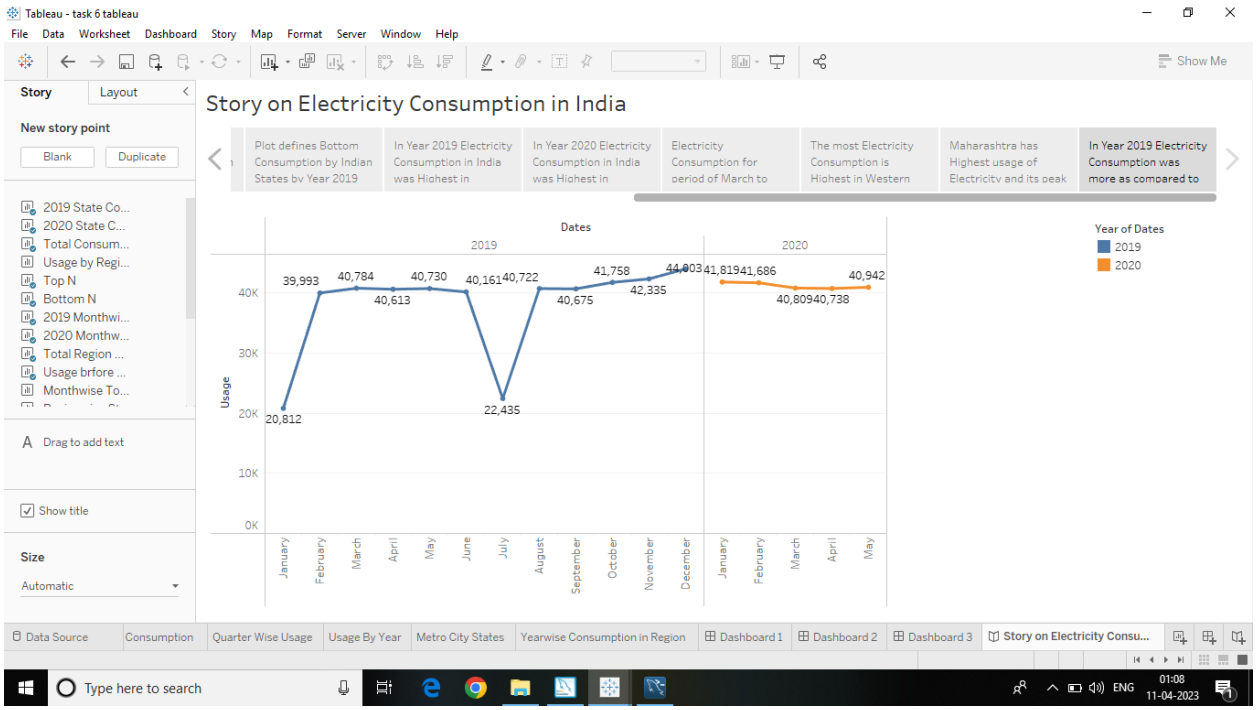


Tableau - task 6 tableau
File Data Worksheet Dashboard Story Map Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
2019 State Co...
2020 State C...
Total Consum...
Usage by Regi...
Top N
Bottom N
2019 Monthwi...
2020 Monthw...
Total Region ...
Usage brfore ...
Monthwise To...
Drag to add text
Show title
Size
Automatic
Story on Electricity Consumption in India
onwise Plot rly States sumotion in 2019 is
Plot defines Top Consumption by Indian States bv Year 2019
Plot defines Bottom Consumption by Indian States bv Year 2019
In Year 2019 Electricity Consumption in India was Highest in
In Year 2020 Electricity Consumption in India was Highest in
Electricity Consumption for period of March to
The most Electricity Consumption is Highest in Western
ER
164,715
NER
21,710
NR
506,255
SR
476,679
WR
540,370
Regions
ER
NER
NR
SR
WR
Usage
1,709,728
Data Source
Consumption
Quarter Wise Usage
Usage By Year
Metro City States
Yearwise Consumption in Region
Dashboard 1
Dashboard 2
Dashboard 3
Story on Electricity Consu...
Type here to search
ENG
01:08
11-04-2023





4. Advantages and Disadvantages
   - ➢ We identify which are region is lowest and highest electricity energy consumption.
   - ➢ Total electricity energy consumption in north eastern region is lowest.
   - ➢ Total electricity energy consumption in western region is highest.

- Electricity consumption in 2020 for quarter 3 was lowest.
- Power cut & energy shortage from coal, oil and gas are the main disadvantage

5. Applications
   - In this project used to analyze the energy consumption in various states and region
   - We learned a lot of information about energy consumption in our country.
   - We studied how to work with MYSQL and Tableau software.
   - We learned more information using graphical presentation.
6. Conclusion

   Maharashtra is the highest electricity consumption use of India.
   Gujarat is the second highest electricity consumption user of India.
   Sikkim is the lowest electricity consumption user of India.
7. Future Scope

   Due to energy consumption, we increase more solar plants in our country.
8. Appendix