DATA LITERACY WITH TABLEAU

Indian Agricultural Crop Production Analysis(1997-2021) A

Project report

Submitted to

Alagappa University, Karaikudi

Through

Under

Submitted by

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III B.Sc. Mathematics

UG DEPARTMENT OF MATHEMATICS

IDHAYA COLLEGE FOR WOMEN, SARUGANI, SIVAGANGAI-DT.

1. INTRODUCTION

1.1 Overview

To analyze captivating realm of India's agricultural cultivation, providing a comprehensive visual exploration of key aspects and trends in the agricultural sector. Through the visual representations, readers can gain valuable insights into crop production, seasonal variations, regional distribution, and overall production trends. These visualizations enable intuitive analysis, allowing stakeholders to uncover patterns, identify areas of growth or concern, and make data-driven decisions.

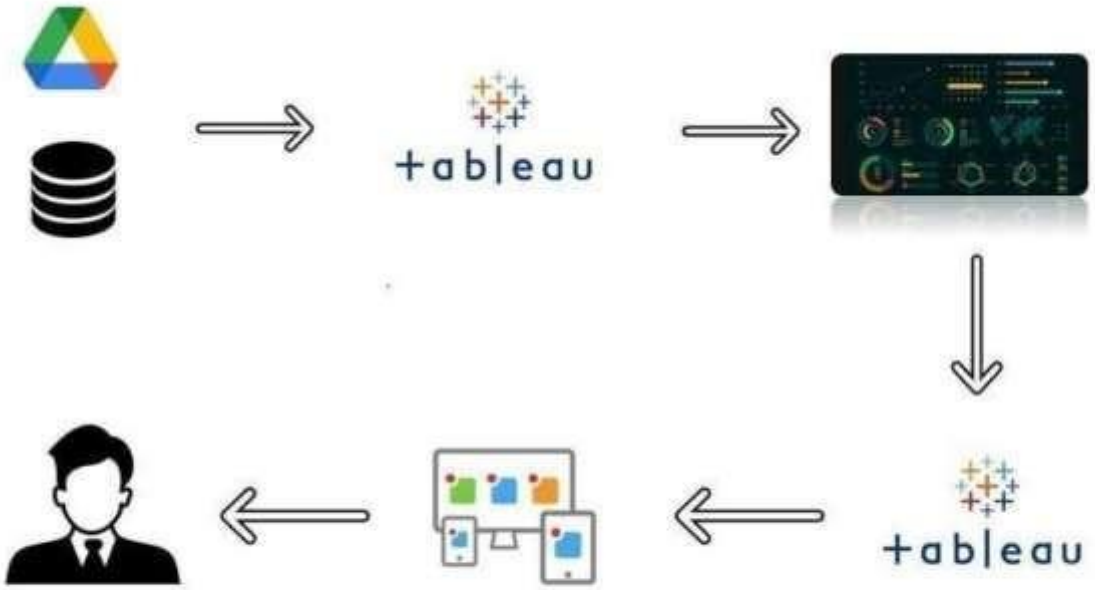
The agriculture sector employs nearly half of the workforce in the country. However, it contributes to 17.5% of the GDP (at current prices in 2015-16).

1.2 Purpose

India’s production of food grains has been increasing every year, and India is among the top producers of several crops such as wheat, rice, pulses, sugarcane and cotton. It is the highest producer of milk and second highest producer of fruits and vegetables. In 2013, India contributed 25% to the world’s pulses production, the highest for any one country, 22% to the rice production and 13% to the wheat production. It also accounted for about 25% of the total quantity of cotton produced, besides being the second highest exporter of cotton for the past several years.

Agriculture analysis is a very important aspect to crop growing. To increase quality and yields, it is crucial to understand the current nutrient levels of the soil to be able to ascertain which areas require improvement.

Project Architecture

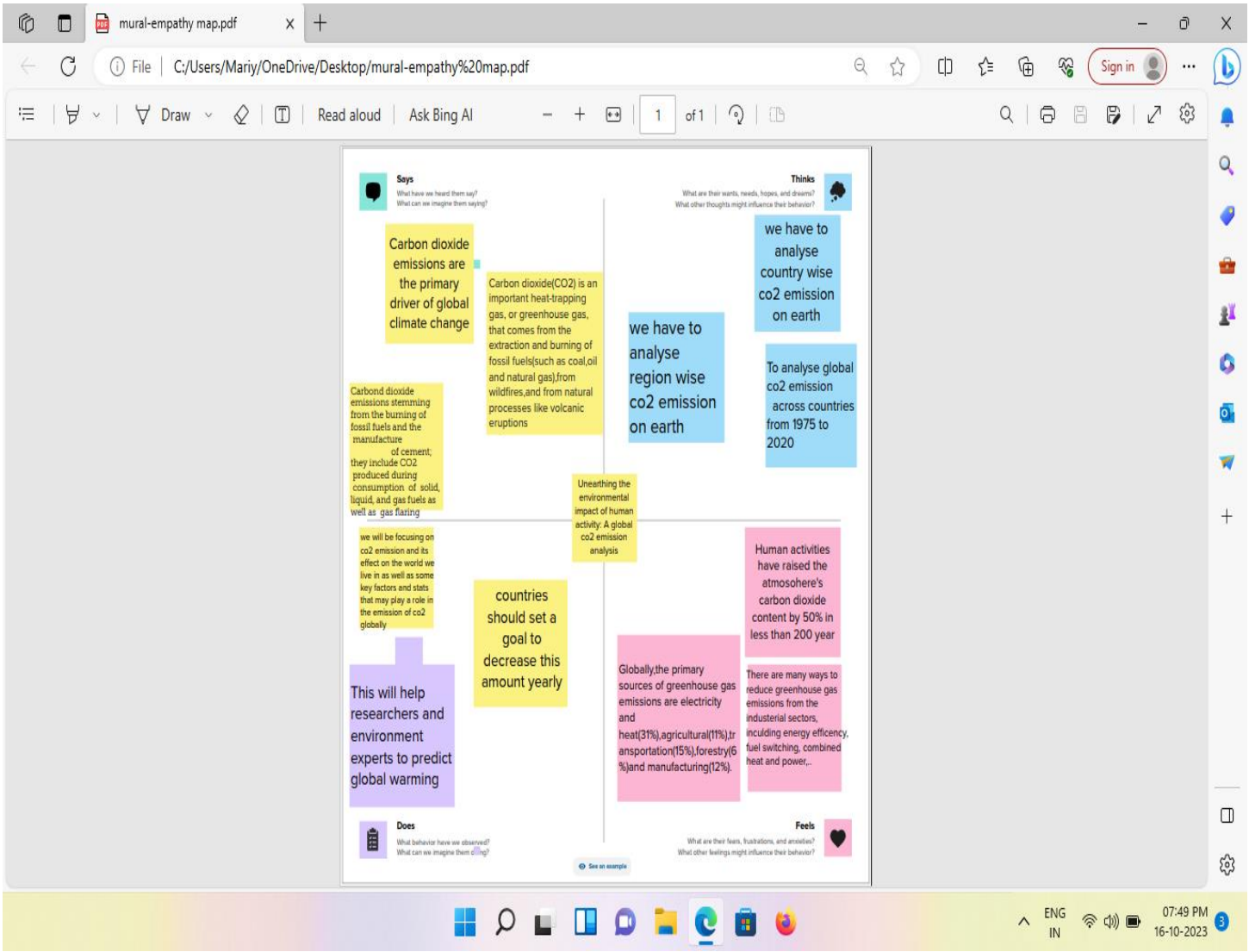


2. Problem Definition & Design Thinking

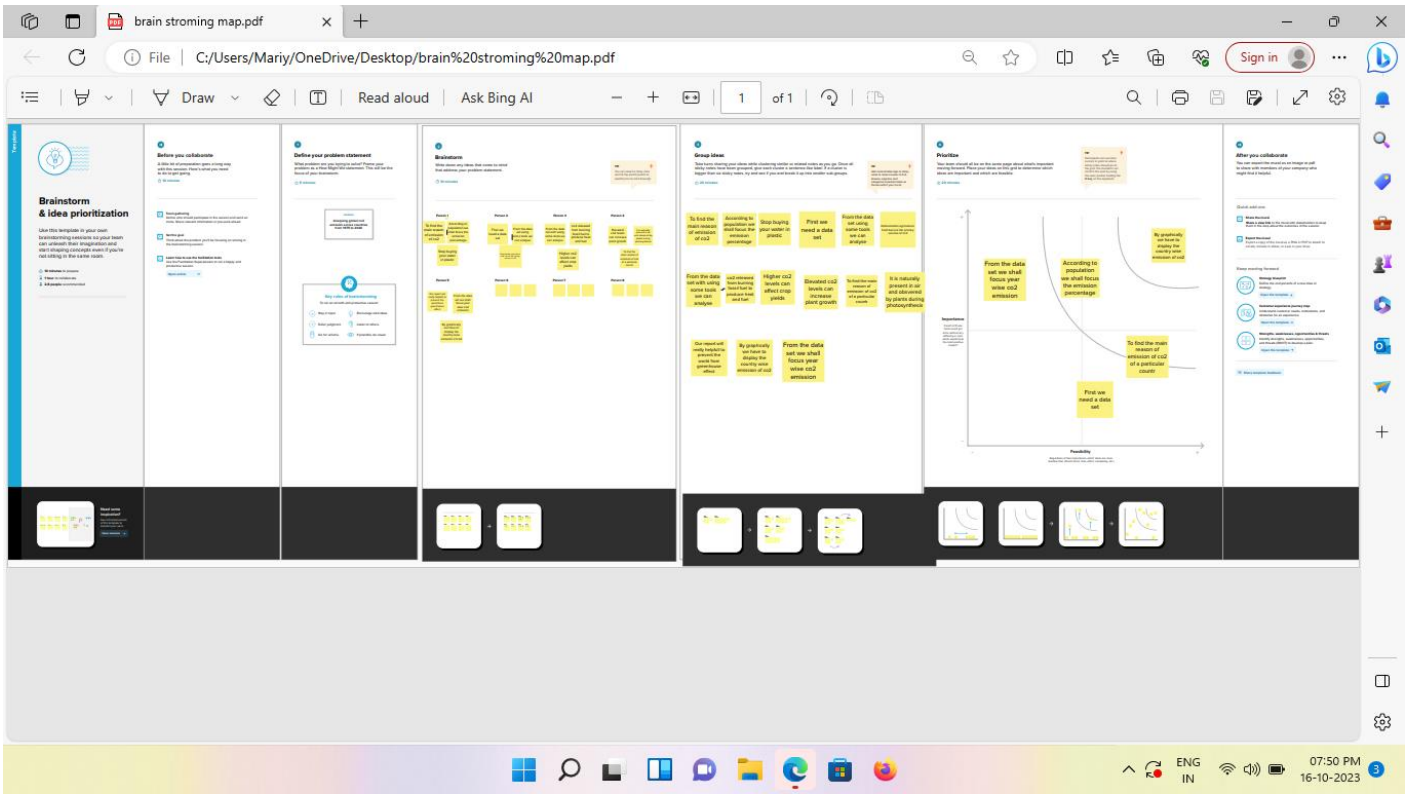
The team members ideas are grouped by Empathy Map and Ideation & Brainstorming Map using app. mural.co

Here we done the following

- Defining the problem
- Problem understanding
- Specification of the business problem


mural-empathy map.pdf
File | C:/Users/Mariy/OneDrive/Desktop/mural-empathy%20map.pdf
Sign in
Draw
Read aloud
Ask Bing AI
1
of 1
Says
What have we heard them say?
What can we imagine them saying?
Thinks
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?
Carbon dioxide emissions are the primary driver of global climate change
Carbon dioxide(CO2) is an important heat-trapping gas, or greenhouse gas, that comes from the extraction and burning of fossil fuels(such as coal,oil and natural gas),from wildfires,and from natural processes like volcanic eruptions
we have to analyse country wise co2 emission on earth
we have to analyse region wise co2 emission on earth
To analyse global co2 emission across countries from 1975 to 2020
Carbond dioxide emissions stemming from the burning of fossil fuels and the manufacture of cement; they include CO2 produced during consumption of solid, liquid, and gas fuels as well as gas flaring
Unearthing the environmental impact of human activity: A global co2 emission analysis
we will be focusing on co2 emission 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
countries should set a goal to decrease this amount yearly
Human activities have raised the atmosohere's carbon dioxide content by 50% in less than 200 year
This will help researchers and environment experts to predict global warming
Globally,the primary sources of greenhouse gas emissions are electricity and heat(31%),agricultural(11%),transportation(15%),forestry(6%)and manufacturing(12%).
There are many ways to reduce greenhouse gas emissions from the industerial sectors, inculding energy efficency, fuel switching, combined heat and power,..
Does
What behavior have we observed?
What can we imagine them doing?
Feels
What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?
See an example
ENG
IN
07:49 PM
16-10-2023

Empathy map



Ideation & Brainstorming Map

3. RESULT

One of the main advantages of Tableau is its easy to use. We don't need to have any coding or programming skills to create stunning and informative dashboards, charts, maps, and stories with Tableau. You can simply drag and drop data sources, fields, filters, and visual elements to customize your views and analysis. Once you have created views on different sheets in Tableau, you can pull them into a dashboard.

These are screenshots of our project work

I) Screenshots of Sheets

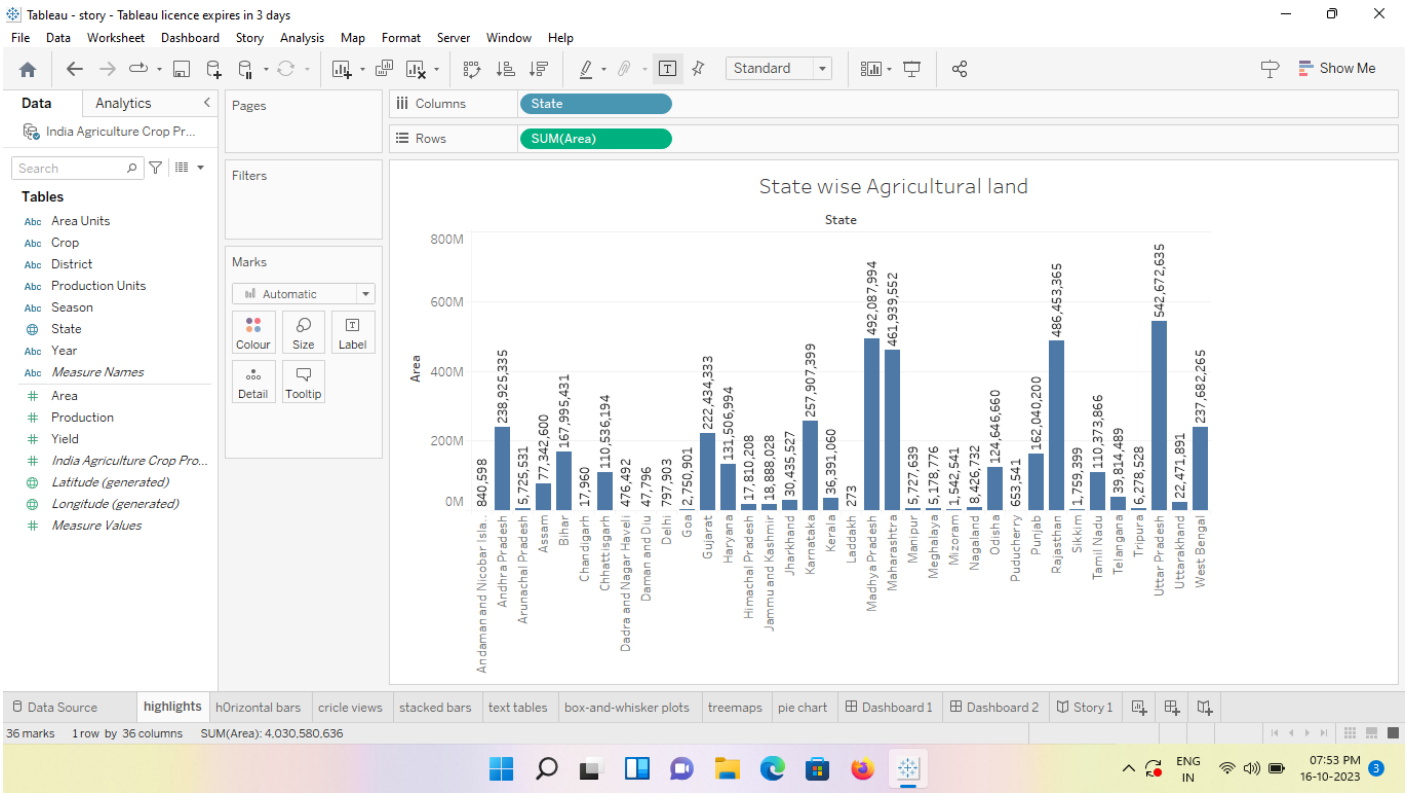


Tableau - story - Tableau licence expires in 3 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Standard
Show Me
Data
Analytics
India Agriculture Crop Pr...
Search
Tables
Abc Area Units
Abc Crop
Abc District
Abc Production Units
Abc Season
State
Abc Year
Abc Measure Names
Area
Production
Yield
India Agriculture Crop Pro...
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Columns
State
Rows
SUM(Area)
State wise Agricultural land
State
Area
800M
600M
400M
200M
0M
840,598
238,925,335
5,725,531
77,342,600
167,995,431
17,960
110,536,194
476,492
47,796
797,903
2,750,901
222,434,333
131,506,994
17,810,208
18,888,028
30,435,527
257,907,399
36,391,060
273
492,087,994
461,939,552
5,727,639
5,178,776
1,542,541
8,426,732
124,646,660
653,541
162,040,200
486,453,365
1,759,399
110,373,866
39,814,489
6,278,528
542,672,635
22,471,891
237,682,265
Andaman and Nicobar Isla...
Andhra Pradesh
Arunachal Pradesh
Assam
Bihar
Chandigarh
Chhattisgarh
Dadra and Nagar Haveli
Daman and Diu
Delhi
Goa
Gujarat
Haryana
Himachal Pradesh
Jammu and Kashmir
Jharkhand
Karnataka
Kerala
Laddakh
Madhya Pradesh
Maharashtra
Manipur
Meghalaya
Mizoram
Nagaland
Odisha
Puducherry
Punjab
Rajasthan
Sikkim
Tamil Nadu
Telangana
Tripura
Uttar Pradesh
Uttarakhand
West Bengal
Data Source
highlights
h0rizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
36 marks
1 row by 36 columns
SUM(Area): 4,030,580,636
ENG
IN
07:53 PM
16-10-2023

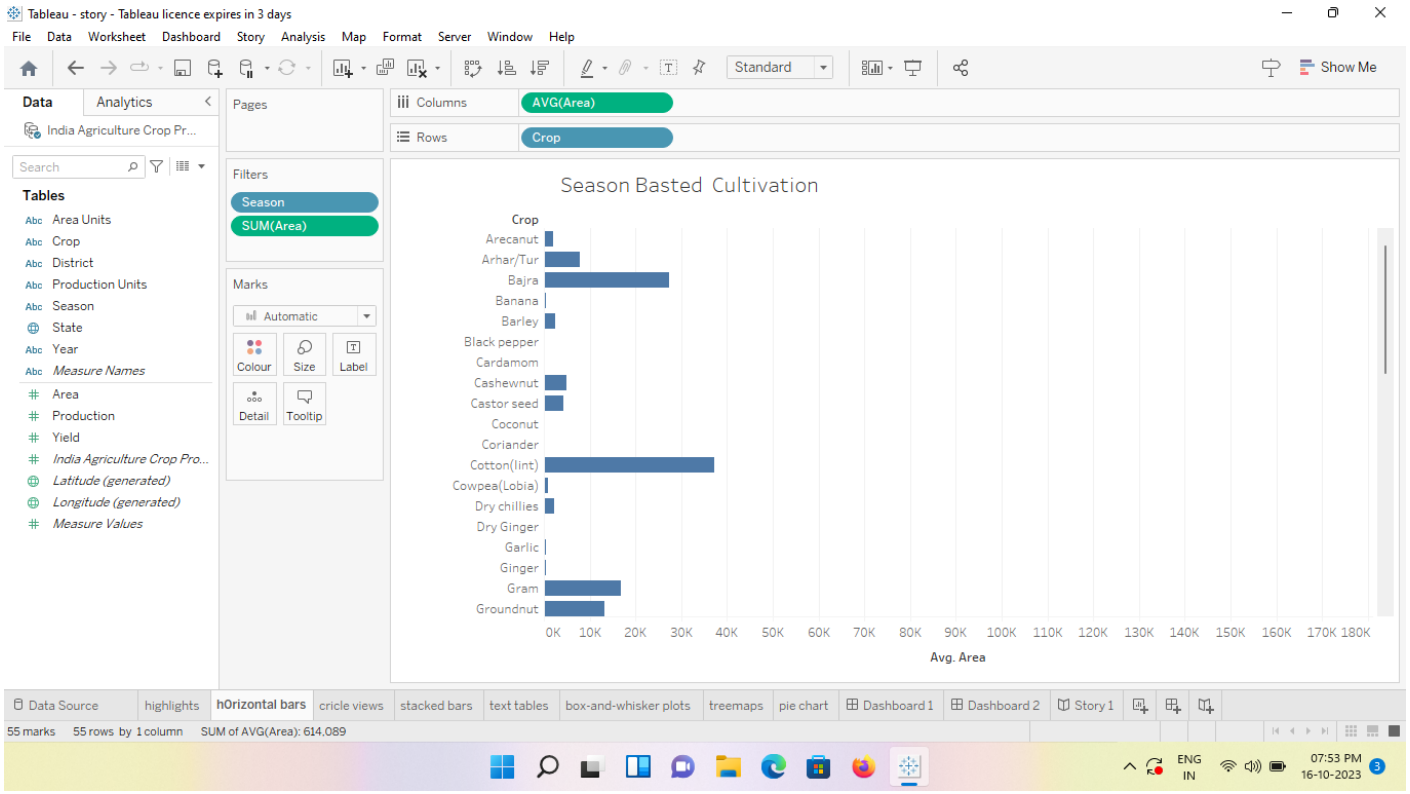


Tableau - story - Tableau licence expires in 3 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
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Analytics
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Tables
Abc Area Units
Abc Crop
Abc District
Abc Production Units
Abc Season
State
Abc Year
Abc Measure Names
Area
Production
Yield
India Agriculture Crop Pro...
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
Season
SUM(Area)
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Columns
AVG(Area)
Rows
Crop
Season Basted Cultivation
Crop
Arecanut
Arhar/Tur
Bajra
Banana
Barley
Black pepper
Cardamom
Cashewnut
Castor seed
Coconut
Coriander
Cotton(lint)
Cowpea(Lobia)
Dry chillies
Dry Ginger
Garlic
Ginger
Gram
Groundnut
0K 10K 20K 30K 40K 50K 60K 70K 80K 90K 100K 110K 120K 130K 140K 150K 160K 170K 180K
Avg. Area
Data Source
highlights
hOrizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
55 marks
55 rows by 1 column
SUM of AVG(Area): 614,089
ENG
IN
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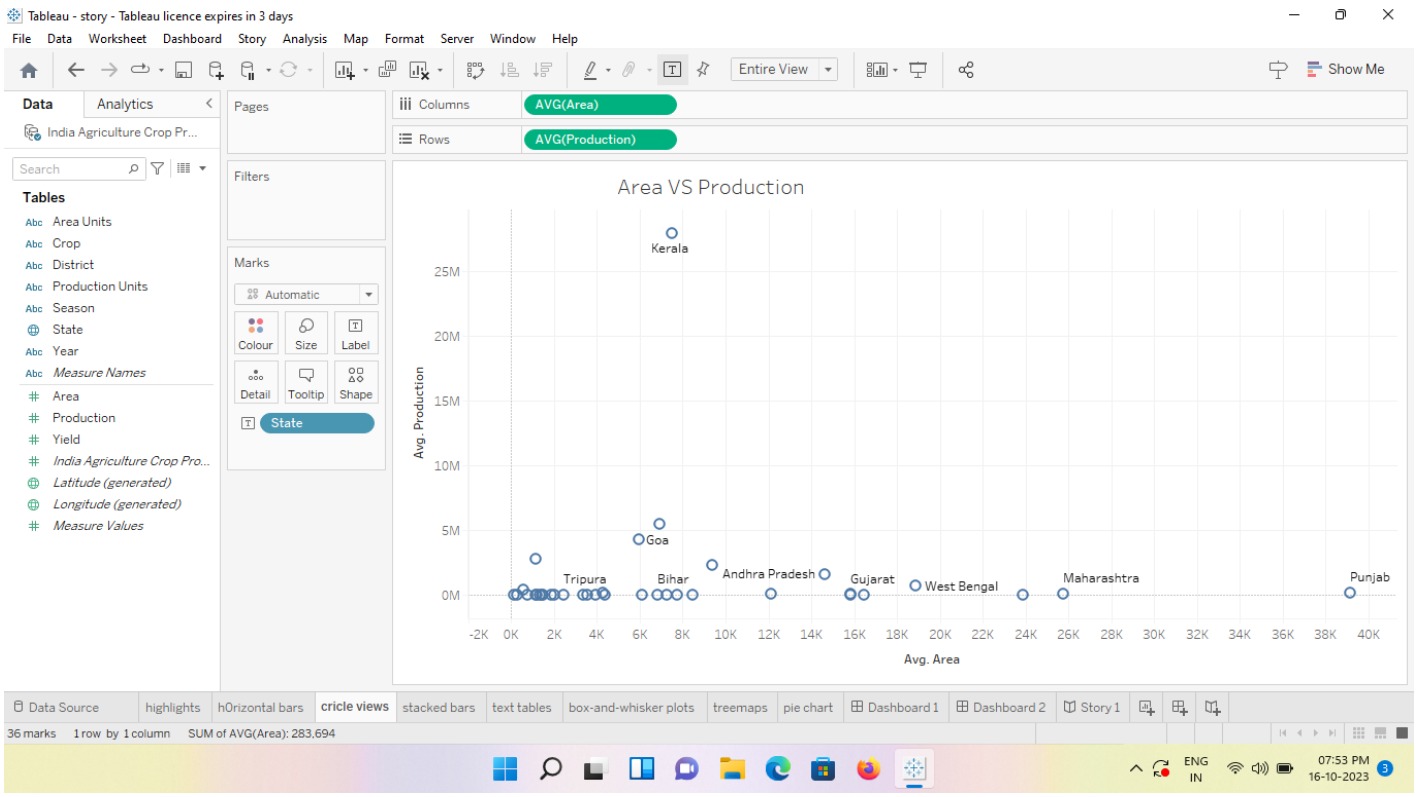
16-10-2023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Tables
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Abc Crop
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Abc Production Units
Abc Season
State
Abc Year
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Area
Production
Yield
India Agriculture Crop Pro...
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Measure Values
Pages
Filters
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Shape
State
Columns
AVG(Area)
Rows
AVG(Production)
Area VS Production
Kerala
Goa
Tripura
Bihar
Andhra Pradesh
Gujarat
West Bengal
Maharashtra
Punjab
25M
20M
15M
10M
5M
0M
Avg. Production
-2K 0K 2K 4K 6K 8K 10K 12K 14K 16K 18K 20K 22K 24K 26K 28K 30K 32K 34K 36K 38K 40K
Avg. Area
Data Source
highlights
hOrizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
36 marks
1 row by 1 column
SUM of AVG(Area): 283,694
ENG
IN
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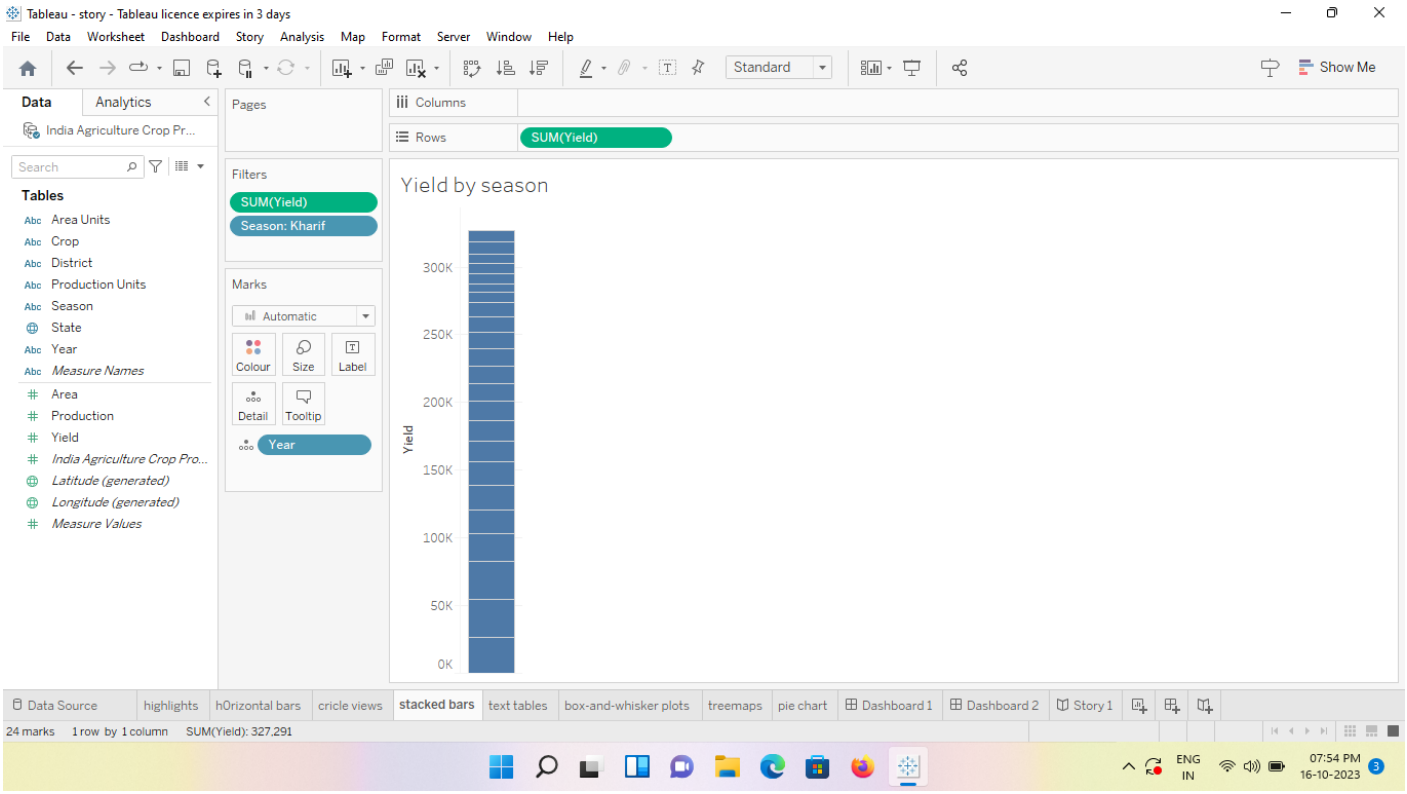
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Show Me
Data
Analytics
India Agriculture Crop Pr...
Search
Tables
Abc Area Units
Abc Crop
Abc District
Abc Production Units
Abc Season
State
Abc Year
Abc Measure Names
Area
Production
Yield
India Agriculture Crop Pro...
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
SUM(Yield)
Season: Kharif
Marks
Automatic
Colour
Size
Label
Detail
Tooltip
Year
Columns
Rows
SUM(Yield)
Yield by season
300K
250K
200K
150K
100K
50K
0K
Yield
Data Source
highlights
h0rizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
24 marks
1 row by 1 column
SUM(Yield): 327,291
ENG
IN
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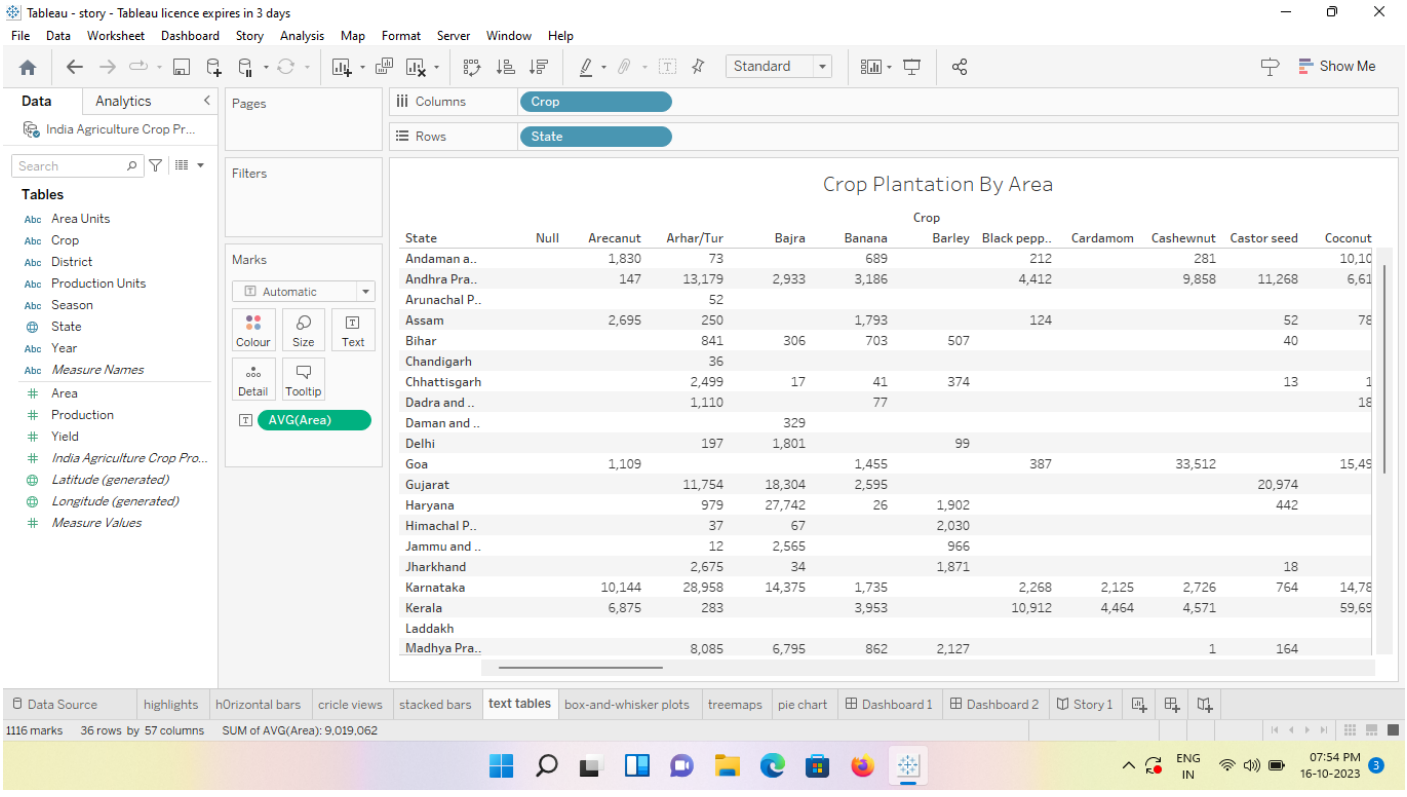
16-10-2023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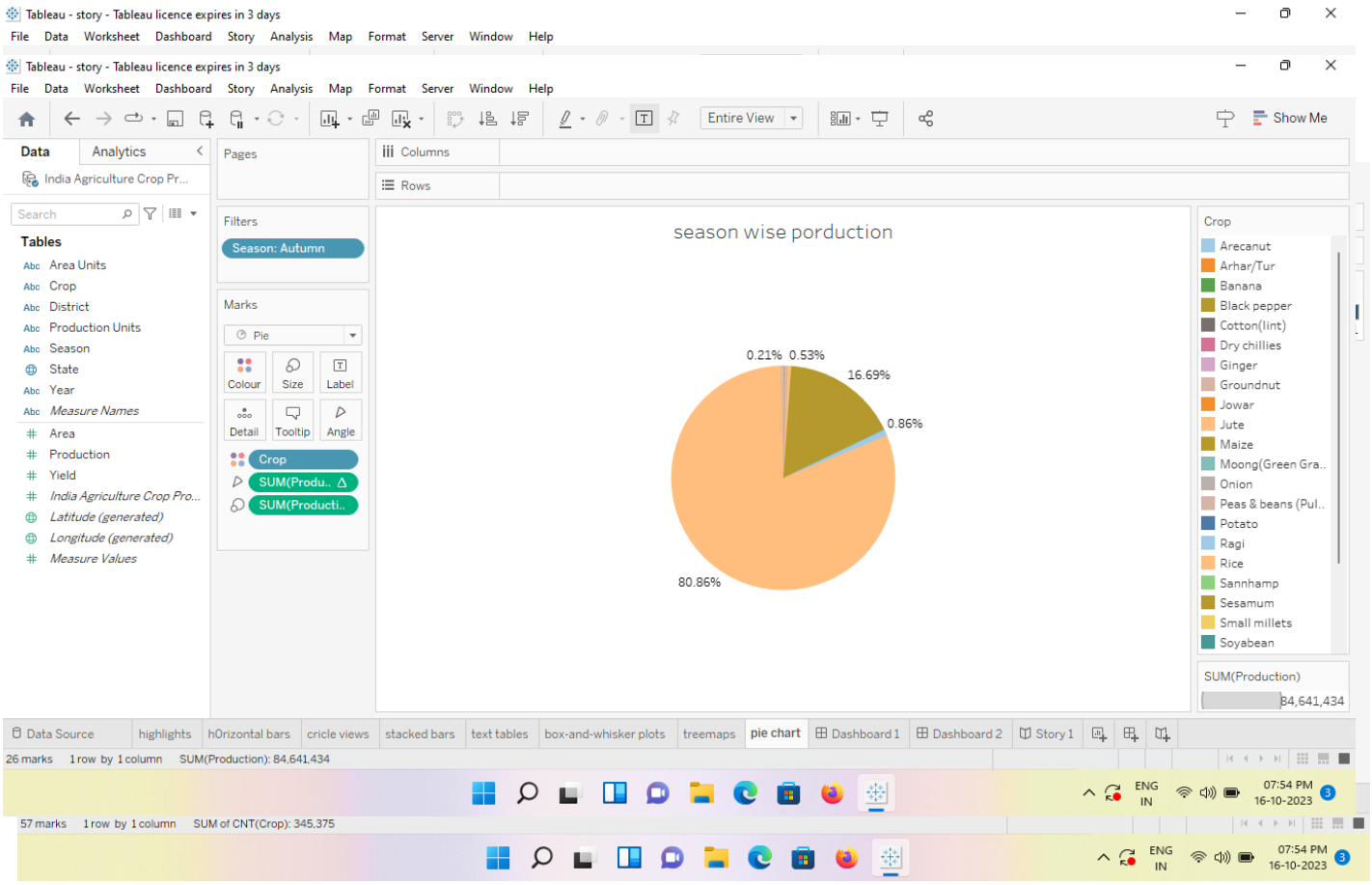
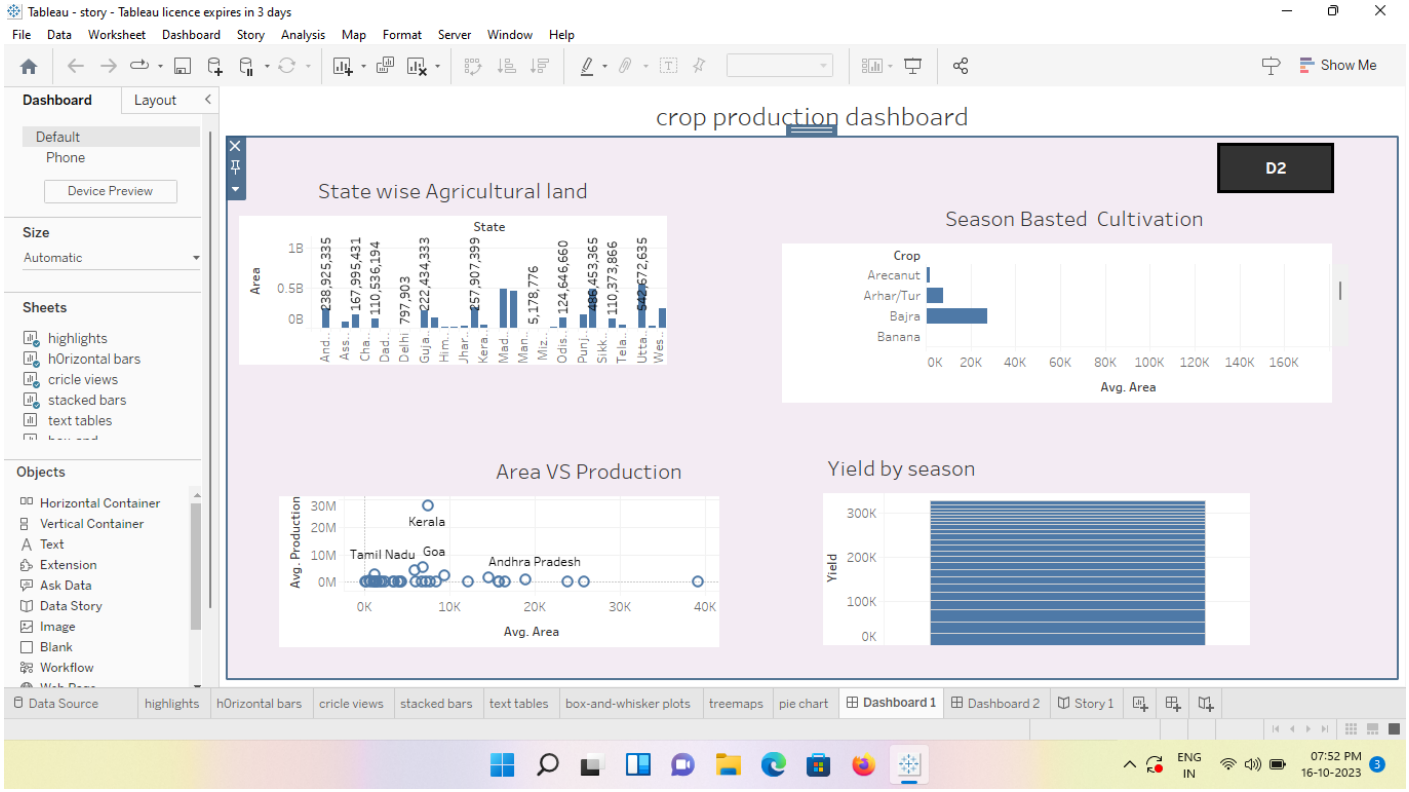
Abc Area Units
Abc Crop
Abc District
Abc Production Units
Abc Season
State
Abc Year
Abc Measure Names
Area
Production
Yield
India Agriculture Crop Pro...
Latitude (generated)
Longitude (generated)
Measure Values
Pages
Filters
Marks
Automatic
Colour
Size
Text
Detail
Tooltip
AVG(Area)
Columns
Crop
Rows
State
Crop Plantation By Area
Crop
State Null Arecanut Arhar/Tur Bajra Banana Barley Black pepp.. Cardamom Cashewnut Castor seed Coconut
Andaman a.. 1,830 73 689 212 281 10,10
Andhra Pra.. 147 13,179 2,933 3,186 4,412 9,858 11,268 6,61
Arunachal P.. 52
Assam 2,695 250 1,793 124 52 78
Bihar 841 306 703 507 40
Chandigarh 36
Chhattisgarh 2,499 17 41 374 13 1
Dadra and .. 1,110 77 18
Daman and .. 329
Delhi 197 1,801 99
Goa 1,109 1,455 387 33,512 15,49
Gujarat 11,754 18,304 2,595 20,974
Haryana 979 27,742 26 1,902 442
Himachal P.. 37 67 2,030
Jammu and .. 12 2,565 966
Jharkhand 2,675 34 1,871 18
Karnataka 10,144 28,958 14,375 1,735 2,268 2,125 2,726 764 14,78
Kerala 6,875 283 3,953 10,912 4,464 4,571 59,69
Laddakh
Madhya Pra.. 8,085 6,795 862 2,127 1 164
Data Source
highlights
h0rizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
1116 marks
36 rows by 57 columns
SUM of AVG(Area): 9,019,062
ENG
IN
07:54 PM
16-10-2023



II) Screenshorts of dashboard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File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Dashboard Layout
Default
Phone
Device Preview
Size
Automatic
Sheets
highlights
hOrizontal bars
cricle views
stacked bars
text tables
Objects
Horizontal Container
Vertical Container
Text
Extension
Ask Data
Data Story
Image
Blank
Workflow
crop production dashboard
D2
State wise Agricultural land
State
Area
1B
0.5B
0B
38,925,335
167,995,431
110,536,194
797,903
222,434,333
57,907,399
5,178,776
124,646,660
110,373,866
Season Basted Cultivation
Crop
Arecanut
Arhar/Tur
Bajra
Banana
0K 20K 40K 60K 80K 100K 120K 140K 160K
Avg. Area
Area VS Production
Avg. Production
30M
20M
10M
0M
Kerala
Tamil Nadu
Goa
Andhra Pradesh
0K 10K 20K 30K 40K
Avg. Area
Yield by season
Yield
300K
200K
100K
0K
Data Source
highlights
hOrizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
07:52 PM
16-10-2023

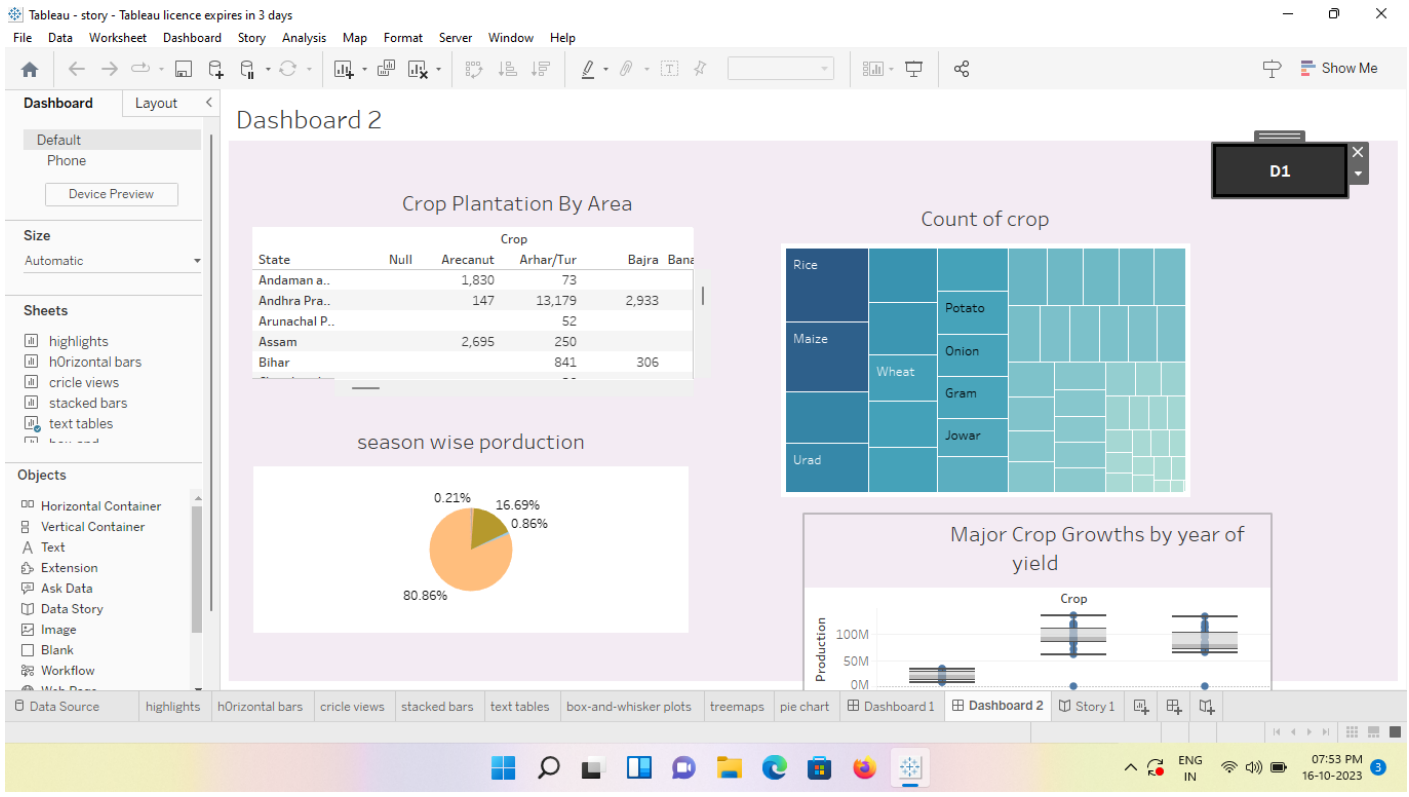
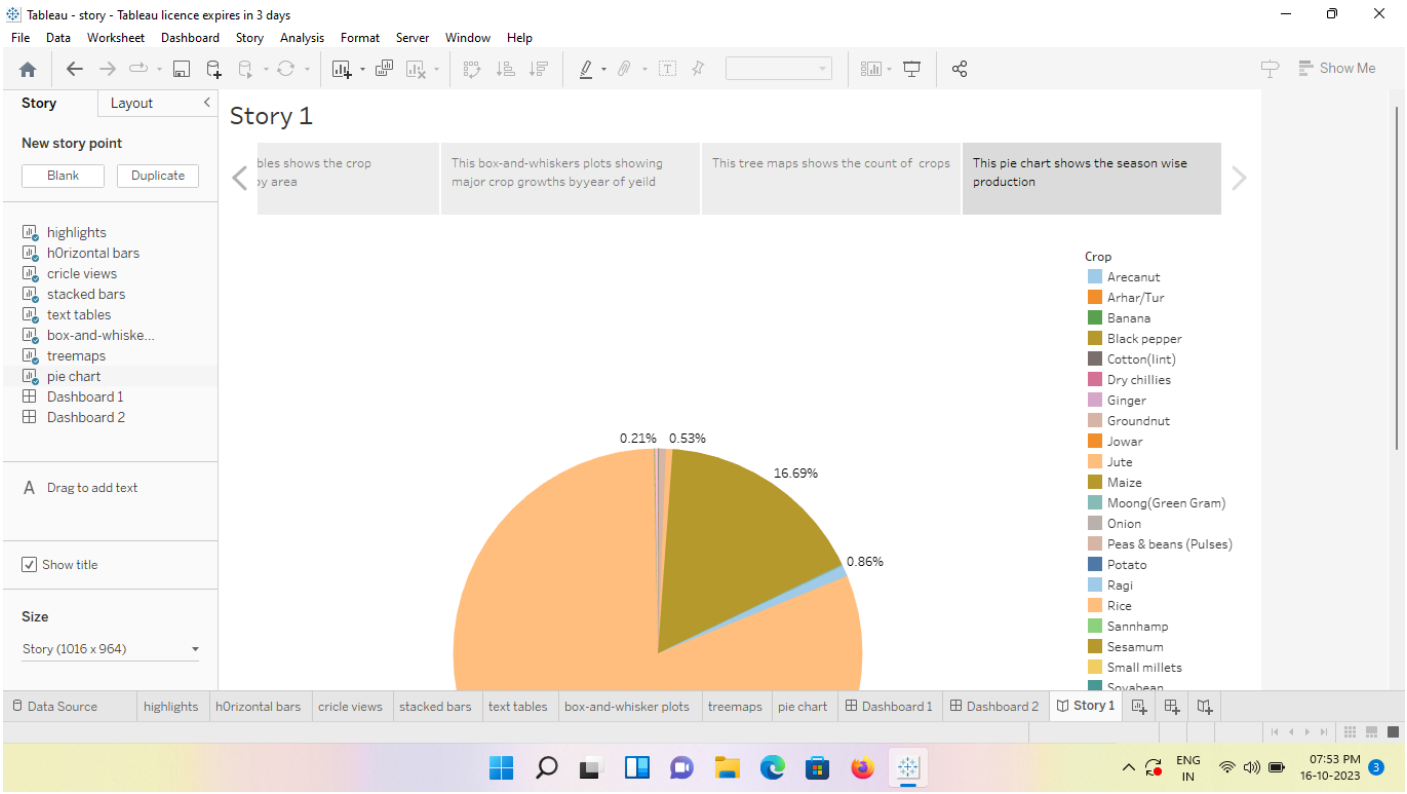


Tableau - story - Tableau licence expires in 3 days
File Data Worksheet Dashboard Story Analysis Map Format Server Window Help
Show Me
Dashboard Layout
Default
Phone
Device Preview
Size
Automatic
Sheets
highlights
hOrizontal bars
cricle views
stacked bars
text tables
Objects
Horizontal Container
Vertical Container
Text
Extension
Ask Data
Data Story
Image
Blank
Workflow
Dashboard 2
D1
Crop Plantation By Area
Crop
State
Null
Arecanut
Arhar/Tur
Bajra
Andaman a..
1,830
73
Andhra Pra..
147
13,179
2,933
Arunachal P..
52
Assam
2,695
250
Bihar
841
306
Count of crop
Rice
Maize
Wheat
Urad
Potato
Onion
Gram
Jowar
season wise pordution
0.21%
16.69%
0.86%
80.86%
Major Crop Growths by year of yield
Crop
Production
100M
50M
0M
Data Source
highlights
hOrizontal bars
cricle views
stacked bars
text tables
box-and-whisker plots
treemaps
pie chart
Dashboard 1
Dashboard 2
Story 1
07:53 PM
16-10-2023

III) Screenshots of Stories



IV) Screenshots of Published Work

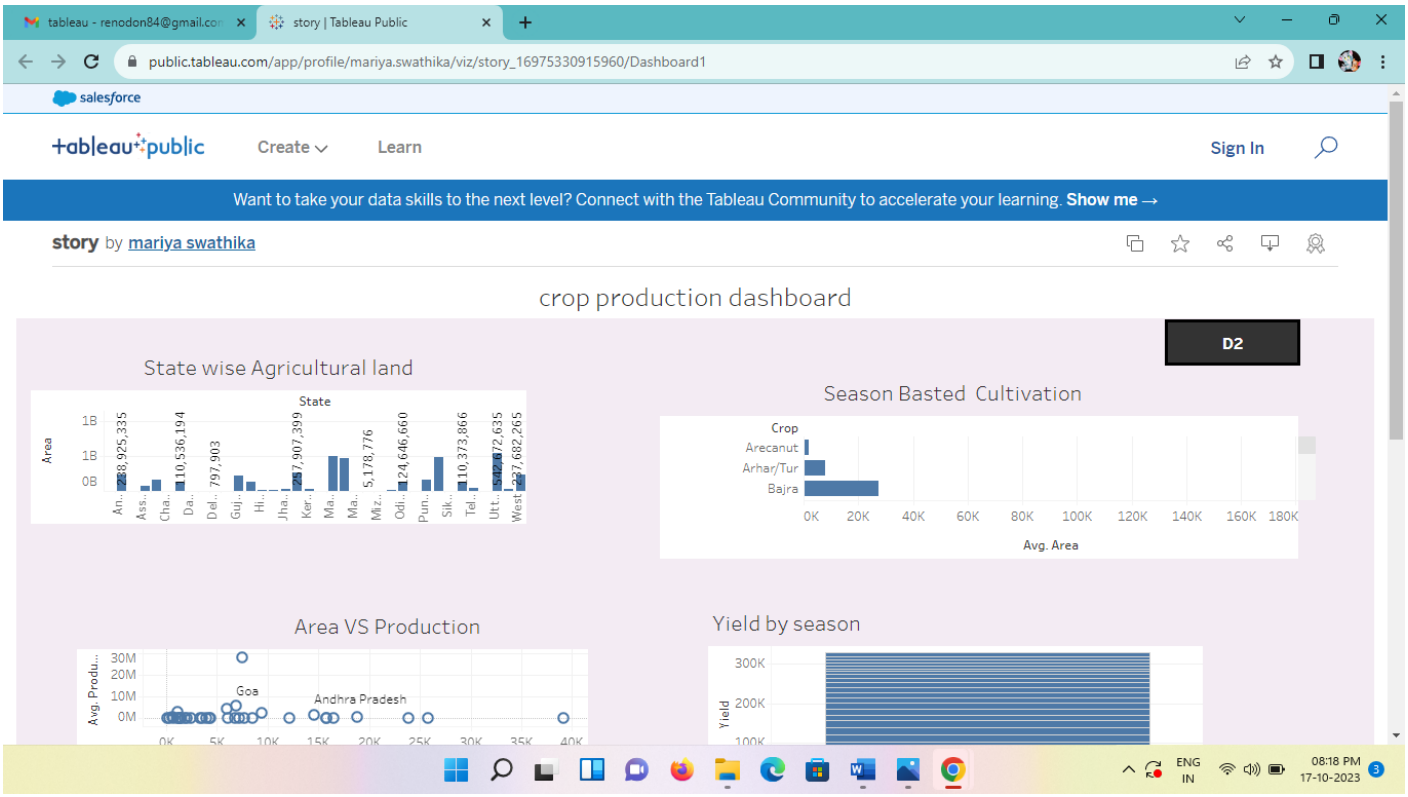


tableau - renodon84@gmail.com
story | Tableau Public
public.tableau.com/app/profile/mariya.swathika/viz/story_16975330915960/Dashboard1
salesforce
tableau public
Create
Learn
Sign In
Want to take your data skills to the next level? Connect with the Tableau Community to accelerate your learning. Show me →
story by mariya swathika
crop production dashboard
D2
State wise Agricultural land
State
Area
288,925,335
10,536,194
797,903
7,907,399
5,178,776
24,646,660
10,373,866
547,472,635
227,682,265
Season Basted Cultivation
Crop
Arecanut
Arhar/Tur
Bajra
0K
20K
40K
60K
80K
100K
120K
140K
160K
180K
Avg. Area
Area VS Production
Avg. Produ...
30M
20M
10M
0M
Goa
Andhra Pradesh
Yield by season
Yield
300K
200K
100K
ENG
IN
08:18 PM
17-10-2023

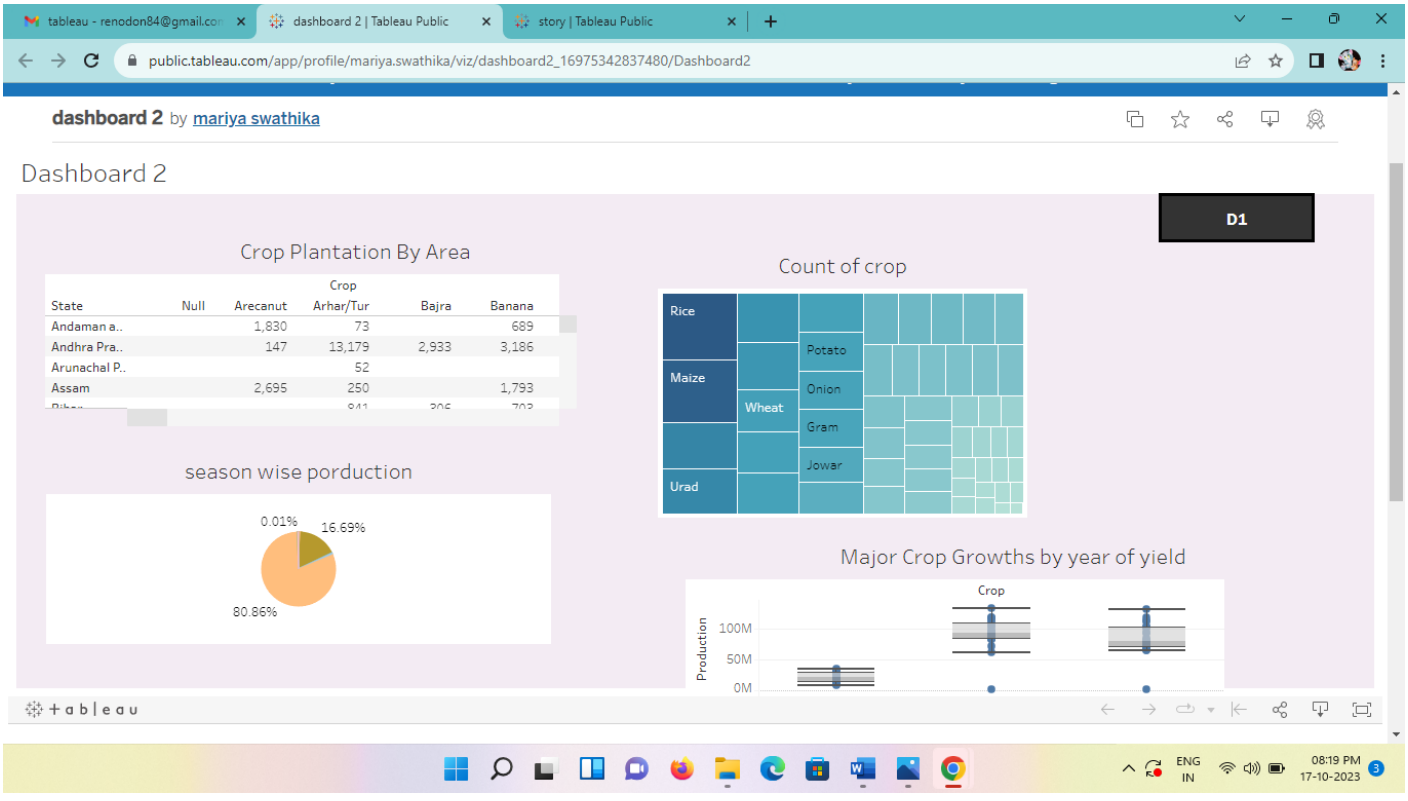
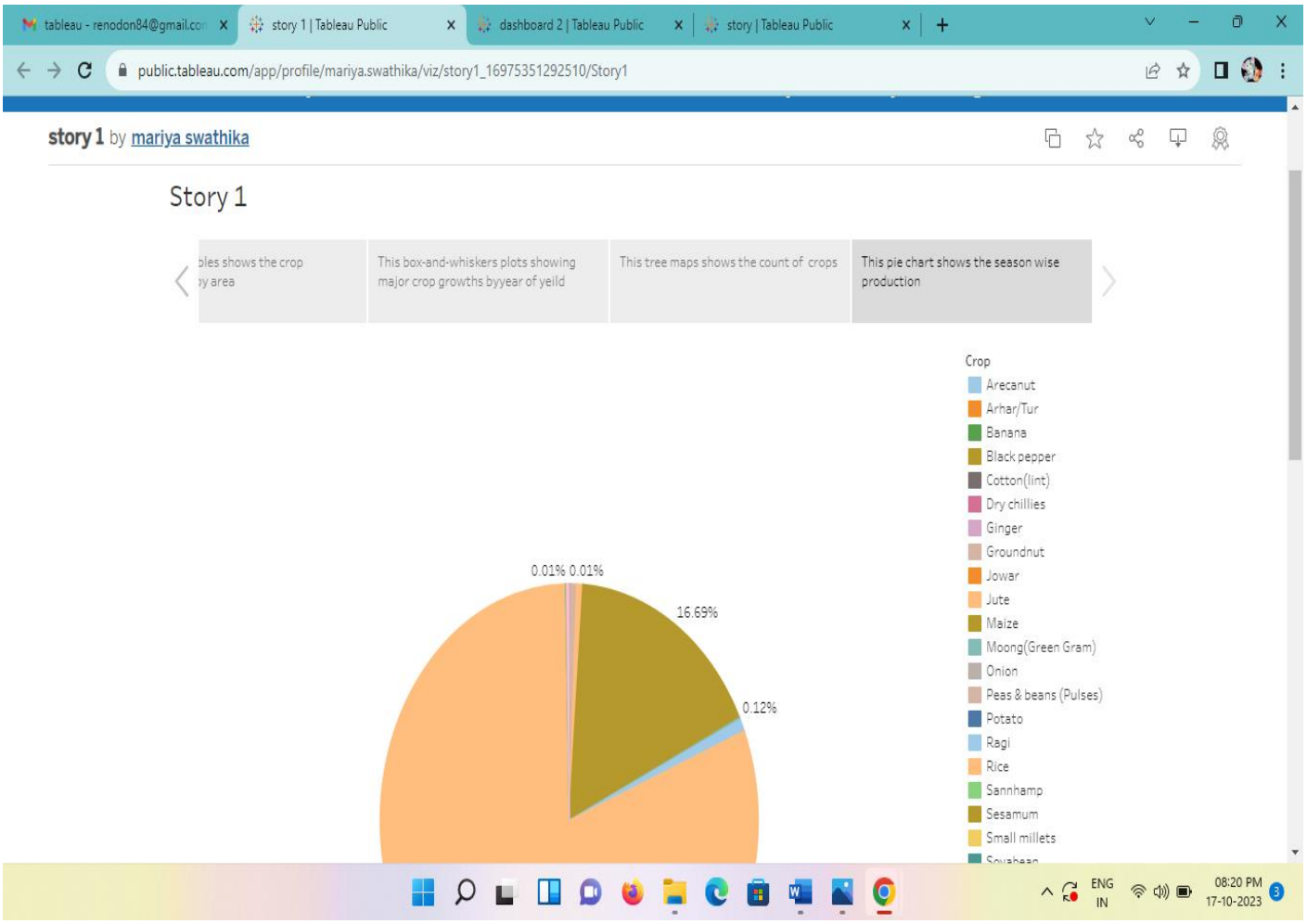


tableau - renodon84@gmail.com
dashboard 2 | Tableau Public
story | Tableau Public
public.tableau.com/app/profile/mariya.swathika/viz/dashboard2_16975342837480/Dashboard2
dashboard 2 by mariya swathika
Dashboard 2
D1
Crop Plantation By Area
Crop
State
Null
Arecanut
Arhar/Tur
Bajra
Banana
Andaman a..
1,830
73
689
Andhra Pra..
147
13,179
2,933
3,186
Arunachal P..
52
Assam
2,695
250
1,793
Count of crop
Rice
Maize
Urad
Wheat
Potato
Onion
Gram
Jowar
season wise porduction
0.01%
16.69%
80.86%
Major Crop Growths by year of yield
Crop
Production
100M
50M
0M
ENG
IN
08:19 PM
17-10-2023

4.



ADVANTAGES & DISADVANTAGES

1. **This visualization is very easier to analyse the data of Indian Agricultural Crop Production Analysis(1997-2021).**
2. **To increase crop production, to estimate planting insurance, and improving trade benefits.**
3. **This web-based agri solution will help farmers to take smart farming decision by resource optimization and smart planning.**
4. **To identify the Crop Diseases and to take necessary actions.**

5. APPLICATIONS

1 Mobile-Friendly
2.Informative Dashboards
3.Advanced Visualization Capabilities
4.Availability of Maps. And so on.

6. CONCLUSION

India's production of food grains has been increasing every year, and India is among the top producers of several crops such as wheat, rice, pulses, sugarcane and cotton. It is the highest producer of milk and second highest producer of fruits and vegetables. In 2013, India contributed

25% to the world's pulses production, the highest for any one country, 22% to the rice production and 13% to the wheat production. It also accounted for about 25% of the total quantity of cotton produced, besides being the second highest exporter of cotton for the past several years.