



V.S.S GOVERNMENT ARTS COLLEGE- PULANKURUCHI

DEPARTMENT OF MATHEMATICS

Naan Mudhalvan Scheme

Domain: Data Literacy with Tableau

Project Title: India's Agricultural Crop Production Analysis (1997-2021)

Submitted by

TEAM 1

Team Lead: Miss. A.Saththiya (2BE4A26DE62E90F9ED64BC9523F44023)

Team Member 1: Miss. R. Dhanushpriya (F2E55E7AAC51630954542D482FB70005)

Team Member 2: Miss.R. Ishwarya (9283CA39C31945E964D402774F81BBCB)

Team Member 3: Miss. P. Manimegalai (BA2E74ED0B785909A174A60F559682EB)

Mentor: Prof. G.AMUTHA M.Sc.,M.Phil.,

Assistant Professor, Department of Mathematics,

V.S.S. Government Arts College, Pulankurichi – 630405

October-2023

Mentor

H.O.D(i/c)

Principal

PROJECT REPORT

1.INTRODUCTION

Data Analysis with Tableau is an end – to end data analysis platform that allows us to pre, analysis, collaborate and share our big data insights. Tableau excels in Self – service , visual analysis ,allowing people to also new questions of governed big data and easily share these insights across the organization.

1.1 Overview

This project assist in mastering the numerous tools used in data visualization and optimizing the data interpretation according to the requirement of the customer.

1. What is data literacy ?
2. Importance of data literacy
3. Data literacy skills
4. Challenges of data literacy
5. Build data literacy with a framework
6. How to become data literate
7. Data literacy and data culture
8. Getting started with data literacy

What is data literacy ?

- ❖ Data literacy refers to the ability to understand, analysis, and interpret data.
- ❖ In today's data – driven world, data literacy has become an essential skill for individuals and organizations alike.
- ❖ It allows us to make informed decisions based on evidence rather than intuition or guesswork.

Importance of data literacy

Data literacy can also be a valuable skill. It allows teams to learn, identify problems, communicate with colleagues, and increase their value as an employee. Information is everywhere. Without a data – literate workforce, we could limit our organization's ability to grow.

There are countless reasons why data literacy is critical to our organization.

Some of these include:

- ❖ Allows for data- driven decisions.
- ❖ Better customer knowledge.
- ❖ Competitive edge.
- ❖ Increased innovation and productivity.
- ❖ Increased employability.

Data literacy skills

Data Literacy isn't just a math skill – it's a life skill. Data is everywhere.

Nearly everything is digital and those digital things produce and consume data.

We negotiate data by reading food labels, interpreting medication dosages, and when we are monitoring voting activities. Understanding data and making an informed decision is a skill anyone can learn, at any level.

Non-technical data literacy skills

At a basic level, the non - technical data literacy skills include a basic level of self-education, as well as critical thinking, and high - level communication skills.

Other such skills may include problem – solving, collaboration and teamwork and more. Anyone can learn and refine the following skills, which will help when exploring, storing, and communicating with data.

Some of the non-technical data literacy skills include:

- ❖ **Critical thinking:** Essential for analyzing and understanding data, critical thinking skills are developed through questioning your assumptions, using logic to work through problems, and diversifying where you get your information.

- ❖ **Research:** Knowing about the subject matter behind your data to truly understand it. Regardless, honing your research skills is important for anyone wanting to become data literate. It involves finding sources, engaging with it in meaningful ways in to draw conclusions, and evaluating those findings after your research is done.

❖ **Communication:** Being data literate means more than just understanding data. It also means being able to communicate the data and findings with other people around you. This may be in any number of formats – speaking, writing, presenting, or storytelling. Honing your communication is an important business skill in general, but especially when dealing with data. It's important to ensure everyone involved in gathering, parsing, analyzing, and understanding the data is on the same page. Misunderstandings may lead to business issues further down the road.

❖ **Domain knowledge:** The last of the soft skills on our list is a basic level of domain knowledge about data and data science. Anyone can learn how to interact with data, but knowing the basics and educating yourself will only help as you seek to become data literate.

Technical skills

Technical skills are the more technical skills involved in data analysis. These are numerous and include things like data management, building and maintaining dashboards or reports, data visualization, and various kinds of math or programming, just to name a few. Since there are so many, we've pared this list down to name a few. Some of the technical data literacy skills include:

- ❖ **Analysis:** Data analysis refers to statistical, or logical techniques to Data in order to describe, visualize, assimilate, and evaluate it. The process include collecting, formatting, cleaning , processing, exploring possibilities, identifying patterns , and drawings conclusions from data. It's the lifecycle of data in business.
- ❖ **Visualization:** Data visualization is the graphical representation of information in different forms, such as charts, graphs, maps, etc.
- ❖ **Management:** Data management is the entire process of collecting, vetting, and storing data. It includes data cleaning, data mining, and data warehousing.
- ❖ **Mathematics:** If we want to really understand data on a deep

level, we need to know the basis for its analysis. That involves learning about statistics, linear algebra, and calculus. Even a conceptual understanding of each will further your knowledge.

- ❖ **Programming languages:** If we want to build dashboards or complex data analysis programs, we need to understand and use programming languages. Some of the best for data work include Python, R, and SQL.

Challenges of data literacy

So what challenges can we expect when pushing for data literacy in our organization? we may encounter such challenges as our employees being resistant to change or new technology, there being a skills gap between our users, issues with data governance, and silos in your organization.

- ❖ **User resistance:** We may find people are resistant to new technology or processes, and don't want to embrace change. Ensuring that you get these people onboard with the benefits will help you handle any such resistance and ensure success.
- ❖ **Skills gap:** When training our team to handle new procedures or tools, we may find that some of our team already knows how to use it and some struggle to adopt. Ensuring a thorough education of new concepts and tools will help to eliminate this issue.
- ❖ **Silos:** We must be careful that the people on our team who best understand data don't silo into certain departments, but that each team has an understanding and can utilize data to the best of their ability.
- ❖ **Data governance:** The more data your organization learns to handle, the better our data governance practices need to be ensuring we have best practices for every stage of the data governance lifecycle will ensure that our processes run smoothly and our data is accurate.

PROJECT DESCRIPTION:

This report delves into the 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

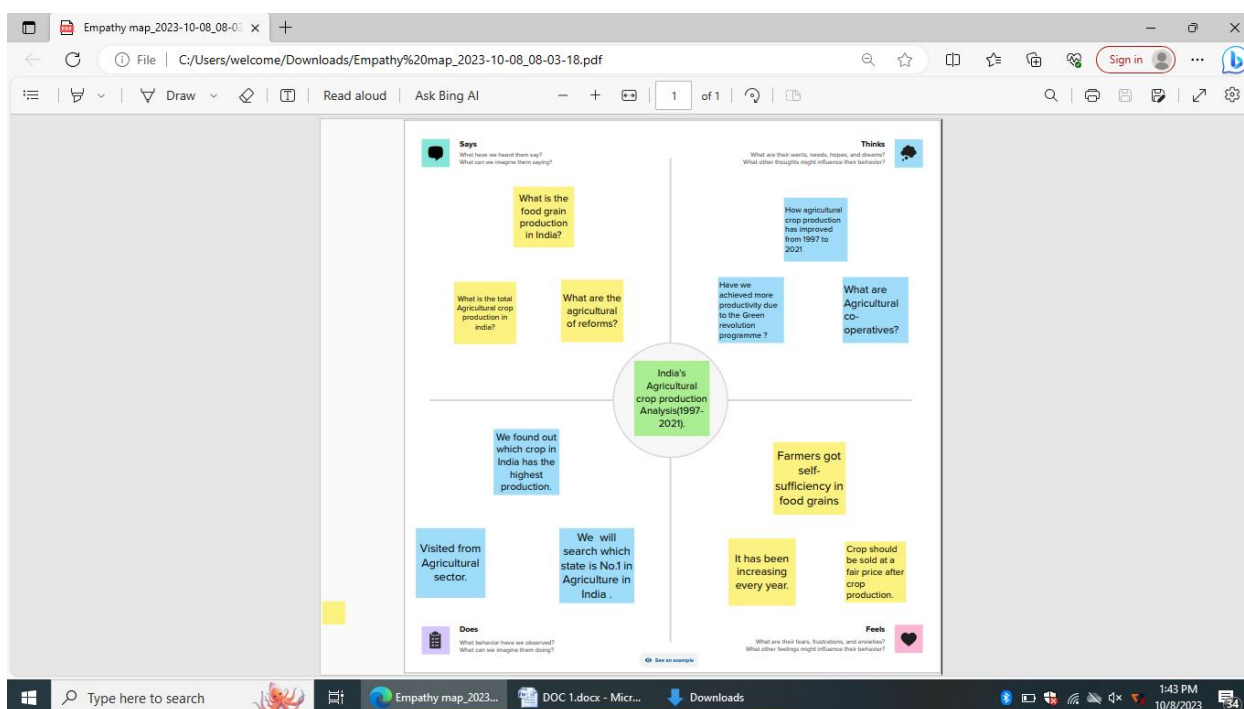
production trends, these visualizations enable intuitive analysis, allowing stakeholders to uncover patterns, identify areas of growth or concern, and make data-driven decisions.

By harnessing the power of Tableau, this report not only presents the data in a visually appealing manner but also provides an interactive experience for readers to explore the intricacies of India's agricultural cultivation. To Extract the Insights from the data and put the data in the form of visualizations, Dashboards and Story we employed Tableau tool.

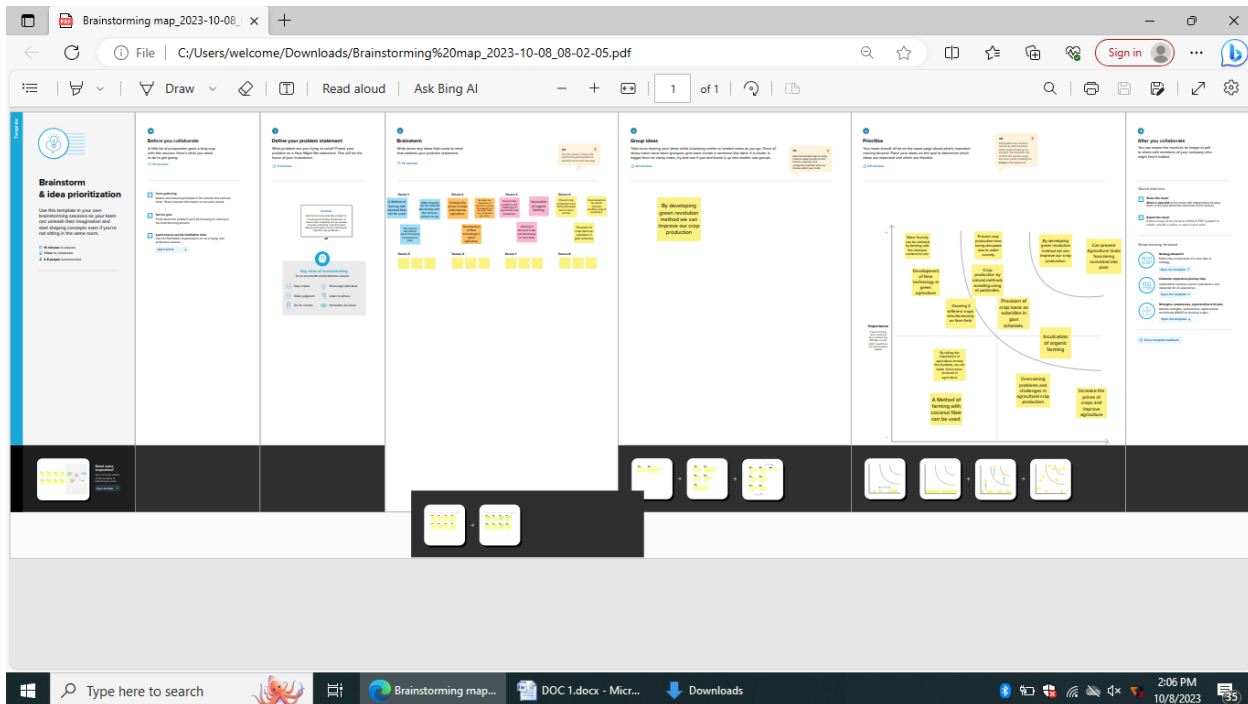
2. PURPOSE DEFINITION & DESIGN THINKING

It helps users create different charts, graphs, maps, dashboard, and Stories for visualizing and analyzing data to help in making business decisions. Tableau has a lot of unique, exciting features that make it one of the most popular Tools in business intelligence

2.1 Empathy Map



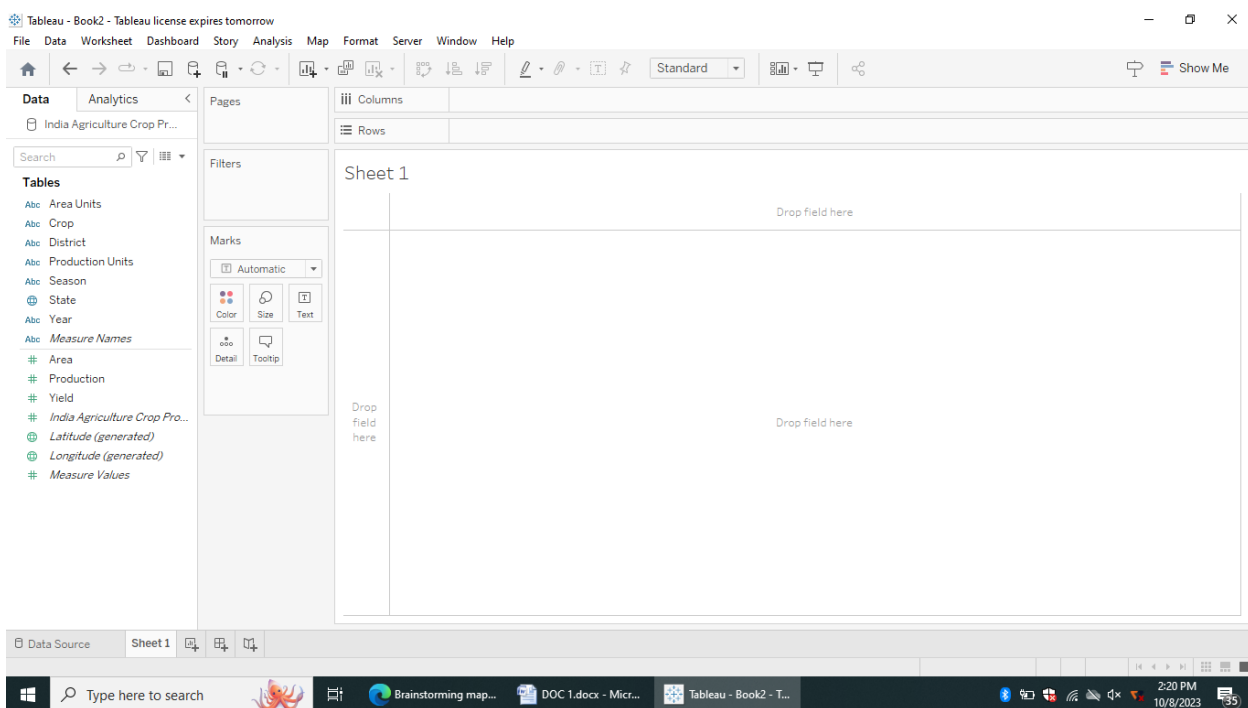
2.2 Ideation & Brainstorming Map



3. RESULT

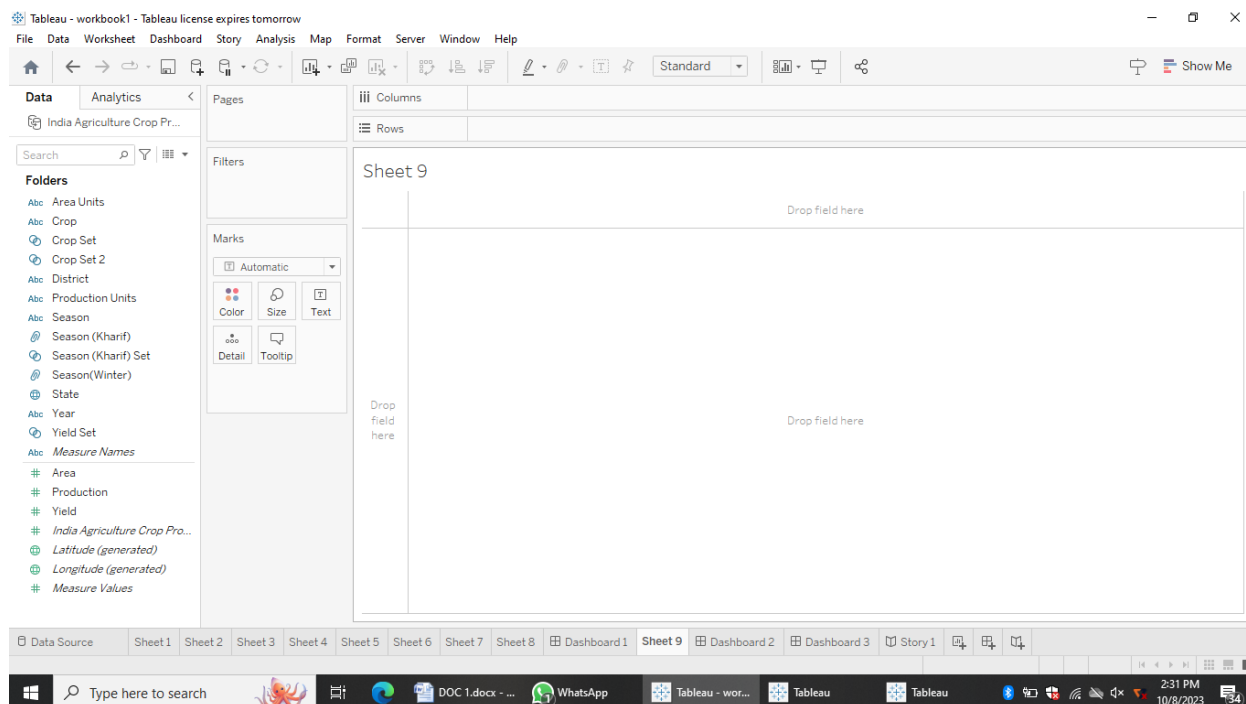
3.1 Activity & Screenshot

Open the Tableau Desktop



Description:

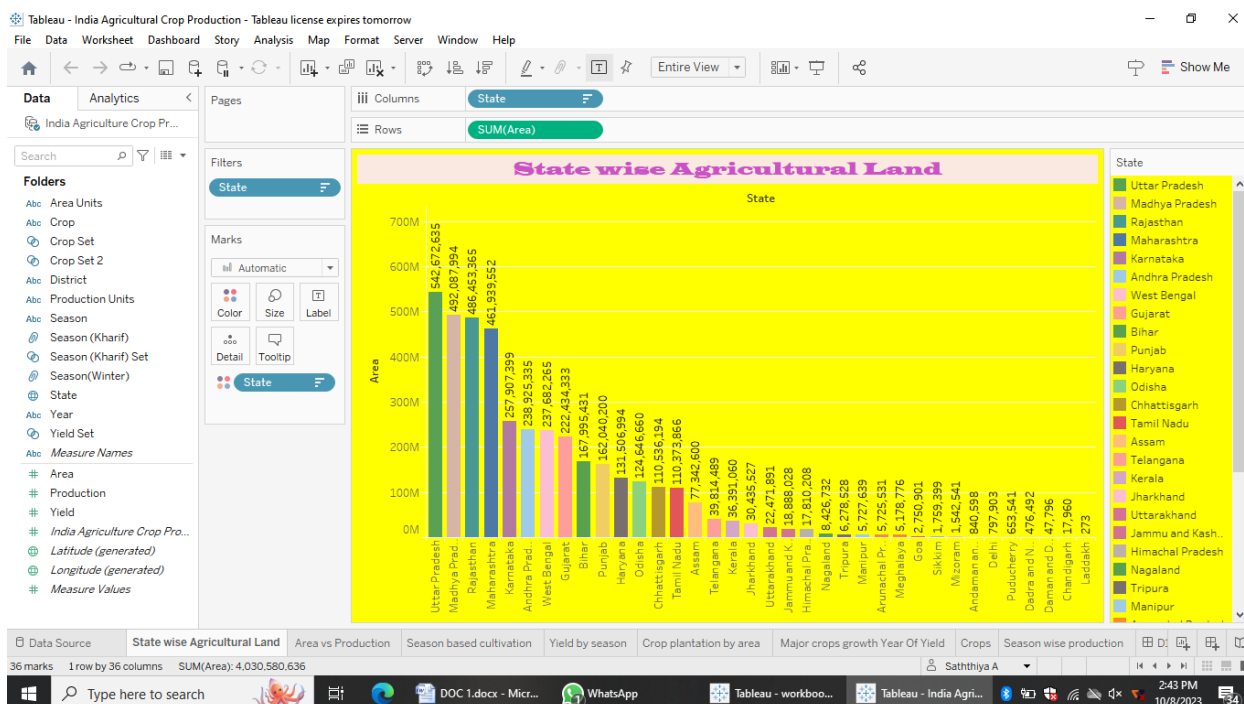
Data contains all the meta information regarding the columns described in the CSV file: The Tableau HRscorecard: measuring sources in talent management.



Description:

Create a new worksheet on the left we will find data columns select the state column, Area drag to the Rows data and top right corner we can see show me option select the bar charts, State drag to the colours and Area drag to the label and edit label, State drag to the filter and edit. Finally change the sheet name and get the visualization.

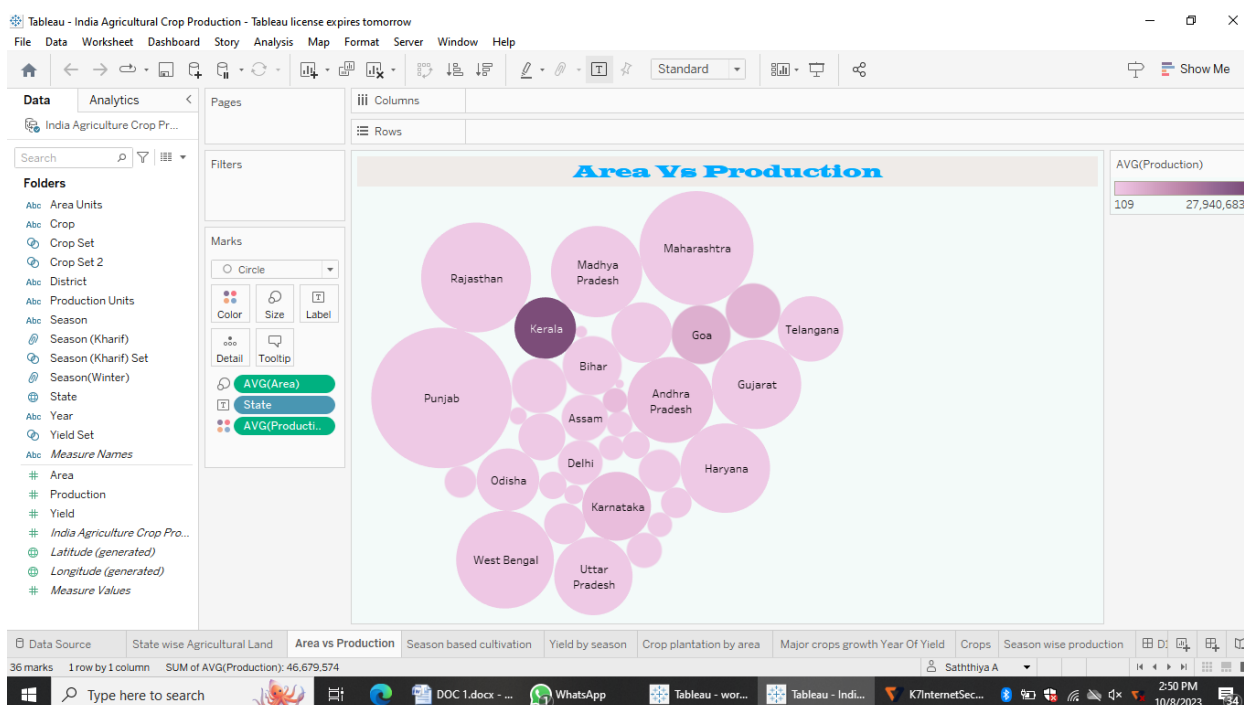
State Wise Agricultural Land



Description:

Go to worksheet, state drag to the row and area drag to the column. Top on the right corner show me option select the bubbles charts. Production drag to the colour and edit. Average area drag to the size, state drag to the label . Change the sheet name.

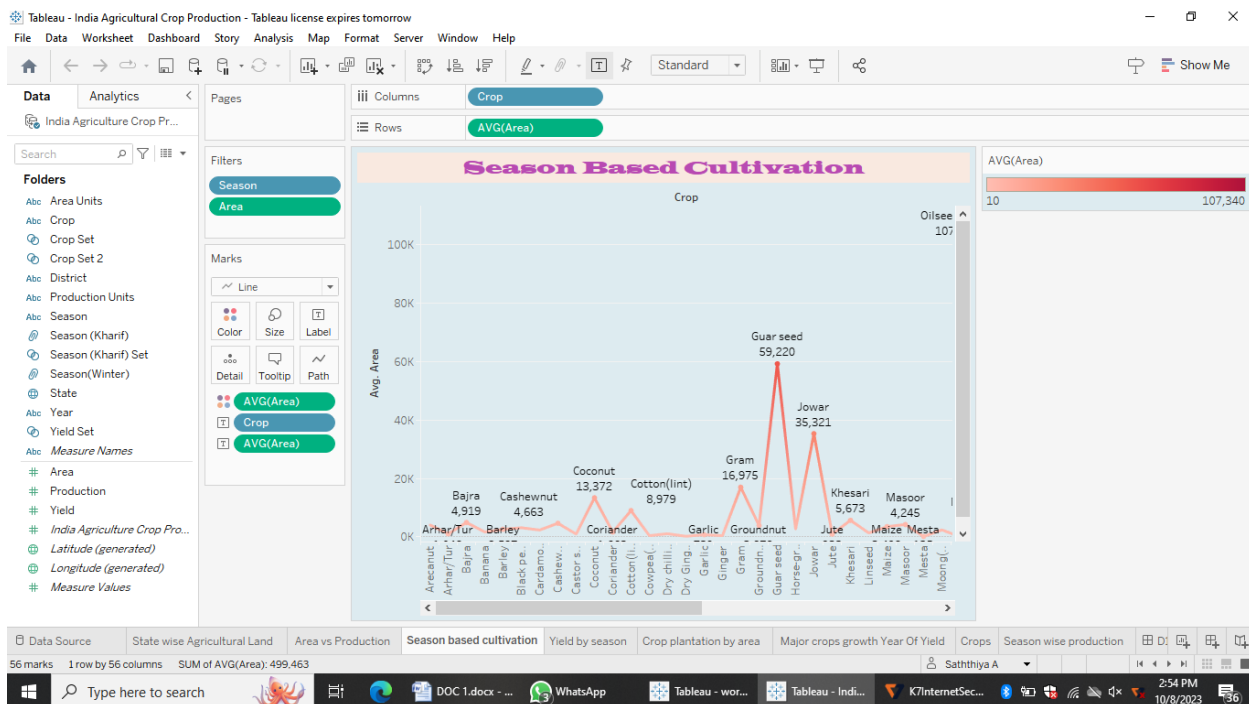
Area Vs Production



Description:

Create a worksheet. Crop drag to the columns and area drag to the row. Season drag to the filters and edit. Area drag to the colour and edit. Average area and crop drag to the label. change the sheet name.

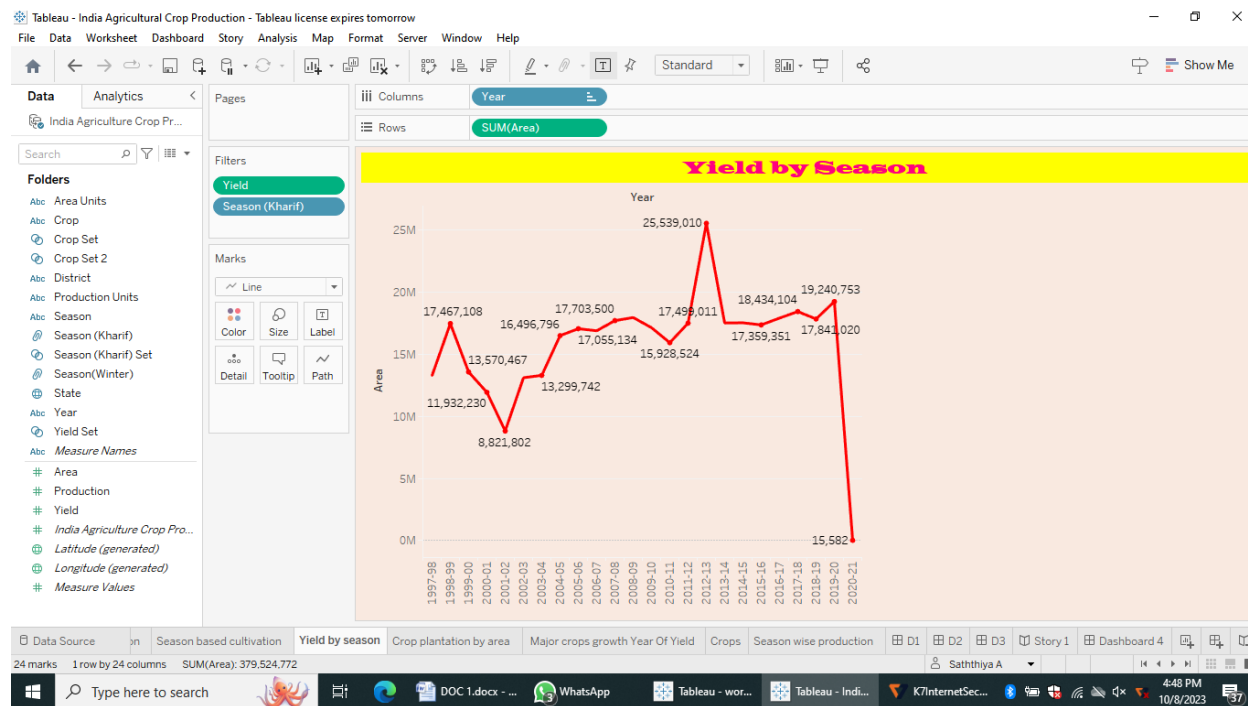
Season Based Cultivation



Description:

Go to the new worksheet. Year drag to the column and area drag to the row. Show me option select to the line charts. Crop drag to the filter and edit. Yield drag to the filter and edit. Season (Kharif) drag to the filter and edit filter. Area drag to the label, area drag to the colours. change the sheet name.

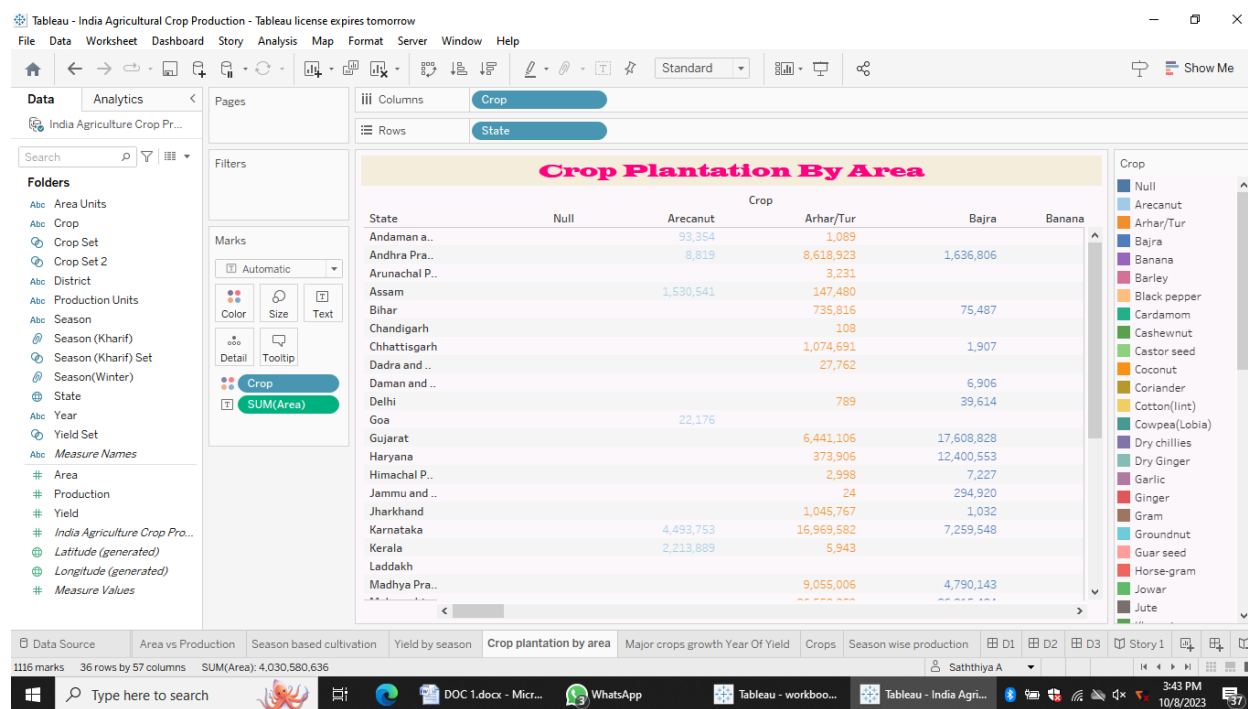
Yield By Season



Description:

Create a new worksheet. Crop drag to the columns and State drag to the row. Automatic select to the text tables. Crop drag to the colour and edit. Area Drag to the label and edit label. Next, change the sheet name.

Crop Plantation By Area



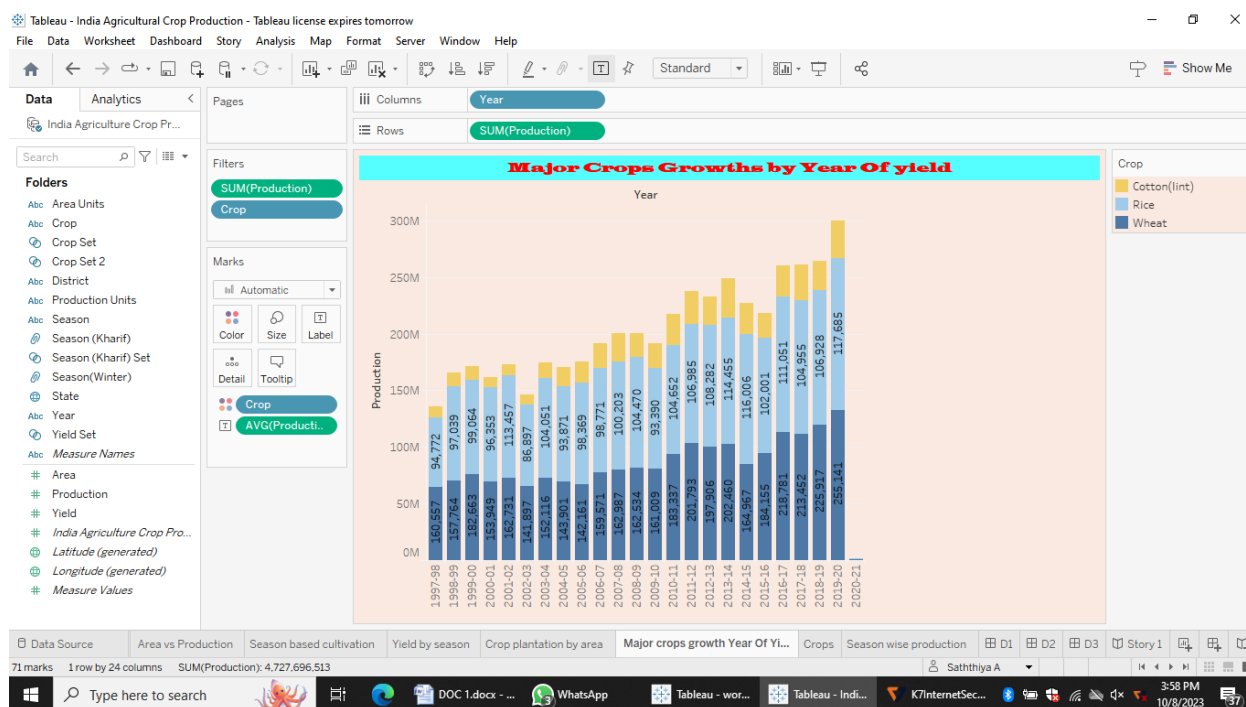
Description:

Go to worksheet. Year drag to the columns and production drag to the rows.

Crop drag to the colour and edit. Average production drag to the label and edit label.

Production drag to the filters and edit, crop drag to the filters and edit filters. Next, change the sheet name.

Major Crops Growths By Year Of Yield

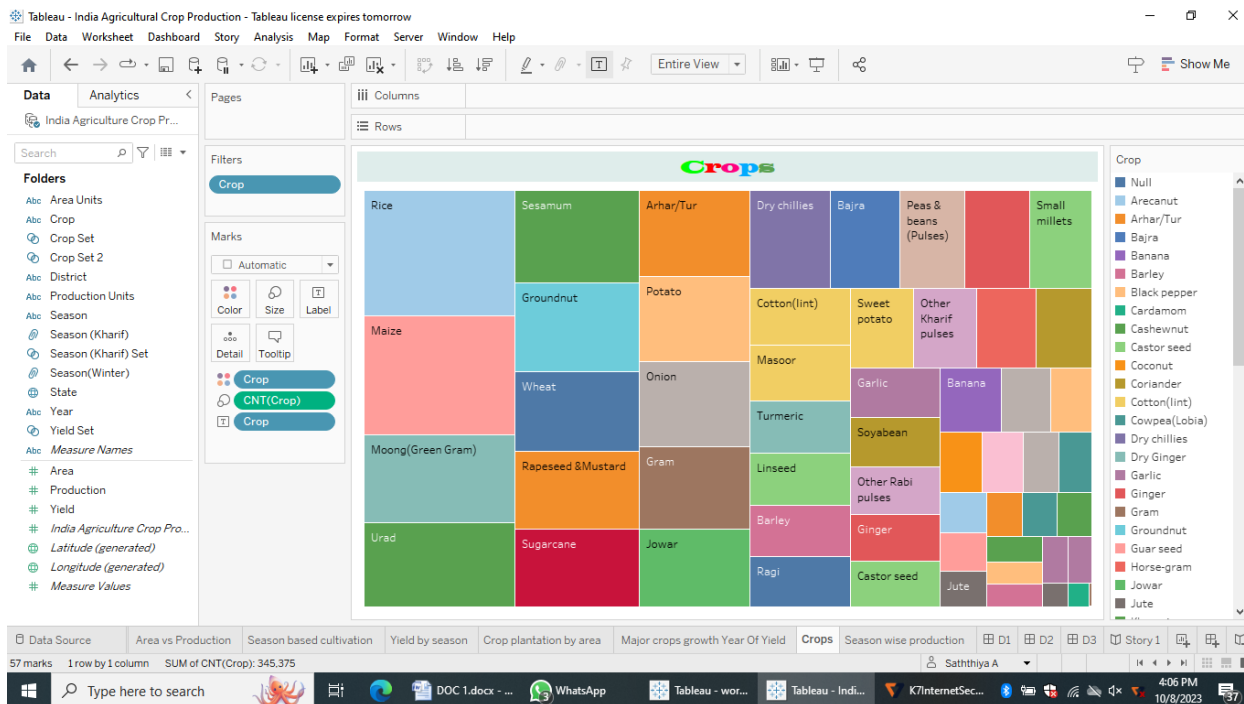


Description:

Create a new worksheet. Automatic option change to the label. Crop drag

to the label and colour and edit. Crop drag to the size and edit the size, select to the measure option choose a count option. Crop drag to the filters and edit. Standard option change to entire view. Next, change the sheet name.

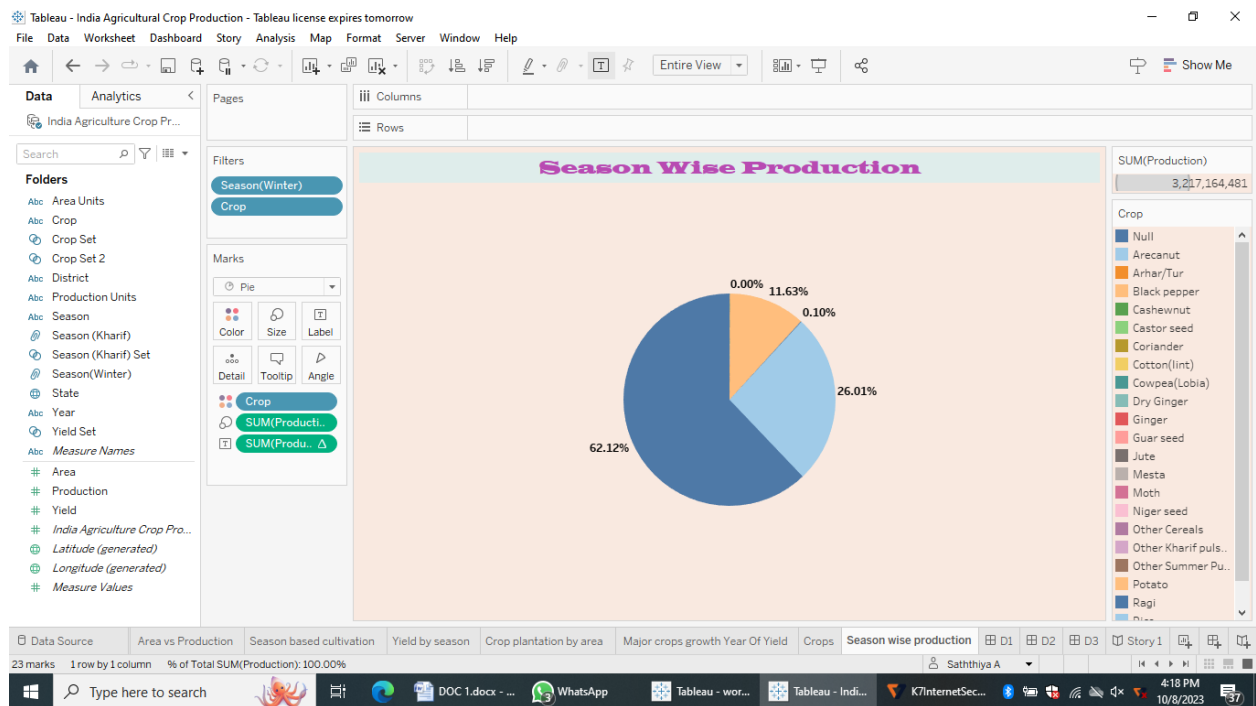
Crops



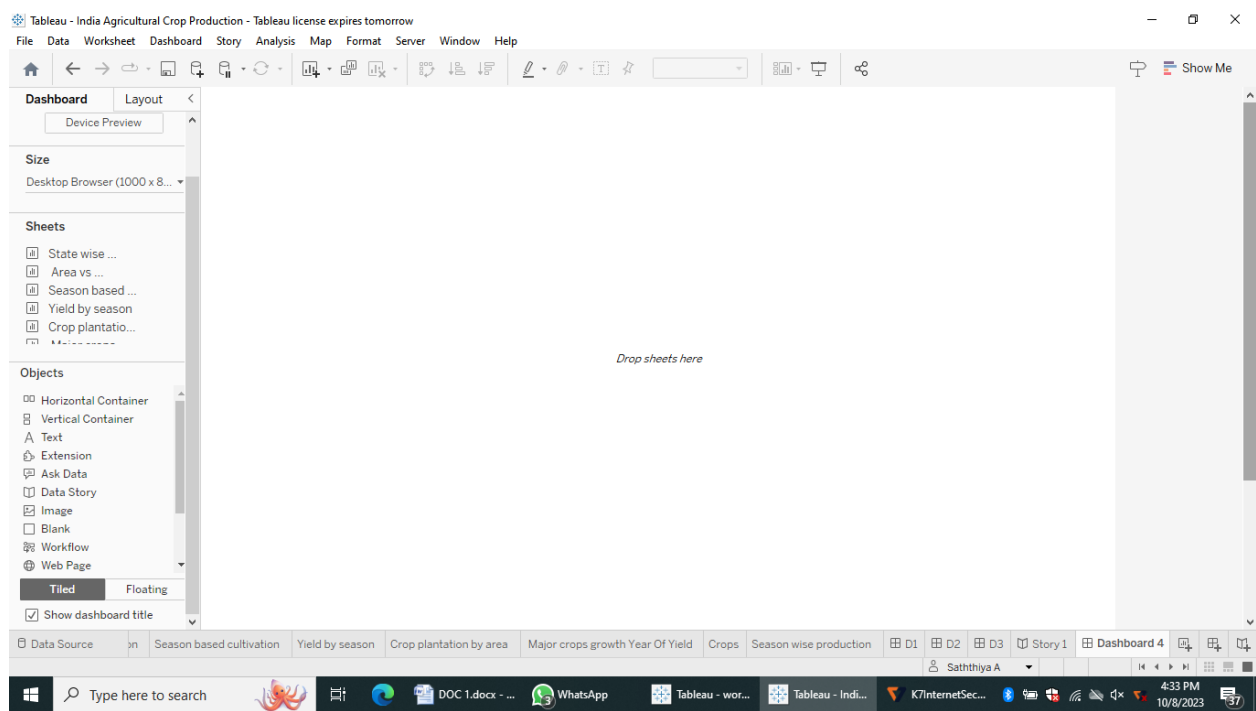
Description:

Go to new worksheet. Crop drag to the colour and edit. Production drag to the size and label edit. Automatic change the pie charts option. Select to the season choose a measure option select a option (Winter) drag to the filters and edit, crop drag to the filter and edit. Change the sheet name.

Season Wise Production



Open the Dashboard and drag the all chart sheet

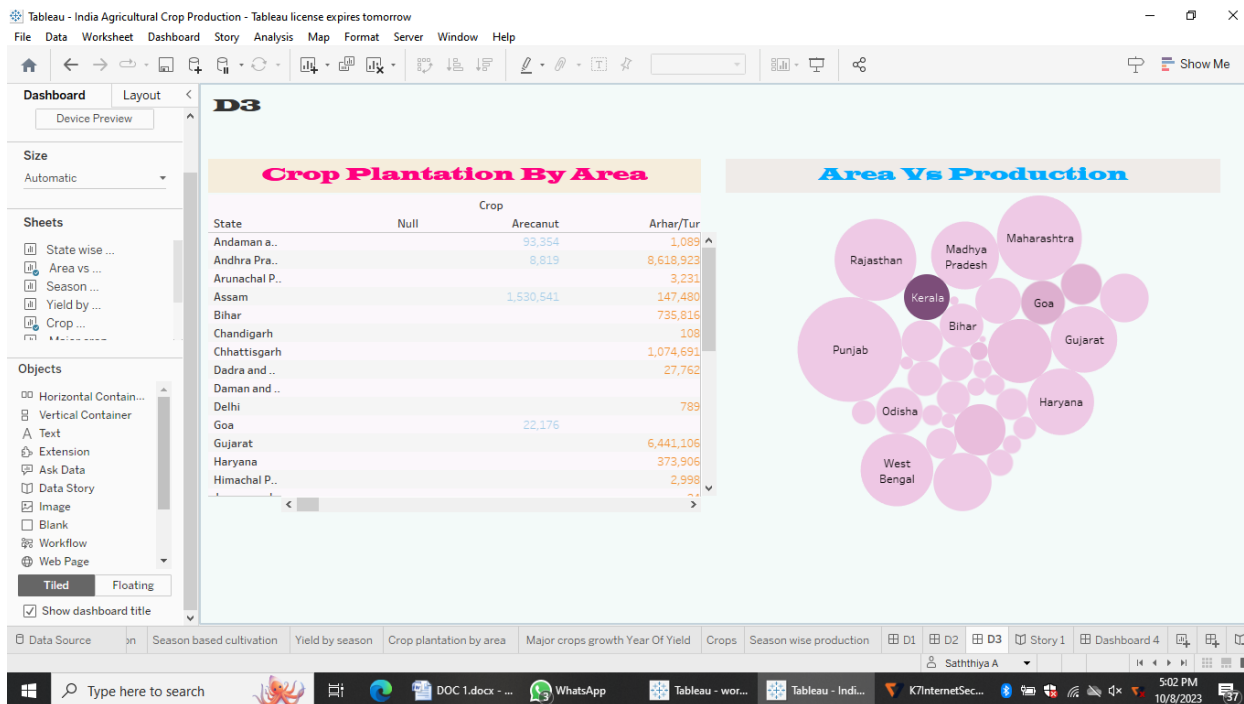


Dashboard 1:

State wise Agricultural Land and season Based cultivation and Yield by season drag to the dashboard 1.

Dashboard 3:

Crop plantation by area , Area Vs production drag to the dashboard 3.



STORY :

A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis in a logical and systematic way, and a conclusion that summarizes the key findings and highlights their implications. Data stories can be told using a variety of mediums, such as reports, presentations, interactive visualizations, and videos.

Activity 1: No of Scenes of story

The number of scenes in a story board for a data visualization analysis of the performance of banks 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.

Tableau - India Agricultural Crop Production - Tableau license expires tomorrow

File Data Worksheet Dashboard Story Analysis Format Server Window Help

Story Layout

New story point

Blank Duplicate

State wise ...
Area vs ...
Season based ...
Yield by season
Crop plantatio...
Major crops ...
Crops
Season wise ...
D1
D2
D3

Drag to add text

Show title

Size
Story (1016 x 964)

Story 2

Add a caption

Drag a sheet here

Data Source Season based cultivation Yield by season Crop plantation by area Major crops growth Year Of Yield Crops Season wise production D1 D2 D3 Story 2 Story 1

Saththiya A

Type here to search

DOC 1.docx - ... WhatsApp Tableau - wor... Tableau - Indi... K7InternetSec...

5:39 PM 10/8/2023

Tableau - India Agricultural Crop Production [Recovered] - Tableau license expires tomorrow

File Data Worksheet Dashboard Story Analysis Format Server Window Help

Story Layout

New story point

Blank Duplicate

State wise ...
Area vs ...
Season based ...
Yield by season
Crop plantation ...
Major crops ...
Crops
Season wise ...
D1
D2
D3

Drag to add text

Show title

Size
Automatic

Story 1

This bar charts is showing the state wise crop production.

This bubbles charts shows area wise production.

This line charts shows crop production by avg.area & season &

This line charts shows yield by season.

This text tables shows crop plantation by area.

This stacked bars charts shows major croos growths br veer

This tree maps charts shows by crops.

Area

State

Uttar Pradesh 544,672,635
Madhya Prad. 492,087,994
Rajasthan 486,451,365
Maharashtra 461,939,552
Karnataka 257,907,399
Andhra Prad. 238,925,335
West Bengal 237,682,265
Gujarat 222,434,333
Bihar 167,995,431
Punjab 162,040,200
Haryana 131,506,994
Odisha 124,646,660
Chhattisgarh 110,636,194
Tamil Nadu 110,373,866
Assam 77,342,600
Telangana 39,814,489
Kerala 36,391,060
Jharkhand 30,435,527
Uttarakhand 22,471,891
Jammu and K. 18,888,028
Himachal Pra. 17,810,208
Nagaland 8,426,732
Tripura 6,278,528
Meghalaya 5,725,531
Mizoram 5,727,639
Arunachal Pr. 5,178,776
Goa 2,750,901
Sikkim 1,759,399
Mizoram 1,542,541
Andaman an. 840,598
Delhi 797,903
Puducherry 653,541
Dadra and N. 476,492
Daman and Di. 47,796
Chandigarh 17,960
Ladakh 273

State

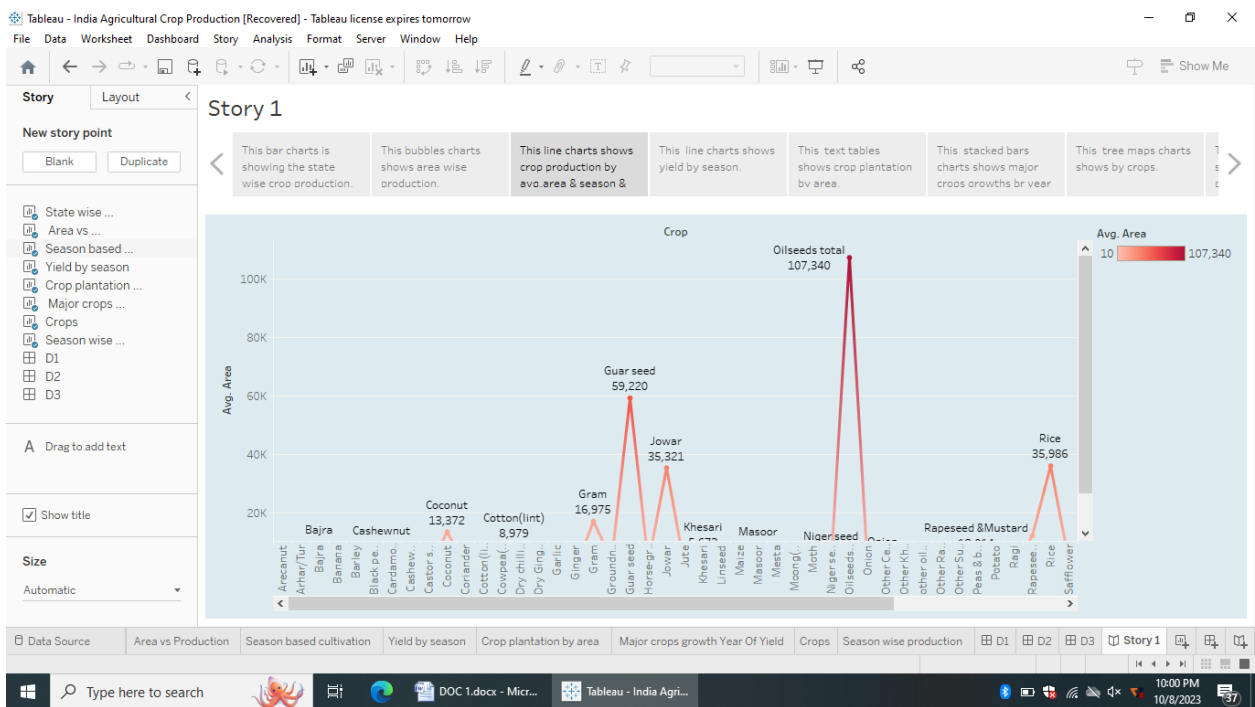
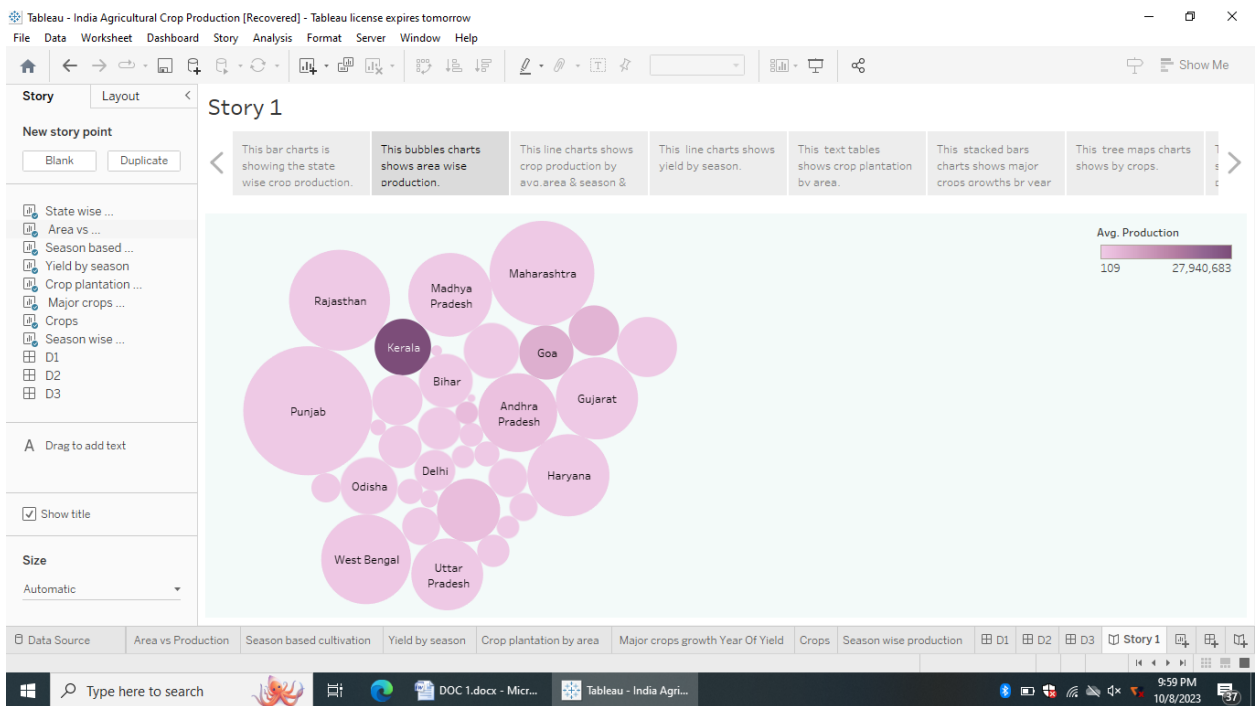
Uttar Pradesh
Madhya Pradesh
Rajasthan
Maharashtra
Karnataka
Andhra Pradesh
West Bengal
Gujarat
Bihar
Punjab
Haryana
Odisha
Chhattisgarh
Tamil Nadu
Assam
Telangana
Kerala
Jharkhand
Uttarakhand
Jammu and Kash...

Data Source Area vs Production Season based cultivation Yield by season Crop plantation by area Major crops growth Year Of Yield Crops Season wise production D1 D2 D3 Story 1

Type here to search

DOC 1.docx - Micr... Tableau - India Agri...

9:58 PM 10/8/2023



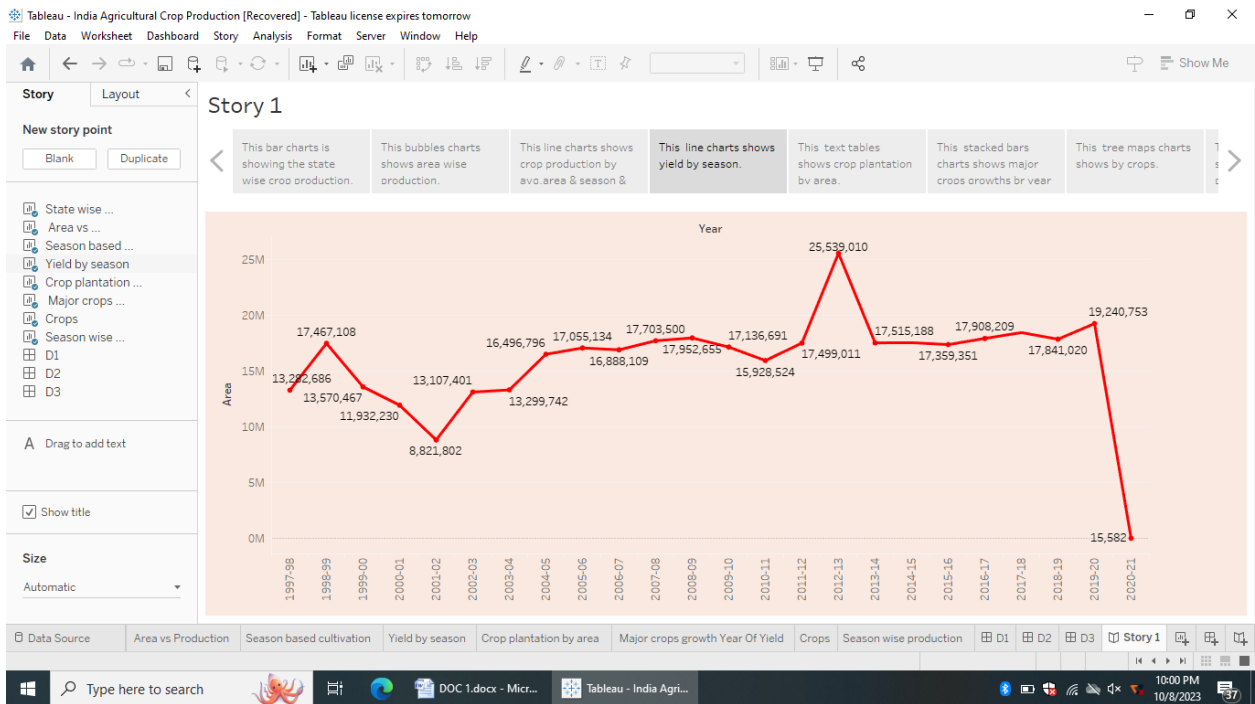


Tableau - India Agricultural Crop Production [Recovered] - Tableau license expires tomorrow

File Data Worksheet Dashboard Story Analysis Format Server Window Help

Story 1

New story point

Blank Duplicate

State wise ...
Area vs ...
Season based ...
Yield by season ...
Crop plantation ...
Major crops ...
Crops
Season wise ...
D1
D2
D3

Drag to add text

Show title

Size
Automatic

This bar charts is showing the state wise crop production.

This bubbles charts shows area wise production.

This line charts shows crop production by avo.area & season &

This line charts shows yield by season.

This text tables shows crop plantation by area.

This stacked bars charts shows major croos growths br veer

This tree maps charts shows by crops.

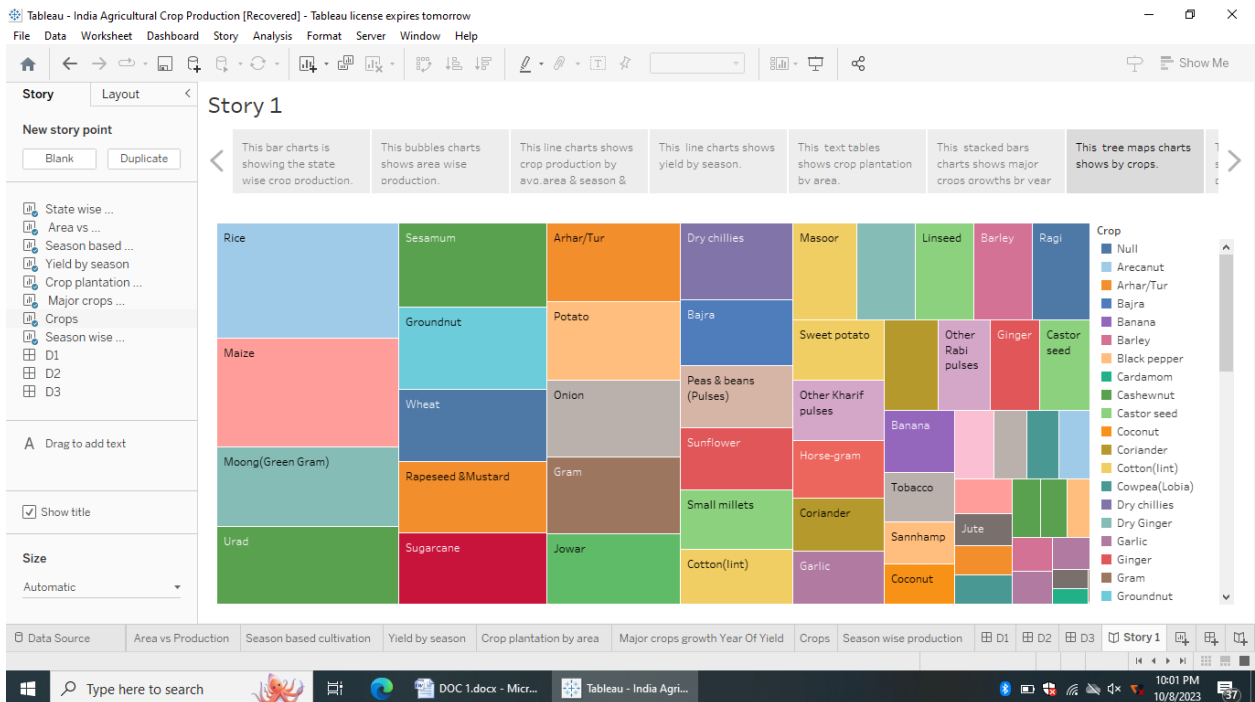
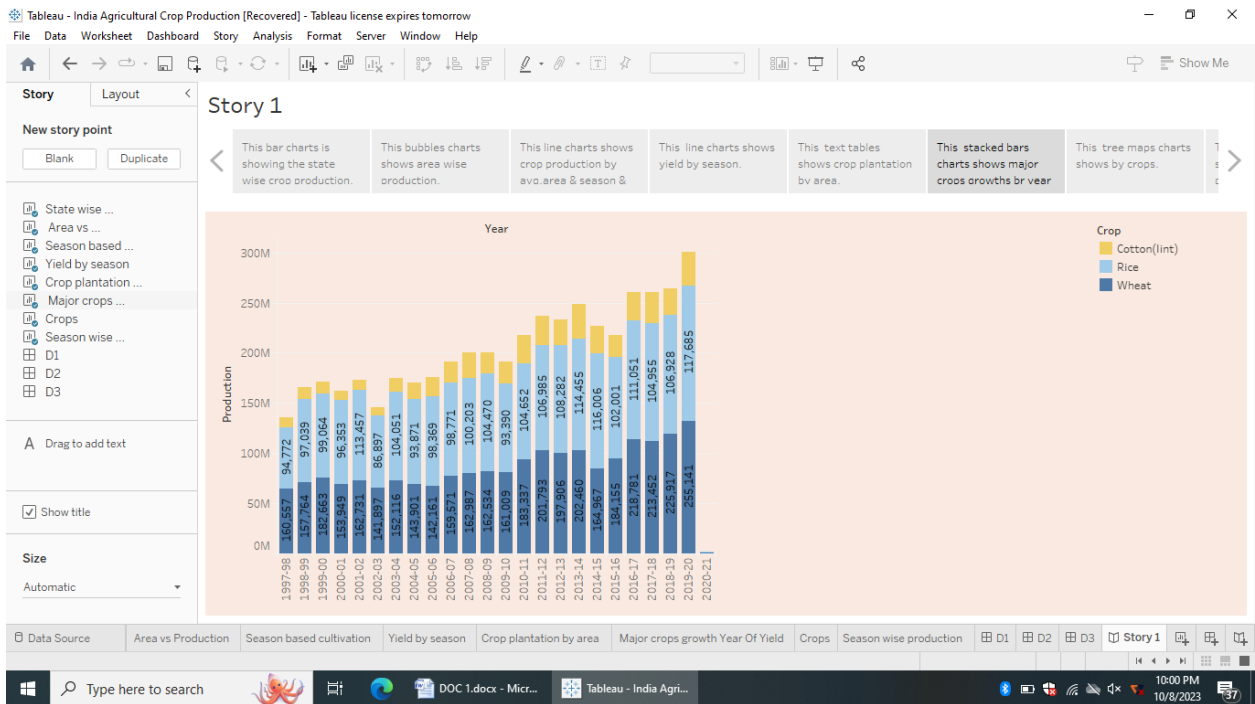
State	Null	Arecanut	Arhar/Tur	Bajra	Banana	Barley	Crop
Andaman a..		93,354	1,089		33,773		Null
Andhra Pra..		8,819	8,618,923	1,636,806	997,095		Arecanut
Arunachal P..			3,231				Arhar/Tur
Assam		1,530,541	147,480		973,678		Bajra
Bihar			735,816	75,487	162,341		Banana
Chandigarh			108				Barley
Chhattisgarh			1,074,691	1,907	15,023		Black pepper
Dadra and ..			27,762		691		Cardamom
Daman and ..				6,906			Cashewnut
Delhi			789	39,614			Castor seed
Goa		22,176			29,097		Coconut
Gujarat			6,441,106	17,608,828	583,910		Coriander
Haryana			373,906	12,400,553	206		Cotton(lint)
Himachal P..			2,998	7,227			Cowpea(Lobia)
Jammu and ..			24	294,920			Dry chillies
Jharkhand			1,045,767	1,032			Dry Ginger
Karnataka		4,493,753	16,969,582	7,259,548	577,792		Garlic
Kerala		2,213,889	5,943		1,217,461		Ginger
							Gram
							Groundnut

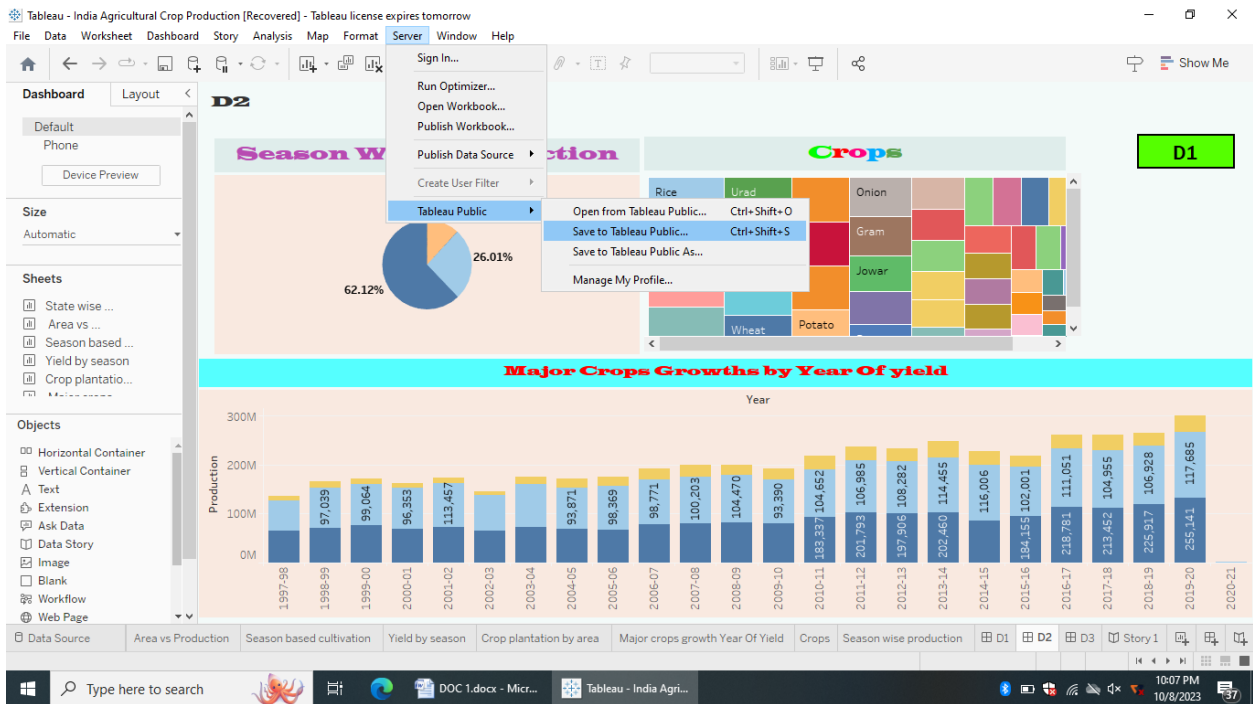
Data Source Area vs Production Season based cultivation Yield by season Crop plantation by area Major crops growth Year Of Yield Crops Season wise production D1 D2 D3 Story 1

Type here to search

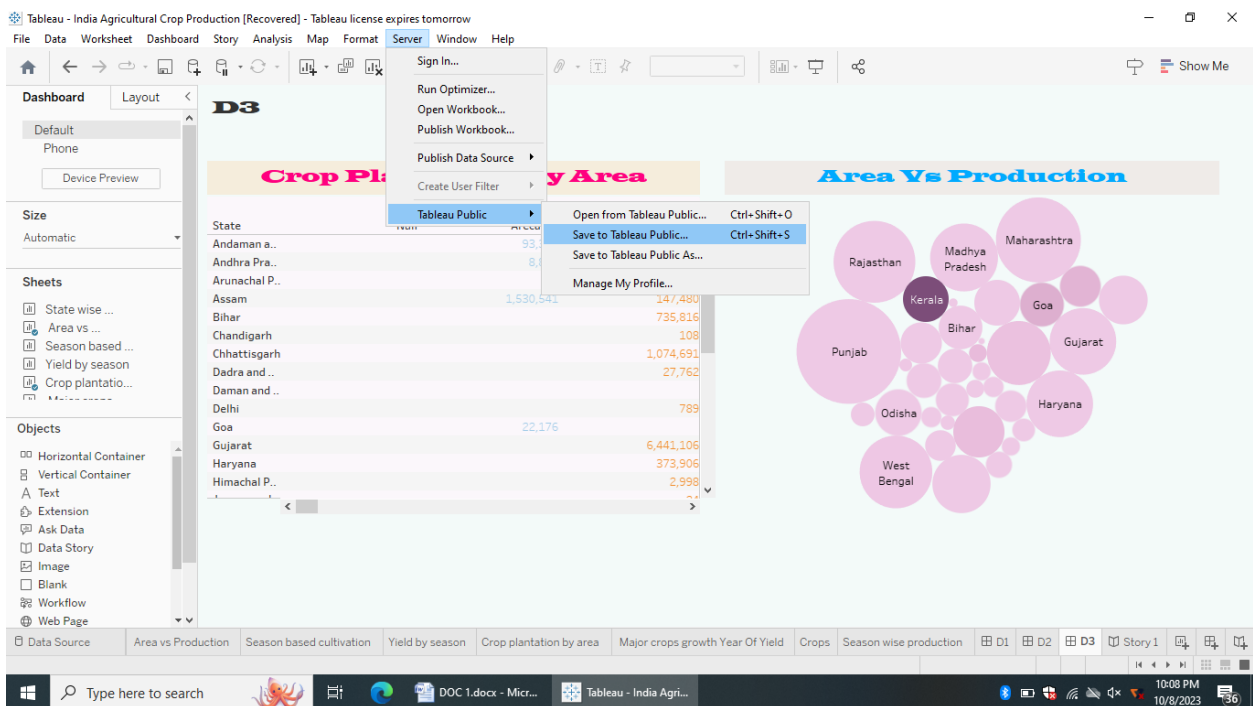
DOC 1.docx - Micr... Tableau - India Agri...

10:00 PM
10/8/2023





Dashboard 3:



Go to the server option Tableau Public is save to tableau Public As. Option , go to the Tableau website.

Description :

Sign in the gmail in to the website and save to the data sheet. Publishing the Dashboard and download the all charts is convert to the pdf.

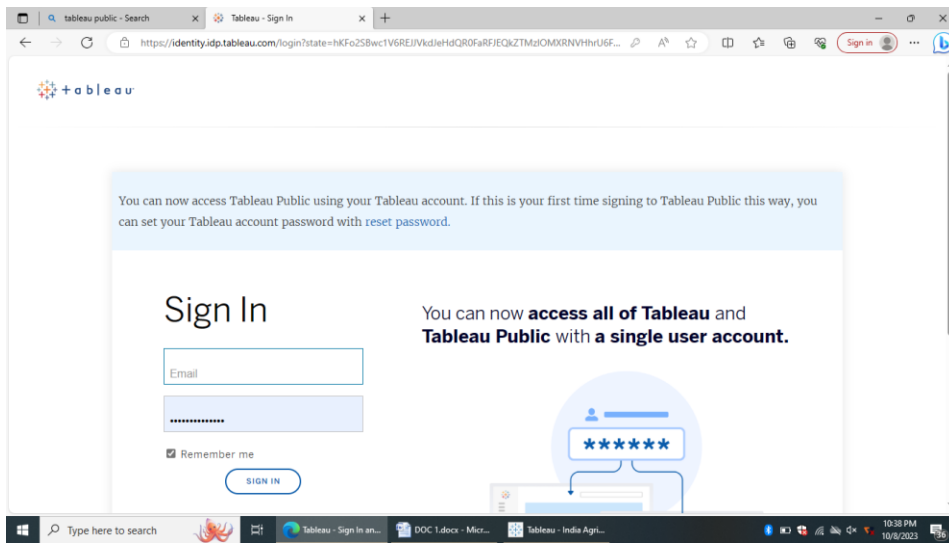


Tableau Public Url :

Dashboard 1:

https://public.tableau.com/views/workbook1_16966685510100/D1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Dashboard 2 :

https://public.tableau.com/views/workbook1_16966685510100/D2?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

Dashboard 3 :

https://public.tableau.com/views/workbook1_16966685510100/D3?:language=en-US&:display_count=n&:origin=viz_share_link

Story link :

https://public.tableau.com/views/workbook1_16966685510100/Story1?:language=en-US&publish=yes&:display_count=n&:origin=viz_share_link

ADVANTAGES & DISADVANTAGES

Advantages :

A data-literate workforce supports a data-driven company, which can be more efficient and productive. But more than that, data is one of the biggest drivers of innovation. The benefits of data literacy translate into competitive advantage for our business:

- ❖ Cut costs and raise revenues with better, faster decisions.
- ❖ Increase innovation with data.
- ❖ Create better customer experiences with customer data.
- ❖ Improve employee and applicant experiences.

Disadvantages :

Rest assured, data literacy training is always an advantage. A lack of resources could force an organization to deprioritize data literacy, but that doesn't make data literacy a disadvantage. If someone sees a data literacy program as a waste of resources, they've failed to recognize the overwhelming benefits of a data-literate workforce.

APPLICATIONS:

Customers have successfully established community-led support by Using champion-created content, and escalating to the analytics or IT team for system-level issues, such as server and database access.

- ❖ Department or team champion.
- ❖ Channel-based communication or chat.
- ❖ Data doctor office hours.
- ❖ Analytics support ticket.

CONCLUSION :

There are endless advantages to growing our data literacy skills —
And there is no disadvantage to investing in data literacy skills training.
From students to professionals to managers, everyone should plan to continue developing data literacy skills throughout their career. If we're a student, a parent, or an educator, learn more in our article about the benefits of data literacy in education. Companies have an opportunity to lean into data literacy skills to improve job satisfaction and return business value

FUTURE SCOPE :

- ❖ Real-time data visualization..
- ❖ Accessing, analyzing, exploring and visualizing live operational Data
- ❖ Linking different data sources to provide for continuous intelligence on a real-time basis.
- ❖ Data volumes will continue to increase and migrate to the cloud.
- ❖ Data analytics will have a huge role to play for the market In the coming years. They will be recognized as the data protectors. They will preserve the privacy of data, detect intrusions, etc.
- ❖ The IoT which is an abbreviation of the Internet of Things will see tremendous growth.
- ❖ The coming days will be the golden time for tremendous growth in cognitive analysis.

THANK YOU

