V.S.S. GOVERNMENT ARTS COLLEGE

DEPARTMENT OF PHYSICS

PULANKURICHI

SIVAGNAGAI – 630 405

Naan Mudhalvan Scheme

Domain: Data Literacy with Tableau

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

Submitted by

TEAM I

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Mentor H.O.D(i/c) Principal

PROJECT REPORT TEMPLATE

INTRODUCTION

Overview

Data literacy is one of the most important skills a business or individual can have. Businesses depend on data-literate employees to drive them forward, and businesses need to build a thriving data culture in order to empower their employees. And that's why Tableau has made a commitment to spreading data literacy wherever we can. Below, we cover the basics of data literacy including:

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?

So what is data literacy? The definition is: the ability to explore, understand, and communicate with data in a meaningful way. This can be on different levels: technically and advanced, or on a much more basic level.

Importance of data literacy

According to a study we sponsored with Forrester Consulting, 87% of employees rate basic data skills as very important for their day-to-day operations. That same

percentage of business owners expects basic data skills from their employees at all levels. Despite this, only 40% of employees feel they've been properly trained on the data skills they're expected to have. On top of that, according to a study conducted by Accenture, companies lose an average of 43 hours per employee per year due to data-induced procrastination.

Not to mention the amount of data produced and cataloged grows by the day, and utilizing data becomes increasingly important for businesses to stay ahead of their competition. Creating a culture of data literacy at your company can provide many benefits, including:

- Better decision making
- Clearer understanding of ROI and attribution
- Increased employee satisfaction and retention
- Better customer experience and satisfaction

Data literacy skills

When you start saying "data" and "skills" in the same sentence, people can get intimidated. Luckily, there are data literacy skills that anyone can learn and master, regardless of their current knowledge level. We've divided these into technical and non-technical skills.

Non-technical skills

It can see like all the data skills are technical and difficult to learn, but in reality, many are completely non-technical and accessible to anyone who wants to build their skills. This includes things like problem-solving, critical thinking, researching, and more.

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 of your data is critical to understanding it. You can develop this skill by learning how to evaluate sources, narrow your search, and spot implicit or explicit biases.
- **Communication:** A large part of data literacy is being able to communicate to others what your data is telling you. You can sharpen your communication skills by practicing active listening, working on your public speaking, and seeking feedback from trusted peers.
- **Domain knowledge:** And perhaps most important is keeping up with the industry and latest trends. You can work on expanding your data knowledge by reading books, following blogs, or researching trends.

Technical skills

Technical skills are, of course, equally important to developing data literacy. These range from relatively simple skills to learn like data analysis and visualization, to much more complex such as calculus and statistical programming.

Some of the technical data literacy skills include:

- **Analysis:** Data analysis is the statistical and logical technique used to interpret and evaluate data. It includes collecting, formatting, cleaning, and processing data as well as analysis and interpretation.
- **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 you want to really understand data on a deep level, you 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 you want to build dashboards or complex data analysis programs, you 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 you expect when pushing for data literacy in your organization? You may encounter such challenges as your employees being resistant to change or new technology, there being a skills gap between your users, issues with data governance, and silos in your organization.

- **User resistance:** You 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 your team to handle new procedures or tools, you may find that some of your 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.
- **Data governance:** The more data your organization learns to handle, the better your data governance practices need to be. Ensuring you have best practices for every stage of the data governance lifecycle will ensure that your processes run smoothly and your data is accurate.

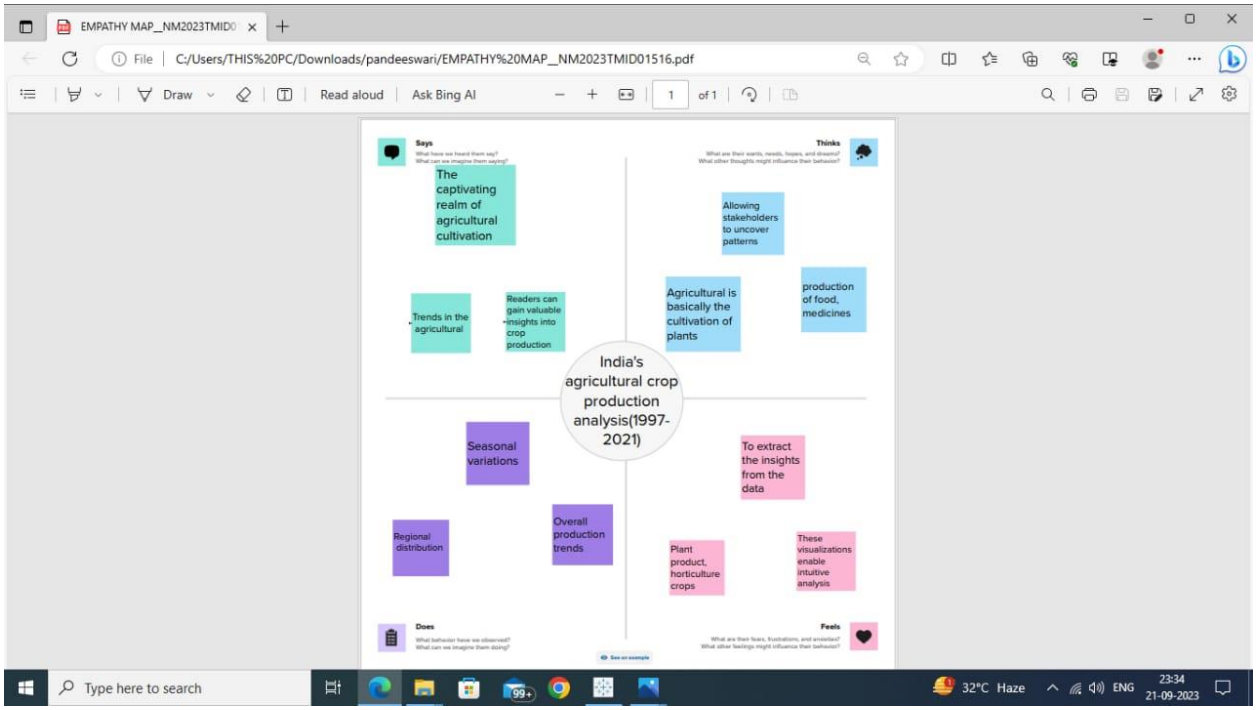
PROJECT DESCRIPTION:

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.

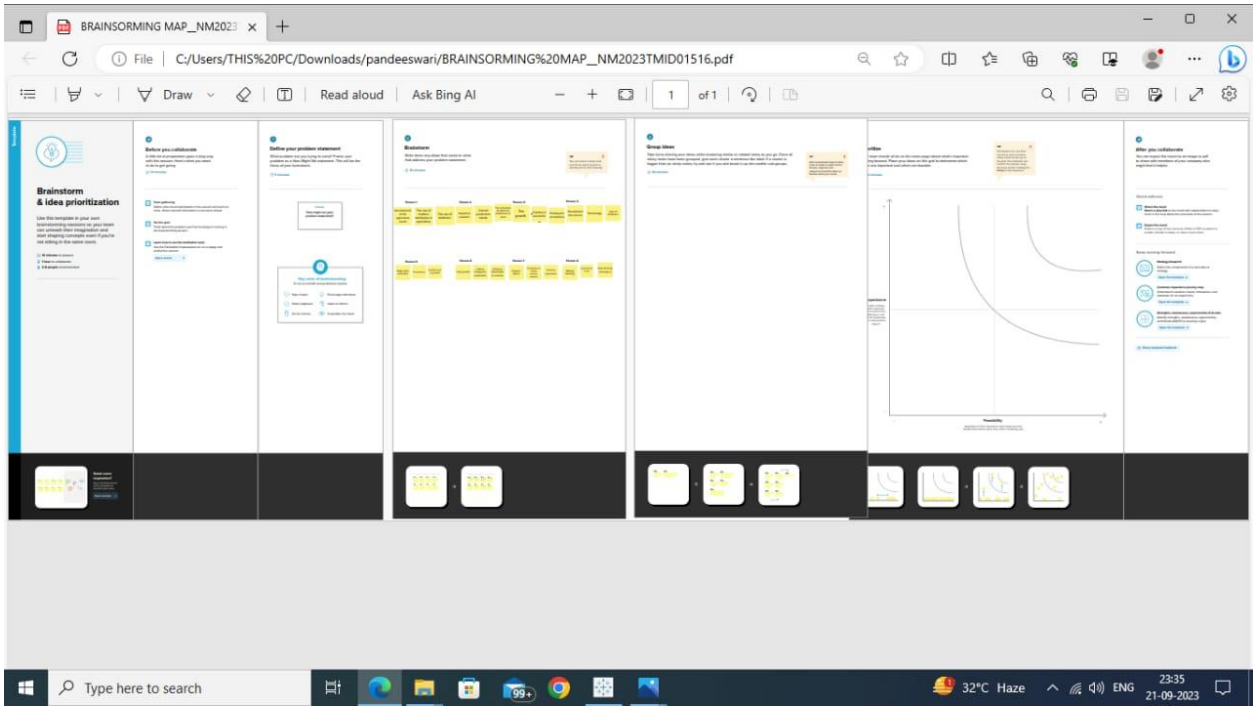
By harnessing the power of Tableau, this report not only presents the data in a visually appealing manner but also provides an interactive experience for readers to explore the intricacies of India's agricultural cultivation. To Extract the Insights from the data and put the data in the form of visualizations,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

Purpose Definition & Design Thinking

Empathy Map

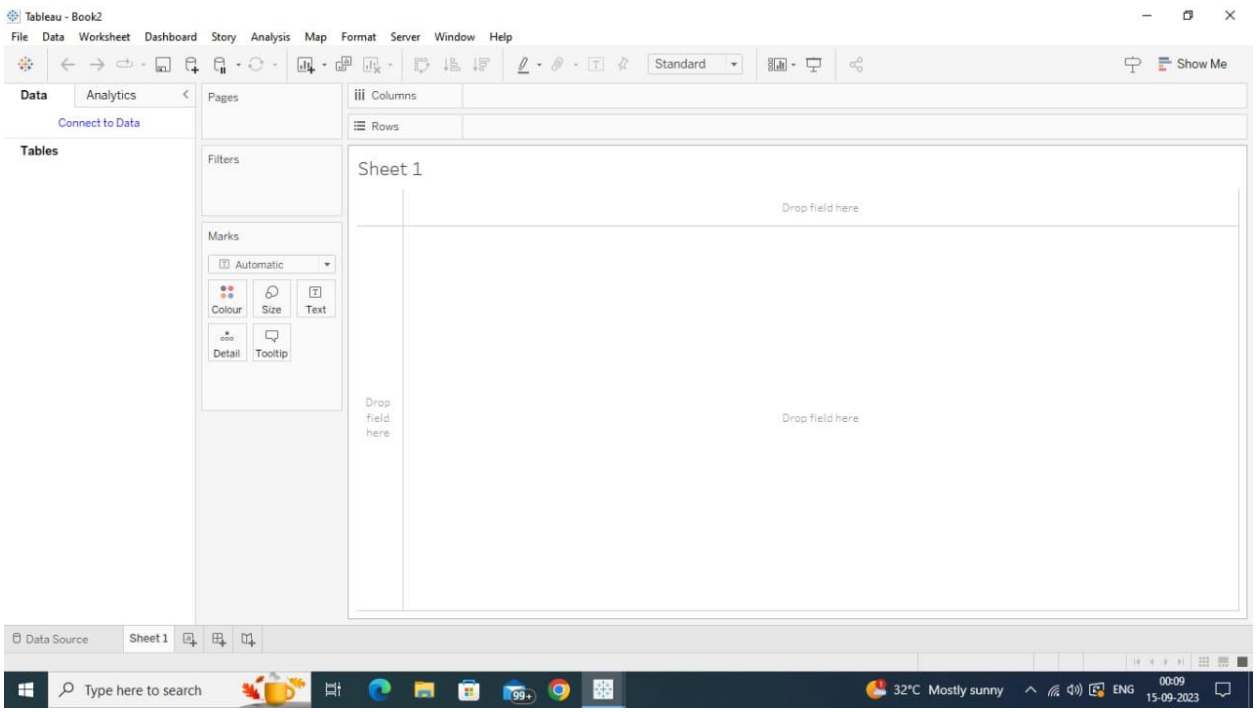


Ideation & Brainstorming Map



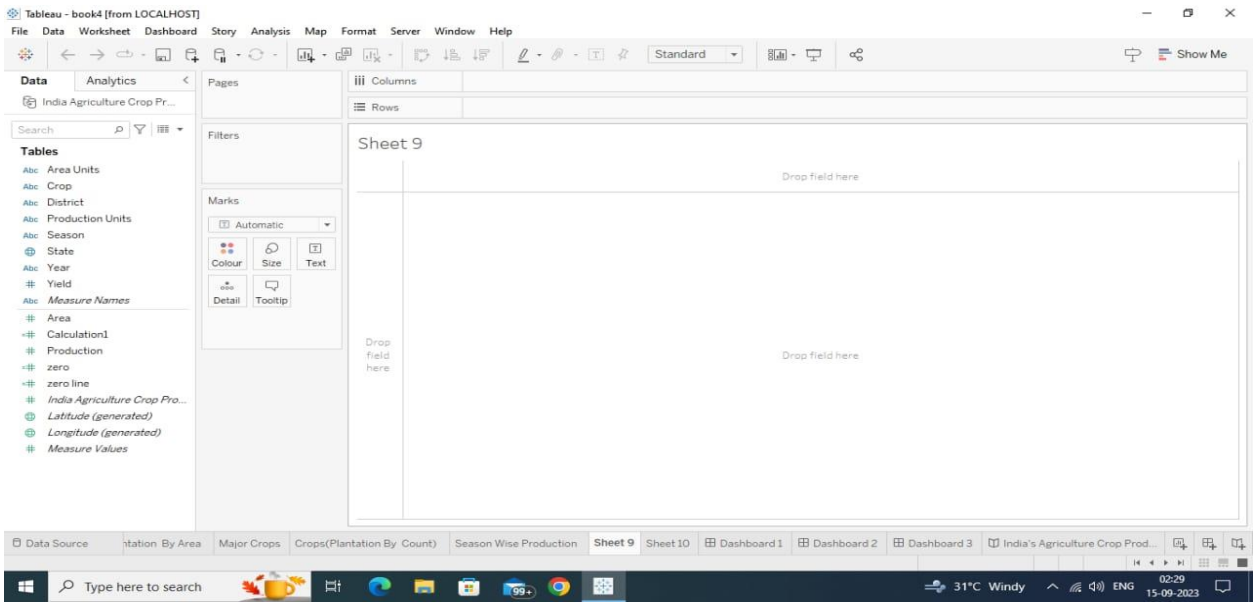
Activity & Screenshot

Open the Tableau Desktop



Description:

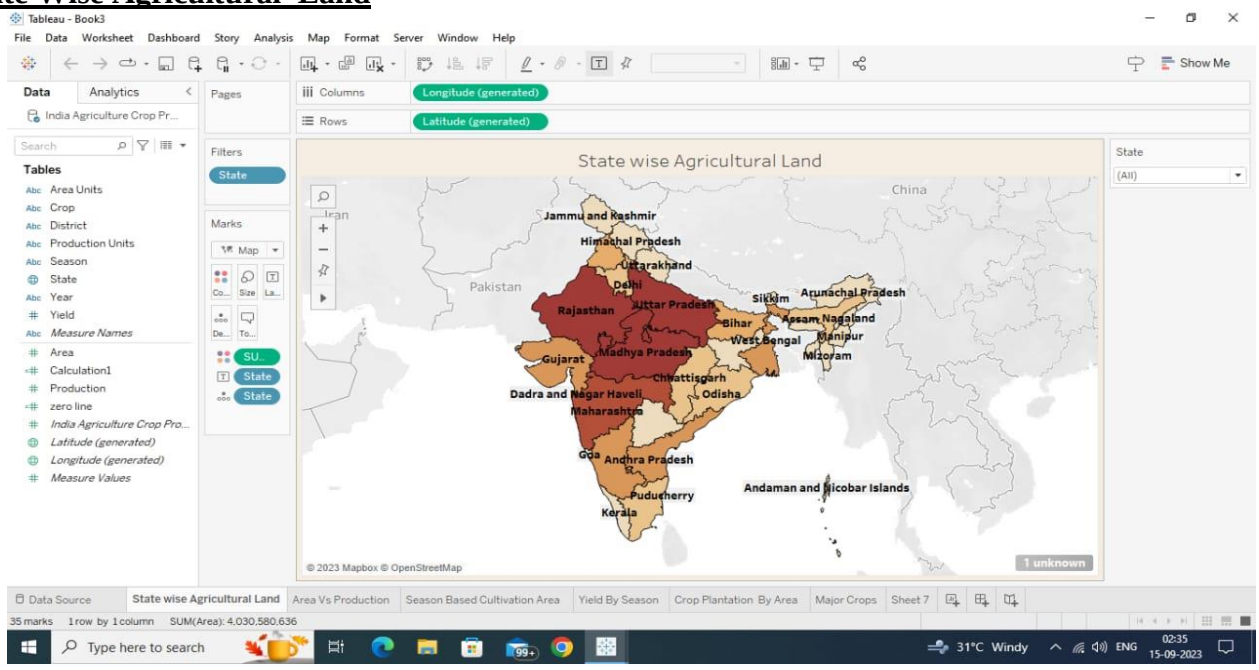
Data contains all the meta information regarding the columns described in the CSV file: The Tableau HRscorecard: measuring sources in talent management.



Description:

Create a new worksheet on the left you will find data columns select the state column,drag and drop in to row shelf,top right corner you can see show me option select the map, area drag to the colours and State drag to the label edit label, finally change the sheet name and get the visualization.

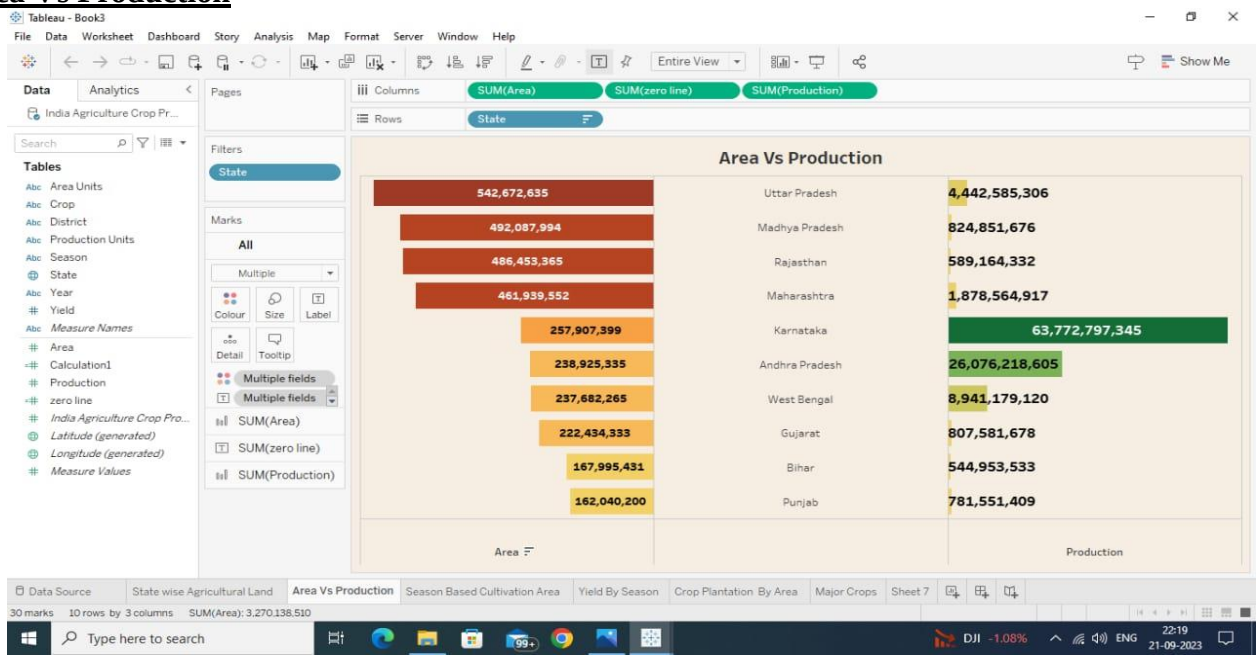
<u>State Wise Agricultural Land</u>



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 horizontal bar. Production drag to the column edit the area and select the zero line drag to the column and edit the label change the sheet name.

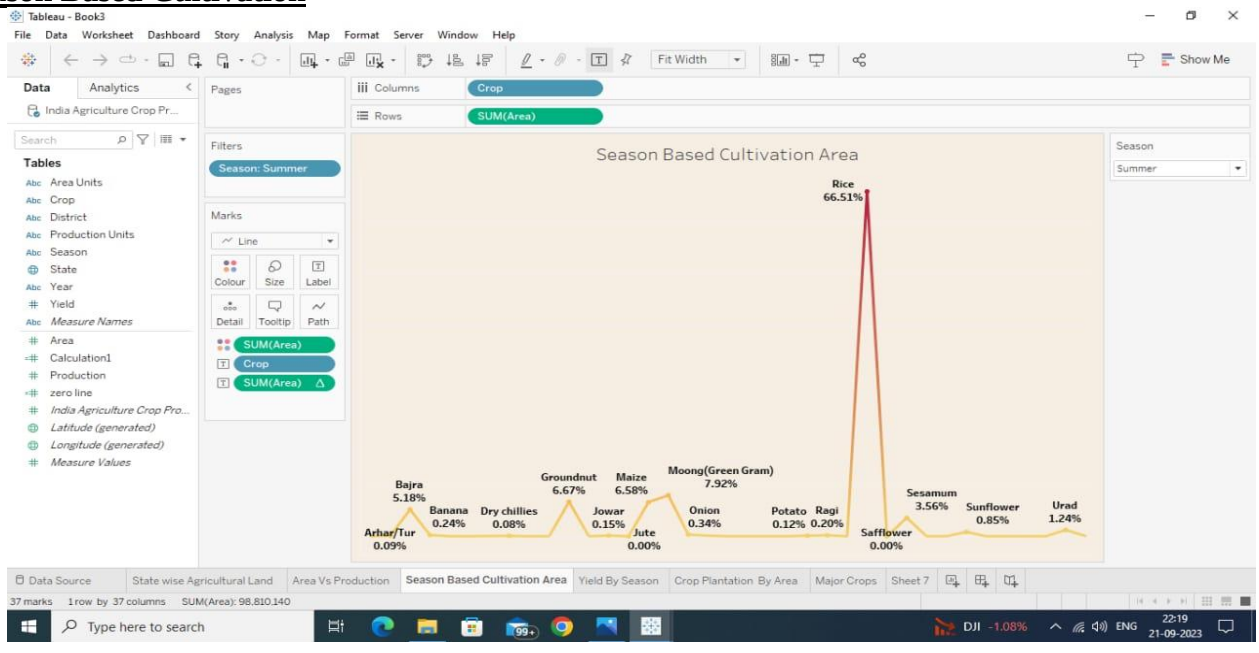
Area Vs Production



Description:

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

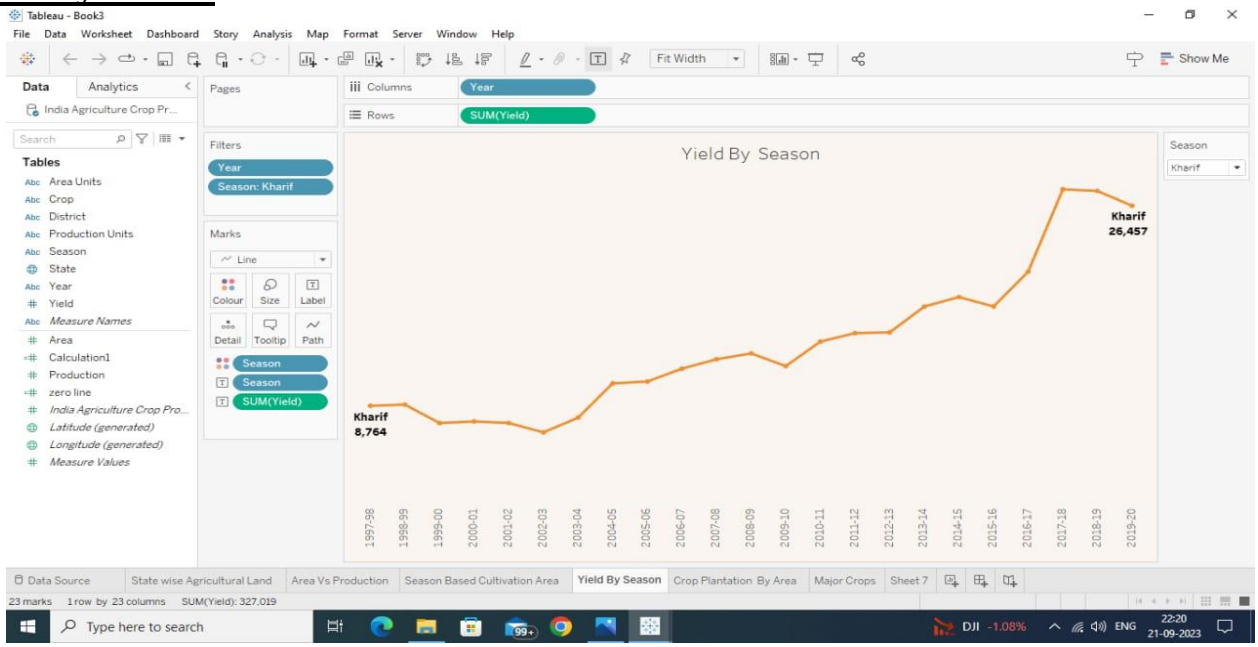
Season Based Cultivation



Description:

Open the new sheet. Year drag to the columns and yield drag to the row and standard option change to the fit width. Season drag to the colours and season drag to the label. Yield drag to the label. Change the sheet name and visualization.

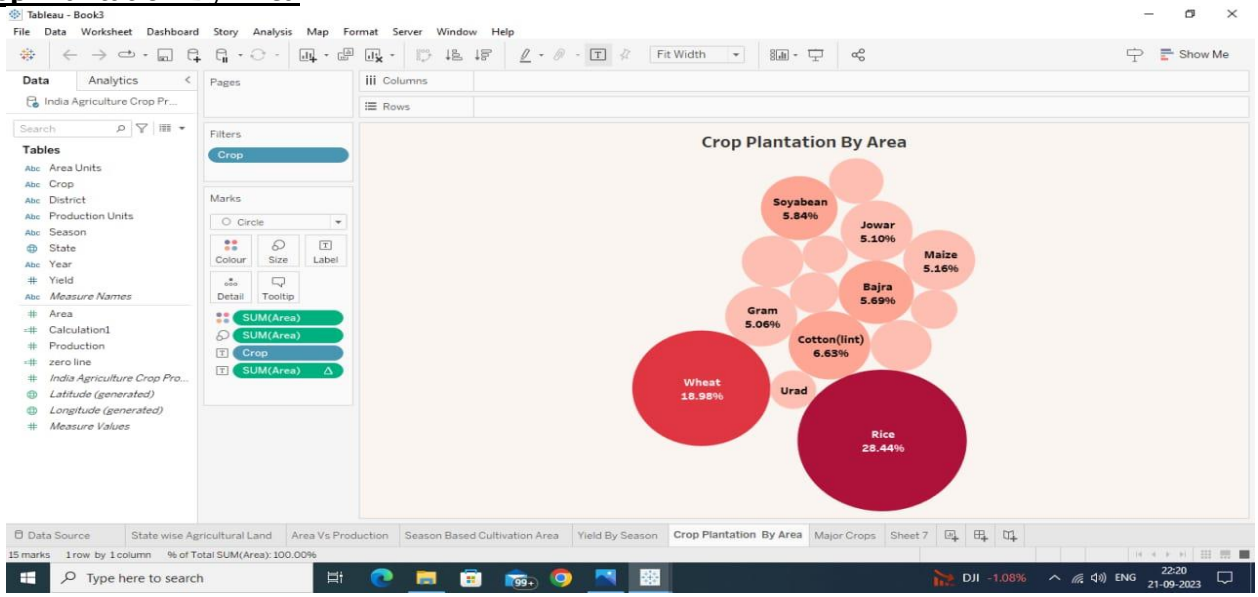
Yield By Season



Description:

Go to the new worksheet. Crop drag to the column and area drag to the row. Show me option select to the packed bubbles. Standard option change to fit width,crop drag to the filter and edit. Crop drag to the colours, area drag to the label, area drag to the colours.change the sheet name.

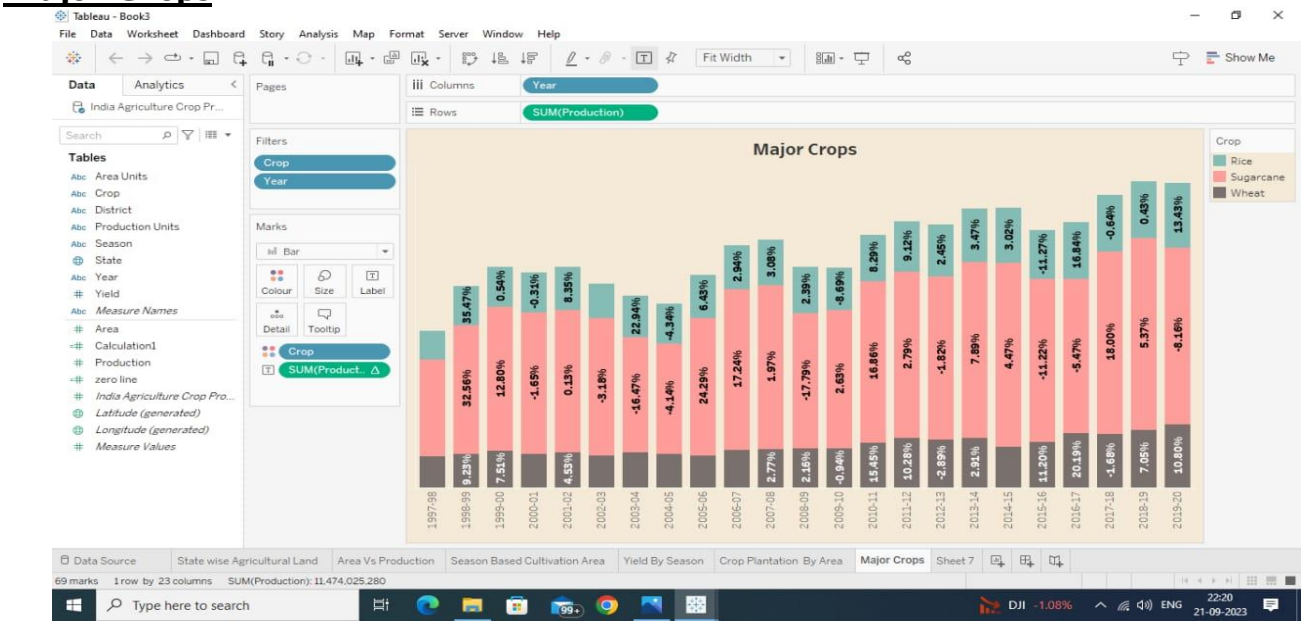
Crop Plantation By Area



Description:

Create a new sheet. Year drag to the column and production drag to the row.crop drag to the colour and edit. Show me opotion select the stacked bar. Standard option to change the fit width. crop drag to the colours and production drag to the label change to the sheet name.

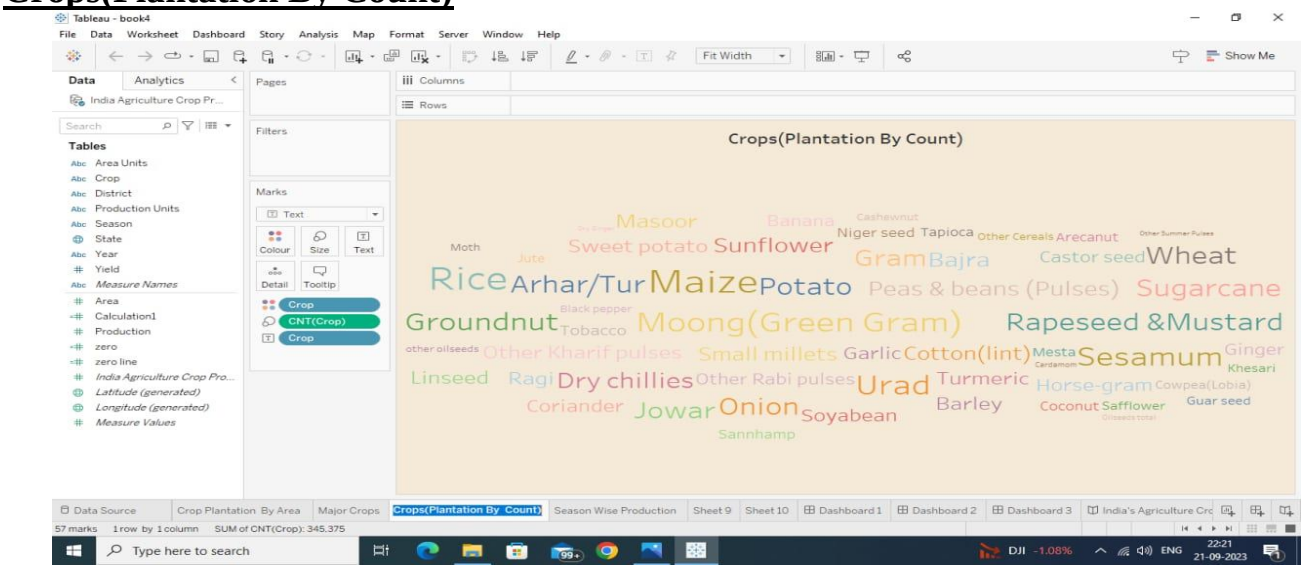
Major Crops



Description:

Create a new worksheet. Crop drag to the label, crop drag to the size and select the measure choose the count option. Automatic option change to the label. Crop drag to the colour and standard change to fit width, change the sheet name.

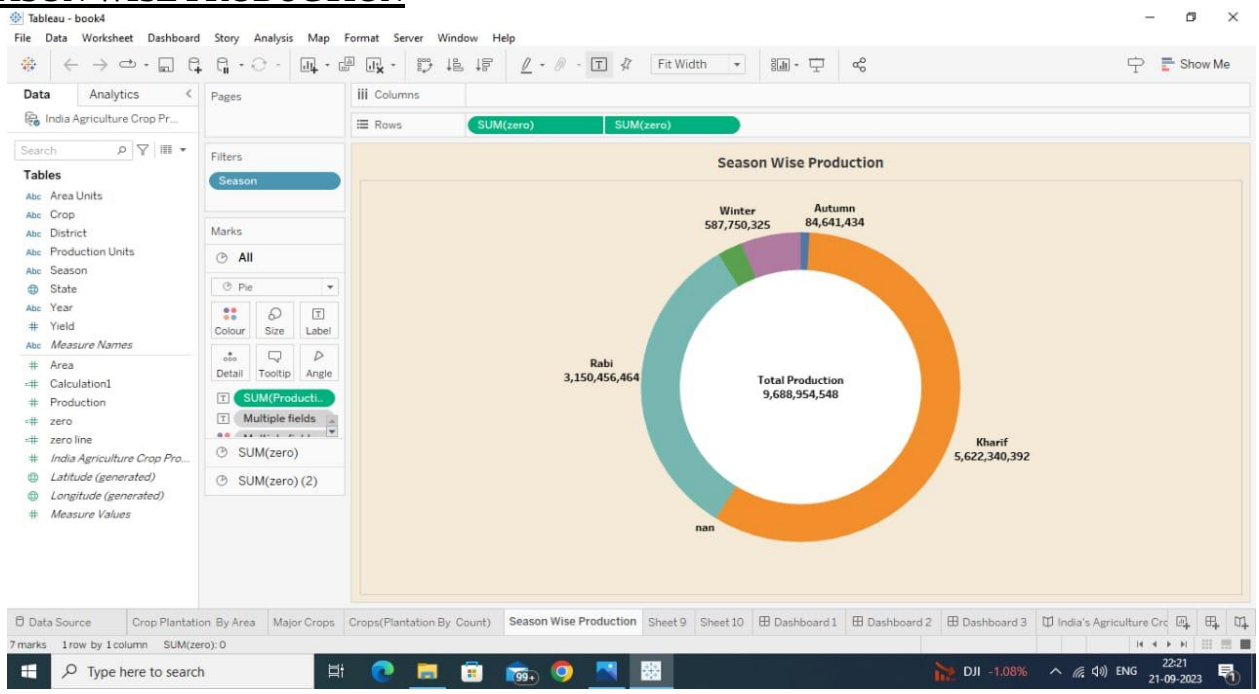
Crops(Plantation By Count)



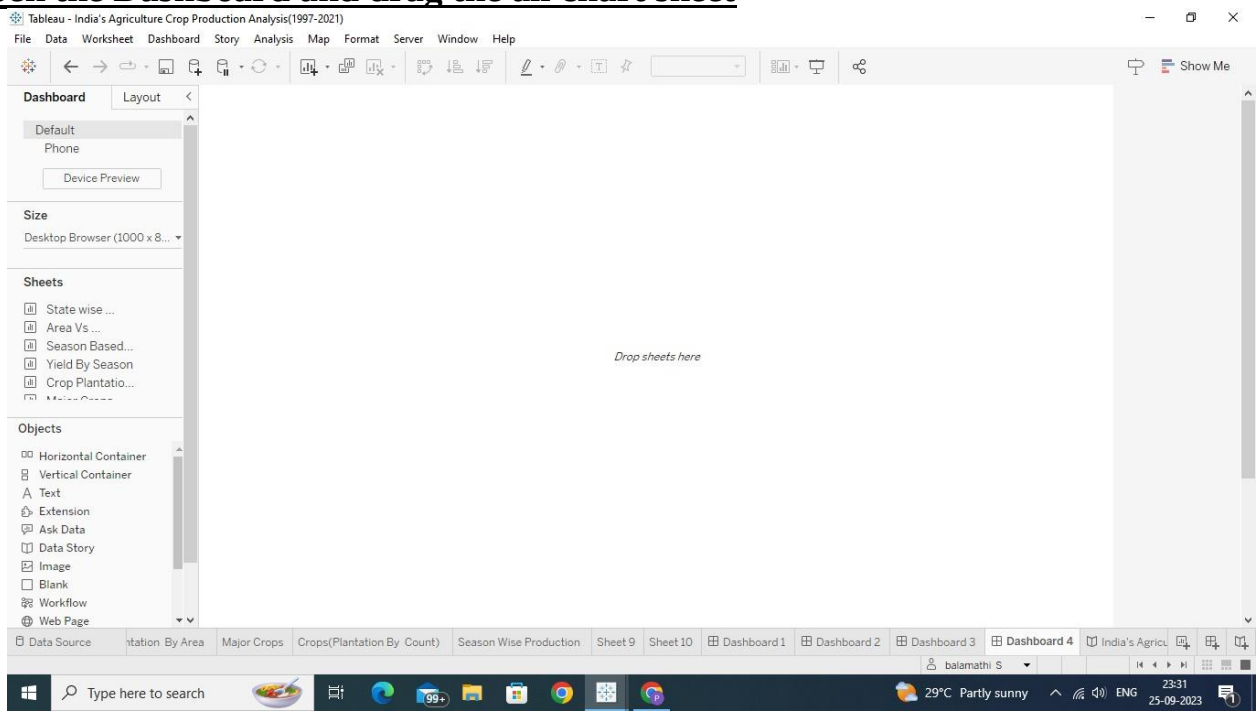
Description:

Go to worksheet. Zero drag to the row and standard option change to fitwidth. Automatic change to pie. Repeat to zero darg to the row. Season drag to the colours season drag to the filter and edit. Production drag to the angle and label. Season drag to the label and change to the sheet name.

SEASON WISE PRODUCTION

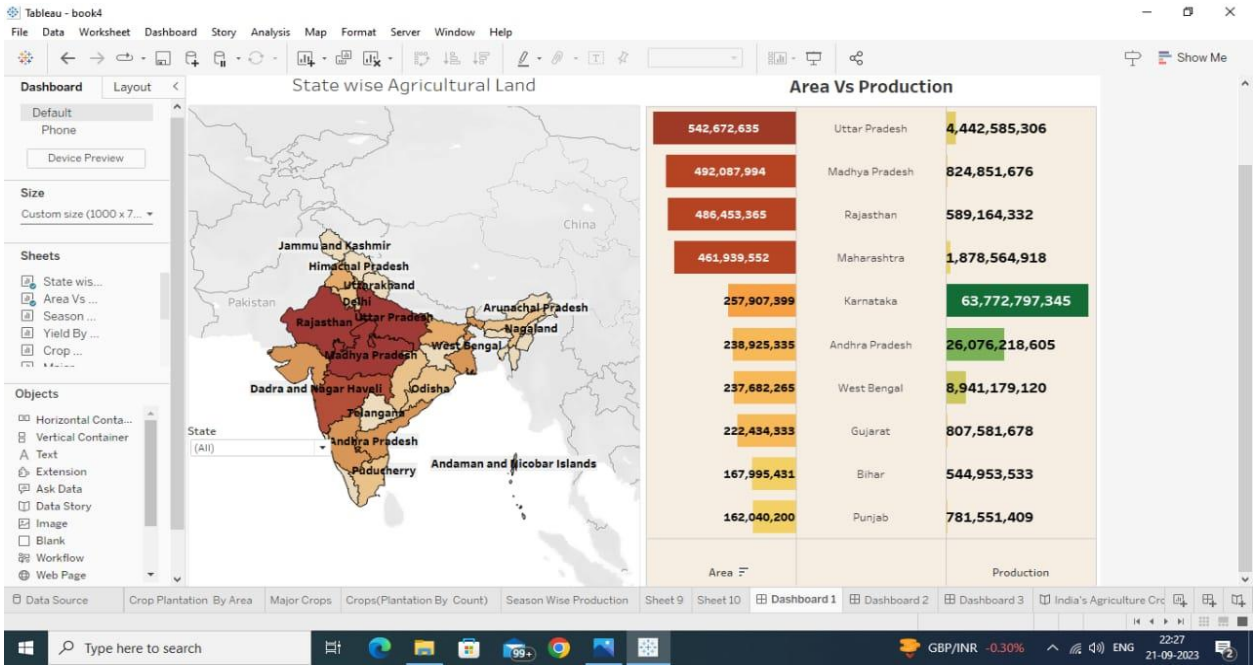


Open the Dashboard and drag the all chart sheet



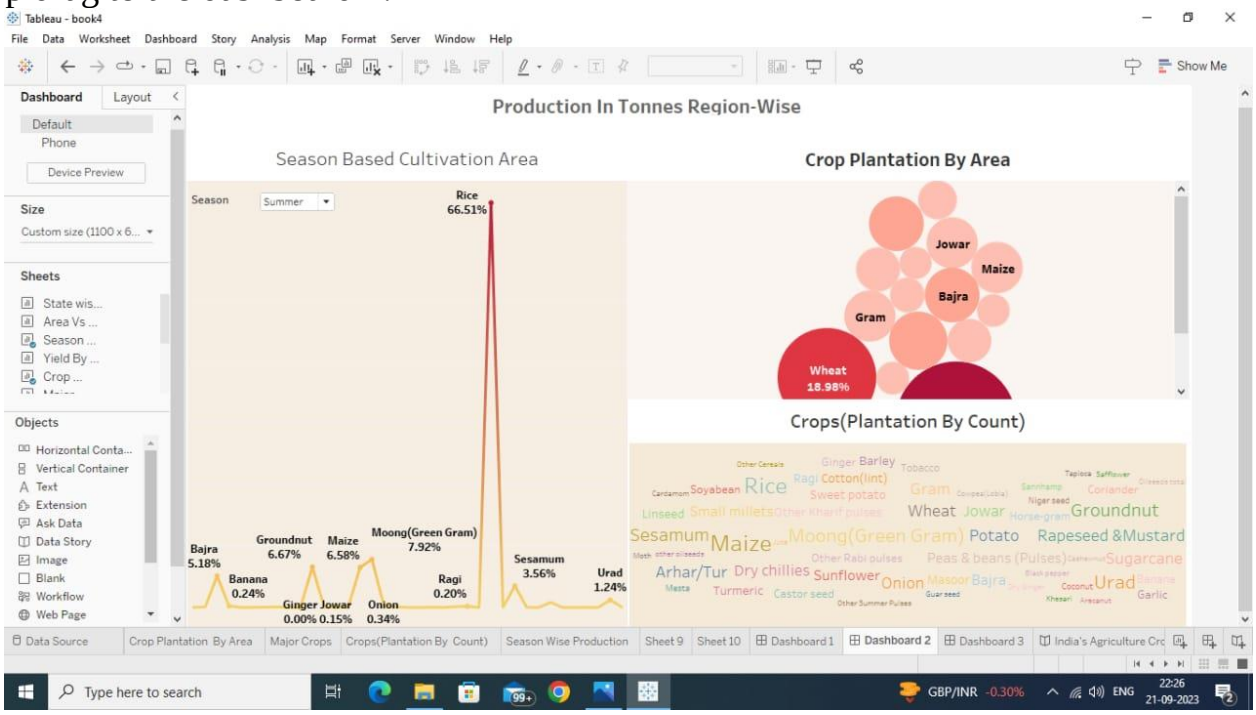
Dashboard 1:

State wise Agricultural land and Area VS Production map drag to the dashboard 1 .



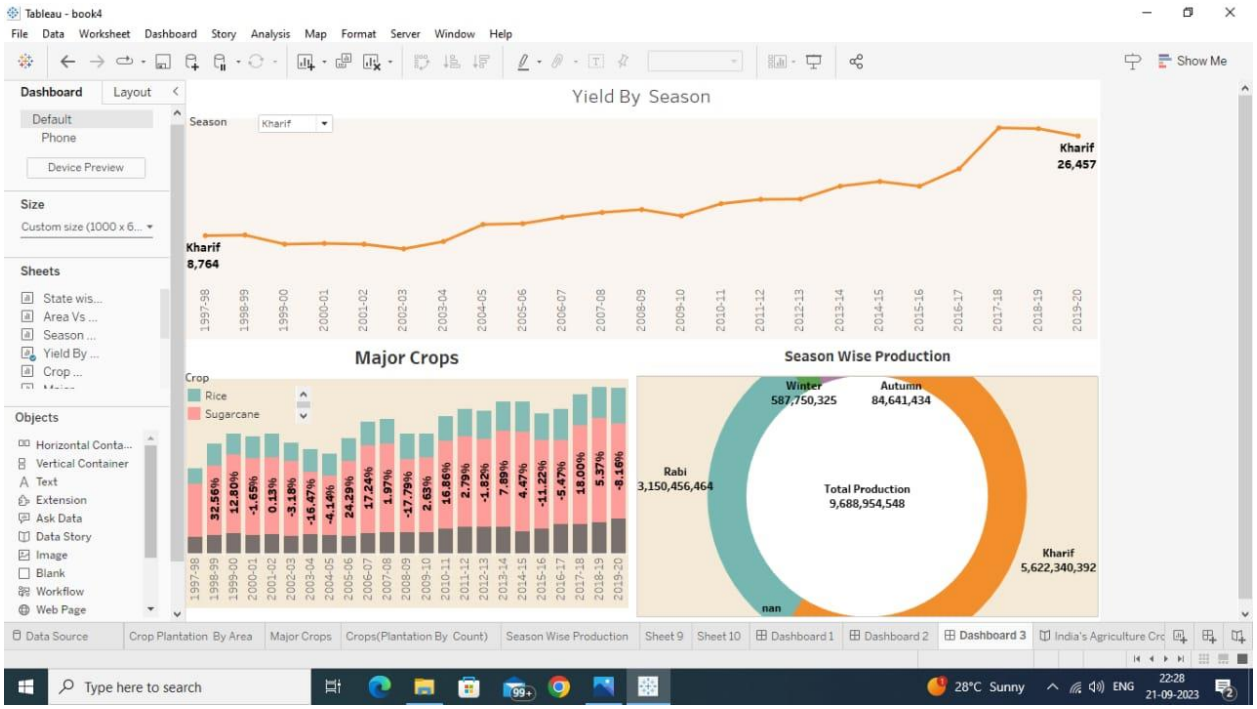
Dashboard 2:

Season based cultivation, crop plantation by area and crops(plantation by count) Map drag to the dashboard 2.



DASHBOARD 3:

Yield by season,Major crops and Season wise production Map drag to the dashboard 3 and get the dashboard completed.

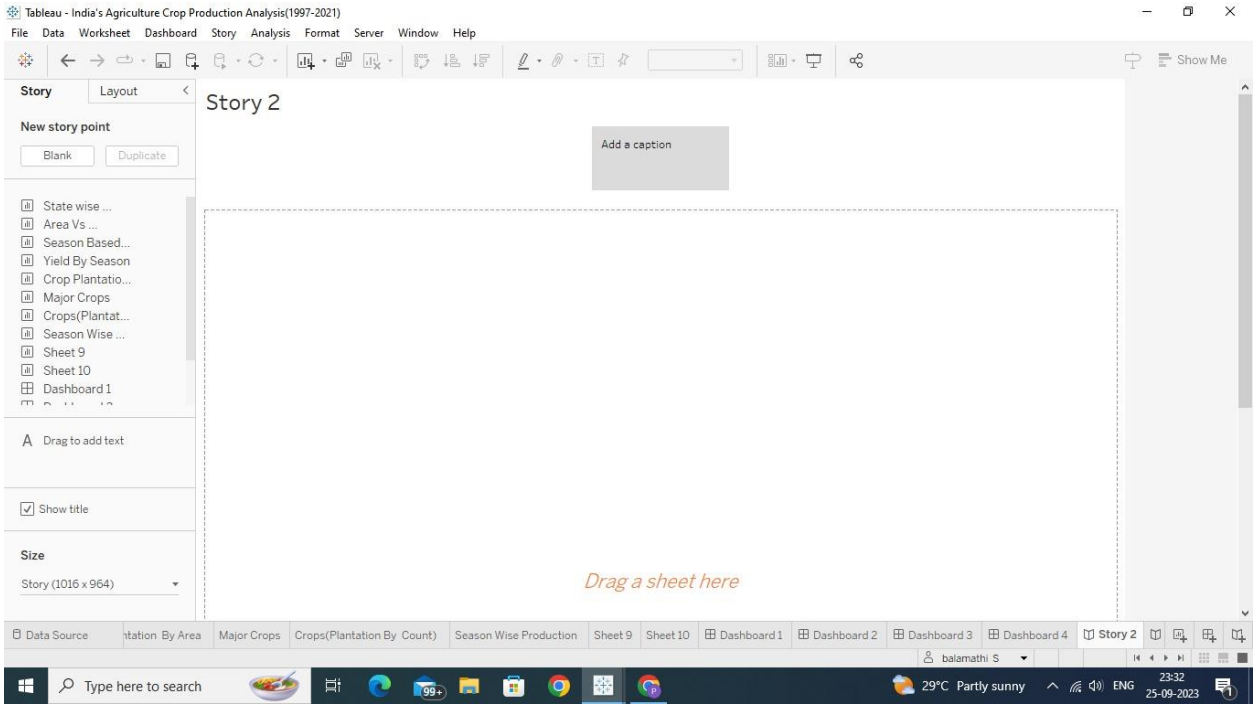


STORY:

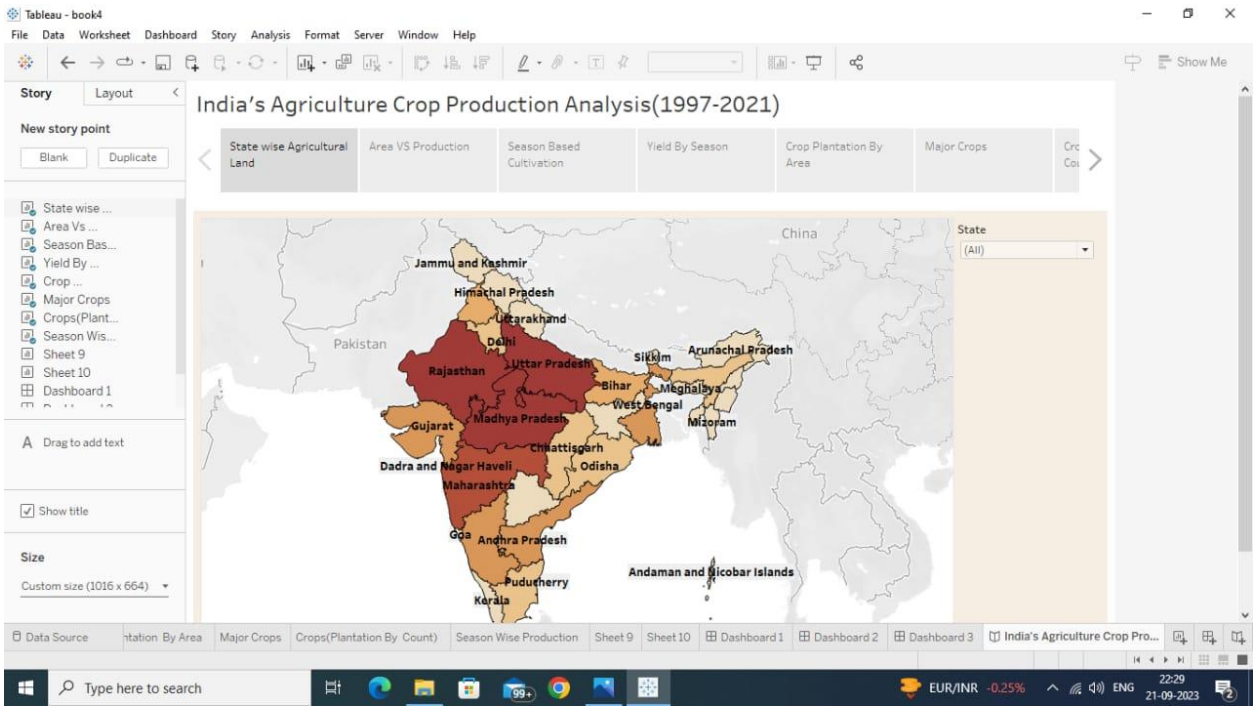
A data story is a way of presenting data and analysis in a narrative format, with the goal of making the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and 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 storyboard for a data visualization analysis vehicle collisions 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.



Drag the individual map in the story:



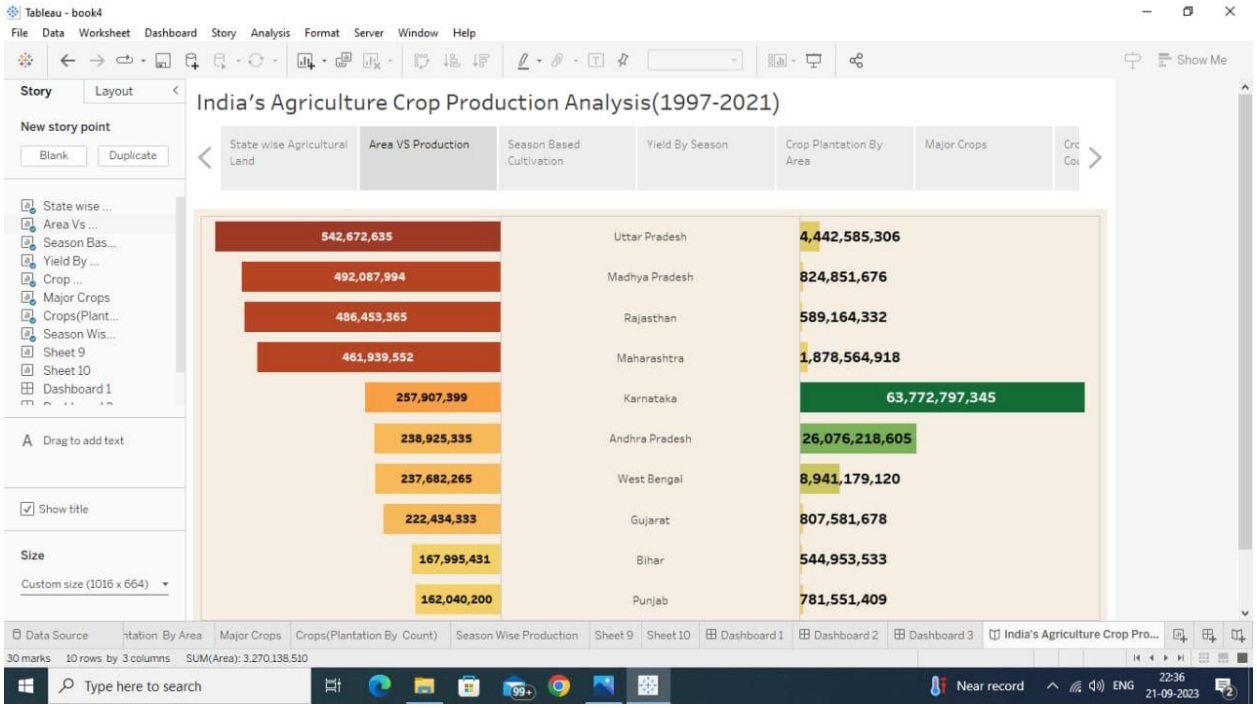
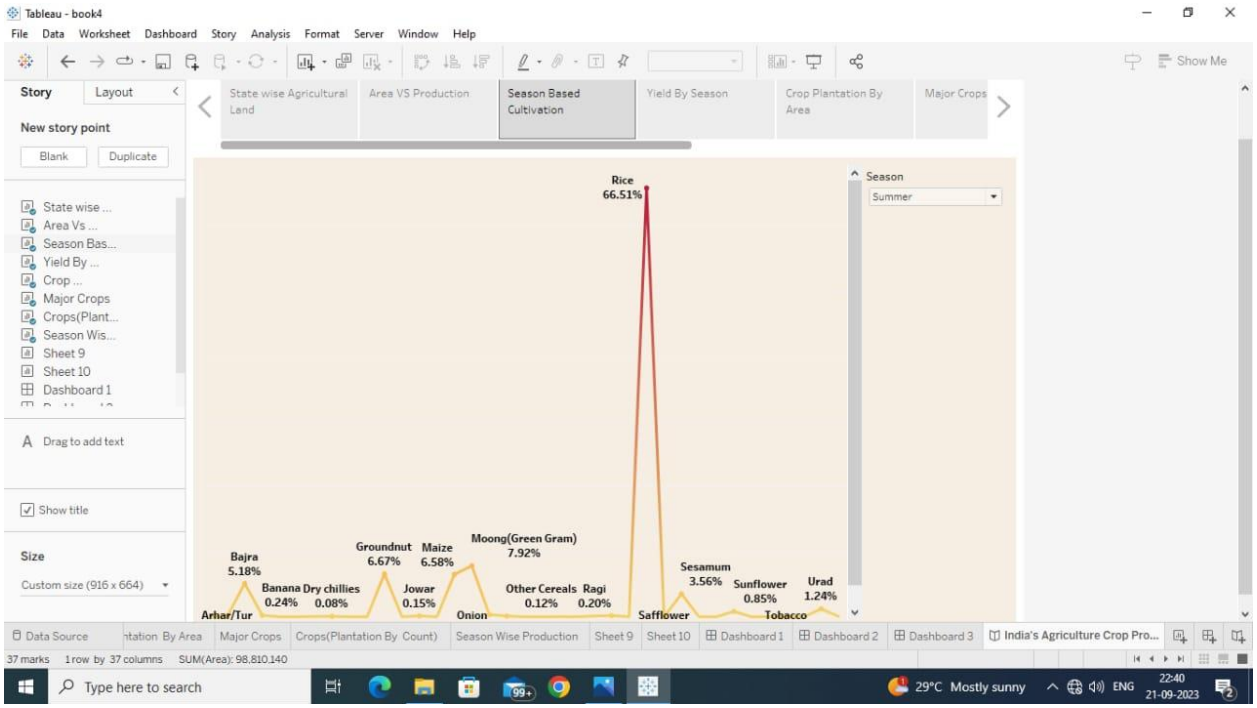


Tableau - book4
File Data Worksheet Dashboard Story Analysis Format Server Window Help
Story Layout
New story point
Blank Duplicate
State wise ...
Area Vs ...
Season Bas...
Yield By ...
Crop ...
Major Crops
Crops(Plant...
Season Wis...
Sheet 9
Sheet 10
Dashboard 1
Drag to add text
Show title
Size
Custom size (1016 x 664)
India's Agriculture Crop Production Analysis(1997-2021)
State wise Agricultural Land
Area VS Production
Season Based Cultivation
Yield By Season
Crop Plantation By Area
Major Crops
542,672,635 Uttar Pradesh 4,442,585,306
492,087,994 Madhya Pradesh 824,851,676
486,453,365 Rajasthan 589,164,332
461,939,552 Maharashtra 1,878,564,918
257,907,399 Karnataka 63,772,797,345
238,925,335 Andhra Pradesh 26,076,218,605
237,682,265 West Bengal 8,941,179,120
222,434,333 Gujarat 807,581,678
167,995,431 Bihar 544,953,533
162,040,200 Punjab 781,551,409
Data Source
Major Crops
Crops(Plantation By Count)
Season Wise Production
Sheet 9
Sheet 10
Dashboard 1
Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
30 marks 10 rows by 3 columns SUM(Area): 3,270,138,510
Type here to search
Near record
ENG
22:36
21-09-2023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Crop ...
Major Crops
Crops(Plant...
Season Wis...
Sheet 9
Sheet 10
Dashboard 1
Drag to add text
Show title
Size
Custom size (916 x 664)
State wise Agricultural Land
Area VS Production
Season Based Cultivation
Yield By Season
Crop Plantation By Area
Major Crops
Season
Summer
Rice 66.51%
Bajra 5.18%
Banana 0.24%
Dry chillies 0.08%
Groundnut 6.67%
Maize 6.58%
Jowar 0.15%
Moong(Green Gram) 7.92%
Onion
Other Cereals 0.12%
Ragi 0.20%
Safflower
Sesamum 3.56%
Sunflower 0.85%
Urad 1.24%
Tobacco
Arhar/Tur
Data Source
Major Crops
Crops(Plantation By Count)
Season Wise Production
Sheet 9
Sheet 10
Dashboard 1
Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
37 marks 1 row by 37 columns SUM(Area): 98,810,140
Type here to search
29°C Mostly sunny
ENG
22:40
21-09-2023

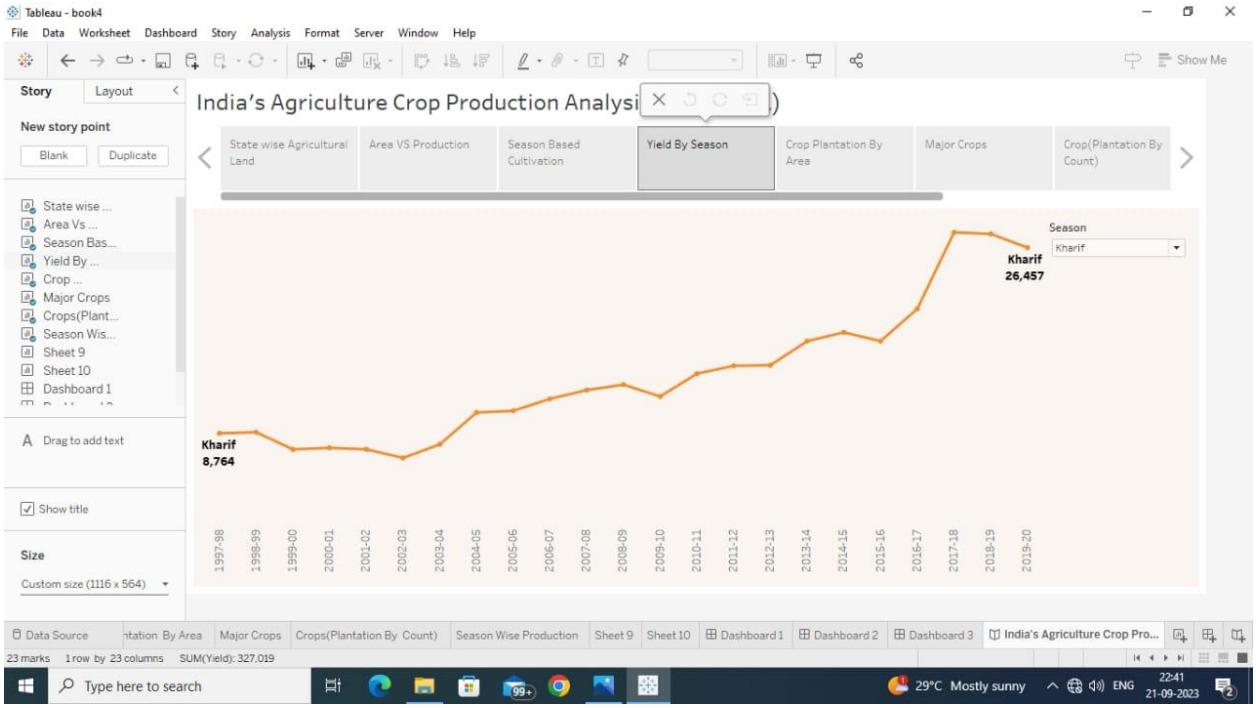
Tableau - book4
File Data Worksheet Dashboard Story Analysis Format Server Window Help
Show Me
Story Layout
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State wise ...
Area Vs ...
Season Bas...
Yield By ...
Crop ...
Major Crops
Crops(Plant...
Season Wis...
Sheet 9
Sheet 10
Dashboard 1
Drag to add text
Show title
Size
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India's Agriculture Crop Production Analysi
State wise Agricultural Land
Area VS Production
Season Based Cultivation
Yield By Season
Crop Plantation By Area
Major Crops
Crop(Plantation By Count)
Season
Kharif
Kharif
26,457
Kharif
8,764
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
Data Source
Major Crops
Crops(Plantation By Count)
Season Wise Production
Sheet 9
Sheet 10
Dashboard 1
Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
23 marks 1 row by 23 columns SUM(Yield): 327,019
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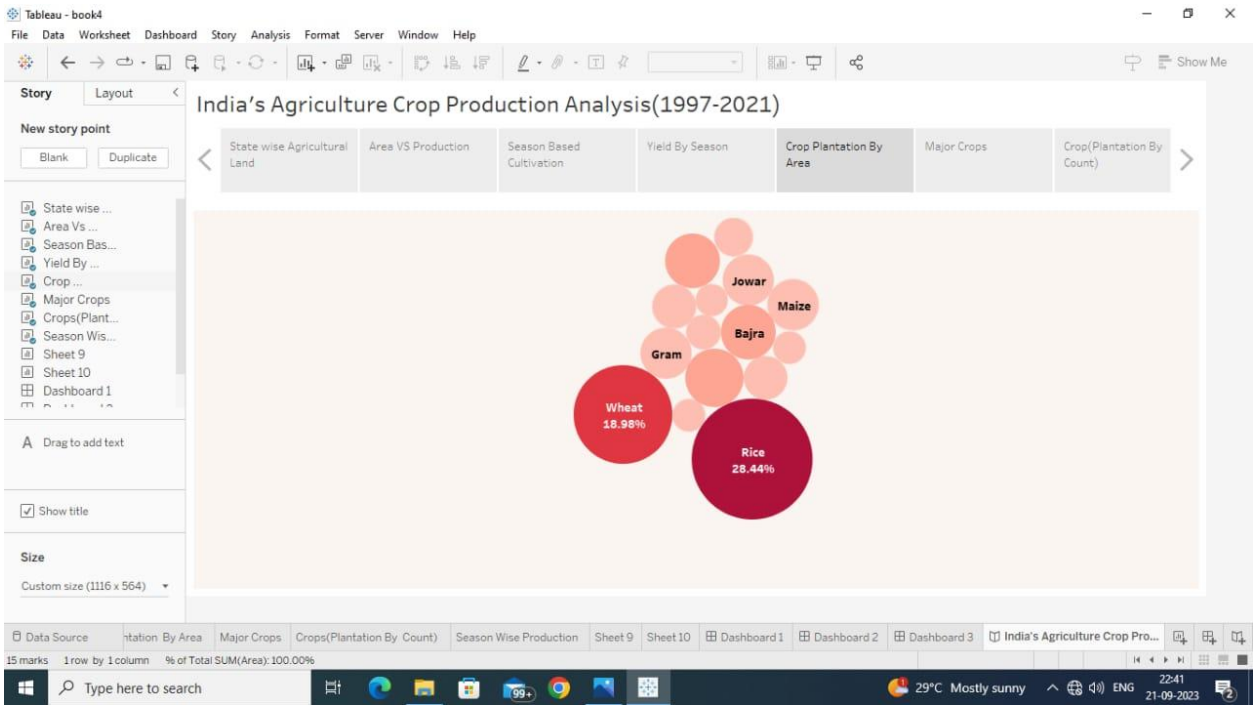
ENG
22:41
21-09-2023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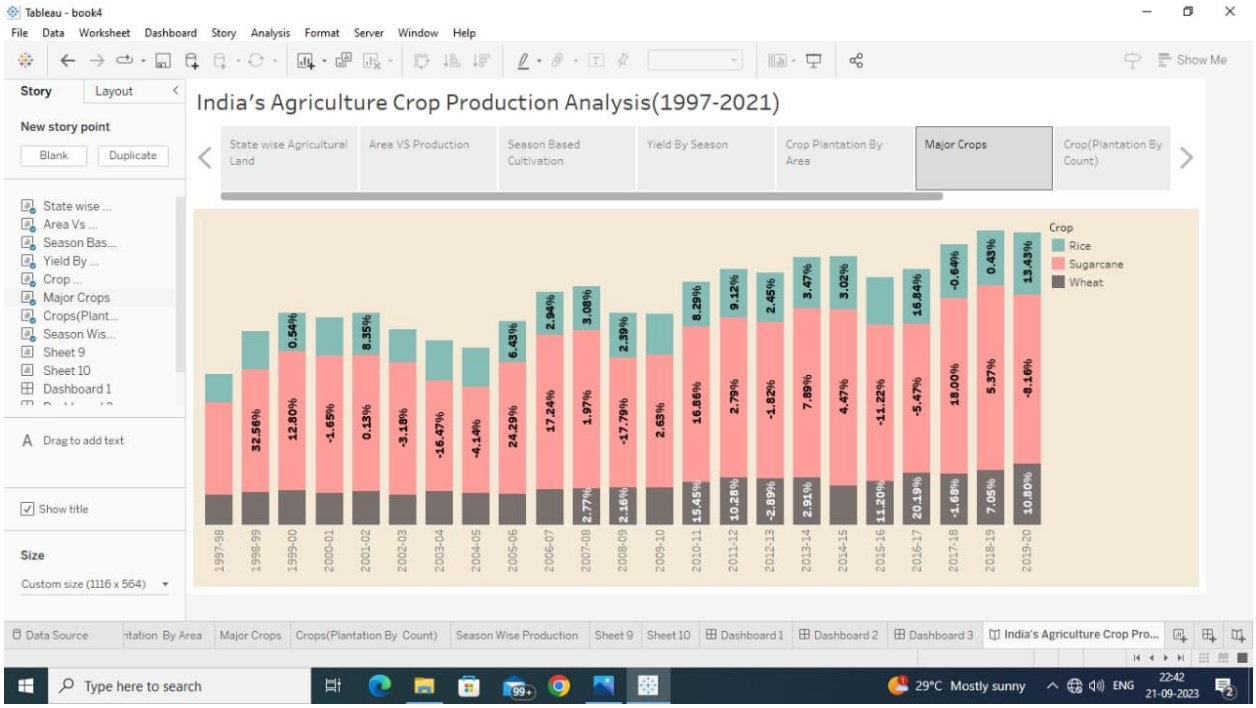
India's Agriculture Crop Production Analysis(1997-2021)
State wise Agricultural Land
Area VS Production
Season Based Cultivation
Yield By Season
Crop Plantation By Area
Major Crops
Crop(Plantation By Count)
Jowar
Maize
Bajra
Gram
Wheat
18.98%
Rice
28.44%
Data Source
Major Crops
Crops(Plantation By Count)
Season Wise Production
Sheet 9
Sheet 10
Dashboard 1
Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
15 marks 1 row by 1 column % of Total SUM(Area): 100.00%
Type here to search
29°C Mostly sunny
ENG
22:41
21-09-2023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Yield By Season
Crop Plantation By Area
Major Crops
Crop(Plantation By Count)
Crop
Rice
Sugarcane
Wheat
1997-98
1998-99
1999-00
2000-01
2001-02
2002-03
2003-04
2004-05
2005-06
2006-07
2007-08
2008-09
2009-10
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
2018-19
2019-20
Data Source
Major Crops
Crops(Plantation By Count)
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Sheet 9
Sheet 10
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Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
Type here to search
29°C Mostly sunny
ENG
22:42
21-09-2023

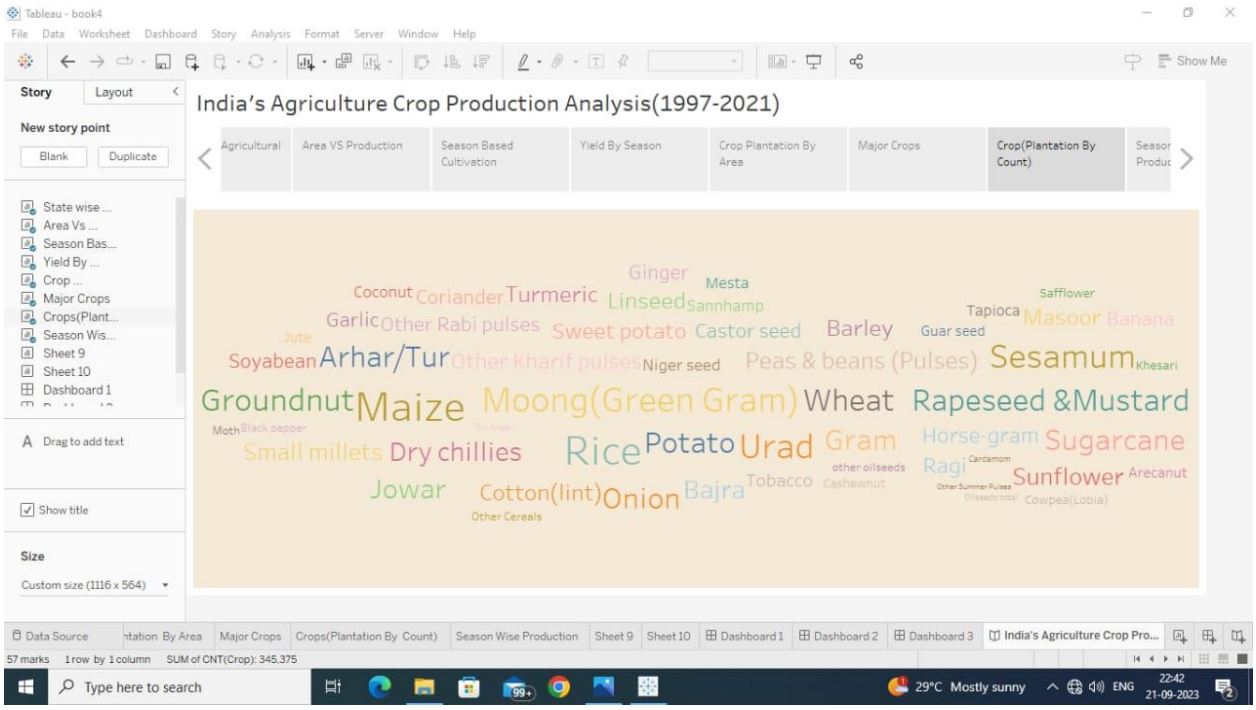
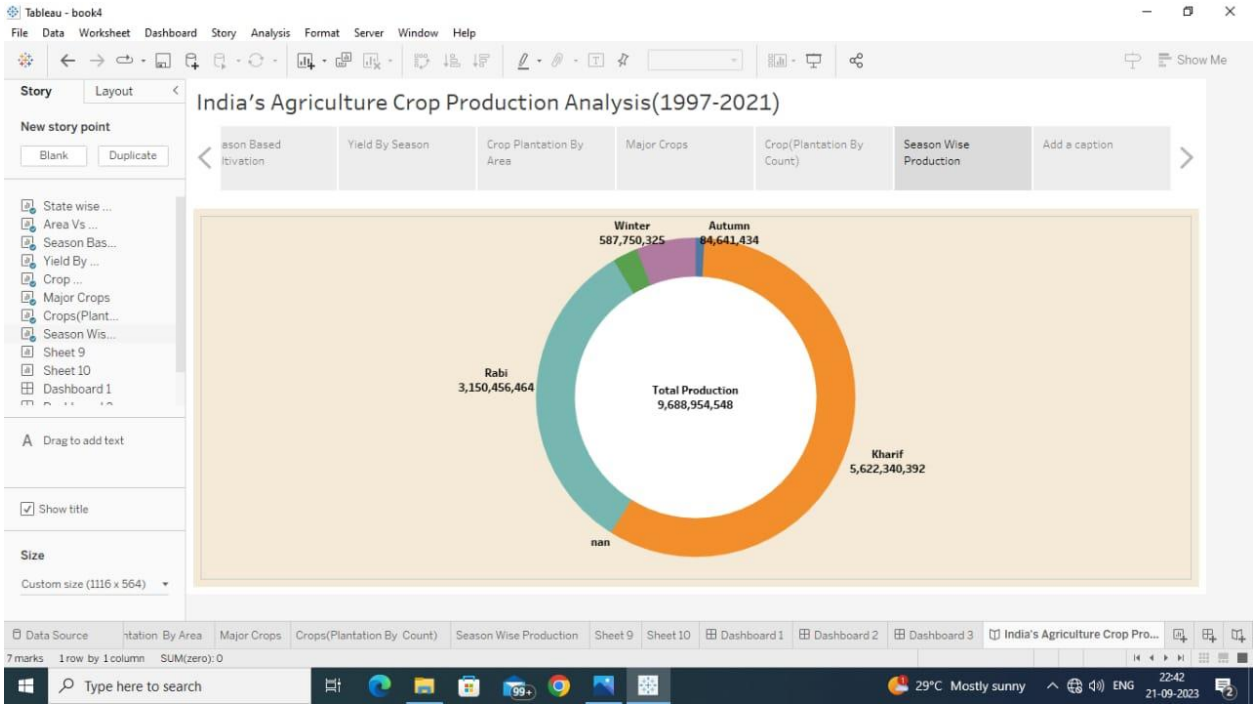
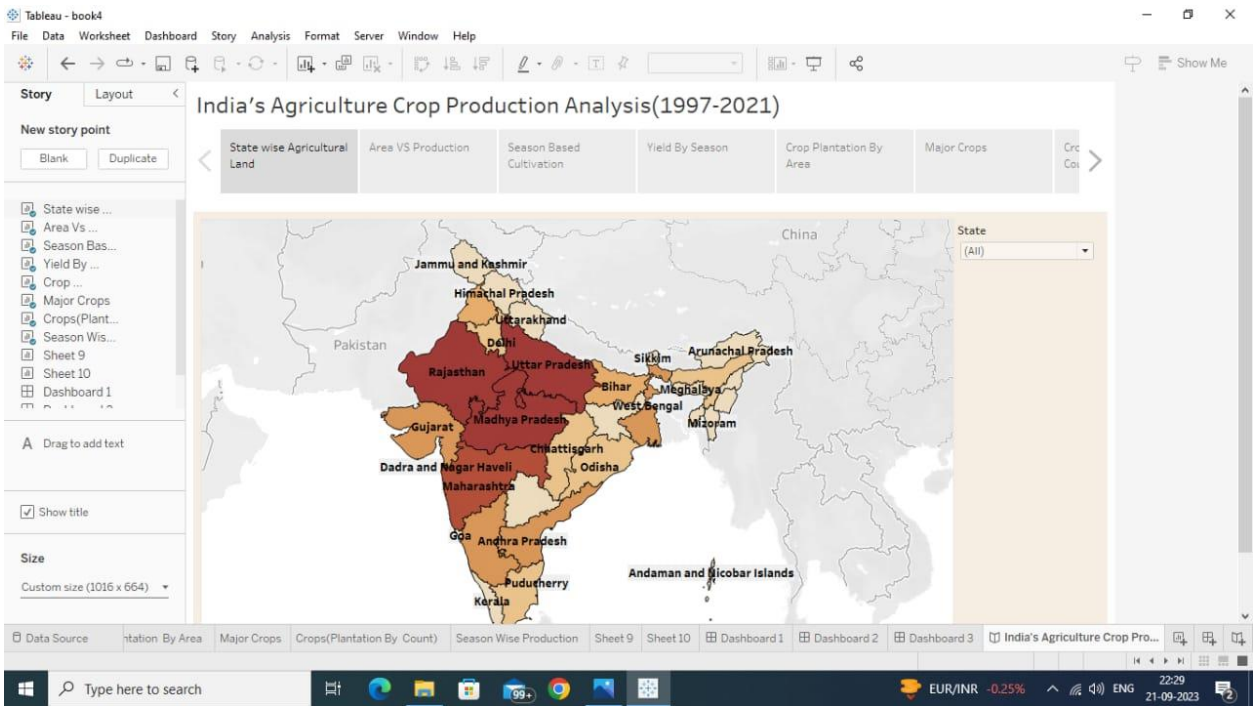


Tableau - book4
File Data Worksheet Dashboard Story Analysis Format Server Window Help
Show Me
Story
Layout
New story point
Blank
Duplicate
State wise ...
Area Vs ...
Season Bas...
Yield By ...
Crop ...
Major Crops
Crops(Plant...
Season Wis...
Sheet 9
Sheet 10
Dashboard 1
Drag to add text
Show title
Size
Custom size (1116 x 564)
India's Agriculture Crop Production Analysis(1997-2021)
Agricultural
Area VS Production
Season Based Cultivation
Yield By Season
Crop Plantation By Area
Major Crops
Crop(Plantation By Count)
Coconut
Coriander
Turmeric
Ginger
Mesta
Linseed
Sannhamp
Safflower
Tapioca
Masoor
Banana
Garlic
Other Rabi pulses
Sweet potato
Castor seed
Barley
Guar seed
Jute
Soyabean
Arhar/Tur
Other Kharif pulses
Niger seed
Peas & beans (Pulses)
Sesamum
Khesari
Groundnut
Maize
Moong(Green Gram)
Wheat
Rapeseed &Mustard
Moth
Black pepper
Small millets
Dry chillies
Rice
Potato
Urad
Gram
Horse-gram
Sugarcane
Ragi
Cardamom
other oilseeds
Sunflower
Arecanut
Jowar
Cotton(lint)
Onion
Bajra
Tobacco
Cashewnut
Other Cereals
Cowpea(Lobia)
Data Source
Major Crops
Crops(Plantation By Count)
Season Wise Production
Sheet 9
Sheet 10
Dashboard 1
Dashboard 2
Dashboard 3
India's Agriculture Crop Pro...
57 marks
1 row by 1 column
SUM of CNT(Crop): 345,375
Type here to search
29°C Mostly sunny
ENG
22:42
21-09-2023



All Map is upload the story.



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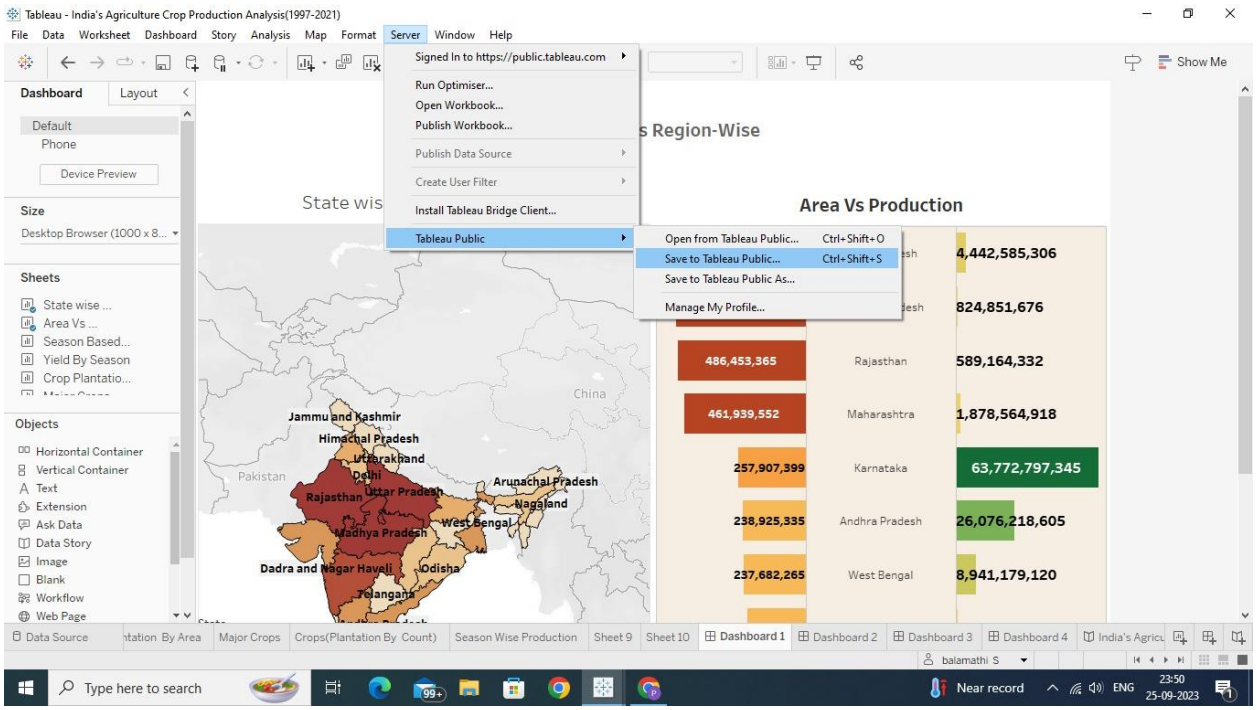

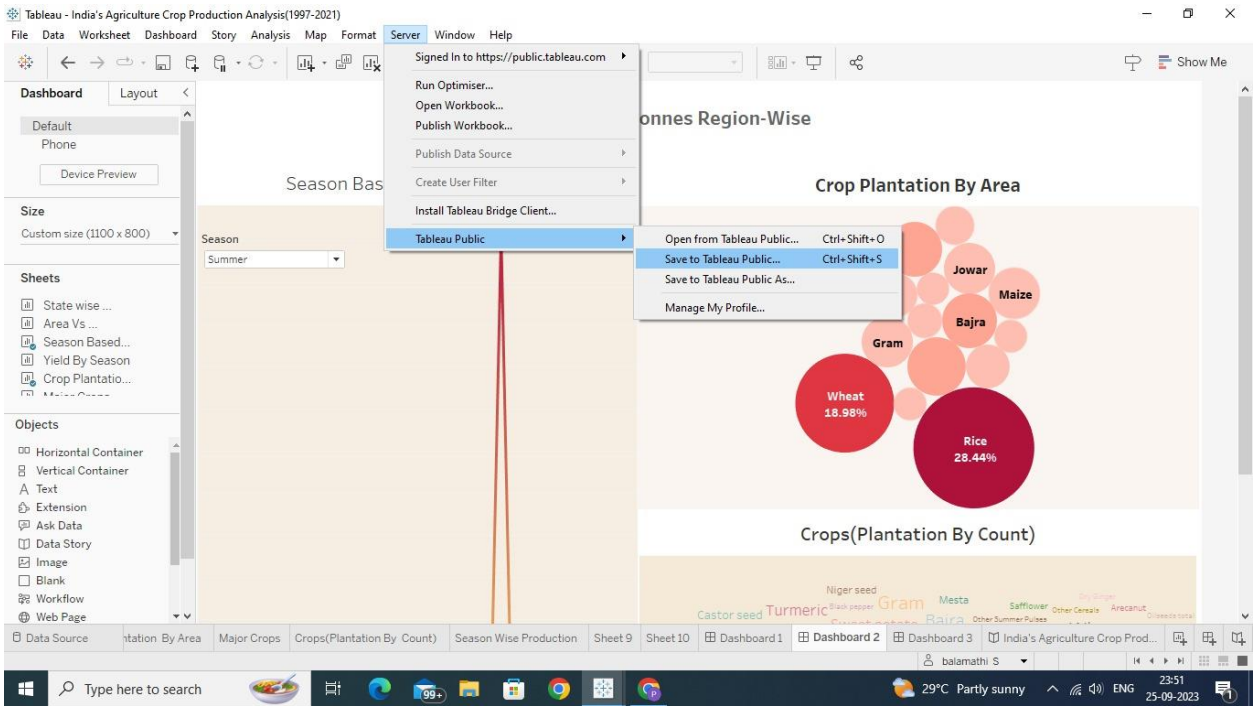

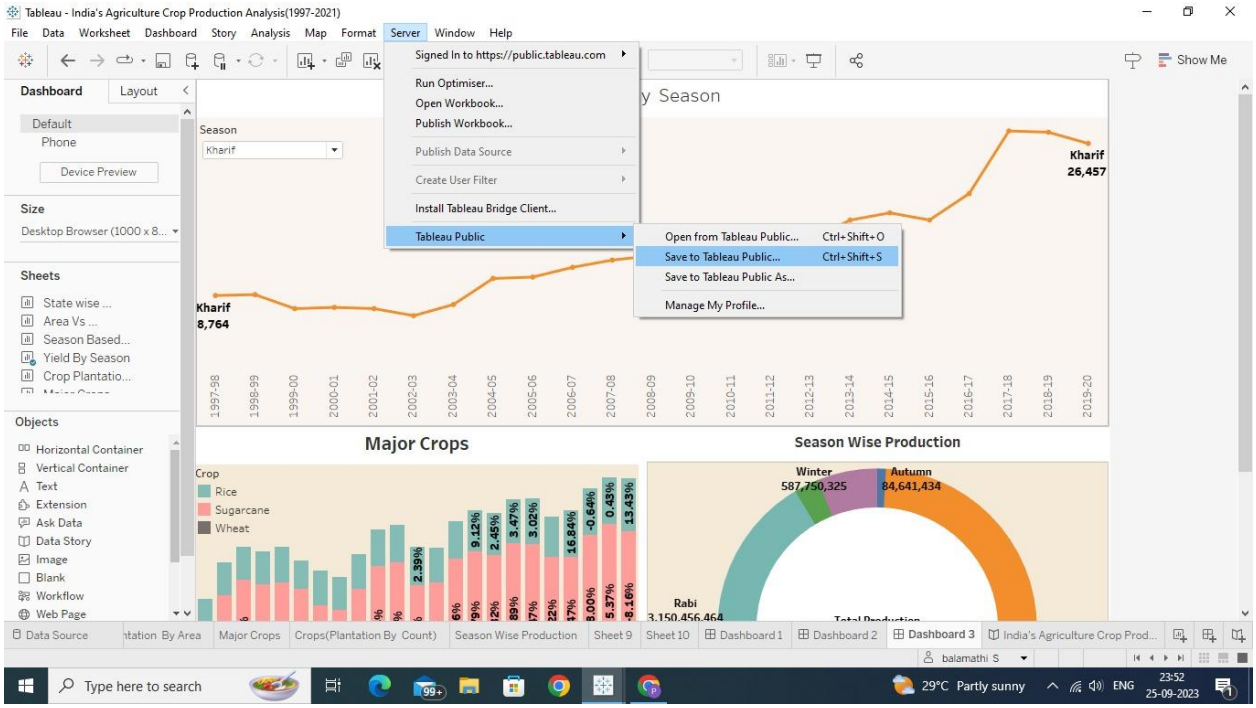

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Description:

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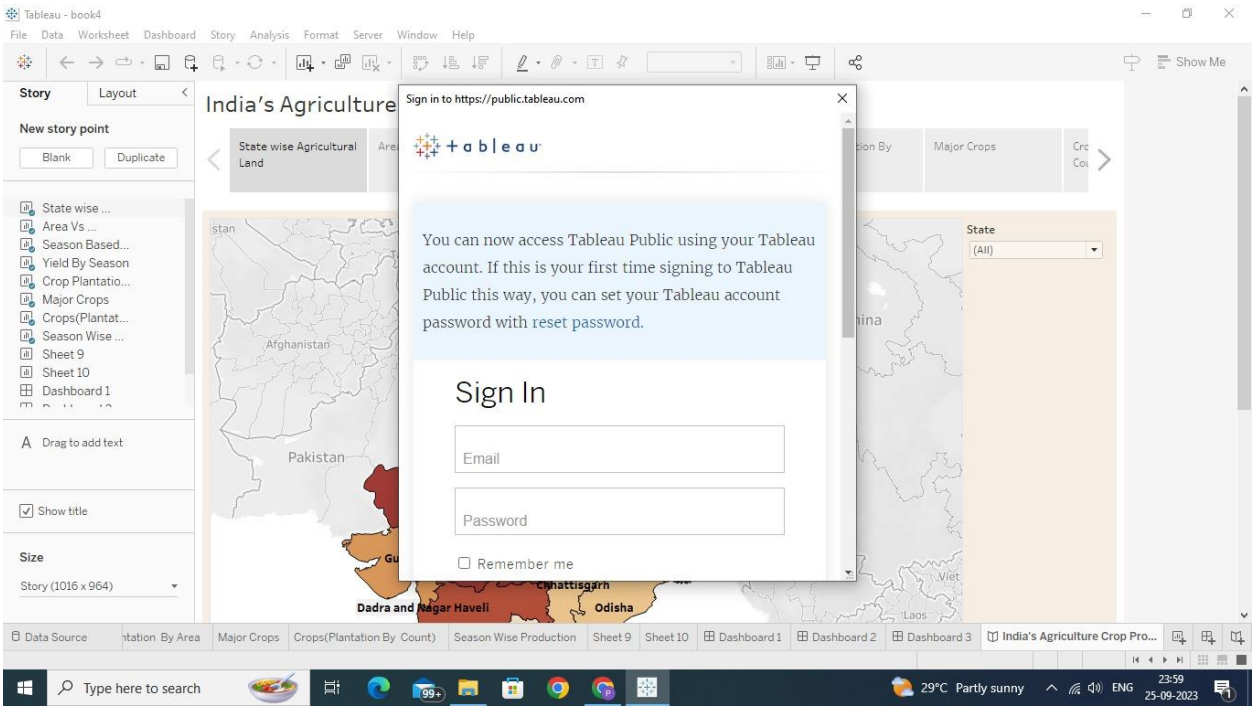

Tableau Public Url:

Team lead-

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Dashboard2:

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Dashboard3:

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Story link-

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