

Introduction:-

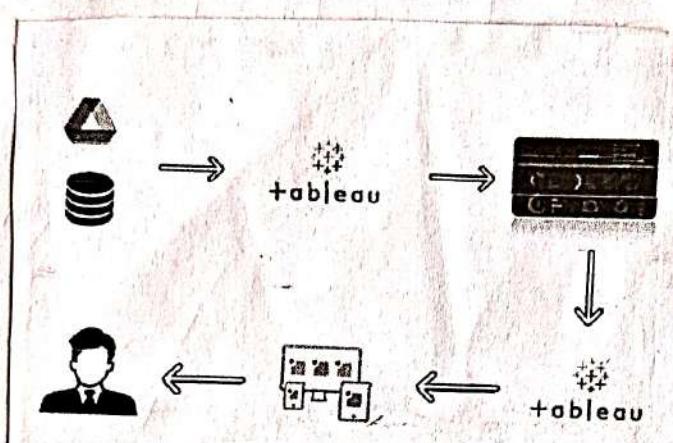
Indian's Agricultural Crop Production

Analysis (1997-2021)

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 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.

Technical Architecture:-



Project Flow:-

To accomplish this, we have to complete all the activities listed below,

* Define Problem / Problem Understanding

- Specify the Business problem
- Business requirements.
- Literature Survey
- Social & Business Impact.

* Data collection & Extraction from Database.

- Collect the dataset.
- Storing data in DB
- Performs SQL Operations.
- Connect DB with Tableau.

* Data Preparation.

- Prepare the data for visualizations.

* Data visualizations.

- No of Unique visualizations.

* Dashboard.

- Responsive and designs of dashboard

* Story.

- No. of Scener of Story.

* Performance Testing

- Amount of data Rendered to DB.
- Utilization of Data Filters.

* No. of calculation Fields.

- No. of visualizations / Graphs.

* Web Integration.

- Dashboard and story embed with UI with Flask.

* Project Demonstration & Documentation.

- Record explanations Video for project end to end solution.

- Project Documentation - Step by step project development procedure.

Literature Survey
Milestone 1 : Define Problem / Problems Understanding

Activity 1 : Specify the business problem

This report delves into the captivating realms of India's agricultural cultivation, providing a comprehensive visual explorations of key aspects and trends in the agricultural sector. Through the visual representations, readers can gain valuable insights into crop production, seasonal variations, regional distributions 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 the 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 forms of visualizations, Dashboards and Story we employed Tableau Tool.

Activity 2: Business Requirements:-

The primary business requirements for this report are to visualize and analyze business expenses, provide industry-specific insights, identify cost drivers, highlight outliers, and offer interactive functionality. Stakeholders need a visual representation of expenses to compare and analyse spending patterns across different businesses and industries. The report should facilitate the identification of key cost drivers, enabling stakeholders to understand the primary factors contributing to expenses. Additionally, it should flag any outliers or anomalies for further investigation. The report should provide a user-friendly and intuitive experience that empowers stakeholders to make data-driven decisions and drive positive change in the agricultural sector.

Activity 3 :- Literature Survey

The literature survey section of the report provides a concise overview of India's Agricultural sector, focusing on key aspects and insights from existing studies and publications. It examines the historical context of agricultural practices in India and highlights the role of government policies and initiatives in supporting

-the sector's growth and development.

The survey explores the diversity of crops cultivated across different regions, along with trends in production and the impact of climate variability. It also addresses the adoption of technology and innovations in agriculture, along with the challenges faced by farmers and potential research gaps.

Activity 4 : Social or Business Impact.

Social Impact :-

On the social front, agriculture serves as a vital source of livelihood for a large portion of the population, especially in rural areas. It plays a crucial role in ensuring food security and alleviating poverty by providing employment opportunities and income generation. Moreover, agricultural activities contribute to the overall socio-economic development of rural communities, fostering social cohesion and preserving cultural traditions.

Theoretical Analysis

Milestone 2 : Data Collection & Extraction from Database.

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, evaluate outcomes and generate insights from the data.

Activity 1 :- Downloading the dataset.

Follow link to download:

<https://www.kaggle.com/datasets/pyatakov/india-agriculture-crop-production>.

Activity 1.1 : Understand the data.

Data consists of 345409 rows and 10 columns that correspond to different values.

Column Description of the Dataset :-

State : The name of Indian states.

District : The name of districts of Indian states.

Crop : Name of different crops grown in India.

Year : Date.

Area : Area for crop cultivation in acres.

Season: India has 5 seasons for crop cultivation kharif, rabi, autumn, winter and summer.

Production: Product of crop in tonnes.

Yield : Yield by the crop under cultivation.

Activity 2: Storing Data in DB & perform SQL Operations

Explanation video link.

<https://drive.google.com/file/d/1Q7ywnjxIR4HPOTagRMGqxpLvgAEvL2-y/view?usp=sharing>

Activity 3: Connect DB with Tableau

Explanation video link.

<https://drive.google.com/file/d/1Q7ywnjxIR4HPOTagRMGqxpLvgAEvL2-y/view?usp=sharing>

Result:-

Milestone 3: Data Preparation.

Activity 1: Prepare the data for visualization

Prepare the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a format that can be easily visualized, exploring the data to identify patterns and trends, filtering the data to focus on specific subsets of data, preparing the data for visualization software, and ensuring the data is accurate and complete.

This process helps to make the data easily understandable and ready for creating visualizations to gain insights into the performance and efficiency.

<https://drive.google.com/drive/folders/1pGiPf2AvkH1ZFPWk4iy81y05f2HJOM2hX5?usp=sharing>

Milestone 4 : Data Visualization

Data visualization is the process of creating graphical representations of data to help people understand and explore the information. The global goal of data visualization is to make complex data sets more accessible, intuitive, and easier to interpret. By using visual elements such as charts, graphs and maps, data visualizations can help people quickly identify patterns, trends and outliers in data.

Activity 1 :- No of Unique Visualizations.

The number of unique visualizations that can be created with a given dataset. Some common types of visualizations that can be used to analyze the performance and efficiency of banks include bar charts, line charts, heat maps, scatter plots, pie charts, maps etc..

Activity 1.1 :- State wise Agricultural Land

Explanation video.

<https://drive.google.com/file/d/1-Wtictl-09q1Qz2hy22sq4xB4-Av2gX2I/view?usp=sharing>.

Activity 1.2 :- Area vs production.

Activity 1.3 :- Season based cultivation.

Activity 1.4 :- Yield by season

Activity 1.5 :- Crop plantation by area.

Activity 1.6 :- Major crops growth YoY.

Activity 1.7 :- Crops.

Activity 1.8 :- Season wise production.

Activity 1.9 :- KPI's.

Milestone 5 : Dashboard

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format. Dashboards are often used to provide real-time monitoring and analysis of data and are typically designed for a specific purpose or use case. Dashboards can be used in a variety of settings, such as business, finance, manufacturing, healthcare, and many other industries.

They can be used to track key performance indicators (KPI's), monitor performance metrics, and display data in the form of charts, graphs and tables.

Activity 1: Responsive and Design of dashboard.

Once you have created views on different sheets in Tableau, you can pull them into a dashboard.

Activity 1.1 :- Dashboard 1.

Activity 1.2 :- Dashboard 2.

Activity 1.3 :- Dashboard 3.

Explanation Video link.

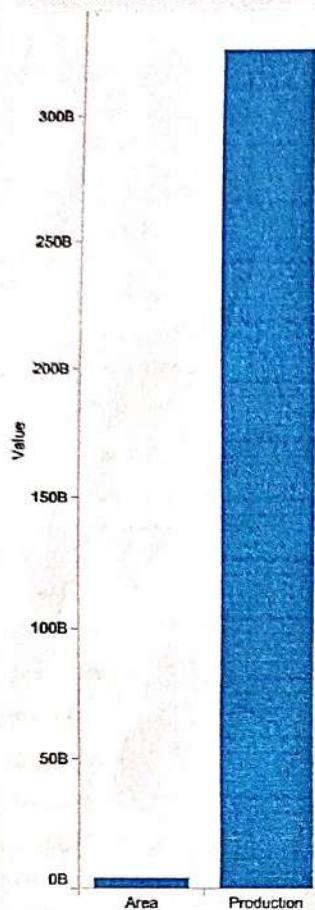
https://drive.google.com/file/d/1c8LE0wzs83kydF-6HRArNI_Faly424Aq4/view?usp=sharing

Milestone 6 :- Story

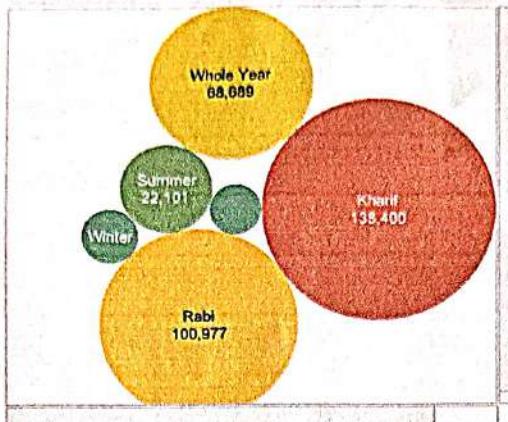
A data story is a way of presenting data and analysis in a narrative format, intending to make the information more engaging and easier to understand. A data story typically includes a clear introduction that sets the stage and explains the context for the data, a body that presents the data and analysis logically and systematically, 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,

AGRICULTURE ANALYSIS (1997 - 2021)

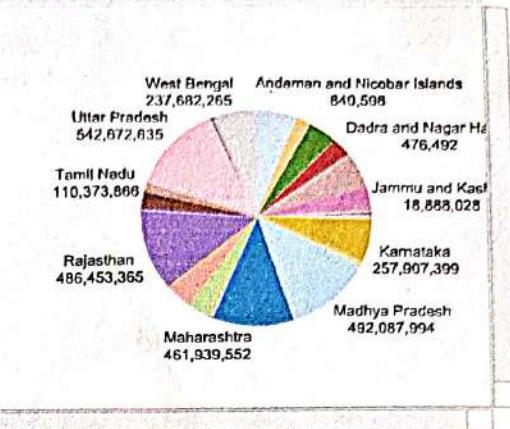
Area vs Production



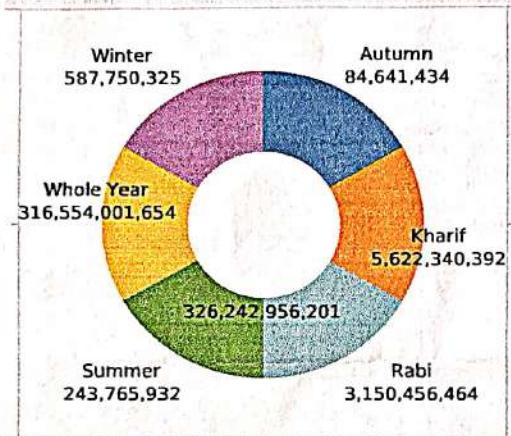
Season based Cultivation



State wise Agriculture Land



SEASON WISE PRODUCTION

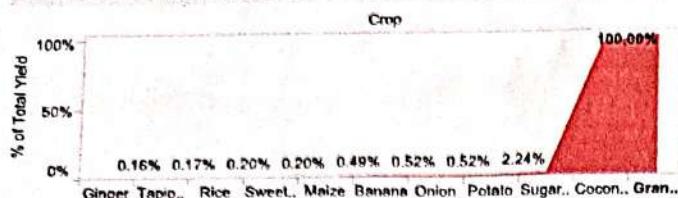


Top 10 crops - (kpi)

Area Units	Crop	Value
Hectare	Arhar/Tur	10,895
	Groundnut	12,586
	Maize	20,507
	Moong(Green Gram)	15,101
	Rapeseed & Mustard	11,034
	Rice	21,611
	Sesamum	13,049
	Sugarcane	10,942
	Urad	14,581
	Wheat	11,248

CROP ANALYSIS (1997 -2021)

MAJOR CROPS GROWTH YOY



CROP PLANTATION BY AREA



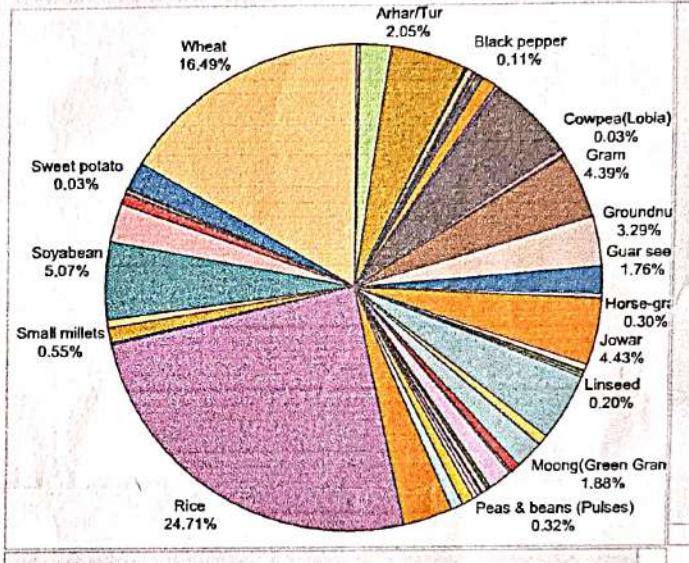
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	Sesamum	13,049
	Sugarcane	

KPI'2

District	Area	Count of India Ag..	Production	Yield
TIRUPATHUR	149,202,016	149,202,016	149,202,016	149,202,016
	13,994	7	149,202,016	13,1...
TUMAKURU	1,453,784,655	1,453,784,655	1,453,784,655	1,453,784,655
	508,618	59	1,453,784,655	8,5...
KOLLAM	9,144,799,981	9,144,799,981	9,144,799,981	9,144,799,981
	2,388,569	334	9,144,799,981	152,5...
KASARAGOD	11,167,266,987	11,167,266,987	11,167,266,987	11,167,266,987
	2,291,011	364	11,167,266,987	190,1...
THRISSUR	12,893,527,546	12,893,527,546	12,893,527,546	12,893,527,546
	2,928,157	313	12,893,527,546	157,5...
KANNUR	12,908,734,069	12,908,734,069	12,908,734,069	12,908,734,069
	3,434,424	339	12,908,734,069	149,0...
THIRUVANA..	13,223,577,010	13,223,577,010	13,223,577,010	13,223,577,010

CROPS



interactive visualizations, and videos.

Activity 1 :- Number of scenes in a story.

The number of scenes in a storyboard 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.

Activity 1.1 :- Story 1.

Activity 1.2 :- Story 2.

Explanation video link.

<https://drive.google.com/file/d/19wMjdpYIn61Rqwtfg13PJjr766CwxgJ13/view?usp=sharing>.

Applications:-

Milestone 7: Performance Testing.

Activity 1 :- Amount of data Rendered to DB.

* The amount of data that is rendered to a database depends on the size of the dataset and the capacity of the database to store and retrieve the data.

* Open the MySQL Workbench, go to database and then click to expand the tables, select the table and click on (i) button to get an information related to table such as columns, count, table rows etc..

ANALYSIS OF AGRICULTURAL IN INDIA (1997 - 2021)

INDIA has a rich agricultural heritage and is one of the world's major agricultural producers. The sector plays a crucial role in the economy.

Key Trends and Developments:

1997-2000:

India faced challenges related to food security, crop diversification, and sustainable practices.

The Green Revolution continued to impact crop yields.

2000-2010:

Technological advancements led to increased productivity. **Horticulture** gained prominence alongside traditional crop

2010-2021:

Climate change became a critical concern, affecting monsoons and crop patterns. **Government initiatives** focused on information dissemination and market linkages. **Crop diversification** expanded to include pulses, oilseeds, and fruits.

Key Statistics:

India has the world's largest:

Cattle herd (buffaloes)

Area planted for **wheat, rice, and cotton**

Production of **milk, pulses, and spices**

It is the second-largest producer of:

Fruits, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.

Challenges Faced:

Small landholdings: Most farmers have small plots, limiting economies of scale.

Water scarcity: Erratic monsoons and depleting groundwater pose challenges.

Market access: Farmers need better access to markets and fair prices.

Climate resilience: Adapting to changing weather patterns is crucial.

Future Prospects:

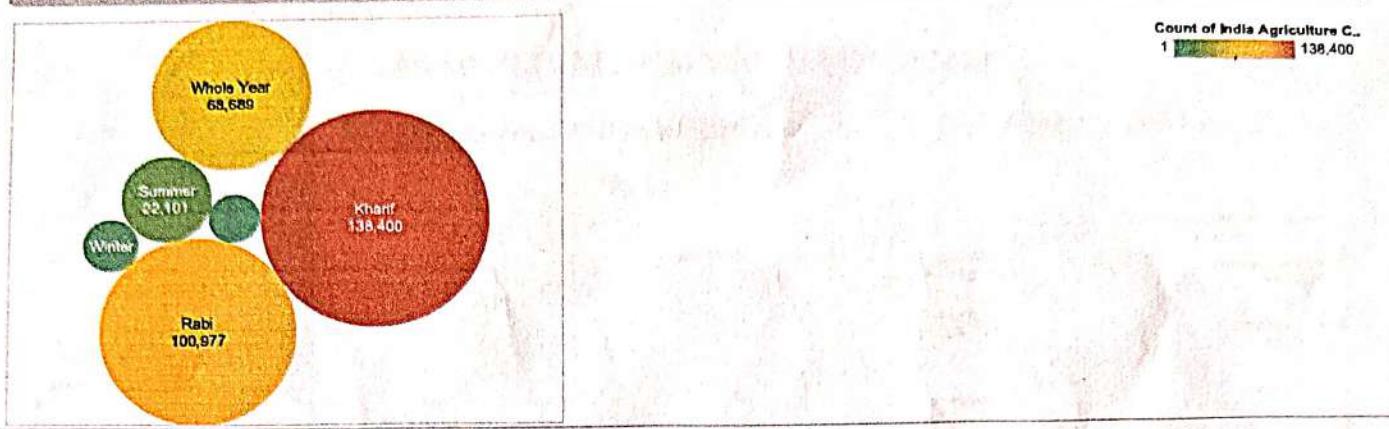
Technology adoption: Continued use of technology for precision farming.

Sustainable practices: Promoting organic farming and soil health.

Market reforms: Strengthening supply chains and reducing intermediaries.

Climate-smart agriculture: Resilience to climate change.

Remember, Indian agriculture is a dynamic field, and these trends provide a snapshot of its journey over the years.

**Growing Seasons in India:**

India's diverse climate and topography allow for various growing seasons.

Kharif Season (Monsoon Season):

Runs from **June to October**.

Crops like **rice, maize, cotton, soybeans, and groundnuts** thrive during this period.

Warm and wet weather is favorable.

Rabi Season (Winter Season):

Occurs from **October to March**.

Crops like **wheat, barley, gram, mustard, and peas** are cultivated.

Cooler temperatures support these crops.

Zaid Season (Between Rabi and Kharif):

Short-duration crops grown during summer.

Examples include **watermelon, muskmelon, and cucumber**.

Vegetable Growing Calendar for India:

Here's a handy vegetable seeds calendar for both **North India and South India**:

Some examples:

Apple Gourd: Sow in **Feb-Mar** (North) or **Jun-Jul** (South).

Beetroot: Plant in **Oct-Nov** (North) or **Aug-Nov** (South).

Bitter Gourd: Sow in **Feb-Mar** (North) or **Jun-Jul** (South).

Broccoli: Transplant in **Aug-Sept** (both regions).

Cabbage: Transplant in **Sept-Oct** (North) or **Jun-Jul** (South).

Capsicum: Transplant in **Nov-Jan** (North) or **May-Jun** (South).

Carrot: Sow in **Aug-Sept-Oct** (North) or **Aug-Nov** (South).

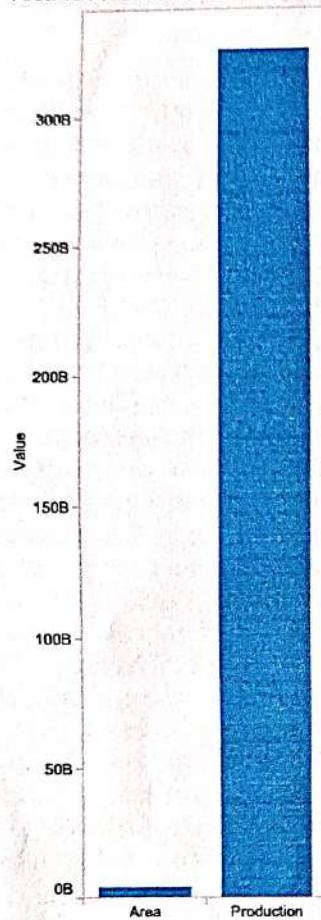
Cucumber: Direct sow in **Feb-Mar** (North) or **Jun-Jul** (South).

Beans: Sow in **Feb-Mar** (both regions).

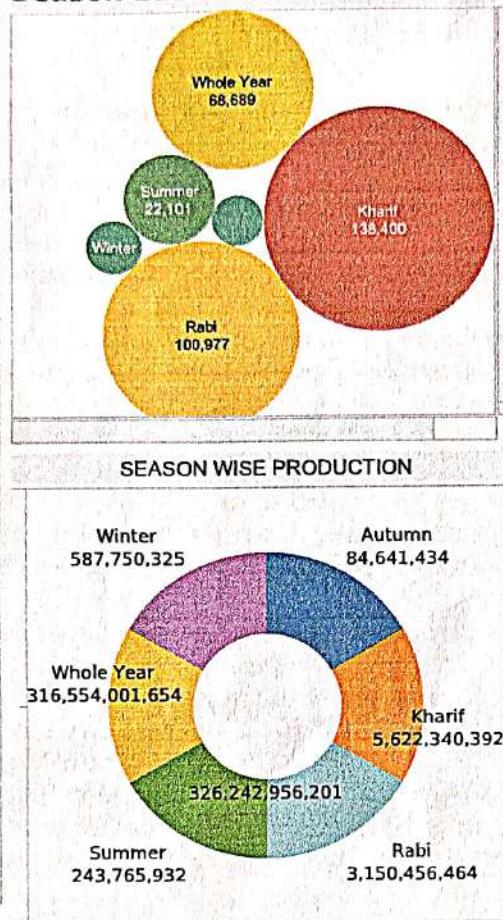
Autumn Season:...

AGRICULTURE ANALYSIS (1997 - 2021)

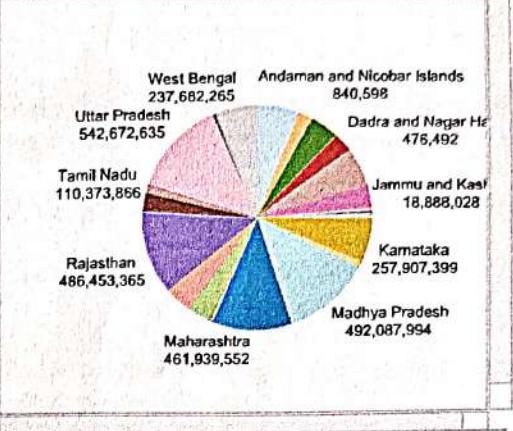
Area vs Production



Season based Cultivation



State wise Agriculture Land

**Data-Driven Agriculture:**

Food security is a global need threatened by population growth, climate change, and decreasing arable land.

Data-driven agriculture is the most promising approach to address these challenges. It involves collecting, analyzing, and interpreting various data points to optimize agricultural processes and improve overall productivity. Key technologies include **cloud computing**, **Internet of Things (IoT)**, **Big Data**, and **machine learning (ML)**.

Digital Agriculture:

Also known as **agrotechnology** and **precision agriculture**. Promotes agricultural productivity while minimizing environmental impact through data analysis.

Data sources include sensors, satellite imagery, videos, and photographs...

Story 2

CROP ANALYSIS STATE WISE CROP ANALYSIS DATA VISUALISATION ON CROP

STATISTICAL CROP ANALYSIS

Data-Driven Agriculture:

Food security is a crucial global need, threatened by population growth, climate change, Data-driven agriculture is the most promising approach to solving these current and future challenges and ensuring sustainability.

New technologies, such as cloud computing, Internet of Things (IoT), Big Data, and machine learning, are revolutionizing agriculture by improving efficiency and reducing costs.

Farms are becoming increasingly data-driven, enabling the development of smart farming systems.

Digital Agriculture:

Also known as agrotechnology and precision agriculture.

Promotes agricultural productivity while minimizing environmental impact through data collection and analysis.

Data sources include sensors, satellite imagery, videos, and photographs.

Enables better decisions by understanding crop dynamics, weather conditions, soil health, and nutrient availability.

Challenges Addressed:

Food Demand: By 2050, global food demand is expected to increase significantly.

Doubling Food Production: Doubling food production per hectare is crucial by the time the world reaches 9 billion people.

Threats to Food Security: Population increase, climate change, decreasing arable land, and water scarcity.

Technological Solutions:

Cloud Computing: Enables efficient data storage and retrieval.

Internet of Things (IoT): Connects smart sensors and devices on farms.

Big Data and ML: Analyze data for informed decisions.

Smart Farming: Real-time responses triggered by events (e.g., disease alerts, weather changes).

Crop Physiology and Optimization:

Understanding how crops respond to environmental factors and stresses.

Developing strategies to optimize growth and productivity.

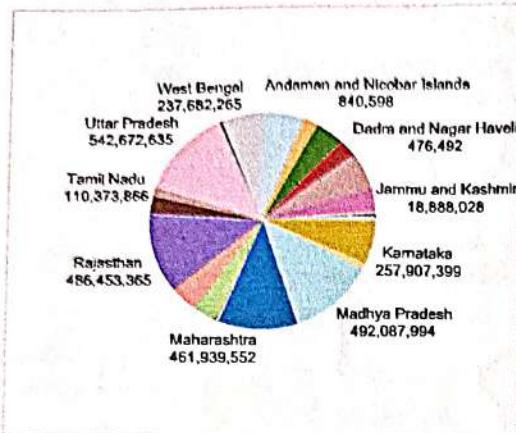
Remember, data-driven approaches are reshaping agriculture, ensuring sustainable food production for a growing world.

Story 2

CROP ANALYSIS

STATE WISE CROP ANALYSIS

DATA VISUALISATION ON CROP



Area 4,030,580,036

State	Area (sq km)
Andaman and Nicobar Isl.	840,598
Andhra Pradesh	4,030,580,036
Arunachal Pradesh	476,492
Assam	18,888,028
Bihar	257,907,399
Chandigarh	461,939,552
Chhattisgarh	492,087,994
Dadra and Nagar Haveli	542,672,635
Daman and Diu	237,682,265
Delhi	110,373,866
Goa	486,453,365
Gujarat	100,000,000
Haryana	100,000,000
Himachal Pradesh	100,000,000
Jammu and Kashmir	100,000,000
Jharkhand	100,000,000
Karnataka	100,000,000
Kerala	100,000,000
Laddakh	100,000,000
Madhya Pradesh	100,000,000
Maharashtra	100,000,000
Manipur	100,000,000
Meghalaya	100,000,000
Mizoram	100,000,000
Nagaland	100,000,000
Odisha	100,000,000
Puducherry	100,000,000
Punjab	100,000,000
Rajasthan	100,000,000
Sikkim	100,000,000
Tamil Nadu	100,000,000
Telangana	100,000,000
Tripura	100,000,000
Uttar Pradesh	100,000,000
Uttarakhand	100,000,000
West Bengal	100,000,000

Official Data Sources:

The **Directorate of Economics and Statistics**, under the **Department of Agriculture and Farmers Welfare**, Ministry of Agriculture and Farmers Welfare, Government of India, provides comprehensive state-wise agricultural statistics.

Exploratory Data Analysis (EDA):

Researchers and data enthusiasts have explored Indian crop production data.

For instance, a dataset covering **33 Indian states and Union Territories** has been analyzed.

States like **Uttar Pradesh, Madhya Pradesh, and Karnataka** contribute more data due to their prominence in agriculture ².

State-Level Studies:

Researchers often consider **17 major states/Union Territories** for in-depth agricultural analysis.

These studies examine **crop diversification, productivity, and challenges faced by each state** ³.

Crop Yield Patterns:

Let's explore some intriguing patterns for the year **2022-23**:

Punjab and **Haryana** lead in cereal production.

West Bengal and **Odisha** excel in rice yields.

Other states exhibit unique crop dynamics.

Story 2

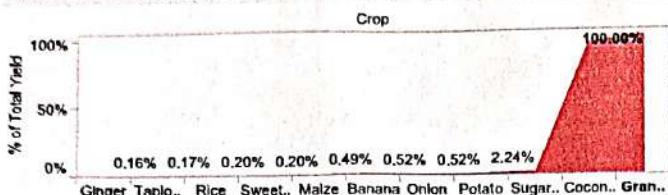
CROP ANALYSIS

STATE WISE CROP ANALYSIS

DATA VISUALISATION ON CROP

CROP ANALYSIS (1997 -2021)

MAJOR CROPS GROWTH YOY



CROP PLANTATION BY AREA



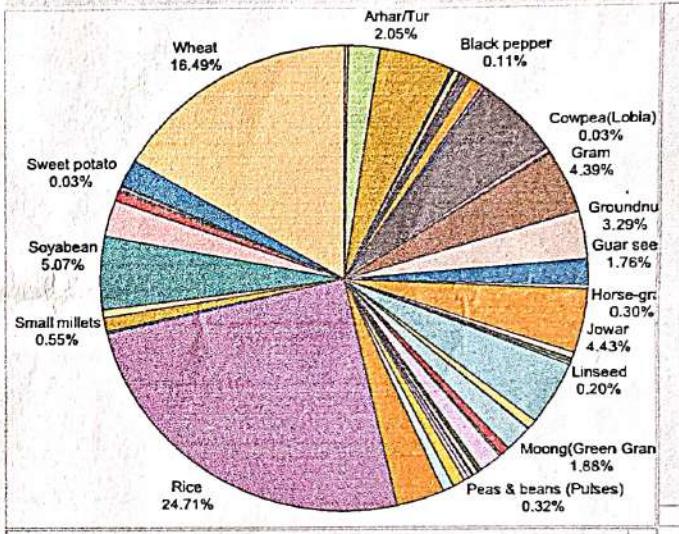
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KPI'2

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CROPS



SCHEMAS

Q Filter objects

- ▶ adarsh
- ▶ agri
- ▶ agriculture
 - ▶ Tables
 - ▶ combined
 - ▶ india
 - ▶ Views
 - ▶ Stored Procedures
 - ▶ Functions
- ▶ airport_data
- ▶ business
- ▶ business_1
- ▶ business_expenses
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SCHEMAS

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Info Columns Indexes Triggers Foreign keys Partitions Grants DDL

Local instance MySQL 8.0
agriculture.india

Table Details

Engine:	InnoDB
Row format:	Dynamic
Column count:	9
Table rows:	321317
Avg row length:	316
Data length:	33.6 MB
Index length:	6.8 bytes
Max data length:	8.8 bytes
Data free:	7.8 MB
Total size (estimate):	35.4 MB
File format:	
File path:	C:\ProgramData\MySQL\MySQL Server 8.0\data\agriculture\india
Update time:	
Create time:	2023-06-22 15:48:15
Auto increment:	
Table collation:	utf8mb4_general_ci
Create options:	
Comment:	

Information on this page may be outdated. Click Analyze Table to update it.

SCHEMAS

Q Filter objects

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- ▶ student
- ▶ sys
- ▶ world

Info Columns Indexes Triggers Foreign keys Partitions Grants DDL

Local instance MySQL 8.0
agriculture.combined

Table Details

Engine:	InnoDB
Row format:	Dynamic
Column count:	3
Table rows:	3
Avg row length:	3776
Data length:	16.0 KB
Index length:	0.0 bytes
Max data length:	8.8 bytes
Data free:	0.0 bytes
Total size (estimate):	16.0 KB
File format:	
File path:	C:\ProgramData\MySQL\MySQL Server 8.0\data\agriculture\combined.fld
Update time:	
Create time:	2023-06-14 17:26:50
Auto increment:	
Table collation:	utf8mb4_general_ci
Create options:	
Comment:	

Information on this page may be outdated. Click Analyze Table to update it.

Activity 2 :- Number of calculation Fields.

The image shows two side-by-side screenshots of a Power BI interface. Both panes have a header with 'Data' and 'Analytics' tabs, and a search bar. The left pane is titled 'India (agriculture)' and lists the following calculated fields:

- # Combined
- * India (agriculture)
- Tables
 - # Crop
 - # District
 - # Production Units
 - # Season
 - State
 - Year
 - # Measure Names
 - * Area
 - * Production
 - * Yield
 - * Zero
 - * Zero Line
 - * India (Count)
 - # Latitude (generated)
 - * Longitude (generated)
 - * Measure Values

The right pane is also titled 'India (agriculture)' and lists the following calculated fields:

- # Combined
- * India (agriculture)
- Tables
 - # Region
 - # Measure Names
 - * Area
 - * Production
 - * Zero
 - * Combined csv (Count)
 - * Measure Values

Activity 3 :- Number of visualizations.

1. Statewise Agricultural Land
2. Area vs production
3. Season based cultivation by Area.
4. Yield by seasons
5. Crop plantation by area.
6. Major crops growth Yoy
7. Crops plantations By count.
8. Season wise production.

Conclusion :-

Milestone 8 :- Web Integration.

Publishing helps us to track and monitor key performance metrics and to communicate results and progress, help a publisher stay informed, make better decisions, and communicate their performance to others.

Activity 1 :- Publishing dashboard and reports to tableau public

Explanation video link:-

<https://drive.google.com/file/d/1cR1IbedHnSNtkP2yL-1LODCuALptkjDE/view?usp=sharing>

Future scope :-

Activity 2 :- Embedded dashboard and story with bootstrap

Explanation video link:-

<https://drive.google.com/file/d/1MtGPrvGidFLVEUwJDn8pw8KBjXjkarLF/view?usp=sharing>

ACTIVITY LOG FOR THE FIRST WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Introduction to Business Intelligence, Types of Data Analytics.	*Understand the fundamentals and significance of BI.	-
Day - 2	Introduction of Tableau *Overview & features. *Working with flat files.	Gain an overview of Tableau and its feature.	-
Day - 3	Data Extraction. *Introduction to DB *Creating DB & Tables.	Gain an introduction to databases and their importance in data.	-
Day - 4	Basic SQL operations.	*Understand the fundamentals of Structured Query Language (SQL)	-
Day - 5	Basic SQL operations.	*Understand the fundamentals of Structured Query Language (SQL).	-
Day - 6	Holiday.	-	-

WEEKLY REPORT

WEEK - 1 (From Dt. 05/02/24. to Dt. 09/02/24.....)

Objective of the Activity Done: It was to provide an intensive introduction.

Detailed Report:

Day 1 :- Introduction to Business Intelligence.

-Covered various aspects of BI including data integration, processing, presentation and ETL architecture.

Day 2 :- Introduction to Tableau.

Introduced participants to Tableau's features and capabilities. Participants practiced data visualizations and analysis using Tableau.

Day 3 :- Data Extraction.

Provided an overview of databases and their role in data management. Conducted sessions on creating databases and performing CRUD operations.

Day 4 & 5 :- Basic SQL Operations.

Covered fundamental concepts of Structured Query Language (SQL) and its importance in database management. Taught basic SQL operations including querying, filtering, sorting, and aggregating data.

ACTIVITY LOG FOR THE SECOND WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Architecture of Tableau * Interface " " * Tableau field types.	* Understand Tableau's architecture and components.	
Day - 2	charts * Histograms * Box plot * Motion.	Gain an understanding of Histogram, Box plot etc..	
Day - 3	* Bullet * Scatter * Tree * Heat map	Understand the principles and applications.	
Day - 4	* custom charts.	Understand the concept and importance.	
Day - 5	Working with Metadata and Data Blending	Develop expertise in connecting Tableau to diverse	
Day - 6	Holiday	-	

WEEKLY REPORT

WEEK - 2 (From Dt.12/02/24.. to Dt.16/02/24..)

Objective of the Activity Done: To delve deeper into data visuals.

Detailed Report:

Day-1 :- Architecture of Tableau

Explored the architecture of Tableau, including its components and interface elements.

Discussed Tableau field types, saving and publishing.

Day-2 :- charts

- Explored various chart types including Box plots, Histograms, Motion charts, pie charts, Bar charts, Line charts and Bubble charts.

Day-3 :- Advanced chart types

Delved into advanced chart types such as Bullet cards, scatter charts, tree maps, heat maps, maps, text tables and highlighted tables.

Day-4 :- Custom charts

Explored the concept and importance of custom charts in data visualizations.

Day-5 :- Working with Metadata and Binding

Developed expertise in connecting Tableau to diverse data sources including Excel, cubes and PDF's for comprehensive analysis.

Understood Tableau data types and their implications in data visualizations and analysis.

ACTIVITY LOG FOR THE THIRD WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day -1	joins (Left, Right, and Inner, Outer, Union) *Data blending	Gain comprehensive and practice skills in various types of joins.	
Day -2	Advanced Data Manipulations. *Preview.	Master advanced data manipulation techniques.	
Day -3	*Bins. *Hierarchies. *Sorting and types	Learn how to utilize bins for grouping	
Day -4	Working with Filters, Organizing Data	Master the addition and removal of filters.	
Day -5	Filtering in Tableau Types of filters. Filtering the orders.	Master Tableau's filtering tools for precise.	
Day -6	Holiday	-	

WEEKLY REPORT

WEEK - 3 (From Dt.19/02/24. to Dt.23/02/24.)

Objective of the Activity Done: To deeper Tableau functionality.

Detailed Report:

Day 1 :- Joins, Unions and Data Bleeding

Gained comprehensive understanding and practical skills in various types of joins including Left, Right, Inner and Outer joins.

Day 2 :- Advanced Data Manipulating

Mastered advanced data manipulation techniques including preview, marking and highlighting to enhance data exploration and analysis.

Day 3 :- Bins, Hierarchies, Sorting

Participants learned to use bins for grouping continuous data into discrete intervals and creating hierarchies for data organising.

Day 4 :- Working with Filters

Mastered the addition and removal of filters to refine and focus datasets based on specific criteria.

Day 5 :- Advanced filtering in Tableau

Explored advanced filtering tools in Tableau for precise data manipulation and analysis.

ACTIVITY LOG FOR THE FORTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Calculated fields, in Tableau	Learn how to create calculated fields.	
Day - 2	Quick Tableau calculations.	Utilize Tableau's quick Table calculations	
Day - 3	LOD Expressions in Tableau	Utilize Tableau's LOD expressions for instant.	
Day - 4	Working with Mapping	Master mapping skills including coordinate point.	
Day - 5	Calculations and Expressions.	Learn how to incorporate background image.	
Day - 6	Holiday		

WEEKLY REPORT

WEEK - 4 (From Dt. 26/02/24.. to Dt. 04/03/24..)

Objective of the Activity Done: To delve into Tableau functions.

Detailed Report:

Day 1 :- Calculated Fields, Quick Table Calculations.

Participants learned how to create calculated fields in Tableau for custom data analysis and visualizations, understand Level of Detail (LOD).

Day 2 :- Quick Table calculations.

Utilized Tableau's quick table calculations for instant data analysis and visualization enhancement.

Day 3 :- LOD Expressions in Tableau.

Participants delved deeper into the use of LOD expressions for advanced analytics and precise control over aggregations in Tableau.

Day 4 :- Mapping, Calculations and Expressions.

Participants mastered mapping skills including coordinate point manipulation and longitude/latitude plotting for spatial data analysis.

Day 5 :- Advanced Mapping Techniques.

Participants learned to incorporate background images and add images in Tableau for enhanced visualizations.

WEEKLY REPORT

WEEK - 4 (From Dt. 26/02/24. to Dt 01/03/24.)

Objective of the Activity Done: To delve into Tableau functions.

Detailed Report:

Day 1 :- Calculated Fields, Quick Table Calculations.

Participants learned how to create calculated fields in Tableau for custom data analysis and visualizations, understand Level of Detail (LOD).

Day 2 :- Quick Table Calculations.

Utilized Tableau's quick table calculations for instant data analysis and visualization enhancement.

Day 3 :- LOD Expressions in Tableau.

Participants delved deeper into the use of LOD expressions for advanced analytics and precise control over aggregations in Tableau.

Day 4 :- Mapping, Calculations and Expressions.

Participants mastered mapping skills including coordinate point manipulation and longitude/latitude plotting for spatial data analysis.

Day 5 :- Advanced Mapping Techniques.

Participants learned to incorporate background images and add images in Tableau for enhanced visualizations.

ACTIVITY LOG FOR THE FIFTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Working with parameters & creating parameters.	Master the creation of parameters.	
Day - 2	Visual analytic's Pane & k-means cluster analysis.	Explore the Visual Analytic's pane in Tableau.	
Day - 3	Dashboards and stories.	Acquire skills in building and formatting.	
Day - 4	Creating multiple dashboards.	Gain proficiency in creating multiple dashboards.	
Day - 5	Creating stories.	Master the creation of stories in Tableau.	
Day - 6	Holiday	-	

WEEKLY REPORT

WEEK - 5 (From Dt.04/03/24. to Dt.08/03/24..)

Objective of the Activity Done: Focus on advanced Tableau functions.

Detailed Report:

Day 1 :- Working with Parameters.

Participants mastered the creation of parameters in Tableau to enhance dynamic analysis and visualizations capabilities.

Day 2 :- Visual Analytics pane.

Explored the visual analytics pane in Tableau for advanced data exploration and visualization techniques, learned k-means cluster analysis.

Day 3 :- Dashboards and story

Acquired skills in building and formatting dashboards in Tableau using various elements such as size, object, views, filters and legends.

Day 4 :- Creating Multiple Dashboards.

Gained proficiency in creating multiple dashboards within Tableau for comprehensive data presentation and analysis.

Day 5 :- Creating stories.

Mastered the creation and updating of stories in Tableau, including the introduction of story points.

ACTIVITY LOG FOR THE SIXTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Adding annotations with descriptions; dashboards and stories.	Master the skill of adding annotations.	
Day - 2	Build Tableau Web applications.	Acquire an introduction to Flask.	
Day - 3	Working with Bootstrap.	Master the use of Bootstrap.	
Day - 4	Building applications with flask framework.	Acquire the skills necessary to web applications.	
Day - 5	Embedded Dashboard & story with web application.	Learn how to embed Tableau dashboards.	
Day - 6	Holiday.	~	

WEEKLY REPORT

WEEK - 6 (From Dt.11/03/24.. to Dt.15/03/24..)

Objective of the Activity Done: Web applications with Flask.

Detailed Report:

Day - 1 :- Adding annotations and dashboard.

Participants mastered the skill of adding annotations with descriptions to provide contextual information within Tableau dashboards, stories.

Day 2 :- Building Tableau for Web Application with Flask and Bootstrap.

Acquired an introduction to flask, and understanding of Bootstrap in web interfaces.

Day - 3 :- Working with Bootstrap.

Participants mastered the use of Bootstrap, a front-end framework, for creating responsive and visually appealing web interfaces.

Day - 4 :- Building Applications with Flask Framework

Acquired the skills necessary to build web applications using the Flask framework, a lightweight and flexible Python web framework.

Day - 5 :- Embedding Dashboards into web applications

Participants learned how to embed Tableau dashboards and stories into web applications using embedding functionalities.

ACTIVITY LOG FOR THE SEVENTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In Charge Signature
Day-1	Creation of flask code and deployment of flask code.	Flask is a python web framework used to create webpages.	
Day-2	Application of flask and web designing	Flask code is to execute the web address.	
Day-3	Application of flask code and web designing.	Creating address for the web integration.	
Day-4	Insertion of dashboard and story into bootstrap.	By adding tableau publics embeded link into bootstrap.	
Day-5	Insertion of dashboard and story into bootstrap.	Application of embeded code into dashboards.	
Day-6	Holiday	-	

Objective of the Activity Done:

To define the flask code and webpage.

Detailed Report

Day 1 :- Explanation of flask code.

Flask code is a web framework used for creating address link for web pages. It is a python web framework.

Day 2 :- Application of flask code.

Flask code can create main route the code of html, code of index.html. useful to make webpages by web framework of python.

Day 3 :- Embedding dashboard into web page.

In tableau public we get embedded code of dashboard and story. So we need to upload or add this embedded code into html code.

Day 4 :- Embedding dashboard & story into webpages.

After getting embedded code from tableau and insert that code into the html code. to get dashboard and story into webpage.

Day 5 :- After successfully insertion of dashboard and story we can create webpage based on html code by using flask code.

ACTIVITY LOG FOR THE EIGHTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In Charge Signature
Day-1	Collection of dataset and analysing the dataset.	dataset collection and analysis of dataset.	
Day-2	Cleaning of dataset and extraction of dataset.	clearing all the null values and making data values available	
Day-3	Preparing Tableau worksheet with account creation.	Creating account for Tableau and Prepare worksheets.	
Day-4	Making visualizations Define problems / problems understanding.	This report delves into the captivating realms of India's agriculture.	
Day-5	Business requirements.	The primary business requirements for this report	
Day-6	Holiday	—	

WEEKLY REPORT

week-8 (From Dr 25/03...to Dt 29/03/23)

Objective of the Activity Done: Data cleaning and extraction of data

Detailed Report:

Day-1 :- collection of dataset and Extraction from database. Downloading the dataset. Data collection is the process of gathering and measuring information on variables of insights from data.

Day-2 :- Extraction of data from database.

Data consists of 345409 rows and 10 columns that correspond to different values like state, district, crop, year, season, area, production, yield.

Day 3 :- Specify the business problem.

This report delves into the captivating realms of India's agricultural cultivation, providing a comprehensive visual exploration of key aspects.

Day 4 :- Business requirements.

The primary business requirements for this report are to visualize and analyze business expenses, provide industry-specific insights etc.

Day-5 :- Problem understanding.

The report should facilitate the identification of key cost drivers, enabling stakeholders to understand the primary factors.

ACTIVITY LOG FOR THE NINETH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Literature Survey of Agriculture data.	The literature survey section of the report and overview.	
Day - 2	Literature Survey of Agriculture data	The survey explores the diversity of crops cultivated.	
Day - 3	Social Impact on Agriculture	On the social front, agriculture serves as a vital source	
Day - 4	Business Impact on Agriculture	From a business perspective, the agricultural sector economy	
Day - 5	Impact on Agriculture	The growth and productivity of the agriculture sector have direct implications.	
Day - 6	Holiday	-	

WEEKLY REPORT

WEEK - 9 (From Dt 01/04/2010 to Dt 05/04/2010.....)

Objective of the Activity Done:

Literature Survey and Social Impact.

Detailed Report:

Day-1 :- Literature Survey on Agriculture-

The literature section of the report provides a concise overview of India's agriculture sector, focusing on key aspects and insights from existing studies and publications.

Day 2 :- Literature Survey on Agriculture

The survey explores the diversity of crops cultivated across different regions, along with trends in production and the impact of climate.

Day 3 :- Social Impact on Agriculture.

On the social front, agriculture serves as a vital source of livelihood for a large portion of the population especially in rural.

Day 4 :- Business Impact on Agriculture.

From a business perspective, the agricultural sector is a vital source of livelihood.

Day-5 :- Impact on Agriculture production.

The agriculture sector plays a vital role in India's Agriculture and economy.

ACTIVITY LOG FOR THE TENTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Downloading the dataset.	Data set collection and extraction	
Day - 2	Connect database with Tableau.	Connection of database with Tableau for storage	
Day - 3	SQL connection and operations.	Database connection and performing operations.	
Day - 4	Data Preparation for visualization.	Preparing the data for visualization involves cleaning the data.	
Day - 5	Data preparation for visualizations.	Transforming the data into a format that can be easily visualized.	
Day - 6	Holiday	-	

WEEKLY REPORT

WEEK - 10 (From Dt. 08/04/2010 Dt. 12/04/2010....)

Objective of the Activity Done: Data collection and database connection.

Detailed Report:

Day 1 :- Downloading the dataset.

Understand the data. Data Specification and constraint different aspects such as state, District, crop, year, Season, Area, yield.

Day 2 :- Connect database with tableau.

choosing Mysql database and you'll see a "connect" pane on the left side click on it to open various data connections options.

Day 3 :- Sql connection and operations.

Create, Read and delete operations are used to create new records and insert values into records; Delete is to perform deletion.

Day 4 :- Data preparation for visualizations.

Preparing the data for visualization involves cleaning the data to remove irrelevant or missing data, transforming the data into a form.

Day 5 :- Data preparation for visualizations.

Filtrering the data to focus on specific subsets of data, preparing the data for visualizations.

ACTIVITY LOG FOR THE ELEVENTH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Data visualizations analysis.	Preparing the data for visualizations involves	
Day - 2	Identify the visualizations. 1) State wise agriculture dataset.	Preparing visualizations by using	
Day - 3	2) Area vs production 3) Season based cultivation 4) Yield by seasons.	Preparing visualizations of Area, yield	
Day - 4	5) Crop plantation by area 6) Major crop growth 7) Crops 8) Season wise product 9) KPI's. - ion.	Preparing visualizations of Crops, KPI's.	
Day - 5	Preparing Dashboards. by using visualizations.	Responsive and design of dashboards.	
Day - 6	Holiday		

WEEKLY REPORT

WEEK - 11 (From Dt. 15/04/24 to Dt. 19/04/24.....)

Objective of the Activity Done: Data visualizations and dashboard.

Detailed Report:

Day 1 :- Preparing data visualizations.

A dashboard and the number of unique visualizations that can be created with a given dataset. Some common types of visualizations.

Day 2 :- Area, state wise production & land.

Creating Area, state wise production, agricultural land, yield by season etc.

Day 3 :- Area vs production, season based cultivation.

Creating visualizations of Area vs production, season based cultivation, yield by area, seasons, crop plantation by area.

Day 4 :- Crop plantation by yield, crops.

Creating visualizations of crop plantation by area, major crops growth, crops, kpis, season wise production.

Day 5 :- Preparing Responsive dashboard.

A dashboard is a graphical user interface (GUI) that displays information and data in an organized, easy-to-read format.

ACTIVITY LOG FOR THE TWELVETH WEEK

Day & Date	Brief description of the daily activity	Learning Outcome	Person In-Charge Signature
Day - 1	Creation of Story 1. and story 2.	The number of scenes in a storyboard for data visualization.	
Day - 2	Insertions of dashboards and stories into tableau public	publishing dashboard and stories into tableau public	
Day - 3	Coding html for web integration and dashboards & story insertion.	Preparing html code for web integration.	
Day - 4	Creating flask code and updating webpage with framework	Creating flask code and updating webpage	
Day - 5	Upload in Github and prepare documentation for project; video demonstration.	File upload in github and video demonstration.	
Day - 6	uploading in Github and Smartinterz profile.	File upload in Github and tasks in Smartinterz.	

WEEKLY REPORT

WEEK - 12 (From Dt 22/04/24 to Dt 27/04/24)

Objective of the Activity Done:

Web integration and documentation.

Detailed Report:

Day-1 :- Embedded story 1 and story 2.

The data story is a way to presenting data and analysis in a narrative format, intending to make the information more engaging and easier to understand in a story presentation.

Day-2 :- Insertion of story and dashboard into tableau public. To get the embed code to use in the web integration process to make dashboards and stories available easily.

Day-3 :- Web Integration with flask code

Creating a flask code and make a path to open the webpage into the web browser and inserting dashboard and stories into web integration.

Day-4 :- Updating webpage with framework.

Updating webpage with framework and making webpage more efficiently and designing attractively.

Day-5 :- Upload in Github and making video demonstration and preparing documentation for project and update in Smart Internz.

Chapter 1 :- Executive Summary.

This internship report encapsulates a comprehensive learning journey in the field of data analytics, focusing on Tableau Desktop, a prominent business intelligence and performance management software suite. The internship programs spanned 6 weeks consisting of structured training sessions, hands-on projects, knowledge sessions and career development activities. The report outlines the key learning objectives and outcomes achieved during the internship, along with a brief overview of the business sector and the hosting organizations.

Learning Objectives:-

1. Gain proficiency in business intelligence concepts, including data integration, processing, presentation, and ETL architecture.
2. Understand the fundamentals of data analytics, encompassing descriptive, diagnostic, predictive and prescriptive analytics.
3. Acquire practical skills in using Tableau for data visualizations, covering topics such as connecting to data sources, creating charts, and working with filters.
4. Develop a strong foundation in database management, including creating databases, performing CRUD operations, and basic SQL operations.
5. Master advanced Tableau techniques, including calculated fields, LOD expressions, data blending, and working with parameters.

Learning Outcomes:-

1. Participants gained practical knowledge and hands-on experience in business intelligence concepts, enabling them to integrate, process and present data effectively.
2. Understanding of various data analytics techniques empowered participants to analyze data comprehensively and derive valuable insights for decision-making.
3. Proficiency in Tableau enabled participants to create visually appealing and insightful data visualizations, enhancing data communication and analysis capabilities.
4. Strong fundamentals in degree database management equipped participants to handle databases efficiently and perform basic SQL operations confidently.
5. Mastery of advanced Tableau techniques empowered participants to create complex data visualizations and perform advanced data analysis tasks.
6. Skills in building interactive dashboards and stories enhanced participant's ability to present data analytically and engage stakeholders effectively.

Chapter 2 :- Overview of the Community.

Industry profile.

SmartBridge is an EdTech startup based in Hyderabad, Telangana, India. It was founded in 2015 with the mission of bridging the gap between academia and industry. SmartBridge provides a platform for students, colleges, and companies to connect and collaborate.

At SmartBridge, our cutting-edge ed-tech platforms, "SmartInternz" Project Based Learning & Remote Internship platform serve as a catalyst for fostering collaboration between academia and industry. By providing project-based, collaborative learning solutions intricately woven into the curriculums, it empowers students to cultivate the essential technical and professional skills required to become job-ready candidates.

Since the launch of SmartInternz platform in 2020, our talent development programs have successfully upskilled over 300,000 students and 30,000 faculty members in emerging technologies. Renowned companies such as IBM, Google, Salesforce, VakilLaw and others have placed their trust in our platforms, providing an impressive 300,000 virtual internships to Indian students pursuing their graduation.

Smartbridge Objective :-

SmartBridge's main objective is to bring the existing gaps between prevailing industry standards and what the academics offer to the graduates while passing out of university. SmartBridge offers suitable skill deployment and training to the youth talent, boarding their first job before

Our Main Objective of Smartbridge :-

- * Internship for Every Student.
- * Promote Industry Approved Professional Electives.
- * Become a talent factory of India by 2026.

Corporate Profile:-

At SmartBridge, our cutting-edge edtech platform, "SmartInternz", serves as a catalyst for fostering collaboration between academia and industry. By providing project-based, collaborative learning solutions intricately woven into the curriculum, it empowers students to cultivate the essential technical and professional skills required to become job-ready candidates.

Our goal is two-fold: to assist companies in finding job-ready talent and to play a pivotal role in building a thriving gig economy in India.