

PROFESSIONAL READINESS FOR INNOVATION, EMPLOYABILITY AND ENTREPRENEURSHIP

ESTIMATE THE CROP YIELD USING DATA ANALYTICS

DOMAIN: DATA ANALYTICS

PROJECT REPORT

Submitted by

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1. INTRODUCTION

1.1. PROJECT OVERVIEW:

Humanity is confronted with the grand challenge of how to increase agricultural production to achieve food security during the 21st century and feed a population that is expected to grow to 10 billion people. This needs to be done while maintaining sustainable agricultural systems and simultaneously facing challenges such as a changing climate, depletion of water resources, and the potential for increased erosion and loss of productivity due to the occurrence of extreme weather events. Crop yield prediction is becoming more important because of these growing concerns. Utilizing data to help navigate shifts in environmental conditions can help farmers prepare for challenges and maximize on opportunities, all without wasting resources. Data analytics can help farmers monitor the health of crops in real-time, create predictive analytics related to future yields and make resource management decisions based on proven trends.

Crop yield is influenced by various parameters, and it is difficult to build a reliable prediction model with traditional methods. However, with advancements in computational technology, the development and training of a novel approach for crop yield prediction have become feasible. Our project aims to build a model that provides an optimal solution in finding the best crop suitable for specific climate.

1.2. PURPOSE:

Early crop yield prediction plays an important role in reducing famine by estimating the food availability for the growing world population. Hunger is one of the most devastating issues in the world and increasing crop yield production is a feasible solution to overcome this problem. The World Health Organization estimated that there is still an inadequate food supply for 820 million people around the world. The target for the Sustainable Development Goals of the United Nations is to eliminate hunger, accomplish food security, and encourage sustainable agriculture by 2030. The Food and Agriculture Organization (FAO) estimated that there will be a 60 per cent demand for food to supply the world population of 9.3 billion by 2050. Therefore, crop yield prediction can offer crucial information required for developing a reasonable solution to achieve the target and end hunger.

This project analyzes the data to produce some important visualization, to create a dashboard and gain insights of crop production.

2.LITERATURE SURVEY

2.1. EXISTING PROBLEM :

Increase in climate change serves as major bottleneck in agricultural production. Extreme weather events have resulted in reduced crop yield. Crop plants, which are frequently chosen for high yield rather than stress tolerance are typically delicate and brittle. Production of these crops are affected by several variables including soil fertility, water availability, climate, and diseases or pests. Without the aid of technology, it is quite challenging to comprehend or estimate the patterns with such a wide range of factors. Therefore, a technological solution that can adapt to the changes and offer the anticipated solution in a way that end users can easily understand is crucial.

2.2. REFERENCES:

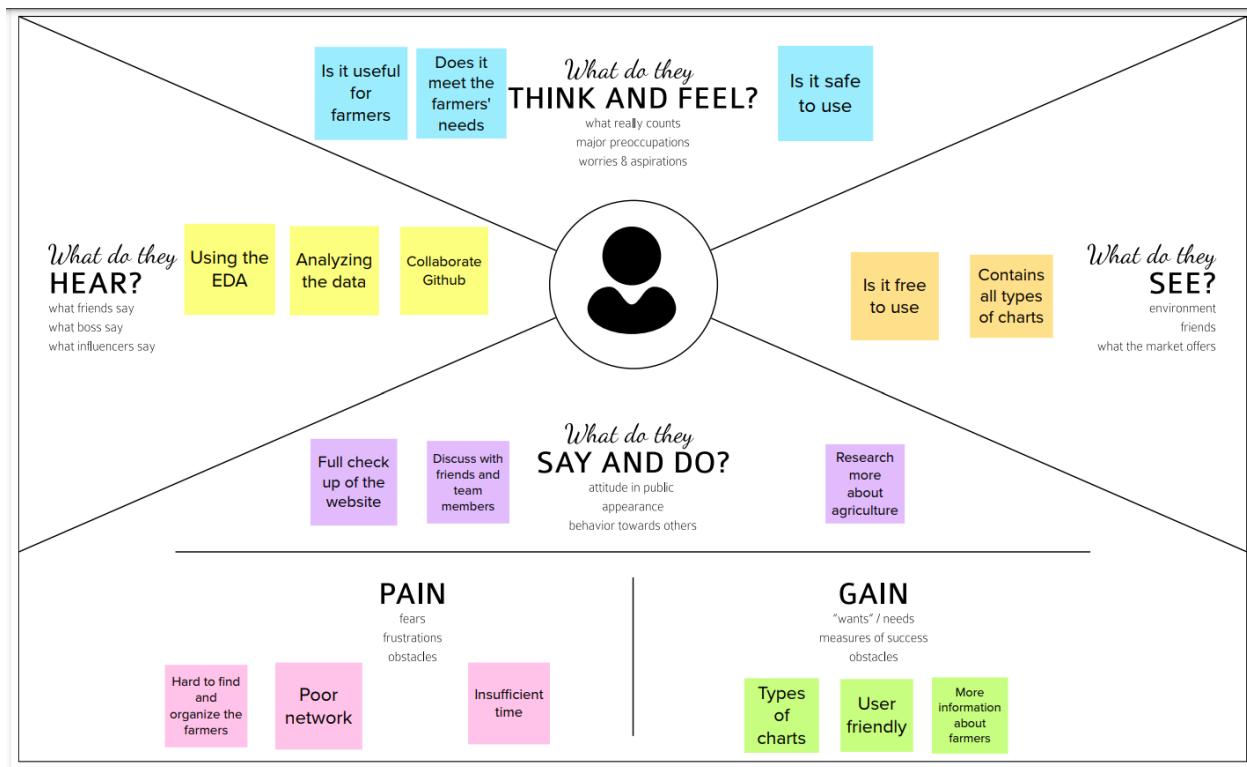
- I. Shreya Bhosale, Ruchita Thombare, Anagha Chaudhari and Prasanna G. Dhemey. "Agriculture yield prediction using predictive analytic techniques." 2016 2nd International Conference on Contemporary Computing and Informatics (IC3I). IEEE, 2016.
- II. Sagar, B. M., and N. K. Cauvery. "Agriculture data analytics in crop yield estimation: a critical review." Indonesian Journal of Electrical Engineering and Computer Science 12.3 (2018): 087-1093.
- III. D. Ramesh, B. Vishnu Vardhan. "Analysis of crop yield prediction using data mining techniques." International Journal of Research in Engineering and Technology eISSN: 319-1163
- IV. Sharma, Shivi, Geetanjali Rathee, and Hemraj Saini. "Big data analytics for crop prediction mode using optimization technique." 2018 Fifth International Conference on Parallel, Distributed and Grid Computing (PDGC). IEEE, 2018.

2.3. PROBLEM STATEMENT DEFINITION:

Crop production in India is one of the most important sources of income and India is one of the top countries to produce crops. As per this project, we will be analyzing some important visualization, and creating a dashboard and by going through these we will get most of the insights into Crop production in India. Our project uses data analytics to analyze and estimate the crop yield in a particular region and in a particular climatic condition.

3. IDEATION & PROPOSED SOLUTION

3.1. EMPATHY MAP CANVAS:



3.2. IDEATION & BRAINSTORMING:

Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 10 minutes to prepare
- 1 hour to collaborate
- 2-8 people recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

- 10 minutes

- Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- Learn how to use the facilitation tools**
Use the Facilitation Superpowers to set a happy and productive session.

[Open article](#)

Define your problem statement

What problem are you trying to solve? Frame your problem as a new, bright, life statement. This will be the focus of your brainstorm.

- 5 minutes

Problem

How might we [your problem statement]?

Key rules of brainstorming

To run an energetic and productive session

- Stay in topic
- Encourage wild ideas
- Defer judgment
- Listen to others
- Go for volume
- Be possible, be crazy

Brainstorm

Write down any ideas that come to mind that address your problem statement.

- 10 minutes

Brainstorm 1

Brainstorm 2

Brainstorm 3

Brainstorm 4

Brainstorm 5

Brainstorm 6

Brainstorm 7

Brainstorm 8

Brainstorm 9

Brainstorm 10

Brainstorm 11

Brainstorm 12

Brainstorm 13

Brainstorm 14

Brainstorm 15

Brainstorm 16

Brainstorm 17

Brainstorm 18

Brainstorm 19

Brainstorm 20

TIP
You can export the ideas as an image or pdf to share with members of your company who might find it helpful.

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence that best describes it. A cluster is bigger than one sticky note. Tip and use if you need to break it up into smaller sub-groups.

- 20 minutes

TIP
When you're ready to group ideas, make a note to yourself to do so. Without saying a word, everyone in the room should know when to start grouping.

Model Solution and feature correlation

Analysis

Prioritize

You been should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

- 20 minutes

Importance

Feasibility

TIP
Remember to use the grid to determine which ideas are important and which are feasible. Use the grid to determine which ideas are important and which are feasible. Use the grid to determine which ideas are important and which are feasible.

After you collaborate

You can export the ideas as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

- Share the ideas**
Share a link to the most useful ideas to help them in the long run about the customer of the session.
- Export the ideas**
Export a copy of the ideas as a PDF or PPT to share the ideas, include in slides, or use in your ideas.

Keep moving forward

- Strategy Map**
Define the components of a new idea or strategy.
- Customer experience journey map**
Understand customer needs, motivations, and behaviors for an experience.
- Strengths, weaknesses, opportunities & threats**
Identify strengths, weaknesses, opportunities, and threats (SWOT) to develop a plan.

[Open the template](#)

3.3. PROPOSED SOLUTION:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To estimate the crop yield using data analytics techniques to help farmers increase the profit by good harvesting practices
2.	Idea / Solution description	To create a system that gives an estimation of the crop types to be planted in a given season and location
3.	Novelty / Uniqueness	Understanding the nature of crops and their growth process
4.	Social Impact / Customer Satisfaction	Help farmers continue their job without worrying about loss in their investment
5.	Business Model (Revenue Model)	A model that gives farmers information about different crops so that they can invest in a crop that maximizes the profit in that season and soil condition.

6.	Scalability of the Solution	To perform analysis on all kinds of soil, weather and crop types
----	-----------------------------	--

3.4 PROBLEM SOLUTION FIT:

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) CS Who is your customer? i.e. working parents of 0-5 y.o. kids Farmers looking to estimate the crop yield in their fields	6. CUSTOMER CONSTRAINTS CC What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices. Lack of knowledge about the crop yield and the products to be used to get increase production. Lack of source to gain information about this.	5. AVAILABLE SOLUTIONS AS Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking There was no sufficient knowledge about different techniques to improve productivity. So they kept using the traditional techniques like regular manures and common irrigation techniques	Explore AS, differentiate
	2. JOBS-TO-BE-DONE / PROBLEMS J&P Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides. To predict the crop yield to improve the crops with minimal expenditure.	9. PROBLEM ROOT CAUSE RC What is the real reason that this problem exists? What is the back story behind the ed to do this job? i.e. customers have to do it because of the change in regulations. The reason of crops getting damaged is not clear. This leads to a decrease in profit. The need for this job is to tackle this disadvantage.	7. BEHAVIOUR BE What does your customer do to address the problem and get the job done? i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace) Regular manures - to improve productivity. climatic and seasonal changes - prediction	

<p>3. TRIGGERS TR</p> <p>What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.</p> <p>When other farmers make more profit compared to their yield.</p> <hr/> <p>4. EMOTIONS: BEFORE / AFTER EM</p> <p>How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.</p> <p>Frustration, confusion, helpless</p>	<p>10. YOUR SOLUTION SL</p> <p>If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.</p> <p>Choosing a dataset to perform analysis on it to find various trends. Techniques to improve productivity based on location, soil type etc.</p>	<p>8.CHANNELS of BEHAVIOUR CH</p> <p>8.1 ONLINE What kind of actions do customers take online? Extract online channels from #7</p> <p>NIL</p> <p>8.2 OFFLINE What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.</p> <p>Information and various techniques to improve productivity will be provided to the farmers.</p>
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4. REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS:

Functional requirement	Description
Registration	A new user can be created using the registration form
Google authentication	Add new user with a pre-existing google account
Login	Easy login for already existing users
Take in the required data	Take input data from the user for which prediction is to be performed

Estimation / Prediction	A prediction of crop yield is done based on the user input
Analysis	An analysis is done on the given data to gain useful insights on the crop yield

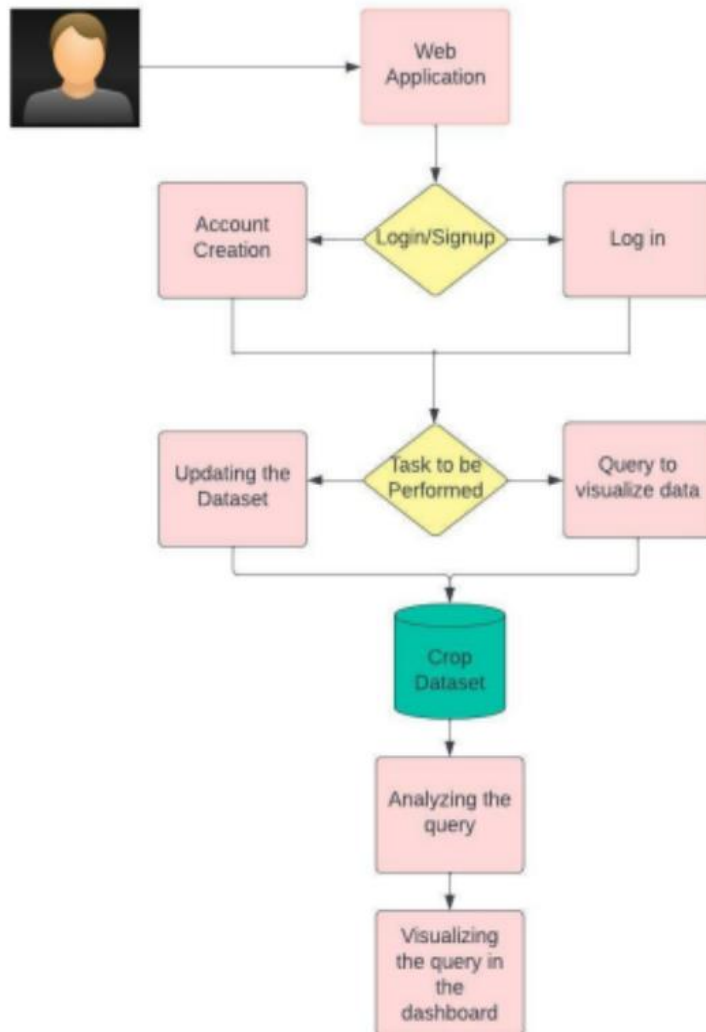
4.2 NON - FUNCTIONAL REQUIREMENTS:

Non-functional requirement	Description
Performance	The software should provide us good performance
Reliability	The UI should be user friendly and easily understandable
Availability	It should be available for access at any time from anywhere

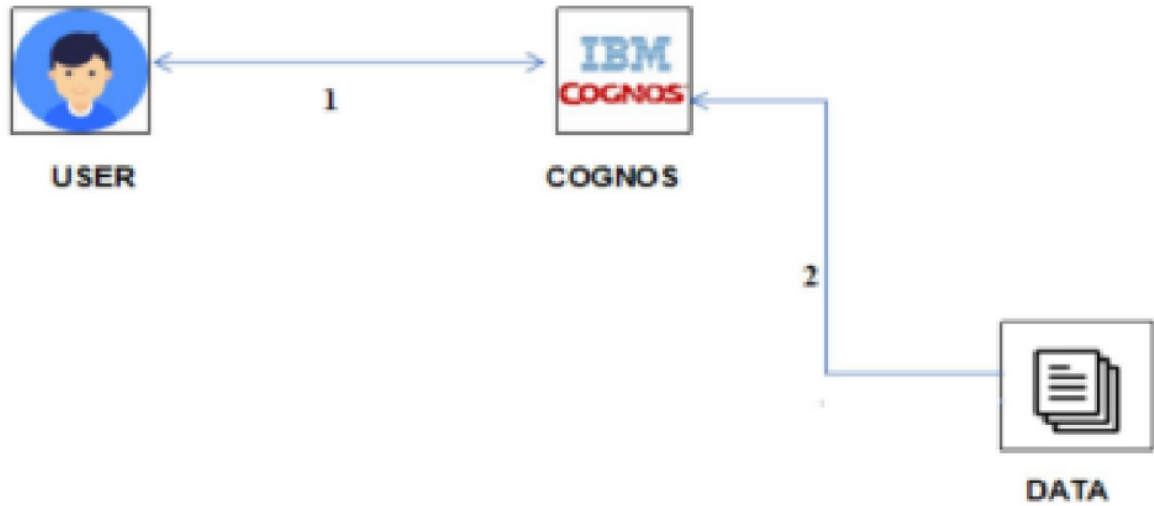
Scalability	The software should be scalable for larger datasets
Security	The user login and registration should be secure end to end

5. PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS:



5.2 SOLUTION & TECHNICAL ARCHITECTURE:



5.3 USER STORIES:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Acceptance criteria	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2

		USN-4	As a user, I can register for the application through Gmail	I can register and login with my email	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can use my mail id if I forget my password to reset it.	High	Sprint-1
	Dashboard	USN-6	As a user I can access the dashboard to view the required information	I can edit my profile	High	Sprint-2
Customer (Web user)		USN-7	As a user I can Register/login the application and access it	I can access my account and dashboard	Medium	Sprint-1
Customer Care Executive		USN-8	Provide support system for the application owner and able to communicate with the users	Authentication is provided to access the account so no one can access without permission	High	Sprint-2
Administrator		USN-9	As a user I can take decision to improve the company	I am able to modify the dataset.	High	Sprint-1

6. PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Selva Saranya Varshine
		USN-2	As a user, I can register through Google.	2	Medium	Mythily Sheela
	Login	USN-3	The user can login through their login credentials.	2	High	Selva Saranya Varshine
	Working with Dataset	USN-4	Understanding the dataset.	2	High	Sheela Mythily
		USN-5	Loading the dataset into IBM Cognos	10	High	Mythily Sheela

6.2 SPRINT DELIVERY SCHEDULE:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

6.3 REPORT FROM JIRA:

The screenshot shows the Jira Software interface for a project named "IBM-Project-585-1658308239". The left sidebar contains navigation options under "PLANNING" (Roadmap, Backlog, Board) and "DEVELOPMENT" (Code, Project pages, Add shortcut, Project settings). The main content area displays the "Backlog" view. At the top, there is a banner asking if the team needs more from Jira. Below this, the project name and ID are shown. A search bar and a filter icon are present. The "Backlog" title is followed by a "Start sprint" button and a "More" icon. A list of issues is displayed, each with a green icon, a description, and a "TO DO" button. The issues are:

- IBM-1 As a user, I can register for by entering my Agri - id card and request
- IBM-2 As a user, I can register for the application through Gmail
- IBM-3 As a user, I can Call and request or Approach for dataset
- IBM-4 To work on the given dataset, Understand the Dataset.
- IBM-5 Load the dataset to Cloud platform then Build the required Visualizations.

At the bottom of the list is a "+ Create issue" button.

The screenshot shows the Jira Software interface for the same project, now displaying the "IBM Sprint 1" view. The left sidebar is identical to the previous screenshot. The main content area shows the "IBM Sprint 1" title, followed by a "10 days remaining" status and a "Complete sprint" button. A search bar and a filter icon are present. The "GROUP BY" dropdown is set to "None". The sprint board is divided into three columns: "TO DO 5 ISSUES", "IN PROGRESS", and "DONE". The "TO DO" column contains five issues, each with a green icon and a description:

- As a user, I can register for by entering my Agri - id card and request (IBM-1)
- As a user, I can register for the application through Gmail (IBM-2)
- As a user, I can Call and request or Approach for dataset (IBM-3)
- To work on the given dataset, (IBM-4)
- Load the dataset to Cloud platform then Build the required Visualizations. (IBM-5)

The "IN PROGRESS" and "DONE" columns are currently empty.

Jira Software

Your work

Projects

Filters

Dashboards

People

Apps

Create

IBM-Project-585-1658...
Software project

PLANNING

Roadmap

Backlog

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

Does your team need more from Jira? Get a free trial of our Standard plan.

Projects / IBM-Project-585-1658308239

Backlog

5

Epic

Insights

IBM Sprint 1 14 Nov – 28 Nov (5 issues)

0 0 0 Complete sprint

IBM-1 As a user, I can register for by entering my Agri - id card and request

DONE

IBM-2 As a user, I can register for the application through Gmail

DONE

IBM-3 As a user, I can Call and request or Approach for dataset

TO DO

IBM-4 To work on the given dataset, Understand the Dataset.

TO DO

IBM-5 Load the dataset to Cloud platform then Build the required Visualizations.

TO DO

+ Create issue

Jira Software

Your work

Projects

Filters

Dashboards

People

Apps

Create

IBM-Project-585-1658...
Software project

PLANNING

Roadmap

Backlog

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

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Projects / IBM-Project-585-1658308239

IBM Sprint 1

10 days remaining

Complete sprint

GROUP BY None

Insights

TO DO 3 ISSUES

As a user, I can Call and request or Approach for dataset

IBM-3

To work on the given dataset, Understand the Dataset.

IBM-4

Load the dataset to Cloud platform then Build the required Visualizations.

IBM-5

IN PROGRESS

DONE 2 ISSUES

As a user, I can register for by entering my Agri - id card and request

IBM-1

As a user, I can register for the application through Gmail

IBM-2

Jira Software

Your work ▾

Projects ▾

Filters ▾

Dashboards ▾

People ▾

Apps ▾

Create

IBM-Project-585-1658...
Software project

PLANNING

Roadmap

Backlog

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

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Projects / IBM-Project-585-1658308239

Backlog

...

S

Epic ▾

Insights

IBM Sprint 1 14 Nov – 28 Nov (5 issues)

0 0 0 Complete sprint

...

IBM-1 As a user, I can register for by entering my Agri - id card and request DONE

IBM-2 As a user, I can register for the application through Gmail DONE

IBM-3 As a user, I can Call and request or Approach for dataset IN PROGRESS

IBM-4 To work on the given dataset, Understand the Dataset. DONE

IBM-5 Load the dataset to Cloud platform then Build the required Visualizations. TO DO

+ Create issue

Jira Software

Your work ▾

Projects ▾

Filters ▾

Dashboards ▾

People ▾

Apps ▾

Create

IBM-Project-585-1658...
Software project

PLANNING

Roadmap

Backlog

Board

DEVELOPMENT

Code

Project pages

Add shortcut

Project settings

Does your team need more from Jira? [Get a free trial of our Standard plan.](#)

Projects / IBM-Project-585-1658308239

IBM Sprint 1

S

10 days remaining

Complete sprint

...

S

GROUP BY None ▾

Insights

TO DO 1 ISSUE

Load the dataset to Cloud platform then Build the required Visualizations.

IBM-5

IN PROGRESS 1 ISSUE

As a user, I can Call and request or Approach for dataset

IBM-3

DONE 3 ISSUES

As a user, I can register for by entering my Agri - id card and request

IBM-1

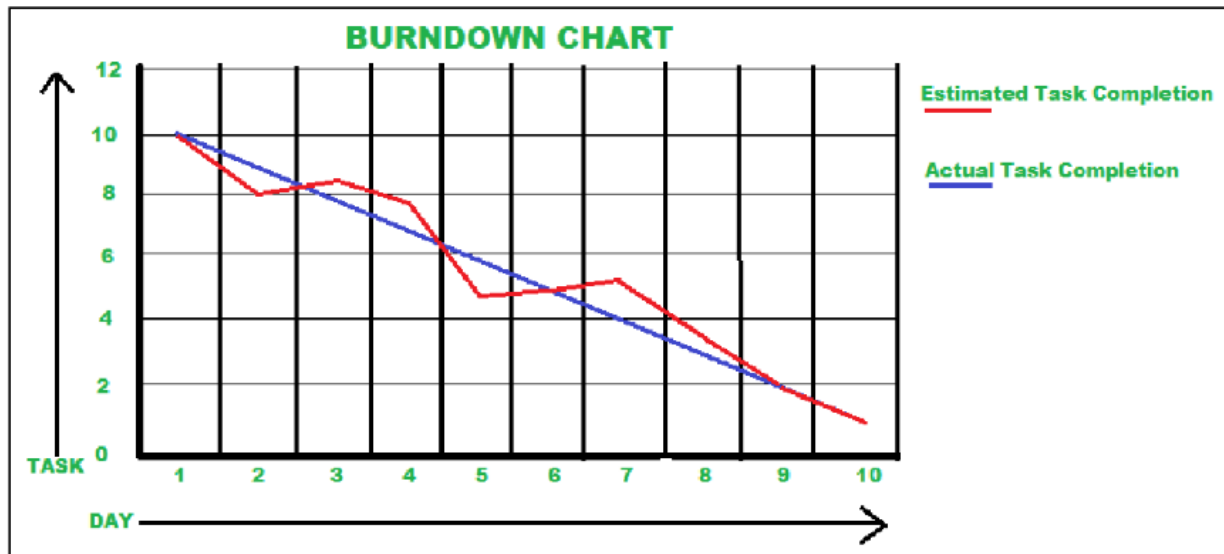
As a user, I can register for the application through Gmail

IBM-2

To work on the given dataset, Understand the Dataset.

IBM-4

BURN DOWN CHART:



7. CODING & SOLUTION

7.1 CODING:

Login.html

HTML:

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Login and Registration form example</title>
<link rel="stylesheet" type="text/css" href="login.css">
</head>
<body>
<div id="container">
<form action="login" method="post" id="flogin">
<div class="border-box">
<h2>Login Form</h2>
<label for="uname" id="un">Username:</label>
<input type="text" name="user" placeholder="Enter username" id="uname"><br/>
<label for="upass" id="ps">Password:</label>
<input type="password" name="pass" placeholder="Enter Password" id="upass"><br/>
<button type="submit" value="Login" id="submit" onclick="alert('Login
Successful')">Login</button>
<a href="register.html">New Member</a>
</div>
</form>
</div>
</body>
```

CSS:

```
body{
margin: 0px;
padding: 0px;
text-align: center;
width: 100%;
background-color: #e6e6fae8;
}
input[type=text], input[type=password]{
width:20%;
padding:7px 10px;
margin: 10px 0;
display:inline-block;
border: 1px solid #ccc;
box-sizing: border-box;
}
button{
background-color:#4CAF50;
width: 10%;
padding: 9px 5px;
margin:10px 0px 0px 35px;
cursor:pointer;
border:none;
color:#ffffff;
font-size: 15px;
font-weight: bold;
}
```

```
button:hover{
opacity:0.8;
}
#un,#ps{
font-family:'Lato', sans-serif;
color: gray;
}
#container{
position: absolute;
top:0;
bottom: 0;
left: 0;
right: 0;
margin: auto;
width:600;
height: 300px;
text-align: center;

}
```

Registration.html

```
<!DOCTYPE html>

<html>

<head>

<meta charset="ISO-8859-1">

<title>Login and Registration form example</title>

<link rel="stylesheet" type="text/css" href="register.css">

</head>
```

```
<body bgcolor="#E6E6FA">
```

```
<form name="regi" action="register1.jsp" method="post">
```

```
<h2>Registration Form</h2>
```

```
<label for="r1" id="fn">First Name :</label>
```

```
<input type="text" name="fname" id="r1"><br/>
```

```
<label for="r2" id="ln">Last Name :</label>
```

```
<input type="text" name="lname" id="r2"><br/>
```

```
<label for="r3" id="un">Username :</label>
```

```
<input type="text" name="uname" id="r3"><br/>
```

```
<label for="r4" id="pwd">Password :</label>
```

```
<input type="password" name="pass" id="r4"><br/>
```

```
<label for="r5" id="em">Email :</label>
```

```
<input type="text" name="email" id="r5"><br/>
```

```
<label for="r6" id="mn">Mobile No :</label>
```

```
<input type="text" name="mno" id="r6"><br/>
```

<label for="r7" id="pi">Pincode :</label>

<input type="text" name="pincode" id="r7">

<label for="r8" id="ad">Address :</label>

<input type="text" name="Address" placeholder="Follow with pincode"
id="r8"></textare>

<label for="r9" id="cy">City:</label >

<input type="text" name="city" id="r9">

<label for="r10" id="st">State:</label>

<input type="text" name="state" id="r10">

<label for="r11" id="dob">Date Of Birth:</label>

<input type="date" name="date_of_birth" id="r11" required autocomplete="off">

<button type="submit" value="Submit" id="button">Register</button>

</form>

<script type="text/javascript">

function save(){

var user = document.getElementById("user").value;


```
var pwd = document.getElementById("pwd").value;
```

```
alert("username"+user+"password"+pwd);
```

```
}
```

```
</script>
```

```
</body>
```

```
</html>
```

CSS:

```
body{
```

```
    margin: 100px;
```

```
    text-align: center;
```

```
    box-align: center;
```

```
}
```

```
input[type=text],[type=password],[type=number]{
```

```
    width: 20%;
```

```
    margin: 8px 0;
```

```
    padding: 7px 10px;
```

```
    display: inline-block;
```

```
    border: 1px solid #ccc;
```

```
    box-sizing: border-box;
```

```
}
```

```
button{  
  
background-color:#4CAF50;  
  
width: 10%;  
  
padding: 9px 5px;  
  
margin:5px 0;  
  
cursor:pointer;  
  
border:none;  
  
color:#ffffff;  
  
margin-left: 80px;  
  
}
```

```
button:hover{  
  
opacity:0.8;  
  
}
```

```
#fn,#ln,#un,#pwd,#em,#mn,#fm,#cy,#ad,#st,#pi,#dob{  
  
font-family:'Lato', sans-serif;  
  
color: gray;  
  
}
```

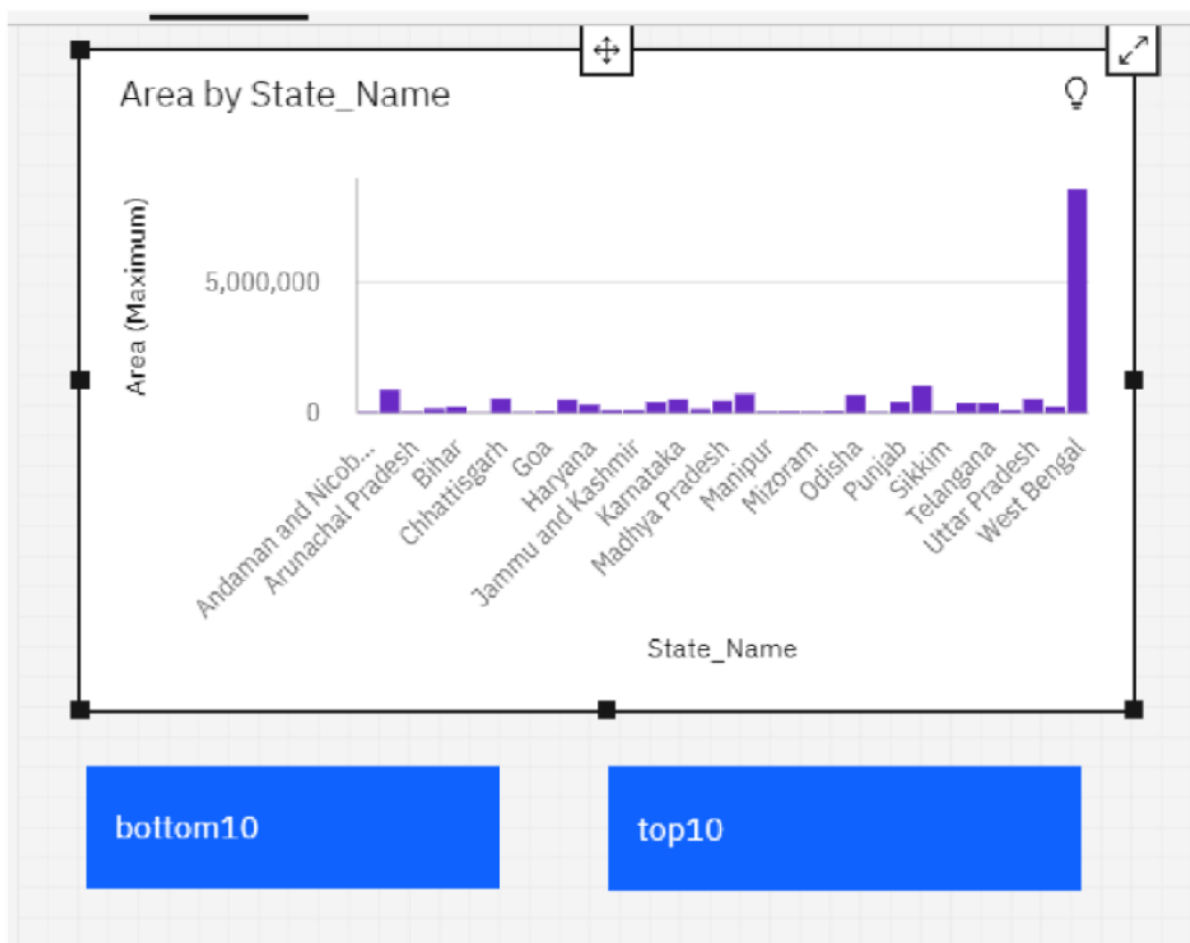
```
#em,#st{  
  
margin-left:30px;  
  
}
```

```
#ad,#pi{
    margin-left: 20px;
}
```

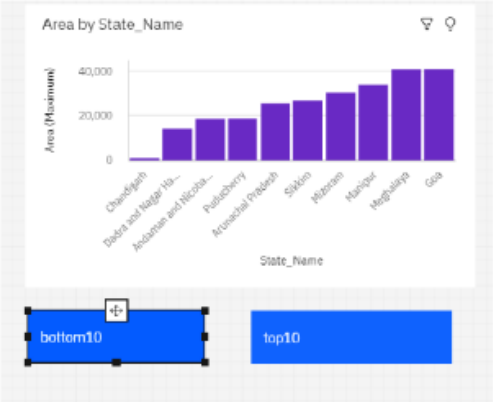
```
#cy{
    margin-left: 40px;
}
```

7.2 DASHBOARD CREATION:

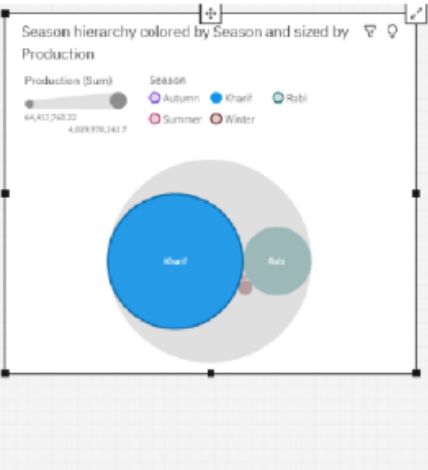
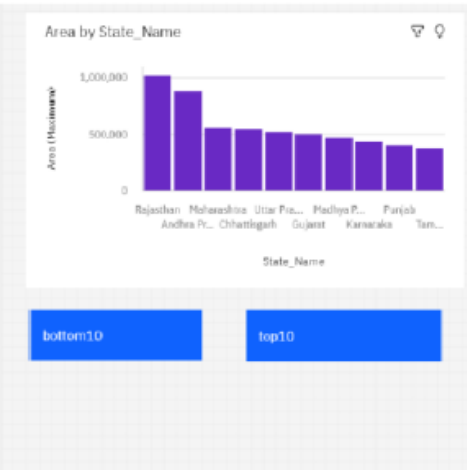
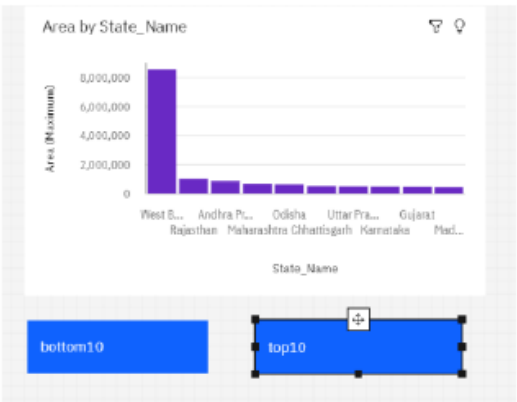
Action Buttons:



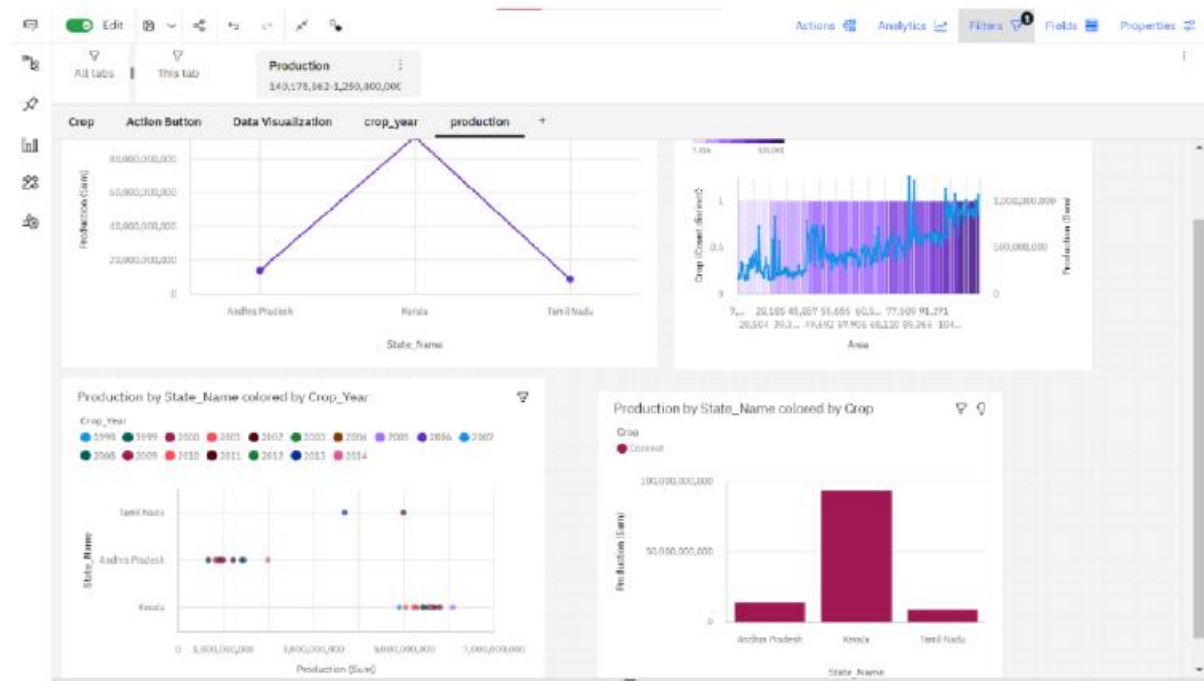
After pressing bottom 10:



After pressing top 10:

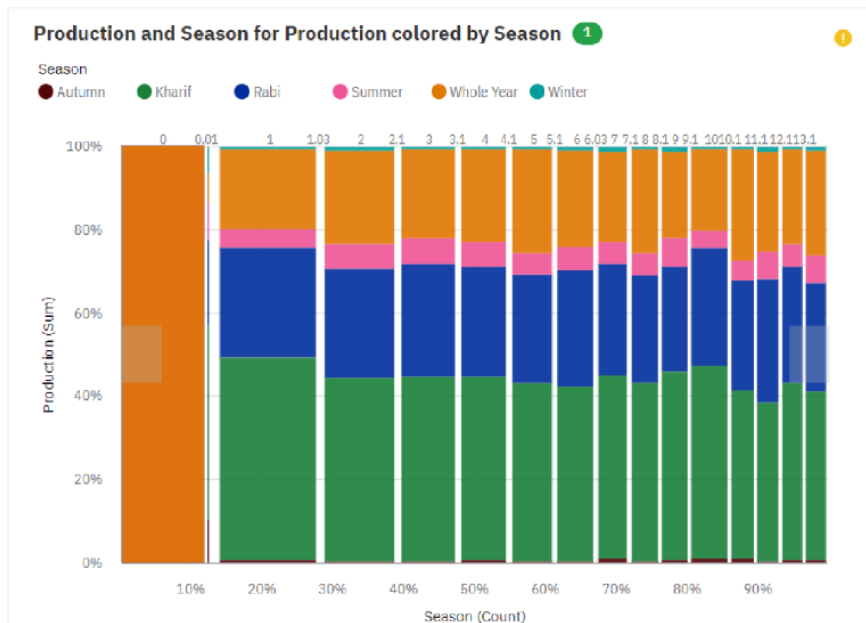


Dashboard with respect to production:

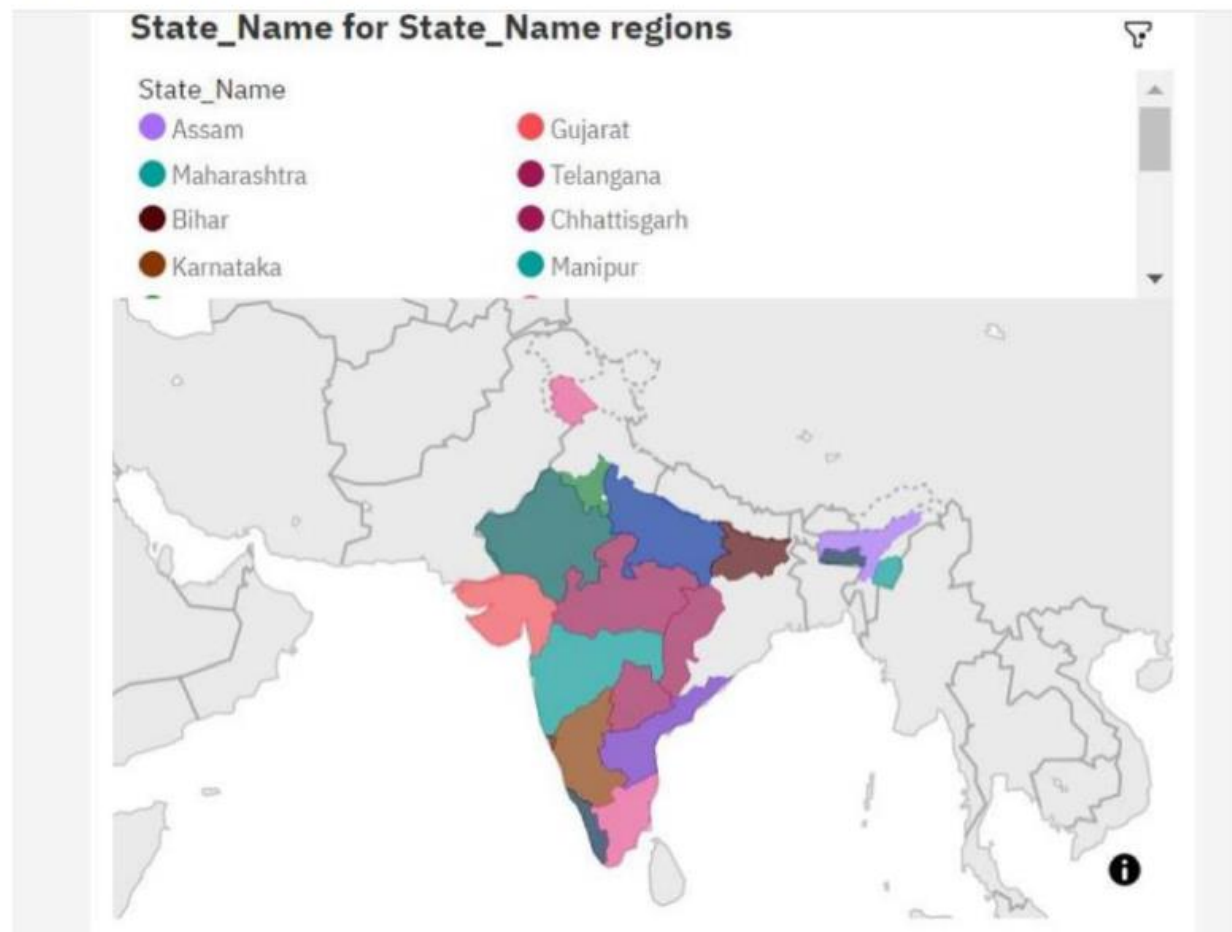


7.3 REPORT CREATION:

SEASONS WITH AVERAGE PRODUCTION



STATE WITH CROP PRODUCTION

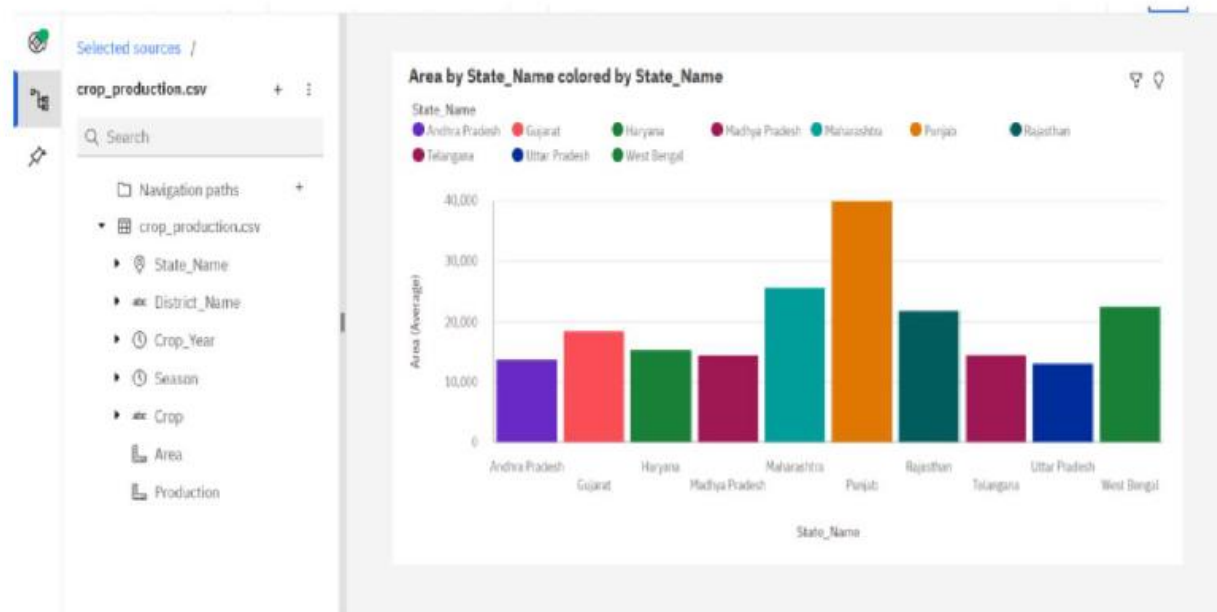


STATE WITH CROP PRODUCTION ALONG WITH SEASON

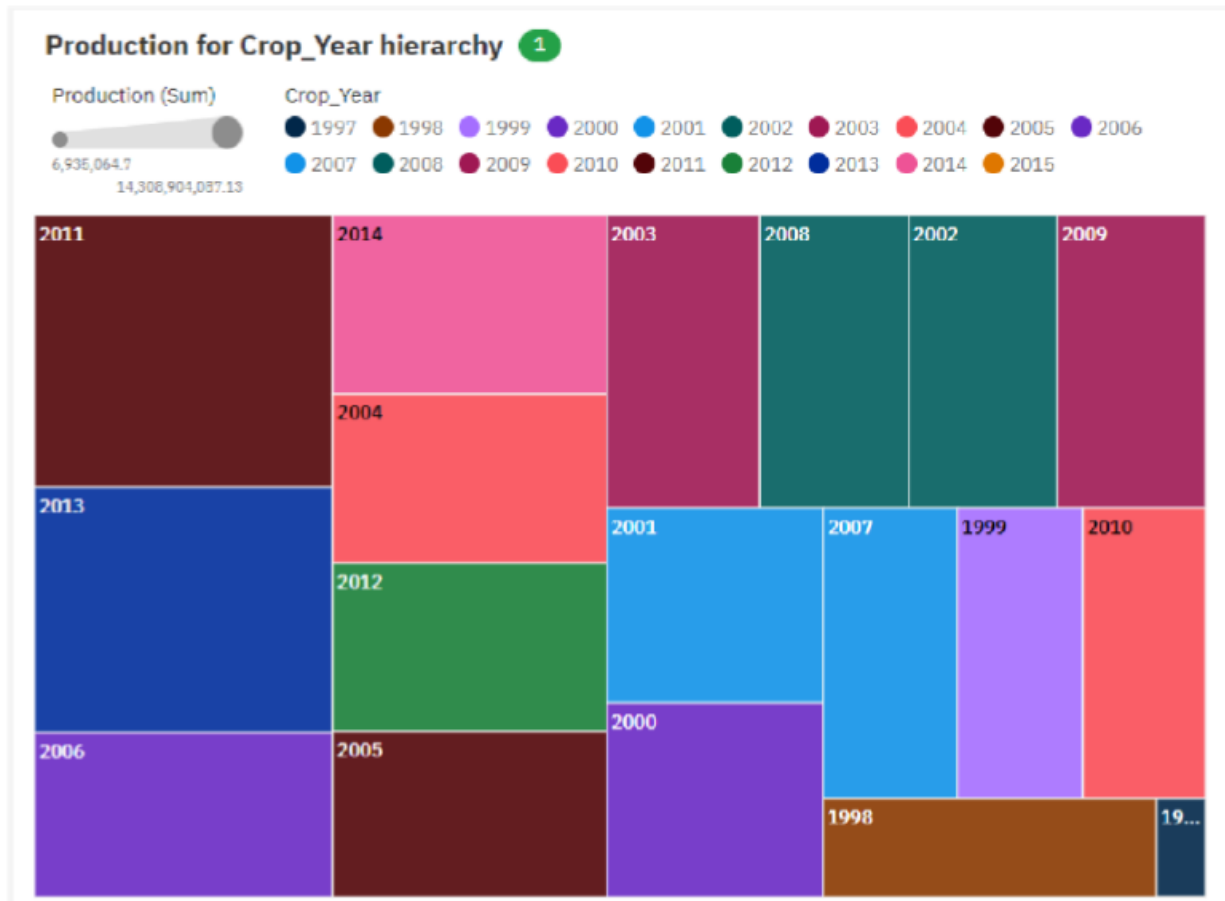
State_Name	Crop
Kerala	Banana
Madhya Pradesh	Banana
Maharashtra	Banana
Manipur	Banana
Meghalaya	Banana
Puducherry	Banana
Rajasthan	Banana
Tamil Nadu	Apple
	Banana
Telangana	Banana
Uttar Pradesh	Banana

Crop	Season
Apple	Whole Year
Banana	Autumn
	Kharif
	Rabi
	Summer
	Whole Year
	Winter

TOP 10 STATES WITH MOST AREA

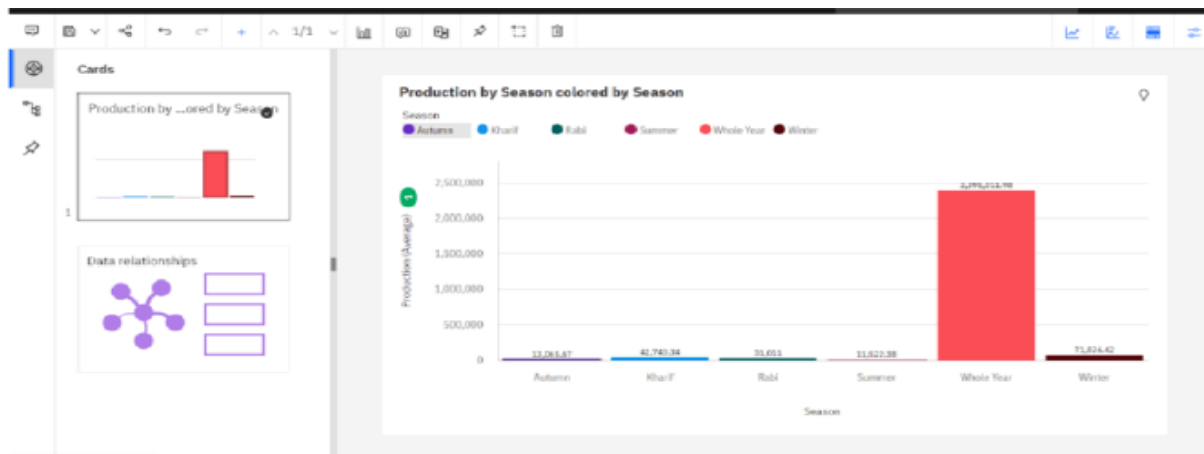


WITH YEARS USAGE OF AREA AND PRODUCTION



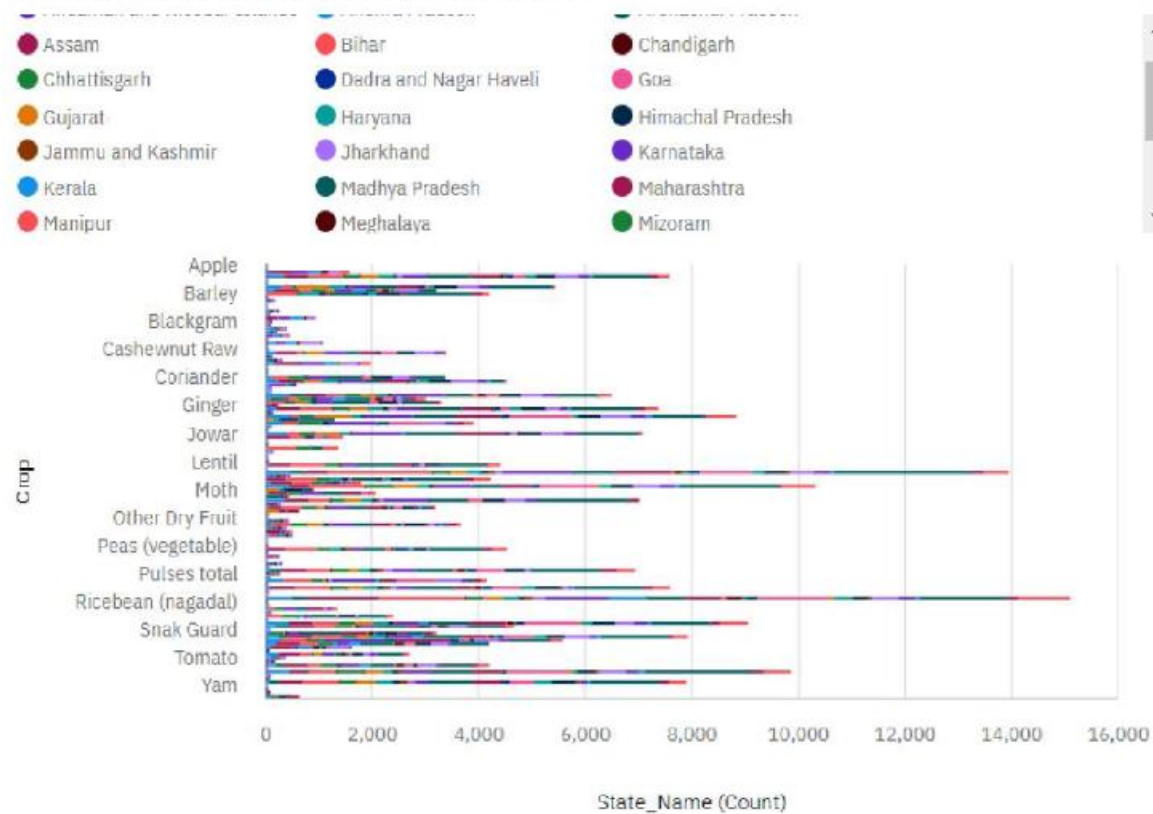
7.4 STORY CREATION:

SEASONS WITH AVERAGE PRODUCTION

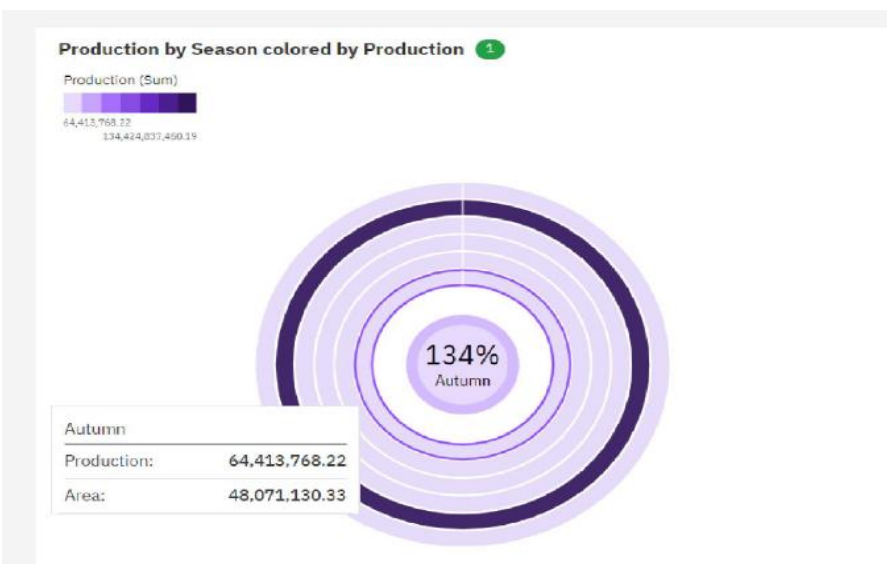


STATE WITH CROP PRODUCTION

State_Name by Crop colored by State_Name

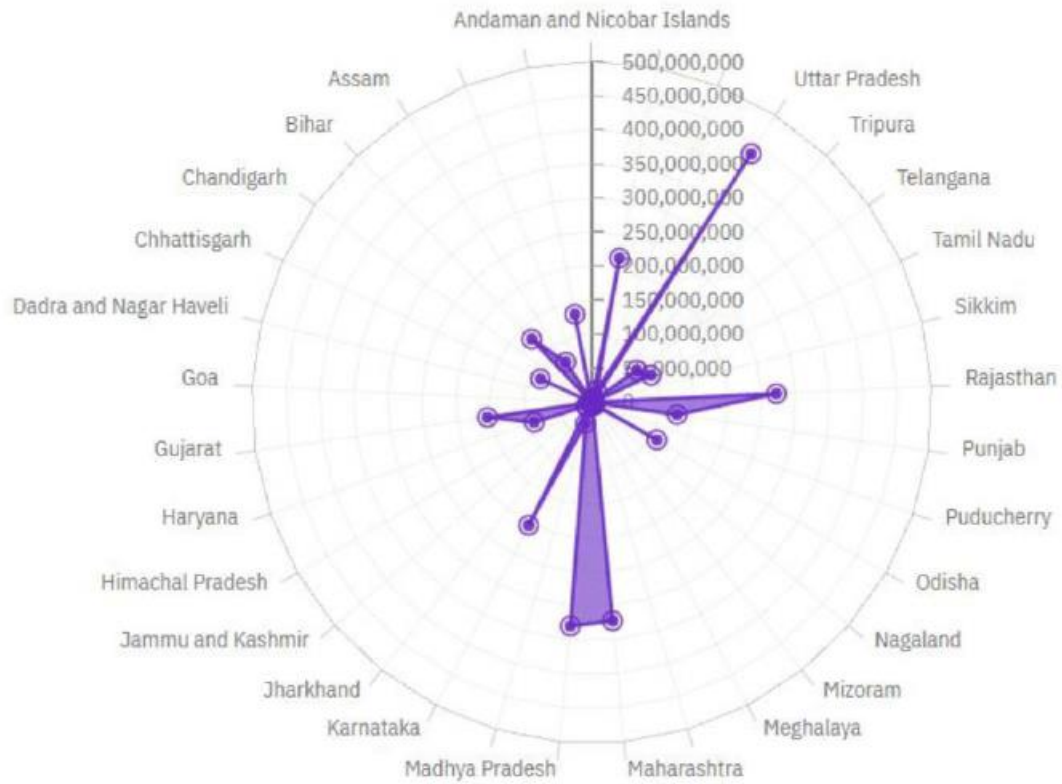


STATE WITH CROP PRODUCTION ALONG WITH SEASON

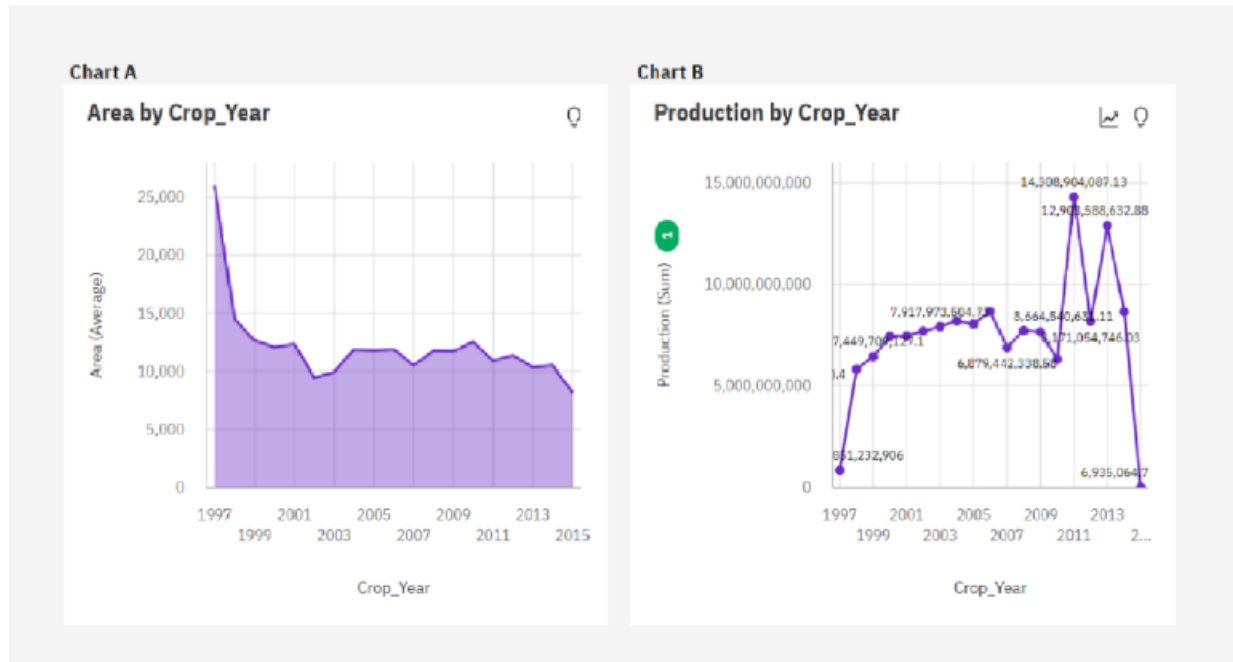


TOP 10 STATES WITH MOST AREA

Area by State_Name



WITH YEARS USAGE OF AREA AND PRODUCTION



8. TESTING

8.1 TEST CASES:

Test case	Feature Type	Component	Test Scenario	Steps to Execute	Result	Status
Home Page_TC_001	Functional	Home Page	Verify user is able to see the login/signup	1. Enter URL and click go	Login page should pop up as the login button is clicked	Pass
Login page	UI	Login Page	Verrify the elements in the Login/Signup popup	1. Click on the login button . 2. Verify	Application should show UI elements	Pass

				the login / signup		
--	--	--	--	-----------------------	--	--

8.2 USER ACCEPTANCE TESTING:

PURPOSE OF TESTING:

The purpose of this document is to briefly explain the test coverage and open issues of the [Estimate The Crop Yield Using Data Analytics] project at the time of the release to User Acceptance Testing (UAT).

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	7	0	0	7
Client Application	51	0	0	51
Security	3	0	0	3

This report shows the number of resolved or closed bugs at each severity level, and how they were resolved

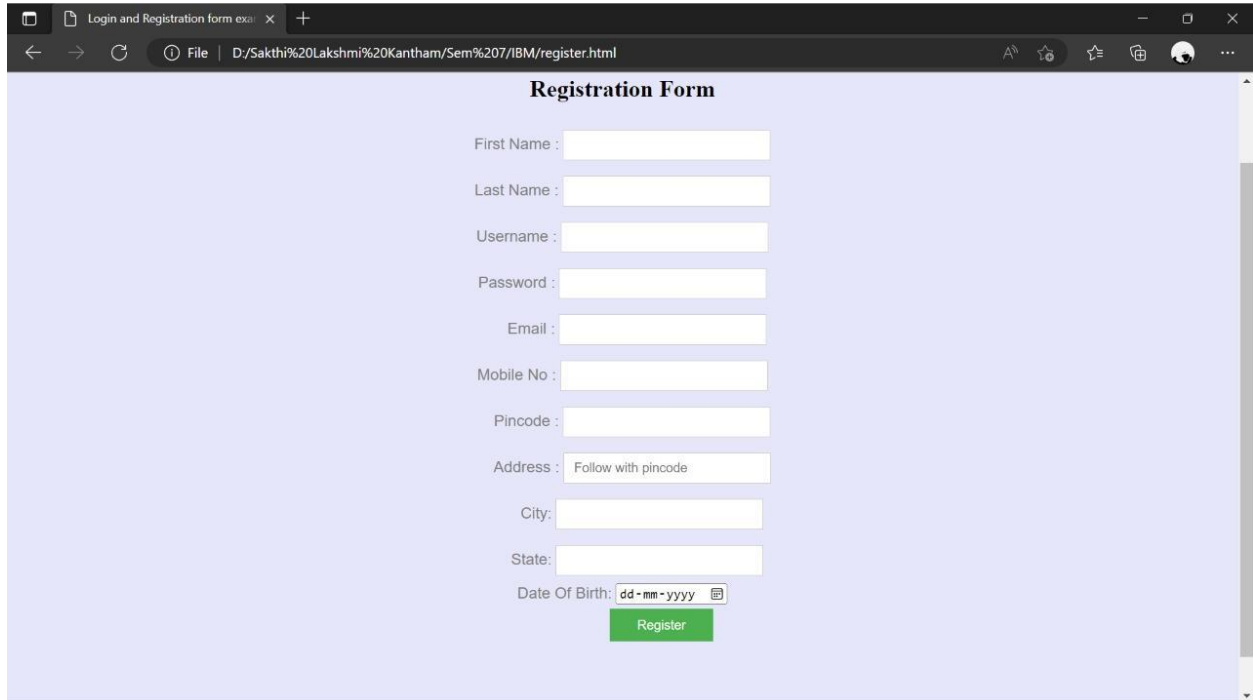
Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	10	4	2	3	19
Duplicate	1	0	3	0	4
External	2	3	0	1	6
Fixed	11	2	4	18	35
Not Reproduced	1	0	0	0	1
Skipped	0	0	1	1	2
Won't Fix	0	0	2	1	3
Totals	25	9	12	24	70

(II) TEST CASE ANALYSIS:

This report shows the number of test cases that have passed, failed, and untested

Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	5	0	0	4
Version Control	2	0	0	2

9. RESULTS



The screenshot shows a web browser window with the address bar displaying "File | D:/Sakthi%20Lakshmi%20Kantham/Sem%207/IBM/register.html". The page title is "Login and Registration form ex01". The main content area has a light blue background and is titled "Registration Form". It contains a series of input fields for user registration: First Name, Last Name, Username, Password, Email, Mobile No, Pincode, Address (with a placeholder "Follow with pincode"), City, State, and Date Of Birth (with a dropdown menu showing "dd-mm-yyyy"). A green "Register" button is located at the bottom of the form.

Registration Form

First Name :

Last Name :

Username :

Password :

Email :

Mobile No :

Pincode :

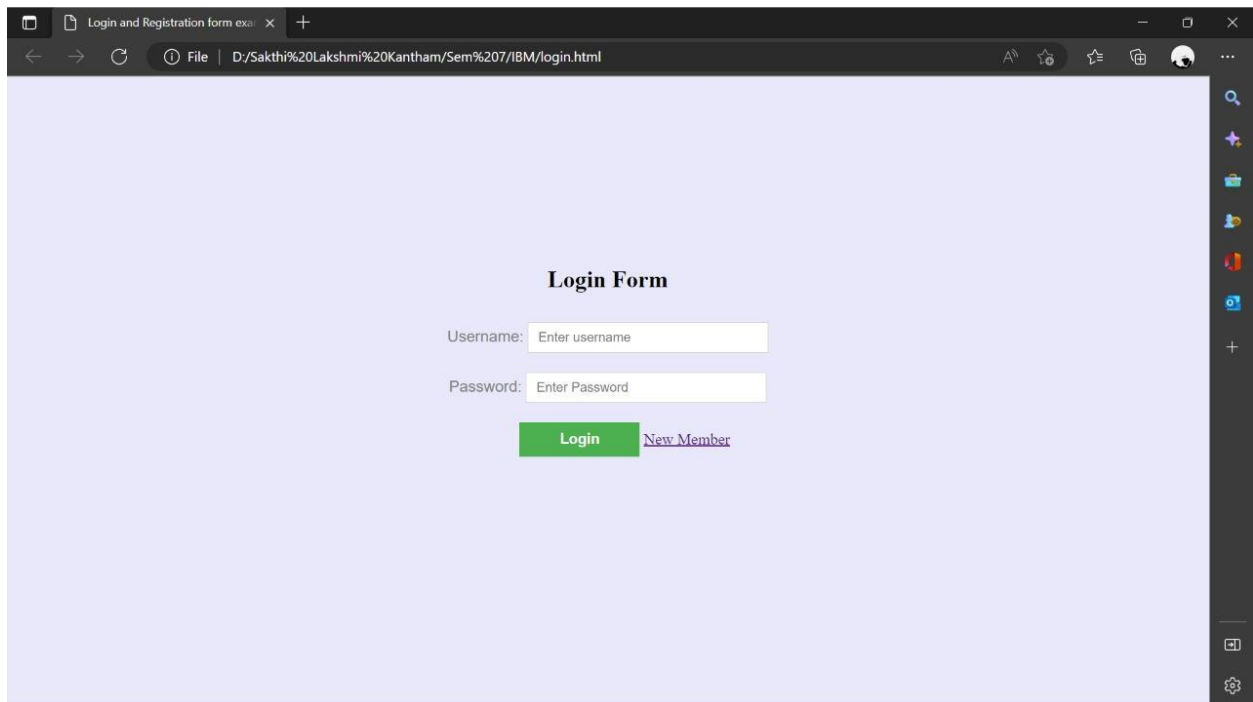
Address :

City:

State:

Date Of Birth:

[Register](#)



The screenshot shows a web browser window with the address bar displaying "File | D:/Sakthi%20Lakshmi%20Kantham/Sem%207/IBM/login.html". The page title is "Login and Registration form ex01". The main content area has a light blue background and is titled "Login Form". It contains two input fields: Username (with a placeholder "Enter username") and Password (with a placeholder "Enter Password"). Below the input fields are a green "Login" button and a blue link "New Member".

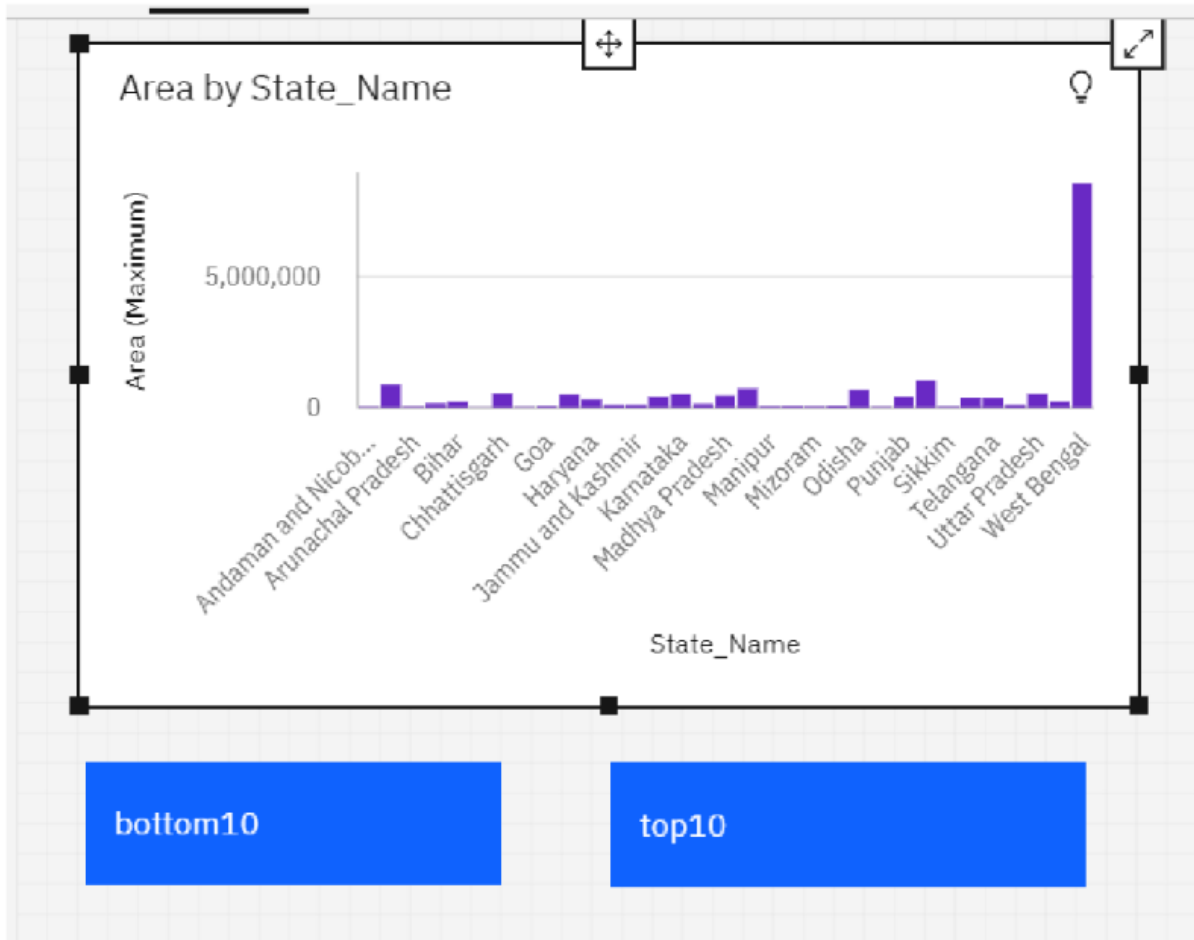
Login Form

Username:

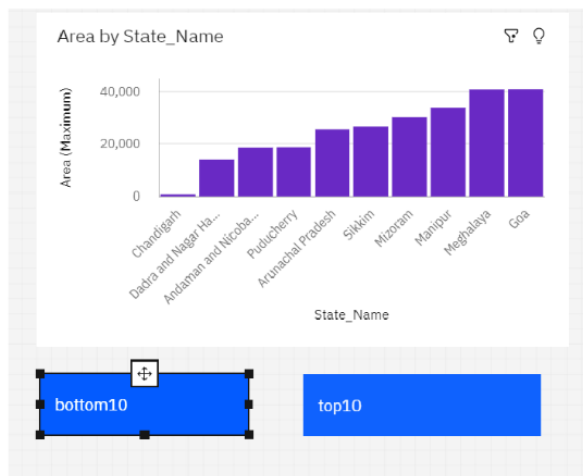
Password:

[Login](#) [New Member](#)

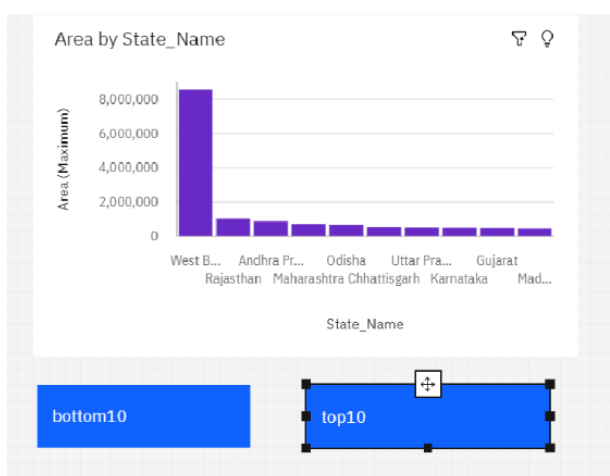
Action Buttons:

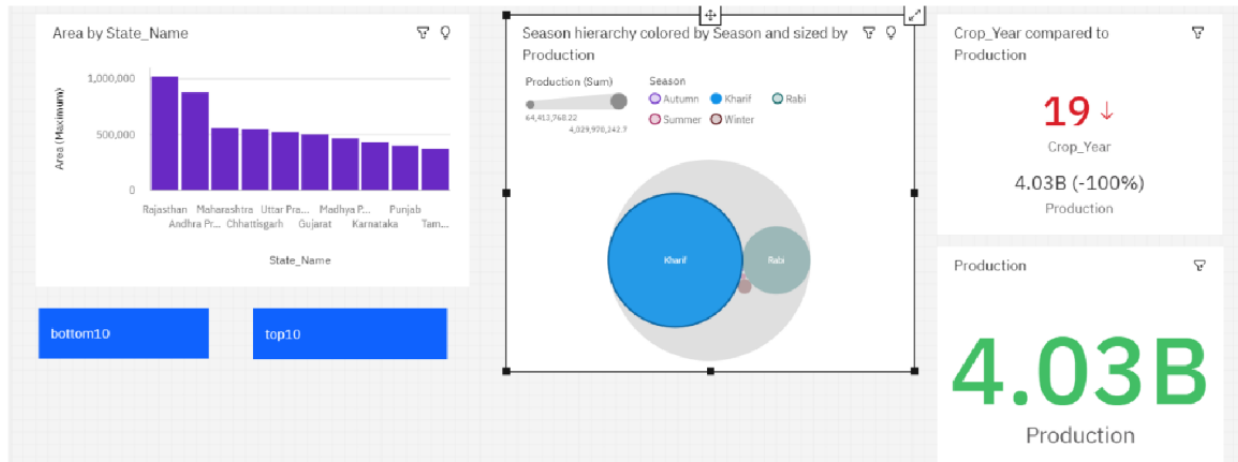


After pressing bottom 10:

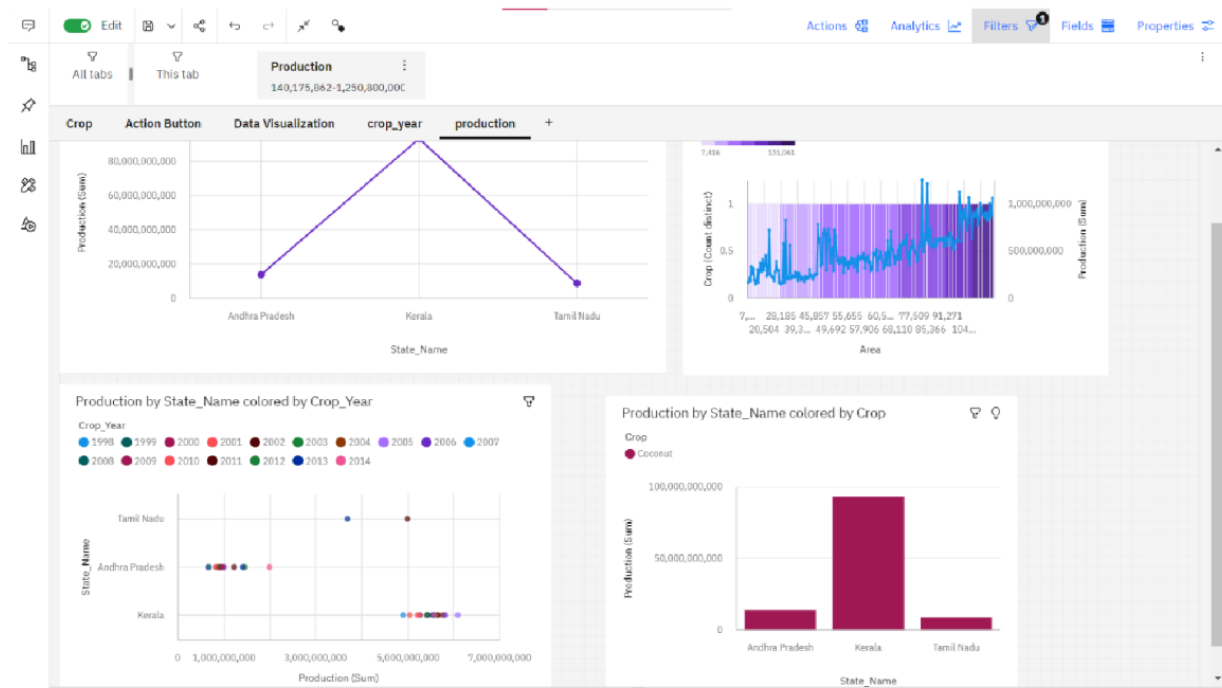


After pressing top 10:





Dashboard with respect to production:



10. ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- Technology increases productivity. Technology has significantly increased productivity in agriculture, allowing farmers to complete more tasks quickly and with less effort.
- Technology reduces costs. The use of modern agricultural technologies can aid in cost savings for farmers. Farmers may labour more effectively, with less effort, and in less time with the aid of contemporary technologies.
- Work that previously needed a large number of people and a long amount of time can now be completed quickly thanks to current technology.

DISADVANTAGES:

- High maintenance costs. The high maintenance expenses of farm technology are one of its drawbacks. For farmers and small businesses, the technology's high maintenance costs are a challenge.
- Farmers struggle to stay current with technology because they cannot afford the high maintenance costs of modern technological equipment. Farmers with low levels of education are illiterate, and it is difficult for them to understand how to use modern farming technologies.

11. CONCLUSION

Through the application of data visualisation techniques, agricultural yield data is utilised to analyse and increase crop productivity.

The data users can dive down and concentrate on more in-depth views of these data displays thanks to the interactive charts that are included in the visualisation techniques that are offered.

12. FUTURE SCOPE

We anticipate expanding the same in the future as an even more user-friendly mobile application with other user experience improvements planned.

13. APPENDIX

Link to the GitHub Repository: <https://github.com/IBM-EPBL/IBM-Project-585-1658308239>

Project Demo Video Link: https://drive.google.com/uc?id=1XrsI1kneDRXJcrqw6oATnL17z-2Vj9_U&export=download