

PROJECT REPORT

Team ID	TEAM ID - PNT2022TMID48523
Project Name	ESTIMATE CROP YIELD USING DATA ANALYTICS

1.INTRODUCTION

1.1Project Overview:

In GDP of India, more that 19% share is from Agriculture. So, it is important to analyze the Crop Production data of Indian Agriculture market. This project is aimed to create fruitful visualization using Congos Analytics on cloud for said data.

In this project various types of visualization are created to find the insights from Crop Production data of Indian market. Predictive Analytics use statistical models to analyze current and historical data for forecasting (predictions) about future or otherwise unknown events. In business, predictive analytics is used to identify risks and opportunities that aid in decision-making.

Agriculture is important for human survival because it serves the basic need. A well-known fact that the majority of population ($\geq 55\%$) in India is into agriculture. Due to variations in climatic conditions, there exist bottlenecks for increasing the crop production in India. It has become challenging task to achieve desired targets in Agri based crop yield.

The use of technology in agriculture has increased in recent year and data analytics is one such trend that has penetrated into the agriculture field. The main challenge in using big data in agriculture is identification of effectiveness of big data analytics. Efforts are going on to understand how big data analytics can agriculture productivity. The present study gives insights on various data analytics methods applied to crop yield prediction and also signifies the important lacunae points' in the proposed area of research.

1.2 Purpose:

The purpose of this project is to know about the fundamental concepts of IBM Cognos on cloud, the working with IBM Cognos, to work with various graph and charts and to create meaningful dashboard. The analysis of data related to agriculture helps in crop yield prediction, crop health monitoring and other such related activities. In literature, there exist several studies related to the use of data analytics in the agriculture domain. Agriculture analysis is a very important aspect to crop growing. To increase quality and yields, it is crucial to understand the current nutrient levels of the soil to be able to ascertain which areas require improvement.

Data analytics can help farmers monitor the health of crops in real-time, create predictive analytics related to future yields and help farmers make resource management decisions based on proven trends. Reducing waste and improving

profits. Various factors are to be considered which have direct impact on the production, productivity of the crops. Crop yield prediction is one of the important factors in agriculture practices. Farmers need information regarding crop yield before sowing seeds in their fields to achieve enhanced crop yield.

2.LITERATURE SURVEY:

In this problem the dataset of Crop production is used. The dataset was downloaded from Kaggle using <https://www.kaggle.com/abhinand05/crop-production-in-india> link. The dataset contains the data of Agriculture production from year 1997 to 2015 in csv format. The data have 7 columns i.e. State, District, Year, Season, Area and Production. There were 24000+ data in csv. The problem is find meaningful graphs from the data. For meaningful insights we have bar graph, line-graph, map chart etc. So, to create meaningful insights the IBM Cognos Analytics on cloud was used to create the dashboard. It is very easy and user friendly tool by which with minimum time we can create analytics. For such analysis we can also use Microsoft Excel, but when data size is large, it is difficult to handle Microsoft Excel.

2.1 References:

PAPER 1:

TITLE: Rice Crop Yield Prediction using Data Mining Techniques

AUTHORNAME: Dr. M .S, Shirdhonkar

DESCRIPTION: Discussed various data mining techniques utilized for prediction of rice crop yield for the state of Maharashtra, India. WEKA tool was applied in dataset processing

PAPER 2:

TITLE: A Survey on Crop Yield Prediction based on Agricultural Data

AUTHORNAME: Dhivya B H, Manjula R, Siva Bharathi S, Madhumathi R

DESCRIPTION: Presented a survey on the different algorithms applied in the assessment and prediction of crop yield , Discussed about the mechanism of knowledge the discovery in Agricultural data mining

PAPER 3:

TITLE: A Study on Various Data Mining Techniques for Crop Yield Prediction

AUTHORNAME: Yogesh Gandge, Sandhya

DESCRIPTION: Discussed various data mining techniques employed for predicting the crop yield and signifies the importance of accurate data extraction methods of big data analytics

PAPER 4:

TITLE: Big Data for weed control and crop protection

AUTHORNAME: F K Van Evert, S Fountas, D Jakovetic, V Crnojevic, I Travlos & C Kempenaar

DESCRIPTION: Critically discussed about the challenges faced and the profound opportunities lies in the Big Data analytics in agriculture: Outlined Big Data analytics models with numerical algorithms applied Represent the importance of reforming the mined data in the form of understandable information to the farmers. Discussed about various advances, tools and algorithms applied in transforming the data in to easily understandable information to the framers and thrown a light on success story of Netherlands in achieving the maximum crop yield and their smart forming practices.

PAPER 5:

TITLE: The Impact of Data Analytics in Crop Management based on Weather Conditions

AUTHORNAME: Swarupa Rani A

DESCRIPTION: Discussed the application of mathematical model like fuzzy logic designs in optimization of the crop yield, artificial neural networks in validation studies, genetic algorithms designs in accessing the fitness of the model applied, decision trees, and support vector machines to study soil.

PAPER 6:

TITLE: A Study on Crop Yield Forecasting Using Classification Technique

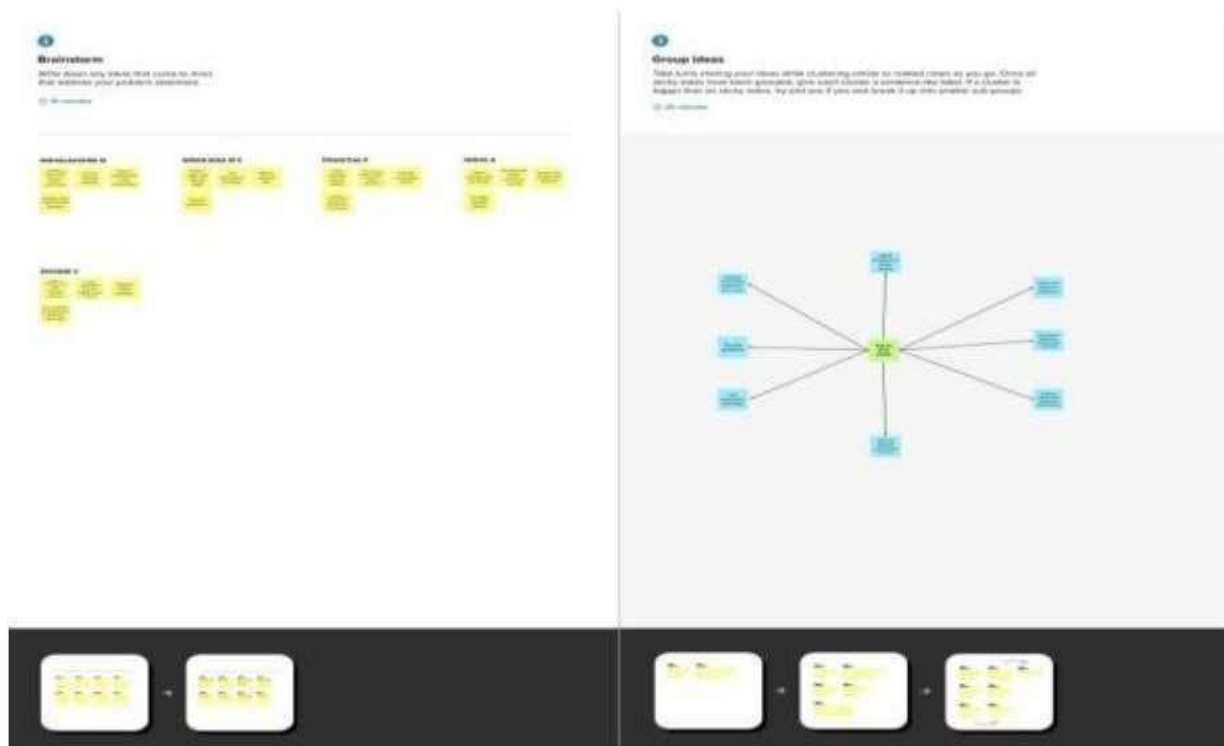
AUTHORNAME: R.Sujatha, Dr.P.Isakki Devi

DESCRIPTION: Discuss the importance of comparing previous agricultural data with present to identify optimum condition favor enhanced crop yield. Envisaged the importance of best crop selection depending on the season and the climatic factors which supports enhanced crop yield.

2.2 Problem Statement Definition

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel

3.2 Ideation & Brainstorming



3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	To predict the crop for the farmer to who is going to cultivate in large/small field studies.

2.	Idea / Solution description	Crop yield is a standard measurement of the amount of agricultural production harvested—yield of a crop—per unit of land area. Crop yield is the measure most often used for cereal, grain, or legumes; and typically is measured in bushels, tons, or pounds per acre in the U.S.
3.	Novelty / Uniqueness	This website has to predict the universities inside India. And also give various information about the farm. Also to list the crop in the demand list.
4.	Social Impact / Customer Satisfaction	The data will reduce the panic and unawareness among farmer. It will reduce our time, travel, and costs. It will give the exact approximate prediction based on farmer.
5.	Business Model (Revenue Model)	Farm shall find the data in order to maintain it. This congos will predict and display the exact results to the farmer.
6.	Scalability of the Solution	A future update shall have crop demand.

3.4 Problem Solution fit

PROJECT DESIGN PHASE-1 – SOLUTION FIT			TEAM ID : PNT2022TMD48455		
Deliver CS, BC into CC	1. CUSTOMER SEGMENT(S) CS	4. CUSTOMER CC	5. AVAILABLE SOLUTIONS AS		
	Eligible Customer means either an eligible low-income customer or an eligible senior citizen customer who demonstrates to the utility his or her eligibility. Eligibility Customer means either a low income or senior citizen customer whose arrangement has not accrued as a result of theft or unauthorized use.	The triple constraint theory says that every project will include three constraints budget/cost, time, and scope. And these constraints are tied to each other. Any change made to one of the triple constraints will have an effect on the other two.	An admission management system is a digital solution to manage student enrolments in colleges, universities, and training institutions. Educational institutions use education CRM to distribute inquiries to counsellor/admission teams, follow-up with leads, and complete the enrolment process digitally.		
Focus on AS, CC into BC, BC into CS	2. JOBS-TO-BE-DONE / PROBLEMS DT	6. PROBLEM ROOT CAUSE BC	7. BEHAVIOUR BE		
	Admission is granted through both merit-based and entrance exam-based admission process. The minimum BCA eligibility criteria followed across all top BCA colleges is 50% marks in 10 th +2 or equivalent examination with computer application / computer science as an additional or core subject	The admission process involves filling out an application form and being interviewed by the principal and teachers. Eligible incoming first year students will receive a letter of invitation during the admission process. The outcome of the admission process may affect a student's future career trajectory considerably.	When patients are discharged from the respective wards the discharge paper is prepared in the ward and handed over to the patient. This process takes approximately 1 hour from verbal instructions of discharge to hand over of discharge paper.		
Identify strong TR & EM	3. TRIGGERS TR	8. YOUR SOLUTION ST	9. CHANNELS of BEHAVIOUR CH		
	A trigger is an event that causes a buyer to have a clear need, which usually converts into a sense of purpose and urgency in their buying process.	<ul style="list-style-type: none"> Simplify the admission process Centralize the process Make the inquiry process as simple as possible Provide online and offline support Keep your applicants engaged and involved 	Admission process if executed manually can involve lot of activities including design of application form, printing of forms/ challans, distribution of forms to students, payment collection, short listing of candidates. The academic institutions have largely adopted the technological tools to manage the crucial academic processes right from "admission to alumni registration". This has made things happen faster and get automatically documented at the same time. But still, there are certain academic processes which are yet to be digitized.		
	4. EMOTIONS: BEFORE / AFTER EM				
	All parts of the job can affect emotions, including the actual job tasks, management styles, co-workers actions, and job pressures. Positive and negative situations at work create long-term emotional responses that can impact job satisfaction, development, and commitment.				

4.REQUIREMENT ANALYSIS

4.1 Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Calculate crop Prediction	Enter Crop name, State Name
FR-2	Check information about the State	Visit the State of the respected crop to know more information
FR-3	Watch farntour	Check guidefor visa internet and otherprocedures

FR-4	Check financial assistance lab	Check profitand cultivation procedure
FR-5	Information about the Crop and location	Refer official State and Check the demand

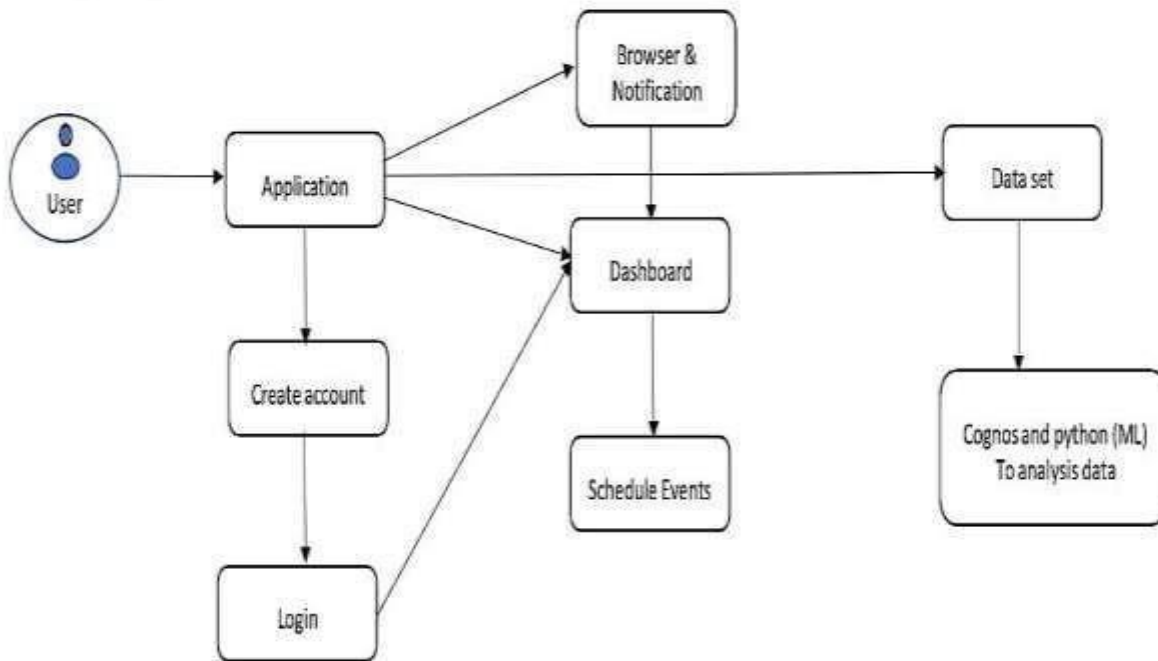
4.2 Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The UI/UX enhances the user experience. The entire journey of the customer throughout the application will be smooth and user-friendly approach to the user.
NFR-2	Security	It is the safest application you never used it before because it doesn't store your data.
NFR-3	Reliability	The systemwill give you to the most accurate and exact results.
NFR-4	Performance	Easy to for everyone to check the demand and leading crop in the available State
NFR-5	Availability	The Farm predictor willbe available to users 99.9 percent of the timeevery month
NFR-6	Scalability	The system must be scalable enough to support more than one lacks visits at the same time while maintaining optimal performance.

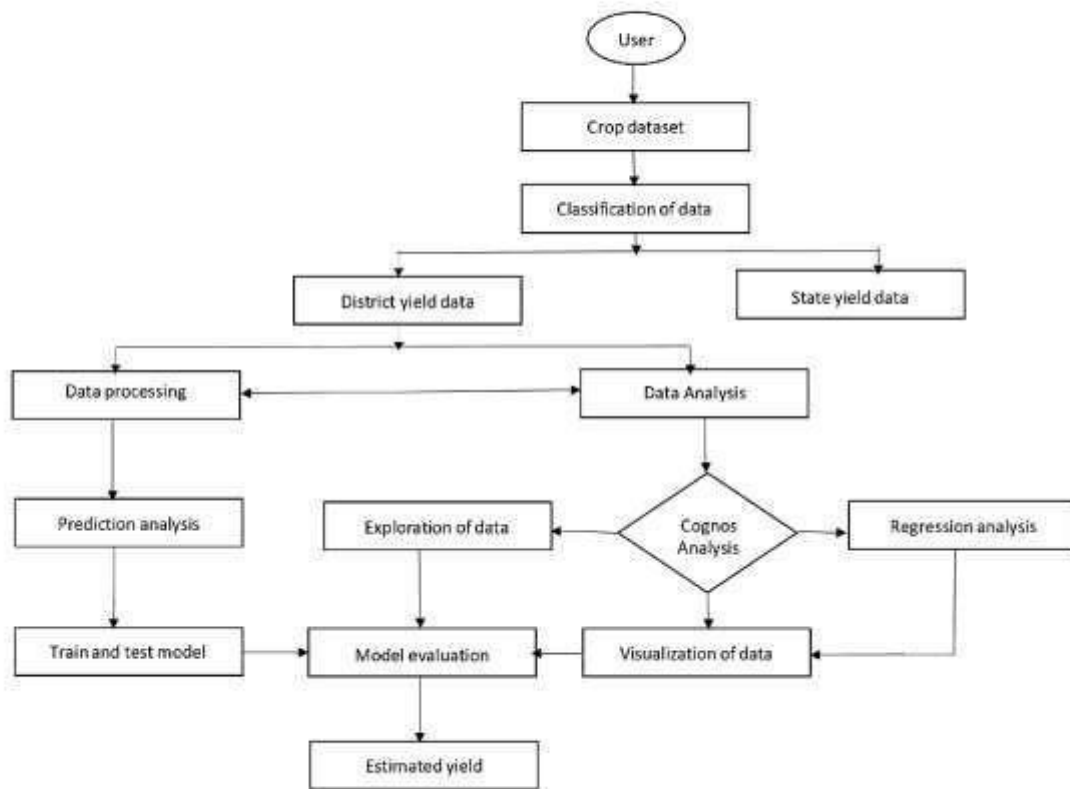
5.PROJECT DESIGN

5.1 Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



Data flow diagram:



5.2 Solution & Technical Architecture:

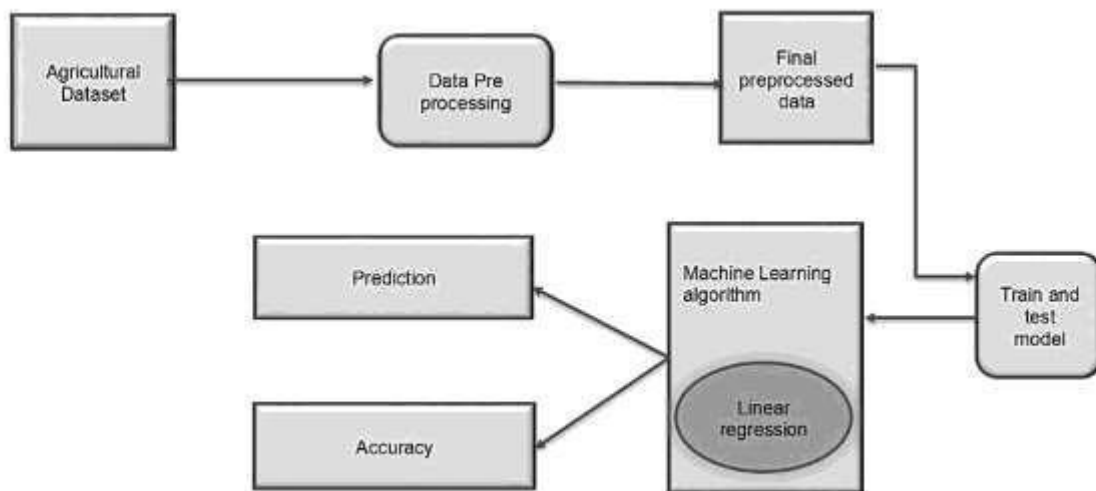


Table-1:Components&Technologies:

S.No	Component	Technology
1.	User Interface	HTML, CSS, Flask
2.	Application Logic-1	IBM Congoes
4.	Database	Dataset
5.	Cloud Database	IBM DB2,IBM Cloudant etc.
6.	File Storage	IBM BlockStorage or OtherStorage Service or Local Filesystem
7.	Machine Learning Model	Random forest, Linear Regression,etc.,

Table-2: Application Characteristics:

S.No	Characteristics	Technology
1.	Open-Source Frameworks	Data Analytics
2.	Performance	Maximum 2mb requests per dataset

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	Login	USN-1	As a user, I can Login for the congos by entering my email, password, and confirming my password.	2	High	2
Sprint-1	Working with data set	USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	1
Sprint-1	Working with data set	USN-3	As a user, I can register for the application throughGmail	1	High	1

Sprint-1	Login	USN-4	As a user, I can log into the application by entering email & password	3	High	3
Sprint	Functional Requirement (Epic)	User Story Number	User Story/ Task	Story Points	Priority	Team Members
Sprint -2	Data visualization chart	USN-5	As a user, after logging in, I will have to update my profile by providing all the required details	5	High	5
Sprint-3	Creating Dashboard	USN-6	As a user, I will be able to view the list of Universities that the students are eligible to apply	5	Medium	5

Sprint-3	Creating Dashboard	USN-7	As a user, I will be able to view the details of Admission process like date and venue of certification verification	2	Low	2
Sprint-4	Exporting Analytics	USN-8	As a user, I will be able to view the list of courses that the students are eligible to apply	3	High	3
Sprint-1	Authentication	USN-9	As a admin, the login credential of the user is authenticated my me	2	High	2

Sprint-2	Data visualization chart	USN-10	As a admin, I can verify the user entered details	5	High	5
Sprint-3	Creating Dashboard	USN-11	As a admin, I can test the trained machine learning model by analysing the user details by machine learning algorithms like logistic regression	3	High	3
Sprint-4	Output	USN-12	As a admin, I can upload the confirmation of user for the prediction into the database.	3	High	5

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	50 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

7.CODING

LOGIN

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<title> Login Page </title>
<style>  Body
{
    font-family: Calibri, Helvetica, sans-serif;
background-
color:white;
background-image:
url('https://2.bp.blogspot.com/-
pLLWS1j5PCQ/VqyQUTUqtdI/AAAAAABE64/QYIUh6421co/s1600/2de5113b6a62d0360130b90442106237_large.jp
eg');" } button {    background-color:#c3e3dc;    width: 100%;    color: purple;    padding: 15px;
margin: 10px 0px;    border: none;    cursor: pointer;
    }
form {    border: 3px solid #f156189;
    }
input[type=text], input[type=password] {
width: 100%;    margin: 8px 0;    padding:
12px 20px;    display: inline-block;
border: 2px white;    box-sizing: border-box;
    }
button:hover {    opacity: 0.7;
    }
.cancelbtn {    width:
auto;    padding: 10px
18px;    margin: 10px
5px;
```

```

    }
.container    {      padding: 25px;
<!--      background-color: pink; -->
    }
</style>
</head>
<body>
    <center> <h1>Login Form </h1> </center>
    <form>
        <div class="container">
            <label>Username : </label>
            <input type="text" placeholder="Enter Username" name="username" required>
            <label>Password : </label>
            <input type="password" placeholder="Enter Password" name="password" required>
            <button type="submit">Login</button>
            <input type="checkbox" checked="checked"> Remember me
            <button type="button" class="cancelbtn"> Cancel</button>          <a
href="#"> Forgot password? </a>

        </div>
    </form>
</body>
</html>

```

REGISTRATION

```

<!DOCTYPE html>
<html>

<head>
    <title></title>
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" type="text/css" href="{ {url_for('static',filename='style.css')}}">
    <link                rel="stylesheet"                href="https://cdnjs.cloudflare.com/ajax/libs/font-
awesome/4.7.0/css/fontawesome.min.css">

```

```
<!-- jQuery library -->
```

```
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
```

```
<!-- Latest compiled JavaScript -->
```

```
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.7/js/bootstrap.min.js"></script>
```

```
<script src="https://www.google.com/recaptcha/api.js" async defer></script>
```

```
<style type="text/css"> body{
```

```
    margin: 10px 10px 10px 100px;    background-  
color: aliceblue;  
}
```

```
.error {    color:  
red;  
}
```

```
.fm1 {    textalign:  
center;  
}
```

```
.lb1 {  
textalign: center;  
padding: 25px;  
}
```

```
.lb2 {    marginleft:  
20px;  
}
```

```
.lb3 {    marginright:  
35px;  
}
```

```
.container {    display:  
block;  
} .k{    border-radius:  
15px;
```



```

    }
</style>
</head>

<body>
    <?php    include
'header.php';
?>

    <div class="heading fix">
        <label class="lb1">REGISTRATION</label>
    </div>
    <div class="outerbox">
        <div class="fixedbox">
            <span class="content">
                <h4>Hello, Friend!</h4>
                <p>Enter your personal details and start journey with us</p>
            </span>
        </div>
        <div class="scrollbox">
            <div class="registerdonor">
                <form action="process.php" method="POST" id="myform">
                    <div class="login">
                        <h3>Login Details</h3>
                        <table class="fm1">
                            <tr>
                                <td colspan="2">
                                    <label class="lb1" class="username">User Name:</label>
                                    <input
type="text" name="user_name" required pattern="^[A-Za-z0-9._%+-@]{5,10}$"
title="Enter a username
between 5 to 10 letter" autocomplete="off">
                                </td>
                            </tr>
                            <tr>
                                <td>
                                    <label class="lb1">Full Name:</label>
                                    <input type="text" name="user_full_name" required
pattern="[A-z
]+$"
title="Use only character & whitespace" autocomplete="off">
                                </td>
                            </tr>
                        </table>
                    </div>
                </form>
            </div>
        </div>
    </div>

```

</td>	
</tr>	
<tr>	
<td>	
<label class="lb1">Email Id:-</label>	
<input type="email" name="user_email" required	
pattern="[A-Za-z0-9._%+-]+@[A-z0-9.-]+\.[a-z]{2,}\$"	title="Email
id is not Valid" autocomplete="off">	
</td>	

7.RESULTS

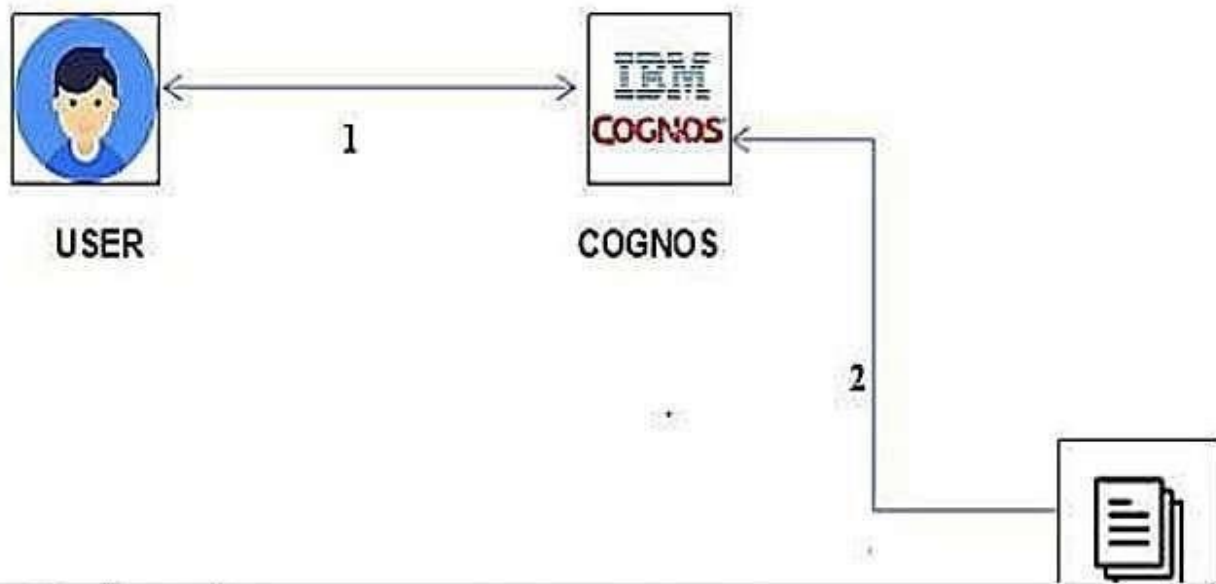


Fig. 1 Architecture Diagram

IV. RESULTS

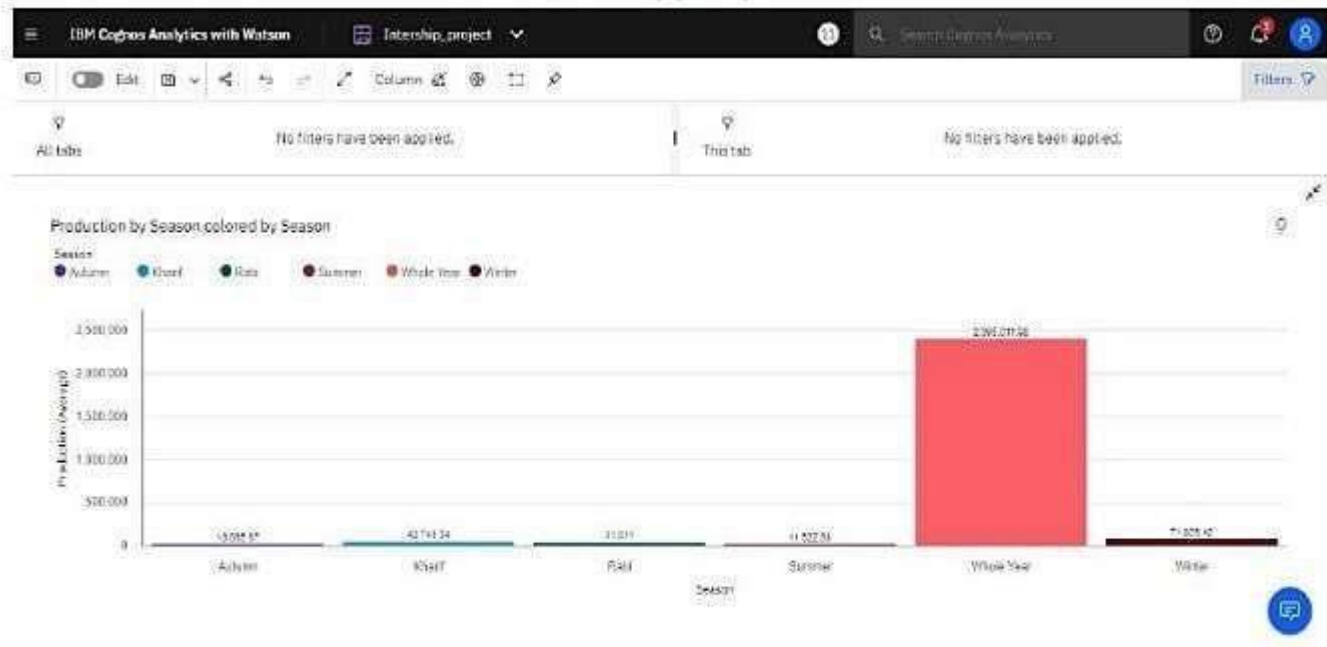


Fig. 2 Data Visualisation 1

The above figure shows the seasons with average production

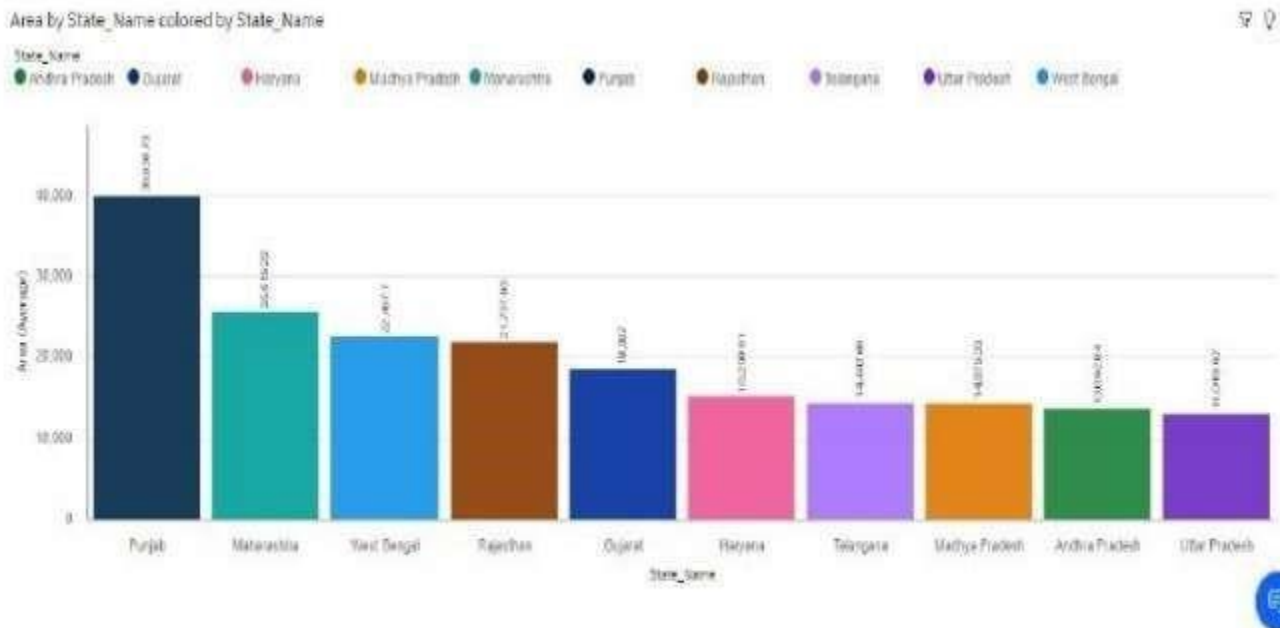


Fig. 3 Data Visualisation 2

The above figure shows the visualize top 10 states with most area

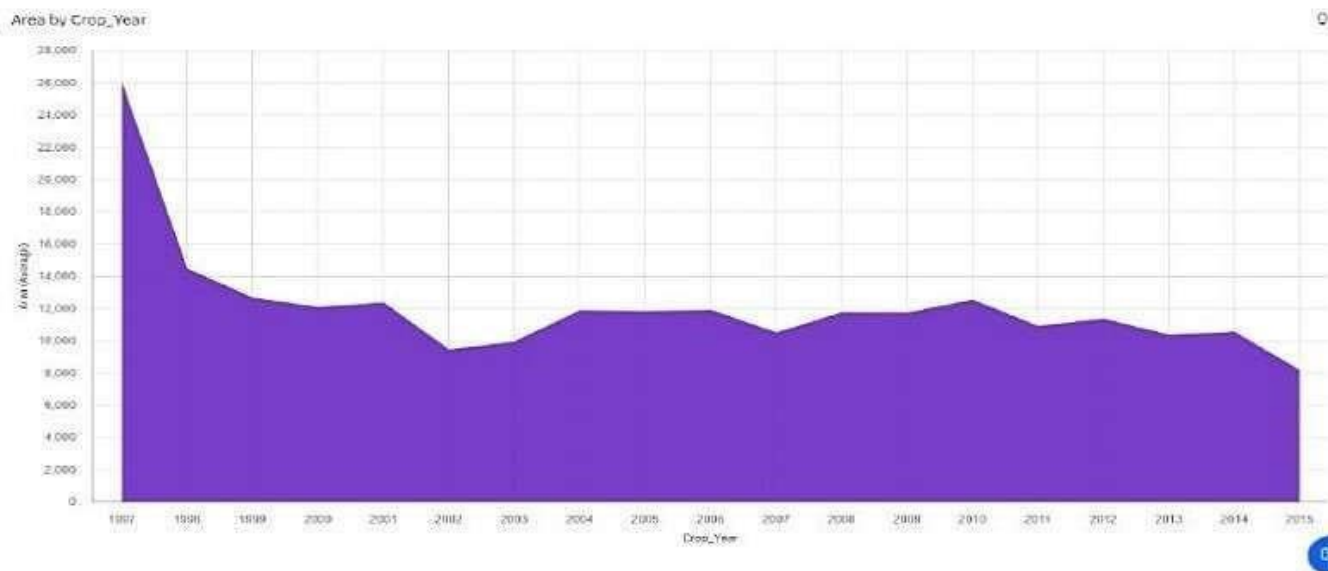


Fig. 4 Data Visualisation 3

The above figure shows the visualize with years usage of area and production

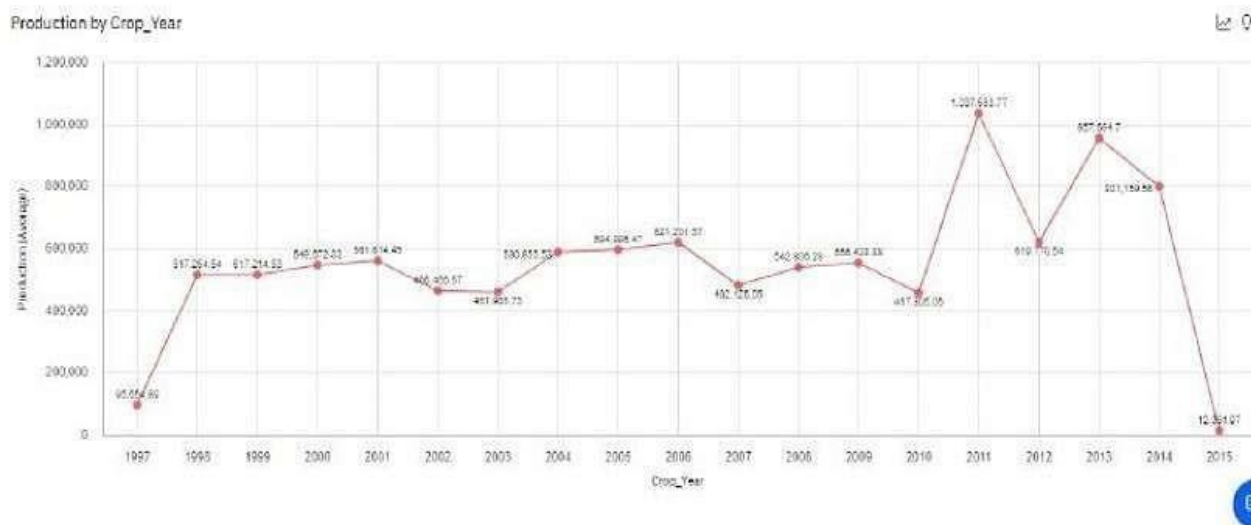
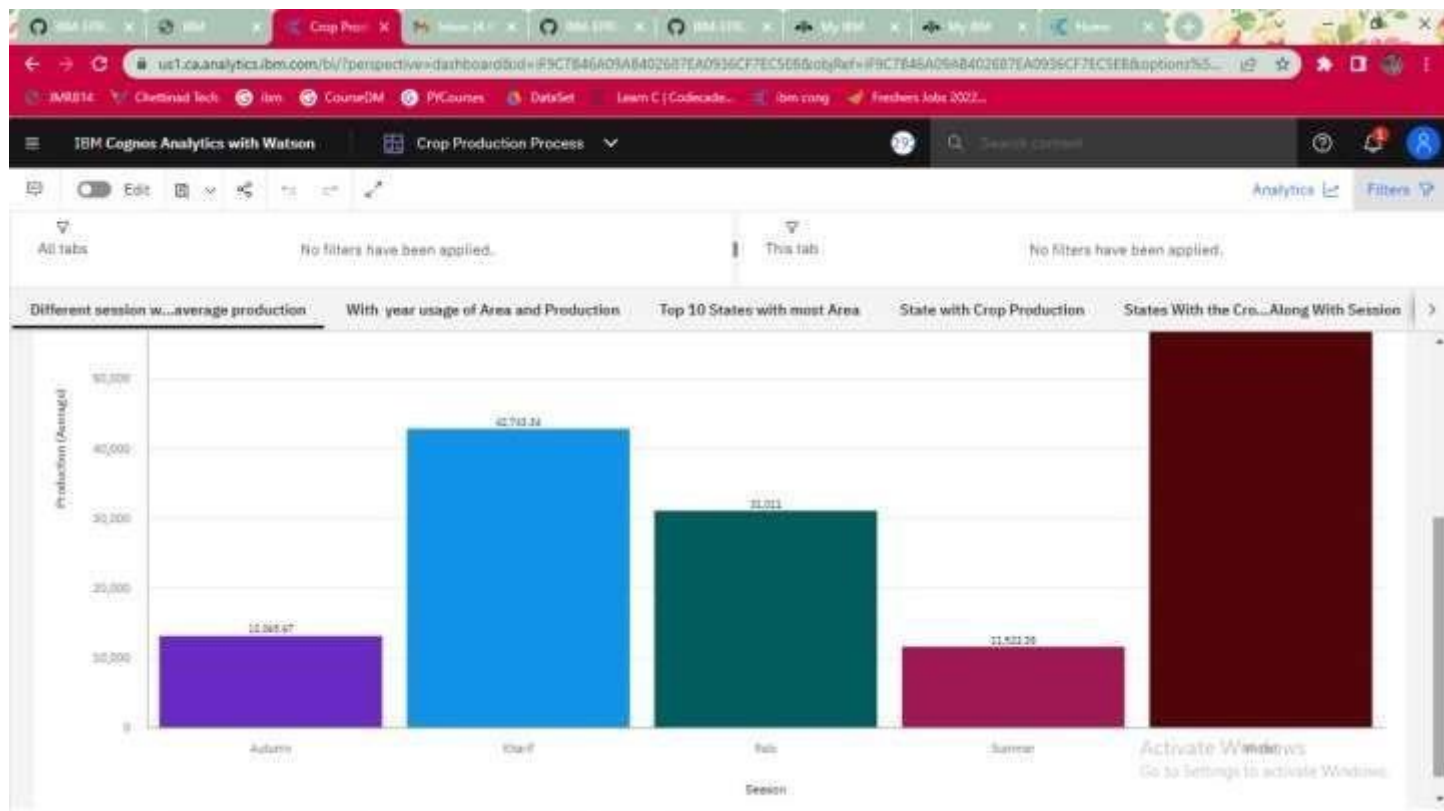


Fig.5 Data Visualisation 4

The above figure shows the visualisation contains state with crop production



w...average production		With year usage of Area and Production		Top 10 States with most Area		State with Crop Production		States With the Cro...Along With Sessio	
State_Name and Crop		Season and Crop							
Crop	State_Name	Crop	Season						
Arhar/Tur	Odisha	Apple	Whole Year						
	Gujarat	Alphonso (Processed)	Whole Year						
Bajra	Karnataka		Kharif						
	Puducherry	Arecanut	Rabi						
Banana	Manipur		Whole Year						
	Uttar Pradesh		Autumn						
Brinjal	Puducherry		Kharif						
	Karnataka	Arhar/Tur	Rabi						
Cotton(Gin)	Puducherry		Summer						
	Karnataka		Whole Year						
Cowpea(Lobia)	Karnataka		Winter						
	Karnataka	Ash Gourd	Whole Year						
Dry chilies	Manipur	Alphonso (Raw)	Whole Year						
	Puducherry		Kharif						
Dry ginger	Manipur		Rabi						
	Gujarat	Bajra	Summer						
	Karnataka								

us3.ca.analytics.ibm.com/bi/perspective=dashboard&id=dashboard_ab3b2f15-5b0f-4d7a-b5a0-5853a73f50d8&uc_appbar=true&options%3DsquareGlassPrefec...

IBM Cognos Analytics with Watson

Selected sources /

crop_production.csv

Navigation paths

- crop_production.csv
 - State_Name
 - District_Name
 - Crop_Year
 - Season
 - Crop
 - Area
 - Production

Tab 1

No visualization selected

Select a visualization to manage the field settings.

Activate Windows

Go to Settings to activate Windows.

IBM Cognos Analytics with Watson | Crop Production Process

Assistant
crop_production.csv

11/18/2022 | 9:39 AM
Connected to crop_production.csv

@Cognos
How can I help you?

All tabs
No filters have been applied.

W...average production With year usage of Area and Production Top 10 States with most Area

State_Name and Crop

Crop	State_Name
Arhar/Tur	Odisha
	Gujarat
Bajra	Karnataka
	Puducherry
Banana	Manipur
	Uttar Pradesh
Brinjal	Puducherry
	Karnataka
Cotton(jint)	Puducherry

Season and Crop

Crop	Season
Apple	Whole Year
Arcanot (Process...	Whole Year
	Kharif
Arecanut	Rabi
	Whole Year
	Autumn
	Kharif
	Rabi
Arhar/Tur	

Address 24°C Mostly cloudy NO 10 09:22 PM 18-11-2022

IBM Cognos Analytics with Watson | * New data module

Data module

Search

New data module

Navigation paths

crop_production.csv

Row Id

State_Name

District_Name

Crop_Year

Season

Crop

Area

Production

Grid

Row Id	State_Name	District_Name	Crop_Year	Season	Crop
1	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut
2	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Other Kharif pul
3	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Rice
4	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Banana
5	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Cashewnut
6	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Coconut
7	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Dry ginger
8	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Sugarcane
9	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Sweet potato
10	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Tapioca
11	Andaman and Nicobar Islands	NICOBARS	2001		Arecanut

Address 24°C Mostly cloudy NO 10 09:36 PM 18-11-2022

IBM Cognos Analytics with Watson

New data module

Search

New data module

- Navigation paths
- crop_production.csv
 - Row Id
 - State_Name
 - District_Name
 - Crop_Year
 - Season
 - Crop
 - Area
 - Production

T1	Row Id	State_Name	District_Name	Crop_Year	Season	Crop
1	1	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Areca nut
2	2	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Other Kharif pul
3	3	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Rice
4	4	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Banana
5	5	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Cashew nut
6	6	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Coconut
7	7	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Dry ginger
8	8	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Sugarcane
9	9	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Sweet potato
10	10	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Tapioca
11	11	Andaman and Nicobar Islands	NICOBARS	2001	Kharif	Areca nut

Activate Windows
Go to Settings to activate Windows.

24°C Mostly cloudy

09:35 PM 18-11-2022

File | CuUsers\My\Downloads\Login%20form.html

Login Form

Username :

Password :

Login

☒ Remember me

24°C Partly cloudy

01:13 AM 18-11-2022

REGISTRATION

Hello, Friend!

Enter your personal details and start journey with us

Login Details

User Name:-

Full Name:-

Email Id:-

Password:-

Confirm Password:-

Contact Details

Mobile Number:-

Pincode

Address:-

State:-

Activate Windows
Go to Settings to activate Windows.

8.ADVANTAGES & DISADVANTAGES

ADVANTAGES

- increase the yield from existing farmlands
- Big data provides farmers granular data on rainfall patterns, water cycles, fertilizer requirements, and more. This enables them to make smart decisions, such as what crops to plant for better profitability and when to harvest.
- In the pre-processing step dataset will be divided into training dataset and testing dataset. This is the important step while creating model.
- It is implemented in congos with and dataset packages, which are open source and freely available.
- It uses many algorithms like random forest,K-nearest neighbour, multilayer preceptron.
- The simplest way to determinewhether a person is eligible for a university or college as well as being completely objective and transparent.

DISADVANTAGES

- It is used to display the result as a dotted graph.
- It is to predict the approximate value.
- Contrarily, linear regression presumes that the relationship between the dependent and independent variables is linear. This implies that it considers their relationship to be linear. The independence of the qualities is assumed.

It is not always true that the conditional independence assumption is true.

9.CONCLUSION

As a result of penetration of technology into agriculture field, there is a marginal improvement in the productivity. The innovations have led to new concepts like digital agriculture, smart farming, precision agriculture etc. In the literature, it has been observed that analysis has been done on agriculture soils, hidden patterns discovery using data set related to climatic conditions and crop yield prediction etc. In this survey, the specific activity, crop yield prediction has been surveyed and the major trends have been identified. The rice crop yield prediction has been done in the state of Maharashtra using data mining techniques in one of the works.

The analysis has been done using machine learning framework WEKA. In the work carried out in, various algorithms applied in the assessment of crop yield and mechanism for knowledge discovery have been discussed. The challenges and opportunities in the field of Big Data analytics in agriculture have been discussed in with a case study of Netherlands.

10.FUTURE SCOPE

The future scope of this project is very broad. Few of them are:

- This can be implemented in less time for creating graph.
- This can be accessed anytime anywhere, since it is a web application provided only an internet connection.
- The user had not need to travel a long distance for the crop and his/her time is also saved as a result of this automated system.

11.APPENDIX

SOURCE CODE

```
<!DOCTYPE
E html>

<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { margin: 0; font-family: Arial, Helvetica, sans-serif;
}
.topnav { overflow:
hidden; background-color: #333;
}
.topnav a {
float: left;
color: #f2f2f2; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 17px;
}
.topnav a:hover {
background-color: #ddd;
color: black;
}
</style>
</head>
<body>
<div class="topnav">
<a href="index.html">Home</a>
<a href="Visualization_Page.html">Visualization</a>
<a href="dash.html">Dashboard</a>
<a href="story.html">Story</a>
<a href="report.html">Report</a>
<a href="crop_production.csv">Dataset</a>
<a href="about.html">About us</a>
</div>
<br><br><br><br><br><br><br>
<center><h2>Estimate the crop yield production using Data Analytics</h2></center>
<center></center>
</body>
</html> <!DOCTYPE html>

<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { margin: 0; font-family: Arial, Helvetica, sans-serif;
}
.topnav { overflow:
```

```

hidden; background-color: #333;
}
.topnav a {
  float: left;
  color: #f2f2f2; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 17px;
}
.topnav a:hover {
background-color: #ddd;
color: black;
}
</style>
</head>
<body>
<div class="topnav">
  <a href="index.html">Home</a>
  <a href="Visualization_Page.html">Visualization</a>
  <a href="dash.html">Dashboard</a>
  <a href="story.html">Story</a>
  <a href="report.html">Report</a>
  <a href="crop_production.csv">Dataset</a>
  <a href="about.html">About us</a>
</div>
<br><br><br><br><br><br><br>
<center><h2>Estimate the crop yield production using Data Analytics</h2></center>
<center></center>
</body>
</html>

```

2. Visualization.html:

```

<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { font-family: Arial,
Helvetica, sans-serif; margin: 0;
}
.navbar { overflow:
hidden; background-color: #333;
}
.navbar a {
  float: left; font-size:
17px; color: white;
text-align: center;
padding: 14px 16px;
text-decoration: none;

```

```

}
.subnav {
  float: left;
  overflow: hidden;
}
.subnav .subnavbtn {
  font-size: 17px; border:
none; outline: none;
color: white; padding:
14px 16px; background-color: inherit; font-family:
inherit; margin: 0;
}
.navbar a:hover, .subnav:hover .subnavbtn { background-color: gray;
}
.subnav-content { display: none; position:
absolute; background-color: gray; min-width:
160px; box-shadow: 0px 8px 16px 0px
rgba(0,0,0,0.2);
z-index: 1;
}
.subnav-content a {
  float: none; color:
white; padding: 12px
16px; text-decoration:
none; display: block;
text-align: left;
}
.subnav-content a:hover { background-color: #eee;
  color: black;
}
.subnav:hover .subnav-content {
display: block;
}
</style>
</head>
<body>
<div class="navbar">
  <a href="index.html">Home</a>
  <div class="subnav">
    <button class="subnavbtn">Visualization<i class="fa fa-caret-down"></i></button>
    <div class="subnav-content">
      <a href="vis1.html">1. Season with average production</a>
      <a href="vis2.html">2. With year usage of area and production</a>
      <a href="vis3.html">3. Top 10 State with most area</a>
      <a href="vis4.html">4. State with crop production</a>
    
```

```

<a href="vis5.html">5. State with the crop production with season</a>
</div>
</div>
<a href="dash.html">Dashboard</a>
<a href="story.html">Story</a>
<a href="report.html">Report</a>
<a href="crop_production.csv">Dataset</a>
<a href="about.html">About us</a>
</div>
</br></br></br></br></br></br></br>
<div class="div1">
  <center><h2>Estimate the crop yield production using Data Analytics</h2></center> </br></br>
<center></center>
</br>
</div>
</body>
</html>
3. Vis1.html:
<html>
<head>
<title>Seasons With Average Productions</title>
</head>
<body>
  </br>
  <center><h2 style="font-family:sans-serif; font-weight: bolder;">Seasons With Average
Productions</h2>
  <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.my_folders%2FFI
NAL%2Fdashboard%2Fmaking&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;s
ha
reMode=embedded&amp;action=view&amp;mode=dashboard&amp;subView=model000001847b9
4f108_00000000" width="850" height="550" frameborder="0" gesture="media"
allow="encryptedmedia" allowfullscreen=""></iframe></center>
</body>
</html>
4. Visu2.html:
<html>
<head>
<title>With Years Usage Of Area And Production</title>
</head>
<body>
  </br>
  <center><h2 style="font-family:sans-serif; font-weight: bolder;">With Years Usage Of Area And
Production</h2>
  <iframe

```

```

src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FFI
NAL%2Fdashboard-making-
1&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMo
de=embedded&action=view&mode=dashboard&subView=model000001847bb62a3a
_00000000" width="850" height="550" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</center>
</body>
</html>

```

5. Visu3.html:

```

<html>
<head>
<title>Top 10 States With Most Area</title>
</head>
<body>
<br>
<center><center><h2 style="font-family:sans-serif; font-weight: bolder;">Top 10 States With Most
Area</h2></center>
<center><iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FFI
NAL%2Fdashboard-making&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&
s
hareMo
de=embedded&action=view&mode=dashboard&subView=model000001847bbb8d41
_00000002" width="850" height="550" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</center>
</body>
</html>

```

6. Vius4.html:

```

<html>
<head>
<title>State With Crop Production</title>
</head>
<body>
<br>
<center><h2 style="font-family:sans-serif; font-weight: bolder;">State With Crop Production</h2>
<center><iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FFI
NAL%2Fdashboard-
making&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMo
de=embedded&action=view&mode=dashboard&subView=model000001847bc15701
_00000002" width="850" height="550" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</center>

```

```

    </body>
</html>
7. Visu5.html:
<html>
<head>
<title>States With The Crop Production Along With Season (Text Table)</title>
</head>
<body>
<br>
    <center><h2 style="font-family:sans-serif; font-weight: bolder;">States With The Crop Production
Along With Season (Text Table)</h2>
    <center>
<iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FFI
NAL%2Fdashboard-
making&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&shareMo
de=embedded&action=view&mode=dashboard&subView=model000001847bc79c33
_00000000" width="850" height="550" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</center>
</body>
</html>
8. Dashboard.html:
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { margin: 0; font-family: Arial, Helvetica, sans-serif;
}
.topnav { overflow:
hidden; background-color: #333;
}
.topnav a {
float: left;
color: #f2f2f2; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 17px;
}
.topnav a:hover { background-color: #ddd;
color: black;
}
</style>
</head>
<body>
<div class="topnav">
    <a href="index.html">Home</a>

```



```

<a href="Visualization_Page.html">Visualization</a>
<a href="dash.html">Dashboard</a>
<a href="story.html">Story</a>
<a href="report.html">Report</a>
<a href="crop_production.csv">Dataset</a>
<a href="about.html">About us</a>
</div>
</br>
<center><h2 style="font-family:sans-serif; font-weight: bolder;">Dashboard-Visualization</h2>
  <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2FFINAL%2FFINAL%DASHBOARD&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&am
p;shareMode=embedded&action=view&mode=dashboard&subView=model000001847bce849d_00000001" width="850" height="550" frameborder="0" gesture="media"
allow="encrypted-media" allowfullscreen=""></iframe>
  </center>
</body>
</html>
9. Report.html:
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { margin: 0; font-family: Arial, Helvetica, sans-serif;
}
.topnav { overflow:
hidden; background-color: #333;
}
.topnav a {
float: left;
color: #f2f2f2; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 17px;
}
.topnav a:hover { background-color: #ddd;
color: black;
}
</style>
</head>
<body>
<div class="topnav">
  <a href="index.html">Home</a>
  <a href="Visualization_Page.html">Visualization</a>
  <a href="dash.html">Dashboard</a>
  <a href="story.html">Story</a>

```

```

<a href="report.html">Report</a>
<a href="crop_production.csv">Dataset</a>
<a href="about.html">About us</a>
</div>
</br>
<center><h2 style="font-family:Arial, Helvetica, sans-serif; font-weight: bolder;">Report-Final</h2>
  <iframe
src="https://us1.ca.analytics.ibm.com/bi/?pathRef=.my_folders%2FFINAL%2FReportFinal&amp;closeWindowOnLastView=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;action=run&amp;format=HTML&amp;prompt=false" width="950"
height="550" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
</center>
</body>
</html>
10. Story.html:
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1">
<style> body { margin: 0; font-family: Arial, Helvetica, sans-serif;
}
.topnav {
  overflow: hidden; background-color: #333;
}
.topnav a {
  float: left;
  color: #f2f2f2; text-align: center; padding:
14px 16px; text-decoration: none; font-size: 17px;
}
.topnav a:hover { background-color: #ddd;
  color: black;
}
</style>
</head>
<body>
<div class="topnav">
  <a href="index.html">Home</a>
  <a href="Visualization_Page.html">Visualization</a>
  <a href="dash.html">Dashboard</a>
  <a href="story.html">Story</a>
  <a href="report.html">Report</a>
  <a href="crop_production.csv">Dataset</a>
  <a href="about.html">About us</a>
</div>

```

```

</br>
<center><h2 style="font-family:Arial, Helvetica, sans-serif; font-weight:
bolder;">StoryVisualization</h2>
  <iframe
src="https://us1.ca.analytics.ibm.com/bi/?perspective=story&pathRef=.my_folders%2FFINAL%
2FSTORY%2FDASHBOARD&closeWindowOnLastView=true&ui_appbar=false&ui_navbar=false&
am
p;shareMode=embedded&action=view&sceneId=model000001847bdb24a5_000000000&a
mp;sceneTime=850" width="850" height="550" frameborder="0" gesture="media"
allow="encrypted-media" allowfullscreen=""></iframe>
</center>

```

```

</body>

```

```

</html>

```

11. Aboutus.html:

```

<!DOCTYPE html>

```

```

<html>

```

```

<head>

```

```

<meta name="viewport" content="width=device-width, initial-scale=1">

```

```

<style> body { font-family: Arial,
Helvetica, sans-serif; margin: 0;
}

```

```

html { box-sizing:

```

```

border-box;

```

```

}

```

```

*, *:before, *:after { box-sizing: inherit;

```

```

}

```

```

.column {

```

```

float: left;

```

```

width: 33.3%; margin-left: 450px; margin-bottom: 16px; padding:
10 8px;
}

```

```

.card { box-shadow: 0 4px 8px 0 rgba(0, 0,
0, 0.2); margin: 8px;
}

```

```

.about-section {

```

```

padding: 50px; text-align: center;

```

```

background-color: #474e5d;

```

```

color: white;
}

```

```

.container {

```

```

padding: 0 16px;
}

```

```

.container::after, .row::after {

```

```

content: ""; clear: both;

```

```

display: table;

```

```

}
.topnav { overflow:
hidden; background-color: #333;
}
.topnav a {
float: left; color:
#f2f2f2; text-align:
center; padding: 14px
16px; text-decoration:
none; font-size: 17px;
}
.topnav a:hover {
background-color: #ddd;
color: black;
}
.title {
color: grey;
}
</style>
</head>
<body>
<div class="topnav">
<a href="index.html">Home</a>
<a href="Visualization_Page.html">Visualization</a>
<a href="dash.html">Dashboard</a>
<a href="story.html">Story</a>
<a href="report.html">Report</a>
<a href="crop_production.csv">Dataset</a>
<a href="about.html">About us</a>
</div>
<h2 style="text-align:center">About us</h2>
<br><div class="row">
<div class="column">
<div class="card">
<div class="container">
<br>
<p>TEAM GUIDE: MR.R.PALANI KUMAR</p>
<br>
</div>
</div>
</div>
</div>
<div class="row">
<div class="column">
<div class="card">

```

```
<div class="container">
</div>
<p>TEAM LEAD:SURENDAR P</p>
<p>TEAM MEMBER 1:TAMILAVAN M</p>
<p>TEAM MEMBER 2:SANTHOSH K</p>
<p>TEAM MEMBER 3:SIVAKUMAR A</p>
</div>
</div>
</div>
</body>
</html>
```

GitHub Link: <https://github.com/IBM-EPBL/IBM-Project-36340-1660294318>

Video Demo Link: https://youtu.be/t_w1M-A8CPo