ESTIMATE THE CROP YIELD USING DATA ANALYTICS

TEAM ID: PNT2022TMID16746

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COLLGE NAME: S.A. ENGINEERING COLLEGE

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1. INTRODUCTION

1.1 Project overview:

Agriculture is the backbone of Indian Economy. In India, majority of the farmers are not getting the expected crop yield due to several reasons. The agricultural yield is primarily depends on weather conditions. Rainfall conditions also influences the rice cultivation. In this context, the farmers necessarily requires a timely advice to predict the future crop productivity and an analysis is to be made in order to help the farmers to maximize the crop production in their crops. Yield prediction is an important agricultural problem. Every farmer is interested inknowing, how much yield he is about expect. In the past, yield prediction was performed by considering farmer's previous experience on a particular crop. The volume of data is enormousin Indian agriculture. The data when become information is highly useful for many purposes.

IBM Cognos Business Intelligence is a web-based integrated business intelligence suite by IBM. It provides a toolset for reporting, analytics, score carding, and monitoring of events and metrics. The software consists of several components designed to meet the different information requirements in a company. IBM Cognos has components such as IBM Cognos Framework Manager, IBM Cognos Cube Designer, IBM Cognos Transformer. Cognos Analysis Studio helps business users get fast answers to business-related queries. Reporting studio allows you to create pixel-perfect reports for your organization. Cognos event studio allows you to assign a specific event that sends a notification to the stakeholder in your organization. Cognos Metric Studio allows you to monitor and analyze business metrics of your organization by building a scorecard environment.

1.2 Purpose:

The purpose of this project is to work under the data analytics domain using the available technologies to achieve the goal which is to estimate the crop yield in India. We believe that ithelps the client and people who are interested in agricultural studies to gain more insights. We work with the dataset that has data regarding the crop, production and area etc. and we use data analytic techniques to run various models and analysis on our dataset to gain more information which can help us understand the data.
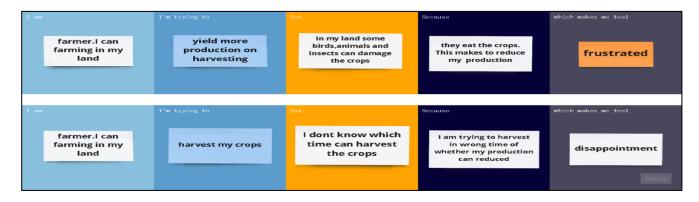
2. LITERATURE SURVEY

2.1 Existing Problem:

1) Agriculture Data Analytics in Crop Yield Estimation
2) Prediction of Soil and Crop Yield by Big Data Analysis
3) Effective Data Analysis And Crop Yield Prediction Using Machine Learning Algorithm
4) Development of Crop Yield Estimation Model using Soil and Environmental Parameters
5) Comparison of Methods for Estimating Crop Yield at the County Level

2.2 References:

➤ https://www.researchgate.net/publication/329467349Agriculture_Data_Analytics_in_Crop_Yield_Estimation_A_Critical_Review
➤ Prediction of Soil and Crop Yield by Big Data Analysis Venkata Chennareddy, S. Ramanayagam
➤ Development of Crop Yield Estimation Model using Soil and Environmental Parameters,
➤ Nisar Ahmed, H. M. Shahzad Asif, Gulshan Saleem, M. Usman Younus
➤ Comparison of Methods for Estimating Crop Yield at the County Level, Michael E. Bellow (Research and Development Division Washington DC20250).

2.3 Problem Statement Definition:

The traditional agriculture and allied sector cannot meet the requirements of modern agriculture which requires high yield high quality and efficient output. Thus, it is very important to turn towards modernization of existing methods and using the information technology and data over a certain period to predict the best possible productivity and crop suitable on the very particular land.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas:

3.2 Ideation and Brainstorming:

ARUN PRASAD

MAKE SURE SUSTAINABLE ENVIRONMENT	SMART CONTRACT RISK	SUPPLY OF SUFFICIENT SEEDS AND FERTILIZER
SOLID TESTING AND ITS QUALITY	MONITORING CROPS GROWTH	LIVESTOCK FEED AND ENERGY SOURCE

EZHILARASAN

THE FOOD REQUIREMENTS CAN MANAGE TO EXTEND THE POSSIBLE BY INCREASING AREA UNDER CULTIVATION	IT IS AN ESSENTIAL THING TO UNDERSTAND THE FOOD SECURITY ,POTENTIAL YIELD, GAP	THE GOVERNMENT HAS A STRONG INTEREST IN HELPING FARMERS TO ARCHIVE
ACCURATE WEATHER PROTECTION	TO MEASURE CROPS THAT ARE PRODUCED ADEQUATELY PROVIDE ENOUGH FOOD SUPPLY	THE HIGH YIELD CROPS REQUIRE MORE WATER AND FERTILIZERS

JASWANTH

IT'S HELPS US TO UNDERSTAND FOOD SECURITY	PLANTING CROPS IN THE RIGHT TIME IS VERY EFFECTIVE IN INCREASING CROP YIELD	CROP YIELD AS ESSENTIAL TO MEET THE DEMANDS OF THE CHANGING WORLD
CROP YIELD IS USED TO MEASURE THE AMOUNT OF AGRICULTURE PRODUCTION IN A LAND AREA	ORGANIC FOOD IS MORE EXPENSIVE BECAUSE FARMERS DO NOT GET AS MUCH OF THESE LAND AS CONVENTIONAL FARMERS	IT IS USED TO REDUCE THE HARMFUL FERTILIZERS AND ALSO REDUCED THE SOIL EROSION

THAMARAITHIRUSELVAN

IMPROVEMENT IN AGRICULTURAL ACCURACY	MAKING PEOPLE AWARE ABOUT CLIMATE CHANGE ADAPTATION	RISK OF LOSS THAT CANNOT BE COMPENSATION
IMPERMANENT LOSS MAY INFLICT PERMANENT DAMAGE	SUPPLY OF SUFFICIENT SEEDS , FERTILIZERS	OPTIMIZE RESOURCE USE AND CONVERSATION

3.3 Proposed Solution:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Increase of Poverty, increase in farmers Suicide, Increase the profit in yield, Loss ofappetite.
2.	Idea / Solution description	Provide perfect data report after deep analyze of past data. Helping them out toovercome loss in farming and business.
3.	Novelty / Uniqueness	With this solution we can Analysis, visualize the data and gives the farmers to choose which plant/crop to cultivate at which period of time or season to gain more profit from the crop yield.
4.	Social Impact / Customer Satisfaction	By providing the perfect data visuals it creates a large impact in crop yield. And gainmore profit to the farmers.
5.	Business Model (Revenue Model)	We can create large number of crop production and other raw materials. Increasein natural products and organic foods from this we can increase the Revenue for the farmers.
6.	Scalability of the Solution	With the data visual reports, we can cultivate crop according to the Crop, State, district, climate, soil can change the estimation of Crop yield.

3.4 Problem Solution Fit:

1. CUSTOMER SEGMENT(S)
CS

Farmers are the customer who wants to yield a crop in field.

6. CUSTOMER CONSTRAINTS
C

Less knowledge and development towards the current environmental changes and technologies, they follow ancient methods, which is also worthy but, the climatic changes and new kind pesticides.

5. AVAILABLE SOLUTIONS
AS

- Traditional ways of prediction.
- Precision farming.

2. JOBS-TO-BE-DONE / PROBLEMS
J&P

- Help them understand the usage of prediction and software application for good results in agriculture.
- Data report should to be created to reduce the loss of the crop and earn more profit in agriculture fields.

9. PROBLEM ROOT CAUSE
RC

- Various disease on the plants can lead to reducing the quality of the crops productivity.
- The insects on the plants can spread the disease.

7. BEHAVIOUR
BE

- Try to get help from agricultural experts.
- Try to take up non-natural means of cultivation for quicker harvest.

3. TRIGGERS
TR

- Seeing their crops are being infected by disease and facing huge loss in quality.

4. EMOTIONS: BEFORE / AFTER
EM

- **Before** : Most of the famers in India have Stress, Loosing Self Confidence.
- **After** : Gain of Self Confidence.

10. YOUR SOLUTION
SL

- The solution for the problem, creating data report using past datasets.
- Creating IBM Cognos dashboard could make them better understand easily.

8. CHANNELS of BEHAVIOUR
CH

- Trying to use pesticides and fertilizers that increase gain but cause harm.
- Irrigation channel changes.

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	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via EmailConfirmation via OTP
FR-3	User Profile	User Details Farm Details
FR-4	Required Data	The previous year crop yield data set Farm yield methodology User data of the farmer Details of the Seasons and the Regions
FR-5	Analysis	Cleaning and analysis of the past year crop yields Visualizing the datasets using IBM Cognos
FR-6	Estimation	Creating the perfect data module through attractive stories, dashboard and reports to increase the understandability of data.

4.2 Non-Functional Requirement:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	From the given datasets , analyzing is done and report is created. Accordingly, sowing of crops are recommended.
NFR-2	Security	Usage of IBM COGNOS, will provide secure user information (Data Visualization)
NFR-3	Reliability	Using the interactive data visual dashboards , we can easily understand the data reports.
NFR-4	Performance	Interaction makes better performance between all user and impressing by the data visuals advice.
NFR-5	Availability	The dashboard is easily available and accessible in smartphones and PC's.

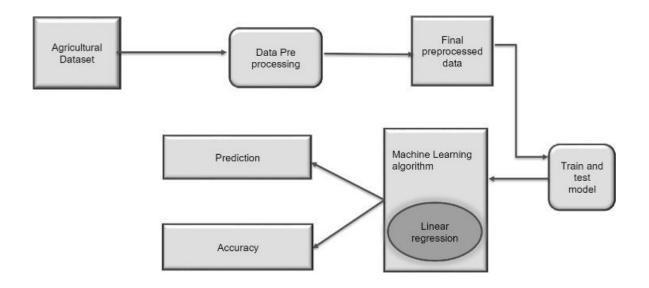| NFR-6	**Scalability**	Prediction of crop for the forthcoming year can be done. It gives you a variety of crops to choose from our region. Also to know the better profitability of crops.

5. PROJECT DESIGN

5.1 Data Flow Diagram:

5.2 Solution & Technical Architecture:

5.3 User Stories:

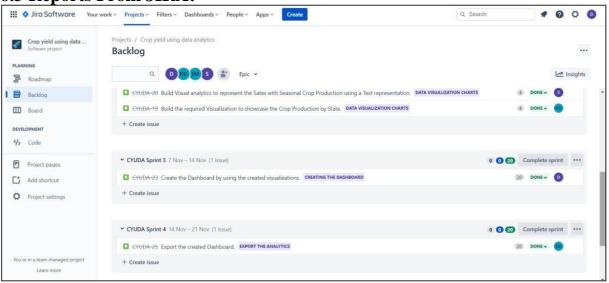| User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user and Laptop users)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / 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		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password		High	Sprint-1
	Dashboard	USN-6	Can use the methods provided in the dashboard		Medium	Sprint-1
	Invest	USN-7	With help of desired results obtained from application, making profit or loss	Gain or Loss	High	Sprint-2
Administrator	Updating data		Collecting the data and storing it	Checking and updating dataset	High	Sprint-1
Customer (Web User)	Accessing the resources	USN -8	Using my own credentials for accessing the data	These resources cannot be accessed by others but only me	High	Sprint -1
	Satellite Visioning	USN -9	Having a view with geographic data		Medium	Sprint-2
Customer tools	Tools	USN -10	Analysis is performed by tools like cognos analytics	Ease of accessing the tools	High	Sprint 2

6. PROJECT PLANNING & SCHEDULING
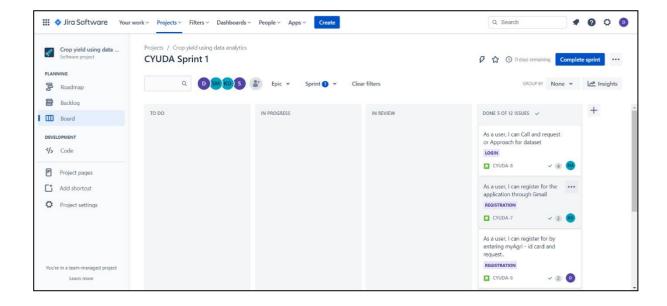
6.1 Sprint Planning & Estimation:

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 by entering my Agri - id card and request..	2	High	Dharani Shree vidhyaaKaviya Shanmugapriya
		USN-3	As a user, I can register for the application through Gmail	2	Medium	Kaviya Dharani
	Login	USN-4	As a user, I can Call and request or Approach for dataset	4	High	Shreevidhyaa Shanmugapriya
	Working with the Dataset	USN-5	To work on the given dataset, Understand the Dataset.	2	High	Shanmugapriya Shreevidhyaa Dharani Kaviya
		USN-6	Load the dataset to Cloud platform then Build the required Visualizations.	10	High	Kaviya Shreevidhyaa
Sprint-2	Data Visualization Chart	USN-7	Using the Crop production in Indian dataset, create various graphs and charts to highlight the insights and visualizations. *Build a Visualization to showcase Average Crop Production by Seasons.	4	Medium	Kaviya Dharani
			*Showcase the Yearly usage of Area in Crop Production.	4	Medium	Shreevidhyaa Shanmugapriya
			Build a visualization to show case top 10 States in Crop Yield Production by Area.	4	Medium	Dharani Shreevidhyaa
			Build the required Visualization to showcase the Crop Production by State.	4	Medium	Shanmugapriya Dharani
			Build Visual analytics to represent the Sates with Seasonal Crop Production using a Text representation.	4	Medium	Kaviya Shreevidhyaa
Sprint-3	Creating The dashboard	USN-8	Create the Dashboard by using the created visualizations.	20	High	Kaviya Dharani
Sprint-4	Export The Analytics	USN-9	Export the created Dashboard	20	High	Shanmugapriya Shreevidhyaa

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 Reports From JIRA:

		OCT						NOV								NOV							NOV					
		25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Sprints		CYUDA Sprint 1							CYUDA Sprint 2							CYUDA Sprint 3						CYUDA Sprint 4					
> ➕ CYUDA-11 Registration																											
> ➕ CYUDA-12 Login																											
> ➕ CYUDA-13 Working with the dataset																											
> ➕ CYUDA-21 Data visualization charts																											
> ➕ CYUDA-22 Creating the dashboard																											
➕ CYUDA-24 Creating the dashboard																											
> ➕ CYUDA-26 Export the analytics																											

7. CODING & SOLUTIONING

workspace.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="workspace.css">
    <title>workspace</title>
</head>
<body>
    <div class="ws-container">
        <div class="ws">
            <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.my_folders
%2FDifferent%2BSeason%2BWith%2BAverage%2BProduction&amp;closeWindowOnLast
View=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;
action=view&amp;mode=dashboard&amp;subView=model0000018412e034f3_00000000"
width="320" height="200" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
            <iframe
src="https://us3.ca.analytics.ibm.com/bi/?perspective=dashboard&amp;pathRef=.my_folders
%2FDifferent%2BSeason%2BWith%2BAverage%2BProduction&amp;closeWindowOnLast
View=true&amp;ui_appbar=false&amp;ui_navbar=false&amp;shareMode=embedded&amp;
action=view&amp;mode=dashboard&amp;subView=model0000018412eb6bc8_00000000"
width="320" height="200" frameborder="0" gesture="media" allow="encrypted-media"
allowfullscreen=""></iframe>
        </div>
        <div class="homepage-link">
            <a href="home.html">Go to Homepage</a>
        </div>
    </div>

</body>
</html>
```
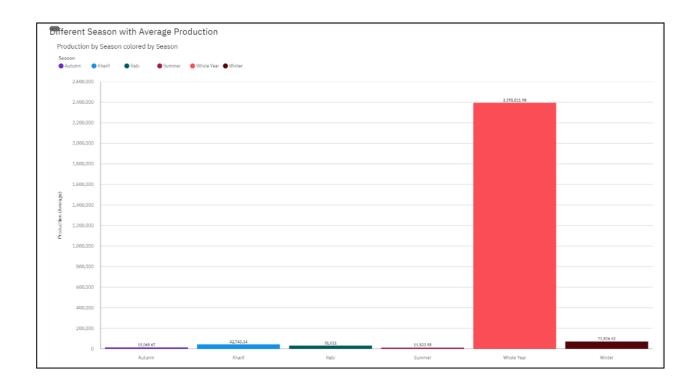
workspace.css

```
html{
```

```css
    scroll-behavior: smooth;
}
*::selection{
    color: #000000;
    background-color:#505050;
 }

ul{
    list-style: none
}
a{
    text-decoration: none;

}
body{
    background: url(https://res.cloudinary.com/dtpgi0zck/image/upload/s--KuHP6sEY--
/c_fill,h_580,w_860/v1/EducationHub/photos/crops-growing-in-thailand.jpg) no-repeat fixed
center;
    -webkit-background-size: cover;
    -moz-background-size: cover;
    -o-background-size: cover;
    background-size: cover;
    background-color: #f6f5f5;
    margin: 0px;
    padding: 0px;
    position: relative;


}
/*                                home page link                                
-*/
.homepage-link a{
    text-align: center;
    background-color: #06370c;
    color: #fff;
    width: 500px;
   font-weight:bolder;
    font-size: 30px;
    border-radius: 15px;
    padding: 10px;
    box-shadow: 4px 4px 10px rgba(0, 0, 0, 0.7);
    opacity: 0.7;


}
.homepage-link a:hover{
    color: #000;
}
.homepage-link:active{
    transform: scale(1.05);
}
/*                                                                          */
.ws-container{
    display: flex;
```
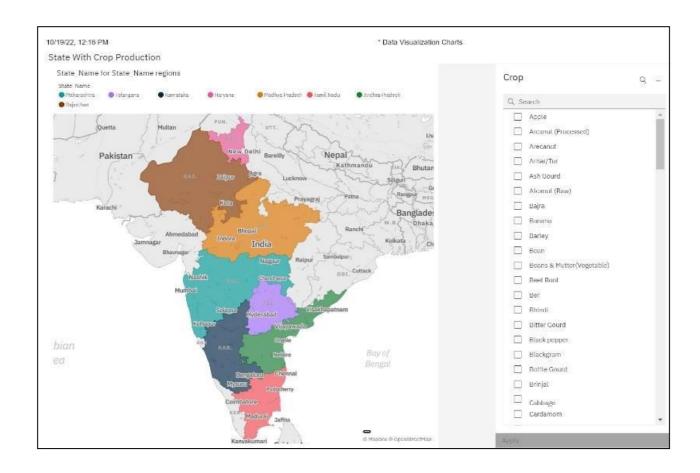
```
    flex-direction: column;
    justify-content:  center;
    align-items: center;}
.ws{
width: 90%; height: 1000px;
    background-color: #fff;
    margin: 40px;
    border-radius: 25px;
    box-shadow: 2px 2px 12px rgba(0, 0, 0,0.3);

}
```
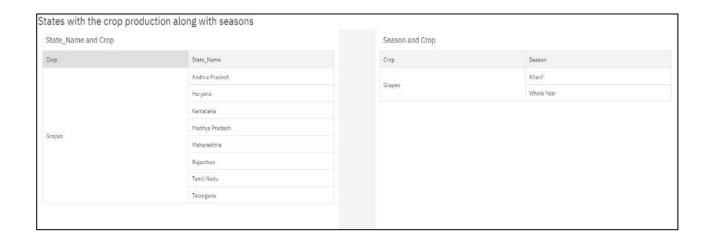
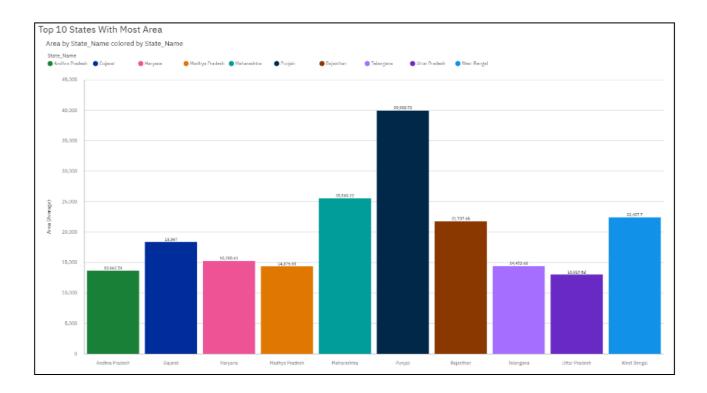## 7.1 Feature 1:

Different season with average Production:

State with crop production:

State With Crop Production

State_Name for State_Name regions

State_Name
● Maharashtra   ● Telangana   ● Karnataka   ● Haryana   ● Madhya Pradesh   ● Tamil Nadu   ● Andhra Pradesh
● Rajasthan

Crop   Q   ...

Q Search

☐ Apple
☐ Arecanut (Processed)
☐ Arecanut
☐ Arhar/Tur
☐ Ash Gourd
☐ Alcanut (Raw)
☐ Bajra
☐ Banana
☐ Barley
☐ Bean
☐ Beans & Mutton(Vegetable)
☐ Beet Root
☐ Ber
☐ Bhindi
☐ Bitter Gourd
☐ Black pepper
☐ Blackgram
☐ Bottle Gourd
☐ Brinjal
☐ Cabbage
☐ Cardamom

Apply

State with crop production along with season:

States with the crop production along with seasons

State_Name and Crop

Crop	State_Name
	Andhra Pradesh
	Haryana
	Karnataka
	Madhya Pradesh
Grapes	Maharashtra
	Rajasthan
	Tamil Nadu
	Telangana

Season and Crop

Crop	Season
Grapes	Kharif
	Whole Year

Top 10 States with most area:

Top 10 States With Most Area

Area by State_Name colored by State_Name

With years usage of area and production:

With years usage of Area and Production

Area by Crop_Year

Production by Crop_Year

7.2 Feature 2:

Tab 1

Production by Season colored by Season

Different Season With Average Production

Area by Crop_Year

Production by Crop_Year

Area by State_Name colored by State_Name

Tab 2

State_Name regions

Different Season With Average Production

State_Name and Crop

Crop	State_Name
	Nagaland
	Odisha
Gram	Punjab
	Rajasthan
	Tamil Nadu
	Telangana
	Tripura
	Uttar Pradesh

Season and Crop

Crop	Season
Grapes	Whole Year
	Kharif

7.3 Database Schema:

8. TESTING

8.1 Test Cases:

Test case ID	Feature Type	Component	Test Scenario	Pre-Requisite	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Commnets	TC for Automation(Y/N)	BUG ID	Executed By
HomePage_TC_OO1	Functional	Home Page	Verify user is able to see the Login/Signup popup when user clicked	User should have good internet connectivity.	1.Enter URL and click go 2.Click on Login Button 3.Verify login/Singup popup displayed or not	first.html	Login page should pop up as soon as the Login button is	Working as expected	Pass		N		Dharani M
LoginPage_TC_OO2	UI	Login Page	Verify the UI elements in Login/Signup popup	User should have good internet connectivity.	1.Enter URL and click go 2.Click on Login Button 3.Verify login/Singup popup with below UI elements: a.email text box b.password text box c.Login button d.New customer? Create account link e.Last password? Recovery password link	login.html	Application should show below UI elements: a.login with twitter & facebook b.password	Working as expected	Pass		N		Kaviya S D
LoginPage_TC_OO3	Functional	Login page	Verify user is able to log into application with Valid credentials	User should have good internet connectivity.	1.Enter URL(login.html) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: admin password: admin	User should navigate to user account homepage	Working as expected	Pass		N		Shreevidhyaa S
Dashboard_TC_OO4	Functional	Dashboard page	Verify user is able to view the dashboard and see the charts	User should have good internet connectivity.	1.Enter URL(dashboard.html) 2.Click on the different charts that the user wants. 3.The embedded link will be able to display the charts fromcognos	Dashboard.html	Application should show the expected charts from cognos	Working as expected	Pass		N		Shanmugapriya M

8.2 User Acceptance Testing:

1. Purpose of Document:

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).

2. Defect Analysis:

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

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
By Design	8	4	2	2	16
Duplicate	4	2	3	0	9
External	2	3	0	1	6
Fixed	22	7	4	18	51
Not Reproduced	0	0	1	0	1
Skipped	1	1	0	0	2
Won't Fix	4	0	2	1	7
Totals	41	17	12	22	92

3. Test Case Analysis:

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

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	4	0	0	4
Client Application	45	0	1	46
Security	2	0	0	2
Outsource Shipping	3	0	0	3
Exception Reporting	9	0	0	9
Final Report Output	4	0	0	4
Version Control	2	0	0	2

9. RESULTS

9.1 Performance Metrics:

S.No.	Parameter	Screenshot / Values
1.	Dashboard design	No of Visualizations / Graphs – 4
2.	Data Responsiveness	1. Seasons with average production. 2. States with the crop production along with season. 3. With years usage of area and production.
3.	Amount Data to Rendered (DB2 Metrics)	The datasets that are trained and visualized are stored in IBM Cognos.
4.	Utilization of Data Filters	Classification, Prediction and Visualization are utilized to filter data.
5.	Effective User Story	No of Scene Added - 5
6.	Descriptive Reports	No of Visulizations / Graphs - 5

10. ADVANTAGES AND DISADVANTAGES

Advantages:

- Risks can be measured when suitable mathematical and statistical model designs are applied on data related to soil, weather and past yield.

- The precise quantification of the rice productivity in various climatic conditions can help farmer to understand the optimum condition for the higher rice crop yield.

Disadvantages:

- The main disadvantage of this strategy is that is does not allow for assessing the impact of intercropping on crop yields.

- This strategy is that crop areas cannot be aggregated at farm or higher levels, since intercropped fields would be double counted.

11. CONCLUSION

To conclude, we will say that we are providing an excellent website that can Estimate crop yield using Data Analytics by using the latest Artificially powered tool called IBM Cognos.

12. FUTURE SCOPE

By using the data's, we can identify the output yield of the crops and forecast prices for the next few weeks will help the farmers to obtain maximum benefits.

13. APPENDIX

Source Code:

Index.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" type="text/css" href="index.css">
    <title>LogIn</title>
    <script  type="text/javascript" src="index.js"></script>
</head>
<body>+
    <!-- login form -->
    <div class="logform">
        <img src="istockphoto.jpg" alt="profile" class="profilePic">
        <form name="loginForm" >
            <h1><b>Login</h1>
            <p><b>User name</p>
            <input type="text" name="uname" id="username" placeholder="Enter User
name">

            <p><b>Password</p>
            <input type="password" name="upswd" id="password" placeholder="Enter
Password">

            <div id="ErrorBox"></div><br>


            <button type="button" onclick="login()"  class="sub-btn"><b>Submit</button>
            <button type="button"  class="reset-btn"><b>Reset</button>

            <br>
```

```html
        <p>Doesn't have a account?New user?<a
href="register.html"><b>Register</a></p>
      </form>



    </div>

</body>
</html>
```

Index.css

```css
html{
   scroll-behavior: smooth;
 }
 *::selection{
   color: #000000;
   background-color:#505050;
 }body{
   background: url(Agri.png) no-repeat fixed center;
   -webkit-background-size: cover;
   -moz-background-size: cover;
   -o-background-size: cover;
   background-size: cover;
   margin: 0%;


}
.logform{

   background-color:lightgrey;
   display: inline-block;
   padding: 30px;
   position: absolute;
   top: 50%;
   left: 50%;
   box-sizing: border-box;
   transform: translate(-50%,-50%);
   border-radius: 10px;
   opacity: 0.8;
   box-shadow: 2px 2px 12px rgba(0, 0, 0,0.3);

}
.profilePic{
   width:100px;
   height: 100px;
```

```css
    position: absolute;
    top:-50px;
    left:calc(50% - 50px);



}
a{
    text-decoration: none;
    line-height: 50px;

}
a:hover{
    text-decoration:underline;
    color:green
}



input[type='text'],input[type='password'],input[type="email"]{
    border: none;
    background: transparent;
    border-bottom:1px solid #fff;
    outline-style: none;
}



input{
    width: 100%;
    margin-bottom: 10px;
}

/* ============================================== submit button
================================== */

.submitButton:active{
     transform: scale(1.1);
}

/* ------------------------------------------------ */
.sub-btn,.reset-btn{

    width: 100px;
    border: 0px;
    border-radius:5px ;
    background-color: green;
    padding: 5px;
```

```
        }
```

Index.js

```
var data = [
    {
        username:"ARUNPRASAD",
        password:"0001"
    },
    {
        username:"EZHILARASAN",
        password:"0002"
    },
    {
        username:"JASWANTH",
        password:"0003"
    },
    {
        username:"THAMARAI",
        password:"0004"
    },
    {
    username:"VENKATRAJ",
    password:"00005"
    },
]
function login(){
    var uname = document.getElementById("username").value
    var pass = document.getElementById("password").value

    for (i = 0; i<data.length; i++){
        if (uname == data[i].username && pass == data[i].password){
            window.location.replace("home.html")
            return false
        }
    }
    alert("incorrect password")
```

```
  }
  function register(){
    var runame = document.getElementById("username").value
    var rpass = document.getElementById("password").value
    var rpass1 = document.getElementById("password1").value
    if (rpass == rpass1){
      var rdata = {
        username: runame,
        password: rpass
      }
    }else{
      alert("password doesn't match")
      return
    }

    for (i = 0; i<data.length; i++){
      if (runame == data[i].username){
        alert("Username not available")
        return false
      }
    }
    data.push(rdata)
    window.location.href("home.html")
  }
```

Home.html

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Home</title>
  <link rel="stylesheet" href="home.css">


  <!-- ============================== google font link
```

```
============================================ -->
    <link rel="stylesheet"
href="https://fonts.googleapis.com/css?family=Sofia&effect=3d-float">

<link rel="stylesheet" type="text/css" href="//fonts.googleapis.com/css?family=Nunito"
/>

</head>
<body>
    <div class="container">
        <!-- title -->
        <b><div class="title font-effect-3d-float">ESTIMATE THE CROP YIELD
USING DATA ANALYTICS</div></b>
        <!--details -->
        <div class="details">
          <b> <p class="teamId">Team ID:PNT2022TMID16746</p></b>
          <!-- members -->
          <p><b>ARUN PRASAD V</p>
          <p><b>EZHILARASAN E</p>
          <p><b>JASWANTH B</p>
          <p><b>THAMARAI THIRUSELVAN K</p>
          <p><b>VENKAT RAJ M</>
        </div>
        <!-- workspace link -->
        <div class="workspace-link">
            <a href="workspace.html">Go to Workspace</a>
        </div>
    </div>
</body>
</html>
```

Home.css

```
html{
   scroll-behavior: smooth;
 }
 *::selection{
   color: #000000;
```

```css
    background-color:#505050;
 }
body{
   background: url(https://wallpapercave.com/wp/wp1886332.jpg) no-repeat fixed
center;
   -webkit-background-size: cover;
   -moz-background-size: cover;
   -o-background-size: cover;
   background-size: cover;
   background-color: #f6f5f5;
   margin: 0px;
   padding: 0px;
   position: relative;



}
ul{
   list-style: none
}
a{
   text-decoration: none;

}

/* ------------------------------------------------ home ---------------------------------- */
.container{
   width: 80%;
   height: 800px;
   background-color: #fff;
   position: absolute;
   left: 50%;
   top: 50px;
   transform: translate(-50%,0%);
   opacity: 0.58;
   border-radius: 25px;
   box-shadow: 2px 2px 12px rgba(0, 0, 0,0.3);
}

.container .title{
   margin-top: 20px;
   text-align: center;
   font-size: 55px;
   padding-bottom: 60px;
   color: rgb(12, 12, 12);

}
.container .details{
```

```css
    text-align: center;
    font-size: 25px;
    font-family: Nunito;

}
.container .teamId{
    color: #080808;
    font-weight:bold;
    font-size: 35px;
    padding-bottom: 20px;
}
.button{
    font-size: 30px;

}
.workspace-link a{
    text-align: center;
    background-color:rgb(11, 240, 118);
    width: 350px;
   font-weight:bolder;
   font-size: 30px;
   color: #202020;
    position: absolute;
    left: 50%;
    bottom: 50px;
    transform: translateX(-50%);
    border: none;
    border-radius: 15px;
    padding: 10px;
    box-shadow: 4px 4px 10px rgba(0, 0, 0, 0.7);
}
.workspace-link a:hover{
    color: #167030;
}
.workspace-link a:active{
    width: 360px;
}
```

Register.html

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <script src="index.js"></script>
    <link rel="stylesheet" href="index.css">
```

```html
    <title>register</title>
</head>
<body>
  <div class="logform">
    <img src="https://www.pngkey.com/png/full/203-2037403_flat-faces-icons-circle-girl-
flat-icon-png.png" alt="profile" class="profilePic">
    <form name="regForm"  >
      <h1><b>Register</h1>
      <p><b>User name</p>
      <input type="text" name="uname1" id="username" placeholder="Enter user name"

<p><b>Password</p>
      <input type="password" name="password1" id="password" placeholder="Enter
Password">
      <p><b>Confirm Password</p>
      <input type="password" name="repassword1" id="password1" placeholder="Enter
Comfirm password">

      <br>
            <button type="button" onclick="register()" class="sub-
btn"><b>Submit</button>
            <button type="button" class="reset-btn"><b>Reset</button>


    </form>
    <p>Already user?<a href="index.html">Login</a></p>

  </div>

</body>
</html>
```

GitHub:

https://github.com/IBM-EPBL/IBM-Project-15768-1659604391

Project Demo link:

**https://drive.google.com/file/d/1diL2wcLCXU3Ff7MpGEuo3Sk8qXYc4xHj/view?u
sp=share_link**