

PROJECT REPORT

Estimate The Crop Yield Using Data Analytics

TEAM ID: PNT2022TMID07696

Team Members

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INTRODUCTION:

1.1 Project Overview:

Information on crop area, yield and production plays a vital role in planning and allocating resources for the development of the agricultural sector. Reliable and timely information on crop area, yield and production acts as a fundamental input to the planners and policymakers responsible for formulating efficient agricultural policies, and for making important decisions with respect to procurement, storage, public distribution, import, export and other related issues. The availability of crop area statistics is an essential requirement of the agricultural statistical system of any country, as it is a key variable in estimating crop production and crop yield. For the collection of crop area statistics, both subjective and objective methods are currently used around the world.

The subjective methods, often used in developing countries, include the field reporting system, eye estimation, farmer interview and expert assessment. These methods suffer from certain limitations in terms of the reliability of the data on crop area. Although objective methods of measuring area – such as the polygon method – are expected to provide reliable estimates, they are costly and time-consuming. Further, under certain unusual and problematic situations (e.g. fields with irregular shapes and boundaries), it becomes difficult to measure area with subjective methods. In these cases, modern technologies such as Global Positioning Systems (GPS) have the potential to provide more accurate estimates of the crop area.

1.2 Purpose:

As noted above, in view of the importance of estimating crop area, yield and production under mixed and continuous cropping, the Global Strategy has awarded the study project entitled “Improving Methods for Estimating Crop Area, Yield and Production under Mixed and Continuous Cropping” to ICARIASRI.

The study project has the following objectives:

1. Critically review the literature pertaining to crop area and yield under mixed and continuous cropping;
2. Identify the gaps relating to the estimation of crop area and yield under mixed and continuous cropping;
3. Develop a standard statistical methodology for the estimation of the area and yield rate under mixed and continuous cropping;
4. Test the developed methodology in three field-testing countries in AsiaPacific, Africa and the Latin Caribbean region (one country in each region);
5. Identify issues and challenges and provide suitable guidelines for the implementation of the developed methodology in developing countries.

2 . LITERATURE SURVEY:

2.1 Existing Problem:

Companies and industries are faced with a huge amount of raw data, which have information and knowledge in their hidden layer. Also, the format, size, variety, and velocity of generated data bring complexity for industries to apply them in an efficient and effective way. So, complexity in data analysis and interpretation incline organizations to deploy advanced tools and techniques to overcome the difficulties of managing raw data. Big data analytics is the advanced method that has the capability for managing data. It deploys machine learning techniques and deep learning methods to benefit from gathered data. In this research, the methods of both ML and DL have been discussed, and an ML/DL deployment model for IOT data has been proposed.

power for corporation. The power of information leads organizations toward being agile and to hit the goals. Big data analytics (BDA) enforces industries to describe, diagnose, predict, prescribe, and cognate the hidden growth opportunities and leads them toward gaining business value . BDA deploys advanced analytical techniques to create knowledge from exponentially increasing amount of data, which will affect the decision-making process in decreasing complexity of the process . BDA needs novel and sophisticated algorithms that process and analyze real-time data and result in high-accuracy analytics. Machine and deep learning allocate their complex algorithms in this process considering the problem approach.

2.2 Reference :

1. Bożejko W et al. Parallel tabu search for the cyclic job shop scheduling problem. Computers & Industrial Engineering. 2018;113:512-524
2. Kiziloz H, Dokeroglu T. A robust and cooperative parallel tabu search algorithm for the maximum vertex weight clique problem. Computers & Industrial Engineering. 2018;118:54-66
3. Acharya U et al. Automated detection of coronary artery disease using different durations of ECG segments with convolutional neural network. Knowledge-Based Systems. 2017;132:62-71

2.3 Problem Statement Definition :

The problem statement draws the reader into your topic by highlighting how important the topic is to social work and overall society. Signposting is an important component of academic writing that helps your reader follow the structure of your argument and literature review.

3. IDEATION & PROPOSED SOLUTION:

3.1 Empathy Map Canvas:

An empathy map canvas helps brands provide a better experience for users by helping teams understand the perspectives and mindset of their customers. Using a template to create an empathy map canvas reduces the preparation time and standardizes the process so you create empathy map canvases of similar quality.

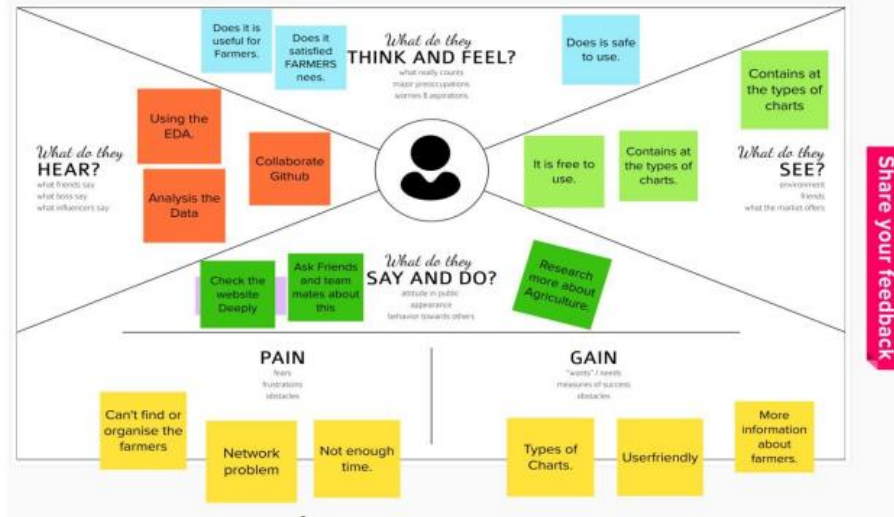
Template View:

Empathy Map Canvas

Gain insight and understanding on solving customer problems.

1

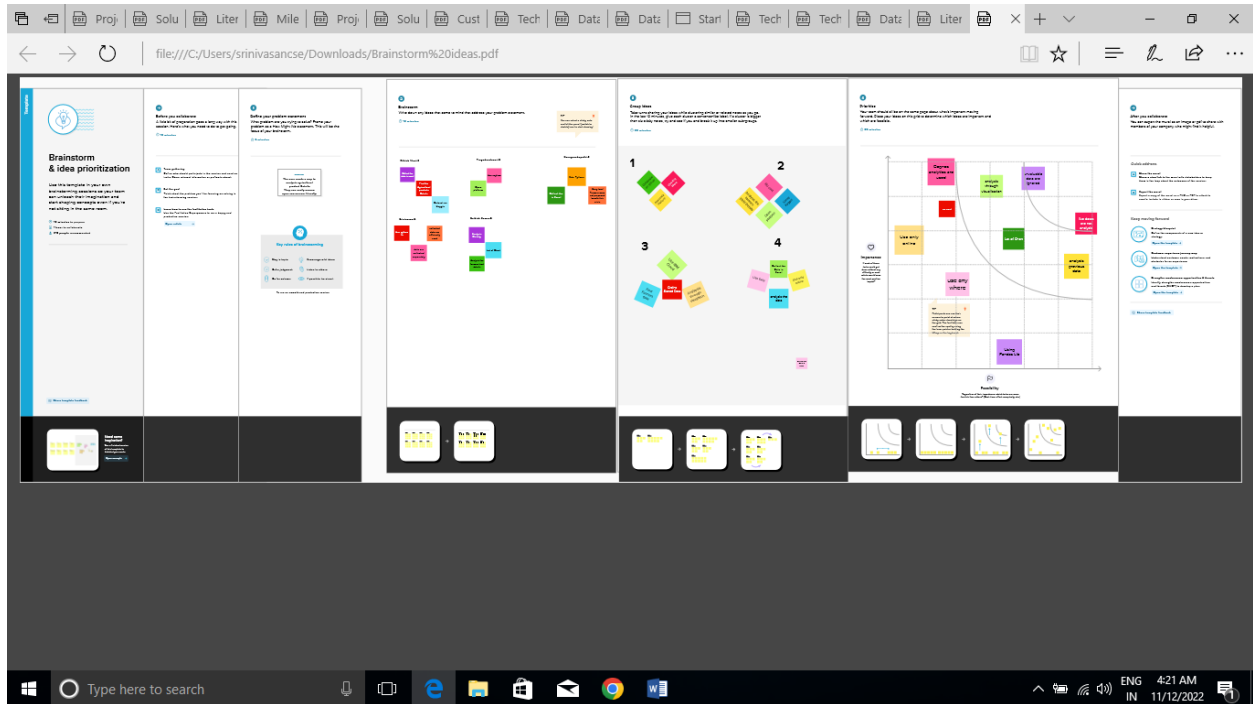
Build empathy and keep your focus on the user by putting yourself in their shoes.



3.2 Ideation & Brainstorming

Brainstorming is a group problem-solving method that involves the spontaneous contribution of creative ideas and solutions. This technique requires intensive, freewheeling discussion in which every member of the group is encouraged to think aloud and suggest as many ideas as possible based on their diverse knowledge.

Template View:



3.3 Proposed Solution:

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Gmail YouTube Maps Translate Marketplace IBM Cloud Estimate the crop yi... Estimate the crop yi... ECYUDA board - Ag...

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	<ul style="list-style-type: none">❖ This project will analyze the agriculture data and find optimal parameters to maximize the crop production using data Analytics techniques.❖ The dataset consists of features like year, District, crop, season, area, production (in tons), nitrogen(kg/Ha), phosphorus (Kg/Ha), Potassium (Kg/Ha) etc. The major goal of the proposed system is understanding data mining techniques and applying it to the dataset.
2.	Idea / Solution description	<p>Way to increase Crop Production:</p> <ul style="list-style-type: none">❖ Quality Of Seeds. Agricultural productivity depends on the quality of seeds with which farmers sow their fields. ...❖ Field Productivity Zoning❖ Monitoring Crops Growth❖ Accurate Weather Prediction. ...❖ Regular Scouting.❖ Crop Protection Methods.❖ Soil Testing & Its Quality.

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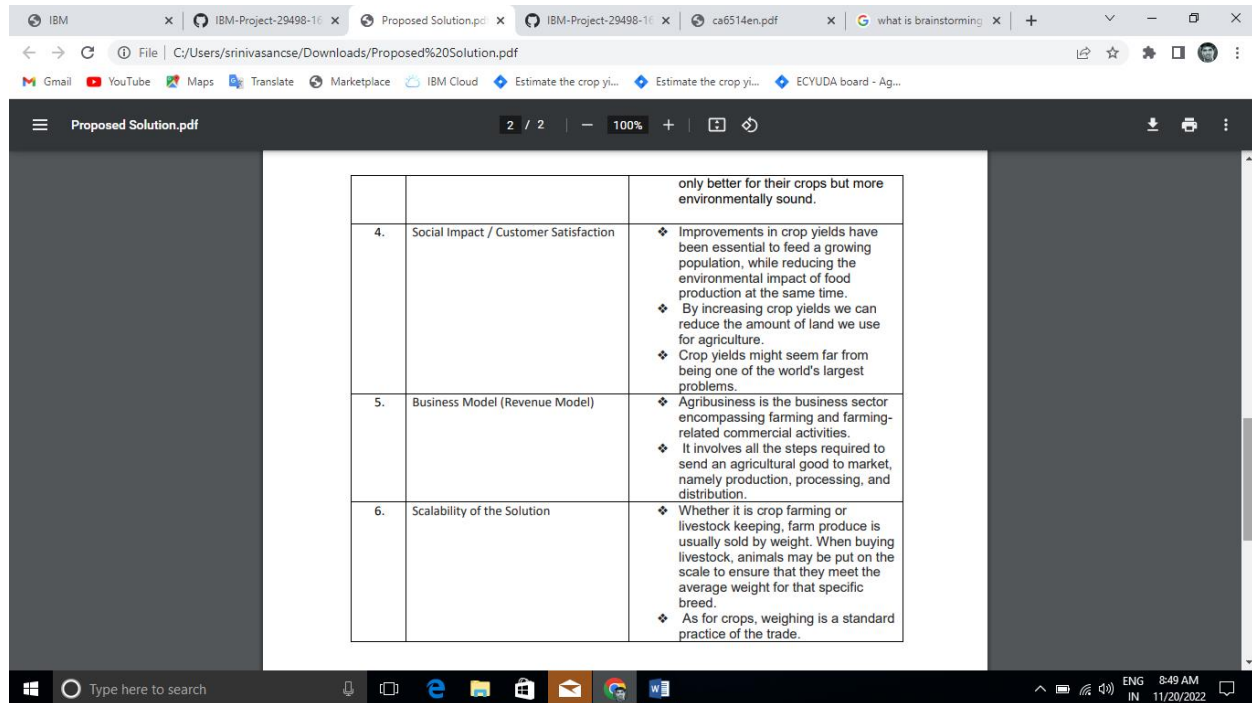
Gmail YouTube Maps Translate Marketplace IBM Cloud Estimate the crop yi... Estimate the crop yi... ECYUDA board - Ag...

Proposed Solution.pdf

		production (in tons), nitrogen(kg/Ha), phosphorus (Kg/Ha), Potassium (Kg/Ha) etc. The major goal of the proposed system is understanding data mining techniques and applying it to the dataset.
2.	Idea / Solution description	<p>Way to increase Crop Production:</p> <ul style="list-style-type: none">❖ Quality Of Seeds. Agricultural productivity depends on the quality of seeds with which farmers sow their fields. ...❖ Field Productivity Zoning❖ Monitoring Crops Growth❖ Accurate Weather Prediction. ...❖ Regular Scouting.❖ Crop Protection Methods.❖ Soil Testing & Its Quality.
3.	Novelty / Uniqueness	<ul style="list-style-type: none">❖ Farmers are using data to calculate harvest yields, fertiliser demand, cost savings, and even identifying optimisation strategies for future crops.❖ Smart farming uses data analytics solutions to gather information from multiple farming practices to create algorithms that can be utilised by different farms to create a crop yield that is both fruitful and sustainable.❖ With this knowledge, farmers will be able to better predict activity in the farm and utilize methods that are not

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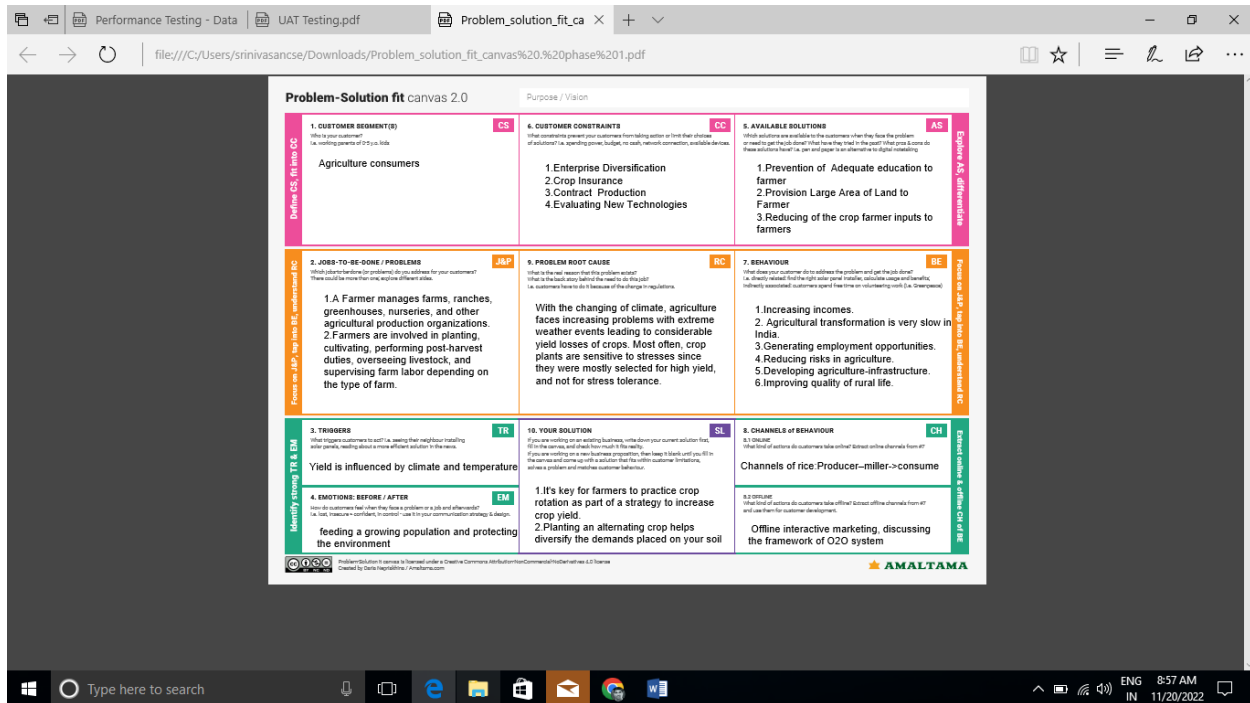
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3.4 Problem Solution Fit:

The problem-solution fit canvas is a tool that helps entrepreneurs to assess whether their business idea is likely to be successful. It does this by forcing them to consider the problem that their product or service is solving, the size of the market for that problem, and the competition.

Template View:



4. REQUIREMENT ANALYSIS:

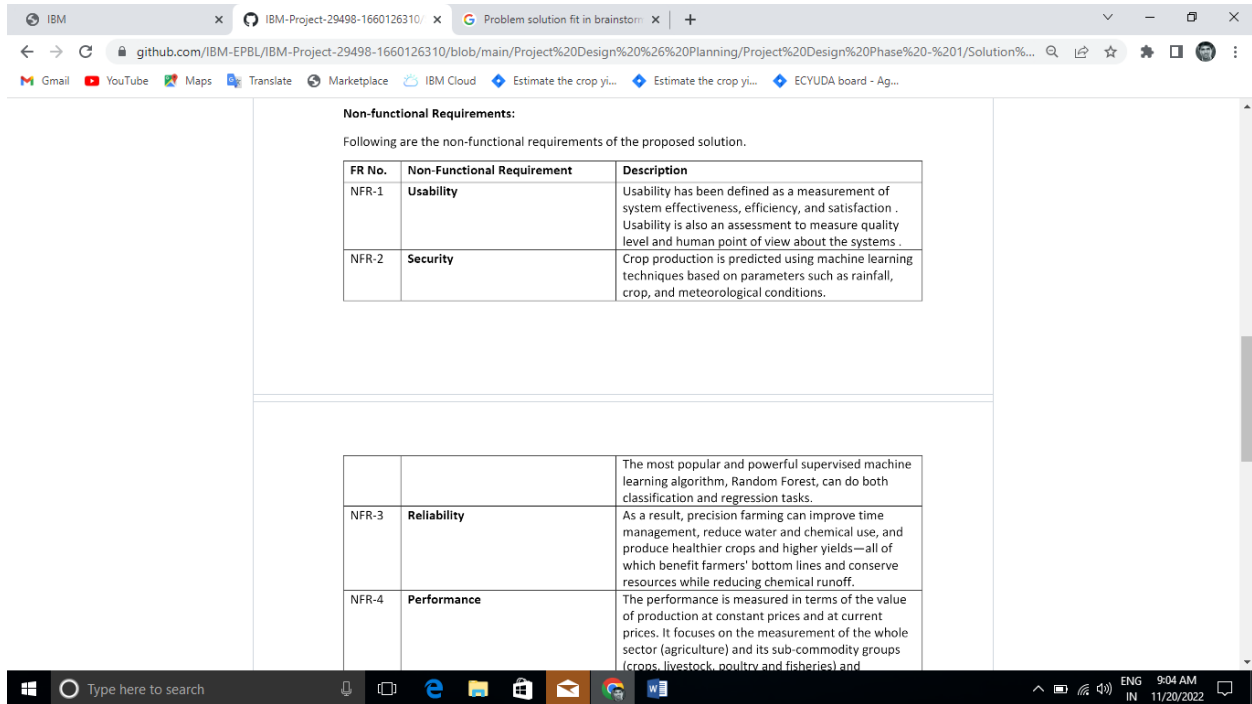
4.1 Functional Requirements:

Functional requirements are product features or functions that developers must implement to enable users to accomplish their tasks. So, it's important to make them clear both for the development team and the stakeholders. Generally, functional requirements describe system behavior under specific conditions.

Functional Requirements:		
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
FR-2	User Confirmation	You will Receive Confirmation Message and Login By entering email & password.
FR-3	User Profile	User specific information, Farm details, Yield history and IGM Cognos Registration.
FR-4	Knowledge about factors that influence the yield	The four most important factors that influence crop yield are soil fertility, availability of water, climate, and diseases or pests.
FR-5	Estimation Module	Crop models are a formal way to present quantitative knowledge about how a crop grows in interaction with its environment. Using weather data and other data about the crop environment, these models can simulate crop development, growth, yield, water, and nutrient uptake.
FR-6	Analysis	With the help of data analysis for agriculture businesses, farmers can observe the impact that extreme weather conditions and other phenomena can have on their crops. But even more valuable is the ability to predict and adjust to these things.

4.2 Non Functional Requirements :

Nonfunctional Requirements (NFRs) define system attributes such as security, reliability, performance, maintainability, scalability, and usability. They serve as constraints or restrictions on the design of the system across the different backlogs



The screenshot shows a web browser window displaying a GitHub repository page. The browser's address bar shows the URL: `github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Project%20Design%20%26%20Planning/Project%20Design%20Phase%20-%201/Solution%...`. The page content is titled "Non-functional Requirements:" and includes the text: "Following are the non-functional requirements of the proposed solution." Below this text, there are two tables. The first table lists requirements for Usability and Security, and the second table lists requirements for Reliability and Performance.

Non-functional Requirements:

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

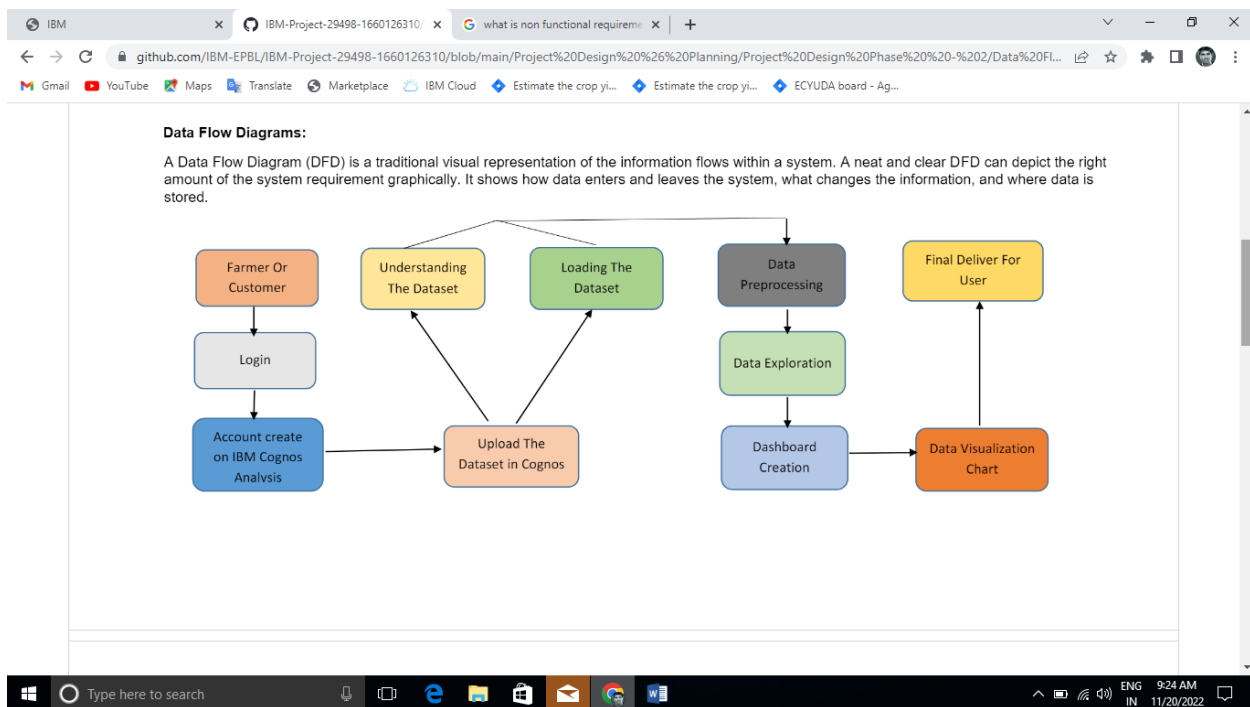
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Usability has been defined as a measurement of system effectiveness, efficiency, and satisfaction . Usability is also an assessment to measure quality level and human point of view about the systems.
NFR-2	Security	Crop production is predicted using machine learning techniques based on parameters such as rainfall, crop, and meteorological conditions.

NFR-3	Reliability	The most popular and powerful supervised machine learning algorithm, Random Forest, can do both classification and regression tasks. As a result, precision farming can improve time management, reduce water and chemical use, and produce healthier crops and higher yields—all of which benefit farmers' bottom lines and conserve resources while reducing chemical runoff.
NFR-4	Performance	The performance is measured in terms of the value of production at constant prices and at current prices. It focuses on the measurement of the whole sector (agriculture) and its sub-commodity groups (crops, livestock, poultry and fisheries) and

		The most popular and powerful supervised machine learning algorithm, Random Forest, can do both classification and regression tasks.
NFR-3	Reliability	As a result, precision farming can improve time management, reduce water and chemical use, and produce healthier crops and higher yields—all of which benefit farmers' bottom lines and conserve resources while reducing chemical runoff.
NFR-4	Performance	The performance is measured in terms of the value of production at constant prices and at current prices. It focuses on the measurement of the whole sector (agriculture) and its sub-commodity groups (crops, livestock, poultry and fisheries) and commodities.
NFR-5	Availability	There are poor people growing rain-fed crops on very marginal lands, obtaining a very meagre output, and crops might also be grown on desert land, albeit at higher costs and using specific technology such as computer-driven localised drip irrigation. Also, some previously unsuitable land might be rendered suitable by supplying extra water through new or improved irrigation works.
NFR-6	Scalability	Whether it is crop farming or livestock keeping, farm produce is usually sold by weight. When buying livestock, animals may be put on the scale to ensure that they meet the average weight for that specific breed. As for crops, weighing is a standard practice of the trade.

5. PROJECT DESIGN:

5.1 Data flow diagram :



5.2 Solution & Technical Architecture:

Solution :

The screenshot shows a web browser window with the URL `github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Project%20Design%20%26%20Planning/Project%20Design%20Phase%20-%201/Solution%20-%201/Functional%20Requirements`. The page content is as follows:

Functional Requirements:
Following are the functional requirements of the proposed solution.

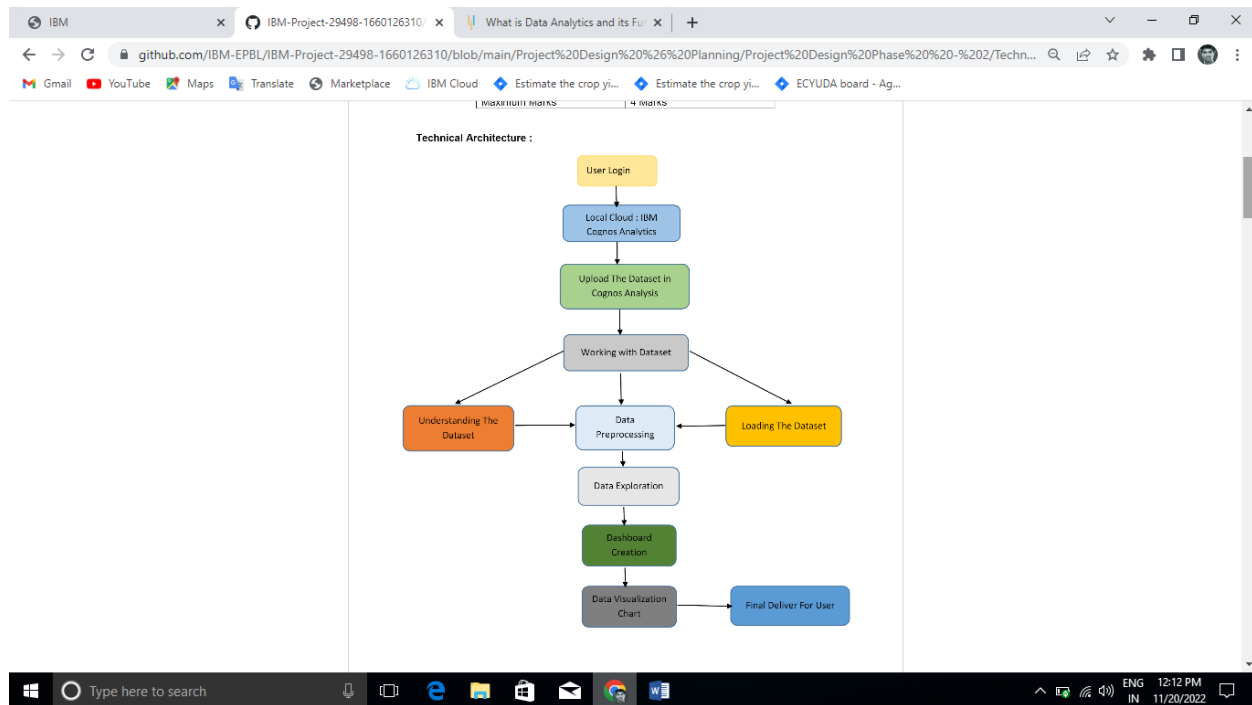
FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
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FR-2	User Confirmation	You will Receive Confirmation Message and Login By entering email & password.
FR-3	User Profile	User specific information, Farm details, Yield history and IGM Cognos Registration.
FR-4	Knowledge about factors that influence the yield	The four most important factors that influence crop yield are soil fertility, availability of water, climate, and diseases or pests.
FR-5	Estimation Module	Crop models are a formal way to present quantitative knowledge about how a crop grows in interaction with its environment. Using weather data and other data about the crop environment, these models can simulate crop development, growth, yield, water, and nutrient uptake.
FR-6	Analysis	With the help of data analysis for agriculture businesses, farmers can observe the impact that extreme weather conditions and other phenomena can have on their crops. But even more valuable is the ability to predict and adjust to these things.

The screenshot shows a web browser window with the same URL as above. The page content is as follows:

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NFR-4	Performance	The performance is measured in terms of the value of production at constant prices and at current prices. It focuses on the measurement of the whole sector (agriculture) and its sub-commodity groups (crops, livestock, poultry and fisheries) and

Technical Architecture:



5.3 User Stories:

A user story is an informal, general explanation of a software feature written from the perspective of the end user or customer. The purpose of a user story is to articulate how a piece of work will deliver a particular value back to the customer.

User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (web 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 Web Page	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the Web Page through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the Web Page through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the My Web Page by entering email & password		High	Sprint-1
	Dashboard	USN-6	Uploading the Dataset	I can be able to upload my dataset	High	Sprint 2
		USN- 7	Working With Dataset	I can be able to access my dashboard	High	Sprint 2
		USN- 8	Visualization	I can be able to view the visual attrition rate of my dataset	High	Sprint 3
		USN- 9	Working with Dashboard	I can be able to view the various views of the attrition rate	High	Sprint 3

6. PROJECT PLANNING & SCHEDULING:

6.1 Sprint Planning & Estimation:

Planning: 1

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Use the below template to create product backlog and sprint schedule

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 My Web Page by entering my email, password, and confirming my password.	2	High	Srinivasan.S
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the Web page.	1	Medium	Srinivasan.S
Sprint-1	Login	USN-3	As a user, I can log into the My Web Page by entering email & password	2	High	Pragatheswari.S
Sprint-2	IBM Cognos Analysis Registration	USN-4	AS a user ,Click on Registration Link by entering my email and Password in IBM Registration page.	1	Low	Pragatheswari.S
Sprint-2		USN-5	In Below IBM Registration page , I have created a Jupyter Notebook Button.	1	Low	Sathish kumar.S
Sprint-2	Uploading Dataset	USN-6	After Completed the Registration Process, You will Upload your Dataset in Cognos Analysis.	2	High	Sathish kumar.S
Sprint-2	Data Exploration	USN-7	Explore the Dataset which is uploaded in the IBM Cognos Analysis.	1	High	Srinivasan.S
Sprint-3	Visualization Chart	USN-8	Creating the Data Visualization Chart.	2	Medium	Kanagasabathi.E

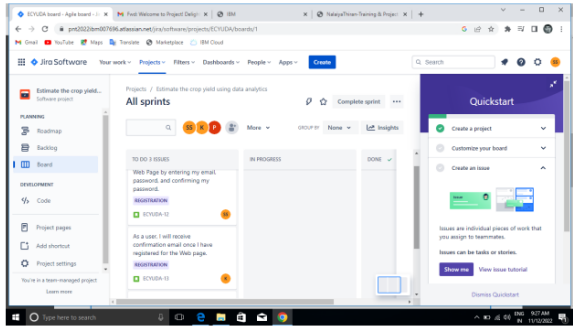
Sprint-3	Dashboard	USN-9	In IBM Cognos Registration Page , You have to click Jupyter Notebook Button.	1	Low	Kanagasabathi.E
Sprint-4	Dashboard Visualization Chart	USN-10	Creating a Dashboard By using Python code in Jupyter Notebook	2	High	Srinivasan.S
Sprint-4	Export the Analytics	USN-11	Export the Dashboard and Submit on Github.	2	Medium	Rithish Mani.K
Sprint-4	Report	USN-12	Create the Project Report and submit.	2	High	Rithish Mani.K

6.3 Working with JIRA:

IBM Project-29498-1660126310 Working with Jira & Creating Road Map.pdf

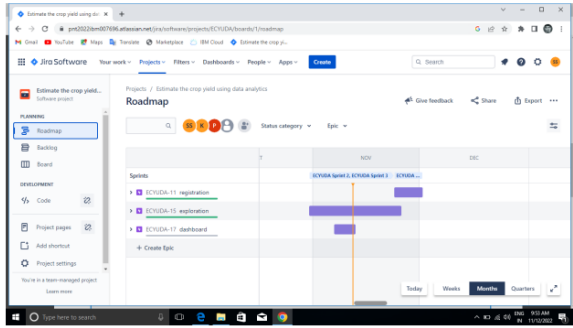
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WORKING WITH BOARD OPTION:



4 / 4 100%

CREATING ROAD MAP:



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ENG 10:03 AM 11/20/2022

7. CODING & SOLUTION

7.1 Feature 1:

The screenshot displays a Google Colab notebook titled 'Untitled2.ipynb'. The notebook is open in a web browser, showing the code editor and the output area. The code in the notebook is as follows:

```
from google.colab import drive
drive.mount('/content/drive')

import warnings
warnings.filterwarnings("ignore")

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from scipy import stats

data=pd.read_csv("/content/drive/My Drive/crop_production.csv")

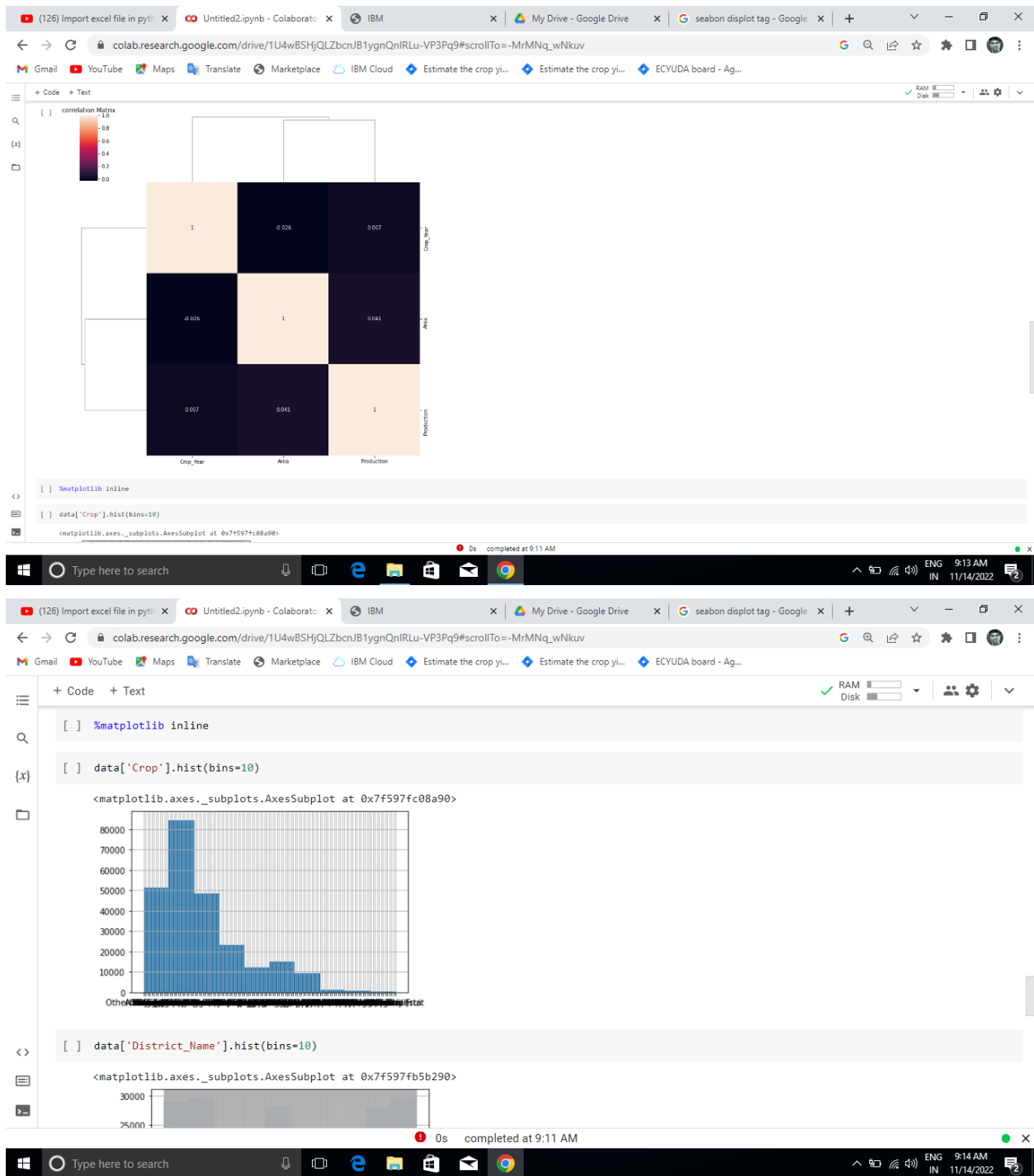
data.head()
```

The output of the code shows the first row of the CSV file:

	State_Name	District_Name	Crop_Year	Season	Crop	Area	Production
0	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut	1254.0	2000.0

The notebook also shows the output of the `data.info()` command, which provides information about the DataFrame:

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 246091 entries, 0 to 246090
Data columns (total 7 columns):
#   Column          Non-Null Count  Dtype
---  -
0   State_Name      246091 non-null object
1   District_Name   246091 non-null object
2   Crop_Year       246091 non-null int64
3   Season          246091 non-null object
4   Crop            246091 non-null object
5   Area            246091 non-null float64
```



7.2 Feature 2

IBM (127) How To Build Interactive D... Untitled3.ipynb - Colaboratory

colab.research.google.com/drive/1oh4TmUuZ0NUmZtQFGH0m3uedKriP5tG6#scrollTo=nm_-v7NkxHrq

Gmail YouTube Maps Translate Marketplace IBM Cloud Estimate the crop yi... Estimate the crop yi... ECUUDA board - Ag...

Untitled3.ipynb

File Edit View Insert Runtime Tools Help All changes saved

+ Code + Text

RAM Disk Editing

Dashboard creation

[1] from google.colab import drive
drive.mount('/content/drive')

Mounted at /content/drive

[2] !pip install pywedge

[3] import pywedge as pw
import pandas as pd

[5] df = pd.read_csv("/content/drive/My Drive/crop_production.csv")
df.head()

	State_Name	District_Name	Crop_Year	Season	Crop	Area	Production
0	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut	1254.0	2000.0

5s completed at 1:42 AM

IBM (127) How To Build Interactive D... Untitled3.ipynb - Colaboratory

colab.research.google.com/drive/1oh4TmUuZ0NUmZtQFGH0m3uedKriP5tG6#scrollTo=nm_-v7NkxHrq

Gmail YouTube Maps Translate Marketplace IBM Cloud Estimate the crop yi... Estimate the crop yi... ECUUDA board - Ag...

Untitled3.ipynb

File Edit View Insert Runtime Tools Help All changes saved

+ Code + Text

RAM Disk Editing

[5] df = pd.read_csv("/content/drive/My Drive/crop_production.csv")
df.head()

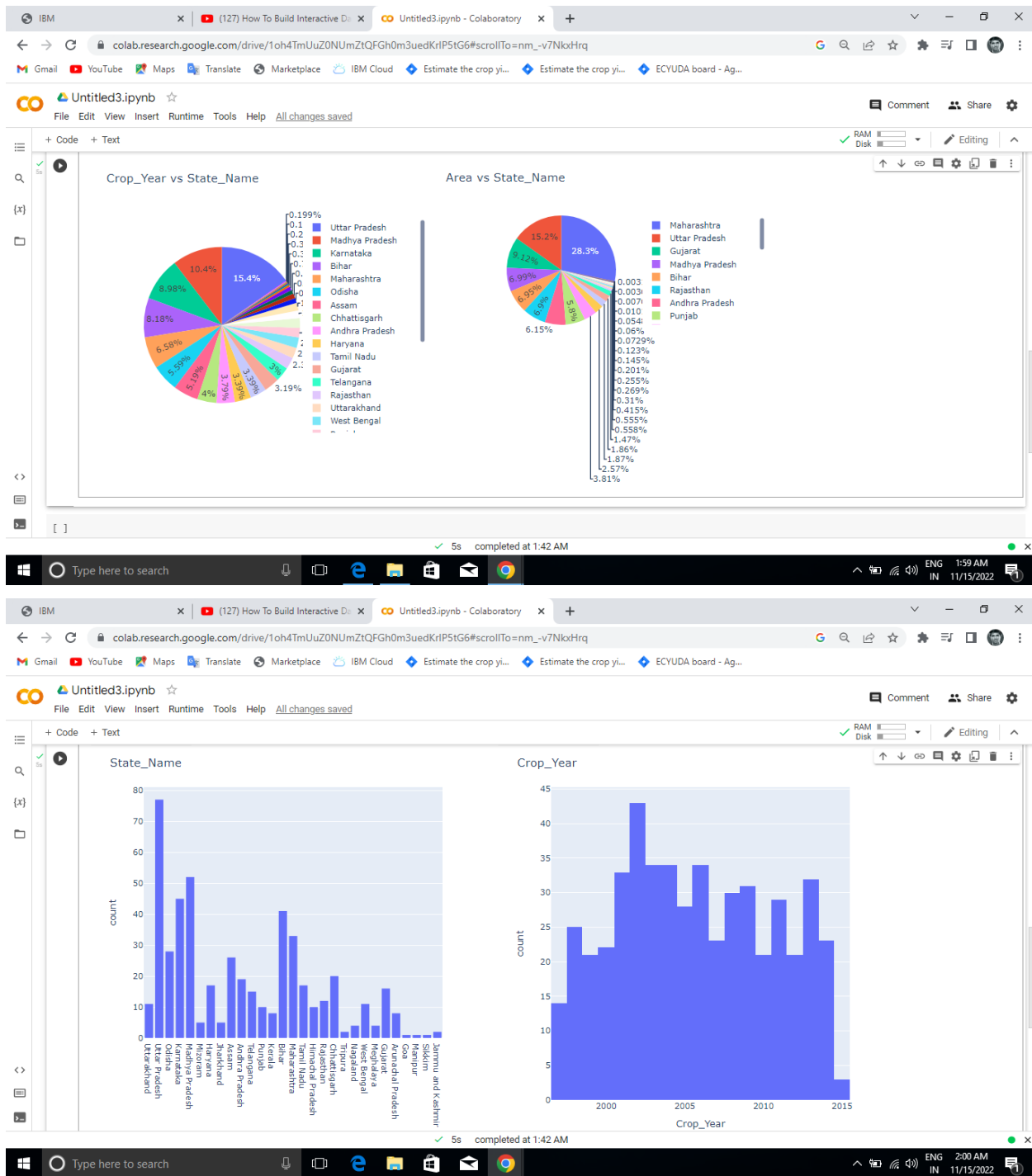
	State_Name	District_Name	Crop_Year	Season	Crop	Area	Production
0	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut	1254.0	2000.0
1	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Other Kharif pulses	2.0	1.0
2	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Rice	102.0	321.0
3	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Banana	176.0	641.0
4	Andaman and Nicobar Islands	NICOBARS	2000	Whole Year	Cashewnut	720.0	165.0

[9] mc = pw.Pywedge_Charts(df, c=None, y='Crop')

/usr/local/lib/python3.7/dist-packages/pywedge/pywedge.py:27: FutureWarning: In a future version of pandas all arguments of DataFrame.drop except self.X = self.train.drop(self.y,1)

charts = mc.make_charts()

5s completed at 1:42 AM



7.3 Database schema:

IBM Db2 on Cloud

Load Data Load History Tables Views Indexes Aliases MQTs Sequences Application objects

Load details

My computer Target
train_data.csv SQ368631.CASE_ID

View Table Load More Data

Status Settings

318,438 318,438 0
Rows read Rows loaded Rows rejected

Start time
11/11/2022 11:26:25 PM
End time
11/11/2022 11:27:35 PM

The data load job succeeded.
You can now work with your data.

Errors Warnings 1825

No errors
But, there are 1825 warnings.

IBM Cloud Account Obtain an IBM ID Service Details IBM Db2 on Cloud My IBM Home Home

bpe61bfd0365e9u4psdglite.db2.cloud.ibm.com/crm%3Av1%3Abluemix%3Apublic%3Adashdb-for-transactions%3Aus-south%3Aa%2Fa72f9901949e4919b996733d...

Gmail YouTube Maps Translate Marketplace IBM Cloud Estimate the crop yield Estimate the crop yield ECUYDA board - Ag...

IBM Db2 on Cloud

Load Data Load History Tables Views Indexes Aliases MQTs Sequences Application objects

Source Target Define Finalize

You are loading the file **crop_production.csv** into **YWR64977.STATE_NAME**

Code page (character encoding): 1208 (UTF-8) Separator: , Header in first row: ☒ Time & date format: Detect data types: ☐

	STATE_NAME VARCHAR(27)	DISTRICT_NAME VARCHAR(24)	CROP_YEAR SMALLINT	SEASON VARCHAR(11)	CROP VARCHAR(19)
1	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Arecanut
2	Andaman and Nicobar Islands	NICOBARS	2000	Kharif	Other Kharif products
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

Back Next

UAT.pdf Performance Test...pdf Testcases Report.xlsx Show all

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IN 11/19/2022

8. TESTING:

8.1 Test Cases:

Testcases Report - Excel (Product Activation Failed)											
FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW											
Clipboard Font Alignment Number Styles Cells Editing											
A1											
1				Date	18/11/2022						
2				Team ID	PNT2022TMD07696						
3				Project Name	Estimate the crop yield data analytics						
4	Test case ID	Feature Type	Component	Test Scenario	Pre-Requirement	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments
5	LoginPage_TC_001	Functional	Home Page	Verify user is able to navigate to the homepage		Navigate to Estimate the crop yield data analytics page and view the Homepage	https://us1.ca.analytics.ibm.com/bi?perspective=dashboard&path=files.myfolders%2Fmain%2FDashboard%2Fcreation.crop.production.us&actions=view%3Fmode=dashboard&...	The interactive Homepage	Working as expected	Pass	NIL
6	LoginPage_TC_002	Functional	Analytics Exploration	Verify that users are able to view the responsive Exploration and view the data about the current scenario		1. Enter the Analytics Home page 2. Choose the exploration option 3. View the data	https://us1.ca.analytics.ibm.com/bi?perspective=explore&path=files.myfolders%2FNew%2Bexplore&path=files.myfolders%2Fmain%2FDashboard%2Fcreation.crop.production.us&actions=view%3Fmode=dashboard&...	Displaying the responsive exploration	Working as expected	Pass	NIL
7	LoginPage_TC_003	Functional	Analytics Dashboard	Verify that users are able to view the responsive Dashboard and view the data about the current scenario		1. Enter the Analytics Home page 2. Choose the Dashboard option 3. View the Dashboard about the crop yield data	https://us1.ca.analytics.ibm.com/bi?perspective=dashboard&path=files.myfolders%2Fmain%2FDashboard%2Fcreation.crop.production.us&actions=view%3Fmode=dashboard&...	Displaying the responsive Dashboard	Working as expected	Pass	NIL
8	LoginPage_TC_004	Functional	Report	Verify user is able to view and run the reports		1. Enter the Analytics Home page 2. Choose the report option 3. View the story about the crop yield data	https://us1.ca.analytics.ibm.com/bi?perspective=explore&path=files.myfolders%2FNew%2Bexplore&path=files.myfolders%2Fmain%2FDashboard%2Fcreation.crop.production.us&actions=view%3Fmode=dashboard&...	crop yield Report Page	Working as expected	Pass	NIL

8.2 User Acceptance Testing :

2. Defect Analysis:					
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	9	5	1	3	18
Duplicate	1	0	2	0	3
External	2	3	0	1	6
Fixed	10	2	4	18	34

Not Reproduced	0	0	1	0	1
Skipped	0	0	1	1	2
Won't Fix	0	4	2	1	7
Totals	22	14	11	24	71

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github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Final%20Deliverable's/Testing/UAT%20Testing.pdf

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3. Test Case Analysis:

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

Section	Total	Not Tested	Fail	Pass
Print Engine	8	0	0	8
Client Application	42	0	0	42
Security	1	0	0	1

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github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Final%20Deliverable's/Testing/UAT%20Testing.pdf

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9. RESULTS:

9.1 Performance Testing:

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github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Final%20Deliverable's/Testing/Performance%20Testing%20-%20Data%20Analytics.pdf

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2. Data Responsiveness	The visualizations are responsive enough to view the data and fit the screen
3. Amount Data to Rendered (DB2 Metrics)	No. of Rows read: 318438 No. of Rows loaded: 318438

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github.com/IBM-EPBL/IBM-Project-29498-1660126310/blob/main/Final%20Deliverable's/Testing/Performance%20Testing%20-%20Data%20Analytics.pdf

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4. Utilization of Data Filters	The filters are used to see only the relevant data about the usecase
5. Effective User Story	Scene Added: 5

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10. ADVANTAGES & DISADVANTAGES:

Advantages

This method is relatively less time-consuming and inexpensive. Farmer assessment does not require the enumerator to visit the individual plots, which is cost-effective particularly if the plots are located far away from the location of the initial interview. Furthermore, farmer assessments of crop area can serve as a baseline for imputation where objective measurements are missing

Disadvantages

This method is highly subjective, as it depends on farmers' knowledge and experience. Furthermore, any nonstandard units of measurement used by farmers may be difficult to standardize. The farmers may also have incentives to misreport crop area for reasons such as taxation. The data analysis conducted within the World Bank's study of four African countries (Carletto et al., 2015) indicate that self-reported land areas systematically differ from GPS land measurements, and that this difference leads to biased estimates of the relationship between land and productivity and consistently low estimates of land inequality. Furthermore, results from methodological experiments carried out by both the World Bank and the Global Strategy indicate that farmers tend to overreport plot area for small plots, and underreport area for very large plots.

11. CONCLUSION:

On the basis of a gap analysis, this Technical Report attempts to address the problems relating to the estimation of crop area and crop yield in mixed and continuous cropping. Accordingly, an appropriate methodology has been developed to estimate crop area and crop yield in the contexts of mixed cropping and intercropping. To estimate the crop area of component crops in crop mixtures, the domain estimation approach has been proposed. The various crop mixtures are considered as domains. To estimate crop area and crop yield, the sample survey approach is proposed. Various measurement methods – both subjective and objective – to determine crop area and yield are explored, as well as their respective advantages and disadvantages, in light of the results of the field test.

12. FUTURE SCOPE:

Data analytics is used in almost every sector of business, let's discuss a few of them:

1. Retail: Data analytics helps retailers understand their customer needs and buying habits to predict trends, recommend new products, and boost their business.

They optimize the supply chain, and retail operations at every step of the customer journey.

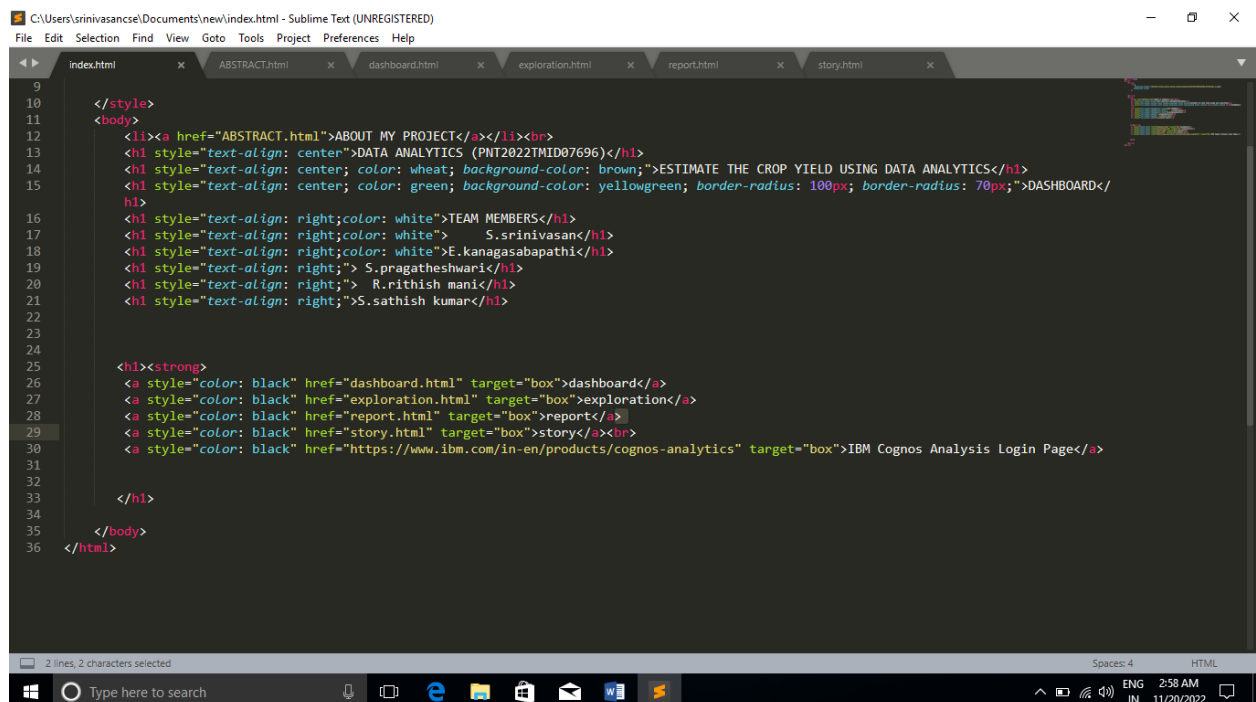
2. Healthcare: Healthcare industries analyze patient data to provide lifesaving diagnoses and treatment options. Data analytics help in discovering new drug development methods as well.

3. Manufacturing: Using data analytics, manufacturing sectors can discover new cost-saving opportunities. They can solve complex supply chain issues, labor constraints, and equipment breakdowns.

4. Banking sector: Banking and financial institutions use analytics to find out probable loan defaulters and customer churn out rate. It also helps in detecting fraudulent transactions immediately.

14. APPENDIX:

Source Code:



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</style>
<body>
  <li><a href="ABSTRACT.html">ABOUT MY PROJECT</a></li><br>
  <h1 style="text-align: center;">DATA ANALYTICS (PNT2022TMD07696)</h1>
  <h1 style="text-align: center; color: wheat; background-color: brown;">ESTIMATE THE CROP YIELD USING DATA ANALYTICS</h1>
  <h1 style="text-align: center; color: green; background-color: yellowgreen; border-radius: 100px; border-radius: 70px;">DASHBOARD</h1>
  <h1 style="text-align: right; color: white;">TEAM MEMBERS</h1>
  <h1 style="text-align: right; color: white;">S. srinivasan</h1>
  <h1 style="text-align: right; color: white;">E. kanagasabapathi</h1>
  <h1 style="text-align: right;">S. pragatheshwari</h1>
  <h1 style="text-align: right;">R. rithish mani</h1>
  <h1 style="text-align: right;">S. sathish kumar</h1>

  <h1><strong>
    <a style="color: black" href="dashboard.html" target="box">dashboard</a>
    <a style="color: black" href="exploration.html" target="box">exploration</a>
    <a style="color: black" href="report.html" target="box">report</a>
    <a style="color: black" href="story.html" target="box">story</a><br>
    <a style="color: black" href="https://www.ibm.com/in-en/products/cognos-analytics" target="box">IBM Cognos Analysis Login Page</a>
  </strong>
</h1>
</body>
</html>
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C:\Users\srinivasancse\Documents\new\dashboard.html - Sublime Text (UNREGISTERED)
File Edit Selection Find View Goto Tools Project Preferences Help

index.html x ABSTRACT.html x dashboard.html x exploration.html x report.html x story.html x

1 <!DOCTYPE html>
2 <html>
3 <body>
4 <h1 style="text-align: center; color: green; background-color: yellowgreen; border-radius: 100px; border-radius: 70px;">DASHBOARD</h1>
5
6
7 <li><a href="index.html">HOME PAGE</a></li><br>
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14 <style>
15     fieldset{
16         background-image: url(https://blog.ucsusa.org/wp-content/uploads/2016/07/22559646902_07fd41ab0c_z.jpg);
17         background: cover;
18     }
19 </style>
20 <fieldset style="background-color: grey; border-radius: 50px;">
21
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24 <form style="text-align: center;">
25
26 <p><strong><i>
27
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30 </i></strong></p>
31 <br><br><br><embed src="https://us1.ca.analytics.ibm.com/bi/?perspective=dashboard&pathRef=.my_folders%2Fsrini.1%2FDashboa
32 rd%2Bcreation.crop_production.xlsx&action=view&mode=dashboard&subView=mode1000001844653eabd_00000001" width="600" height="
33 500"><br><br><br><br>
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35 <a href="https://colab.research.google.com/drive/17uWPAeCBP51rXo_F6r-TLgiI0VUuLK1j#scrollTo=cir3o_PrivyX">
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1 <!DOCTYPE html>
2 <html>
3   <body>
4     <h1 style="text-align: center; color: black; background-color: green; border-radius: 100px; border-radius: 70px;">EXPLORATION</h1>
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6     <li><a href="index.html">HOME PAGE</a></li><br>
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14     <p>
15       <style>
16         fieldset{
17           background-image: url(https://blog.ucsusa.org/wp-content/uploads/2016/07/22559646902_07fd41ab0c_z.jpg);
18           background: cover;
19         }
20       </style>
21       <fieldset style="background-color: grey; border-radius: 50px;">
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24         <form style="text-align: center;">
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26           <p><strong><i>
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30             </i></strong></p>
31             <br><br><embed src="https://us1.ca.analytics.ibm.com/
32             bi/?perspective=explore&pathRef=.my_folders%2FNew%2Bexploration&subView=model000001846d325aeb_00000000" width="600"
33             height="500"><br><br><br><br>
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DEMONSTRATION VIDEO LINK:

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