1.INTRODUCTION

1.1 Project Overview

Agriculture is critical to human survival because it provides a basic need. It is a well-known fact that agriculture employs the majority of the Indian population (55%) There are bottlenecks for increasing crop production in India due to climatic variations. It has become a difficult task to meet desired crop yield targets in agriculture. Several factors must be considered that have a direct impact on crop production andproductivity. Crop yield prediction is an important aspect of agricultural practices. Farmers require crop yield information before sowing seeds in their fields in order to maximize crop yield.In recent years, the use of technology in agriculture has increased, and data analytics is one such trend that has permeated the agricultural field. The main challenge in using big data in agriculture is determining the efficacy of big data analytics.Crop yield prediction assists farmers in a variety of ways by supplying a record of previous crop yield. This assists the government in developing crop-related policies such as crop insurance policies and supply chain operation policies. Knowing what crops have been grown and how much area has been shown historically, along with the prices at which they could have been sold at the nearest market-place, provides the farmer's income-growth profile.In India, the agriculture sector is struggling to increase crop productivity. Monsoon rainfall is the primary source of water for more than 60% of crops. Smart agriculture, powered by information technology, is a recent trend in agricultural research. The problem of yield prediction, which is a major concern, is one of the areas being investigated. Data analytics techniques are widely used as part of crop yield prediction solutions. Various data mining techniques are being evaluated for predicting crop production in future years. Data analytics is the process of discovering hidden patterns in large data sets through analysis.

1.2 Purpose

To help the farmers to gain profit in crop yield by predicting the necessary parameters seems to lack knowledge which cannot determine the production and fertility of the land income is questionable. And the Supplier turns a profit by selling the crop can't able to estimate the crop yield prediction and can't be determined. Revenue growth is uncertain therefore to help the stakeholders to gain profit in all fields.

2.LITERATURE SURVEY

2.1 Existing problem

A Novel Approach using Big Data Analytics to Improve the Crop Yield in Precision Agriculture: Agriculture is the main work field in India. Farming industry adopts less innovative technology comparedto other industries. Information and Communication Technologies provides simple and cost effective techniques for farmers to enable precision agriculture. The work proposes a state of the art model in the agriculture field which will guide the rural farmers to use Information and Communication technologies (ICT) in agriculture fields. Big data analytics is used to improve the crop yield. It can be customized for precision agriculture to improve the quality of crops which improves the overall production rate.

Agriculture Data Analytics in Crop Yield Estimation: A Critical Review

Agriculture is important for human survival because it serves the basic need. A well-known fact is that themajority of population (≥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 a challenging task to achieve desired targets in Agri based crop yield. Various factors are to be considered which have a 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 toachieve enhanced 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.

Advancing Precision Crop Yield Prediction With Data Analytics

Since 1980, farmers around the world have been turning to the World Agricultural Supply and Demand Estimates prepared by the U.S. Department of Agriculture (USDA) for help in making these decisions. Every month, the USDA releases supply-and-demand forecasts, an exhaustive analysis compiled from farmer surveys and historical weather patterns, for major crops like corn and soybeans Now, however, a number of other players have entered the game, bringing a new level of expertise and computing power.

How data analytics is transforming agriculture

Data analytics is a critical part of improving business operations in every industry. An organization can utilize data analytics to improve decision-making, analyze customer trends, track customer satisfaction and identify opportunities for new products and services to meet growing market needs. By integrating information and systems to gather data across the business, organizations are able to gain real-time insights into marketing, product demand, sales and finances.

With the world population expected to reach more than nine billion by the year 2050, The Food and Agriculture Organization (FAO) predicts a 70-percent growth in agricultural output will be needed to serve the projected demand. This driving force has greatly increased the interest in and utilization of data analytics in agribusiness.

2.2 References

https://ieeexplore.ieee.org/document/9012549

https://www.academia.edu/44236224/Agriculture_Data_Analytics_in_Crop_Yield_Estimation_A_Critical_Review

https://www.corteva.com/who-we-are/outlook/precision-crop-yield-prediction-with-data-analytics.html

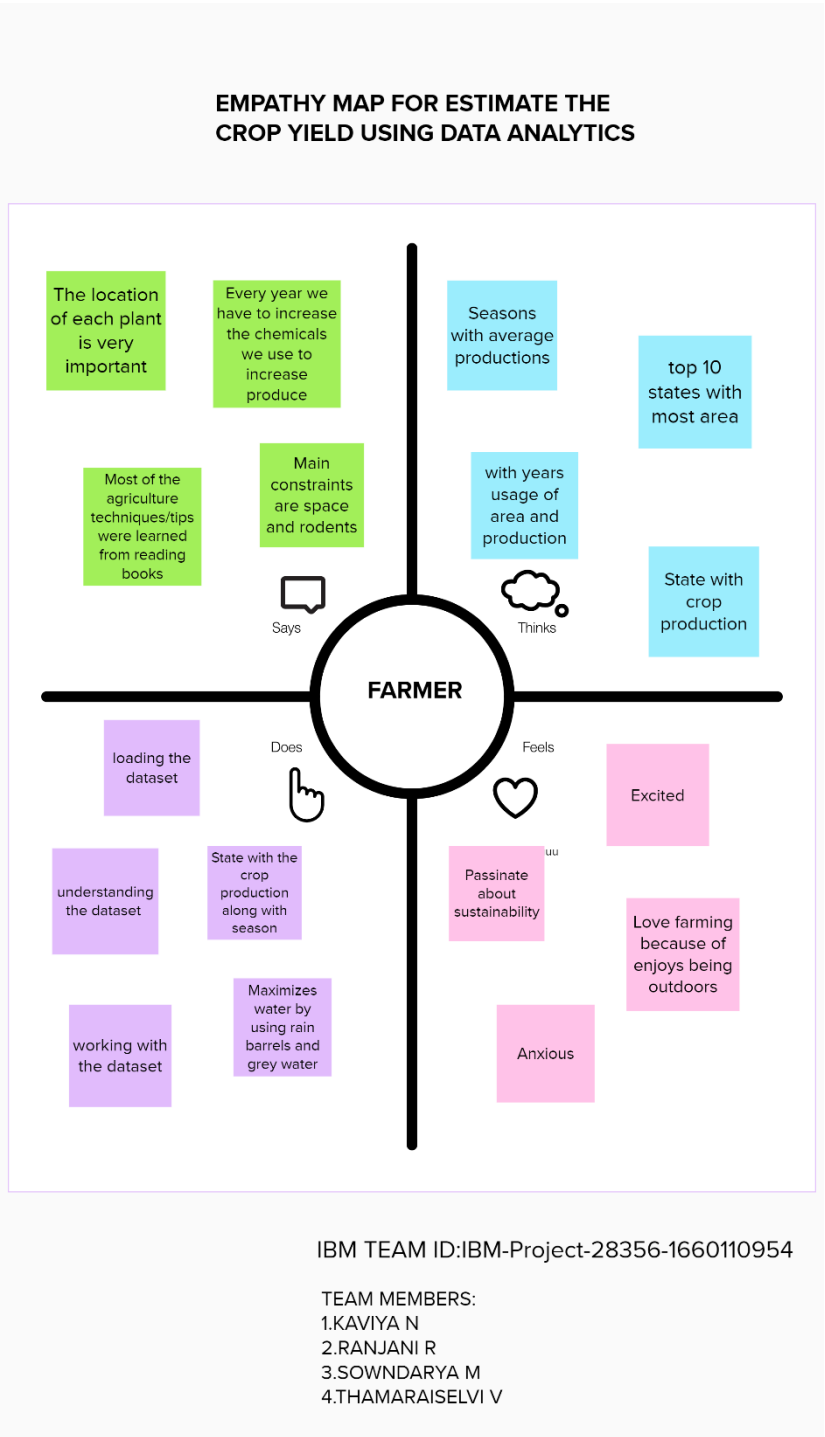
https://proagrica.com/news/how-data-analytics-is-transforming-agriculture/

2.3 Problem statement definition

Problem Statement (PS)	I am (Customer)	I'm trying to	But	Because	Which makes me feel
PS-1	A farmer	Harvest my crops at right time	Various factors are reduced the yield	Climate conditions	frustrated
PS-2	A farmer	Use of technology in agriculture	various factors are to be considered which have direct impact on production	insects affect the crops,low amount of water irrigation	disappointment

3.IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

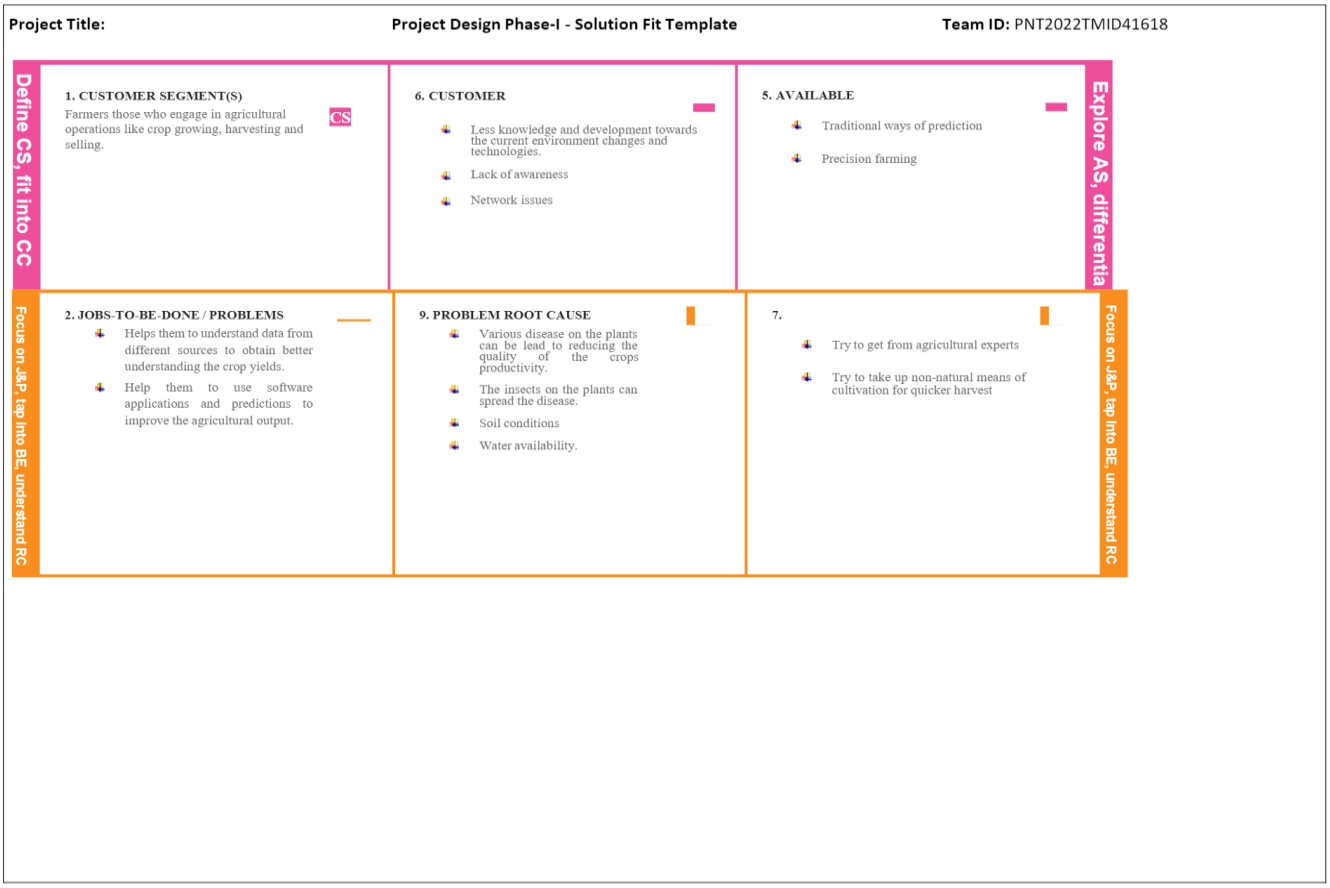
3.3 Proposed Solution

S.No	Parameter	Description
1.	Problem Statement(Problem to be solved)	Estimating the crop yield using data analytics Agriculture is the backbone of the Indian Economy. In India, the majority of the farmers are not getting the expected crop yield due to several reasons. The agricultural yield is primarily dependent on weather conditions. Rainfall conditions also influence rice cultivation. In this context, the farmers necessarily require 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. As per this project we will be analyzing some important visualization, creating a dashboard and by going through these we will get most of the insights of Crop production in India.
2.	Idea / Solution Description	Agriculture mechanization has made significant progress. Farming strategies and programmers have been geared toward the replacement of traditional and inefficient implements with improved ones, allowing farmers to own tractors, power tillers, harvesters, and other machines.

3.	Novelty / Uniqueness	Agriculture machines are also being developed for a broad industrial base. Efforts are being made to encourage farmers to use technologically advanced agricultural equipment. Climate variables had no significant impact on crop yields across the board. The regression analysis revealed a negative relationship between maize yield and summer precipitation, a positive relationship between wheat yield and winter minimum temperature, and a positive relationship between millet yield and summer maximum temperature.
4.	Social Impact / Customer Satisfaction	The primary goals of this technique are crop production predictions, which can be very helpful to farmers in making

		plans for harvest and sale of grain harvest. For growers, raising agricultural yields is a top priority. There will be a greater crop and grain yield despite climate change and global warming. Utilizing crop yield analysis and estimation tools will also improve nutrition.
5.	Business Model (RevenueModel)	The advancement of technology into the agriculture industry has resulted in significant increases in productivity. Technology advancements have given rise to new concepts such as precision agriculture, which has observed and analyzed the various crops grown, as well as their area and production levels in various states and districts. The planned method's goal is to be transparent, easily accessible, reproducible, and capable of predicting yield. Correct procedures and a long-term gain plan are simple to implement and require less capital.
6.	Scalability of the Solution	• Meets social expectations and complies with community norms. • Livestock management system. • Warmer temperature. • Decreased moisture stress. • Possibility of growing new crops • Reduce time management complexity of farmers • The profitability of sustainable farming will be high

3.3 Problem Solution fit



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirements (Epic)	Sub Requirement (Story/Sub task)
FR - 1	User Registration	• Registration through Form • Registration through Gmail • Registration through LinkedIn • Registration through Mobile Number
FR - 2	User Confirmation	• Confirmation via mail • Confirmation via OTP • Two step verification for new device login
FR - 3	Admin	Admin have user details and maintain crop productions

4.2 Non-functional Requirements

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

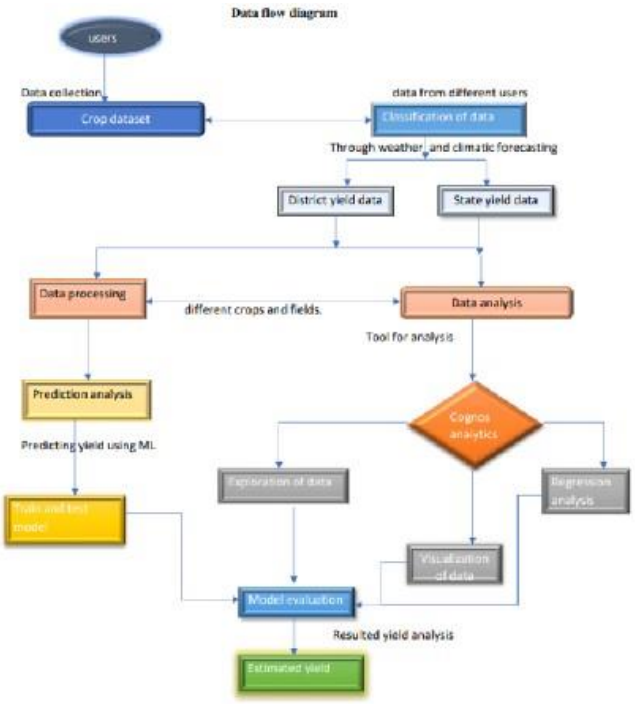
FR No.	Non-Functional Requirement	Description
NFR - 1	Usability	We have primarily focused on making our website easy to navigate in order to deliver the best usability for the farmers. Users may quickly log in using existing credentials, and if they don't already have an account, they can also register on their own by providing a unique, valid email address or a mobile number which make their process easier. Following effective navigation, we focused on visual clarity and created a web application that looks nice and is straightforward, making it easier for any elderly person to utilize. In order to improve user happiness, a Guide tour will also be offered to first-time visitors.
NFR - 2	Security	A verification code will be provided to the registered email address or mobile number of any user before they attempt to log into their account on a new device. They won't be able to login until they enter their code. The code will also be made to expire after a certain period of time. Additionally, notifications will be provided for any action taken by a user. As a result, each user will have a safe account, and the admin side will maintain each user's information securely.

NFR - 3	Reliabilit y	Since we had split the crops into categories in order to make easier choices for the user. Data processing time for each and every individual will be lesser. Thus making our web application

		more reliable.
NFR-4	Performance	In order to bring best performance, we have concentrated on overload of data. To minimize the overloads and to minimize the system's response time we have processed the data in structured organized form. So that the data (crop) will be categorized according to the user's needs.
NFR-5	Availability	As the server is online the site is available 24/7 for the user'sneeds.
NFR-6	Scalability	With respect to increase in streaming data , the data storage will also increase accordingly and the prediction will be previously stored. Rescaling is always adaptable here.

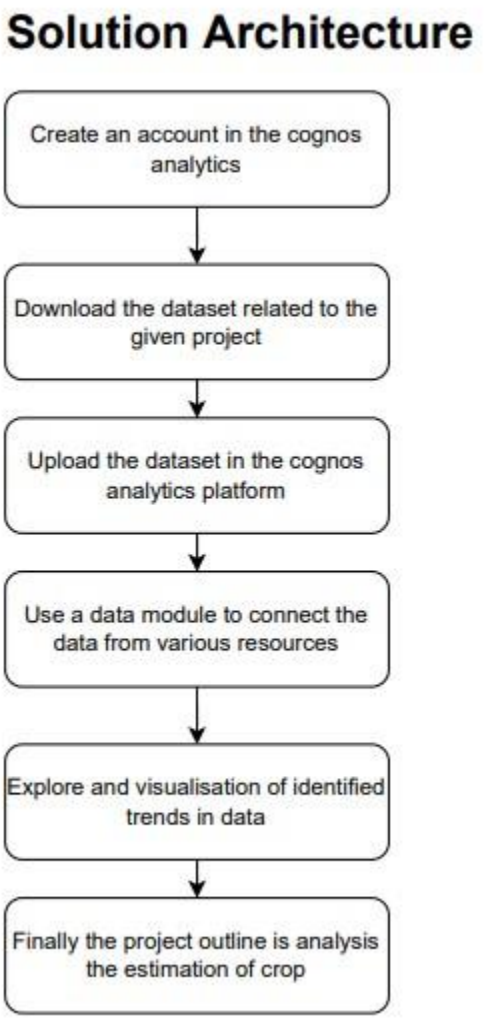
5.PROJECT DESIGN

5.1 Data Flow Diagrams

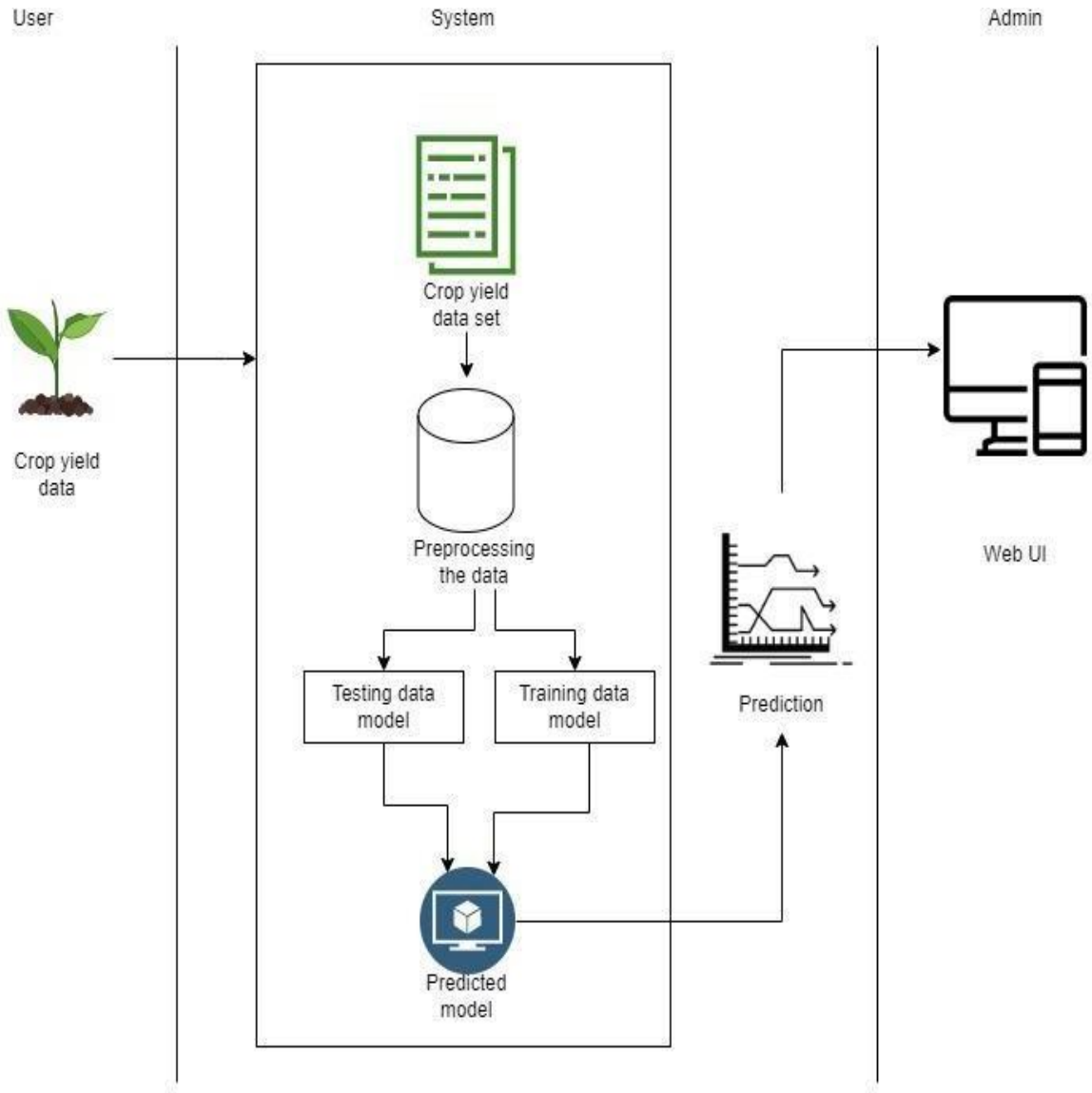


5.2 Solution & Technical Architecture

Solution Architecture



Technical Architecture



Components and Technologies

S.No	Component	Description	Technology
1.	User Interface	The user interacts with the application through web UI.	HTML, CSS, python
2.	Application Logic-1	Logic for login in the application	Python
3.	Application Logic-2	Logic for registration in the application	Python
4.	Application Logic-3	Logic for a process in the application	IBM Watson Assistant
5.	Cloud Database	Database Service on Cloud	IBM DB2
6.	File Storage	To store files such as prediction report	Local Filesystem
7.	Data Analytics Model	Predictive modeling solutions are aform of data-mining technology that works by analyzing historical and current data and generating a model to help predict future outcomes.	Predictive modeling
8.	Infrastructure (Server / Cloud)	Application Deployment on LocalSystem Local Server Configuration:built-in flask web server	Local web server

Application Characteristics

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Flask	Micro web frameworkwritten in Python
2.	Security Implementations	Basic HTTP authentication, Session based authentication, User Registration, Login Tracking	Flask Security
3.	Scalable Architecture	Size is everything, and Flask's status as a microframework means that you can use it to growa tech project such as a web app incredibly quickly. Its simplicity of use and few dependencies enable it to run smoothly even asit scales up and up.	Flask
4.	Availability	Higher compatibility with latesttechnologies and allows customization	Flask

5.3 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 application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Google Sign-on	I can register & access the dashboard with Google sign-on 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	As a user, I can use the methods used provided in the dashboard		Medium	Sprint-1
		USN-7	As a user, I can view the previous results of predictions done by me		Low	Sprint-3

6.PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

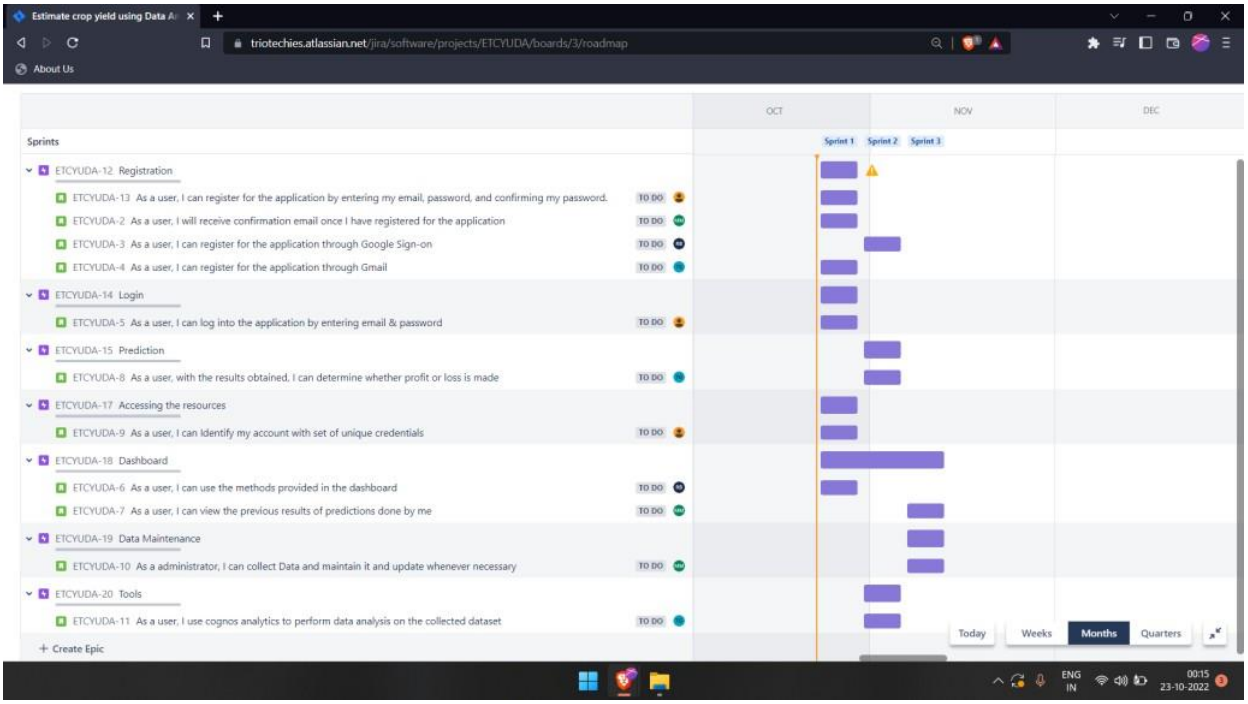
Sprints	Functional Requirement(Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for theapplication by entering my email, password, and confirming my password.	1	High	Kaviya N
Sprint-1		USN-2	As a user, I will receive confirmation email once Ihave registered for the application	2	High	Ranjani R
Sprint-2		USN-3	As a user, I can register for theapplication through Google Sign-on	2	Low	Sowndarya M
Sprint-1		USN-4	As a user, I can register for the application through Gmail	1	Medium	Kaviya N
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email& password	1	High	Thamaraiselvi V

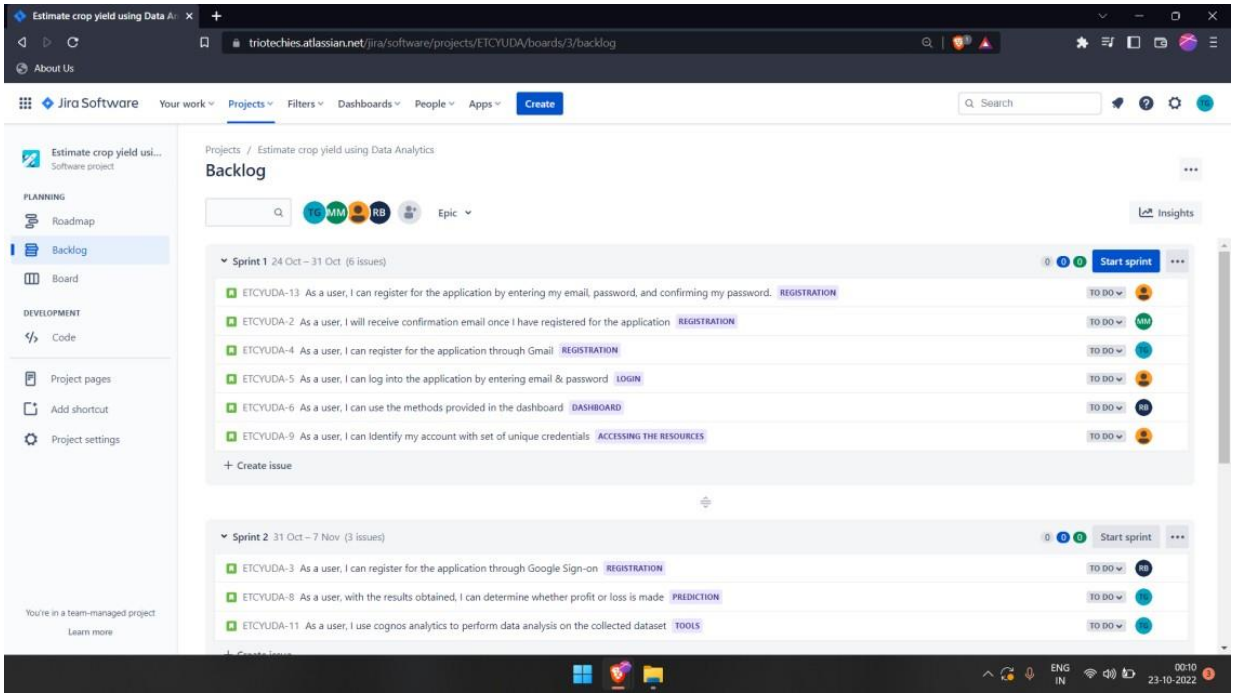
Sprints	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Dashboard	USN-6	As a user, I can use the methods provided in the dashboard	2	Medium	Ranjani R
Sprint-3		USN-7	As a user, I can view the previous results of predictionsdone by me	2	Low	Thamaraiselvi V
Sprint-2	Prediction	USN-8	As a user, with the results obtained, I can determine whether profit or loss is made	2	High	Sowndarya M
Sprint-1	Accessing the resources	USN-9	As a user, I can Identify my account with set of unique credentials	2	High	Thamaraiselvi V
Sprint-3	Data Maintenance	USN-10	As a administrator, I can collect Data and maintain itand update whenever necessary	1	Medium	Kaviya N
Sprint-2	Tools	USN-11	As a user, I use cognos analytics to perform data analysis on the collected dataset	1	High	Ranjani R

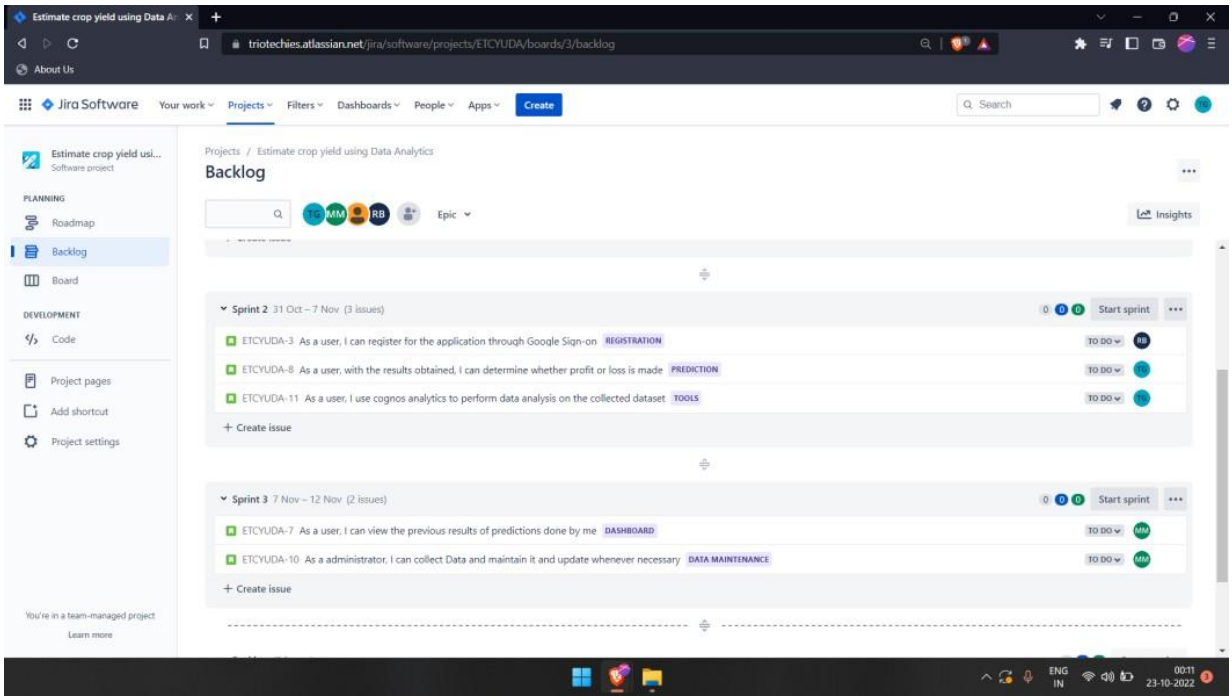
6.2 Sprint Delivery Schedule

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as onPlanned End Date)	Sprint ReleaseDate (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






Estimate crop yield using Data A
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About Us
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
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Estimate crop yield usi...
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Estimate crop yield using Data Analytics
Backlog
Epic
Insights
Sprint 2 31 Oct – 7 Nov (3 issues)
Start sprint
ETCYUDA-3 As a user, I can register for the application through Google Sign-on REGISTRATION
ETCYUDA-8 As a user, with the results obtained, I can determine whether profit or loss is made PREDICTION
ETCYUDA-11 As a user, I use cognos analytics to perform data analysis on the collected dataset TOOLS
TO DO
Create issue
Sprint 3 7 Nov – 12 Nov (2 issues)
Start sprint
ETCYUDA-7 As a user, I can view the previous results of predictions done by me DASHBOARD
ETCYUDA-10 As a administrator, I can collect Data and maintain it and update whenever necessary DATA MAINTENANCE
TO DO
Create issue
ENG
IN
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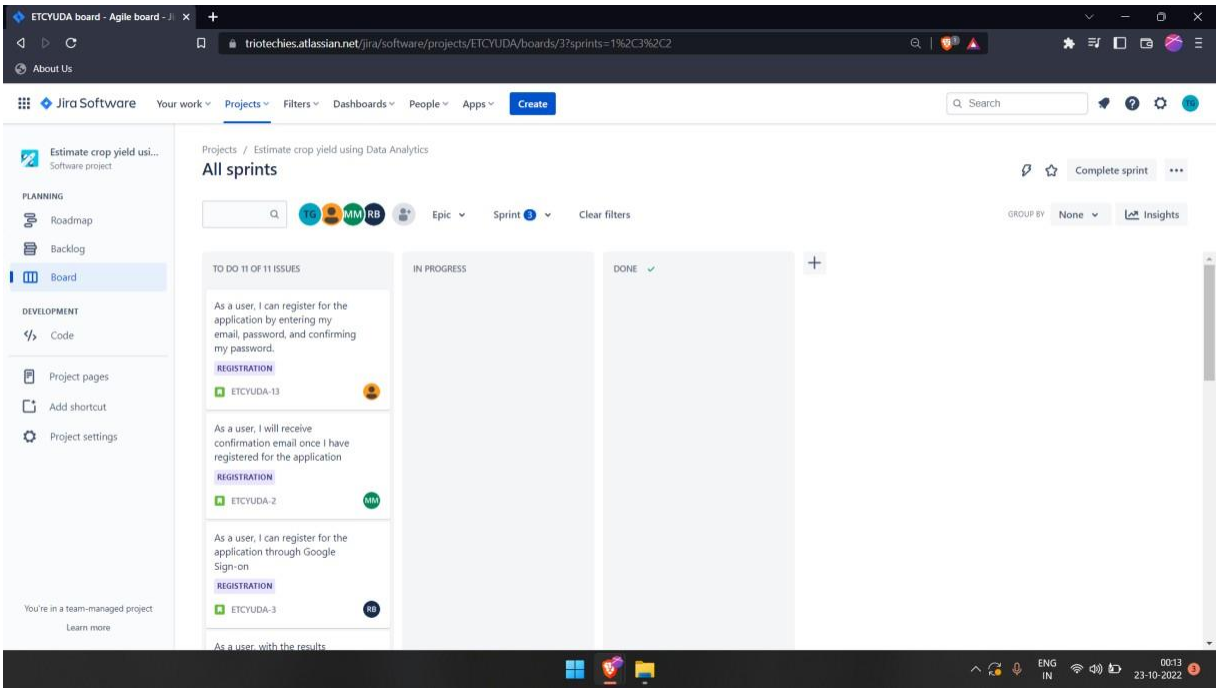
23-10-2022


ETCYUDA board - Agile board - J
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About Us
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
Estimate crop yield usi...
Software project
PLANNING
Roadmap
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DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / Estimate crop yield using Data Analytics
All sprints
Complete sprint
Epic
Sprint 3
Clear filters
GROUP BY
None
Insights
TO DO 11 OF 11 ISSUES
IN PROGRESS
DONE
As a user, I can register for the application by entering my email, password, and confirming my password.
REGISTRATION
ETCYUDA-13
As a user, I will receive confirmation email once I have registered for the application
REGISTRATION
ETCYUDA-2
As a user, I can register for the application through Google Sign-on
REGISTRATION
ETCYUDA-3
As a user, with the results
ENG
IN
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7.CODING & SOLUTIONING

(Explain the features added in the project along with code) app.py

```
from flask_mysqldb import MySQL
from flask import Flask, render_template, request, redirect, url_for, session
import pandas as pd
from joblib import Parallel, delayed
import joblib
import json
import smtplib
import MySQLdb.cursors
from email.mime.multipart import MIMEMultipart
from email.mime.text import MIMEText
from authlib.integrations.flask_client import OAuth
def send_simple_message(msg,email):
    sender_address = 'healthyharvest.ibm@gmail.com'
    sender_pass = 'nlsqdmlhkbrooouy'
    receiver_address = email
    message = MIMEMultipart()
    message['From'] = sender_address
    message['To'] = email
    message['Subject'] = 'Greetings from Healthy Harvest'
    message.attach(MIMEText(msg, 'plain'))
    session = smtplib.SMTP('smtp.gmail.com', 587)
    session.starttls()
    session.login(sender_address, sender_pass)
    text = message.as_string()
    session.sendmail(sender_address, receiver_address, text)
    session.quit()

app = Flask(__name__)

app.secret_key = 'your secret key'
app.config['MYSQL_HOST'] = 'localhost'
app.config['MYSQL_USER'] = 'root'
app.config['MYSQL_PASSWORD'] = 'password'
app.config['MYSQL_DB'] = 'ibm'
app.config.from_object('config')

oauth = OAuth(app)
oauth.register(
    name='google',
```

```
server_metadata_url='https://accounts.google.com/.well-known/openid-configurati
on',
    client_kwargs={
        'scope': 'openid email profile'
    }
)

mysql = MySQL(app)

@app.route('/')
def home():
    return render_template('welcome.html')
@app.route('/login', methods =['GET', 'POST'])
def login():
    if (session):
        print(session)
        return render_template('home.html', activeTab = "home")
    msg = ''
        if  request.method  ==  'POST'  and  'loginEmail'  in  request.form  and
'loginPassword' in request.form:
        email = request.form['loginEmail']
        password = request.form['loginPassword']
        cursor = mysql.connection.cursor(MySQLdb.cursors.DictCursor)
         cursor.execute('SELECT * FROM accounts WHERE email = % s AND password =
% s', (email, password, ))
        account = cursor.fetchone()
        if account:
            session['loggedin'] = True
            session['id'] = account['id']
            session['username'] = account['username']
            session['email'] = account['email']
            return render_template('home.html', activeTab = "home")
        else:
            msg = 'Incorrect username / password !'
    return render_template('authentication.html', msg = msg)

@app.route('/crop_recommendation')
def crop_recommendation():
    return render_template('recommendation.html')

@app.route('/logout')
```

```
def logout():
    session.clear()
    session.pop('loggedin', None)
    session.pop('id', None)
    session.pop('username', None)
    session.pop('email', None)
    return redirect(url_for('home'))

@app.route('/login_using_google')
def login_using_google():
    redirect_uri = url_for('auth', _external=True)
    return oauth.google.authorize_redirect(redirect_uri)

@app.route('/auth')
def auth():
    token = oauth.google.authorize_access_token()
    email = token['userinfo']['email']
    password = token['userinfo']['sub']
    cursor = mysql.connection.cursor(MySQLdb.cursors.DictCursor)
     cursor.execute('SELECT * FROM accounts WHERE email = % s and password !=
%s', (email, password, ))
    account = cursor.fetchone()
    if account:
        msg = 'Account already exists !'
    else:
         cursor.execute('SELECT * FROM accounts WHERE email = % s AND password =
% s', (email, password, ))
        account = cursor.fetchone()
        if account:
            session['loggedin'] = True
            session['id'] = account['id']
            session['username'] = account['username']
            session['email'] = account['email']
            return render_template('home.html', activeTab = "home")
        username = token['userinfo']['name']
                cursor.execute('Create Table `'+email+'`(id int primary key
auto_increment,state varchar(100),district varchar(100),crop_year int,season
varchar(50),crop varchar(100),area double,production double)')
        mysql.connection.commit()
          cursor.execute('INSERT INTO accounts VALUES (NULL, % s, % s, % s)',
(username, password, email, ))
        mysql.connection.commit()
```

```
        cursor.execute('SELECT * FROM accounts WHERE email = % s AND password =
% s', (email, password, ))
        account = cursor.fetchone()
        if account:
            session['loggedin'] = True
            session['id'] = account['id']
            session['username'] = account['username']
            session['email'] = account['email']
        msg =  '''
Hi '''+username+''',

We can’t wait for you to start using our product and seeing results in your
business.

Please feel free to get started and learn more about how to use Healthy
Harvest.

As always, our support team can be reached at healthyharvest.ibm@gmail.com if
you ever get stuck.

Have a great day!'''
        send_simple_message(msg,email)
        return render_template('home.html', activeTab = "home")
    return render_template('authentication.html', msg = msg)

@app.route('/signup', methods = ['POST','GET'])
def signup():
    if (request.method=='GET'):
        return render_template('welcome.html')
    if (session):
        return render_template('home.html', activeTab = "home")
    msg = ''
     if request.method == 'POST' and 'username' in request.form and 'password'
in request.form and 'email' in request.form :
        username = request.form['username']
        password = request.form['password']
        email = request.form['email']
        cursor = mysql.connection.cursor(MySQLdb.cursors.DictCursor)
        cursor.execute('SELECT * FROM accounts WHERE email = % s', (email, ))
        account = cursor.fetchone()
        if account:
            msg = 'Account already exists !'
```

```
        else:
                    cursor.execute('Create Table `'+email+'`(id int primary key
auto_increment,state  varchar(100),district  varchar(100),crop_year  int,season
varchar(50),crop varchar(100),area double,production double)')
            mysql.connection.commit()
             cursor.execute('INSERT INTO accounts VALUES (NULL, % s, % s, % s)',
(username, password, email, ))
            mysql.connection.commit()
                cursor.execute('SELECT * FROM accounts WHERE email = % s AND
password = % s', (email, password, ))
            account = cursor.fetchone()
            if account:
                session['loggedin'] = True
                session['id'] = account['id']
                session['username'] = account['username']
                session['email'] = account['email']
            msg = '''
Hi '''+username+''',

We can’t wait for you to start using our product and seeing results in your
business.

Please feel free to get started and learn more about how to use Healthy
Harvest.

As always, our support team can be reached at healthyharvest.ibm@gmail.com if
you ever get stuck.

Have a great day!'''
            send_simple_message(msg,email)
            return render_template('home.html', activeTab = "home")
    return render_template('authentication.html', msg = msg)

@app.route('/predict', methods = ['POST','GET'])
def predict():
    op = joblib.load('static/model/'+'Model.pkl')
      d = {'Crop_Year': 0, 'Area': 0, 'District_Name_24 PARAGANAS NORTH': 0,
'District_Name_24   PARAGANAS   SOUTH':   0,   'District_Name_ADILABAD':   0,
'District_Name_AGAR      MALWA':      0,      'District_Name_AGRA':      0,
'District_Name_AHMADABAD':      0,      'District_Name_AHMEDNAGAR':      0,
'District_Name_AIZAWL': 0, 'District_Name_AJMER': 0, 'District_Name_AKOLA': 0,
'District_Name_ALAPPUZHA':      0,      'District_Name_YAMUNANAGAR':      0,
```

```
'District_Name_YANAM': 0, 'District_Name_YAVATMAL': 0,
'District_Name_ZUNHEBOTO': 0, 'Season_Autumn': 0, 'Season_Kharif': 0,
'Season_Rabi': 0, 'Season_Summer': 0, 'Season_Whole Year': 0, 'Season_Winter':
0, 'Crop_Apple': 0, 'Crop_Arcanut (Processed)': 0, 'Crop_Arecanut': 0,
'Crop_Arhar/Tur': 0, 'Crop_Ash Gourd': 0, 'Crop_Atcanut (Raw)': 0,
'Crop_Bajra': 0, 'Crop_Banana': 0, 'Crop_Barley': 0, 'Crop_Bean': 0,
'Crop_Beans & Mutter(Vegetable)': 0, 'Crop_Beet Root': 0, 'Crop_Ber': 0,
'Crop_Bhindi': 0, 'Crop_Other Fibres': 0, 'Crop_Other Fresh Fruits': 0,
'Crop_Other Kharif pulses': 0, 'Crop_Other Misc. Pulses': 0, 'Crop_Other
Oilseeds': 0, 'Crop_Other Vegetables': 0, 'Crop_Paddy': 0, 'Crop_Papaya': 0,
'Crop_Peach': 0, 'Crop_Pear': 0, 'Crop_Peas (vegetable)': 0, 'Crop_Peas &
beans (Pulses)': 0, 'Crop_Perilla': 0, 'Crop_Pineapple': 0, 'Crop_Plums': 0,
'Crop_Pome Fruit': 0, 'Crop_Pome Granet': 0, 'Crop_Potato': 0, 'Crop_Pulses
total': 0, 'Crop_Pump Kin': 0, 'Crop_Ragi': 0, 'Crop_Rajmash Kholar': 0,
'Crop_Rapeseed &Mustard': 0, 'Crop_Redish': 0, 'Crop_Ribed Guard': 0,
'Crop_Rice': 0, 'Crop_Ricebean (nagadal)': 0, 'Crop_Rubber': 0,
'Crop_Safflower': 0, 'Crop_Samai': 0, 'Crop_Sannhamp': 0, 'Crop_Sapota': 0,
'Crop_Sesamum': 0, 'Crop_Small millets': 0, 'Crop_Snak Guard': 0,
'Crop_Soyabean': 0, 'Crop_Sugarcane': 0, 'Crop_Sunflower': 0, 'Crop_Sweet
potato': 0, 'Crop_Tapioca': 0, 'Crop_Tea': 0, 'Crop_Tobacco': 0, 'Crop_Tomato':
0, 'Crop_Total foodgrain': 0, 'Crop_Turmeric': 0, 'Crop_Turnip': 0,
'Crop_Urad': 0, 'Crop_Varagu': 0, 'Crop_Water Melon': 0, 'Crop_Wheat': 0,
'Crop_Yam': 0}
    d["Crop_Year"] = int(request.form['crop_year'])
    d["Area"] = float(request.form['area'])
    d["Season_"+request.form['season'].strip()] = 1
    d["District_Name_"+request.form["district"].strip()] = 1
    d["Crop_"+request.form["crop"]] = 1
    result = op.predict(pd.DataFrame(d, index=[0]))
    email = session.get('email')
    cursor = mysql.connection.cursor(MySQLdb.cursors.DictCursor)
    estimated = float(request.form["estimated"])
    if (result[0]<0): result[0] = 0
    if (estimated <= result[0]):
        profit_or_loss = "Profit"
    else:
        profit_or_loss = "Loss"
                                        cursor.execute('INSERT INTO
`'+email+'`(state,district,crop_year,season,crop,area,production) Values
("'+request.form['state']+'","'+request.form['district']+'",'+request.form['cro
p_year']+',"'+request.form['season']+'","'+request.form['crop']+'",'+request.fo
rm['area']+','+str(round(result[0],2))+')')
```

```
    mysql.connection.commit()
        return  render_template('home.html',  activeTab  =  "predict-production",
Predicted_Production=round(result[0],2),profit_or_loss     =     profit_or_loss,
Estimated_Production=estimated)

@app.route('/get_history',methods=['GET'])
def get_history():
    if (session):
        email = session.get('email')
        print(email)
        cursor = mysql.connection.cursor(MySQLdb.cursors.DictCursor)
        cursor.execute('SELECT * FROM `'+email+"`")
        results = cursor.fetchall()
        print(results)
        if (results!=()):
                            return  render_template('home.html',  activeTab  =
"prediction-history",history=json.dumps({"results":list(results)}))
        else:
                            return  render_template('home.html',  activeTab  =
"prediction-history")
    else:
        return redirect(url_for('home'))
if__name__== '__main__':
  app.run(debug=True)
```

7.2 config.py

```
import os

GOOGLE_CLIENT_ID                                                              =
"751324271222-6s9os9entqlfvethcso6i44sbchq4drq.apps.googleusercontent.com"
GOOGLE_CLIENT_SECRET = "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"
```

7.3 home.css

```
* {
    box-sizing: border-box;
  }

  html, body {
    height: 100%;
    margin: 0;
```

```
}

::-webkit-scrollbar {
  width: 8px;
}

::-webkit-scrollbar-track {
  background: transparent;
}

::-webkit-scrollbar-thumb {
  background: #888;
}

::-webkit-scrollbar-thumb:hover {
  background: #555;
}

body {
  display: flex;
  /* flex-direction: column; */
  justify-content: center;
  align-items: left;
  background: #aaa;
  margin: 0px;
  padding: 0px;
  font-family: "Manrope", "Arial";
}

.container {
  width: fit-content;
  /* width: auto; */
  height: 100%;
  display: flex;
  justify-content: center;
  align-items: center;
  gap: 1em;
  font-size: 1.6vh;
}
.container .bar {
  --bg:#f0f2f5;
  --bg-secundary:#c4c8cb40;
```

```
  --bg-fade:#071d3510;
  --color:#445261;
  min-width: 6em;
  height: 100%;
  display: flex;
  flex-direction: column;
  justify-content: flex-start;
  align-items: center;
  gap: 0.75em;
  color: #445261;
  background: var(--bg);
  padding: 0 2em 0 2em;
  border-radius: 8px;
  box-shadow: 0 8px 8px -4px #00000040;
  overflow: auto;
  transition: all ease 0.5s;
}
.container .bar.opened .icon {
  justify-content: flex-start;
}
.container .bar.opened .icon .text {
  display: block;
}
.container .bar .icon {
  cursor: pointer;
  width:  100%;
  display: flex;
  justify-content: center;
  align-items: center;
  gap: 1em;
  padding: 1.5em;
  border-radius: 8px;
  background: var(--bg-secundary);
  transition: all ease 0.5s;
}
.container .bar .icon:hover {
  color: black;
  border: 1px solid black;
}
.container .bar .icon.signout {
  margin-top: auto;
  margin-bottom: 10%;
```

```
  color: #f05;
  background: #ff005510;
}
.container .bar .icon .text {
  font-size: 1.5em;
  font-weight: 700;
  display: none;
  animation: move-text ease 0.5s forwards;
}

.social  {
  width: 100%;
  display: flex;
  align-items: center;
  justify-content: center;
  gap: 1em;
}
.social .button {
  display: flex;
  align-items: center;
  gap: 0.5em;
  color: #000;
  text-decoration: none;
}

@keyframes move-text {
  from {
    opacity: 0;
    transform: translateX(-100%);
  }
  to  {
    opacity: 1;
    transform: translateX(0);
  }
}

@keyframes move-text-out {
  from {
    opacity: 1;
    transform: translateX(0);
  }
  to {
```

```
      opacity: 0;
      transform: translateX(-100%);
    }
  }
```

7.4 main.css

```
body{
    margin: 0;
    padding: 0;
}
.home{
    width: 100%;
    height: 100vh;
}
.navbars{
    z-index: 100;
    position: fixed;
    width: 100%;
    height: 120px;
}
.navlist{
    padding: 0;
    margin: 0;
    list-style: none;
    display: flex;
    justify-content: flex-end;
    align-items: center;
    height: 10rem;
    padding-bottom: 25px;
    /*background: yellow;*/
}
.navlist a{
    text-decoration: none;
    color: white;
    padding-right: 6rem;
    font-family: 'Open Sans', sans-serif;
    font-size: 14px;
    font-weight: 600;
    transition-property: color;
    transition-duration: 0.5s;
```

```
}
.navlist img{
    margin-right: auto;
    margin-left: 7rem;
}
.bgcolor{
    background-color:#46866C;
    transition: all ease-in-out 300ms;
    width: 100%;
}
.home-video{
    width: 100%;
    height: 100%;
    opacity: 0.9;
    object-fit: cover;
}
.overlay{
    height: 100%;
    width: 100%;
    top: 0;
    left: 0;
    position: absolute;
    background: rgba(0, 0, 0, 0.5);
    mix-blend-mode: overlay;
}
.home-content{
    position: absolute;
    top: 40%;
    left: 8%;
    line-height: 30px;
    height: 240px;
}
.home-content a{
    text-decoration: none;
}
.home-content h1{
    font-size: 16px;
    letter-spacing: 5px;
    color: #ffaa41;
    font-family: 'Open Sans', sans-serif;
    font-weight: 600;
}
```

```
.home-content h2{
    color: white;
    font-size: 45px;
    font-family: 'Montserrat', sans-serif;
    font-weight: 700;
}
.home-content p{
    font-family: 'Open Sans', sans-serif;
    font-size: 16px;
    color: white;
}
.button{
    position: relative;
    background-color: transparent;
    border: solid 2px #DE7900;
    color: #ffaa41;
    padding: 10px 40px;
    font-size: 15px;
    font-family: 'Open Sans', sans-serif;
    letter-spacing: 1px;
    font-weight: 600;
    border-radius: 5px;
    transition-property: all;
    transition-duration: 0.5s;
}
.button:hover, .signup-button:hover, .login-button:hover{
    background-color:#46866C;
    color: white;
    border: solid 2px #46866C;
}
.navlist a:hover{
    color: #ffaa41;
}
p{
    color:yellow;
}
.registration, .login{
     background-image: linear-gradient(rgba(0, 0, 0, 0.6), rgba(0, 0, 0, 0.5)),
url('../images/temp3.jpg');
    height: 100vh;
    background-size: cover;
    background-position: center;
```

```
}
.registration-div, .login-div{
    /*background: yellow;*/
    height: 100%;
    display: flex;
    align-items: center;
    justify-content: center;

}
.registration-form, .login-form{
    width: 400px;
    padding: 0 10px 0 10px;
    color: white;
    border: 1px solid white;
    margin-top: 40px;
}
.signup-button, .login-button{
    background-color: transparent;
    border: solid 2px #DE7900;
    color: #ffaa41;
    padding: 10px 25px 10px 25px;
    font-size: 14px;
    font-family: 'Open Sans', sans-serif;
    letter-spacing: 1px;
    font-weight: 600;
    border-radius: 5px;
    margin-top: 20px;
    transition-property: all;
    transition-duration: 0.5s;
}
.form-control{
    border-radius: 15px;
    background: rgba(255, 255, 255, 0.15);
    color:  white;
}
.about-top{
     background-image: linear-gradient(rgba(0, 0, 0, 0.6), rgba(0, 0, 0, 0.5)),
url('../images/about.jpg');
    background-position: center;
    height: 400px;
    width: 100%;
}
```

```
.about-top h1{
    font-size: 16px;
    letter-spacing: 5px;
    color: #ffaa41;
    font-family: 'Open Sans', sans-serif;
    font-weight: 600;
}
.about-top h3{
    font-family: 'Montserrat', sans-serif;
    font-weight: 700;
    font-size: 40px;
    color: white;
}
.about-top p{
    font-family: 'Open Sans', sans-serif;
    font-size: 16px;
    color: white;
}
.about-content h3{
    font-weight: 550;
    font-size: 23px;
    padding-top: 60px;
    color: #666666;
}
.about-content h4{
    font-size: 40px;
    font-family: 'Montserrat', sans-serif;
    font-weight: 700;
    color: black;
    margin-top: 30px;
    margin-bottom: 30px;
}
.aboutus-icon{
    position: absolute;
    height: 80px;
    width:280px;
    opacity:  0.13;
    top: 40px;
    left: 40px;
}
.about-content{
    position: relative;
```

```
    background-color: white;
    width: 50%;
    margin-top: 50px;
    margin-left: 100px;
    padding: 0 30px 90px 50px;
}
.about-content .women-image{
    position: absolute;
    width: 500px;
    height: 500px;
    left: 700px;
    top: 80px;
}
.about-content .corner-image{
    position: absolute;
    top: 300px;
    left: 470px;
    width: 900px;
    height: 400px;
    opacity: 0.1;
    z-index: -1;
}
.weather, .platform, .search{
    position: relative;
    padding-top: 110px;
}
.weather-image, .search-image{
    height: 500px;
    width: 650px;
    filter: brightness(60%);
    position: absolute;
    right: 50px;
    top: 50px;
}
.platform-image{
    height: 500px;
    width: 650px;
    filter: brightness(60%);
    position: absolute;
    left: 50px;
    top: 50px;
}
```

```
.weather-content, .search-content{
    position: relative;
    width: 50%;
    height: 500px;
    padding: 50px 60px 50px 60px;
    border: #e5eaec solid 3px;
    margin-left: 90px;
    z-index: 1;
}
.platform-content{
    position: relative;
    width:  50%;
    height: 500px;
    padding: 50px 50px 50px 90px;
    border: #e5eaec solid 3px;
    z-index: 1;
    margin-left: 650px;
}
.weather-content p, .platform-content p, .search p{
    color: #9BA0A7;
    font-family: "Gotham-Book";
    font-size: 20px;
}
.weather-content h1, .platform-content h1, .search-content h1{
    font-size: 40px;
    font-weight: 400;
    color: #3D3D3F;
    letter-spacing: 0.3px;
}
.explore-button{
    font: 20px Gotham-Book;
    display: flex;
    align-items: center;
    justify-content: center;
    width: 150px;
    height: 52px;
    text-decoration: none;
    color: #65e214;
    border-top: 1px solid #65e214;
    border-right: 2px solid #65e214;
    border-bottom: 2px solid #65e214;
    border-left: 1px solid #65e214;
```

```
    transition-property: all;
    transition-duration: 0.5s;
}
.explore-button:hover{
    background-color: #65e214;
    color: white;
}
footer{
    background-color: #333333;
    height: 650px;
    padding-top: 50px;
}
.footer-container2 a:hover{
    color: #EEC344;
}
.footer-container1{
    display: flex;
    justify-content: center;
}
.footer-container1 h1{
    font-size: 30px;
    letter-spacing: 2px;
    color: #ffaa41;
}
.footer-container1 .left-corner{
    flex-basis: 30%;
    margin-right: 70px;

}
.footer-container1 .right-corner{
    margin-left: 300px;
}
.footer-container1 .right-corner a{
    margin-left: 20px;
}
.footer-container2{
    padding-top: 60px;
    display: flex;
    justify-content: center;
    align-items: flex-start;;
}
.footer-container2 div{
```

```
    margin-left: 80px;
}
.footer-container2 .left-corner{
    flex-basis: 30%;
}
.footer-container2 .footer-image{
    height: 90px;
    width: 300px;
}
.footer-container2 .middle-one{
    flex-basis: 10%;
    text-align: center;
    padding-top: 30px;
}
.footer-container2 .middle-two{
    flex-basis: 10%;
    text-align: center;
    padding-top: 30px;
}
.footer-container2 .right-corner{
    flex-basis: 10%;
    text-align: center;
    padding-top: 30px;
}
.footer-container2 ul{
    list-style: none;
    padding: 0;
}
.footer-container2 .middle-one a, .middle-two a, .right-corner a{
    text-decoration: none;
}
.footer-container2 h1{
    font: 16px 'Open Sans', sans-serif;
    letter-spacing:1px;
    font-weight: 600;
}
.footer-container2 ul li a{
    color: #cccccc;
}
.footer-container2 p, .footer-container1 p{
    color: #cccccc;
}
```

```
.social{
    margin-left: 180px;
}
.social ul {
    margin: 0;
}

.social ul li {
    margin: 5px;
    list-style: none outside none;
    display: inline-block;
}

.social i {
    width: 40px;
    height: 40px;
    color: #FFF;
    background-color: #909AA0;
    font-size: 22px;
    text-align:center;
    padding-top: 12px;
    border-radius: 50%;
    -moz-border-radius: 50%;
    -webkit-border-radius: 50%;
    -o-border-radius: 50%;
    transition: all ease 0.3s;
    -moz-transition: all ease 0.3s;
    -webkit-transition: all ease 0.3s;
    -o-transition: all ease 0.3s;
    -ms-transition: all ease 0.3s;
}

.social i:hover {
    color: #FFF;
    text-decoration: none;
    transition: all ease 0.3s;
    -moz-transition: all ease 0.3s;
    -webkit-transition: all ease 0.3s;
    -o-transition: all ease 0.3s;
    -ms-transition: all ease 0.3s;
}
```

```
.social .fa-facebook:hover {
    background: #4060A5;
}

.social .fa-twitter:hover {
    background: #00ABE3;
}

.social .fa-google-plus:hover {
    background: #e64522;
}
.social .fa-instagram:hover {
    background: #375989;
}
.social .fa-youtube-play:hover {
    background: #DF192A;
}
footer .divider {
    margin-top: 50px;
    width: 85%;
    border: 0;
    height: 1px;
    background: #333;
    background-image: linear-gradient(to right, #ccc, #333, #ccc);
}

.popup{
    opacity: 1;
    position: absolute;
    top: 200px;
    left: 20px;
    /*z-index: -1;*/
    background: white;
    display: flex;
    flex-direction: column;
    align-items:center;
    justify-content:space-between;
    height: 400px;
    width: 320px;
    border-radius: 15px;
    top: 50%;
    left: 50%;
```

```
    transform: translate(-50%, -50%);
    transition: opacity 1s ease-out;
}
.table-div{
     background-image: linear-gradient(rgba(0, 0, 0, 0.7), rgba(0, 0, 0, 0.7)),
url('../images/farmer1.jpg');
    background-position: center;
    background-size: cover;
    height: 100vh;
}
.shop-div{
     background-image: linear-gradient(rgba(0, 0, 0, 0.6), rgba(0, 0, 0, 0.6)),
url('../images/shop.jpg');
    background-position: center;
    background-size: cover;
    height: 100vh;
}
/*.fail{
    background:red;
    width:100%;
    height:200px;
    display:flex;
    justify-content:space-evenly;
    align-items: center;
    flex-direction:column;
    border-top-left-radius: 15px;
    border-top-right-radius: 15px;
}
.popup p{
    padding-right: 25px;
    padding-left: 40px;
}
  */
.table-content{
    /*background-color:yellow;*/
    display: flex;
    justify-content: center;
    align-items: center;
    height: 100%;
    padding: 0 30px 0 30px;
}
table {
```

```
  font-family: arial, sans-serif;
  border-collapse: collapse;
  width: 70%;
  /*background-color: #000000;*/
}
td, th{
    background-color:  transparent;
    border: 2px solid #858e99;
    text-align: center;
    padding: 10px 0 10px 0;
    color: white;
    font-size: 17px;
}
th{
    background-color: #747474;
    color: white;
    text-transform: uppercase;
}
.table-form{
    display:  none;
    position: absolute;
    background-color: black;
    padding: 0 20px 10px 20px;
    border-radius: 15px;
    z-index: 100;
    left: 35%;
    top: 4%;
    color: white;
    /*transform: translate(-50%,-50%);*/
}
.train-form{
    display:  none;
    position: absolute;
    background-color: black;
    padding: 0 20px 10px 20px;
    border-radius: 15px;
    z-index: 100;
    left: 40%;
    top: 15%;
    color: white;
    width: 25%;
    /*transform: translate(-50%,-50%);*/
```

```
}
.table-form input{
    width: 390px;
}
.table-form label{
    color: white;
}
.close-button{
    position: relative;
    left: 220px;
    font-size: 35px;
    cursor: pointer;
    transition: all ease-in-out 300ms;
    font-weight: bold;
}
.close-button:hover{
    color: red;
}
.image{
    height: 50px;
    width: 50px;
}

#hearts{
    background: transparent;
    border:none;
}
td:hover, #hearts:hover{
    background-color: #ddd;
    color: black;
    /* font-size: 20px; */
}
.crop-input{
    background-color: transparent;
    color: white;
    border: 2px solid white;
    border-radius: 8px;
    height: 40px;
    width: 200px;
    transition: width 0.5s ease-in-out;
}
.crop-input:focus{
```

```
    width: 300px;
}
.crop-input::placeholder{
    color: grey;
    padding-left: 10px;
}
.animate {
  -webkit-animation: animatezoom 0.6s;
  animation: animatezoom 0.6s
}
th:hover{
    cursor: pointer;
}

/*contact us*/
.BG{
  margin-top: 35%;
  margin-left: 12%;
  font-size: large;
}
.contactform{
    position: absolute;
    top: 200px;
    right:5%;
    background-color: white;
    color: black;
    padding-left: 20px;
    padding-right: 18%;
    padding-bottom: 10px;
    border-radius: 5px;
    /*height: 100px;*/
}
.contactform input[type=submit] {
    font-family: sans-serif;
    background-color: #46866C;
    color: white;
    padding: 12px 20px;
    margin-top: 5px;
    border: none;
    border-radius: 4px;
    cursor: pointer;
}
```

```
input[type=submit]:hover {
    font-size: 17px;
  }

.txtbr ,textarea{
    height: 40px;
    width:  220%;
    border: none;
    border-bottom: 2px solid silver;
    padding-left: 10px;
}
.shop-top{
    background-color: #293e31;
    height: 390px;
}
.shop-heading{
    color: white;
    font-family: Bahnschrift;
}
.grid-box{
    display: grid;
    background: #d1c3b5;
    padding: 50px 280px 50px 280px;
    grid-template-columns: auto auto auto;
    grid-row-gap: 50px;
    /*grid-column-gap: 50px;*/
}
/*.grid-item img{
    height: 310px;
    width: 310px;
    filter: brightness(0.7);
}*/
.grid-item p{
    color: #414141;
}
.grid-item h1{
    color: #414141;
    font-size: 20px;
    text-transform: capitalize;
}
.grid-item input{
```

```
    width: 210px;
    height: 45px;
    text-align: center;
}
.grid-item input[type=number]::-webkit-inner-spin-button,
.grid-item input[type=number]::-webkit-outer-spin-button {
  -webkit-appearance: none;
}
.button-minus, .button-plus{
    position: relative;
    font-size: 18px;
    width: 40px !important;
    padding: 0 2px 0 2px;
}
.button-minus{
    left: 4.5px;
}
.button-plus{
    right: 5px;
}
.ride{
    position: relative;
    left: 5px;
    border-radius: 0;
    background-color:#46866C;
    color: white;
    border: solid 2px #46866C;
    width: 250px;
    transition: width 0.5s ease-in-out;
}
.ride:hover{
    width: 290px;
}
@keyframes animatezoom {
  from {transform: scale(0)}
  to {transform: scale(1)}
}

/* grid animation*/
figure {
    width: 290px;
    height: 290px;
```

```
    margin: 0;
    padding: 0;
    overflow: hidden;
    filter: brightness(0.8);
}
figure:hover{
    bottom: -36px;
    opacity: 1;
}

figure img {
    -webkit-transform: scale(1);
    transform: scale(1);
    -webkit-transition: .3s ease-in-out;
    transition: .3s ease-in-out;
    width: 290px;
    height: 290px;
}
figure:hover img {
    -webkit-transform: scale(1.3);
    transform: scale(1.3);
}
.cart{
    position:relative;
    width:50px;
    height:50px;
    margin:0 !important;
    right:30px;
    transition: .3s ease-in-out;
}
.cart:hover{
    cursor: pointer;
    -webkit-transform: scale(1.3);
}
.side-cart{
    position: fixed;
    right: 0;
    background-color: white;
    z-index: 200;
    /*padding: 0 50px 50px 28px;*/
    /*width: 26.9%;*/
    height: 100vh;
```

```
    display: flex;
    flex-direction:column;
    justify-content: space-between;
    width: 0;
    transition: width .5s;
        overflow-x: hidden;
}
.side-item{
    display: flex;
    justify-content: space-around;
}
.side-cart img{
    height: 100px;
    width: 100px;
    float: left;
}
.side-item h1{
    font-size: 16px;
    text-transform: capitalize;
    color: grey;
}
.side-item p {
    color: black;
}
.side-item h2{
    font-size:  16px;
    border: 1px solid black;
    padding: 4px 0 4px 0;
    text-align: center;
    width: 70px;
    color: grey;
}
.side-content{
    position: relative;
    right:90px;
}
.side-cart span{
    position: absolute;
    font-size: 40px;
    color:  white;
    left: 30px;
    top: 5px;
```

```
}
.side-cart span:hover{
    cursor: pointer;
    color: #ffaa41;
}
.details-top{
    background-color: #293e31;
    height: 140px;
}
.details-content{
    background: #d1c3b5;
    font-family: Bahnschrift;
    color: black;
}
.detail-item{
    display: flex;
    justify-content: center;
    align-items: center;
    padding: 50px 0 50px 0;
}
.detail-item img{
    width: 500px;
    height: 334px;
    margin-right: 50px;
}
.detail-description{
    position: relative;
    margin-left: 380px;
    width:  50%;
    bottom: 30px;
    padding-bottom: 10px;
}
/*  .dropdown  {
    float: left;
    overflow: hidden;
  } */
  .dropdown .dropbtn {
    font-size: 15px;
    border: none;
    outline: none;
    color: white;
    padding: 14px 16px;
```

```
    background-color: inherit;
    font-family: inherit;
    margin-right: 80px;
  }
  .dropdown-content {
    display: none;
    position: absolute;
    /* background-color: ; */
    min-width: 160px;
    box-shadow: 0px 8px 16px 0px rgba(0,0,0,0.2);
    z-index: 1;
  }

  .dropdown-content a {
    float:  none;
    color: white;
    padding: 12px 16px;
    text-decoration: none;
    display: block;
    text-align: left;
  }

  .dropdown-content a:hover {
    /* background-color: #ddd; */
  }

  .dropdown:hover .dropdown-content {
    display: block;
  }
```

7.5 styles.css

```
@import
url('https://fonts.googleapis.com/css?family=Poppins:400,500,600,700&display=sw
ap');
*{
  margin: 0;
  padding: 0;
  box-sizing: border-box;
  font-family: 'Poppins', sans-serif;
}
html,body{
```

```
  display: grid;
  height: 100%;
  width: 100%;
  place-items: center;
  /* background: -webkit-linear-gradient(left, #a445b2, #fa4299); */
  background: url('../img/bg.jpg');
  /* background: url("bg.jpg"); */
  background-size: cover;
  background-repeat: no-repeat;
}
::selection{
  background: #fa4299;
  /* background: -webkit-linear-gradient(left, #00ccff, #0033cc); */
  color: #fff;
}
.wrapper{
  height:600px;
  overflow: hidden;
  max-width: 400px;
  /* background: #fff; */
  background: white;
  /* background: -webkit-linear-gradient(left, #00ccff, #0033cc); */
  /* opacity: 0.5; */
  padding: 30px;
  filter: brightness(95%);
  border-radius: 5px;
  /* border: 1px solid white; */

  box-shadow: 0px 15px 20px rgba(0,0,0,0.1);
}
.wrapper .title-text{
  display: flex;
  width: 200%;
}
.wrapper .title{
  width: 50%;
  font-size: 26px;
  font-weight: 600;
  text-align: center;
  transition: all 0.6s cubic-bezier(0.68,-0.55,0.265,1.55);
}
.wrapper .slide-controls{
```

```
  position: relative;
  display: flex;
  height: 50px;
  width: 100%;
  overflow: hidden;
  margin: 30px 0 10px 0;
  justify-content: space-between;
  border: 1px solid lightgrey;
  border-radius: 5px;
}
.slide-controls .slide{
  height: 100%;
  width: 100%;
  color: #fff;
  font-size: 18px;
  font-weight: 500;
  text-align: center;
  line-height: 48px;
  cursor: pointer;
  z-index: 1;
  transition: all 0.6s ease;
}
.slide-controls label.signup{
  color: #000;
}
.slide-controls .slider-tab{
  position: absolute;
  height: 100%;
  width: 50%;
  left: 0;
  z-index: 0;
  border-radius: 5px;
  /* background: -webkit-linear-gradient(left, #a445b2, #fa4299); */
  background: -webkit-linear-gradient(right, #00ccff, #0033cc);
  transition: all 0.6s cubic-bezier(0.68,-0.55,0.265,1.55);
}
input[type="radio"]{
  display: none;
}
#signup:checked ~ .slider-tab{
  left: 50%;
}
```

```
#signup:checked ~ label.signup{
  color: #fff;
  cursor: default;
  user-select: none;
}
#signup:checked ~ label.login{
  color: #000;
}
#login:checked ~ label.signup{
  color: #000;
}
#login:checked ~ label.login{
  cursor: default;
  user-select: none;
}
.wrapper .form-container{
  width: 100%;
  overflow: hidden;
}
.form-container .form-inner{
  display: flex;
  width: 200%;
}
.form-container .form-inner form{
  width: 50%;
  transition: all 0.6s cubic-bezier(0.68,-0.55,0.265,1.55);
}
.form-inner form .field{
  height: 50px;
  width: 100%;
  margin-top: 20px;
}
.form-inner form .field input{
  height: 100%;
  width: 100%;
  outline: none;
  padding-left: 15px;
  border-radius: 5px;
  border: 1px solid lightgrey;
  border-bottom-width: 2px;
  font-size:  17px;
  transition: all 0.3s ease;
```

```
}
.form-inner form .field input:focus{
  /* border-color: #fc83bb; */
  border-color: grey;
  /* box-shadow: inset 0 0 3px #fb6aae; */
}
.form-inner form .field input::placeholder{
  color: #999;
  transition: all 0.3s ease;
}
form .field input:focus::placeholder{
  color: #b3b3b3;
}
.form-inner form .pass-link{
  margin-top: 5px;
}
.form-inner form .signup-link{
  text-align: center;
  margin-top: 30px;
}
.form-inner form .pass-link a,
.form-inner form .signup-link a{
  /* color: #fa4299; */
  color: rgb(55, 55, 223);
  text-decoration: none;
}
.form-inner form .pass-link a:hover,
.form-inner form .signup-link a:hover{
  text-decoration: underline;
}
form .btn{
  height: 50px;
  width: 100%;
  border-radius: 5px;
  position: relative;
  overflow: hidden;
}
form .btn .btn-layer{
  height: 100%;
  width: 300%;
  position: absolute;
  left: -100%;
```

```
    /* background: -webkit-linear-gradient(right, #a445b2, #fa4299, #a445b2,
#fa4299); */
  /* background: -webkit-linear-gradient(right, #00ccff, #0033cc); */
  background-color: rgb(43, 43, 229);
  border-radius: 5px;
  transition: all 0.4s ease;;
}
form .btn:hover .btn-layer{
  left: 0;
}
form .btn input[type="submit"]{
  height: 100%;
  width: 100%;
  z-index: 1;
  position: relative;
  background: none;
  border: none;
  color: #fff;
  padding-left: 0;
  border-radius: 5px;
  font-size: 20px;
  font-weight: 500;
  cursor: pointer;
}

@keyframes fadeOut {
  0% {opacity: 1;}
  70% {opacity: 1;}
  100% {opacity: 0;}
}
```

7.6 authentication.html

```
<!DOCTYPE html>
<!-- Created By CodingNepal -->
<html lang="en" dir="ltr">
   <head>
      <meta charset="utf-8">
      <title>Healthy Harvest</title>
      <link rel="stylesheet" href="../static/css/styles.css">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
                                <link      rel="icon"      type="image/x-icon"
href="../static/img/logo-white-fav.png">
   </head>
   <body>
                  <div  style="display:flex;align-items:  center;justify-items:
center;flex-direction: column;">
        <div class="wrapper">
            <div class="title-text">
                <div class="title login">
                Help us identify you!
                </div>
                <div class="title signup">
                Please Join Us!
                </div>
            </div>
            <div class="form-container">
                <div class="slide-controls">
                <input type="radio" name="slide" id="login" checked>
                <input type="radio" name="slide" id="signup">
                <label for="login" class="slide login">Login</label>
                <label for="signup" class="slide signup">Signup</label>
                <div class="slider-tab"></div>
                </div>
                <div class="form-inner">
                <form method="post" action="/login" class="login"><br>
                    <div class="field">
                           <input type="email" name="loginEmail" id="loginEmail"
placeholder="Email" required>
                    </div><br>
                    <div class="field">
                                    <input type="password" name="loginPassword"
id="loginPassword" placeholder="Password" required>
                    </div>
                    <br>
                    <div class="field btn">
                        <div class="btn-layer"></div>
                        <input type="submit" value="Login">
                    </div><br>
                    <div>
                                      <img src="../static/img/googlesingin.png"
style="height:                50px;width:335px;cursor:                pointer;"
onclick="window.location.pathname='/login_using_google'">
```

```
                    </div>
                    <div class="signup-link">
                        Not a member? <a href="">Signup now</a>
                    </div>
                </form>
                <form method="Post" action="/signup" class="signup">
                    <div class="field">
                                <input type="text" name="username" id="username"
placeholder="Username" required>
                    </div>
                    <div class="field">
                                    <input type="email" name="email" id="email"
placeholder="Email Address" required>
                    </div>
                    <div class="field">
                           <input type="password" name="password" id="password"
placeholder="Password" required>
                    </div>
                    <div class="field">
                                 <input type="password" name="confirmPassword"
id="confirmPassword" placeholder="Confirm password" required>
                    </div>
                    <div class="field btn">
                        <div class="btn-layer"></div>
                                <input type="submit" onclick="checkPassword();"
value="Signup">
                    </div><br>
                    <div>
                                        <img src="../static/img/googlesingin.png"
style="height:                              50px;width:335px;cursor:pointer;"
onclick="window.location.pathname='/login_using_google'">
                    </div>
                </form>
                </div>
            </div>
        </div><br>
                  <div  style="color:  red;font-size:  25px;animation:  fadeOut
4s;animation-fill-mode: forwards;">{{ msg }}</div>
    </div>
      <script>
        function checkPassword() {
           var password = document.getElementById('password').value;
```

```
                                                    var     confirmPassword     =
document.getElementById('confirmPassword').value;
            console.log(password+" "+confirmPassword);
            if (password!=confirmPassword) {
               alert("Password and Confirm Password are not same");
               event.preventDefault();
            }
         }
         const loginText = document.querySelector(".title-text .login");
         const loginForm = document.querySelector("form.login");
         const loginBtn = document.querySelector("label.login");
         const signupBtn = document.querySelector("label.signup");
         const signupLink = document.querySelector("form .signup-link a");
         signupBtn.onclick = (()=>{
           loginForm.style.marginLeft = "-50%";
           loginText.style.marginLeft = "-50%";
         });
         loginBtn.onclick = (()=>{
           loginForm.style.marginLeft = "0%";
           loginText.style.marginLeft = "0%";
         });
         signupLink.onclick = (()=>{
           signupBtn.click();
           return false;
         });
      </script>
   </body>
</html>
```

7.7 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>Healthy Harvest</title>
                                                                        <script
src="https://ajax.googleapis.com/ajax/libs/jquery/3.6.0/jquery.min.js"></script
>
    <link rel="stylesheet" href="../static/css/home.css">
```

```
                                                                    <script
src="https://ajax.googleapis.com/ajax/libs/angularjs/1.8.2/angular.min.js"></sc
ript>
    <script src="https://cdn.plot.ly/plotly-latest.min.js"></script>
                                <link       rel="icon"       type="image/x-icon"
href="../static/img/logo-white-fav.png">
    <style>
        input::-webkit-outer-spin-button, input::-webkit-inner-spin-button {
            -webkit-appearance: none;
            margin: 0;
        }
        input[type=number]{
            -moz-appearance: textfield;
        }
        select {
            appearance: none;
        }
        .button-style {
            background-color:darkcyan;
            color:white;
            height:3em;
            width: 10em;
            border: 1px solid white;
            font-size: 17px;
        }

        .button-style:hover {
            background-color: white;
            color: darkcyan;
            border: 1px solid darkcyan;
            transition-duration: 0.4s;

        }
        @keyframes rightFade {
            from{right:-300px;opacity:0}
            to{right:0;opacity:1}
        }

        table {
    --accent-color: #362f4b;
    --text-color: slategray;
    --bgColorDarker: #ecececc;
```

```
    --bgColorLighter: #fcfcfc;
    --insideBorderColor: lightgray;
    width: 100%;
    border: 1px solid var(--accent-color);
    border-collapse: collapse;
    color: var(--text-color);
    table-layout: fixed;
}

table caption {
    margin: 1rem 0;
    color: slategray;
    font-size: 1.5rem;
    font-weight: 600;
    letter-spacing: 0.055rem;
    text-align: center;
}

table th tr {
    color: whitesmoke;
    background-color: var(--accent-color);
    font-size: 1rem;
}

table tbody tr {
    border: 1px solid var(--insideBorderColor);
    background-color: var(--bgColorDarker);
}

table tbody tr:nth-child(odd) {
    background-color: var(--bgColorLighter);
}

table th {
    letter-spacing: 0.075rem;
}

table th,
table td {
    padding: 0.75rem 1rem;
    font-weight: normal;
    text-align: left;
```

```
}

/* table th:nth-child(4),
table td:nth-child(4) {
    text-align: right;
} */

@media screen and (max-width: 768px) {
    table {
        border: none;
    }

    table caption {
        padding: 0.75rem 1rem;
        border-radius: 6px 6px 0 0;
        color: whitesmoke;
        font-size: 1.35rem;
        background-color: var(--accent-color);
    }

    table th {
        /* position: absolute; */
        width: 1px;
        height: 1px;
        clip: rect(0 0 0 0);
        overflow: hidden;
    }

    table tbody tr {
        margin-bottom: 2rem;
        display: block;
    }

    table td {
        font-size: 0.875rem;
        text-align: right;
        display: block;
    }

    table td:before {
        content: attr(data-label);
        font-size: 0.75rem;
```

```
        font-weight: 600;
        letter-spacing: 0.075rem;
        text-transform: uppercase;
        float: left;
        opacity: 0.5;
    }

    table td:not(:last-child) {
        border-bottom: 1px solid var(--insideBorderColor);
    }
}
</style>
</head>
<body>
    <div class="container">
        <div class="bar opened">
            <Br><br>
                        <img  style="animation:move-text  ease  0.5s  forwards"
src="../static/img/logo-black.png" height="100px" width="290px">
            <br><br>
            <div class="icon" id="home" onclick="setActiveTab(this.id)">
                        <svg stroke="currentColor" fill="none" stroke-width="2"
viewBox="0    0    24    24"    stroke-linecap="round"    stroke-linejoin="round"
height="2.5em" width="2.5em" xmlns="http://www.w3.org/2000/svg">
                    <path stroke="none" d="M0 0h24v24H0z" fill="none"></path>
                    <path d="M4 4h6v8h-6z"></path>
                    <path d="M4 16h6v4h-6z"></path>
                    <path d="M14 12h6v8h-6z"></path>
                    <path d="M14 4h6v4h-6z"></path>
                </svg>
                <span class="text">Home</span>
            </div>
                                        <div    class="icon"    id="analytics"
onclick="showGraph();toggle('p1','p2')">
                <svg stroke="currentColor" fill="currentColor" stroke-width="0"
viewBox="0       0       24       24"       height="2.5em"       width="2.5em"
xmlns="http://www.w3.org/2000/svg">
                    <path d="M3 3v17a1 1 0 0 0 1 1h17v-2H5V3H3z"></path>
                            <path  d="M15.293  14.707a.999.999  0  0  0  1.414
0l5-5-1.414-1.414L16  12.586l-2.293-2.293a.999.999  0  0  0-1.414  0l-5  5  1.414
1.414L13 12.414l2.293 2.293z"></path>
                </svg>
```

```
                <span class="text">Analytics</span>
            </div>
                                    <div   class="icon"   id="predict-production"
onclick="setActiveTab(this.id)">
                    <svg xmlns="http://www.w3.org/2000/svg" viewBox="0 0 320 512"
height="2.5em" width="2.5em"><!--! Font Awesome Free 6.1.1 by @fontawesome -
https://fontawesome.com License - https://fontawesome.com/license/free (Icons:
CC BY 4.0, Fonts: SIL OFL 1.1, Code: MIT License) Copyright 2022 Fonticons,
Inc. --><path d="M.0022 64C.0022 46.33 14.33 32 32 32H288C305.7 32 320 46.33
320  64C320  81.67  305.7  96  288  96H231.8C241.4  110.4  248.5  126.6  252.4
144H288C305.7 144 320 158.3 320 176C320 193.7 305.7 208 288 208H252.4C239.2
266.3  190.5  311.2  130.3  318.9L274.6  421.1C288.1  432.2  292.3  452.2  282
466.6C271.8 480.1 251.8 484.3 237.4 474L13.4 314C2.083 305.1-2.716 291.5 1.529
278.2C5.774 264.1 18.09 256 32 256H112C144.8 256 173 236.3 185.3 208H32C14.33
208 .0022 193.7 .0022 176C.0022 158.3 14.33 144 32 144H185.3C173 115.7 144.8 96
112 96H32C14.33 96 .0022 81.67 .0022 64V64z" id="mainIconPathAttribute"
fill="currentColor"></path></svg>
                    <!-- <svg stroke="currentColor" fill="none" stroke-width="2"
viewBox="0    0    24    24"    stroke-linecap="round"    stroke-linejoin="round"
height="2.5em" width="2.5em" xmlns="http://www.w3.org/2000/svg">
                    <line x1="12" y1="1" x2="12" y2="23"></line>
                      <path d="M.0022 64C.0022 46.33 14.33 32 32 32H288C305.7 32
320 46.33 320 64C320 81.67 305.7 96 288 96H231.8C241.4 110.4 248.5 126.6 252.4
144H288C305.7 144 320 158.3 320 176C320 193.7 305.7 208 288 208H252.4C239.2
266.3  190.5  311.2  130.3  318.9L274.6  421.1C288.1  432.2  292.3  452.2  282
466.6C271.8 480.1 251.8 484.3 237.4 474L13.4 314C2.083 305.1-2.716 291.5 1.529
278.2C5.774 264.1 18.09 256 32 256H112C144.8 256 173 236.3 185.3 208H32C14.33
208 .0022 193.7 .0022 176C.0022 158.3 14.33 144 32 144H185.3C173 115.7 144.8 96
112 96H32C14.33 96 .0022 81.67 .0022 64V64z"/>
                </svg> -->
                <span class="text">Predict Production</span>
            </div>
                                    <div   class="icon"   id="prediction-history"
onclick="window.location.pathname = '/get_history';">
                      <svg xmlns="http://www.w3.org/2000/svg" stroke-width="0.4"
stroke="currentColor"    fill="currentColor"    stroke-linecap="round"  enable-
background="new 0 0 10 10" viewBox="0 0 24 24"height="2.5em" width="2.5em">
                                                                    <path
d="M16.4,3.3C12.5,1.1,7.7,1.8,4.6,4.8V3c0-0.6-0.4-1-1-1s-1,0.4-1,1v4.5c0,0.6,0.
4,1,1,1h4.5c0.6,0,1-0.4,1-1s-0.4-1-1-1H5.7C7.1,4.9,9.2,4,11.5,4c4.4,0,8,3.6,8,8
s-3.6,8-8,8c-0.6,0-1,0.4-1,1s0.4,1,1,1c3.6,0,6.9-1.9,8.7-5C22.9,12.2,21.2,6.1,1
```

```
6.4,3.3z
M11.4,8c-0.6,0-1,0.4-1,1v3c0,0.6,0.4,1,1,1h2c0.6,0,1-0.4,1-1s-0.4-1-1-1h-1V9C12
.4,8.4,12,8,11.4,8z"/></svg>
                <span class="text">Prediction History</span>
            </div>
                                <a  href="/crop_recommendation"  target="_blank"
style="text-decoration:none;color:currentColor;"><div                class="icon"
id="recommendation">
                    <svg xmlns="http://www.w3.org/2000/svg" viewBox="0 0 256 256"
id="IconChangeColor" height="30" width="30"><rect  width="256"  height="256"
fill="none"></rect><path
d="M32,104H80a0,0,0,0,1,0,0V208a0,0,0,0,1,0,0H32a8,8,0,0,1-8-8V112A8,8,0,0,1,32
,104Z"  fill="currentColor"  stroke="#4f4f4f"  stroke-linecap="round"  stroke-
linejoin="round"                                                stroke-width="24"
id="mainIconPathAttribute"></path><path
d="M80,104l40-80a32,32,0,0,1,32,32V80h61.9a15.9,15.9,0,0,1,15.8,18l-12,96a16,16
,0,0,1-15.8,14H80"    fill="none"    stroke="#4f4f4f"    stroke-linecap="round"
stroke-linejoin="round"                                         stroke-width="24"
id="mainIconPathAttribute"></path></svg>
                <span class="text">Crop Recommendation</span>
            </div>
            </a>
                                                <div    class="icon    signout"
onclick="window.location.pathname='/logout'">
                    <svg stroke="currentColor" fill="currentColor" stroke-width="0"
viewBox="0       0       16       17"       height="2.5em"       width="2.5em"
xmlns="http://www.w3.org/2000/svg">
                        <path fill-rule="evenodd" d="M12 9V7H8V5h4V3l4 3-4 3zm-2
3H6V3L2 1h8v3h1V1c0-.55-.45-1-1-1H1C.45 0 0 .45 0 1v11.38c0 .39.22.73.55.91L6
16.01V13h4c.55 0 1-.45 1-1V8h-1v4z"></path>
                </svg>
                <span class="text">Sign Out</span>
            </div>
        </div>
    </div>
                                                <div            id="tabContent"
style="background-color:skyblue;display:flex;justify-content:center;align-items
:center;width: 100%;height: 100%;flex-direction: column;">

    </div>
    <script>
        var i = 0;
```

```
            var txt = 'We provide a crop production prediction system that
estimates the yield for you'; /* The text */
        var speed = 30; /* The speed/duration of the effect in milliseconds */
        setActiveTab("{{ activeTab }}");
        // setActiveTab("home");
        function checkInputs() {
            var state = document.getElementById('state').value;
            var district = document.getElementById('district').value;
            var season = document.getElementById('season').value;
            var crop = document.getElementById('crop').value;
            var area = document.getElementById('area').value;
            var crop_year = document.getElementById('crop_year').value;
                  if (state!="Select State" && district!="Select District" &&
season!="Select Season" && crop!="Select Crop" && area!="" && crop_year!="") {
                   document.getElementById("PredictButton").style["animation"] =
"move-text ease 0.5s forwards";
                     document.getElementById("PredictButton").style["display"] =
"flex";

document.getElementById("EstimatedProduction").style["animation"] = "move-text
ease 0.5s forwards";
                 document.getElementById("EstimatedProduction").style["display"]
= "flex";
                // EstimatedProduction
            }
            else {
                   if (document.getElementById("PredictButton").style["display"]
!= "none") {
                     document.getElementById("PredictButton").style["animation"]
= "move-text-out ease 0.5s forwards";
                     document.getElementById("PredictButton").style["display"] =
"flex";

document.getElementById("EstimatedProduction").style["animation"]              =
"move-text-out ease 0.5s forwards";

document.getElementById("EstimatedProduction").style["display"] = "flex";


                }


            }
        }
```

```
            var Season = ['Autumn', 'Kharif', 'Rabi', 'Summer', 'Whole Year',
'Winter'];
              var SeasonProduction = [13065.67, 42743.34, 31011.0, 11522.38,
2395012.0, 71826.42];
        var Seasonlayout = {title:"Average Production Based on Season"};
         var State =['Andaman and Nicobar Islands', 'Andhra Pradesh', 'Arunachal
Pradesh', 'Assam', 'Bihar', 'Chandigarh', 'Chhattisgarh', 'Dadra and Nagar
Haveli', 'Goa', 'Gujarat', 'Haryana', 'Himachal Pradesh', 'Jammu and Kashmir',
'Jharkhand', 'Karnataka', 'Kerala', 'Madhya Pradesh', 'Maharashtra', 'Manipur',
'Meghalaya', 'Mizoram', 'Nagaland', 'Odisha', 'Puducherry', 'Punjab',
'Rajasthan', 'Sikkim', 'Tamil Nadu', 'Telangana', 'Tripura', 'Uttar Pradesh',
'Uttarakhand', 'West Bengal'];
              var StateProduction = [1677.031841, 13754.55695, 1714.868369,
4813.209684, 6796.096694, 140.47191, 7998.780189, 1507.661597, 5824.533816,
18520.756007, 19716.844273, 4073.052524, 5676.851103, 7417.888017, 9626.101286,
7944.604567, 14589.95138, 25783.133563, 1585.508689, 1407.404255, 1041.551541,
1550.521004, 8123.596125, 629.284404, 40316.635698, 22276.498757, 2135.12465,
7192.593774,    14543.131104,    3287.258499,    13065.24246,    3894.716477,
22444.826599];
        var Statelayout = {title:"Average Area based on States"};
        function showGraph() {
            document.getElementById("home").style["background"] = "#c4c8cb40";
               document.getElementById("analytics").style["background-color"] =
"#bfbfbf";
             document.getElementById("predict-production").style["background"] =
"#c4c8cb40";
             document.getElementById("prediction-history").style["background"] =
"#c4c8cb40";
                     document.getElementById("tabContent").innerHTML =   `<div
id='graphContent'
style='display:flex;justify-content:center;align-items:center;width:70vw;height
:80vh;'></div><br>
                                                                          <div
style='display:flex;justify-content:center;align-items:center;'>
                                     <div  id='p1'  onclick='toggle("p1","p2")'
style='cursor:pointer;background-color:grey;width:40px;height:40px;color:white;
display:flex;align-items:center;justify-content:center;margin:5px;'>1</div>
                                     <div  id='p2'  onclick='toggle("p2","p1")'
style='cursor:pointer;background-color:grey;display:flex;align-items:center;jus
tify-content:center;color:white;width:40px;height:40px;margin:5px;'>2</div>
                </div>`;
        }
```

```
        function toggle(value1,value2) {
            document.getElementById(value1).style['height'] = "50px";
            document.getElementById(value1).style['width'] = "50px";
            document.getElementById(value2).style['height'] = "40px";
            document.getElementById(value2).style['width'] = "40px";
            if (value1=="p1") {
                var data = [{
                    x: Season,
                    y: SeasonProduction,
                    type: "bar"  }];
                Plotly.newPlot("graphContent", data, Seasonlayout);
            }
            else {
                var data = [{
                    x: State,
                    y: StateProduction,
                    type: "bar"  }];
                Plotly.newPlot("graphContent", data, Statelayout);
            }
        }
        function setActiveTab(TabName) {
            document.getElementById('tabContent').innerHTML = '';
            document.getElementById("home").style["background"] = "#c4c8cb40";
               document.getElementById("analytics").style["background-color"] =
"#c4c8cb40";
             document.getElementById("predict-production").style["background"] =
"#c4c8cb40";
             document.getElementById("prediction-history").style["background"] =
"#c4c8cb40";
                  document.getElementById(TabName).style["background-color"] =
"#bfbfbf";
            var home = `
            <div style="width:80%;height:30%;">
                      <h1 style="font-family:'Candara';font-size: 50px;padding:
0px;margin: 0;">Let us help you</h1>
                <h2>WELCOME TO HEALTHY HARVEST</h2>
                <p id="description"></p>
                                                    <div   id="predict-button"
style="padding:0px;width:70%;display:none;justify-content:space-between;">
                                                  <button  class="button-style"
onclick="setActiveTab('predict-production')">Predict Yield</button>
```

```
                                        <!-- <button class="button-style"
onclick="setActiveTab('prediction-history')">Prediction History</button> -->
                </div>
            </div>
            `;
                    var predict_production = `            <div style="display:
flex;justify-content:center;align-items:center;padding:
15px;width:90%;background-color: gainsboro;border-radius: 10px;flex-direction:
column;">
            <h2>One step away from the result</h2><br>
                        <form action="/predict" method="POST" style="display:
flex;justify-content:center;align-items:center;flex-direction:
column;width:100%;">
                                                                                <div
style="display:flex;justify-content:space-around;align-items:center;width:100%;
">
                                                                            <fieldset
style="border-right:none;border-bottom:none;border-radius:10px;padding: 15px;">
                    <legend>State</legend>
                                                <select id="state" name="state"
onchange="checkInputs();changeDistricts(this.value);" style="background-color:
aliceblue;border:none;height:3em;border-radius:
10px;padding:5px;font-size:15px;width:250px;outline:none;">
                    <option value="Select State" hidden></option>

                        <option value='Water Melon'>Water Melon</option>
                        <option value='Wheat'>Wheat</option>
                        <option value='Yam'>Yam</option>
                    </select>
                    </fieldset>
                                                                            <fieldset
style="border-right:none;border-bottom:none;border-radius:10px;padding: 15px;">
                        <legend>Area (in Hectares)</legend>
                            <input type="number" required id="area" name="area"
step="any"           oninput="checkInputs()"          style="background-color:
aliceblue;border:none;height:3em;border-radius:
10px;padding:5px;font-size:15px;width:250px;outline:none;"/>
                    </fieldset>
                </div><br><br><br>
                                                            <div    id="finalBox"
style="height:70px;display:flex;justify-content:space-around;align-items:center
;width:80%;">
```

```
                                        <fieldset id="EstimatedProduction"
style="display:none;border-right:none;border-bottom:none;border-radius:10px;pad
ding: 15px;">
                        <legend>Estimated Yield(In Tons)</legend>
                                    <input type="number" required id="estimated"
name="estimated"              step="any"              style="background-color:
aliceblue;border:none;height:3em;border-radius:
10px;padding:5px;font-size:15px;width:250px;outline:none;"/>
                    </fieldset>
                                                        <div   id="PredictButton"
style="width:40%;display:none;justify-content:center;align-items:center;">
                                                                          <button
style="font-size:15px;color:white;cursor:pointer;background-color:
#017aff;border:1px  solid  white;height:50px;width:120px;border-radius:  5px;"
onclick="validateInputs()">Get Results</button>
                    </div>
                </div><br>
            </form>
        </div><br>
                                                    <div       id="Output"
style="height:10%;width:100%;display:flex;align-items:center;justify-content:sp
ace-around;font-size:22px;">
            <div>
                {% if Estimated_Production %}
                 Estimated Result: <b>{{ Estimated_Production }}</b> Metric
Tons
                {% endif %}
            </div>
            <div>
                {% if Predicted_Production %}
                            Predicted Result: <b>{{ Predicted_Production
}}</b> Metric Tons
                {% endif %}
            </div>
        </div>
                                                                          <div
style="width:100%;justify-content:center;display:flex;align-items:center;font-s
ize:22px;">
                {% if profit_or_loss %}
                Result: <b>{{ profit_or_loss }}</b>
                {% endif %}
            </div>`;
```

```
            var analytics = '';
            var prediction_history = `{% if history %}
                                                    <div      style="display:
flex;justify-content:center;align-items:center;padding:
15px;width:100%;border-radius:  10px;flex-direction:  column;"  ng-app="myApp"
ng-controller="myController">
                                                                                <div
style="display:flex;width:80%;align-items:center;justify-content:space-around;"
>
                                <input type="text" style="border: 1px solid
black;height:40px;width:150px;background:transparent;color:black;font-size:15px
;" ng-model="inp_state" placeholder="Filter State"/>
                                <input type="text" style="border: 1px solid
black;height:40px;width:150px;background:transparent;color:black;font-size:15px
;" ng-model="inp_district" placeholder="Filter District"/>
                                <input type="text" style="border: 1px solid
black;height:40px;width:150px;background:transparent;color:black;font-size:15px
;" ng-model="inp_crop_year" placeholder="Filter Crop Year"/>
                                <input type="text" style="border: 1px solid
black;height:40px;width:150px;background:transparent;color:black;font-size:15px
;" ng-model="inp_season" placeholder="Filter Season"/>
                                <input type="text" style="border: 1px solid
black;height:40px;width:150px;background:transparent;color:black;font-size:15px
;" ng-model="inp_crop" placeholder="Filter Crop"/>
        </div><br>
        <table cellspacing="0" cellpadding="0" border="0">
        <tr>
            <td>
            <table cellspacing="0" cellpadding="0" border="1">
                      <tr style='background: linear-gradient(to right, #0f0c29,
#302b63, #24243e);color:white;'>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('state')">State</th>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('district')">District</th>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('crop_year')">Crop Year</th>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('season')">Season</th>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('crop')">Crop</th>
```

```
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('area')">Area</th>
                                                    <th  style="cursor:  pointer;"
ng-click="orderfn('production')">Production(In Tons)</th>
                </tr>
            </table>
            </td>
        </tr>
        <tr>
            <td>
            <div style="width:100%; height:500px; overflow:auto;">
            <table>
            </tr>
                 <tr ng-repeat = "result in history_results | filter: {state:
inp_state}   |   filter:   {district:   inp_district}   |   filter:   {crop_year:
inp_crop_year} | filter: {season: inp_season} | filter: {crop: inp_crop} |
orderBy: cate">
            <td>[[result.state]]</td>
            <td>[[result.district]]</td>
            <td>[[result.crop_year]]</td>
            <td>[[result.season]]</td>
            <td>[[result.crop]]</td>
            <td>[[result.area]]</td>
            <td>[[result.production]]</td>
            </tr>
            </table>
        </div>
     </div>
            {% else %}
            <h2>No Prediction history found</h2>
            {% endif %}`;
            if (TabName=="home") {
                i = 0;
                     document.getElementById('tabContent').style["background"] =
'radial-gradient( circle farthest-corner at 10% 20%,  rgba(97,186,255,1) 0%,
rgba(166,239,253,1) 90.1% )';
                document.getElementById('tabContent').innerHTML = home;
                typeWriter();
            }
            if (TabName=="analytics") {
                     document.getElementById('tabContent').style["background"] =
"skyblue";
```

```
                document.getElementById('tabContent').innerHTML = analytics;
            }
            if (TabName=="predict-production") {
                    document.getElementById('tabContent').style["background"] =
"skyblue";
                                document.getElementById('tabContent').innerHTML =
predict_production;
            }
            if (TabName=="prediction-history") {
                    document.getElementById('tabContent').style["background"] =
"skyblue";
                                document.getElementById('tabContent').innerHTML =
prediction_history;
                var history_results = '{{history | safe }}';
                if (history_results=="") {
                    console.log('empty');
                }
                else {
                    history_results = JSON.parse(history_results);
                    var app = angular.module("myApp",[]);
                                                app.config(['$interpolateProvider',
function($interpolateProvider) {
                        $interpolateProvider.startSymbol('[[');
                        $interpolateProvider.endSymbol(']]');
                    }]);
                    app.controller("myController",function($scope) {
                        $scope.history_results = history_results["results"];
                        console.log($scope.history_results);
                        $scope.orderfn = function(x1) {
                            console.log(x1);
                            if ($scope.cate==x1) {
                                        if ($scope.cate[0]=='-') $scope.cate =
$scope.cate.slice(1);
                                else $scope.cate = '-'+$scope.cate;
                            }
                            else {
                                $scope.cate = x1;
                            }
                        }
                    });
                }
            }
```

```
        }

        function validateInputs() {
            var area = parseInt(document.getElementById('area').value);
                                                    var     crop_year     =
parseInt(document.getElementById('crop_year').value);
            if (area<=0) {
                alert("Area should be greater than 0");
                event.preventDefault();
            }
            else if (crop_year<2000) {
                alert("Crop Year cannot be less than 2000");
                event.preventDefault();
            }
        }

        function typeWriter() {
            if (i < txt.length) {
                            document.getElementById("description").innerHTML +=
txt.charAt(i);
                i++;
                setTimeout(typeWriter, speed);
            }
            else {
                  document.getElementById("predict-button").style["animation"] =
"rightFade 2s forwards";
                    document.getElementById("predict-button").style["display"] =
"flex";
            }
        }

        function changeDistricts(state) {
            if (state=='Select State') return;
            var states = {
                        AndamanandNicobarIslands: ['NICOBARS', 'NORTH AND MIDDLE
ANDAMAN', 'SOUTH ANDAMANS'] ,
                      AndhraPradesh: ['ANANTAPUR', 'CHITTOOR', 'EAST GODAVARI',
'GUNTUR',   'KADAPA',   'KRISHNA',   'KURNOOL',   'PRAKASAM',   'SPSR   NELLORE',
'SRIKAKULAM', 'VISAKHAPATANAM', 'VIZIANAGARAM', 'WEST GODAVARI'] ,
                 ArunachalPradesh: ['ANJAW', 'CHANGLANG', 'DIBANG VALLEY', 'EAST
KAMENG',  'EAST  SIANG',  'KURUNG  KUMEY',  'LOHIT',  'LONGDING',  'LOWER  DIBANG
```

```
VALLEY', 'LOWER SUBANSIRI', 'NAMSAI', 'PAPUM PARE', 'TAWANG', 'TIRAP', 'UPPER
SIANG', 'UPPER SUBANSIRI', 'WEST KAMENG', 'WEST SIANG'] ,
                Assam: ['BAKSA', 'BARPETA', 'BONGAIGAON', 'CACHAR', 'CHIRANG',
'DARRANG',  'DHEMAJI',  'DHUBRI',  'DIBRUGARH',  'DIMA  HASAO',  'GOALPARA',
'GOLAGHAT', 'HAILAKANDI', 'JORHAT', 'KAMRUP', 'KAMRUP METRO', 'KARBI ANGLONG',
'KARIMGANJ',  'KOKRAJHAR',  'LAKHIMPUR',  'MARIGAON',  'NAGAON',  'NALBARI',
'SIVASAGAR', 'SONITPUR', 'TINSUKIA', 'UDALGURI'] ,
                    UttarPradesh: ['AGRA', 'ALIGARH', 'ALLAHABAD', 'AMBEDKAR
NAGAR',  'AMETHI',  'AMROHA',  'AURAIYA',  'AZAMGARH',  'BAGHPAT',  'BAHRAICH',
'BALLIA',  'BALRAMPUR',  'BANDA',  'BARABANKI',  'BAREILLY',  'BASTI',  'BIJNOR',
'BUDAUN', 'BULANDSHAHR', 'CHANDAULI', 'CHITRAKOOT', 'DEORIA', 'ETAH', 'ETAWAH',
'FAIZABAD',  'FARRUKHABAD',  'FATEHPUR',  'FIROZABAD',  'GAUTAM  BUDDHA  NAGAR',
'GHAZIABAD', 'GHAZIPUR', 'GONDA', 'GORAKHPUR', 'HAMIRPUR', 'HAPUR', 'HARDOI',
'HATHRAS', 'JALAUN', 'JAUNPUR', 'JHANSI', 'KANNAUJ', 'KANPUR DEHAT', 'KANPUR
NAGAR', 'KASGANJ', 'KAUSHAMBI', 'KHERI', 'KUSHI NAGAR', 'LALITPUR', 'LUCKNOW',
'MAHARAJGANJ', 'MAHOBA', 'MAINPURI', 'MATHURA', 'MAU', 'MEERUT', 'MIRZAPUR',
'MORADABAD', 'MUZAFFARNAGAR', 'PILIBHIT', 'PRATAPGARH', 'RAE BARELI', 'RAMPUR',
'SAHARANPUR',  'SAMBHAL',  'SANT  KABEER  NAGAR',  'SANT  RAVIDAS  NAGAR',
'SHAHJAHANPUR',  'SHAMLI',  'SHRAVASTI',  'SIDDHARTH  NAGAR',  'SITAPUR',
'SONBHADRA', 'SULTANPUR', 'UNNAO', 'VARANASI'] ,
                  Uttarakhand: ['ALMORA', 'BAGESHWAR', 'CHAMOLI', 'CHAMPAWAT',
'DEHRADUN',  'HARIDWAR',  'NAINITAL',  'PAURI  GARHWAL',  'PITHORAGARH',  'RUDRA
PRAYAG', 'TEHRI GARHWAL', 'UDAM SINGH NAGAR', 'UTTAR KASHI'] ,
                    WestBengal: ['24 PARAGANAS NORTH', '24 PARAGANAS SOUTH',
'BANKURA',  'BARDHAMAN',  'BIRBHUM',  'COOCHBEHAR',  'DARJEELING',  'DINAJPUR
DAKSHIN', 'DINAJPUR UTTAR',  'HOOGHLY',  'HOWRAH',  'JALPAIGURI',  'MALDAH',
'MEDINIPUR EAST', 'MEDINIPUR WEST', 'MURSHIDABAD', 'NADIA', 'PURULIA']
            }
            var districts = states[state.replaceAll(" ","")];
                        var  contents  =  `<option  value="Select  District"
hidden></option><br>`;
            for (var i=0;i<districts.length;i++) {
                                                    contents   +=   `<option
value="${districts[i]}">${districts[i]}</option><br>`;
            }
            document.getElementById("district").innerHTML = contents;
        }
    </script>
</body>
</html>
```

7.8 recommendation.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>Healthy Harvest</title>
                              <link       rel="icon"       type="image/x-icon"
href="../static/img/logo-white-fav.png">
    <style>
        .card {
            width: 10vw;
            height: 10vh;
            background-color: purple;
            color: white;
            padding: 5px;
            display: flex;
            align-items: center;
            justify-content: center;
            margin: 5px;
            font-size:  18px;
            border: 1px solid black;
        }
    </style>
</head>
<body          style="background:skyblue;display:          flex;flex-direction:
column;align-items: center;">
    <div style="display: flex;justify-content:center;">
        <h1>Crop Recommendation System</h1>
    </div><br>
     <div style="display: flex;justify-content:center;gap:5em;border: 3px solid
saddlebrown;border-bottom:none;padding: 20px;width:50%;">
        <div>
            <span style="font-size:20px;">Enter State:</span>
                              <select  id="district_name"  name="district_name"
style="height:30px;font-size:20px;" onchange="fillContents()">
                <option value="Null">Null</option>
                <option value='24 PARAGANAS NORTH'>24 PARAGANAS NORTH</option>
                <option value='24 PARAGANAS SOUTH'>24 PARAGANAS SOUTH</option>
                <option value='ZUNHEBOTO'>ZUNHEBOTO</option>
            </select>
        </div>
        <div>
```

```
            <span style="font-size:20px;">Enter Season:</span>
                                        <select   id="season"   name="season"
style="height:30px;font-size:20px;" onchange="fillContents()">
                <option value="Null">Null</option>
                <option value="Kharif">Kharif</option>
                   . . .
                <option value="Whole Year">Whole Year</option>
                <option value="Autumn">Autumn</option>
                <option value="Rabi">Rabi</option>
                <option value="Summer">Summer</option>
                <option value="Winter">Winter</option>
            </select>
        </div>
    </div>
    <div id="content" style="width:fit-content;
                                                                    flex-wrap:
wrap;height:max-content;display:flex;align-items:center;justify-content:center;
padding: 10px;">

    </div>
    <script>
        var districts = {
"24 PARAGANAS NORTH": ['Arecanut', 'Arhar/Tur', 'Coconut ', 'Cotton(lint)',
'Dry chillies', 'Dry ginger', 'Garlic', 'Gram', 'Groundnut', 'Jute', 'Khesari',
'Linseed', 'Maize', 'Masoor', 'Mesta', 'Moong(Green Gram)', 'Oilseeds total',
'Peas & beans (Pulses)', 'Potato', 'Pulses total', 'Rapeseed &Mustard', 'Rice',
'Safflower', 'Sesamum', 'Sugarcane', 'Sunflower', 'Turmeric', 'Urad', 'Wheat']
,
"24 PARAGANAS SOUTH": ['Arecanut', 'Arhar/Tur', 'Barley', 'Coconut ',
'Cotton(lint)', 'Dry chillies', 'Dry ginger', 'Garlic', 'Gram', 'Groundnut',
'Jute', 'Khesari', 'Linseed', 'Maize', 'Masoor', 'Mesta', 'Moong(Green Gram)',
'Oilseeds total', 'Peas & beans (Pulses)', 'Potato', 'Pulses total', 'Rapeseed
&Mustard', 'Rice', 'Sesamum', 'Sugarcane', 'Sunflower', 'Turmeric', 'Urad',
'Wheat'] ,
"ADILABAD": ['Arhar/Tur', 'Bajra', 'Banana', 'Beans & Mutter(Vegetable)',
'Bhindi', 'Bottle Gourd', 'Brinjal', 'Cabbage', 'Cashewnut', 'Castor seed',
'Citrus Fruit', 'Coriander', 'Cotton(lint)', 'Cowpea(Lobia)', 'Cucumber', 'Dry
chillies', 'Garlic', 'Ginger', 'Gram', 'Groundnut', 'Horse-gram', 'Jowar',
'Linseed', 'Maize', 'Mango', 'Masoor', 'Mesta', 'Moong(Green Gram)', 'Onion',
'Orange', 'Other Rabi pulses', 'Other Fibres', 'Other Fresh Fruits', 'Other
Kharif pulses', 'Other Misc. Pulses', 'Other Oilseeds', 'Other Vegetables',
'Pome Fruit', 'Potato', 'Ragi', 'Rapeseed &Mustard', 'Rice', 'Safflower',
```

```
'Samai', 'Sesamum', 'Small millets', 'Soyabean', 'Sugarcane', 'Sunflower',
'Sweet potato', 'Tobacco', 'Tomato', 'Turmeric', 'Urad', 'Varagu', 'Wheat'] ,
"AGAR MALWA": ['Arhar/Tur', 'Bajra', 'Barley', 'Coriander', 'Dry chillies',
'Dry ginger', 'Garlic', 'Gram', 'Groundnut', 'Jowar', 'Linseed', 'Maize',
'Masoor', 'Moong(Green Gram)', 'Onion', 'Other  Rabi pulses', 'Other Kharif
pulses', 'Peas & beans (Pulses)', 'Potato', 'Rapeseed &Mustard', 'Rice',
'Sannhamp', 'Sesamum', 'Soyabean', 'Sugarcane', 'Sweet potato', 'Urad',
'Wheat'] ,
"AHMADABAD": ['Arhar/Tur', 'Bajra', 'Banana', 'Castor seed', 'Cotton(lint)',
'Dry chillies', 'Garlic', 'Gram', 'Groundnut', 'Guar seed', 'Jowar', 'Maize',
'Moong(Green Gram)', 'Moth', 'Oilseeds total', 'Onion', 'Other Cereals &
Millets', 'Other Kharif pulses', 'Other Oilseeds', 'Potato', 'Pulses total',
'Rapeseed &Mustard', 'Rice', 'Sesamum', 'Small millets', 'Sugarcane',
'Tobacco', 'Urad', 'Wheat'] ,
"AHMEDNAGAR": ['Arhar/Tur', 'Bajra', 'Banana', 'Castor seed', 'Cotton(lint)',
'Gram', 'Grapes', 'Groundnut', 'Jowar', 'Linseed', 'Maize', 'Mango',
'Moong(Green Gram)', 'Niger seed', 'Onion', 'Other  Rabi pulses', 'Other
Cereals & Millets', 'Other Kharif pulses', 'Other Oilseeds', 'Pulses total',
'Ragi', 'Rapeseed &Mustard', 'Rice', 'Safflower', 'Sesamum', 'Small millets',
'Soyabean', 'Sugarcane', 'Sunflower', 'Tomato', 'Total foodgrain', 'Urad',
'Wheat'] ,
"AIZAWL": ['Arhar/Tur', 'Coconut ', 'Cotton(lint)', 'Gram', 'Groundnut',
'Kapas', 'Maize', 'Masoor', 'Moong(Green Gram)', 'Other Rabi pulses', 'Other
Kharif pulses', 'Other Oilseeds', 'Peas & beans (Pulses)', 'Potato', 'Rapeseed
&Mustard', 'Rice', 'Sesamum', 'Soyabean', 'Sugarcane', 'Tapioca', 'Tobacco',
'Urad', 'Wheat'] ,
"AKOLA": ['Arhar/Tur', 'Bajra', 'Banana', 'Castor seed', 'Cotton(lint)',
'Gram', 'Grapes', 'Groundnut', 'Jowar', 'Maize', 'Mango', 'Moong(Green Gram)',
'Onion', 'Other  Rabi pulses', 'Other Cereals & Millets', 'Other Kharif
pulses', 'Pulses total', 'Rapeseed &Mustard', 'Rice', 'Safflower', 'Sesamum',
'Small millets', 'Soyabean', 'Sugarcane', 'Sunflower', 'Tomato', 'Total
foodgrain', 'Urad', 'Wheat'] ,
"ALAPPUZHA": ['Arecanut', 'Banana', 'Bhindi', 'Bitter Gourd', 'Black pepper',
'Brinjal', 'Cashewnut', 'Cashewnut Raw', 'Coconut ', 'Drum Stick', 'Dry
ginger', 'Jack Fruit', 'Mango', 'Other Fresh Fruits', 'Other Oilseeds', 'Other
Vegetables', 'Papaya', 'Pineapple', 'Potato', 'Ragi', 'Rice', 'Rubber',
'Sesamum', 'Small millets', 'Snak Guard', 'Sugarcane', 'Sweet potato',
'Tapioca', 'Turmeric'] ,
"ALIGARH": ['Arhar/Tur', 'Bajra', 'Banana', 'Barley', 'Coriander',
'Cotton(lint)', 'Dry chillies', 'Dry ginger', 'Garlic', 'Gram', 'Groundnut',
'Guar seed', 'Jowar', 'Linseed', 'Maize', 'Masoor', 'Moong(Green Gram)',
'Moth']
```

```
}
        var seasons = {
                "Kharif": ['Arecanut', 'Arhar/Tur', 'Bajra', 'Banana', 'Barley',
'Bean', 'Black pepper', 'Blackgram', 'Brinjal', 'Cabbage', 'Cardamom',
'Cashewnut', 'Castor seed', 'Coconut ', 'Colocosia', 'Cond-spcs other',
'Coriander', 'Cotton(lint)', 'Cowpea(Lobia)', 'Dry chillies', 'Dry ginger',
'Garlic', 'Ginger', 'Gram', 'Grapes', 'Groundnut', 'Guar seed', 'Horse-gram',
'Jobster', 'Jowar', 'Jute', 'Jute & mesta', 'Kapas', 'Khesari', 'Korra',
'Lemon', 'Linseed', 'Maize', 'Mango', 'Masoor', 'Mesta', 'Moong(Green Gram)',
'Moth', 'Niger seed', 'Oilseeds total', 'Onion', 'Orange', 'Other Cereals &
Millets', 'Other Kharif pulses', 'Other Misc. Pulses', 'Other Oilseeds',
'Paddy', 'Papaya', 'Peas & beans (Pulses)', 'Perilla', 'Pome Granet', 'Potato',
'Pulses total', 'Ragi', 'Rajmash Kholar', 'Rapeseed &Mustard', 'Rice',
'Ricebean (nagadal)', 'Safflower', 'Samai', 'Sannhamp', 'Sapota', 'Sesamum',
'Small millets', 'Soyabean', 'Sugarcane', 'Sunflower', 'Sweet potato',
'Tapioca', 'Tea', 'Tobacco', 'Tomato', 'Total foodgrain', 'Turmeric', 'Urad',
'Varagu', 'Wheat'] ,
                "Whole Year": ['Apple', 'Arcanut (Processed)', 'Arecanut',
'Arhar/Tur', 'Ash Gourd', 'Atcanut (Raw)', 'Bajra', 'Banana', 'Barley', 'Beans
& Mutter(Vegetable)', 'Beet Root', 'Ber', 'Bhindi', 'Bitter Gourd', 'Black
pepper', 'Bottle Gourd', 'Brinjal', 'Cabbage', 'Cardamom', 'Carrot',
'Cashewnut', 'Cashewnut Processed', 'Cashewnut Raw', 'Castor seed',
'Cauliflower', 'Citrus Fruit', 'Coconut ', 'Coffee', 'Coriander',
'Cotton(lint)', 'Cucumber', 'Drum Stick', 'Dry chillies', 'Dry ginger',
'Garlic', 'Ginger', 'Gram', 'Grapes', 'Groundnut', 'Guar seed', 'Horse-gram',
'Jack Fruit', 'Jowar', 'Jute & mesta', 'Kapas', 'Khesari', 'Lab-Lab',
'Linseed', 'Litchi', 'Maize', 'Mango', 'Masoor', 'Mesta', 'Moong(Green Gram)',
'Moth', 'Niger seed', 'Oilseeds total', 'Onion', 'Orange', 'Other Citrus
Fruit', 'Other Dry Fruit', 'Other Fibres', 'Other Fresh Fruits', 'Other
Oilseeds', 'Other Vegetables', 'Papaya', 'Peach', 'Pear', 'Peas (vegetable)',
'Peas & beans (Pulses)', 'Pineapple', 'Plums', 'Pome Fruit', 'Pome Granet',
'Potato', 'Pulses total', 'Pump Kin', 'Ragi', 'Rapeseed &Mustard', 'Redish',
'Ribed Guard', 'Rice', 'Rubber', 'Safflower', 'Sannhamp', 'Sesamum', 'Small
millets', 'Snak Guard', 'Soyabean', 'Sugarcane', 'Sunflower', 'Sweet potato',
'Tapioca', 'Tea', 'Tobacco', 'Tomato', 'Total foodgrain', 'Turmeric', 'Turnip',
'Urad', 'Water Melon', 'Wheat', 'Yam'] ,
              "Autumn": ['Arhar/Tur', 'Banana', 'Cotton(lint)', 'Dry chillies',
'Dry ginger', 'Groundnut', 'Jowar', 'Jute', 'Maize', 'Moong(Green Gram)',
'Onion', 'Paddy', 'Peas & beans (Pulses)', 'Potato', 'Ragi', 'Rice',
'Sannhamp', 'Sesamum', 'Small millets', 'Soyabean', 'Sugarcane', 'Sweet
potato', 'Tapioca', 'Turmeric', 'Urad'] ,
```

```
                "Rabi": ['Arecanut', 'Arhar/Tur', 'Bajra', 'Banana', 'Barley',
'Black pepper', 'Blackgram', 'Brinjal', 'Cabbage', 'Cashewnut', 'Castor seed',
'Cond-spcs  other',  'Coriander',  'Cotton(lint)',  'Cowpea(Lobia)',  'Dry
chillies', 'Dry ginger', 'Garlic', 'Ginger', 'Gram', 'Groundnut', 'Horse-gram',
'Jowar', 'Jute', 'Khesari', 'Korra', 'Lentil', 'Linseed', 'Maize', 'Masoor',
'Mesta', 'Moong(Green Gram)', 'Moth', 'Niger seed', 'Oilseeds total', 'Onion',
'Other Rabi pulses', 'Other Cereals & Millets', 'Other Kharif pulses', 'Other
Misc. Pulses', 'Other Oilseeds', 'Paddy', 'Papaya', 'Peas & beans (Pulses)',
'Pineapple', 'Potato', 'Pulses total', 'Ragi', 'Rajmash Kholar', 'Rapeseed
&Mustard', 'Rice', 'Safflower', 'Samai', 'Sannhamp', 'Sesamum', 'Small
millets', 'Soyabean', 'Sugarcane', 'Sunflower', 'Sweet potato', 'Tapioca',
'Tobacco', 'Tomato', 'Total foodgrain', 'Turmeric', 'Urad', 'Varagu', 'Wheat']
,
                    "Summer": ['Arhar/Tur', 'Bajra', 'Banana', 'Brinjal',
'Cotton(lint)', 'Cowpea(Lobia)', 'Dry chillies', 'Dry ginger', 'Groundnut',
'Horse-gram', 'Jowar', 'Jute', 'Maize', 'Moong(Green Gram)', 'Onion', 'Other
Rabi pulses', 'Paddy', 'Peas & beans (Pulses)', 'Potato', 'Pulses total',
'Ragi', 'Rice', 'Sesamum', 'Small millets', 'Sugarcane', 'Sunflower',
'Tobacco', 'Total foodgrain', 'Turmeric', 'Urad', 'Wheat'] ,
            "Winter": ['Arhar/Tur', 'Banana', 'Coriander', 'Cotton(lint)', 'Dry
chillies', 'Dry ginger', 'Gram', 'Groundnut', 'Horse-gram', 'Maize',
'Moong(Green Gram)', 'Niger seed', 'Onion', 'Paddy', 'Peas & beans (Pulses)',
'Potato', 'Ragi', 'Rapeseed &Mustard', 'Rice', 'Sannhamp', 'Sesamum',
'Soyabean', 'Sugarcane', 'Sunflower', 'Sweet potato', 'Turmeric', 'Urad',
'Wheat'] ,
        }
        function fillContents() {
            var content = "";
            var district_name = document.getElementById('district_name').value;
            var season = document.getElementById('season').value;
            if (district_name == "Null" && season == "Null") {
                document.getElementById("content").innerHTML = "";
                return;
            }
            else if (season == "Null") {
                var list = districts[district_name];
            }
            else if (district_name == "Null") {
                var list = seasons[season];
            }
            else {
```

```
                        var list= districts[district_name].filter(value =>
seasons[season].includes(value));
            }
            for (var i=0;i<list.length;i++) {
                content += `<div class="card">${list[i]}</div>`;
            }
            document.getElementById("content").innerHTML = content;
        }
    </script>
</body>
</html>
```

7.9 welcome.html

```
<html>
<head>
    <meta charset="utf-8">
    <title>Healthy Harvest</title>
                                                <link           rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
    <link rel="stylesheet" href="../static/css/font-awesome.min.css">
    <link rel="stylesheet" href="../static/css/main.css">
                              <link       rel="icon"       type="image/x-icon"
href="../static/img/logo-white-fav.png">
     </head>
<body>
    <div class="home">
              <video  class="home-video"  src  =  "../static/img/Pexels  Videos
1620050.mp4" muted loop autoplay></video>
        <div class="overlay">
        </div>
        <div class="home-content">
            <h1 id="head">LET US HELP YOU</h1>
            <h2>WELCOME TO HEALTHY HARVEST</h2>
               <p>we provide a crop production prediction system that estimates
the yield for you</p>
            <a href="/login" class="button">GET STARTED</a>
        </div>
    </div>
</body>
</html>
```

8.TESTING

8.1 Test Cases

8.1.1 User should able to choose from login or signup

8.1.2 The UI elements should correspond to the appropriate fields such as email, password and username that gets stored in the database

8.1.3 The login page is valid only if the user has already registered

8.1.4 The registered user should login to view the dashboard

8.1.5 The credentials should match for both login and register

8.1.6 The email account should be valid

8.2 User Acceptance Testing

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	10	2	1	4	17
Duplicate	1	0	3	0	4
External	1	4	0	0	4
Fixed	8	2	4	12	26
Not Reproduced	0	0	0	0	0
Skipped	0	0	0	1	1
Won't Fix	0	2	1	1	4
Totals	20	10	9	19	56

Test case Analysis:

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

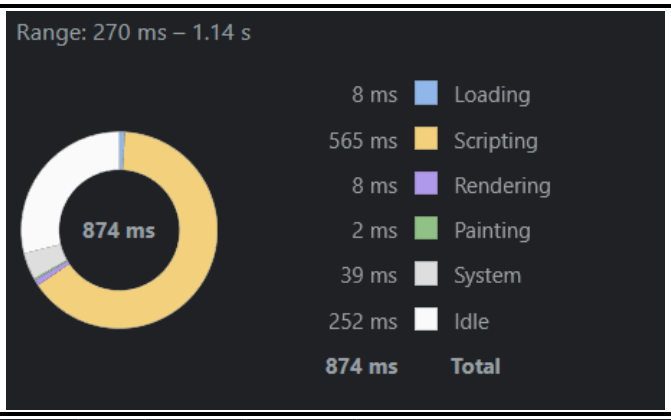
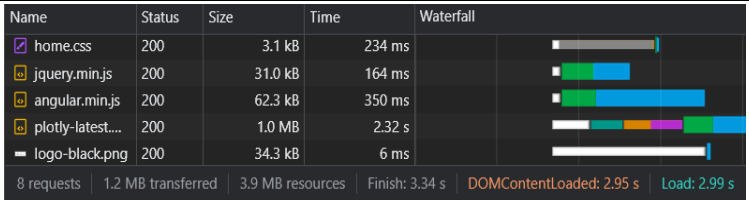
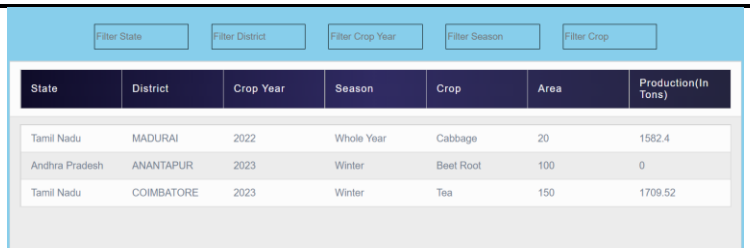
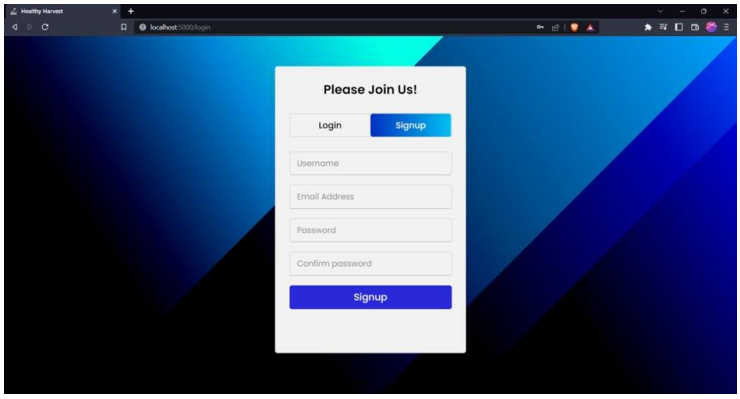
Section	Total Cases	Not Tested	Fail	Pass
Dashboard	15	0	0	15
Client Application	27	0	0	27
Security	7	0	0	7
Predictive model	5	0	0	5
Visualizations	10	0	0	10
Design and UI	4	0	0	4
Version Control	1	0	0	1

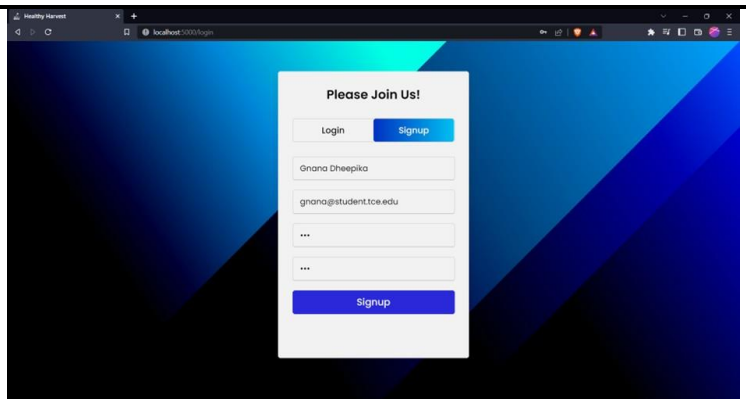
9. RESULTS

9.1 Performance Metrics

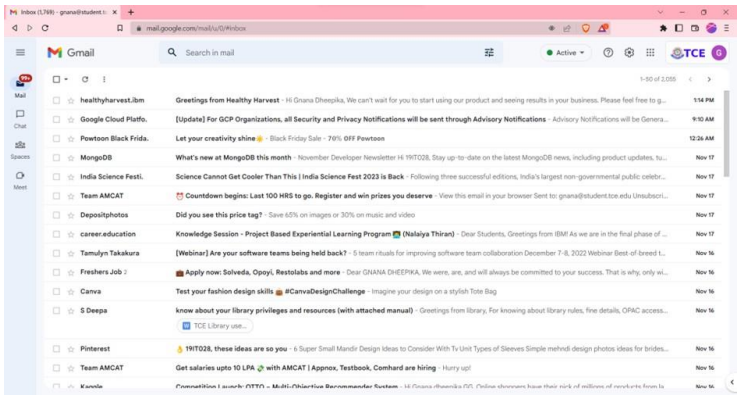
Project team shall fill the following information in the model performance testing template

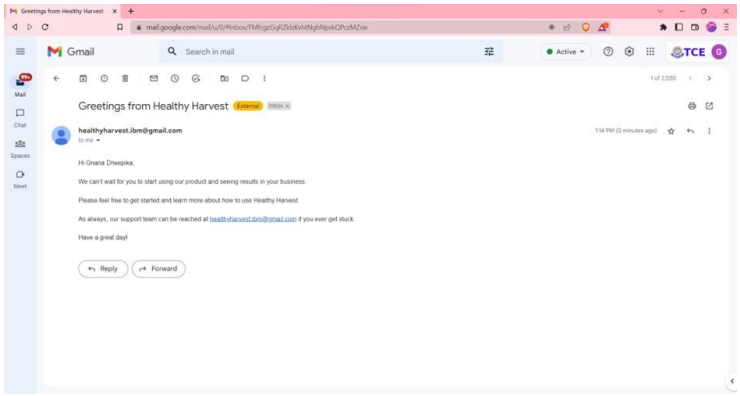
.

S.No.	Parameter	Screenshot / Values
1.	Dashboard design	No of Visulizations / Graphs - 5
2.	Data Responsiveness	
3.	Amount Data to Rendered (DB2 Metrics)	
4.	Utilization of Data Filters	
5.	Effective User Story	No of Scene Added - USN-1 

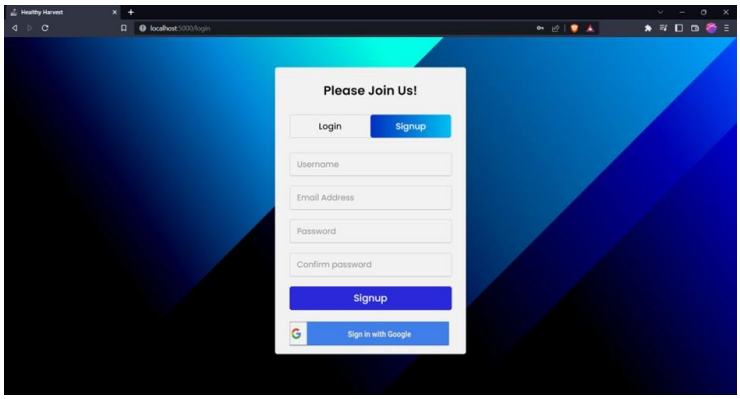

Please Join Us!
Login
Signup
Gnana Dheepika
gnana@student.tce.edu
Signup

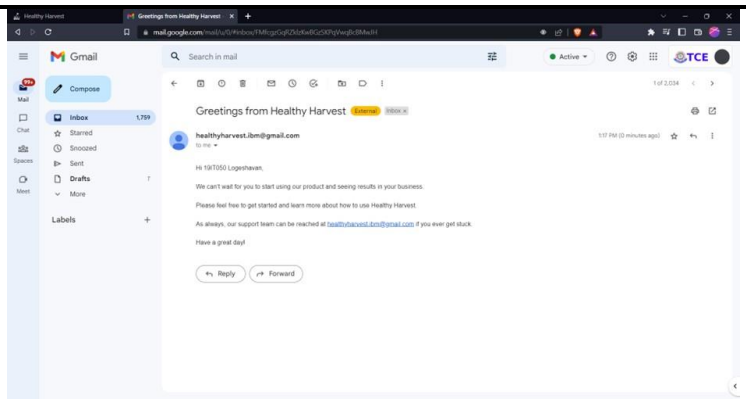
USN - 2

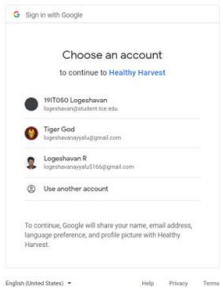

Gmail
Search in mail
Active
TCE


Gmail
Search in mail
Active
TCE
Greetings from Healthy Harvest
healthyharvest.ibm@gmail.com
Hi Gnana Dheepika,
We can't wait for you to start using our product and seeing results in your business.
Please feel free to get started and learn more about how to use Healthy Harvest.
As always, our support team can be reached at healthyharvest.ibm@gmail.com if you ever get stuck.
Have a great day!
Reply
Forward

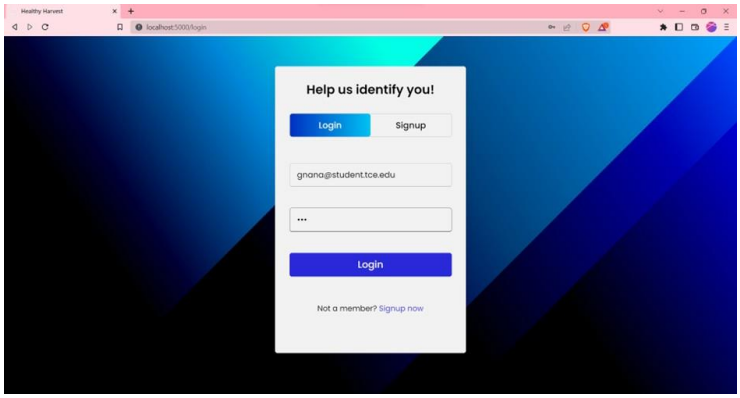
USN - 4

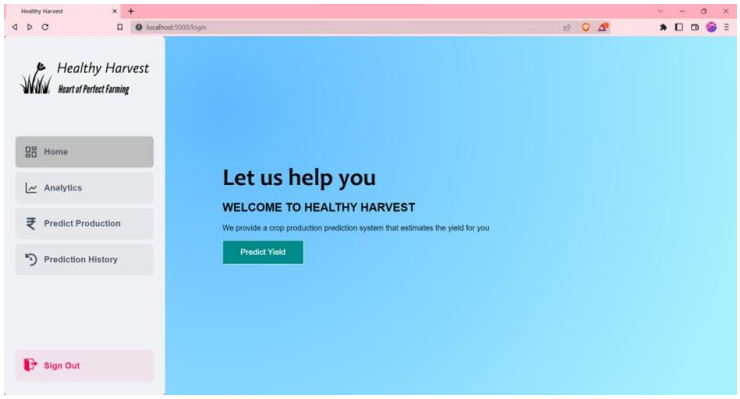

Please Join Us!
Login
Signup
Username
Email Address
Password
Confirm password
Signup
Sign in with Google


Gmail
Search in mail
Compose
Inbox
Starred
Snoozed
Sent
Drafts
More
Labels
Greetings from Healthy Harvest
healthyharvest.ibm@gmail.com
Hi 19IT050 Logeshavan,
We can't wait for you to start using our product and seeing results in your business.
Please feel free to get started and learn more about how to use Healthy Harvest.
As always, our support team can be reached at healthyharvest.ibm@gmail.com if you ever get stuck.
Have a great day!
Reply
Forward

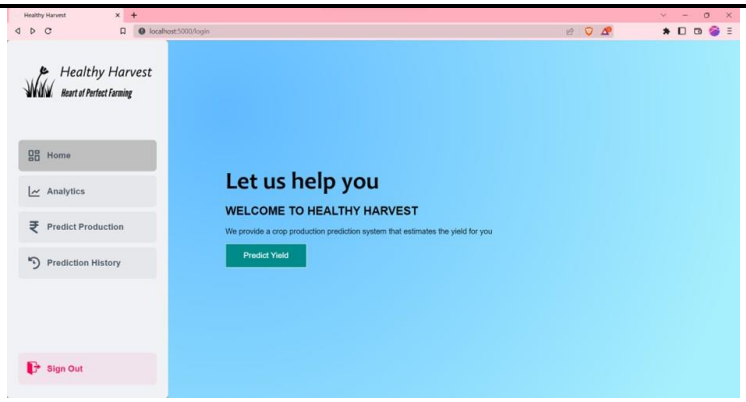

Sign in with Google
Choose an account
to continue to Healthy Harvest
19IT050 Logeshavan
Tiger God
Logeshavan R
Use another account
To continue, Google will share your name, email address, language preference, and profile picture with Healthy Harvest.

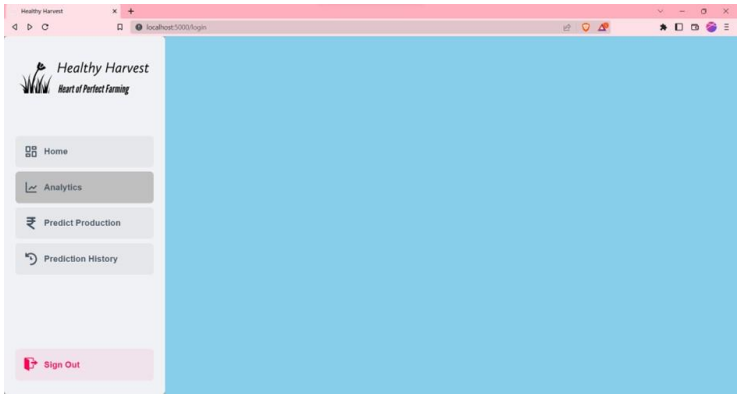
USN - 5

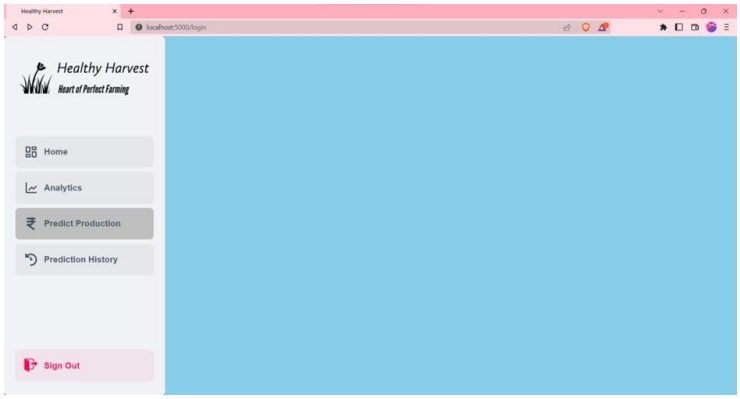

Help us identify you!
Login
Signup
gnana@student.tce.edu
Login
Not a member? Signup now

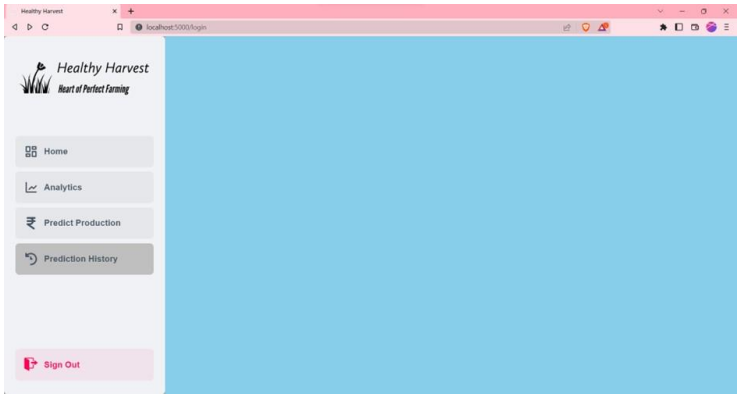

Healthy Harvest
Heart of Perfect Farming
Home
Analytics
Predict Production
Prediction History
Sign Out
Let us help you
WELCOME TO HEALTHY HARVEST
We provide a crop production prediction system that estimates the yield for you
Predict Yield

USN - 6


Healthy Harvest
Heart of Perfect Farming
Home
Analytics
Predict Production
Prediction History
Sign Out
Let us help you
WELCOME TO HEALTHY HARVEST
We provide a crop production prediction system that estimates the yield for you
Predict Yield


Healthy Harvest
Heart of Perfect Farming
Home
Analytics
Predict Production
Prediction History
Sign Out


Healthy Harvest
Heart of Perfect Farming
Home
Analytics
Predict Production
Prediction History
Sign Out


Healthy Harvest
Heart of Perfect Farming
Home
Analytics
Predict Production
Prediction History
Sign Out

USN - 9

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password	varchar(255)	NO		NULL	
email	varchar(100)	NO		NULL	

id	username	password	email
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2	19IT050 Logeshavan	113274633837860008166	logeshavan@student.tce.edu
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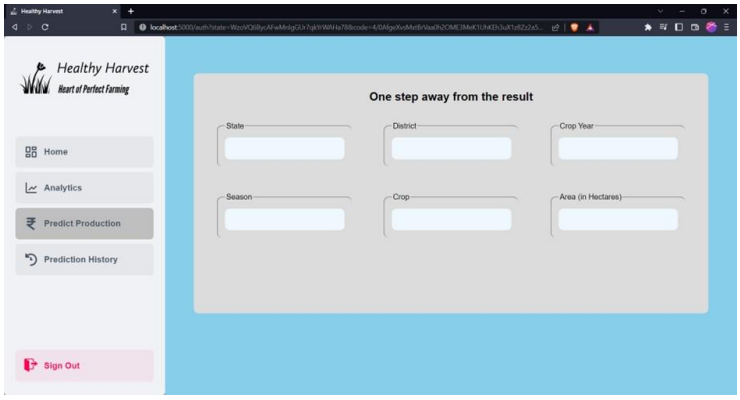
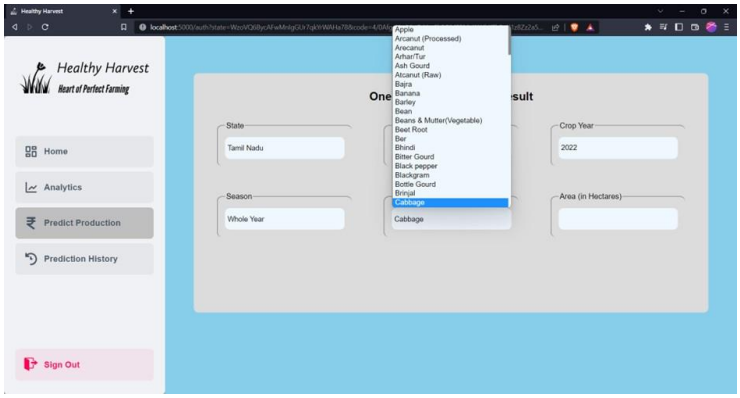
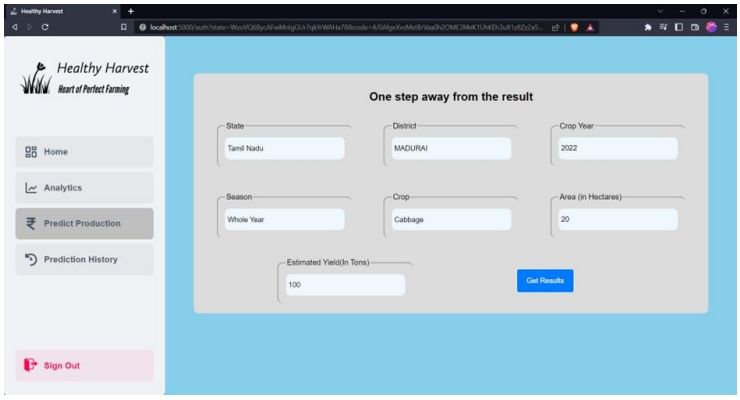
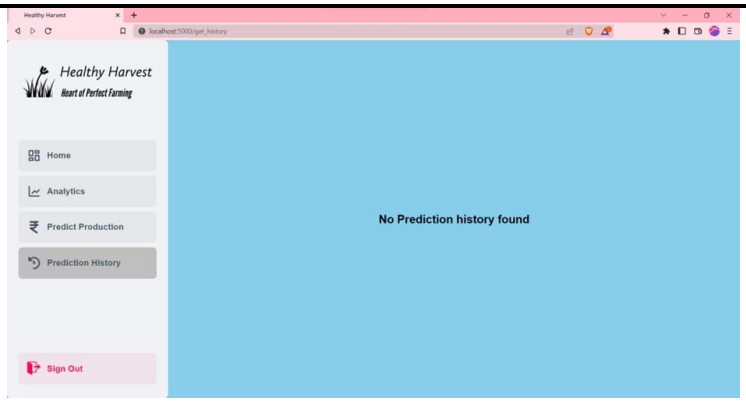
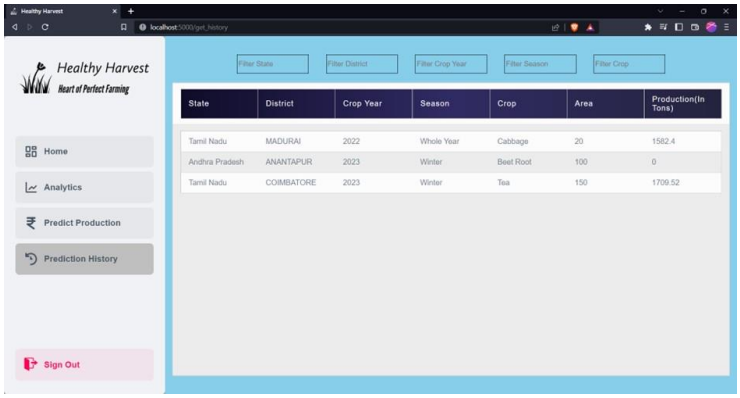
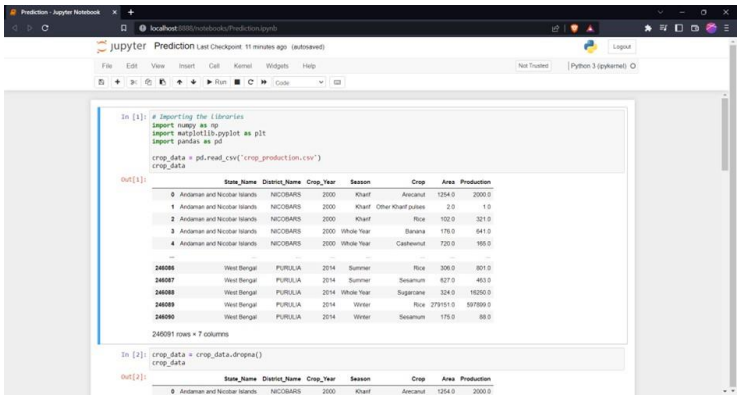
USN-8

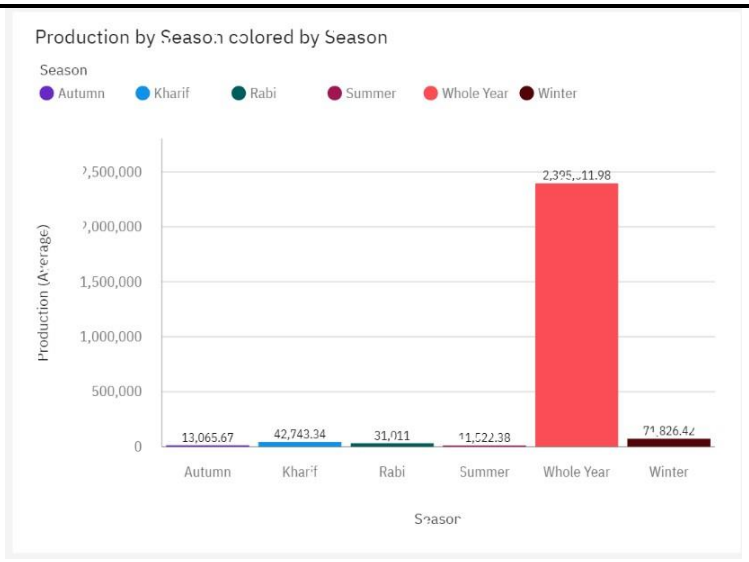


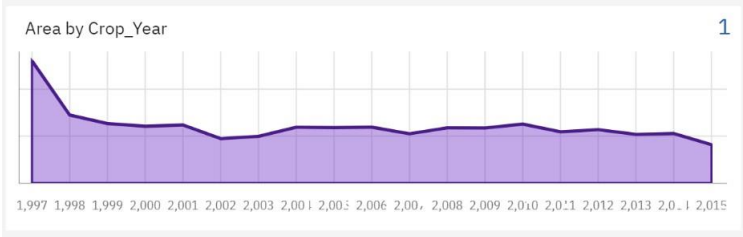




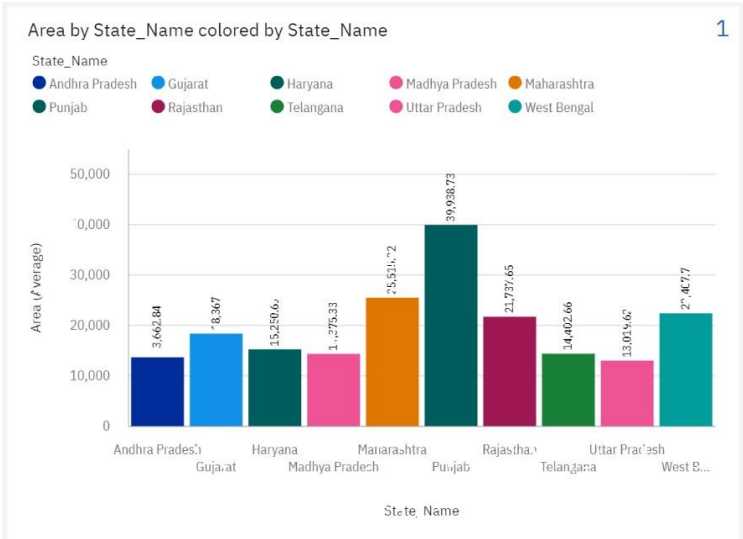
USN-11
All visualization graphs from cognos analytics
USN-7

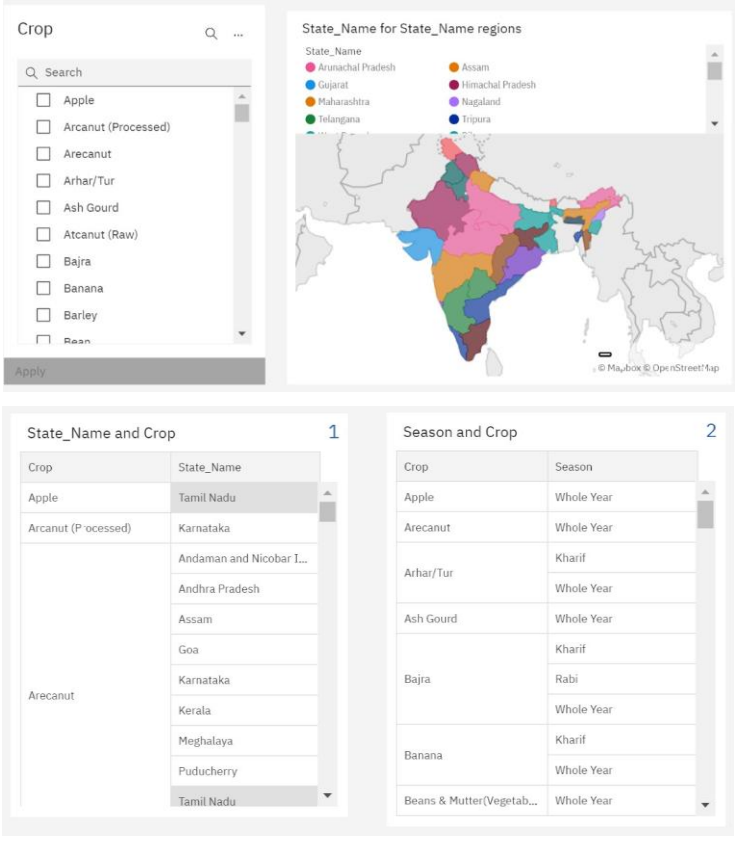
		  USN-10 
6.	Descriptive Reports	No of Visualizations / Graphs - 1. Seasons with Average productions 2. With years usage of area and production 3. Top 10 states with most area 4. State with crop production 5. States with the crop production along with season (text table)


Production by Season colored by Season
Season
Autumn
Kharif
Rabi
Summer
Whole Year
Winter
Production (Average)
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
13,065.67
42,743.34
31,011
11,522.38
71,826.42
Autumn
Kharif
Rabi
Summer
Whole Year
Winter
Season


Area by Crop_Year
1
1,997 1,998 1,999 2,000 2,001 2,002 2,003 2,004 2,005 2,006 2,007 2,008 2,009 2,010 2,011 2,012 2,013 2,014 2,015


Production by Crop_Year
2
517,254.54
549,672.33
465,466.57
590,955.55
621,201.57
542,306.28
1,037,553.77
957,594.7
517,214.53
402,125.05
12,361.97
1,997 1,998 1,999 2,000 2,001 2,002 2,003 2,004 2,005 2,006 2,007 2,008 2,009 2,010 2,011 2,012 2,013 2,014 2,015


Area by State_Name colored by State_Name
1
State_Name
Andhra Pradesh
Gujarat
Haryana
Madhya Pradesh
Maharashtra
Punjab
Rajasthan
Telangana
Uttar Pradesh
West Bengal
Area (Average)
50,000
30,000
20,000
10,000
0
3,662.84
15,250.6
14,402.66
13,014.6
Andhra Pradesh
Gujarat
Haryana
Madhya Pradesh
Maharashtra
Punjab
Rajastha...
Telangana
Uttar Pradesh
West B...
State_Name



10.ADVANTAGES & DISADVANTAGES

Advantages

Crop yield prediction systems enable better production planning and decision-making. The proposed system includes a prediction module based on the Random Forest data mining classification algorithm, which is used to forecast the yield of major crops based on historical data. Random Forest is a supervised learning technique that is used to classify and predict datasets. It will randomly select a set of features from the dataset's attributes and build a set of decision trees by locating the root.

Crop yield prediction is also used by farmers to make decisions about when to plant and harvest crops based on soil moisture content, pest infestations, and other factors such as weather conditions and fertilizer requirements.

Agricultural producers take into account the amount of harvest per unit area for measurement. The extrapolation for the entire farm then gets done based on the harvested weight of the crop each year.

The site provides the profit/loss amount of production so that the farmers can plan accordingly. The user can view the history of their search and filter the data according to the selected attribute like based on year, crop yield etc.

Disadvantages

Previously yield was predicted on the basis of the farmers prior experience but now weather conditions may change drastically so they cannot guess the yield.

Any mismatch in the crop's climate and soil adaptations compared to the actual climate/soil conditions that it's grown in.

Other stress factors like drought stress, flood stress, and whatever temperature conditions might prevail during a given year, compared to the climate averages.

Soil topography is prohibited from taking and growing more than one crop in a particular area. Crop rotation is not always advisable. Changing weather conditions and other accidents interfere with crop rotation. The type of soil may generally be suitable only for certain crops.

The disadvantages to widespread pesticide use are significant. They include domestic animal contaminations and deaths, loss of natural antagonists to pests, pesticide resistance, honeybee and pollination decline, losses to adjacent crops, fishery and bird losses, and contamination of groundwater.

11.CONCLUSION

The productivity of agriculture has slightly increased as a result of technology's introduction. New ideas like digital agriculture, smart farming, precision agriculture, etc. have been made possible by the innovations. In the literature, it has been noted that analyses of agricultural soils and the detection of hidden patterns utilizing data sets relating to meteorological conditions and crop yields have been conducted. Numerous operations are involved in the agriculture industry, including crop yield prediction, seed selection, soil quality evaluation, and weather forecasting. The specific activity of agricultural yield prediction has been examined in this research, and the key patterns have been noted. Machine learning has been used to conduct the analysis. It may be said that research into using IT trends like data analytics in agriculture is still in its early stages. Since food is a basic human need, attaining the highest yields possible while using the best available resources will soon become a necessity due to the world's expanding population. The results of the poll show that crop yield analytics require more advanced methods. There is a wide range of research potential in this field.

12.FUTURE SCOPE

The application has features such as analytics, predicting the yield, crop recommendation. The yield results are displayed to the user in terms of metric tons and if the estimated yield is lower than the predicted yield, then it is said to be profit, otherwise loss. In future scope, we have decided to predict the cost of yield so that we can predict the result as profit/loss based on the investment and yield of the crop on market price. There are many factors for predicting the market price on the end of yield. Therefore, a separate model must be trained to predict the market price on the end of yield. The market price should be multiplied with the yield to predict the yield cost and based on the difference between investment and yield cost, we can predict whether the user has gain/loss.

13.APPENDIX

Source Code :

https://github.com/IBM-EPBL/IBM-Project-28356-1660110954/tree/main/Final%20deliverables

GitHub:

https://github.com/IBM-EPBL/IBM-Project-28356-1660110954