

Fertilizers Recommendation System For Disease Prediction

PROJECT REPORT

Submitted by

TeamID:PNT2022TMID49326

S.KARTHIKA (923019104703)

V.SABEENA (923019104704)

M.TAMIL ELAKKIYA (923019104705)

K.KARTHIKA (923019104702)

L.DEEPARANI (923019104701)

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1. Introduction

1.1. Project Overview

Plant disease prediction helps in the detection and recognition of the plant diseases. The images of plants are captured and analyzed for certain symptoms using Computer vision and image processing. By identifying the disease, the deficit nutrients that lead to the disease are found. Based on the available data on fertilizers, the necessary nutrient rich fertilizers are recommended.

1.2. Purpose

The plant diseases may lead to abnormal functionalities which may end up with the death of the plant. The project aims at recognizing the symptoms at the early stages. The project also aims at guiding the farmers with the proper choice of the fertilizers that are required to counter the deficiency of the nutrients that cause the disease.

2. Literature Survey

2.1. Existing Problem

2.2. Reference

Title	Technique	Links
Soil Based Fertilizer Recommendation System for Crop Disease Prediction System – P.Pandi Selvi,P.Poornima	Long or Short Term Memory Algorithm	http://www.ijetajournal.org/volume-8/issue-2/IJETA-V8I2P1
IOT based Crop Recommendation,Crop Disease Prediction and Its Solution – Rani Holambe, Pooja Patil, Padmaja Pawar Hrushikesh Joshi,Saurabh Salunkhe	Crop Recommendation System,Crop Disease Prediction,Internet of things,Machine Learning	https://arxiv.org/pdf/2204.11340
Farmer's Assistant:A Machine Learning Based Application for Agricultural Solutions-Shloka Gupta,Aparna Bhonde,Akshay Chopade,Nishit Jain	Image Analysis,Deep Learning,Machine Learning	https://www.irjet.net/archives/V7/I10/IRJET-V7I1004
R. Neela, P. Fertilizers Recommendation System For Disease Prediction In Tree Leave International journal of scientific & technology research volume 8, issue 11, november 2019	Adding a CNN(Convolutional neural network) and SVM(Support Vector Machine)	http://www.ijstr.org/final-print/nov2019/
Plant Disease Detection Using Image Processing and Machine Learning	Random Forest classifier, a combination of multiple decision trees is used where each tree is trained by using different subsets of the whole dataset to reduce the overfitting and improves the accuracy of the classifier.	https://arxiv.org/abs/2106.10698
Fertilizers Recommendation System for Disease Prediction in Tree Leaves	Support Vector Machine (SVM) algorithm classifies the leaf image as normal or affected. And it is used to identify a function Fx which obtain the hyper-plane.	https://www.semanticscholar.org/paper/Fertilizers-Recommendation-Disease-In-Neela-Nithya/495379d3ef2b461fabd2de8d0605e16

[1] Semi-automatic leaf disease detection and classification system for soybean culture IET Image Processing, 2018

- [2] Cloud Based Automated Irrigation And Plant Leaf Disease Detection System Using An Android Application. International Conference on Electronics, Communication and Aerospace Technology, ICECA 2017.
- [3] Ms. Kiran R. Gavhale, Ujwalla Gawande, Plant Leaves Disease detection using Image Processing Techniques, January 2014. https://www.researchgate.net/profile/UjwallaGawande/publication/314436486_An_Overview_of_the_Research_on_Plant_Leaves_Disease_detection_using_Image_Processing_Techniques/links/5d3710664585153e591a3d20/An-Overview-of-the-Research-on-Plant-Leaves-Disease-detection-using-ImageProcessing-Techniques.pdf
- [4] Duan Yan-e, Design of Intelligent Agriculture Management Information System Based on IOT, IEEE, 4th, Fourth International reference on Intelligent Computation Technology and Automation, 2011 <https://ieeexplore.ieee.org/document/5750779>
- [5] R. Neela, P. Fertilizers Recommendation System For Disease Prediction In Tree Leave International journal of scientific & technology research volume 8, issue 11, November 2019 <http://www.ijstr.org/final-print/nov2019/FertilizersRecommendationSystem-For-Disease-Prediction> In-Tree-Leave.pdf .
- [6] Swapnil Jori¹, Rutuja Bhalshankar², Dipali Dhamale³, Sulochana Sonkamble , Healthy Farm: Leaf Disease Estimation and Fertilizer Recommendation System using Machine Learning, International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-6211
- [7] Detection of Leaf Diseases and Classification using Digital Image Processing International Conference on Innovations in Information, Embedded and Communication Systems(ICIIECS), IEEE, 2017.
- [8] Shloka Gupta ,Nishit Jain ,Akshay Chopade, Farmer's Assistant: A Machine Learning Based Application for Agricultural Solution.

2.3 Problem Statement Definition

This project aims at providing a system to support the cultivators in choosing the right fertilizers for their plants to counter the deficiency of nutrients that cause various infections and diseases. The below blocks define the problems faced by the different users and the solutions that are provided by the system.

3.2 Ideation & Brainstorming

Ideation and Brainstorming are performed to generate ideas and solutions. Brainstorming is a group activity unlike ideation.



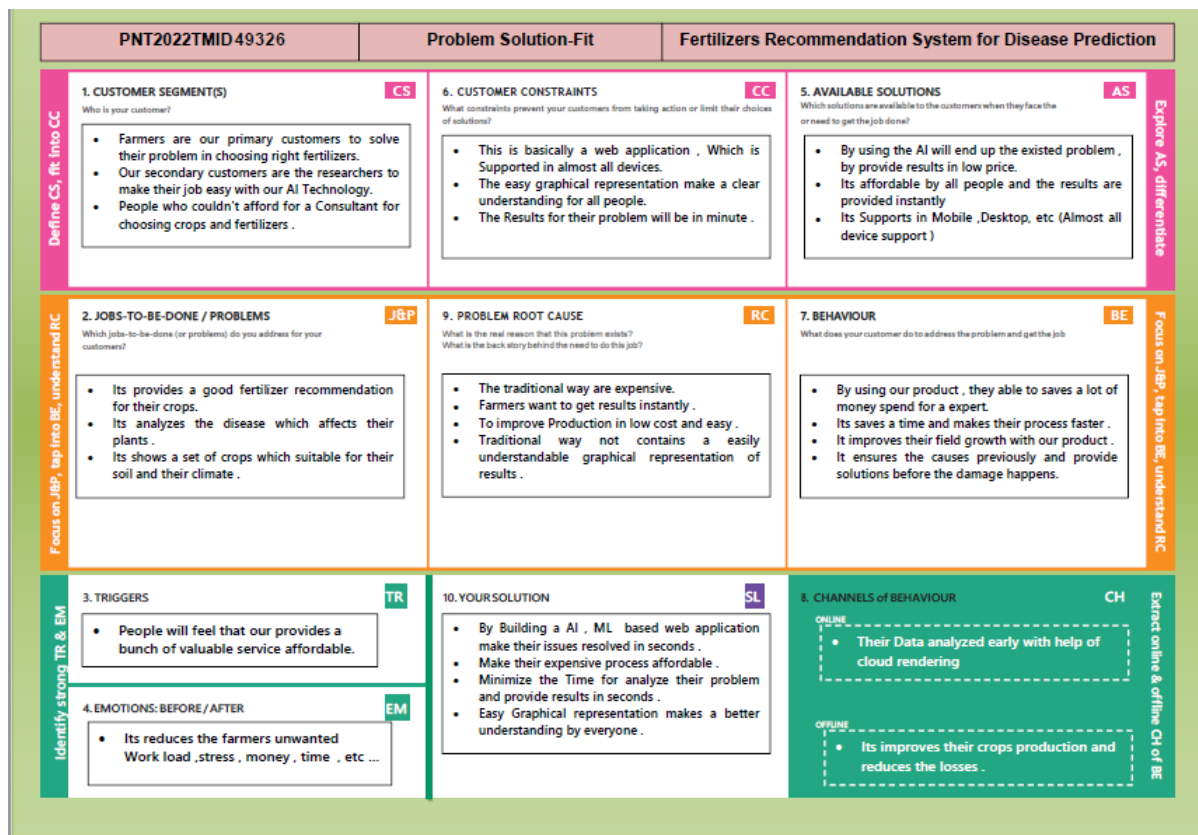
3.3. Proposed Solution

An automated system that takes the images of plant parts as input identifies different diseases on plants by checking the symptoms shown on the leaves of the plant is built .Deep learning techniques are used to identify the diseases and suggest the fertilizes that can help cure the disease. The user need not consult any specialist for identification of diseases that affected the leaves or for the recommendation of the fertilizers.

S. No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Agriculture gives an opportunity of employment to the village people to develop a country like India on large scale and give a push in the economic sector.
2.	Idea / Solution description	Models to recommend the right crop based on soil value and the best fertilizer to use.
3.	Novelty / Uniqueness	Novelty in a fertilizer must then be regarded as newness to the retail market.
4.	Social Impact / Customer Satisfaction	Consumers Farming is one of the major sector that influences a country's economic growth.
5.	Business Model (Revenue Model)	Predicting the fertilizers, Analyzing the disease in a tap makes the life of farmers easy with minimal subscriptions would provide an acceptable return for the organization.
6.	Scalability of the Solution	The primary cause of fertilizer price fluctuations is related to the supply and demand factors. India also faces a handicap due to lack of natural resources required to produce fertilizers.

Problem Solution fit:

The Problem-Solution Fit means that the solution that is realized can actually solve the problem that the customer faces.



4. Requirement Analysis

4.1 Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form
FR-2	User Confirmation	Confirmation via Email
FR-3	User Profile	Filling the profile page after logging in
FR-4	Uploading Dataset (Leaf)	Images of the leaves are to be uploaded
FR-5	Requesting solution	Uploaded images is compared with the pre-defined Model and solution is generated
FR-6	Downloading Solution	The Solution in pdf format which contains the recommendations of fertilizers and the possible diseases.

4.2 Non-Functional requirement

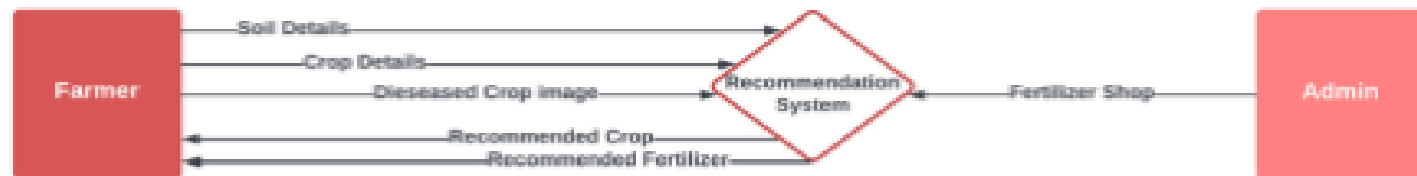
FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The system allows the user to perform the tasks easily and efficiently and effectively.
NFR-2	Security	Assuring all data inside the system or its part will be protected against malware attacks or unauthorized access.
NFR-3	Reliability	The website does not recover from failure quickly ,it takes time as the application is running in single server
NFR-4	Performance	Response Time and Net Processing Time is Fast

5. PROJECT DESIGN

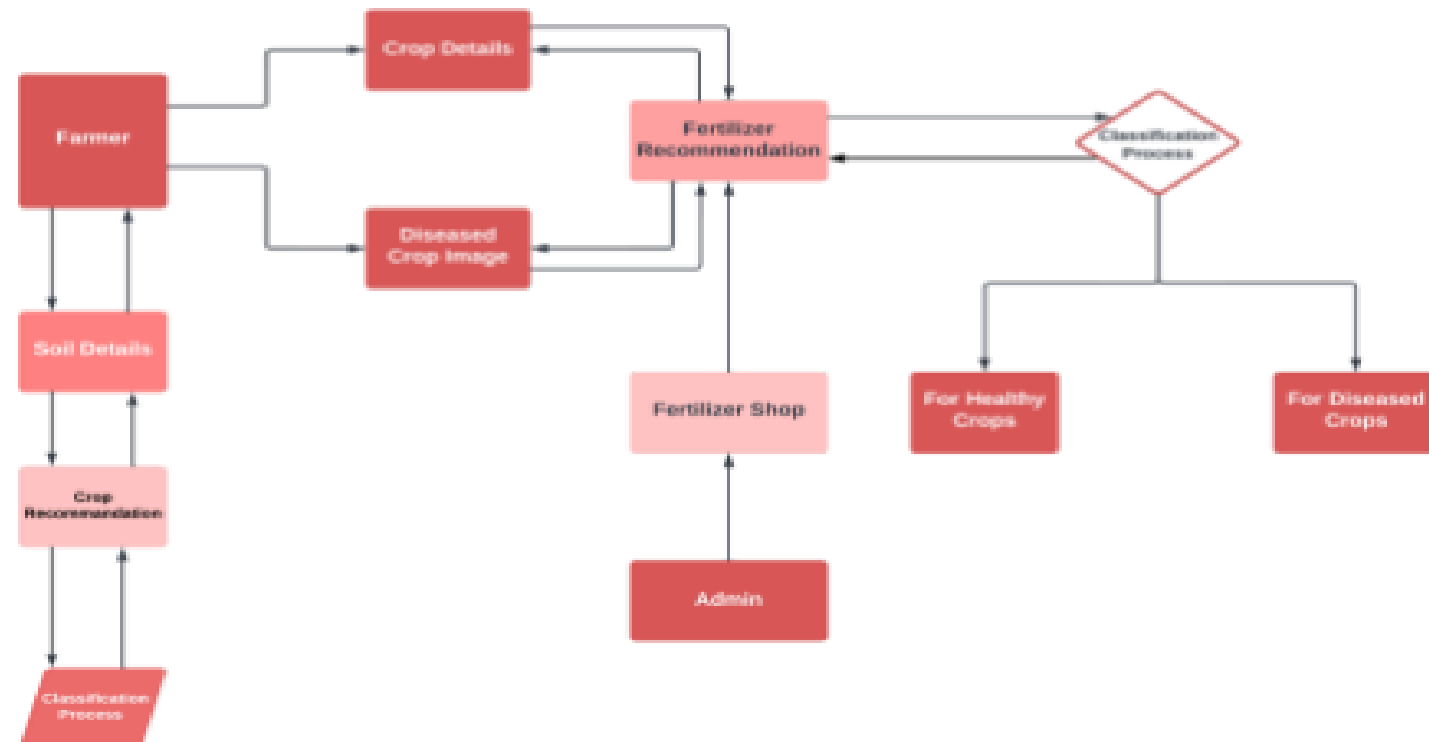
5.1 Data Flow Diagrams

A data flow diagram or DFD(s) maps out the flow information for any process or system. DFDs help you better understand process or system operation to discover potential problems, improve efficiency, and develop better processes.

DFD LEVEL - 0



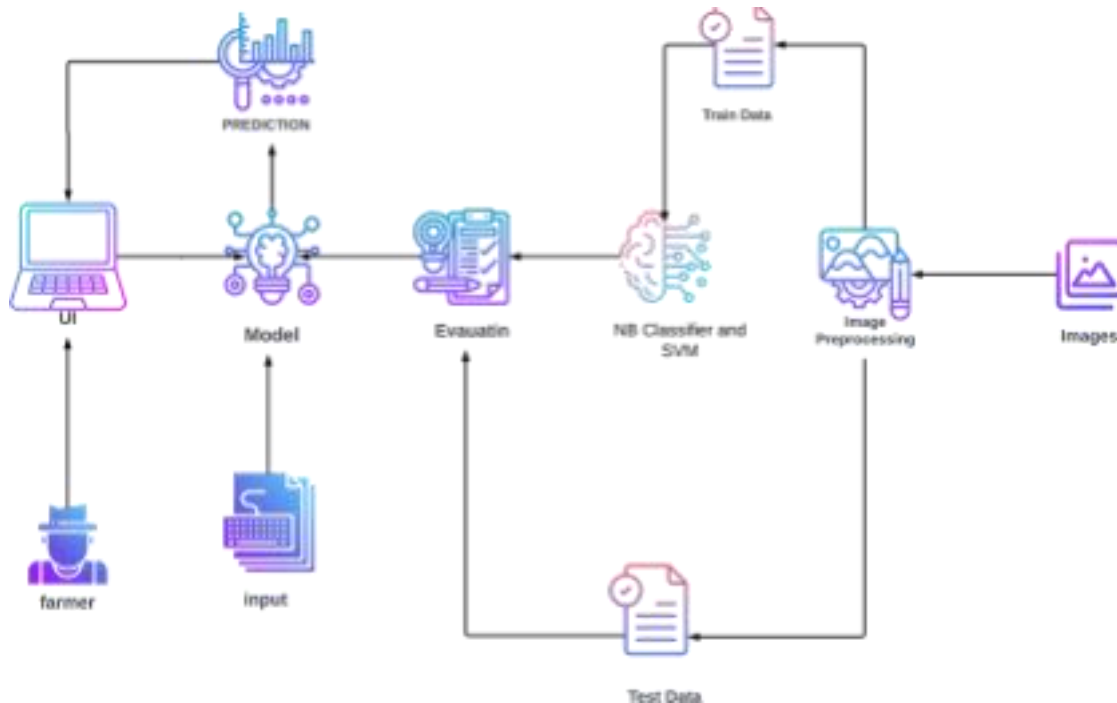
DFD LEVEL - 1



5.2 Solution & Technical Architecture

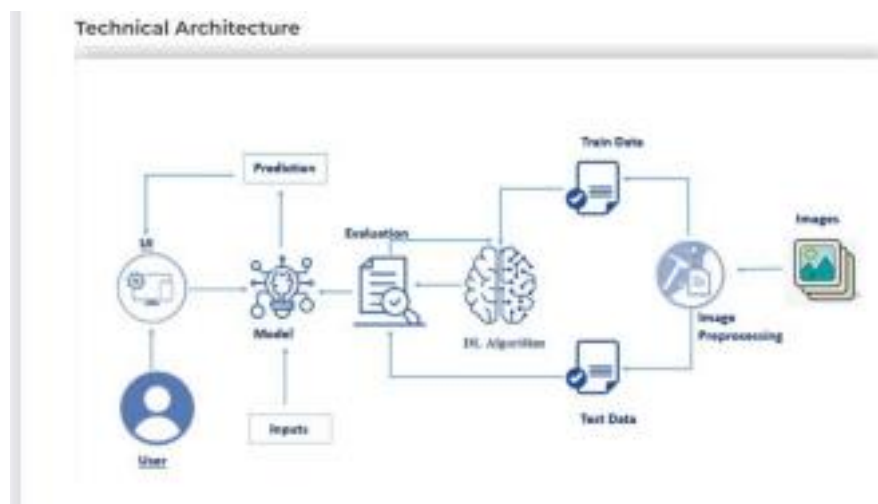
Solution Architecture:

Solution architecture is the process of developing solutions based on predefined processes, guidelines and best practices with the objective that the developed solution fits within the enterprise architecture in terms of information architecture, system portfolios, integration requirements, etc.



Technical Architecture:

Technical architecture involves the development of a technical blueprint regarding the arrangement, interaction, and interdependence of all elements so that system-relevant requirements are met.



5.3 User Stories

An informal, generic explanation of a software feature written from the viewpoint of the end user is known as a user story. Its objective is to explain how a software feature will benefit the user.

Table-1: Components & Technologies:

S.NO	Component	Description	Technology
1,	User Interface	How user interacts with the website.	HTML,CSS, etc.,
2,	Disease Prediction	Here the disease in the leaf is predicted	Keras,CNN.
3.	Fertilizer Recommendation	The fertilizer is recommended for the predicted disease	User interface, HTML, CSS.
4.	Dataset	The training and testing data are collectively stored	Kaggle.com, data.gov, UCI machine learning repository, etc.
5.	File Storage	File storage requirements	IBM, Local File system.
6,	Modules	Purpose of deep learning modules	Image Recognition Modules,etc.

Table-2: Application Characteristics:

S.NO	Characteristics	Description	Technology
1.	Opensource Framework	List of the opensource framework used	Open source-PyCharm, anaconda navigator, flask framework.
2.	Login	List of the access control implementation	Security - OWASP
3.	Scalable Architecture	Justify the scalable architecture	PyCharm
4.	Availability	Justify the availability of website	Web application access to all.
5.	Performance	Design consideration for the performance of the website	Convolutional Neural Networks.

6. Project Planning and Scheduling

6.1 Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Model Creation and Training (Fruits)		Create a model which can classify diseased fruit plants from given images. I also need to test the model and deploy it on IBM Cloud	8	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Model Creation and Training (Vegetables)		Create a model which can classify diseased vegetable plants from given images	2	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
Sprint-2	Model Creation and Training (Vegetables)		Create a model which can classify diseased vegetable plants from given images and train on IBM Cloud	6	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Registration	USN-1	As a user, I can register by entering my email, password, and confirming my	3	Medium	Karthika S, Sabeena V, Tamil

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			password or via OAuth API			elakkiya M, Karthika K, Deeparani L
	Upload page	USN-2	As a user, I will be redirected to a page where I can upload my pictures of crops	4	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Suggestion result	USN-3	As a user, I can view the results and then obtain the suggestions provided by the ML model	4	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Base Flask App		A base Flask web app must be created as an interface for the ML model	2	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
Sprint-3	Login	USN-4	As a user/admin/shopkeeper, I can log into the application by entering email & password	2	High	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	User Dashboard	USN-5	As a user, I can view the previous results and history	3	Medium	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Integration		Integrate Flask, CNN model with Cloudant DE	5	Medium	Karthika S, Sabeena V, Tamil

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
						elakkiya M, Karthika K, Deeparani L
	Containerization		Containerize Flask app using Docker	2	Low	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
Sprint-4	Dashboard (Admin)	USN-6	As an admin, I can view other user details and uploads for other purposes	2	Medium	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Dashboard (Shopkeeper)	USN-7	As a shopkeeper, I can enter fertilizer products and then update the details if any	2	Low	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L
	Containerization		Create and deploy Helm charts using Docker Image made before	2	Low	Karthika S, Sabeena V, Tamil elakkiya M, Karthika K, Deeparani L

6.2 Sprint Delivery Schedule

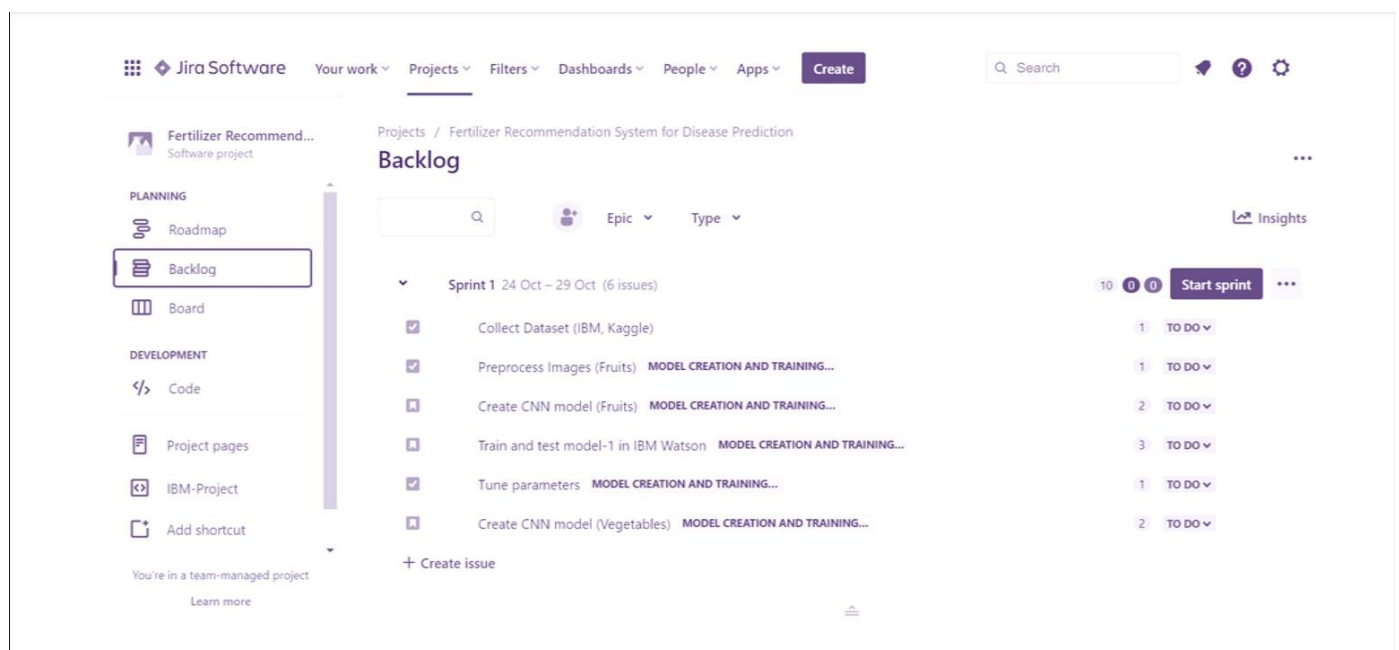
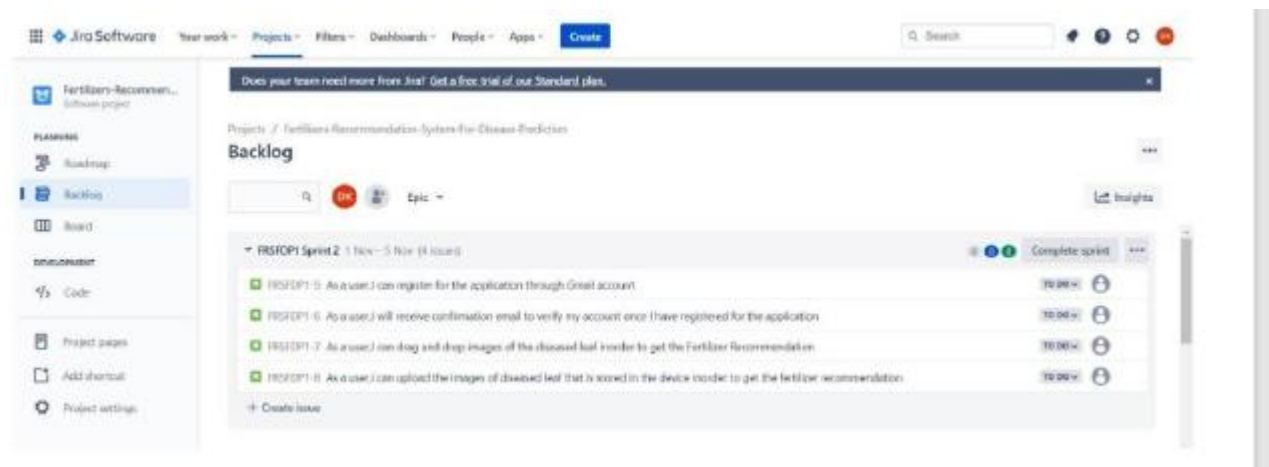
Agile sprints typically last from one week to one month. The goal of sprints is to put pressure on teams to innovate and deliver more quickly, hence the shorter the sprint, the better.

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	10	6 Days	24 Oct 2022	29 Oct 2022	10	30 Oct 2022
Sprint-2	15	6 Days	31 Oct 2022	05 Nov 2022	15	06 Nov 2022
Sprint-3	15	6 Days	07 Nov 2022	12 Nov 2022	15	13 Nov 2022
Sprint-4	12	6 Days	14 Nov 2022	19 Nov 2022	10	20 Nov 2022

6.3 Reports from JIRA

Backlog:

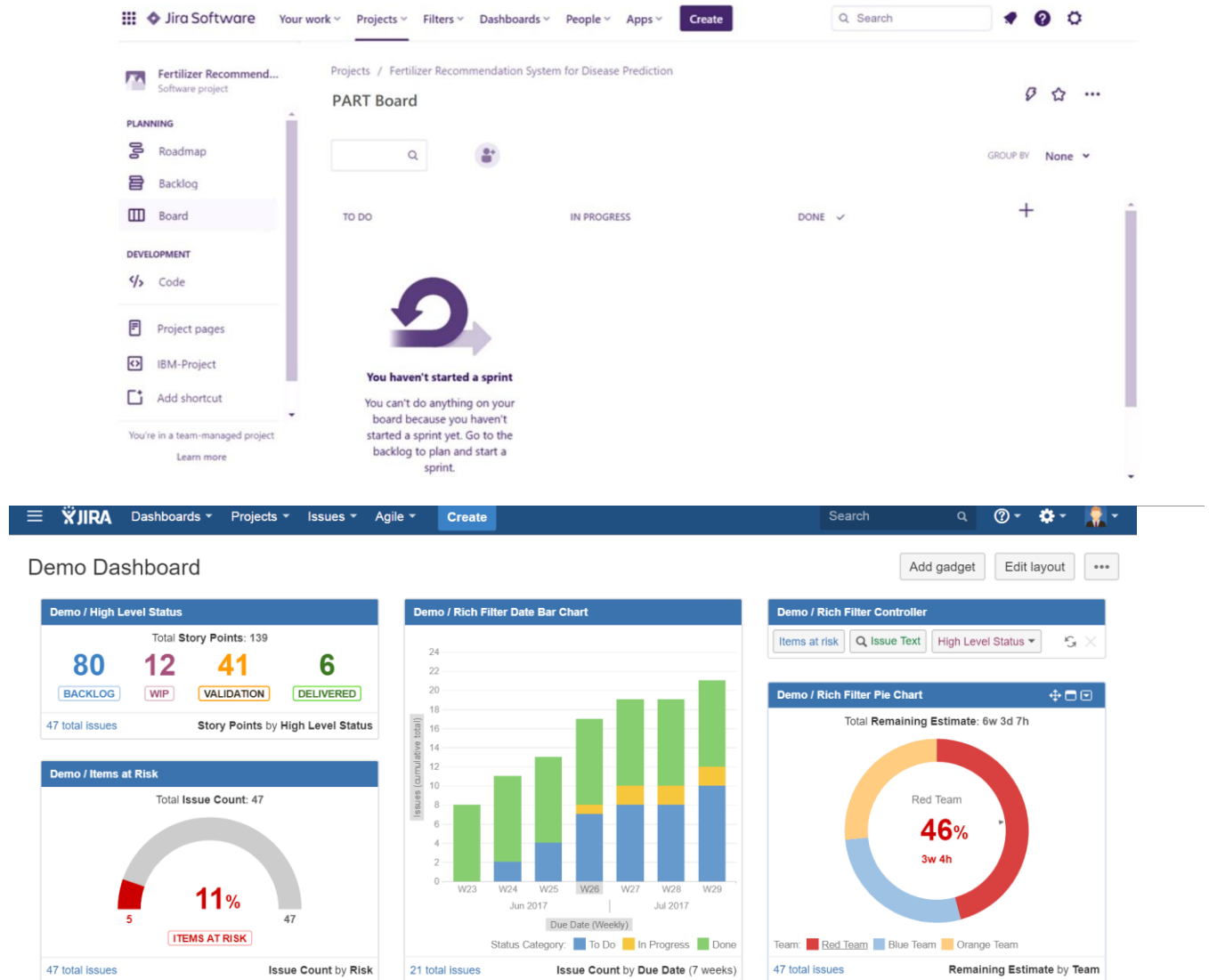
A backlog is a list of issues that's related to the project and the functions of the system. It makes it simple to make, store, manage a variety of problems including the ones the team is working on.



Board:

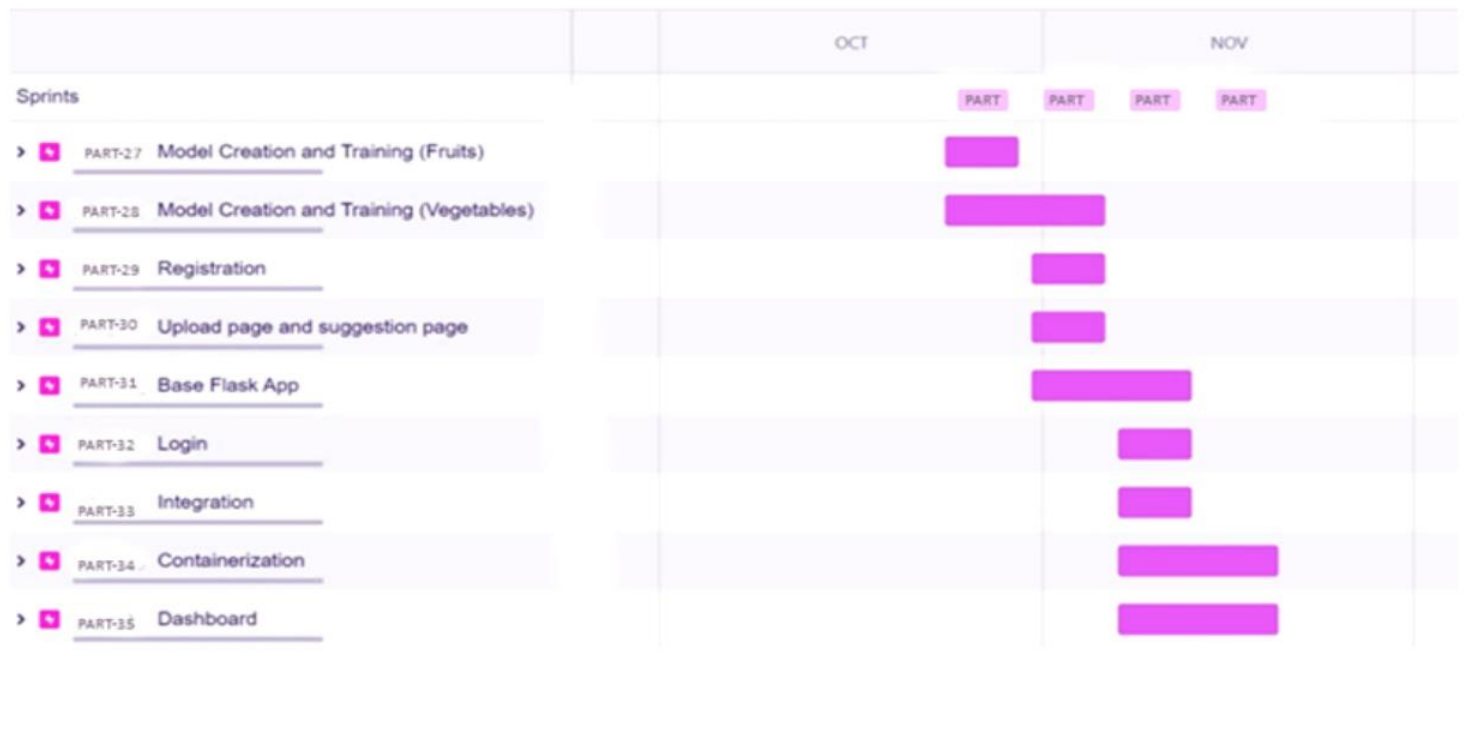
A board reflects your team's process, tracking the status of work.

The columns on the board represent the status of your team's issues. The visual representation of the work helps in discussing and tracking of the progress of the project from start to finish.



Roadmap:

A roadmap offers quick and easy planning that helps team better manage their dependencies and track progress on the big picture in real-time.



7. Coding and Solution. Python – app.py:

```
import os
import numpy as np
import pandas as pd
from tensorflow.keras.models import load_model
# from tensorflow.keras.preprocessing import image
from werkzeug.utils import secure_filename

from flask import Flask, render_template, request

app = Flask(__name__)

#load both the vegetable and fruit models
model = load_model("vegetable.h5")
model1=load_model("fruit.h5")

#home page
```



```

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

#prediction page
@app.route('/prediction')
def prediction():
    return render_template('predict.html')

@app.route('/predict',methods=['POST'])
def predict():
    if request.method == 'POST':
        # Get the file from post request
        f = request.files['image']

        # Save the file to ./uploads
        basepath = os.path.dirname(__file__)
        file_path = os.path.join(
            basepath, 'uploads', secure_filename(f.filename))
        f.save(file_path)
        img = image.load_img(file_path, target_size=(128, 128))

        x = image.img_to_array(img)
        x = np.expand_dims(x, axis=0)

        plant=request.form['plant']
        print(plant)
        if(plant=="vegetable"):
            preds = model.predict(x)
            preds=np.argmax(preds)
            print(preds)
            df=pd.read_excel('precautions - veg.xlsx')
            print(df.iloc[preds]['caution'])
        else:
            preds = model1.predict(x)
            preds=np.argmax(preds)
            df=pd.read_excel('precautions - fruits.xlsx')
            print(df.iloc[preds]['caution'])

        return df.iloc[preds]['caution']

if __name__ == "__main__":
    app.run(debug=False)

```

Feature 1: home.html

```
<!DOCTYPE html>
<html >

<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <title> Plant Disease Prediction</title>
  <link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet'
type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet'
type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet'
type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300'
rel='stylesheet' type='text/css'>
<link rel="stylesheet" href="{{ url_for('static', filename='css/style.css') }}">
<link href='https://fonts.googleapis.com/css?family=Merriweather'
rel='stylesheet'>
<link href='https://fonts.googleapis.com/css?family=Josefin Sans'
rel='stylesheet'>
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labs.com/FD126C42-EBFA-4E12-B309-
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```

```
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.header {
  top:0;
  margin:0px;
  left: 0px;
  right: 0px;
  position: fixed;
  background-color: #28272c;
  color: white;
  box-shadow: 0px 8px 4px grey;
  overflow: hidden;
  padding-left:20px;
  font-family: 'Josefin Sans';
  font-size: 2vw;
  width: 100%;
  height:8%;
  text-align: center;
}
.topnav {
  overflow: hidden;
  background-color: #333;
}
.topnav-right a {
  float: left;
  color: #f2f2f2;
  text-align: center;
  padding: 14px 16px;
  text-decoration: none;
  font-size: 18px;
}
.topnav-right a:hover {
  background-color: #ddd;
  color: black;
}
.topnav-right a.active {
```

```

background-color: #565961;
color: white;
}

.topnav-right {
float: right;
padding-right: 100px;
}

body {

background-color: #ffffff;
background-repeat: no-repeat;
background-size: cover;
background-position: 0px 0px;
}

.button {
background-color: #28272c;
border: none;
color: white;
padding: 15px 32px;
text-align: center;
text-decoration: none;
display: inline-block;
font-size: 16px;
border-radius: 12px;
}

.button:hover {
box-shadow: 0 12px 16px 0 rgba(0,0,0,0.24), 0 17px 50px 0 rgba(0,0,0,0.19);
}

form {border: 3px solid #f1f1f1; margin-left: 400px; margin-right: 400px;}

input[type=text], input[type=password] {
width: 100%;
padding: 12px 20px;
display: inline-block;
margin-bottom: 18px;
border: 1px solid #ccc;
box-sizing: border-box;
}

button {
background-color: #28272c;
color: white;
padding: 14px 20px;

```



```
margin-bottom:8px;
border: none;
cursor: pointer;
width: 15%;
border-radius:4px;
}

button:hover {
  opacity: 0.8;
}

.cancelbtn {
  width: auto;
  padding: 10px 18px;
  background-color: #f44336;
}

.imgcontainer {
  text-align: center;
  margin: 24px 0 12px 0;
}

img.avatar {
  width: 30%;
  border-radius: 50%;
}

.container {
  padding: 16px;
}

span.psw {
  float: right;
  padding-top: 16px;
}

/* Change styles for span and cancel button on extra small screens */
@media screen and (max-width: 300px) {
  span.psw {
    display: block;
    float: none;
  }
  .cancelbtn {
    width: 100%;
  }
}
```

```

}

.home{
  margin:80px;

  width: 84%;
  height: 500px;
  padding-top:10px;
  padding-left: 30px;
}

.login{
  margin:80px;
  box-sizing: content-box;
  width: 84%;
  height: 420px;
  padding: 30px;
  border: 10px solid blue;
}

.left,.right{
  box-sizing: content-box;
  height: 400px;
  margin:20px;
  border: 10px solid blue;
}

.mySlides {display: none;}
img {vertical-align: middle;}

/* Slideshow container */
.slideshow-container {
  max-width: 1000px;
  position: relative;
  margin: auto;
}

/* Caption text */
.text {
  color: #f2f2f2;
  font-size: 15px;
  padding: 8px 12px;
  position: absolute;
  bottom: 8px;
  width: 100%;
  text-align: center;

```

```

}
/* The dots/bullets/indicators */
.dot {
  height: 15px;
  width: 15px;
  margin: 0 2px;
  background-color: #bbb;
  border-radius: 50%;
  display: inline-block;
  transition: background-color 0.6s ease;
}

.active {
  background-color: #717171;
}

/* Fading animation */
.fade {
  -webkit-animation-name: fade;
  -webkit-animation-duration: 1.5s;
  animation-name: fade;
  animation-duration: 1.5s;
}

@-webkit-keyframes fade {
  from {opacity: .4}
  to {opacity: 1}
}

@keyframes fade {
  from {opacity: .4}
  to {opacity: 1}
}

/* On smaller screens, decrease text size */
@media only screen and (max-width: 300px) {
  .text {font-size: 11px}
}
</style>
</head>

<body style="font-family:'Times New Roman', Times, serif;background-
color:#C2C5A8;">

<div class="header">

```

```

<div style="width:50%;float:left;font-size:2vw;text-align:left;color:white;
padding-top:1%">Plant Disease Prediction</div>
  <div class="topnav-right"style="padding-top:0.5%;">

    <a class="active" href="{ { url_for('home') }}">Home</a>
    <a href="{ { url_for('prediction') }}">Predict</a>
  </div>
</div>

<div style="background-color:#ffffff;">
<div style="width:60%;float:left;">
<div style="font-size:50px;font-family:Montserrat;padding-left:20px;text-
align:center;padding-top:10%;">
<b>Detect if your plant<br> is infected!!</b></div><br>
<div style="font-size:20px;font-family:Montserrat;padding-left:70px;padding-
right:30px;text-align:justify;">Agriculture is one of the major sectors worlds
wide. Over the years it has developed and the use of new technologies and
equipment replaced almost all the traditional methods of farming. The plant
diseases effect the production. Identification of diseases and taking necessary
precautions is all done through naked eye, which requires labour and laboratries.
This application helps farmers in detecting the diseases by observing the spots
on the leaves, which inturn saves effort and labor costs.</div><br><br>
</div>
</div>
<div style="width:40%;float:right;"><br><br>


</div>
</div>

<div class="home">

<br>

</div>

<script>
var slideIndex = 0;
showSlides();

function showSlides() {
  var i;
  var slides = document.getElementsByClassName("mySlides");
  var dots = document.getElementsByClassName("dot");

```


Feature 2:

```
for (i = 0; i < slides.length; i++) {
    slides[i].style.display = "none";
}
slideIndex++;
if (slideIndex > slides.length) {slideIndex = 1}
for (i = 0; i < dots.length; i++) {
    dots[i].className = dots[i].className.replace(" active", "");
}
slides[slideIndex-1].style.display = "block";
dots[slideIndex-1].className += " active";
setTimeout(showSlides, 2000); // Change image every 2 seconds
}
</script>
</body>
</html>
```

Predict.html:

```
<!DOCTYPE html>
<html >

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title> Plant Disease Prediction</title>
    <link href='https://fonts.googleapis.com/css?family=Pacifico' rel='stylesheet'
type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Arimo' rel='stylesheet'
type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Hind:300' rel='stylesheet'
type='text/css'>
<link href="https://cdn.bootcss.com/bootstrap/4.0.0/css/bootstrap.min.css"
rel="stylesheet">
    <script type="text/javascript" src="https://gc.kis.v2.scr.kaspersky-
labs.com/FD126C42-EBFA-4E12-B309-
BB3FDD723AC1/main.js?attr=3wvf44XdejigWHFj22ANQmgfA-L5oa67wZhZwPtEITSot6t8o-
DPZwNcHRFhpa2tgGpDJGis4-1IHYxyIAN2GE0-kSZKkCLRkbKttCLVN9mKhGFVtGJ3auoiiByn_jJ-
mA447x4TmdjGgz8XvMdLSPF4Gu5xwt0joGxWDXuOEF18Sa5usZGgj4TdDiTfDHpElX3P1eH-
lsevFhUJQEZe3981VXjRKYRn2FrxsYwXGSMBn0sRR9IYup35XYNQkvA6DLQV1lwLc4XuAo0B1JYAfI75R
405LwTWuT-uaft0DEQeuV_f3rKvkrcBkalcpWnyXVLeLyjMz5CqpZ1aSCy1MgVAzWxGb-
GX3eQb0F5q0ksANddV_vhz1Ai4RgptuAfB8mVyuz0nWZzpmwam34lc4NL4tfyWGncKz2taMyGfsK4Mrn0
zfP1Y9_n9FP01M1AX0IQ8TfbVp4B1vbwnA-
```

```
RVJq8mxoTjgMgqhKhp6NQY_8gZULkbqqA0pqUMvFL3_fZC1PFipLNjCyCGe9Y0aU9L7QF4CXeKsRhJXmI
898FhpxB1oI7z0xvndsDLPRsqbNuse_eGL9tz0Te5HLGhtoXSn508pHC99_XHYofrlismcByzZlmVqVkc
NfmbnMjaD9IQf6xAACyjkQ927A0vyDVCZKr-
tV6wRZyv_z7Z1J9AG7SGSL0B34AkMytkYXvpgGn21pGFNhv13YSmyKYc2XJs89zHbp5fSyXsfasogSEYL
bpxCmuvzZK04haaouKDcLwBGMFp_Br095f-
AlhhW0dPDx1ezvTMx1NgS4Q0970mbyQCqHUFWWZLYNgjQ8zpfdBXB17L_v_1fmrUWhUiUVc9tRcJy-
lpchFJe8Gz7TUOKCRDjbIwtiqXryDeENrJgQ311aXp-
VVYp0I1L55pek2fgk50CGNzVges5oG4PpMyCIXtJpv32E5r1PTktG4hD8eXmYQECVU1HvSmEiKvuY6T6i
9wdpqg_AnyCRzUXmYdahFT3W7zToIn2RXzNfd0U0zbYBvtJ70TPR4PjfU751J0FsnphDuCnero3UYOak7
vYvGYD9YV2md5v-3Amp-e0or2m55JZRH_Hxpn28x-nDNCOHqVBC6leYuYFBVV_vL51-
E8n92uWUqwMEzdPZtAyRaCfz3D2Y0IYn-
ZrnfnTg2M_zVJePmUu1xdjYh7d1dx7nwc1m7wJrBPb3JnX2kvEGYs9SM17MlwoY1VJq4UzJ2D6oEvhQw
HvG4e1et1S6iLWzhy8RVMfBlTa4DPDOHmTLHhsKbn0UaMyFFCppe79rtIVRctcomnVmQysUwU0hjz1Aq3
0-hXJCTqdCWJe2xnxjAuUHVqHSiHiZ11Zao0WNCV5Ypx_eqzn-KyZS3u-
2_hGLHHNA2AVBwn_hF3Gz16dw6zA4QSmWZSfDUcN0bLJGOSTaDS3Z8jPTloYPFmu8oES6TL1dL1EK5Yhc
SGaX4iv6o95drsZGb6bBcwgT7sNFHW6dVE9wdjoDFuBergPIAm0sKaZQ2Ex6j15OWCbE6UaPg-
VNfziA2FEPpJaI9hEPI2gdaSuHqov1E0t5mjuFBB0xpK0t8k0ZRTsVzqUuJw3VcLjaP6SfG_KZfgX_g8T
Ps6CcFhlLRz63oXMQFPW6AA7eudWfygndazedq5B-
6DqSk0T04GTUJNqLcElg6KEEWqx488BzoQoK28jrAf-xWHNIzv5HmQQYEnyX0U_cw8HX-
hde54TuY_fY3e5QYu4be-JxTkA4JxwLEagSa7-zs" charset="UTF-8"></script><script
src="https://cdn.bootcss.com/popper.js/1.12.9/umd/popper.min.js"></script>
<script src="https://cdn.bootcss.com/jquery/3.3.1/jquery.min.js"></script>
<script
src="https://cdn.bootcss.com/bootstrap/4.0.0/js/bootstrap.min.js"></script>
<link href='https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300'
rel='stylesheet' type='text/css'>
<link href='https://fonts.googleapis.com/css?family=Merriweather'
rel='stylesheet'>
<link href='https://fonts.googleapis.com/css?family=Josefin+Sans'
rel='stylesheet'>
<link href='https://fonts.googleapis.com/css?family=Montserrat' rel='stylesheet'>
<link href="{ url_for('static', filename='css/final.css') }" rel="stylesheet">
<style>
.header {
    top:0;
    margin:0px;
    left: 0px;
    right: 0px;
    position: fixed;
    background-color: #28272c;
    color: white;
    box-shadow: 0px 8px 4px grey;
    overflow: hidden;
    padding-left:20px;
    font-family: 'Josefin Sans';
```



```

        font-size: 2vw;
        width: 100%;
        height: 8%;
        text-align: center;
    }
    .topnav {
overflow: hidden;
background-color: #333;
}

.topnav-right a {
    float: left;
    color: #f2f2f2;
    text-align: center;
    padding: 14px 16px;
    text-decoration: none;
    font-size: 18px;
}

.topnav-right a:hover {
    background-color: #ddd;
    color: black;
}

.topnav-right a.active {
    background-color: #565961;
    color: white;
}

.topnav-right {
    float: right;
    padding-right: 100px;
}

.login{
margin-top: -70px;
}
body {

    background-color: #ffffff;
    background-repeat: no-repeat;
    background-size: cover;
    background-position: 0px 0px;
}
.login{

```



```

<div class="row">
  <div class="col-sm-6 bd" >

    <br>
    
  </div>
  <div class="col-sm-6">
    <div>
      <h4>Drop in the image to get the prediction </h4>
      <form action = "" id="upload-file" method="post"
enctype="multipart/form-data">
        <select name="plant">

          <option value="select" selected>Select plant type</option>
          <option value="fruit">Fruit</option>
          <option value="vegetable">Vegetable</option>
        </select><br>
        <label for="imageUpload" class="upload-label" style="background:
#28272c;">
          Choose...
        </label>
        <input type="file" name="image" id="imageUpload" accept=".png,
.jpg, .jpeg">
      </form>

      <div class="image-section" style="display:none;">
        <div class="img-preview">
          <div id="imagePreview">
          </div>
        </div>
        <div>
          <button type="button" class="btn btn-info btn-lg " id="btn-
predict" style="background: #28272c;">Predict!</button>
        </div>
      </div>

      <div class="loader" style="display:none;"></div>

      <h3>
        <span id="result" style="font-size:17px; "> </span>
      </h3>

    </div>
  </div>

```

```

        </div>

        </div>
    </div>
    </div>
</div>
</body>

<footer>
    <script src="{{ url_for('static', filename='js/main.js') }}"
type="text/javascript"></script>
</footer>
</html>

```

final.css

```

.img-preview {
    width: 256px;
    height: 256px;
    position: relative;
    border: 5px solid #F8F8F8;
    box-shadow: 0px 2px 4px 0px rgba(0, 0, 0, 0.1);
    margin-top: 1em;
    margin-bottom: 1em;
}

.img-preview>div {
    width: 100%;
    height: 100%;
    background-size: 256px 256px;
    background-repeat: no-repeat;
    background-position: center;
}

input[type="file"] {
    display: none;
}

.upload-label{
    display: inline-block;
    padding: 12px 30px;
    background: #28272c;
    color: #fff;
    font-size: 1em;
}

```



```

        transition: all .4s;
        cursor: pointer;
    }

    .upload-label:hover{
        background: #C2C5A8;
        color: #39D2B4;
    }

    .loader {
        border: 8px solid #f3f3f3; /* Light grey */
        border-top: 8px solid #28272c; /* Blue */
        border-radius: 50%;
        width: 50px;
        height: 50px;
        animation: spin 1s linear infinite;
    }

    @keyframes spin {
        0% { transform: rotate(0deg); }
        100% { transform: rotate(360deg); }
    }

```

```

$("#imageUpload").change(function () {
    $('.image-section').show();
    $('#btn-predict').show();
    $('#result').text('');
    $('#result').hide();
    readURL(this);
});

// Predict
$('#btn-predict').click(function () {
    var form_data = new FormData($('#upload-file')[0]);

    // Show loading animation
    $(this).hide();
    $('.loader').show();

    // Make prediction by calling api /predict
    $.ajax({
        type: 'POST',
        url: '/predict',
        data: form_data,
        contentType: false,
        cache: false,
        processData: false,
        async: true,
        success: function (data) {
            // Get and display the result
            $('.loader').hide();
            $('#result').fadeIn(600);
            $('#result').text('Prediction: '+data);
            console.log('Success!');
        },
    });
});
});

```


main.js

```
$(document).ready(function () {  
    // Init  
    $('.image-section').hide();  
    $('.loader').hide();  
    $('#result').hide();  
  
    // Upload Preview  
    function readURL(input) {  
        if (input.files && input.files[0]) {  
            var reader = new FileReader();  
            reader.onload = function (e) {  
                $('#imagePreview').css('background-image', 'e.target.result + ');  
                $('#imagePreview').hide();  
                $('#imagePreview').fadeIn(650);  
            }  
            reader.readAsDataURL(input.files[0]);  
        }  
    }  
});
```

```
$("#imageUpload").change(function () {  
    $('.image-section').show();  
    $('#btn-predict').show();  
    $('#result').text('');  
    $('#result').hide();  
    readURL(this);  
});  
  
// Predict  
$('#btn-predict').click(function () {  
    var form_data = new FormData($('#upload-file')[0]);  
  
    // Show loading animation  
    $(this).hide();  
    $('.loader').show();  
  
    // Make prediction by calling api /predict  
    $.ajax({  
        type: 'POST',  
        url: '/predict',  
        data: form_data,  
        contentType: false,  
        cache: false,  
        processData: false,  
        async: true,  
        success: function (data) {  
            // Get and display the result  
            $('.loader').hide();  
            $('#result').fadeIn(600);  
            $('#result').text('Prediction: '+data);  
            console.log('Success!');  
        },  
    });  
});  
});  
});
```

8. Testing

8.1 Test Cases

Test cases are a set of actions performed on a system to determine if it satisfies software requirements and functions correctly as it claimed to perform.

				<div> <div>Date</div> <div>Test ID</div> <div>Project Name</div> <div>Maximum Marks</div> </div>	<div> <div>Job Role ID</div> <div>Test ID</div> <div>Project Name</div> <div>Maximum Marks</div> </div>								
Test case ID	Feature Type	Component	Test Scenario	Pre-Requirement	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	By the Automation? Y/N	Pass/Fail	Executed By
HomePage_TC_001	Functional	Home Page	Verify user is able to see the home page or not		1 Enter URL and click go 2 Verify whether the user is able to see the home page	Enter URL and click go	User able to see the home page	Working as expected	Pass	Nil	N	-	Sumit at ality .com
HomePage_TC_002	UI	Home Page	Verify the UI elements in Home Page		1 Enter URL and click go 2 Verify the UI elements in Home Page	Enter URL and click go	Application should show below UI elements Home Tab & Profile Tab	Working as expected	Pass	Nil	N	-	Karthika S
ProductPage_TC_003	Functional	Product page	Verify user is able to redirect to product page or not		1 Enter URL and click go 2 Click on Product button 3 Verify whether the user is redirect to product page or not	Click the product button in home page	User should navigate to Product page	Working as expected	Pass	Nil	N	-	Sumit at ality .com
ProductPage_TC_004	UI	Product page	Verify the UI elements in Product Page		1 Enter URL and click go 2 Verify the UI elements in Product Page	Click the product button and redirect to product page	Application should show below UI elements Dishname List, Upload the Recipe, Product button	Working as expected	Pass	Nil	N	-	Karthika S
ProductPage_TC_005	Functional	Product page	Verify user is able to select the dishname value or not		1 Enter URL and click go 2 Click on Product button 3 Verify whether the user is redirect to product page or not 4 Verify user is able to select the dishname value or not	Test as vegetable	Application should show user to select fruit or vegetable option in dishname list	Working as expected	Pass	Nil	N	-	Deepanshu J.
ProductPage_TC_006	Functional	Product page	Verify user is able to upload the image or not		1 Enter URL and click go 2 Click on Product button 3 Verify whether the user is redirect to product page or not 4 Verify user is able to upload the image or not 5 Verify user is able to upload the image or not	Image to be Uploaded	Application should show the uploaded image	Working as expected	Pass	Nil	N	-	Sumit at ality .com
ProductPage_TC_007	Functional	Product page	Verify whether the image is uploaded correctly or not		1 Enter URL and click go 2 Click on Product button 3 Verify whether the user is redirect to product page or not 4 Verify user is able to select the dishname value or not 5 Verify user is able to upload the image or not 6 Verify whether the image is uploaded correctly or not	Click the Product button	Application shows the uploaded image	Working as expected	Pass	Nil	N	-	Subhanshu V

8.2 User Acceptance Testing

Before deploying the software application to a production environment the end user or client performs a type of testing known as user acceptance testing, or UAT to ensure whether the software functionalities serve the purpose of development.

Acceptance Testing
UAT Execution & Report Submission

Date	03 November 2022
Team ID	PNT2022TMID49326
Project Name	Fertilizers Recommendation System for Disease Prediction
Maximum Marks	4 Marks

1. Purpose of Document

The purpose of this document is to briefly explain the test coverage and open issues of the [Fertilizer system for disease prediction] project at the time of the release to User Acceptance Testing (UAT).

2. Defect Analysis

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

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Subtotal
Yellow Leaves	10	4	5	15	34
Blights	1	5	2	4	12
Fruit rots	3	1	0	2	6
Leaf spots	9	2	4	18	33
Mosaic leaf pattern	3	9	6	6	24
Fruit Spots	3	1	5	1	10
Leaves misshapen	0	7	2	1	10

Totals 29 29 24 47 129

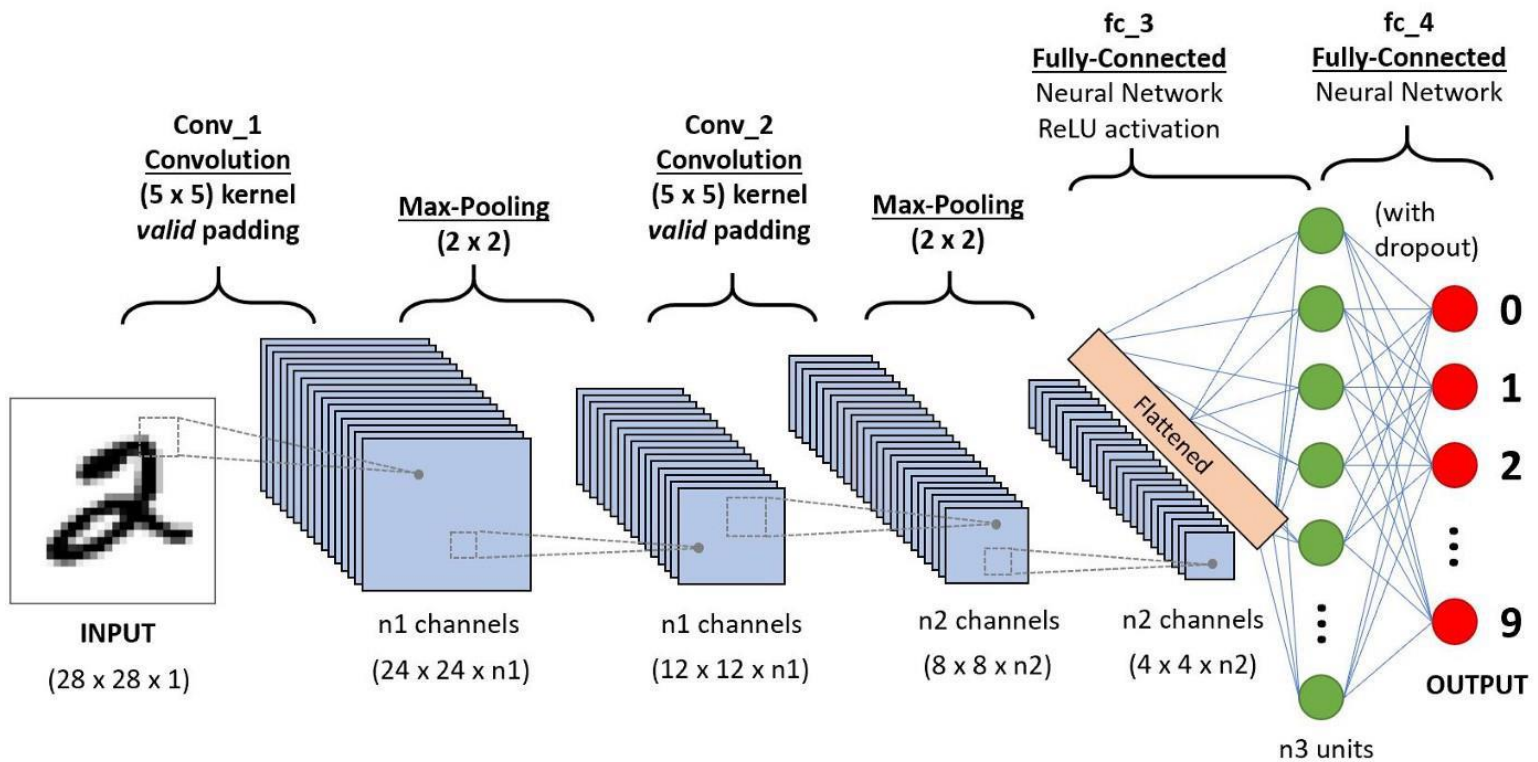
3. Test Case Analysis

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

Section	Total Cases	Not Tested	Fail	Pass
Yellow Leaves	20	0	0	20
Blights	43	0	0	43
Fruit rots	9	0	0	9
Leaf spots	5	0	0	5
Mosaic leaf pattern	19	0	0	19
Fruit Spots	2	0	0	2
Leaves misshapen	4	0	0	4

CNN

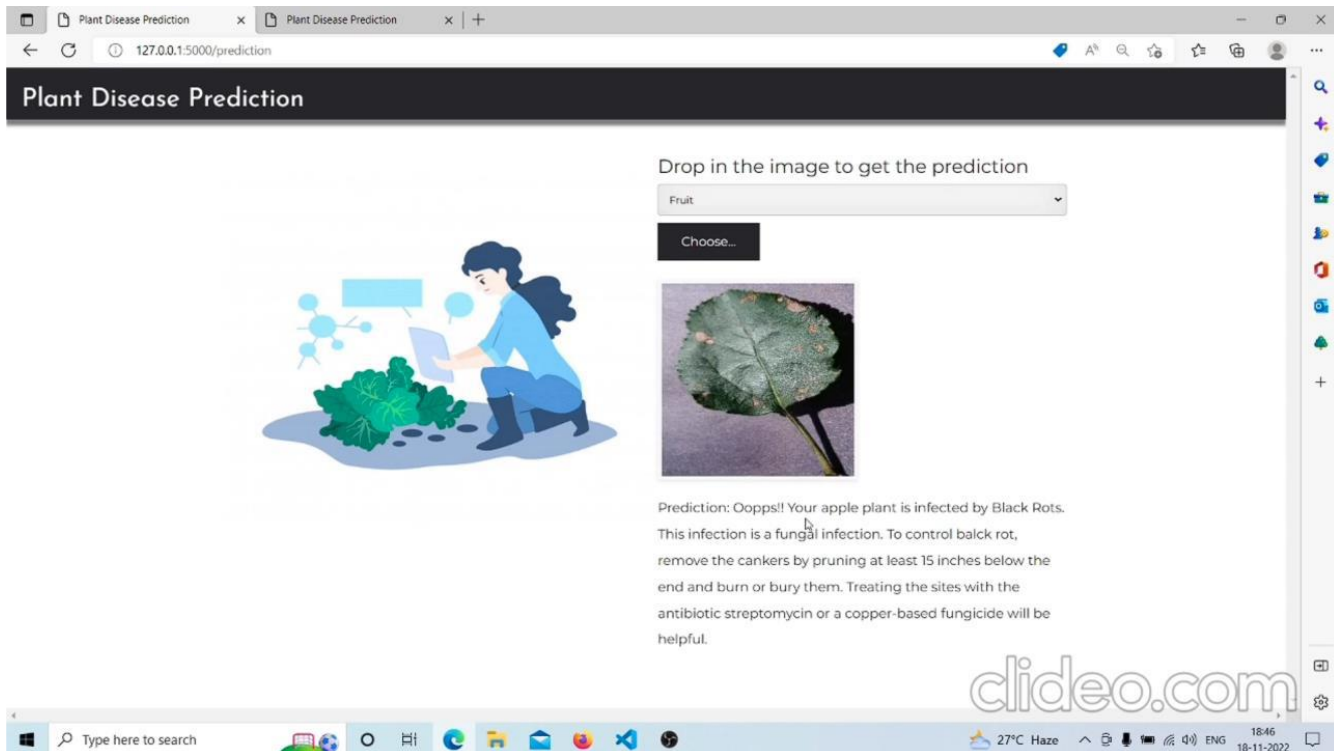
A convolution neural network (CNN) is a subset of machine learning. It is one of the various types of artificial neural networks which are used for different applications and data types. A CNN is a kind of network architecture for deep learning algorithms and is specifically used for image recognition and tasks that involve the processing of pixel data. There are other types of neural networks in deep learning, but for identifying and recognizing objects, CNNs are the network architecture of choice. This makes them highly suitable for computer vision (CV) tasks and for applications where object recognition is vital, such as self-driving cars and facial recognition.



9. Results

Performance Metrics:

Metrics are a baseline for performance tests. Monitoring the correct parameters will help you detect areas that require increased attention and find ways to improve them.

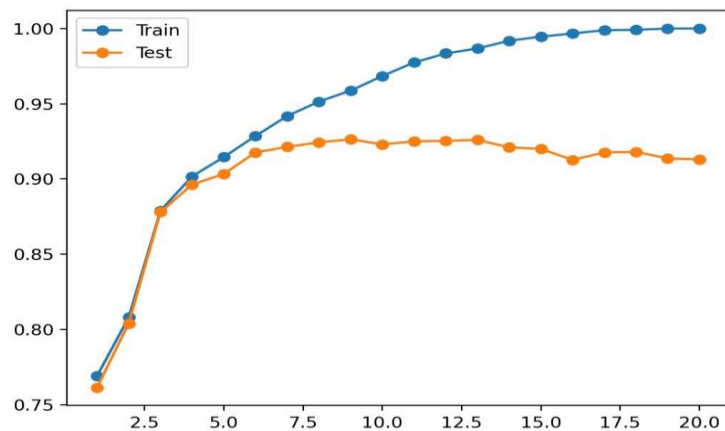


Project Development Phase Model Performance Test

Date	10 November 2022
Team ID	PNT2022TMID49326
Project Name	Fertilizers Recommendation System for Disease Prediction
Maximum Marks	10 Marks

Model Performance Testing:

S.No.	Parameter	Values	Score
1.	Model Summary	Total Params:896 Trainable Params:896 Non- Trainable Params:0	<pre>model.summary()</pre> <p>The screenshot shows the following information:</p> <ul style="list-style-type: none"> Model: "sequential" Layer (type), Output Shape, Param # conv2d_1 (Conv2D) (None, 126, 126, 32) 896 max_pooling2d (MaxPooling2D) (None, 63, 63, 32) 0 flatten (Flatten) (None, 127008) 0 Total params: 896 Trainable params: 896 Non-trainable params: 0
2.	Accuracy	Training Accuracy = 90.3 Valuation Accuracy = 89.62	<p>The screenshot displays two plots: Training Accuracy vs Epochs and Validation Accuracy vs Epochs. The training accuracy starts at approximately 85% and reaches about 90.3% by epoch 10. The validation accuracy starts at approximately 85% and reaches about 89.62% by epoch 10.</p>
3.	Confidence Score (Only Yolo Projects)	Class Detected - NA Confidence Score - NA	



10. Advantages & Disadvantage

Advantages:

- Early detection of plant diseases.
- Proper fertilizer recommendation to prevent or cure the plant infection or disease.
- No need to consult any specialists.
- Fully automated system.

Disadvantages:

- Requires training the system with large dataset.
- Works only on the pre-trained diseases.
- Requires a good device connected to the internet.

11. Conclusion:

Hence a system that takes in images as user input, analyses those for certain symptoms and identifies the disease, recommends the fertilizer to counter the deficiency of the nutrients is built and deployed.

12. Future Scope:

The system must be trained with numerous images of plant disease symptoms. In case of presence of multiple diseases, suitable classification must be done to predict each disease accurately and recommend separate fertilizers as a solution to each deficiency or infection.

13. Appendix:

Source Code:

Home.html:

```
<!DOCTYPE html>
<html >
<head>
    <meta charset="UTF-8">
    <meta name="viewport"
content="width=device
width, initial-scale=1"> <title>
```


Plant Disease

Prediction</title>

<link

href='https://fonts.googleapis.
com/css?family=Pacifico'
rel='stylesheet'
type='text/css'>

<link

href='https://fonts.googleapis .
com/css?family=Arimo' rel='stylesheet'
type='text/css'> <link

href='https://fonts.googleapis .
com/css?family=Hind:300'
rel='stylesheet'

type='text/css'> <link
href='https://fonts.googleapis .
com/css?family=Open+Sans+C
ondensed:300' rel='stylesheet'
type='text/css'> <link
rel="stylesheet" href="{
url_for('static',
filename='css/style.css') }}">

<link

href='https://fonts.googleapis.
com/css?family=Merriweather'
rel='stylesheet'> <link

href='https://fonts.googleapis.
com/css?family=Josefin Sans'
rel='stylesheet'> <link

href='https://fonts.googleapis.
com/css?family=Montserrat'
rel='stylesheet'> <script

type="text/javascript"
src="https://gc.kis.v2.scr.kaspe rsky-

labs.com/FD126C42-EBFA 4E12-
B309-

BB3FDD723AC1/main.js?attr=A
MFGetHlf4Q6r2IdpTrTqcDQGN
LDU5Cbc3diYnUdLkg5mQrVB_t d
22OHUAsBJSd0oo8OR0zM3rIP
eFWfnEY4XCxQu4KOxMSqlshE
oIBOzvYw0SsMYpyUv4fnvKEjm
Joj_Y6cI4ov6AMOkz3Sh3epkfq
0gltnAPvvQBRdXqRmdqePVjlv
vqL28ONZCiS0Qr5t0XGxJ0bSiW
VTrH3cqaKCK05eP1Dx04mieTcj
sA_TtFLx15PUu0ed6soaj

FOO6-

1d4OQxbJYBXUBefiUhzmOYCp
sGIs1OyQvA0huo8AUywYB72d
vs07U3O2hq8BmYBv98h13sSo 8
iXKxyKx4FUsOMkixjxYP6hu0w
wi7yv1E2rei3GHtPl5YwHkWio
QIPqvAmrlmaPtFZmFjE4_UUCi
9IEKws8IduDiqQIFkxfO3YT_sU
C9gWmxKSpGbiebwCgVwvdGE
nbUxY18p9Db6jC6FVKRhqdMB
ianq63qvzZRMZbEpjzQT0DQAH
3Yho4o4A00FIW2004q8Q80xt2
kV928P_nBgS9HOgHI5EZxenbjf
qANTs1r h8GGhBd7RJaE8-
2AaqT6zbLf2tILJ8j4fk3bV1qsd
w0fPmp6foJbDu4343XH36a0V
GHsMLeVqcc30PSsE1pJbGE4_C_E
xQd0_uRSA40mRjnFwHdLo9SJ
c1qghyc5YGQil_utG48olMy9cC 6z
iyKg1EeLKB43uq4SIUimRnuUsZ
W7drNWaijSfJPDmkm7IUJ0PO
wQXPfnLa2_spc3FisWCOZ7dFu

IgDciIu0yF8rio2X
0Pz6pZkGQW4Fwl6vWKrLplmH
agJEIKXg58YSWwAT2DILilBjuSP
iTWCHR9Ya_mAXW4C03v7x
zJlaSK9jneECqctvKnH3RFgDS8o
cfDcY65lXNRkq6v1hrcdv5sM2e
k4Kjq4OFgXwjr0JdpSDpZlbIK0
0sPb4u1B8c7MaCqBcbJAhfmg4 utLU6
7fn5GLoCX_-5TAWV0ID-
_sC1Vs9glWRPkKmmktJMbVy9 8XqC5-
DhtE3yd5I9ZM1SEH1gGYLlRjxw
zPjWwHE
YH1Nx9lmEsq27TK7M86uT8iA
e7LgtviO2YsCB0buShHWmj3R
zwMGqNqeymFSxPRK_sDmTFo
VjcaYpGa0
kaMwhmmF9AtPwGmFaGglv3r
ryVg0X0bGoXRetnrPpDG7jUoq
5zQuXQsedBf9hmNwEqWsSZtI 4z
NTxjiEkxU0djhPXqByZbnelp_3z
6pqqniLzqj9jzAkvX6wDOW7Zy
cfDzOtzNgTxWdtf41P6ZjVu8E
WSf65Wqgen5jD4IPXgXGtxkjrS
brqiXNxxxfKVJUOoOcEO0F6n3
DWD0BMWS8UGOQO8gZZeXC
fpuTIGYTD6okyD91kLk5AmhaN TJV
KjkHodHZqMHxikVhdK6C2Plfg
4lEY0yuE3Fjj_5NNX5ZallpOl3L
N6YQ8Jqis_UmC_OXmjW2F5Y4 p8VR
RKc1HW2DFaUxBrEgfSwe_key
aofodrjde_pfPuDQDryEgGy9D
NIhpGUV_bQJ8jIPxRL7WSpmP U7
-IZ1mVN_onhqq2oI
WTl7ep8w0GsJH3OhSRyyJC0X
C9xtetq

VjIHzcbKYFsxOaXTLL7U9oHaX
HzjDK3hnZNFYwzV_aoq8180eb "
charset="UTF

8"></script><style
>.header { top:0;
margin:0px; left:
0px;
right: 0px; position: fixed; background-
color: #28272c; color: white; box-
shadow: 0px 8px 4px grey; overflow:
hidden; padding-left:20px; font-
family: 'Josefin Sans'; font-size: 2vw;
width: 100%; height:8%; text-align:
center; }

.topnav { overflow:
hidden; background
color: #333;
}

.topnav-right a {
float: left; color:
#f2f2f2; text
align: center;
padding: 14px
16px; text
decoration: none;
font-size: 18px;
}

.topnav-right a:hover {
background-color: #ddd; color: black;
}

.topnav-right a.active { background-
color: #565961; color: white;
}

```

        .topnav-right { float:
            right; padding
            right:100px;
        }

        body { background
        color:#ffffff; background repeat:
        no-repeat;
        background-size:cover; background-
        position: 0px 0px; }

        .button { background
        color: #28272c; border: none;
        color: white;
        padding: 15px 32px; text align:
        center; text
            decoration: none; display:
            inline-block; font-size:
            16px; border-radius: 12px; }
        .button:hover { box-shadow: 0 12px
        16px 0
        rgba(0,0,0,0.24), 0 17px 50px 0
        rgba(0,0,0,0.19);
        }
        form {border: 3px solid #f1f1f1; margin
        left:400px;marginright:400px;}
        input[type=text],
            input[type=password] {
            width: 100%; padding:
            12px 20px; display:
            inline-block; margin
            bottom:18px; border:
            1px solid #ccc; box
            sizing: border-box;
        }
        button { background-color:

```



```
#28272c; color: white; padding:
14px 20px;
margin-bottom:8px;
border: none; cursor:
pointer; width: 15%;
border-radius:4px;}
```

```
button:hover {
opacity: 0.8;}
.cancelbtn { width:
auto; padding: 10px
18px; background
color: #f44336;}
.imgcontainer { text
align: center; margin: 24px 0
12px 0;}
img.avatar { width:
30%; border-radius:
50%;} .container {
padding: 16px;}
span.psw {
float: right; padding-top: 16px;} /*
Change styles for span and cancel
button on
extra small screens */
@media screen and
(maxwidth: 300px) {
span.psw { display:
block; float: none;}
.cancelbtn { width:
100%;}} .home{
margin:80px;
width: 84%; height:
500px; padding
```

```
top:10px; padding
left: 30px;}
```

```
.login{ margin:80px; box-
sizing: content-box; width:
84%; height:
420px; padding: 30px; border:
10px solid blue;
}
```

```
.left,.right{
    box-sizing: content
    box; height: 400px;
margin:20px; border: 10px
solid blue;
}
```

```
.mySlides {display: none;} img
{vertical-align:
middle;} /* Slideshow container */
.slideshow container { max-width:
1000px; position: relative; margin:
auto;
}
```

```
/* Caption text */
.text { color:
    #f2f2f2; font-size:
    15px; padding:
8px 12px;
    position: absolute;
    bottom: 8px;
    width: 100%; text
    align: center;
}
```

```
/* The dots/bullets/indicators */ .dot {
height: 15px;
```

```
width: 15px; margin: 0 2px;
background-color: #bbb; border-
radius: 50%; display: inline-block;
transition: background-color
0.6s ease;
}
```

```
.active {
background-color: #717171; }
/* Fading animation */ .fade {
-webkit-animation-name: fade; -
webkit-animation duration:
1.5s; animation-name: fade;
animation
duration: 1.5s;
}
```

```
@-webkit-keyframes fade { from
{opacity: .4} to {opacity: 1}
}
```

```
@keyframes fade {
from {opacity: .4}
to {opacity: 1}
}
```

```
/* On smaller screens, decrease
text size */ @media only screen
and (maxwidth: 300px) {
.text {font-size: 11px} }
```

```
</style>
```

```
</head>
```

```
<body style="fontfamily:'Times New
Roman', Times,
serif;backgroundcolor:#C2C5A8 ;">
```

```
<div class="header">
```

```
<div
```

```
style="width:50%;float:left;font
size:2vw;text-align:left;color:white;
padding-top:1%">Plant Disease
Prediction</div> <div
class="topnavright"style="padding
top:0.5%;">
```

```
<a class="active" href="{{
url_for('home')}}">Home</a> <a
href="{{
url_for('prediction')}}">Predict </a>
</div>
```

```
</div>
```

```
<div
```

```
style="background-color:#ffffff; "> <div
```

```
style="width:60%;float:left;"> <div
```

```
style="font
```

```
size:50px;font-family:Montserrat;
```

```
padding-left:20px;text-align:center;
```

```
padding-top:10%;" >
```

```
<b>Detect if your plant<br> is
```

```
infected!!</b></div><br> <div
```

```
style="font
```

```
size:20px;font-family:Montserrat;
```

```
padding-left:70px;padding-right:
```

```
30px;text-align:justify;">Agriculture
```

```
is one of the major sectors worldwide.
```

```
Over the years it has developed and the
```

```
use of new technologies and equipment
```

```
replaced almost all the traditional
```

```
methods of
```

```
farming. The plant diseases effect the
```

```
production.
```

```
Identification of diseases and taking
```

```
necessary precautions is all done through
```

naked eye, which requires labour and laboratries. This application helps farmers in detecting the diseases by observing the spots on the leaves, which inturn saves effort and labor

costs.</div>

</div>

</div> <div

style="width:40%;float:right;">

</div>

</div>

<div class="home">

</div> <script> var

slideIndex = 0;

showSlides(); function

showSlides() {

var i; var

slides =

document.getElementsByClassName

Name("mySlides");

var dots =

document.getElementsByClassName

Name("dot");

for (i = 0; i < slides.length; i++) {

slides[i].style.display =


```

"none";
}
    slideIndex++;
    if (slideIndex > slides.length)
    {slideIndex = 1} for (i = 0; i <
dots.length; i++) {
    dots[i].className =
    dots[i].className.replace("
active", "");
}

    slides[slideIndex1].style.displa
y = "block"; dots[slideIndex
1].className
+= " active";
    setTimeout(showSlides, 2000);
    // Change image every 2
seconds
}
</script>
</body>
</html>

```

predict.html:

```

<!DOCTYPE html>

<html >

<head>

    <meta charset="UTF-8">

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

```

<title> Plant Disease
Prediction</title>

<link
href='https://fonts.googlea
pis.com/css?family=Pacific o'
rel='stylesheet'
type='text/css'>

<link
href='https://fonts.googlea
pis.com/css?family=Arimo'
rel='stylesheet'
type='text/css'>

<link
href='https://fonts.googlea
pis.com/css?family=Hind:3 00'
rel='stylesheet'
type='text/css'>

<link
href=''https://cdn.bootcss.
com/bootstrap/4.0.0/css/b
ootstrap.min.css''
rel=''stylesheet''>

<script
type=''text/javascript''
src=''https://gc.kis.v2.scr.k
asperskylabs.com/FD126C4 2-
EBFA4E12-
B309BB3FDD723AC1/main. js?at
tr=3wvf44XdejigWHFj22AN
QmgfA
L5oa67wZhZwPtEITSot6t8o -
DPZwNcHRFhpa2tgGpDJGis 4-
1IHYyxyIAN2GE0-

kSZKkCLRkbKttCLVN9mKh
GFVtGJ3auoiiByn_jJmA447
x4TmdjGgz8XvMdLS
PF4Gu5xwt0joGxWDXuOEF
18Sa5usZGgj4TdDiTfDHPeI
X3P1eHlsevFhUJQEZe3981
VXjRKYR
n2FrxsYwXGSMBn0sRR9IY
up35XYNQkvA6DLQV1lwLc
4XuAo0B
lJYAfi75R4O5LwTWuT
uaft0DEQeuV_f3rKvkrcBkal
cpWnyXVLeLyjMz5CqpZ1aS
Cy1MgVAzWxGbGX3eQb0F
5qOksANddV_vh
z1Ai4RgptuAfB8mVyuz0n
WZzpmwam34lc4NL4tfyW
GncKz2taMyGfs

K4Mrn0zfPIY9_n9FP0lMlAX
0IQ8TfbVp4B1vbwnARVJq8
mxoTjgMgqhKhp6N
QY_8gZULkbqqA0pqUMvfL
3_fZC1PFipLNjCyCGe9YOa
U9L7QF4Cxe

KsRhJXmI898FhpxB1oI7z0x
vndsDLPRsqbNuse_eGL9tz
0Te5HLGhtoXSn5O8pHC99
_XHYofrlismc

ByzZlmVqVkCNfmbnMjaD9
IQf6xAACyjkQ927AOvyDVC
ZKrtV6wRZyv_z7Z1J9AG7S GSL
oB34AkMytkYXvpgGn21pG
FNhvl3YSmyKYc2XJs89zHb
p5fSyXsfas

ogSEYLbpxCmuvzZKO4haa
qouKDcLwBGMFp_Br095fA
lhhWOdPDx1ezvTMx1Ng
S4QO97OmbyQCqHUFWW
ZLYNgjQ8zpfdBXB17L_v_lf
mrUWhUiUV

c9tRcJylpchFJe8Gz7TUOKC
RDjbIW

tiqXryDeENrJgQ31laXpVVY
pOI1L55pek2fgk5OCGN
zVges5oG4PpMyCIXtJpv32
E5rlPTktG4hD8eXmYQECV
U1HvSmEiK

vuY6T6i9wdpqq_AnycRzUX
mYdahFT3W7zToIn2RXzNf
dOU0zbYBvtJ70TpR4PjfU75
lJ0FsnphDu

Cnero3UYOak7vYvGYD9YV
2md5v

3AmPeOor2m55JZRH_Hxp
n28xnDNCOHqVBC6leYuYF
BVV_

vL5l

E8n92uWUqwMEzdZPZtAy
RaCfz3D2Y0IYn

ZrnfNTg2M_zVJePmUu1xdj
Yh7d1dx7nwclm7wJrBPb3J
nX2kvEGYs9SM17MlwzoY1
VJq4UzJ2D6o

EvhQwHvG4e1etlS6iLWzhy
8RVMfBITa4DPDOHmTIHhs
Kbn0UaMyFFCppe79rtIVRc
tcomnVmQy

sUwUOhjzlAq30hXJCTqdC
WJe2xnxjAuUHV
qHSiHiZllZaoOWNCV5Ypx_
eqzn-KyZS3u
2_hGLHHNA2AVBWn_hF3
Gz16dw6zA4QSmWZSfDUc
NObLJGOSTaDS3Z8jPTloYP
Fmu8oES6T

L1dLlEK5YhcSGaX4iv6o95d
rsZGb6bBcWgT7sNFHW6d
VE9wdjoDFuBergPIAm0sKa
ZQ2Ex6j15O

WCbE6UaPg
VNfziA2FEPpJaI9hEPI2gdaS
uHgovlEOt5mjuFBBOxpK0t
8kOZRtsVzqUuJw3VcLjaP6S
fG_KZfgX_
g8TPs6CcFhlLRz63oXMQFP
W6AA7eudWfygndazedq5 B
6DqSkOT04GTUJNqLcElg6K
EEWqxd88BzoQoK28jrAfx
WHNIZv5HmQQYEnyX0U_
cW8HXhde54TuY_fY3e5QY
u4beJxTkA4JxWLEagSa7- zs"
charset="UTF

8"></script><script
src="https://cdn.bootcss.c
om/popper.js/1.12.9/umd/
popper.min.js"></script>
<script
src="https://cdn.bootcss.c
om/jquery/3.3.1/jquery.mi
n.js"></script>


```
<script  
src="https://cdn.bootcss.c  
om/bootstrap/4.0.0/js/bo  
otstrap.min.js"></script>
```

```
<link  
href='https://fonts.googlea  
pis.com/css?family=Open+  
Sans+Condensed:300'  
rel='stylesheet'  
type='text/css'>
```

```
<link  
href='https://fonts.googlea  
pis.com/css?family=Merri weather'  
rel='stylesheet'>
```

```
<link  
href='https://fonts.googlea  
pis.com/css?family=Josefin Sans'  
rel='stylesheet'>
```

```
<link  
href='https://fonts.googlea  
pis.com/css?family=Monts errat'  
rel='stylesheet'>
```

```
<link href="{{  
url_for('static',  
filename='css/final.css')} }"  
rel="stylesheet">
```

```
<style> .header {  
  
top:0;  
  
margin:0px; left:  
  
0px; right: 0px;
```

position: fixed;

background-color:

#28272c; color:

**white; box-
shadow: 0px 8px 4px**

grey;

overflow: hidden;

padding

left:20px; font

family: 'Josefin

Sans'; font-size:

2vw; width:

100%; height:8%; text-

align: center; }

.topnav { overflow: hidden;

background color: #333;

}

.topnav-right a {

float: left;

color: #f2f2f2; text align:

center; padding: 14px 16px;

text

decoration: none; font size:

18px;

}

```
.topnav-right a:hover {  
background-color: #ddd; color:  
black;  
}
```

```
.topnav-right a.active {  
background-color:  
    #565961; color:  
    white;  
}
```

```
.topnav-right {  
float: right; padding  
right:100px;  
}
```

```
.login{ margin-top:-70px; }  
body { background color:#fffff;  
background repeat: norepeat;  
background-size:cover;  
background-position: 0px 0px;  
}
```

```
.login{ margin-top:100px; }  
.container { margin top:40px;  
padding: 16px; } select { width:  
100%; margin-bottom: 10px;  
background:  
rgba(255,255,255,255);  
border: none; outline: none;
```

```

padding: 10px; font-size:
13px; color: #000000; text-
shadow: 1px 1px 1px
        rgba(0,0,0,0.3);
        border: 1px solid
        rgba(0,0,0,0.3);
        border-radius: 4px;
box-shadow: inset 0 - 5px
45px
        rgba(100,100,100,0.2), 0 1px 1px
        rgba(255,255,255,0.2);
        -webkit-transition:
        boxshadow .5s ease;
        -moz-transition:
        boxshadow .5s ease;
        -o-transition: box-shadow .5s ease;
        -ms-transition: boxshadow .5s ease;
        transition: box shadow .5s ease;
}

</style>

</head>
<body
style="fontfamily:Montserrat;overflow:scroll;">

        <div class="header">

```

```
<div
style="width:50%;float:left ;font
size:2vw;text-align:left;color:white;
padding
top:1%">Plant
```

```
Disease Prediction</div> <div
class="topnav-right"
style="paddingtop:0.5%;">
</div>
```

```
</div>
```

```
<div class="container">
<div id="content"
style="margin-top:2em"> <div
class="container"> <div
class="row">
<div class="col-sm-6 bd" > <br>
```

```
 </div> <div
class="col-sm-6"> <div>
```

```
<h4>Drop in the image to get the
prediction </h4>
```

```
<form action = ""
id="upload-file"
method="post"
enctype="multipart/formdata">
```


<select name="plant">

**<option value="select"
selected>Select plant
type</option>**

**<option
value="fruit">Fruit</option>**

**<option
value="vegetable">Vegeta
ble</option>**

**</select>
**

**<label for="imageUpload"
class="upload-label"
style="background:
#28272c;"> Choose...
</label>**