

# CROP RECOMMENDATION SYSTEM

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UNDER SUPERVISION OF

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# Agenda

- 1. Objective**
- 2. Introduction**
- 3. Overview**
- 4. Proposed System Architecture**
- 5. Implementation Details**
- 6. Output**
- 7. Conclusion**



# 1. Objective

1. The main objective of this project is to provide the basic technology available for the farmers and this is done through this project
2. Here in this project we used the algorithms which will predict the crop which is to be cultivated by the farmers and that is done by analysis through thousands of the data in the dataset



## 2. Introduction

1. Agriculture is the biggest economy of the Indian economy and lots of the people directly or indirectly depend on the agriculture in various ways and many people will tend to grow the crops in the field
2. This project will be the first step to make the technology integrating with the farms and produce the better production

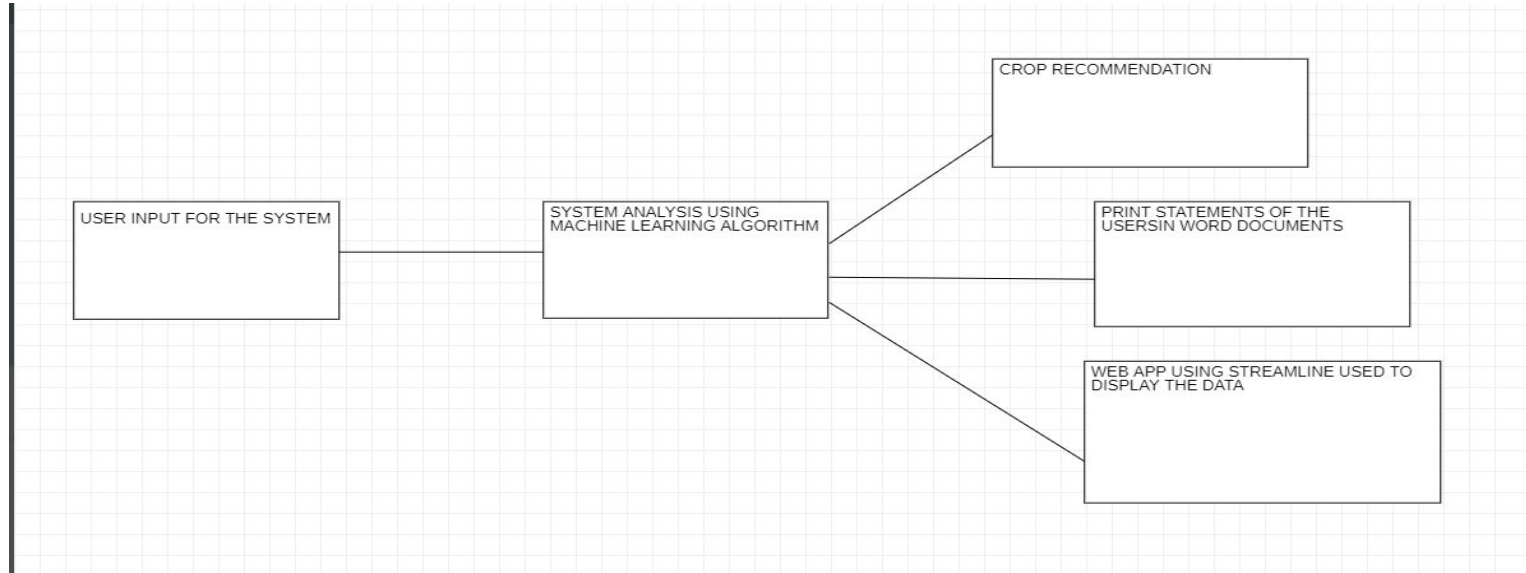


# 3. Overview

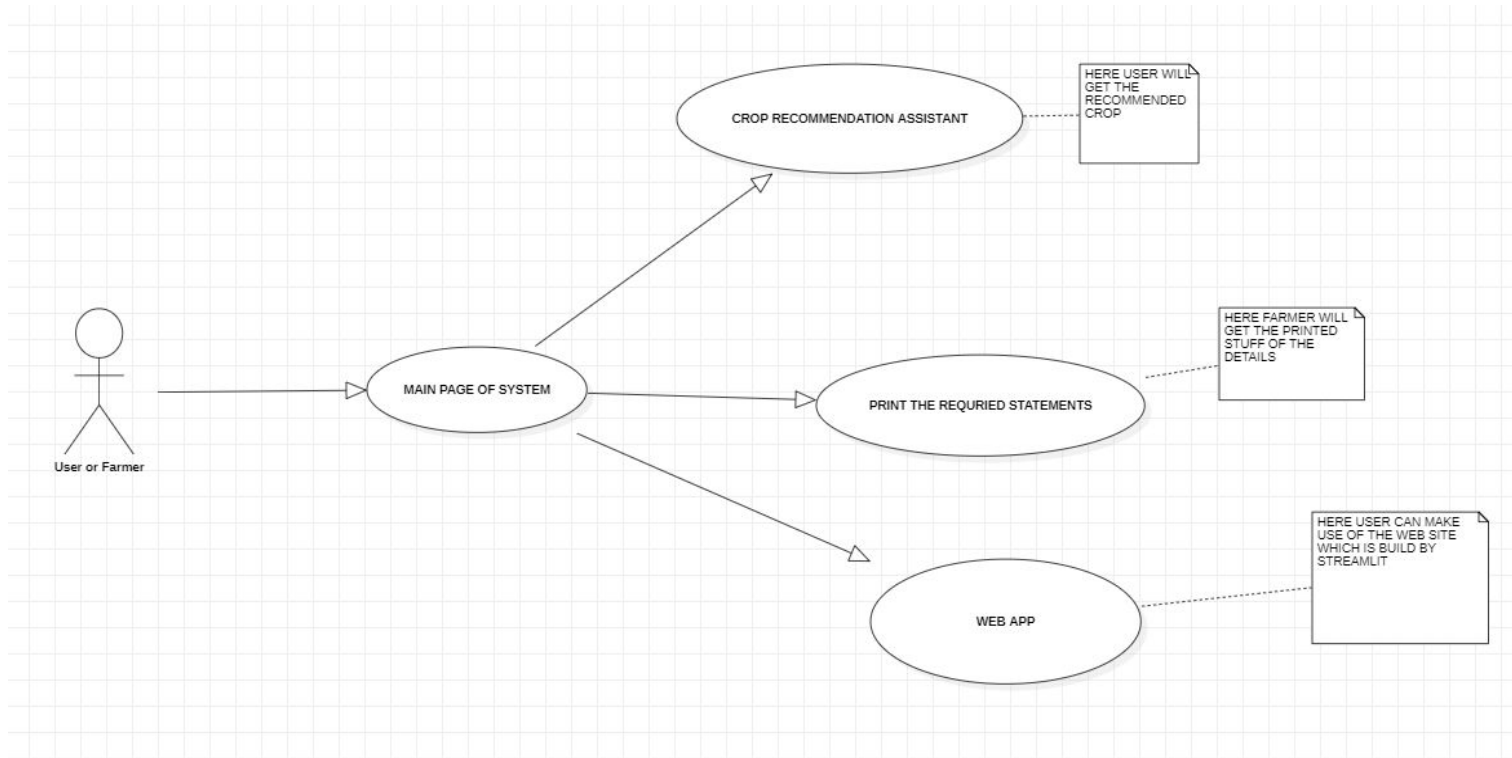
Here in this project we developed a system that helps the farmers to get their suggested crops for their conditions and so that the farmers can grow the crops which grow better in their conditions and also they can print the required conditions statements and also able to access the web app which is designed for this project and they can also make an queries to expert team



## 4. Proposed System Architecture



# USE CASE DIAGRAM




## 5. Implementation Details

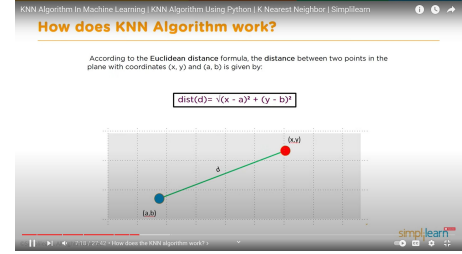
Here we have mainly three modules prediction , print statements , web app and there are many modules **Prediction** in this module the user will enter the condition and the system will predict the recommendation crop here we in the module Pysimple Gui , pandas and numpy and Knn algorithm

In **print statements module** we have included the libraries like pysimple gui , warnings and in this module user document will be saved in the computer as per the mentioned path and that file will be stored in that location

In **Web app** module here we have used the library called streamlit and designed an web site and for running this we have to first activate the streamlit application and then we have to run that file in that file we contain the query form and css files and we have to mentioned that file location in the code and the query form is linked with a mail for that we have use formsubbmit.co reference to send the mail from ~~one mail to~~ registered mail







# 5.1 KNN Algorithm

KNN (K-NEAREST NEIGHBOR ALGORITHM) This algorithm is based on Supervised Learning technique.

How to select K value in K-NN:

1. There is no particular way to determine the best value for "K", so we need to try some values to find the best out of them. The most preferred value for K is 5
2. A very low value for K such as K=1 or K=2, can be noisy and lead to the effects of outliers in the model

# Algorithm

```
le = preprocessing.LabelEncoder()  
crop = le.fit_transform(list(data["label"]))
```

```
model = KNeighborsClassifier(2)  
model.fit(features, crop)  
|
```

## 5.2 Algorithm Accuracy

```
16 from sklearn.preprocessing import StandardScaler
17 from sklearn.metrics import accuracy_score as acc
18 from sklearn.metrics import confusion_matrix, ConfusionMatrixDisplay
19 import seaborn as sns
20
21 import warnings
22
23
24
25 data = pd.read_csv('C:/Users/Y.SRI GANESH REDDY/OneDrive/Desktop/MINI PROJECT/Crop_re
26
27 print(data.head())
28
29 document_path = Path(__file__).parent / "C:/Users/Y.SRI GANESH REDDY/OneDrive/Desktop
30 doc = DocxTemplate(document_path)
31
32 today = datetime.datetime.today()
33 #today in one week = today + datetime.timedelta(days=7)
```

Run: mini x

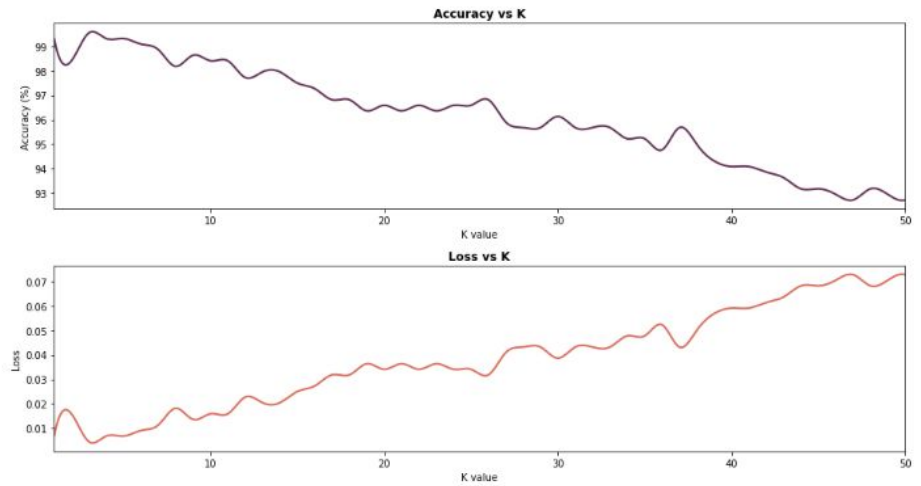
```
(2200, 7)
(2200,)
```

Optimal value of K = 2

Optimal value of K = 2

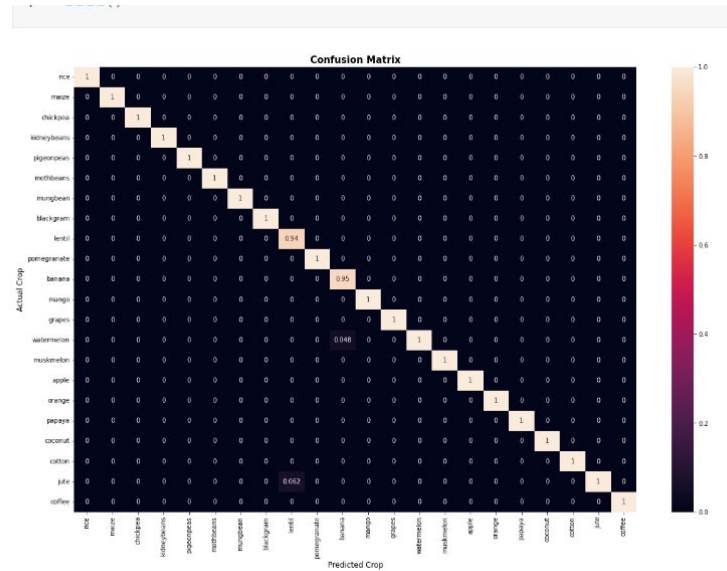
Accuracy of the training Model : 99.545 %

Process finished with exit code 0



Optimal value of K = 2

# Continue...



## 5.3 Web application using python

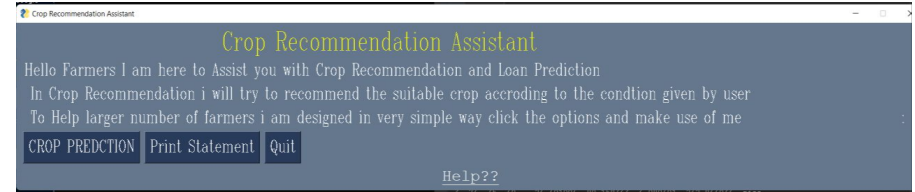
1. Here we used Streamlit run module to run the web page by using python and we integrated it with the recommendation system
2. For that we to install the module using the pip command
3. After installing the module we have to append the python file in that folder and we have to integrate it with the python module

VISUALIZATION OF THE DATA SET



# 6.Output

## PY SIMPLE GUI



Crop Recommendation Assistant

Please enter the following details :-

Enter ratio of Nitrogen in the soil	:	<input type="text"/>	
Enter ratio of Phosphorous in the soil	:	<input type="text"/>	
Enter ratio of Potassium in the soil	:	<input type="text"/>	
Enter average Temperature value around the field	:	<input type="text"/>	*C
Enter average percentage of Humidity around the field	:	<input type="text"/>	%
Enter PH value of the soil	:	<input type="text"/>	
Enter average amount of Rainfall around the field	:	<input type="text"/>	mm

[Submit](#) [Quit](#)

Crop Recommendation Assistant

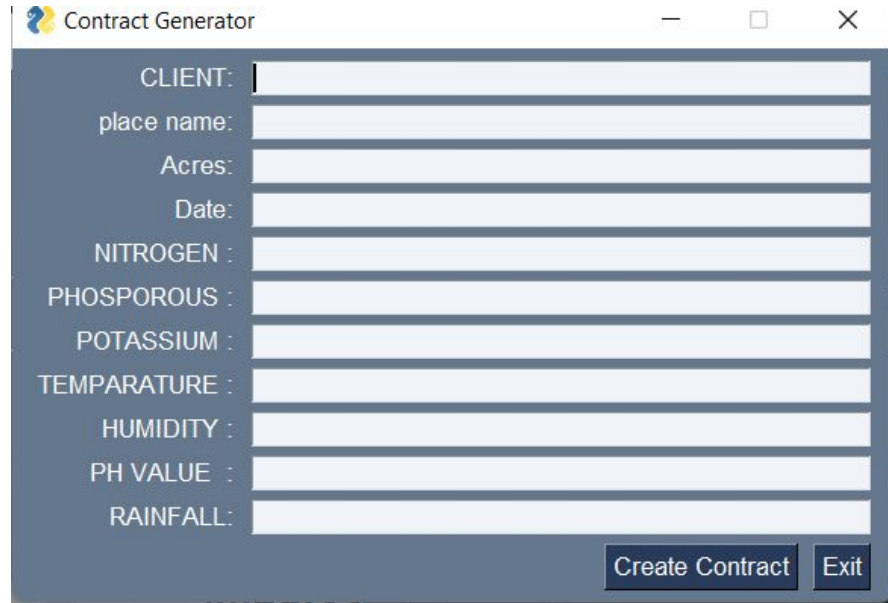
Please enter the following details :-

Enter ratio of Nitrogen in the soil	:	80	
Enter ratio of Phosphorous in the soil	:	70	
Enter ratio of Potassium in the soil	:	60	
Enter average Temperature value around the field	:	52	*C
Enter average percentage of Humidity around the field	:	40	%
Enter PH value of the soil	:	6	
Enter average amount of Rainfall around the field	:	101	mm

The best crop that you can grow : Banana

[Submit](#) [Quit](#)

# Continue....



A screenshot of a software application window titled "Contract Generator". The window has a dark blue header bar with the title and standard window controls (minimize, maximize, close). The main area has a dark blue background with white text labels for various fields. The fields are arranged vertically and each has a light blue input box. The labels are: CLIENT:, place name:, Acres:, Date:, NITROGEN :, PHOSPOROUS :, POTASSIUM :, TEMPARATURE :, HUMIDITY :, PH VALUE :, and RAINFALL:. At the bottom right of the window, there are two buttons: "Create Contract" and "Exit".

Field Label	Input Box
CLIENT:	
place name:	
Acres:	
Date:	
NITROGEN :	
PHOSPOROUS :	
POTASSIUM :	
TEMPARATURE :	
HUMIDITY :	
PH VALUE :	
RAINFALL:	

Buttons: Create Contract, Exit

# Continue...

The screenshot shows the home page of the 'CROP RECOMMENDATION SYSTEM WEB APP'. It includes a welcome message, a brief description of the system, and a section titled 'DATA SET USED FOR ANALYSIS OF THE CROPS RECOMMENDATION'. Below this is a table with 8 columns: NITROGEN, PHOSPHORUS, POTASSIUM, TEMPERATURE, HUMIDITY, PH, RAINFALL, and CROP. The table contains 7 rows of data, all for 'rice'.

**CROP RECOMMENDATION SYSTEM WEB APP**

Welcome to this web app here you will find all the details of recommendation assistant

Here this system will recommend the crop is based on the data sets and algorithms and the plantation is based on the farmer choice

**DATA SET USED FOR ANALYSIS OF THE CROPS RECOMMENDATION**

Here User can see sample of the data set which algorithm is used to recommend

	NITROGEN	PHOSPHORUS	POTASSIUM	TEMPERATURE	HUMIDITY	PH	RAINFALL	CROP
0	90	42	43	20.8797	82.0027	6.5030	202.9355	rice
1	85	58	41	21.7705	80.3196	7.0381	226.6555	rice
2	60	85	44	23.0045	82.3208	7.8402	263.9642	rice
3	74	35	40	26.4911	80.1584	6.9804	242.8640	rice
4	78	42	42	20.1302	81.6049	7.6285	262.7173	rice
5	69	37	42	23.0580	83.3701	7.0735	251.0550	rice
6	69	55	38	22.7088	82.6394	5.7008	271.3249	rice

The screenshot shows a contact page titled 'Any Query Related to Your Farm'. It prompts the user to fill out a form so that an expert team can contact them via email. The form has three input fields: a name field containing 'ganesh', an email field containing 'tangukurivenkata@karunya.edu.in', and a message field containing 'hello'. A green 'Send' button is located below the message field.

**Any Query Related to Your Farm**

Fill the form and our expert team will contact you with short time via mail

ganesh

tangukurivenkata@karunya.edu.in

hello

Send



# 7 Conclusion

In conclusion I would say that this mini project has been one the most remarkable experience I have had so far. It helped reinforce my knowledge of responsibility, focus, drive and ambition.

We all know that practical experience is the best way learning the things in the classroom and applying them in a real time problem gives us the much more knowledge over those topics here I have used py simple gui and machine learning and streamlit modules which are new to me and I have learnt them and applied them on the real time applications and I that I found many new things how the accuracy is calculated and how the stream lit web app is been installed and how it is been worked how to link python windows with web app how each window is linked these are things which I have learned while doing this project

