A

Major Project

On

MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE BASED CROP CONSULTANT

(Submitted in partial fulfillment of the requirements for the award of Degree)

BACHELOR OF TECHNOLOGY

in

COMPUTER SCIENCE AND ENGINEERING

BY

B.PRAMOD REDDY	(177R1A0515)
SRAVANI BILLAKANTI	(177R1A0512)
NIHARIKA MANDALA	(177R1A0531)

Under the Guidance of

Dr.G.MADHUKAR

(Assistant Professor)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CMR TECHNICAL CAMPUS

UGC AUTONOMOUS

(Accredited by NAAC ,NBA, Permanently Affiliated to JNTUH, Approved by AICTE, New Delhi)Recognized Under Section 2(f) & 12(B) of the UGC Act.1956,

Kandlakoya (V), Medchal Road, Hyderabad-501401.

2017-2021

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CERTIFICATE

This is to certify that the project entitled "**MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE BASED CROP CONSULTANT**" being submitted by **B.PRAMOD REDDY (177R1A0515), SRAVANI BILLAKANTI (177R1A0512), NIHARIKA MANDALA (177R1A0531)**in partial fulfillment of the requirements for the award of the degree of B.Tech in Computer Science and Engineering of the Jawaharlal Nehru Technological University Hyderabad, during the year 2017-2021 it is certified that they have completed the project satisfactorily.

INTERNAL GUIDE
Dr.G.Madhukar
Assistant Professor

DIRECTOR
Dr. A. Raji Reddy

HOD
Dr. K. Srujan Raju

EXTERNAL EXAMINER

Submitted for viva voce Examination held on _____

ACKNOWLEDGEMENT

Apart from the efforts of us, the success of any project depends largely on the encouragement and guidelines of many others. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of this project. We take this opportunity to express my profound gratitude and deep regard to my guide

Dr.G.Madhukar, Assistant Professor for his exemplary guidance, monitoring and constant encouragement throughout the project work. The blessing, help and guidance given by him shall carry us a long way in the journey of life on which we are about to embark.

We also take this opportunity to express a deep sense of gratitude to Project Review Committee (PRC) coordinators:**Mrs.Najeema Afrin, Mr. B.Deepak Kumar, Mr. J. Narasimha Rao** for their cordial support, valuable information and guidance, which helped us in completing this task through various stages.

We are also thankful to the Head of the Department **Dr. K. Srujan Raju** for providing excellent infrastructure and a nice atmosphere for completing this project successfully.

We are obliged to our Director **Dr. A. Raji Reddy** for being cooperative throughout the course of this project. We would like to express our sincere gratitude to our Chairman Sri. **Ch. Gopal Reddy** for his encouragement throughout the course of this project

The guidance and support received from all the members of **CMR TECHNICALCAMPUS** who contributed and who are contributing to this project, was vital for the success of the project. We are grateful for their constant support and help.

Finally, we would like to take this opportunity thank our family for their constant encouragement without which this assignment would not be possible. We sincerely acknowledge and thank all those who gave support directly and indirectly in completion of this project.

B.PRAMOD REDDY (177R1A0515)
SRAVANI BILLAKANTI (177R1A0512)
NIHARIKA MANDALA (177R1A0531)

ABSTRACT

Agriculture is one of the most essential and widely practicedoccupations in India and it has a vital role in the development of our country. Around 60 percent of the total land in the country is used for agriculture to meet the needs of 1.2 billion people, so improving crop production is therefore seen as a significant aspect of agriculture. Basicallyif we have a piece of land, we need to know what kind of crop can be grown in this area. Agriculture depends on the various soil properties. Production of crops is a difficult task since it involves various factors like soil type, temperature, humidity etc. If it is possible to find the crop before sowing it, it would be of great help to the farmers and the other people involved to make appropriate decisions on the storage and business side. The proposed project would solve agricultural problems by monitoring the agricultural area on the basis of soil properties and recommending the most appropriate crop to farmers, thereby helping them to significantly increase productivity and reduce loss. Our project is a recommendation system which makes use of different machine learning techniques such that it recommends the suitable crops based on the input soil parameters. This system thus reduces the financial losses faced by the farmers caused by planting the wrong crops and also it helps the farmers to find new types of crops that can be cultivated in their area.

LIST OF FIGURES

LIST OF SCREENSHOTS

TABLE OF CONTENTS

1. INTRODUCTION

1.1 PROJECT SCOPE

The extent of this examination is to get a handle on the AI job abuse neural organizations and developing model that predicts seed class's upheld AI strategy. AI gives various fruitful figuring which relies on various variables. It is a troublesome assignment to distinguish the best appropriate when there are more than one choice accessible. Consequently, by AI precise harvests can be anticipated. The target of the venture is to be exact and precise in foreseeing crop yield and convey the end client with legitimate proposals about required manure proportion dependent on soil boundaries. To fore seen the measure of sustenance content needed by the yield. And furthermore to make easy to use interfaces for ranchers, which gives the investigation of harvest yield forecast which depends on accessible datasets. In India there are distinctive horticulture crops creation and those harvests relies upon the different kind of factors, for example, science, economy and furthermore the topographical elements. What's more, this few elements distinctively affect crops, which can be evaluated utilizing proper measurable philosophies. Applying such procedures and strategies on verifiable yield of various harvests, it is conceivable to acquire data or information which can be useful to ranchers and government associations for settling on better choices and for improve arrangements which help to expanded creation. In this paper, the creators center a round utilization of information mining methods which is use to separate information from the horticultural information to appraise better harvest yield for significant yields in significant locale of India.

1.2 PROJECT PURPOSE

This project presents the different harvest yield forecast strategies utilizing information mining methods.Agrarian framework is unpredictable since it manages enormous information circumstance which comes from various components. Harvest yield expectation has been a subject of interest for makers, specialists, and agrarian related associations. In this paper the creators center around the uses of information mining methods in agrarian field. Distinctive Data Mining methods, for example, K-Means, K-Nearest Neighbor (KNN), Artificial Neural Networks(ANN) and Support Vector Machines(SVM) for ongoing utilizations of information mining procedures in

agribusiness field. Information mining innovation has gotten an incredible advancement with the fast improvement of software engineering, man-made brainpower. Information Mining is an arising research field in horticulture crop yield investigation. Information Mining is the way toward recognizing the concealed examples from enormous measure of information. Yield expectation is a vital rural issue that stays to be settled dependent on the accessible information. The issue of yield expectation can be tackled by utilizing information mining methods.

1.3 PROJECT FEATURES

The algorithm developed introduces a data-driven model to predict and forecast crop yield using joint dependencies of soil and climate features. Although there are several techniques existing to obtain rainfall predictions, the algorithm discussed in this paper succeeded in emphasizing on Rainfall along with the crop yield prediction. This designed model took into account the most relevant environment as well as soil parametersthat affect the crop growth, in a way that each of those parameters received equal weight in the final prediction. The outcomes of this research can benefit the agriculturists/farmers by knowing the investment capital on the crop to be sown, even before the sowing season begins. The predictive pattern of the algorithm can benefit local self-government and financial institutions to allocate suitable funds or fiscal loans to farmers. Naive Bayes is used for the large dataset can also be beneficial. Use of naïve Bayes and decision tree makes the model very efficient in terms of computation. The system is scalable as it can be used to test on different crops. From the yield graphs, the best time of sowing, plant growth and harvesting of the plant can be found out. Also, the optimal and worst environmental condition can also be incurred. The model focuses on all type of farms, and smaller farmers can also be benefitted. This model can be further enhanced to find the yield of every crop, and for pesticide recommendation. Also, it can be modified to suggest about the fertilizers and irrigation need for crops.

2. SYSTEM ANALYSIS

SYSTEM ANALYSIS

System Analysis is the important phase in the system development process. The System is studied to the minute details and analyzed. The system analyst plays animportant role of an interrogator and dwells deep into the working of the present system. In analysis, a detailed study of these operations performed by the system andtheir relationships within and outside the system is done. A key question consideredhere is, “what must be done to solve the problem?” The system is viewed as a wholeand the inputs to the system are identified. Once analysis is completed the analyst has afirm understanding of what is to be done.

1.1 PROBLEM DEFINITION

Machine learning is an important decision support tool for crop yield prediction, including supporting decisions on what crops to grow and what to do during the growing season of the crops. Several machine learning algorithms have been applied to support crop yield prediction research.

1.2 EXISTING SYSTEM

An agro-based country depends on agriculture for its economic growth. When a population of the country increases dependency on agriculture also increases and subsequent economic growth of the country is affected. In this situation, the crop yield rate plays a significant role in the economic growth of the country. So, there is a need to increase crop yield rate. Some biological approaches (e.g. seed quality of the crop, crop hybridization, strong pesticides) and some chemical approaches (e.g. use of fertilizer, urea, potash) are carried out to solve this issue. In addition to these approaches, a crop sequencing technique is required to improve the net yield rate of the crop over the season. One of existing system we identified is Crop Selection Method (CSM) to achieve a net yield rate of crops over the season. We have taken example of CSM to demonstrate how it helps farmers in achieving more yield.

LIMITATIONS OF EXISTING SYSTEM

- Lack Of Security
- Time Consuming
- Difficulty in Modification of data
- Increases Cost
- Storage

2.3 PROPOSED SYSTEM

In our system we are making use of a classification algorithms to improvised the crop yields.The accuracy of a machine learning algorithm may depend on the number of parameters used and to the extent of correctness of the dataset. Our dataset contains different kinds of soils as attributes and last 10 years data of what crops are grown in that particular area and it also contains the corresponding crops that can be grown in that soil as label. Thus, by using an appropriate machine learning algorithm we can train the dataset to predict the most suitable crop that can be grown under the given input parameters. Different machine learning algorithms are being used in order to make comparisons. The different algorithms used:

1. Customized Multiple Linear Regression

2. Customized K Fold Method

2.3.1 ADVANTAGES OF THE PROPOSED SYSTEM

- Increased Fertility Rate
- Less Dependent on Fertilizer
- Increased Crop Produce
- Less Dependent on Monsoon
- Increased Food Security

2.4 FEASIBILITY STUDY

An important outcome of preliminary investigation is the determination that the system request is feasible. This is possible only if it is feasible within limited resource and time. The different feasibilities that have to be analyzed are

- Operational Feasibility
- Economic Feasibility
- Technical Feasibility
- Behavioral Feasibility

2.4.1 Operational Feasibility

Operational Feasibility deals with the study of prospects of the system to be developed. This system operationally eliminates all the tensions of the Admin and helps him in effectively tracking the project progress. Operational feasibility study was conducted to sort out the problems mainly related to the human organizational and political aspects

2.4.2 Economic Feasibility

Economic Feasibility or Cost-benefit is an assessment of the economic justification for a computer based project. As hardware was installed from the beginning & for lots of purposes thus the cost on project of hardware is low. Since the system is a network based This system is small student information and performance management system, which needs small amount of resources School computer can meet the conditions both in hardware and software; therefore, this system is feasible in operation.

The following are some of the important financial questions asked during preliminary investigation:

- The costs conduct a full system investigation.
- The cost of the hardware and software.
- The benefits in the form of reduced costs or fewer costly errors.

Since the system is developed as part of project work, there is no manual cost to spend for the proposed system. Also all the resources are already available, it give an indication of the system is economically possible for development.

2.4.3 Technical Feasibility

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this systemHARDWARE & SOFTWARE REQUIREMENTS..

2.4.4 Behavioral Feasibility

This includes the following questions:

- Is there sufficient support for the users?
- Will the proposed system cause harm?

The project would be beneficial because it satisfies the objectives when developed and installed. All behavioral aspects are considered carefully and conclude that the project is behaviorally feasible.

2.5 HARDWARE & SOFTWARE REQUIREMENTS

2.5.1 HARDWARE REQUIREMENTS:

Hardware interfaces specifies the logical characteristics of each interface between the software product and the hardware components of the system. The following are some hardware requirements.

- Processor : Intel i3 (or) higher
- Hard disk : 160GB and Above.
- RAM : 6GB and Above.
- Monitor : 21 inches or above.

2.5.2 SOFTWARE REQUIREMENTS:

Software Requirements specifies the logical characteristics of each interface and software components of the system. The following are some software requirements,

- Operating System : Windows 10
- Languages : Python
- Front End : HTML, JavaScript
- Web Servers : Django
- Database : SQLite
- Browser Program : Mozilla Firefox/Google Chrome
- IDE : PyCharm 20.2.5

3. ARCHITECTURE

3.1 PROJECT ARCHITECTURE

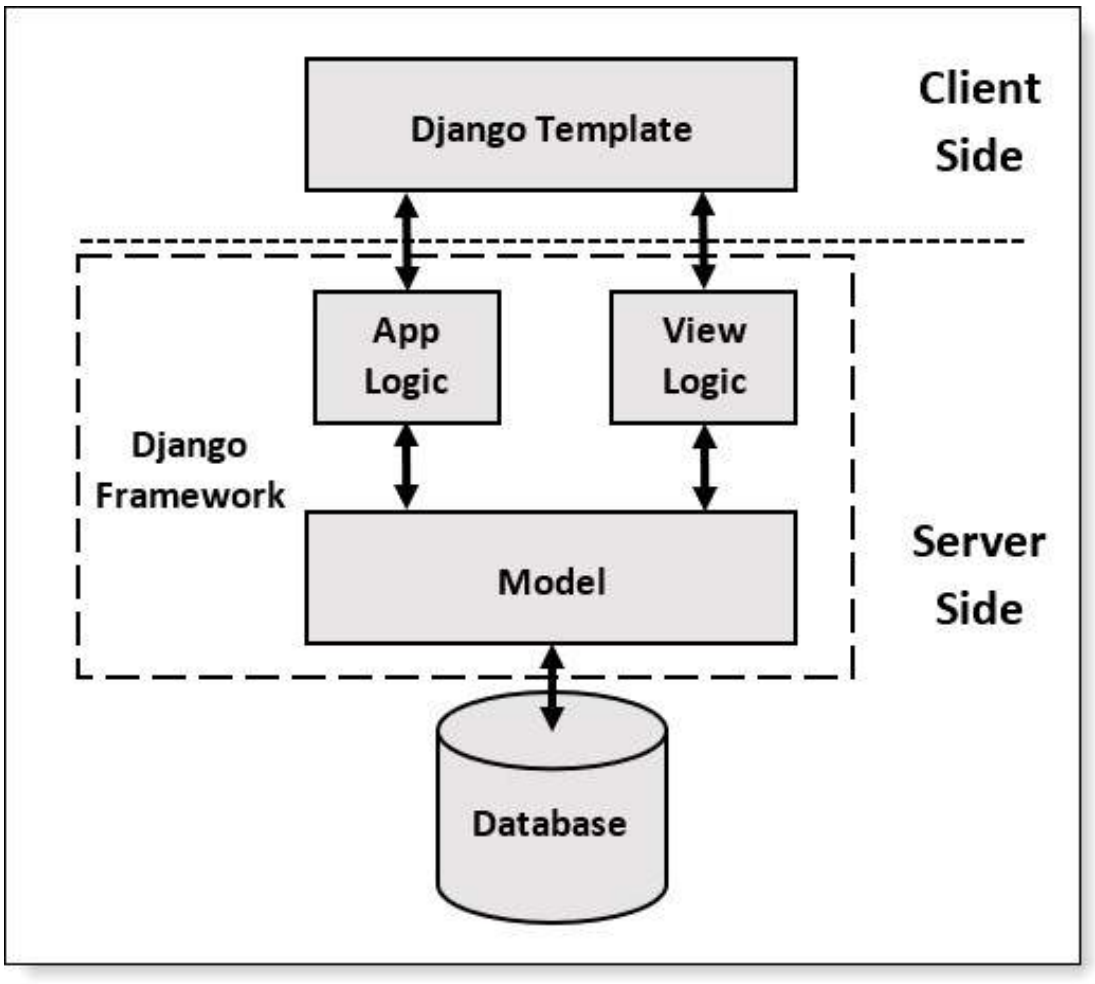


Fig. 3.1 Project Architecture of Crop Prediction System

3.2MODULES DESCRIPTION

Modules:

- **Administrator**
- **User**

3.2.1 ADMINISTRATOR

- Load Dataset
- Get Weather Details from API
- Perform Calculations Using the Algorithm
- Show Result to the User
- Get Crop Recommendations

3.2.2 USER

- Enter District
- Enter Crop
- View Crop Success Rate
- View Crop Suggestions

3.3USE CASE DIAGRAM

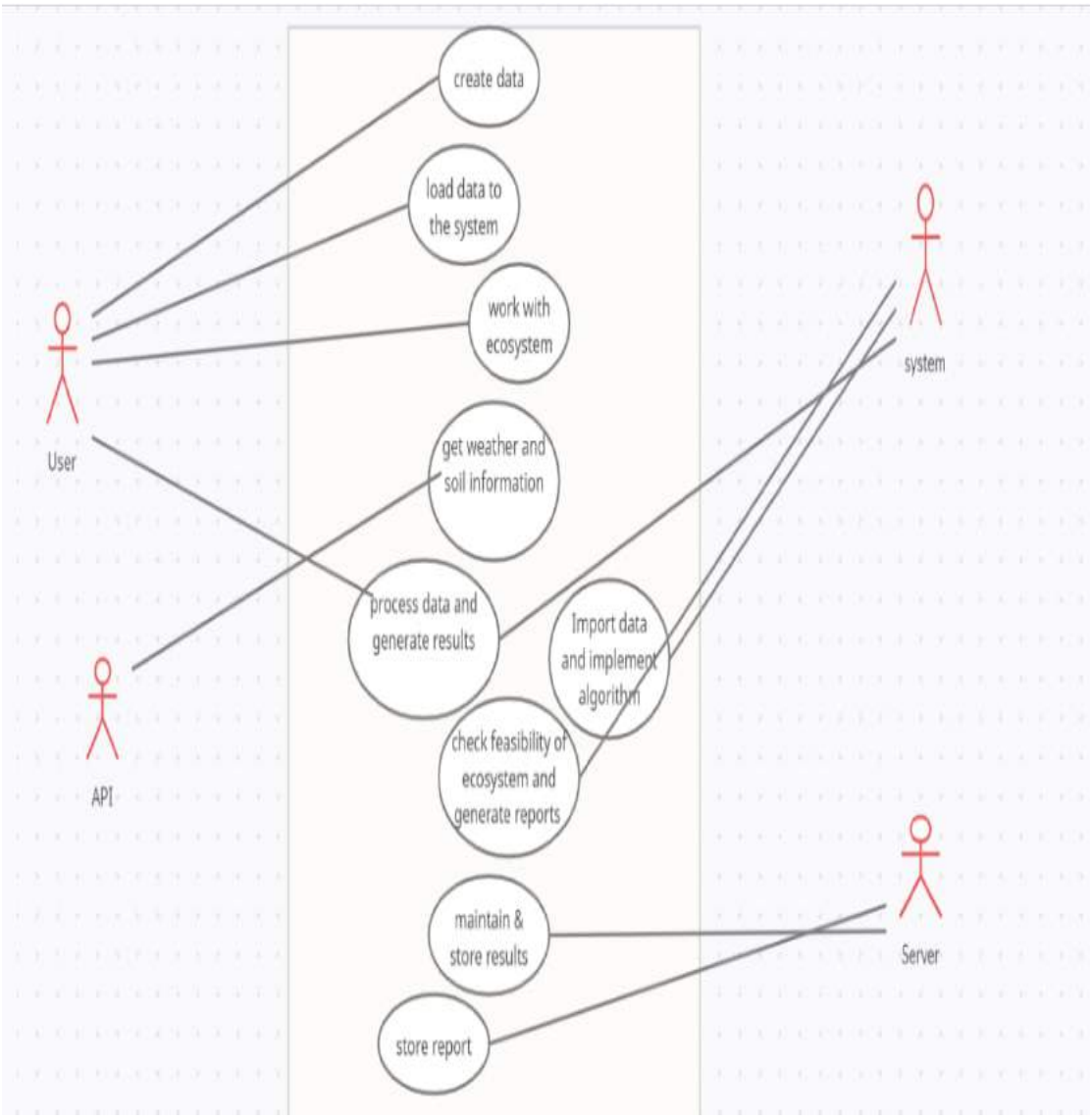


Fig. 3.3.1 Use Case Diagram of Crop Prediction System

3.3.1 CLASS DIAGRAM

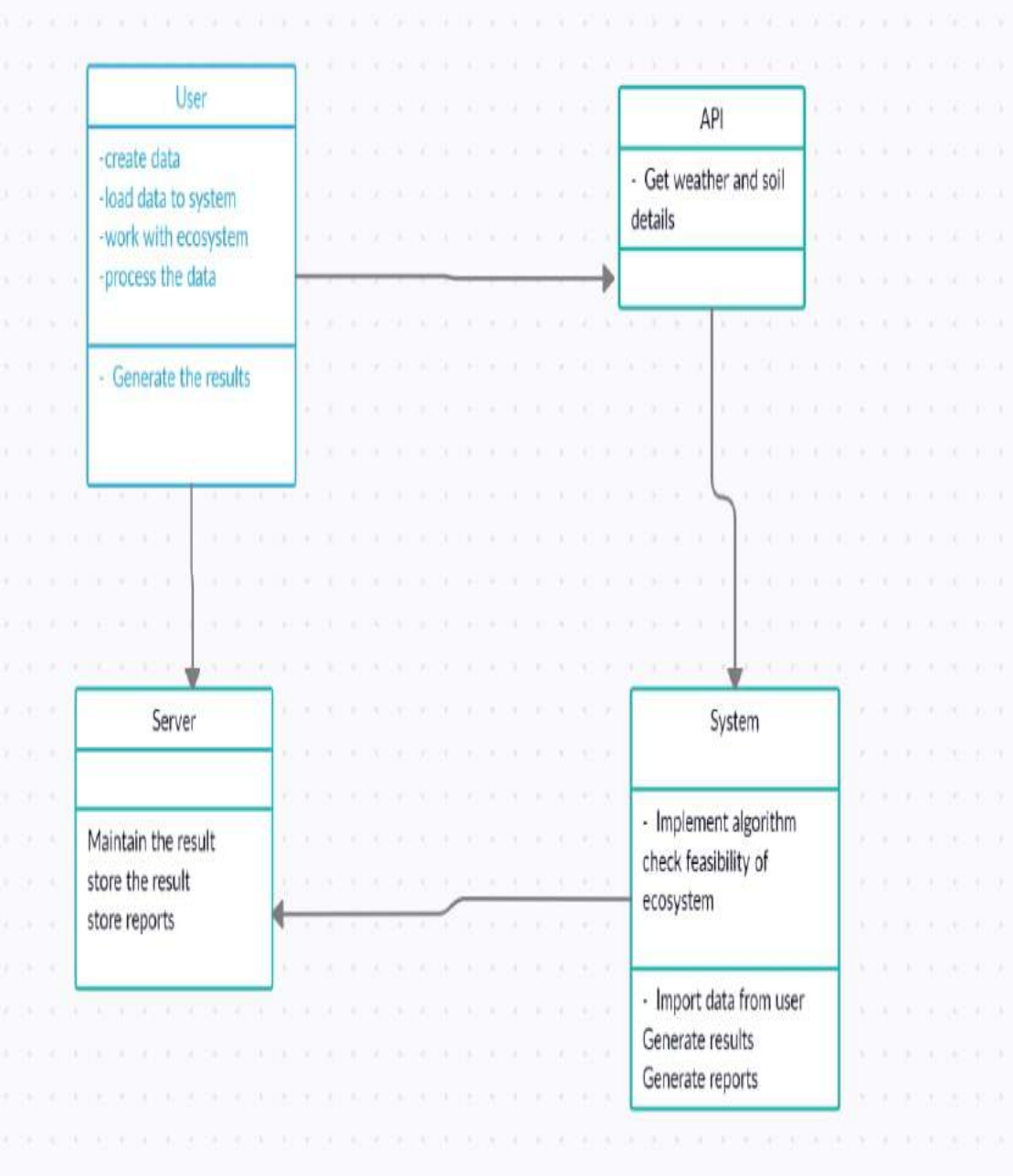


Fig. 3.3.1 Class Diagram of Crop Prediction System

3.3.2 SEQUENCE DIAGRAM

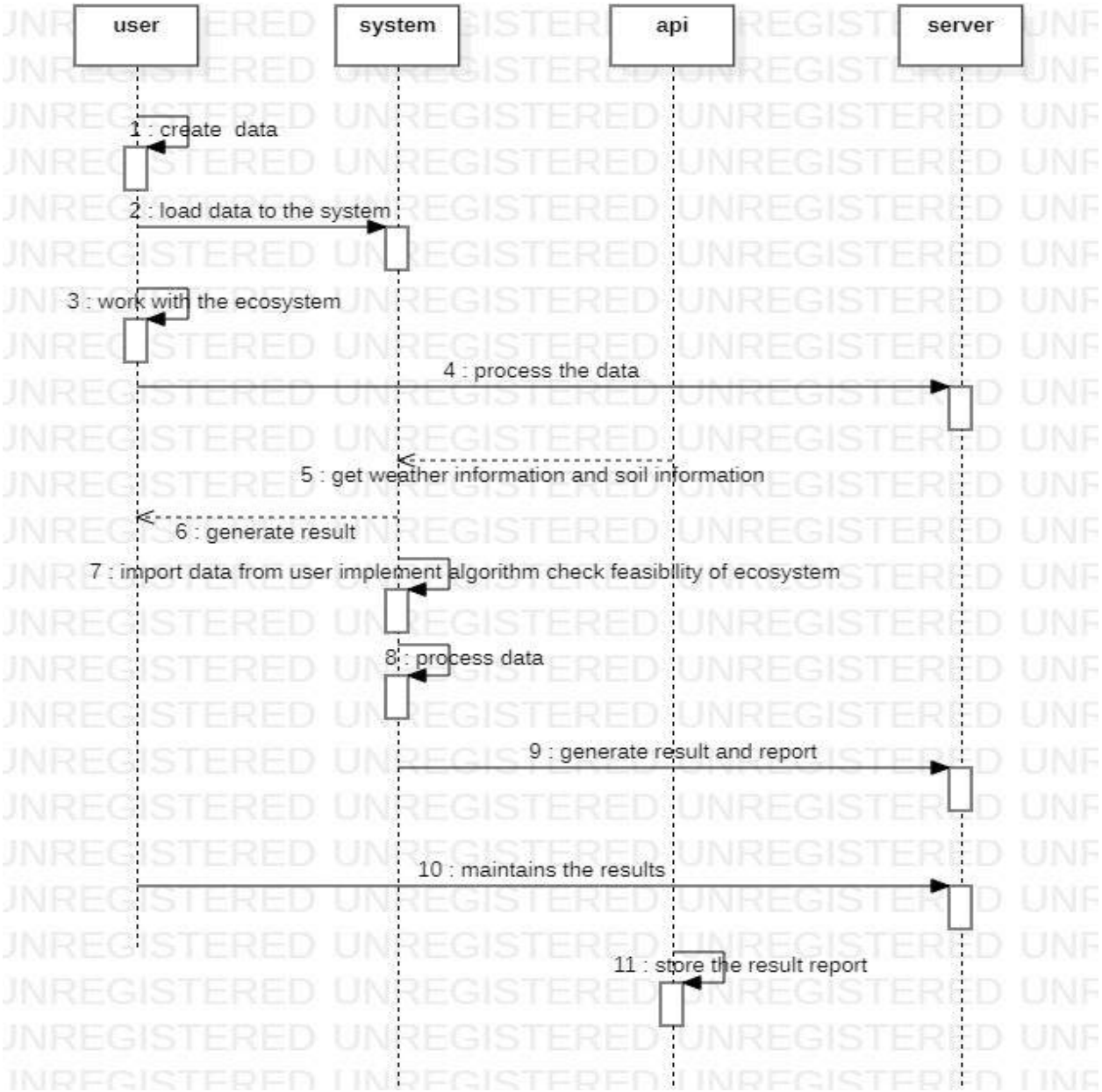


Fig. 3.3.2 Class Diagram for Crop Predition System

3.3.3ACTIVITY DIAGRAM

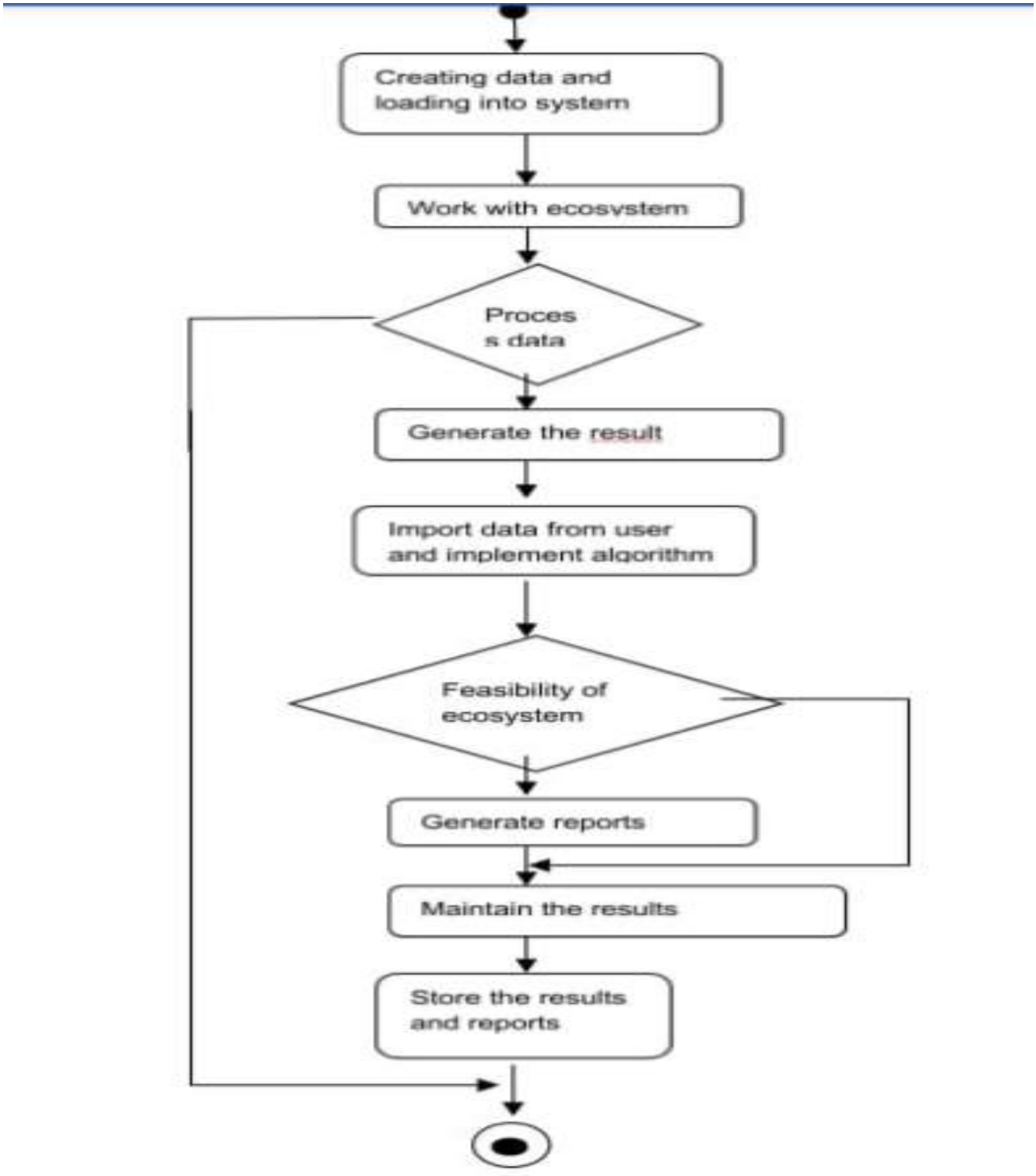


Fig. 3.3.3 Activity Diagram of Crop Prediction System

4. IMPLEMENTATION

4.1SAMPLE CODE

models.py :

```
from django.db import models

class pred_one(models.Model):

    crop=models.CharField(max_length=15)

Gross_Production_Value_constant_2004_2006_1000_dollar=models.DecimalField(max
_digits=12,decimal_places=4,default=0.0)

Net_Production_Value_constant_2004_2006_1000_dollar=models.DecimalField(max_d
igits=12,decimal_places=4,default=0.0)

Gross_Production_Value_current_million_SLC=models.DecimalField(max_digits=12,d
ecimal_places=4,default=0.0)


Gross_Production_Value_constant_2004_2006_million_SLC=models.DecimalField(ma
x_digits=12,decimal_places=4,default=0.0)


Gross_Production_Value_current_million_US_dollar=models.DecimalField(max_digits
=12,decimal_places=4,default=0.0)


Gross_Production_Value_constant_2004_2006_million_US_dollar=models.DecimalFiel
d(max_digits=12,decimal_places=4,default=0.0)


org_mean_Gross_Production_Value_constant_2004_2006_million_US_dollar=models.
DecimalField(max_digits=12,decimal_places=4,default=0.0)


    def __str__(self):
```

```
    return self.crop
class prod_area(models.Model):
    state=models.CharField(max_length=25)
    district=models.CharField(max_length=25)
    crop=models.CharField(max_length=25)
    org_val=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
    pred_val=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
    def __str__(self):
    return '%s %s %s' % (self.state, self.district, self.crop
class one(models.Model):
    crop=models.CharField(max_length=15)
Gross_Production_Value_constant_2004_2006_1000_dollar=models.DecimalField(max
_digits=12,decimal_places=4,default=0.0)
Net_Production_Value_constant_2004_2006_1000_dollar=models.DecimalField(max_d
igits=12,decimal_places=4,default=0.0)
Gross_Production_Value_current_million_SLC=models.DecimalField(max_digits=12,d
ecimal_places=4,default=0.0)
Gross_Production_Value_constant_2004_2006_million_SLC=models.DecimalField(ma
x_digits=12,decimal_places=4,default=0.0)
Gross_Production_Value_current_million_US_dollar=models.DecimalField(max_digits
=12,decimal_places=4,default=0.0)
Gross_Production_Value_constant_2004_2006_million_US_dollar=models.DecimalFiel
d(max_digits=12,decimal_places=4,default=0.0)def __str__(self):
return self.crop
class two(models.Model):
```

```
    crop=models.CharField(max_length=25)
    area_harvested=models.IntegerField()
    yieldd=models.IntegerField()
    production=models.IntegerField()
def __str__(self):
     return self.crop
     class three(models.Model):
    crop=models.CharField(max_length=15)
    Production=models.IntegerField()
    Imports=models.IntegerField()
    Stock=models.IntegerField()
    Export=models.IntegerField()
    Seed=models.IntegerField()
    Domestic=models.IntegerField()
def __str__(self):
     return self.crop
class pred_three(models.Model):
    crop=models.CharField(max_length=15)
    imports=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
    exports=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
    production=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
  production_mean=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
    imports_mean=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
```

```
    exports_mean=models.DecimalField(max_digits=12,decimal_places=4,default=0.0)
def __str__(self):

return self.crop
```

5. SCREEN SHOTS

5.1WELCOME PAGE

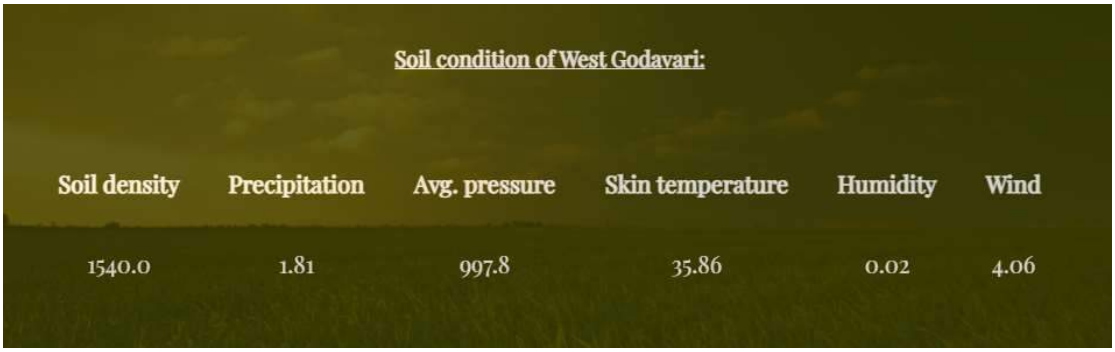
This is the page displayed when the link is opened

5.1.Screenshot: Welcome Page

5.2 WORKING OF THE APPLICATION

5.2. Weather Information from API

5.2.1 SOIL CONDITION

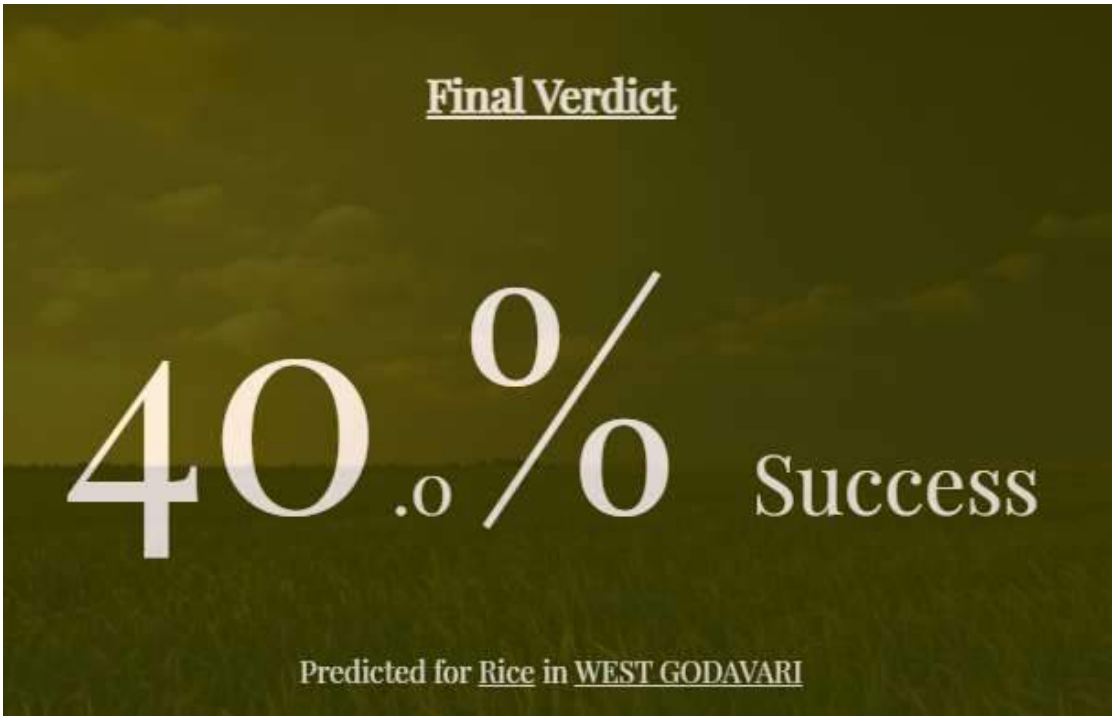


5.3. Screenshot: Soil Condition of Entered Place

5.2.2 INSIGHTS

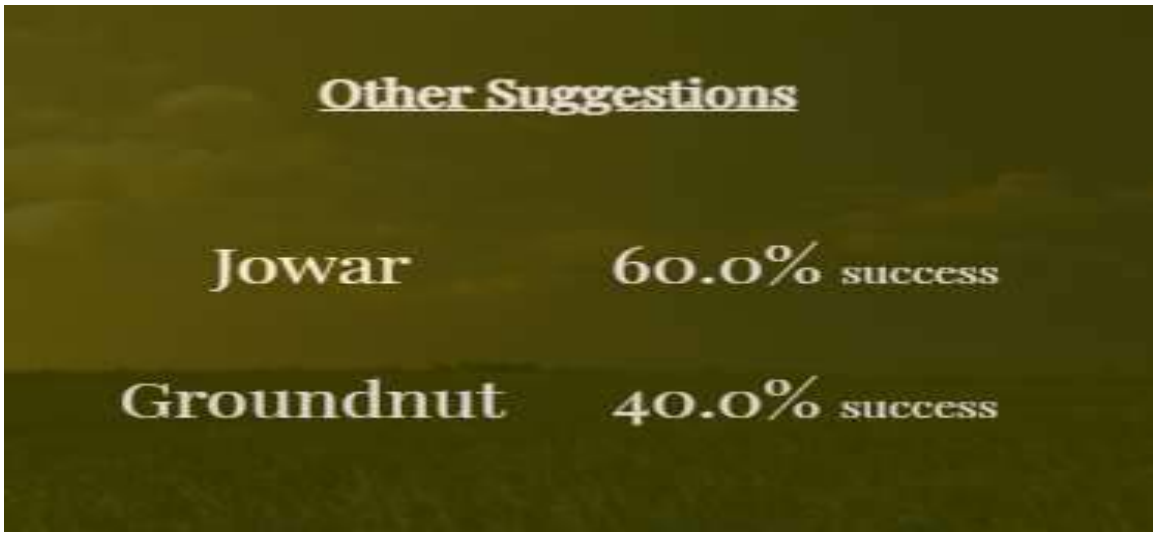
5.4.Screenshot: Insights about entered crop

5.2.3 SUCCESS RATE



5.5. Screenshot: Success Rate of Crop

5.2.4 CROP SUGGESTIONS



5.6.Screenshot:Crop Suggestions given to user

6. TESTING

6.1 INTRODUCTION TO TESTING

The purpose of testing is to discover errors. Testing is the process of trying to discover every conceivable fault or weakness in a work product. It provides a way to check the functionality of components, subassemblies, assemblies and/or a finished product. It is the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner. There are various types of test. Each test type addresses a specific testing requirement.

6.2 TYPES OF TESTING

6.2.1 UNIT TESTING

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application .it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

- **Test objectives**
- All field entries must work properly.
- Pages must be activated from the identified link.
- The entry screen, messages and responses must not be delayed.
- **Features to be tested**
- Verify that the entries are of the correct format
- No duplicate entries should be allowed
- All links should take the user to the correct page.

6.2.2 INTEGRATION TESTING

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basic outcome of screens or fields. Integration tests demonstrate that

although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

Test Results: All the test cases mentioned above passed successfully. No defects encountered.

6.2.3 FUNCTIONAL TESTING

Functional tests provide systematic demonstrations that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

Valid Input : identified classes of valid input must be accepted.

Invalid Input : identified classes of invalid input must be rejected.

Functions : identified functions must be exercised.

Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify Business process flows; data fields, predefined processes.

6.3 TEST CASES

6.3.1 ENTERING DISTRICT AND PLACE

Test Case ID	Test Case Name	Purpose	Test Case	Output
1.	Entering District Name	To check if district is present in the dataset	District and Crop name	Result Page

7. CONCLUSION

7.1 PROJECT CONCLUSION

The proposed system takes the soil, precipitation and weather values into consideration and determines which are the best productive crops that can be grown in that suitable soil conditions. Since the system lists all potential crops it helps the farmer determine which crop to be grown in their area. This system thus helps the farmer to decide on the maximum profitable crop and also helps in finding new crops that can be cultivated which have not been cultivated till that time by the farmer. In the future, this system can be implemented further using IOT to get the real time values of the soil. In the farm, the sensors can be installed to collect information about the current soil conditions, and the systems can therefore increase the accuracy of correctness of the results. Hence, farming can be done in a smart way.

7.2 FUTURE ENHANCEMENTS

This project has a vast scope in the future we are planning to link the complete database and all the functionalities to a mobile app through which all the data can be accessed , we are also planning to add a iot module to the application by which the soil conditions , weather and precipitation details are automatically calculated by the iot device and can be accessed through a mobile app. There are many advancements for our project compared to the previous datasets. In our project we are taking a large dataset therefore we can get the details regarding a greaternumber of crops. So more number of crops that can be grown in different soil conditions can be predicted.We have used different machine learning models in our project. Different models show different accuracies so we can select the best among them in order to do the accurate predictions. In this manner we get the results in a speedy way. We have built our project in such a way that it is easily accessible to all the farmers and with the advancement in technology we can incorporate more features into it. Since we are using the machine learning model of higher predicting accuracy, our project gives best results. The occurrence of natural disasters like flood and soil erosion can change the overall composition of the soil and our recommendation system provides a better way to predict the suitable crops in the

changed soil conditions. The UI of the project is designed such that it is easily understandable by the common people.

8.BIBILOGRAPHY

8.1 Websites

1. World Wide Web
2. Youtube

8.2 References

1. INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY

2. INTERNATIONAL JOURNAL OF FUTURE GENERATION COMMUNICATION AND NETWORKING

3. SCIENCE DIRECT

GITHUB LINK :

https://github.com/pramodreddy8000/Team-9-Computer-Science-and-Engineering-Cmr-Technical-Campus

International Journal of All Research Education and Scientific Methods (IJARESM), ISSN: 2455-8011
Volume 9, Issue 2, June -2021, Impact Factor: 7.429, Available online at: www.ijaresm.com

ML and AI Based Crop Consultant

Dr.G.Madhukar[1], B Pramod Reddy[2], Sravani Billakanti[3], Niharika Mandala[4]

[1] Assistant Professor, CMR Technical Campus,

[2,3,4] CMR Technical Campus

----------**********----------

ABSTRACT

Agriculture is one of the most essential and widely practiced occupations in India and it has a vital role in the development of our country. Around 60 percent of the total land in the country is used for agriculture to meet the needs of 1.2 billion people, so improving crop production is therefore seen as a significant aspect of agriculture. Basically if we have a piece of land, we need to know what kind of crop can be grown in this area. Agriculture depends on the various soil properties. Production of crops is a difficult task since it involves various factors like soil type, temperature, humidity etc. If it is possible to find the crop before sowing it, it would be of great help to the farmers and the other people involved to make appropriate decisions on the storage and business side. The proposed project would solve agricultural problems by monitoring the agricultural area on the basis of soil properties and recommending the most appropriate crop to farmers, thereby helping them to significantly increase productivity and reduce loss. Our project is a recommendation system which makes use of different machine learning techniques such that it recommends the suitable crops based on the input soil parameters. This system thus reduces the financial losses faced by the farmers caused by planting the wrong crops and also it helps the farmers to find new types of crops that can be cultivated in their area.

Keywords: K-Means, K-Nearest Neighbour (KNN), Artificial Neural Networks (ANN).

INTRODUCTION

This project presents the different harvest yield forecast strategies utilizing information mining methods.Agrarian framework is unpredictable since it manages enormous information circumstance which comes from various components. Harvest yield expectation has been a subject of interest for makers, specialists, and agrarian related associations. In this paper the creators center around the uses of information mining methods in agrarian field. Distinctive Data Mining methods, for example, K-Means,K-Nearest Neighbor(KNN), Artificial Neural Networks(ANN) and Support Vector Machines(SVM) for ongoing utilizations of information mining procedures in agribusiness field. Information mining innovation has gotten an incredible advancement with the fast improvement of software engineering, man-made brainpower. Information Mining is an arising research field in horticulture crop yield investigation. Information Mining is the way toward recognizing the concealed examples from enormous measure of information. Yield expectation is a vital rural issue that stays to be settled dependent on the accessible information. The issue of yield expectation can be tackled by utilizing information mining methods.

Overview

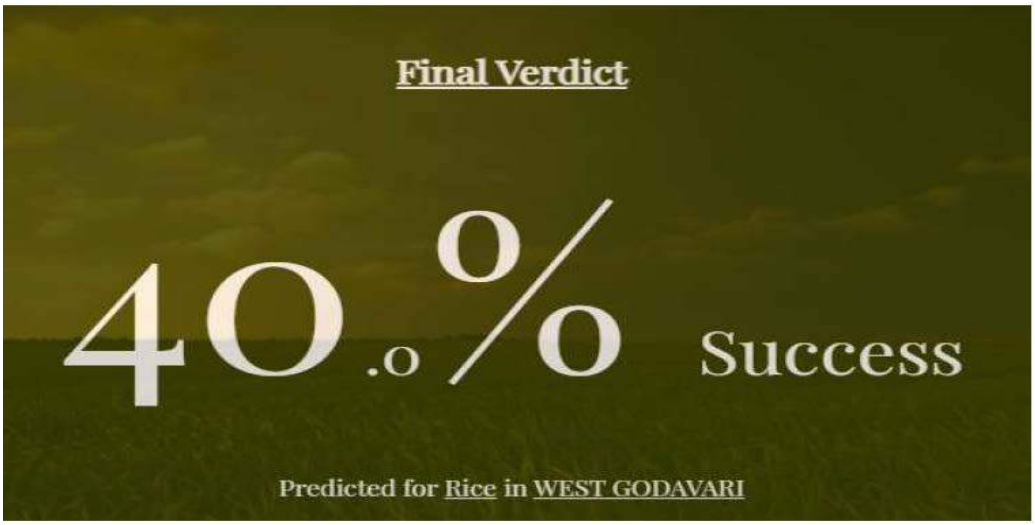
In the project, we introduce a scalable, accurate, and inexpensive method to predict crop yield using publicly available datasets and machine learning. The algorithms used include include Regression Analysis, K-Fold and Batch Training. Our learning approach can predict crop yield with high spatial resolution several months before harvest, using only globally available covariates. We believe our solution can potentially help making informed planting decisions, setting appropriate food reserve level, identifying low-yield regions and improving risk management of crop-related derivatives.

1. Crop and Soil Monitoring - Using various sensors and IoT- based technologies to monitor crop and soil health.
2. Predictive Agricultural Analysis - Various AI and machine learning tools are being used to predict the crop and success rate.
3. Real Time Efficiency - Using real-time data analytics on data-streams coming from multiple sources to build an efficient and smart supply chain.

ANALYSIS

Final Success Rate is Predicted by the following factors:

1. Imports of the crop in the past 10 years
2. Exports of the crop in the past 10 years
3. Production of the crop in the past 10 years
4. Production per unit area of the crop in the past 10 years , for concerned area
5. Gross production value of the crop in the past 10 years



CONCLUSION

The proposed system takes the soil, precipitation and weather values into consideration and determines which are the best productive crops that can be grown in that suitable soil conditions. Since the system lists all potential crops it helps the farmer determine which crop to be grown in their area. This system thus helps the farmer to decide on the maximum profitable crop and also helps in finding new crops that can be cultivated which have not been cultivated till that time by the farmer. In the future, this system can be implemented further using IOT to get the real time values of the soil. In the farm, the sensors can be installed to collect information about the current soil conditions, and the systems can therefore increase the accuracy of correctness of the results. Hence, farming can be done in a smart way.

REFERENCES

[1] INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY
[2] INTERNATIONAL JOURNAL OF FUTURE GENERATION COMMUNICATION AND NETWORKING
[3] SCIENCE DIRECT