



Department of Information Technology

NBA Accredited

A.P. Shah Institute of Technology

— G.B.Road,Kasarvadavli, Thane(W), Mumbai-400615

UNIVERSITY OF MUMBAI

Academic Year 2021-2022

A Project Report on
Annadata: A Web Based Farmer's Portal

Submitted in partial fulfillment of the degree of
Bachelor of Engineering(Sem-8)

in
INFORMATION TECHNOLOGY

By

Cdt. Swarad Hajarnis(18104073)

Mr. Kaustubh Sawant(18104066)

Mr. Shubham Khairnar(18104025)

Under the Guidance of
Dr. Sameer Nanivadekar
Prof. Sonal Jain

1. Project Conception and Initiation

1.1 Abstract

The world is rapidly moving towards digitization. In these tough times where everyone is not so comfortable with the digital world, there are many classes in the society that faces difficulties in updating themselves and to keep up with their professional requirements at the same time. There are many classes that are neglected during the ongoing pandemic situation, whose issues aren't addressed, whereas they actually play an important role in society as well as in maintaining ecological balance. Agriculture is an important sector in India. It is indispensable for the sustenance and growth of the Indian economy. On an average, about the 70 per cent of the households and 10 per cent of the urban population is dependent on agriculture as their source of livelihood. Agriculture is the primary source of food and plays an important role in employment and economy in India. Thereby to address some of these issues, this system is developed in order to help and uplift the Farmer's community as they play vital role in many aspects. Some of the issues would be addressed that are on high priority currently. The whole system is developed with a motive to help the unaddressed community that selflessly delivers to us & a keen interest towards working for a social cause.

1.2 Objectives

There are many limited products in this domain so as to create a competent and user friendly product that would be really helpful to our targeted audience, which would suggest the best for them in all fields and aspects that are mentioned in our modules. In all, a product that could be beneficial for them with respect to all terms.

1. To provide the user with login credentials when they registers through SMS
2. To provide an option of resetting password in case the user forgets the password. It shall be given by the system through SMS
3. To help farmers know about the sci-geographic conditions and which agricultural forms to go with through Crop prediction module for better yield of crops.
4. To notify the farmers about the red flags generated in weather forecasting
5. To make them aware about the different Govt. Schemes for which they are eligible and to notify them through SMS everytime a new scheme is launched
6. To provide the user with accurate and precise information regarding field treatments and drain treatments
7. To make them aware about the farming equipments available in their vicinity
8. To notify them about different training sessions and workshops by Govt. of Maharashtra (Skills & Development Ministry), and their application process.
9. To give information about all the available soil laboratories within the state of Maharashtra

1.3 Literature Review

Sr. NO	Authors	Paper Title	Methodologies	Findings
1	Kiran Morye, Arun Pathvte, Suyog Nikam	Crop Yield Production using RFA for major cities in Maharashtra	Prediction of the crop yield using RFA	This algorithm consider some sci-geographic conditions and then generates the yield of the crop in numbers
2	Suvidha Jambekar, ShikhaNema, Zia Saquib	Prediction of Crop Production in India using Data Mining Techniques	MSE, RMSE, Multi linear regression, RFR, RFA	Compared different algorithms on Rice, wheat and maze crops

1.4 Problem Definition

India can be addressed as an agricultural state as much of the country's export products are from the agricultural domain. Thereby, it becomes necessary to address the issues faced by the people associated with this domain. It becomes necessary to provide them with the products that can be useful for them and they can find information related to many sectors in their domain at one place. As we all know that the people associated with this domain, viz. Farmers, are not fortunate enough to be as literate as us, they find it difficult to understand foreign languages. Therefore the current products in the market do not prove to be really useful to them. These products might be commercially competent and provide precise and accurate information but the main drawback here is that the products that are designed are not comfortable for its end-users. These products do not use the language that their end-users are comfortable in. Also many products in the market do not resolve many issues under one banner so it becomes even more difficult for the targeted audience. As they will have to go for multiple products for multiple issues. Thereby, recognising all these issues, identifying major problems of our targeted audience we define the problem statement as mainly the language barrier between the existing products and their users, the scope limitations of these products, access of these products and their easy availability to the users. Another challenge is that, our target users stay in rural areas and their approach towards science, inventions, new techniques, new advancements etc are really conservative and to win their trust is a task. They are known to follow their age-old techniques, which are definitely superficial than many, and India is known for its diversity and old Home-Techniques, but if these are merged with the new advances then overall a best product can be delivered by them. So here our project aims to cross that thin line and help our users in bringing out what's best for them.

1.5 Scope

1. Can help the farmers by enabling weather prediction system
2. Can provide the farmers with legitimate information about the Government Schemes.
3. A prediction system that would help the farmers about the best yielding practices.
4. Can help the farmers with legalities that concern their profile.

1.6 Technology stack

- Python
- Django
- MYSQL
- Random Forest Algorithm

1.7 Benefits for environment & Society

- This shall ensure the upliftment of the Farmer's Community
- Agriculture is the primary domain and contributes a major share in India's GDP, thereby its essential to design something that helps in solving problems of its immediate stakeholders
- Many farmers can avail benefits of different modules provided on the web.

2. Project Design

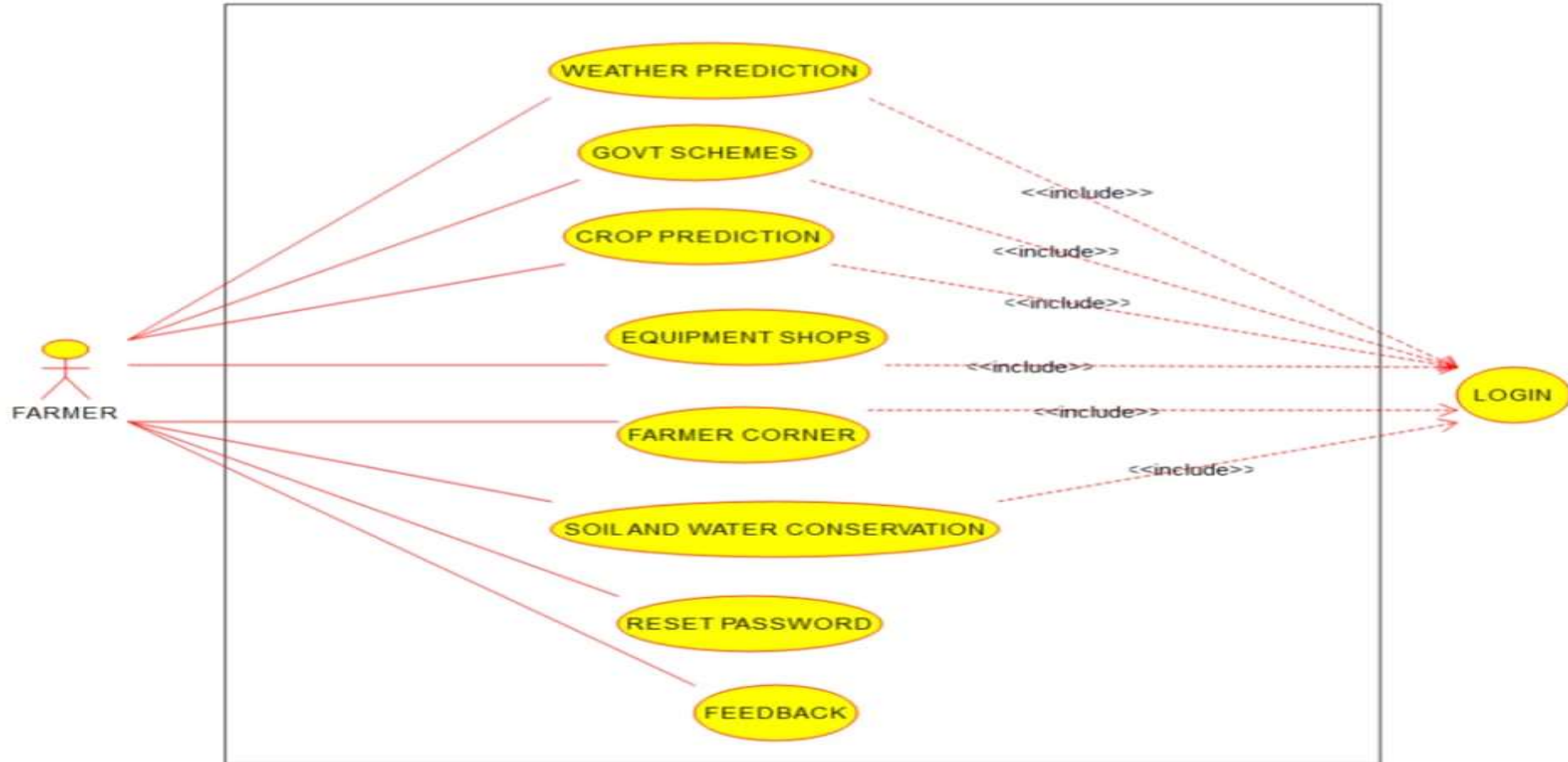
2.1 Proposed System

- The submitters have designed a web portal consisting of different modules related to the Agricultural domain.
- The Domains are as follows
 1. Weather Prediction
 2. Crop Prediction
 3. Govt. Schemes
 4. Farmer's Corner
 5. Soil & Water Conservation
 6. Equipment Shop

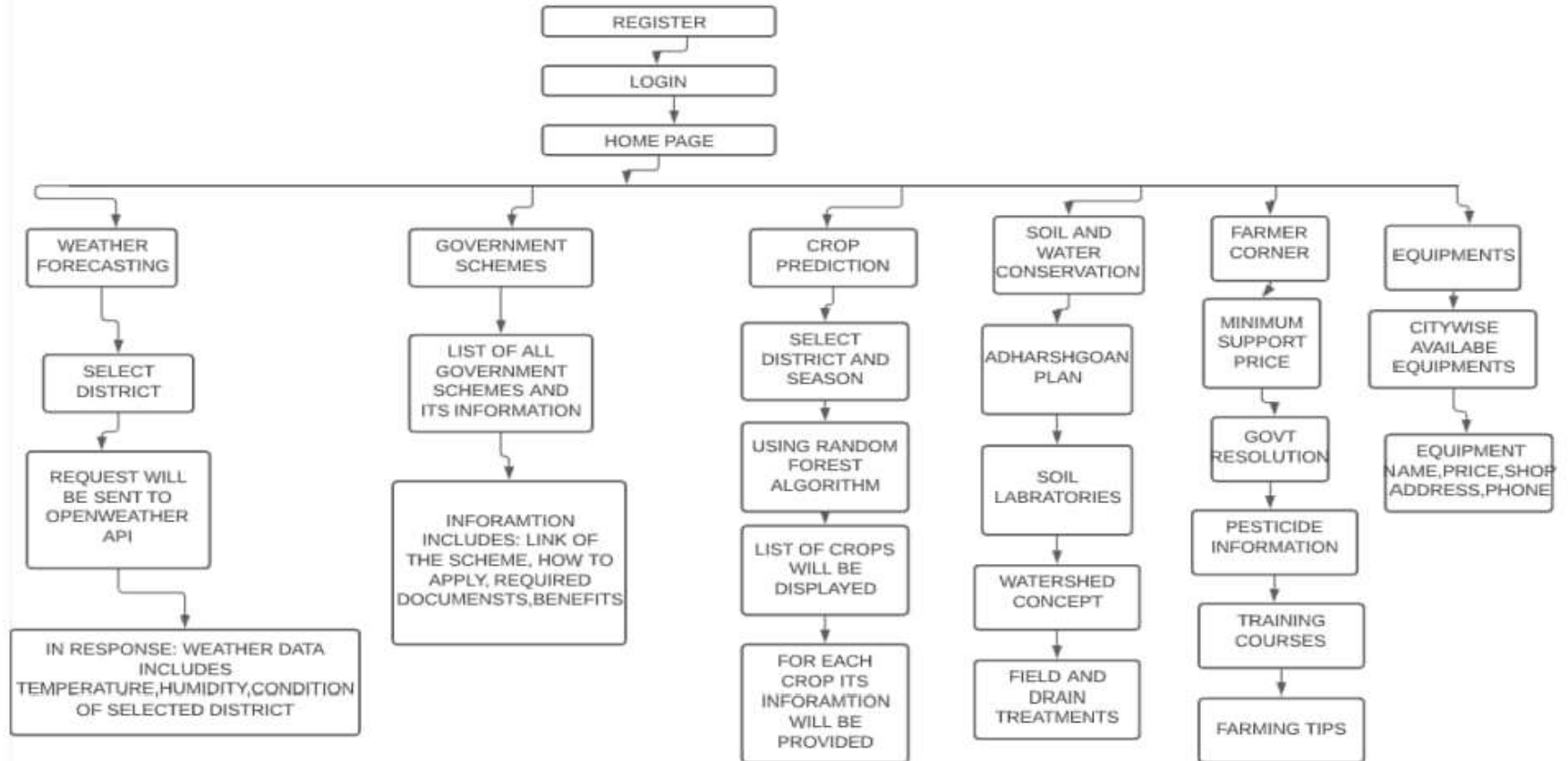
2.2 Design(Flow Of Modules)

The user initially needs to register themselves on the portal. After registering on the portal, the user needs to log in to the portal. After the successful login, the user can access to the different modules on the portal. User can avail benefits of Weather Prediction, Government Schemes, Crop Prediction, Soil Water Conservation, Farm Bill, Farmer's Corner, Equipment Shop which will help them in their professional means. In weather prediction user first needs to enter his/her/their district which shall display the current weather information of that particular district. In Govt. Schemes, the system provides all the information regarding Government Schemes. In crop prediction, the user needs to select his/her/their district, then using Random forest Algorithm, the system displays the crop list. In Soil Water Conservation, there are sub-modules like Adarshgaon Plan, Soil Laboratories, Water shed concept, different soil field drain treatments. In farmer's Corner, there are sub-modules like MSP, GRs, pesticide information, Training Courses, and Farming tips. In Equipment shop, the user is provided with the farming equipments in their city.

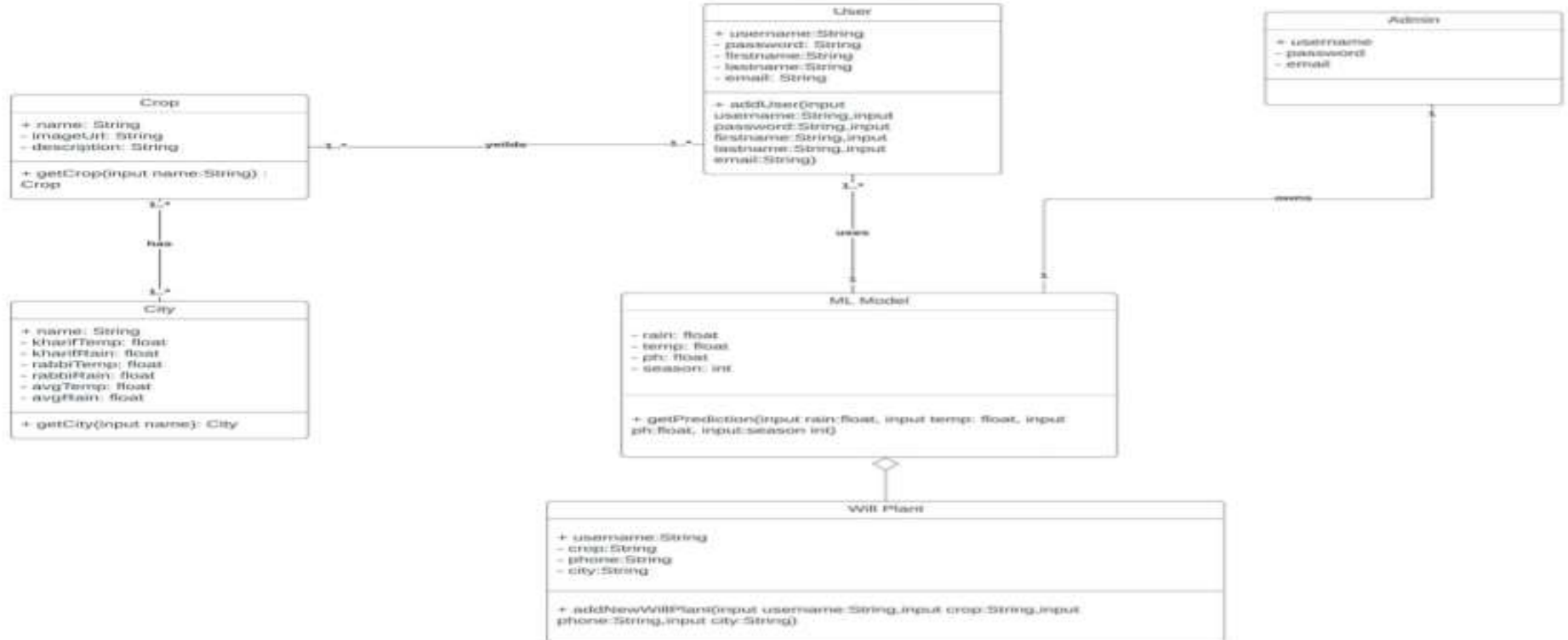
2.3 Description Of Use Case



2.4 Activity diagram



2.5 Class Diagram



3. Implementation

Herein, we would be designing a web portal that addresses the issues faced by our end users. The User first need to register on the portal where the user need to enter his first name,last

After successfully log in the user can get access to various modules in the system.

1. Weather Prediction

Once the user gives input of their district the request will be sent to open weather API website which will give detailed weather information. This data would be fetched every 10 secs.During extreme weather conditions, when the red flags are generated in weather forecast, it shall be notified to the registered users through SMS using Fast-to SMS API.

Implementation

2. Government Schemes

of that scheme is mentioned. The admin adds newly launched Government schemes to the portal. Also, whenever any new Govt. scheme is been added to the portal, all the registered users are notified through SMS on their registered mobile number.



Implementation

3. Crop Prediction

We have used a random forest machine learning model to predict crops per city based on

User need to select the district and season, and after that list of crops will be displayed.

4. Soil Water Conservation

It include five sub modules they are as follows:

a) Adarshgaon Project plan

This module consists of all the eligibility criteria, application details, norms and other information related to nominate one's village as 'Adarshgaon', meaning, Ideal Village.

b) Soil Laboratories

This module will include list of laboratories in Maharashtra.

c) Soil Aquaculture-Field Treatment

This section consists of information related to field treatments like compartment bunding, Dam repair of old paddy huts, 'Majgi', 'Padkai', etc. This sub-section deals with its precise information,

d) Soil Aquaculture-Drain Treatment

This section consists of information related to field treatments like Small Earthen dams, cement drain dams, etc. This sub-section deals with its precise information, purpose, area selection criteria, Govt. resolution picture, why do it, all of its ifs--buts with its accurate information provided by the Government of Maharashtra.

e) WaterShed Concept

5. Farmer's Corner

This module consists of five sub-modules that are as follows:

a) Minimum Support Prices

It form of market intervention by the Government of India to insure agricultural producers against any sharp fall in farm prices

b) Government Resolutions

This part of the portal deals with containing all the updated and valid legitimate links/PDFs of the Government Resolutions by the Govt. Of Maharashtra-Agricultural Department.

c) Pesticide Information

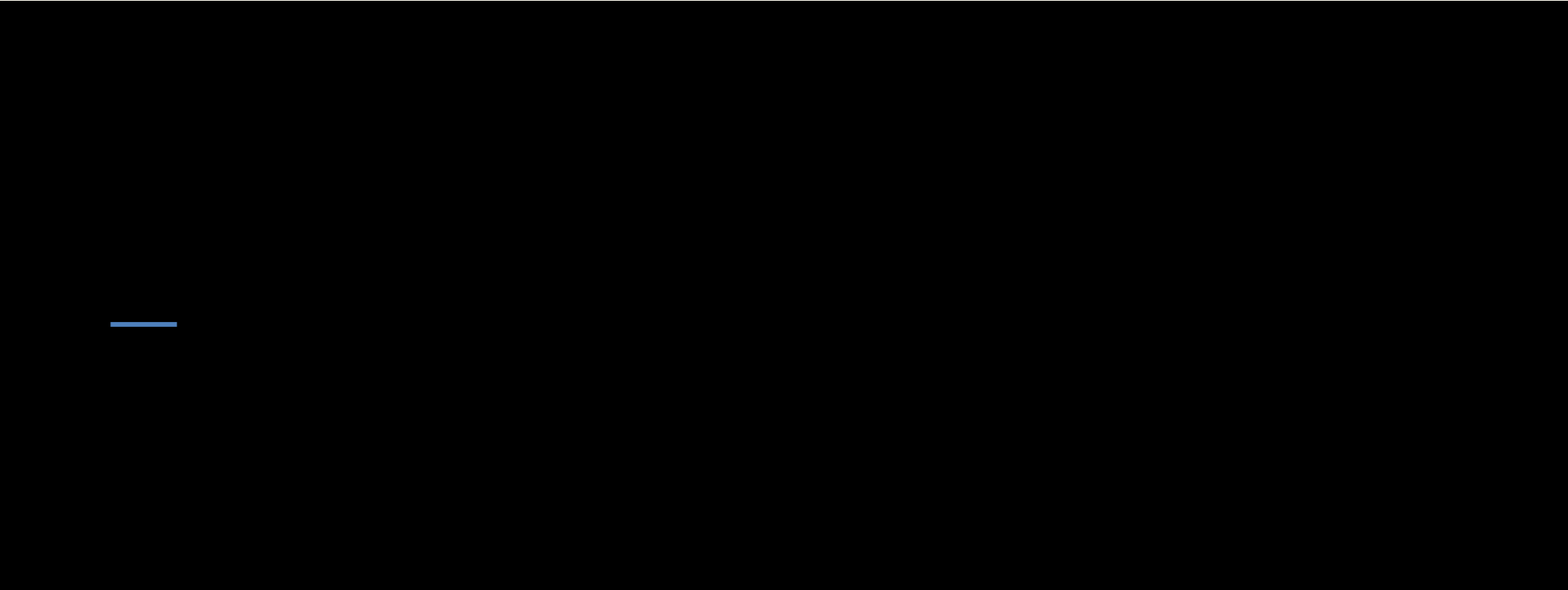
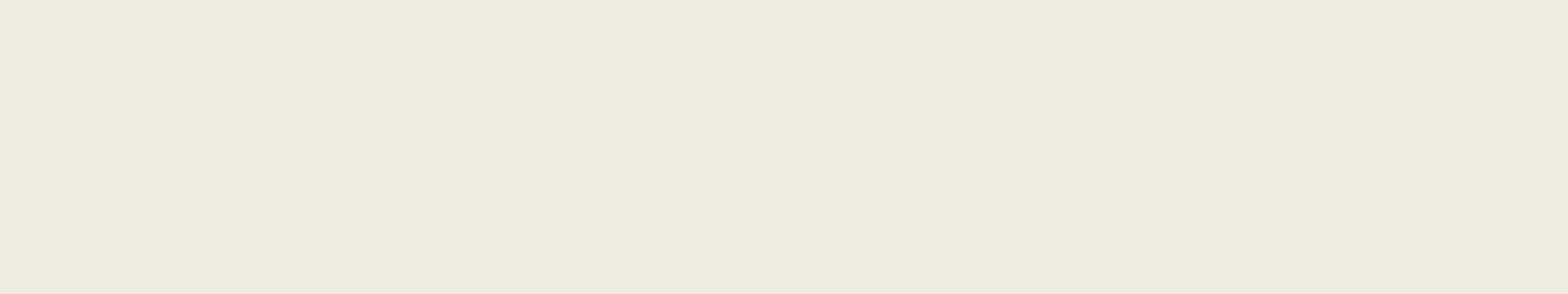
This sub-section contains in detailed scientific information about all the pesticides.

d) Training program for farmers

We have provided list various training courses for farmers.

e) Farming Tips

It contains advance farming tips for various crops



4. Testing

Test Case	Feature	Test Description	Expected Result	Actual Result	Status(Pass/Fail)
1	Registration	Check Response when all required fields are entered	Registration should be successful and SMS should be sent to the user	As Expected	Pass
2	Login	Check Response when valid username and password is entered	Login should be successful and redirected to Home Page	As Expected	Pass
3	Reset Password	Check Response when username and phone no is entered	Password should be sent to the user through SMS	As Expected	Pass
4	Feedback	Check Response when username, phone no, and feedback field entered	Feedback should be saved in the database	As Expected	Pass
5	Weather Condition	Entering Name of City or District	Weather Information of the city or District should be displayed	As Expected	Pass
6	Crop Prediction	Selecting City, Season and clicking on predict button	Crop List should be displayed	As Expected	Pass
7	New Scheme Update on Portal	When Admin adds a new scheme to the portal	SMS should be sent to all registered user	As Expected	Pass

5. Result

12:54 PM

SMS:

your Annadata account has been
created successfully

Your Username is Shubham

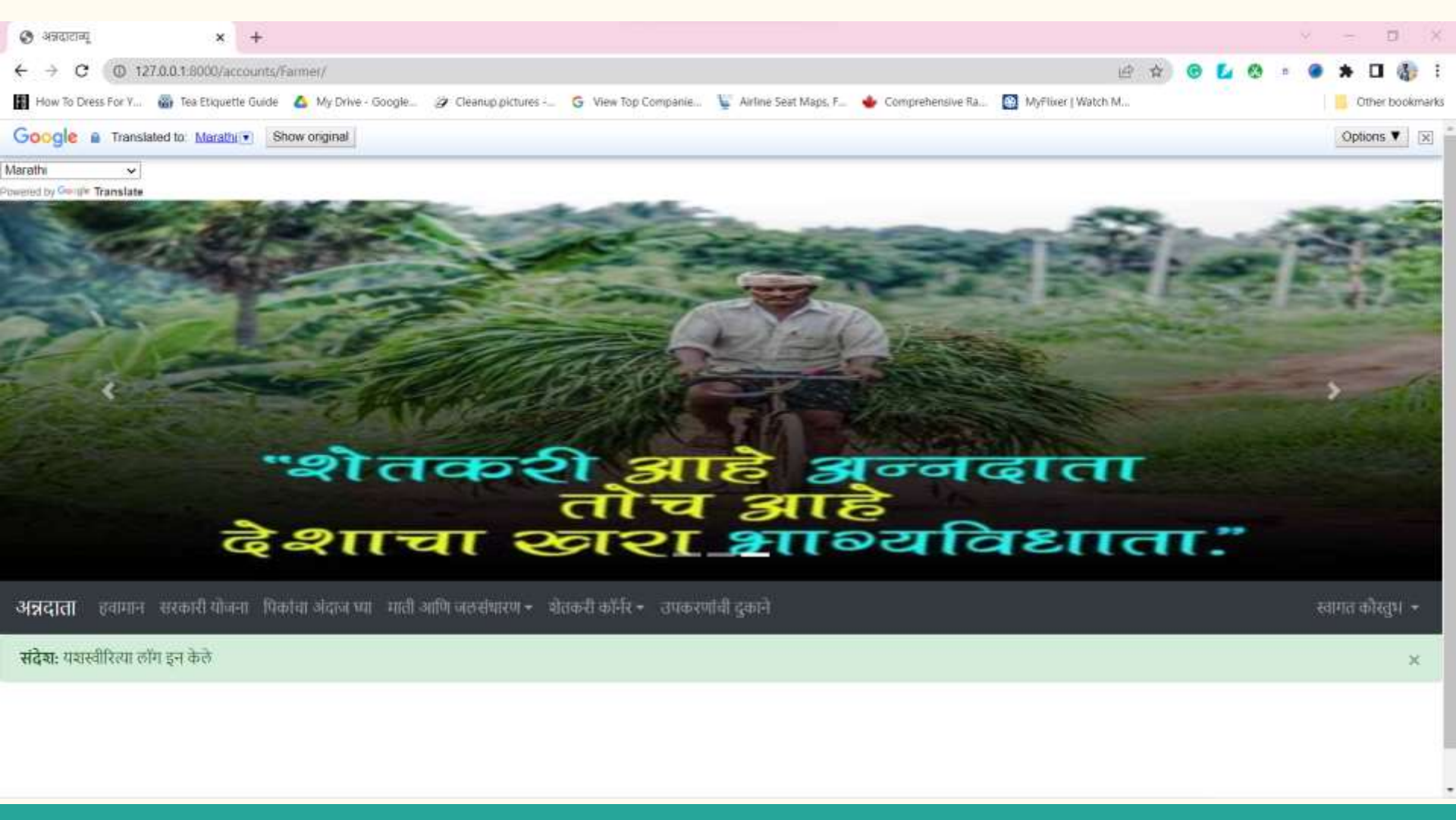
Password is Shubham

If you have any query call on
below Number

CustomerCare No:12131456891

- Sent via TXTIND

5 min



“शेतकरी आहे अन्नदाता
तोच आहे
देशाचा खरा भाव्यविधाता.”

Dear user,
Hey Farmer your
Thane City has seen
smoke weather
conditions, Please be
aware, Customer Care
Number: [252455544](tel:252455544)

Dear user,
Hey Farmer your
Nagpur City has
seen haze weather
conditions, Please be
aware, Customer Care
Number: [252455544](tel:252455544)

Dear user,
Hey Farmer your
Thane City has seen
smoke weather
conditions, Please be
aware, Customer Care
Number: [252455544](tel:252455544)

6:13 pm

Select District

Ahmednagar

- ☐ Kharif
☐ Rabi
☐ Whole Year
☐ No Season
☒ Predict All Crops

Submit

BACK <

List of crops for AHMEDNAGAR for Kharif

Sugarcane
crop taken: 0

View Crop

Will Plant!!!

Rice
crop taken: 1

View Crop

Will Plant!!!

Maize
crop taken: 0

View Crop

Will Plant!!!

Bajra
crop taken: 0

View Crop

Will Plant!!!

Soyabean
crop taken: 0

View Crop

Will Plant!!!

Groundnut
crop taken: 0

View Crop

Will Plant!!!

Select Language

SUGARCANE



Sugarcane (*Saccharum officinarum* L.) is the main source of sugar in India and holds a prominent position as a cash crop.

India is the world's largest consumer and the second largest producer of sugar, topped only by Brazil. Nearly 2.8 lakh farmers have been cultivating sugarcane in the vast area of 4.4 lakh acres and over 11 crore people are directly or indirectly dependent on the sugar industry in the country.

Sugarcane is one of the important commercial crops of India, grown in an area of 3.93 m ha with annual production of 170 M T.

Sugarcane productivity in India is around 67 t/ha. It is one of the most important food-cum-cash crop grown in the country, providing employment to a larger number of people, in addition to earning considerable foreign exchange.

Requirement

Climate

Sugarcane is able to grow over a prolonged season. Under warm humid conditions, it can continue its growth, unless terminated by flowering. Temperatures above 30o C arrest its growth; those below 20 o C slow it down markedly and severe frost proves fatal. The crop does best in the tropical regions receiving a rainfall of 750-1200mm. For ripening, it needs a cool, dry season; but where rainfall is too heavy and prolonged, the quality of the juice tends to be low, and where the weather remains comparatively

Soil

Sugarcane grows best on medium heavy soils, but can also be raised on lighter soils and heavy clays, provided there is adequate irrigation available in the former type of soils and drainage is good in the latter type of soils.

नाव:

प्रधानमंत्री कृषी योजना

योजनेची लिंक:

<https://pmksy.gov.in/>

योजना पहा

नाव:

प्रधानमंत्री फसल विमा योजना

योजनेची लिंक:

<https://pmfby.gov.in/>

योजना पहा

नाव:

पीएम किसान मान धन योजना.

योजनेची लिंक:

<https://maandhan.in/>

योजना पहा

नाव:

किसान क्रेडिट कार्ड योजना

योजनेची लिंक:

नाव:

गोपीनाथ मुंडे शेतकरी अपघात विमा योजना

योजनेची लिंक:

नाव:

बाबासाहेब आंबेडकर कृषी स्वावलंबन योजनेत डॉ

योजनेची लिंक:

Scope

By applying the knowledge and skillset, we are determined towards building a completely user-friendly web portal which would be useful to the targeted audience, Farmers. This system ensures the multi-lingual support and has other modules as above mentioned that would address different specific issues. In near future, the product would be designed with a motive to help the unaddressed community and help them resolve their issues. The overall performance would be tried and tested and would be made available once all the trials-n-errors have been successfully worked upon so as the Users can enjoy, learn, and grow in all aspects using our product.

Future Scope: We can extend the scope by adding modules like multi-lingual chatbot for better and 24*7 instant assistance.

We can link the portal to any government site to attract more users

References

- [1] Kiran Moraye, Aruna Pavate, Suyog Nikam and Smit Thakkar - Crop Yield Production Using Random Forest Algorithm for Major Cities in Maharashtra. 2021 International Journal of Innovative Research in Computer Science Technology (IJIRCST).
- [2] Suvidha Jambekar, ShikhaNema, Zia Saquib - Prediction of Crop Production in India Using Data Mining Techniques. 2018 Fourth International Conference on Computing Communication Control and Automation (ICCUBEA) .
- [3] For Government Schemes,www.businessinsider.in .
- [4] For Government Schemes,www.nvshq.in
- [5] For Datasets,<https://data.gov.in>
- [6] For procedural information about planting crops,<https://vikaspedia.in>
- [7] For procedural information about planting crops,<https://agropedia.iitk.ac.in>.
- [8] For procedural information about planting crops,www.krishiseva.com.

Paper Publication

Paper has been submitted to ICTIS-2022 and we have received the acceptance. Awaiting conference (23rd April)

Thank You

