FARMEASY- A FARMER PORTAL

A Project Report

Submitted in fulfilment

In

ITE3999-Technical Answers for Real World Problems (TARP)

By-

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Under the Guidance of

PROF: DURAI RAJ VINCENT P.M

April, 2019

INDEX

ACKNOWLEDGEMENT

In performing our project, we had to take the help and guideline of some respected persons, who deserve our greatest gratitude. The completion of this assignment gives us much Pleasure. We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in writing this assignment.

In addition, a thank you to Professor Durai Raj Vincent P.M, who introduced us to the Methodology of work, and whose passion for the "underlying structures" had lasting effect.

Many people, especially our classmates and team members itself, have made valuable comment suggestions on this proposal which gave us an inspiration to improve our assignment. We thank all the people for their help directly and indirectly to complete our assignment.

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MOHIT AJMERA

ASTHA BARANWAL

BHAGYASHREE BAGWE

VISHIST VARUGEESE

MANAV JAIN

ANUPRIYAM RAJ

CERTIFICATE

This is to certify that the project work titled “FARM EASY-A FARMER PORTAL" that is being submitted by AKSHAY RAGHAVAN 16BIT0070, RAJEEV JAISWAL 16BIT0137, PRANJAL KHANDELWAL 16BIT0155, MOHIT AJMERA 16BIT0156, ASTHA BARANWAL 16BI0184, BHAGYASHREE BAGWE 16BIT0204, VISHIST VARUGEESE 16BIT0242, MANAV JAIN 16BIT0356, ANUPRIYAM RAJ 16BIT0456 for TARP(ITE3999) is a record of bonafide work done under my supervision. The contents of this Project work, in full or in parts, have neither been taken from any other source nor have been submitted for any other CAL course.

Place: Vellore

Date: 10/04/2019

Signature of the students:

Signature of faculty: (Durai Raj Vincent P.M**)**

ABSTRACT

The aim of this project is to solve the above stated problems of the farmers. A portal is to be designed for use by farmers. As the portal is designed for the farmers, it will have a more visual User Interface than a textual one. It will be easy to use and navigate through and will be designed keeping in mind the convenience of the end user of the portal.

The portal will have various sections including a forum for farmers to discuss agricultural problems with other farmers and agricultural experts. This forum can also be used to connect students from agricultural schools to the farmers to discuss real time issues and find efficient solutions. The website will also provide contact details for the kisan call center etc. thus facilitating agri-advisory services.

There will also be a section that will inform farmers about the latest agricultural schemes by the government. The farmers can also view the statistics and news about other farmers thus helping them to figure out the best possible agricultural scheme for themselves. This will form an efficient agri-information dissemination system.

The portal will have a section that will predict the Minimum Support Price for the given crops using previous years data and current trends. One of the goals of this project is to use data mining techniques to find a more efficient and improved MSP calculation system.

Another goal of this project is to integrate a chatbot into the portal so as to provide immediate assistance to the farmers.

Tentative technologies used:
1. Web technologies for creating the web portal.
2. Machine learning and data mining for predicting minimum support price.
3. Sql database and a Nosql database (mongodb or dynamodb) for data assimilation.

PROBLEM STATEMENT

India is an agriculture-based country. It contributes one third of the national Gross Domestic Product (GDP) and provides employment to over seventy percent of Indian population in agriculture and allied activities. But unfortunately, the condition of the farmers in our country is not very good.

The farmers are not receiving adequate amount of money for the crops they grow. There is no platform where the farmers can get the proper information about the crops that they should grow, the market value of the crops, new developments in agriculture and other government schemes that might be useful for agriculture.

Technologies Used

Web technologies for creating the web portal.

Machine learning and data mining for predicting the suitable crops.

Sql database for data assimilation and php for creating backend.

LITERATURE SURVEY

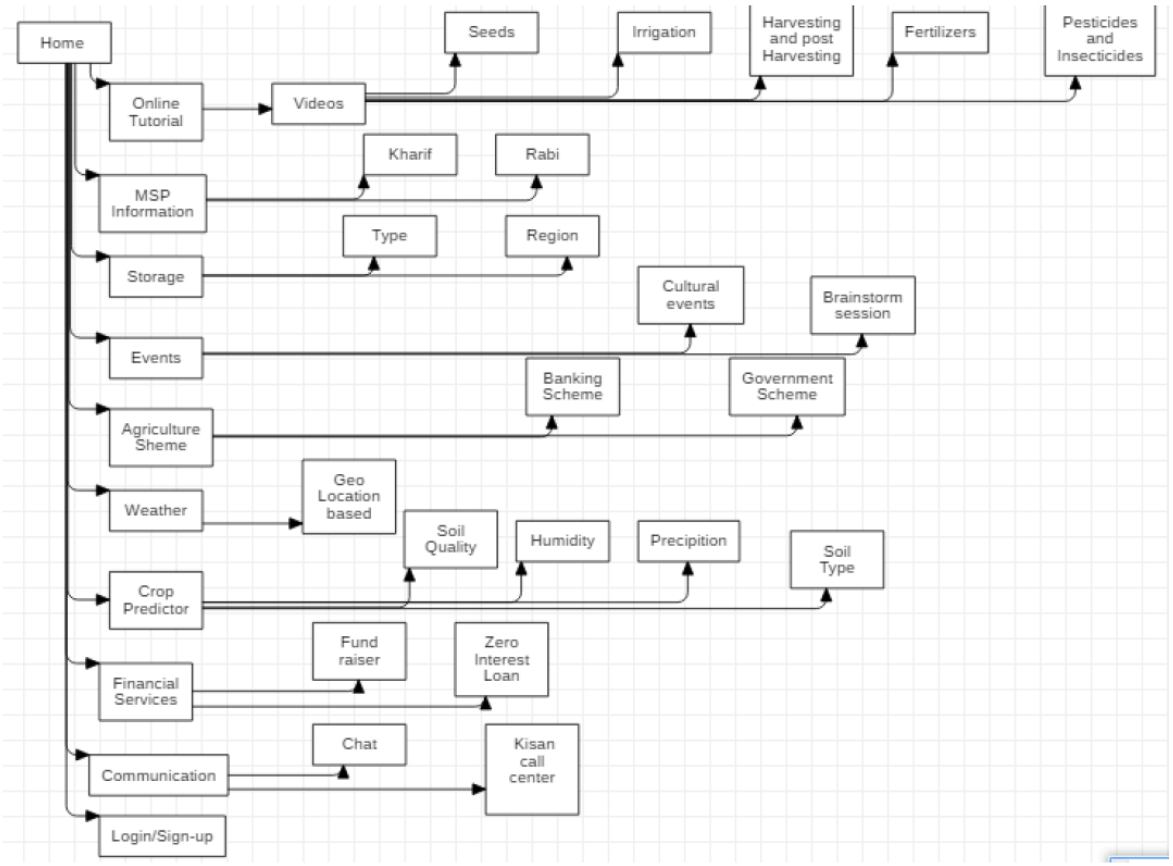
1) I**mpact of information technology in agriculture sector. - Sami Patel and Sayyed I.U. (International Journal of Food, Agriculture and Veterinary Sciences - 2014)**

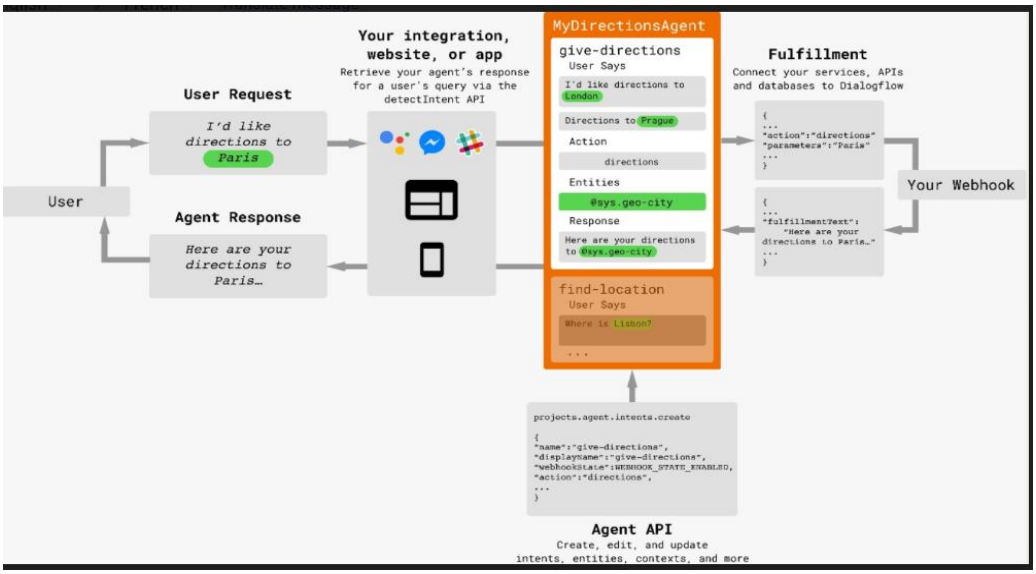
In our country, agriculture is one of the most important sectors. Information Technology has vastly improved in India over the past decade and it is only logical to implement IT for agricultural use. ICT applications can benefit agricultural activities by changing the socio-economic conditions of the poor in backward and rural regions.
It is better if Indian farmers and those working for their welfare are electrically driven to face the emerging scenario of deregulation and reduced government protection and the exploitation of potential export opportunities. Information technology helps to predict the results of agriculture, in particular physiology of the plants. This study deals with IT's role in agriculture. It should be noted that ICT offers a wide range of programs for both social and economic development. An impact assessment is very essential in order to determine whether significant changes were made by farmers before and after their application for ICT in agriculture.

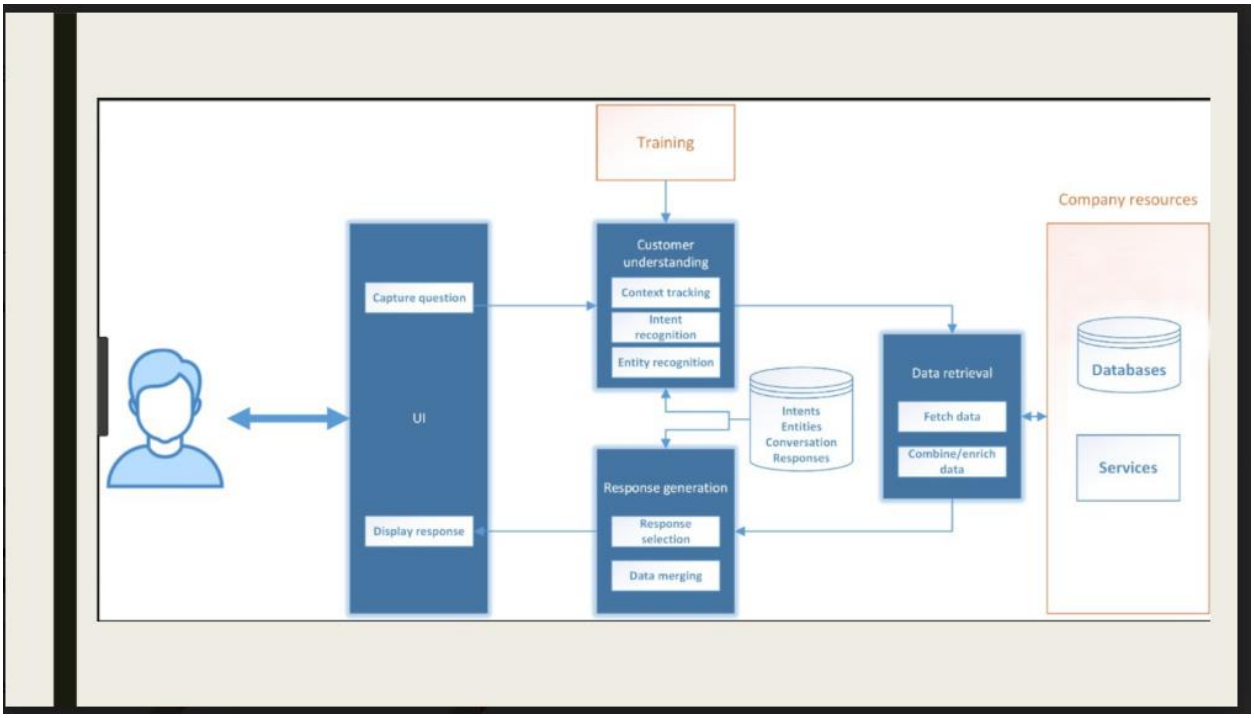
2) Usage of Technology in the Agricultural Sector - Radhika Kapur (Acta Scientific Agriculture -May 28, 2018)

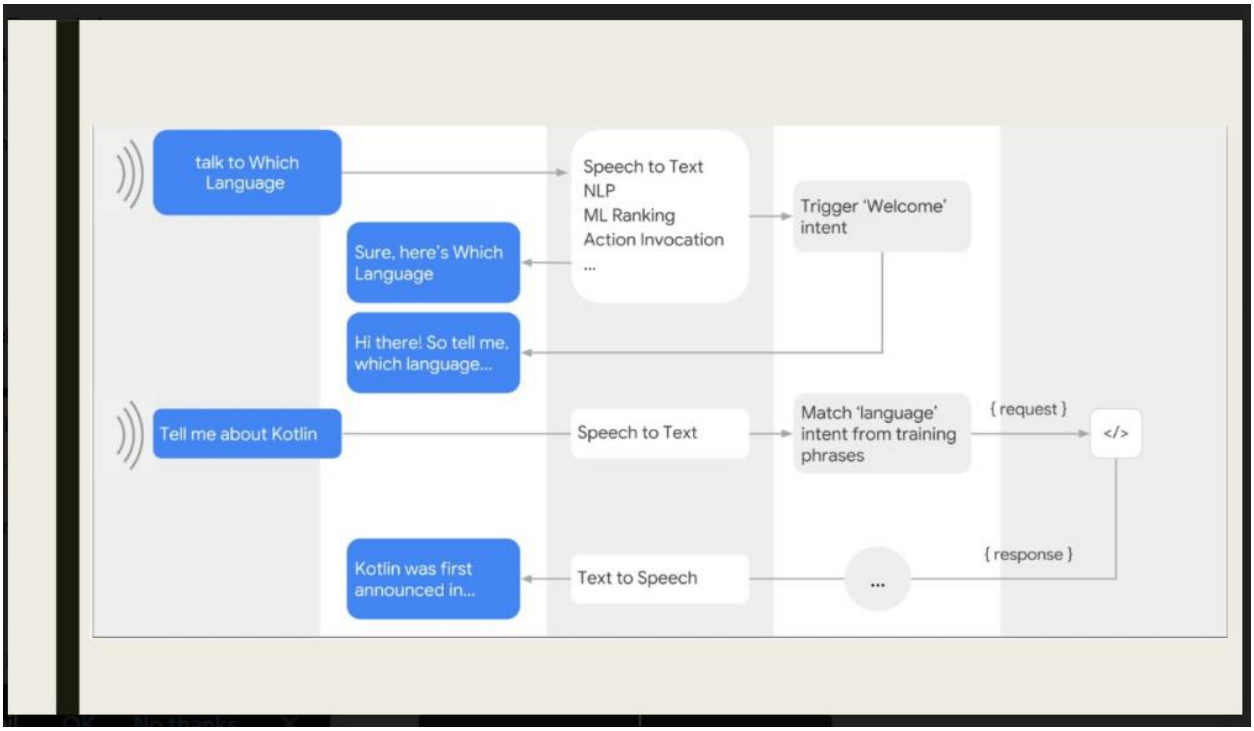
The primary occupation of the individuals in rural areas is agriculture. The population is increasing day by day and it is essential to introduce modern and innovative techniques into the agricultural sector. New technologies are needed to encourage the yield frontiers to an advanced stage, make use of the inputs should be used resourcefully and diversify to a more sustainable and higher value cropping patterns.
Now, the significance of usage of technology in the agricultural sector has been recognized. The main purpose of using technology is meeting the food requirements of the individuals. India has made progress in agriculture, but productivity of the major agricultural and horticultural crops is still low in comparison to other countries. There are still deficits in the usage of technology which can be improved. Yields per hectare of food grains, fruits and vegetables within the country are far the below global averages. Even India’s most productive states are behind the
global average.
Thus, this research paper makes it critical that we use Technology in the agriculture sector to improve yields and progress agriculturally.

SITEMAP AND ARCHITECTURE





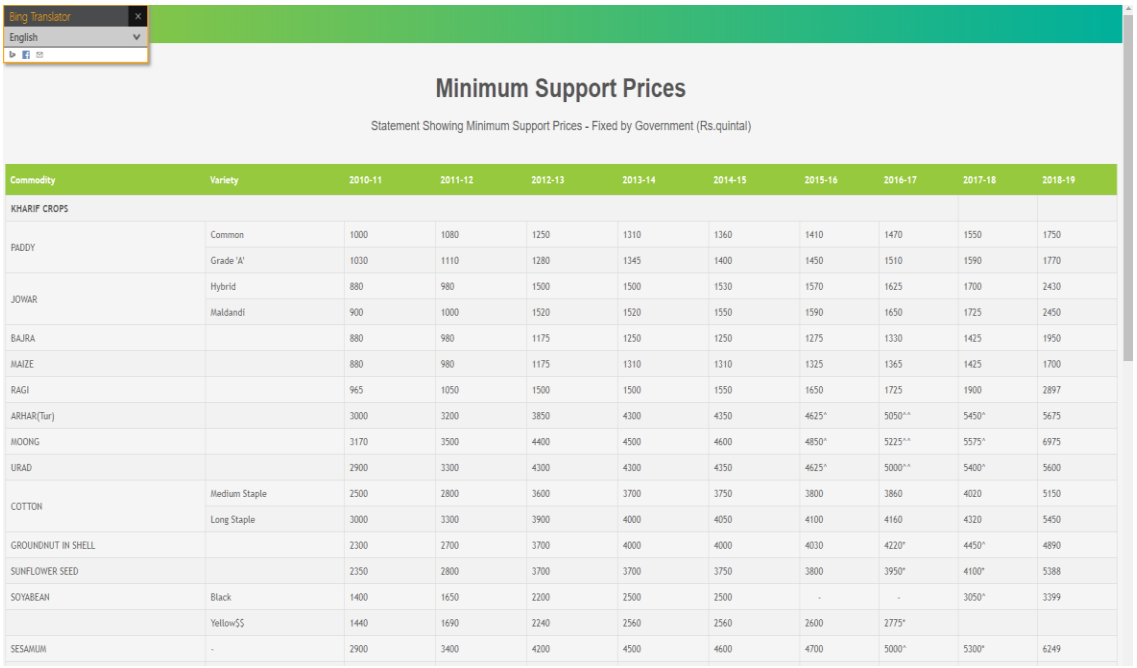

Training
Company resources
Customer understanding
Context tracking
Intent recognition
Entity recognition
Capture question
UI
Display response
Intents
Entities
Conversation
Responses
Data retrieval
Fetch data
Combine/enrich data
Databases
Services
Response generation
Response selection
Data merging


talk to Which Language
Speech to Text
NLP
ML Ranking
Action Invocation
...
Trigger 'Welcome' intent
Sure, here's Which Language
Hi there! So tell me, which language...
Tell me about Kotlin
Speech to Text
Match 'language' intent from training phrases
{ request }
</>
{ response }
Kotlin was first announced in...
Text to Speech
...

MODULE DESCRIPTION

1. MSP VIEW (Minimum support price view):

The MSP helps to incentivize the framers and thus ensures adequate food grains production in the country. I give sufficient remuneration to the farmers, provides food grains supply to buffer stocks and supports the food security programmed through PDS and other programmers. This module will show the msp of the crop which will help the farmers to sell their products at a good price.



Bing Translator

English

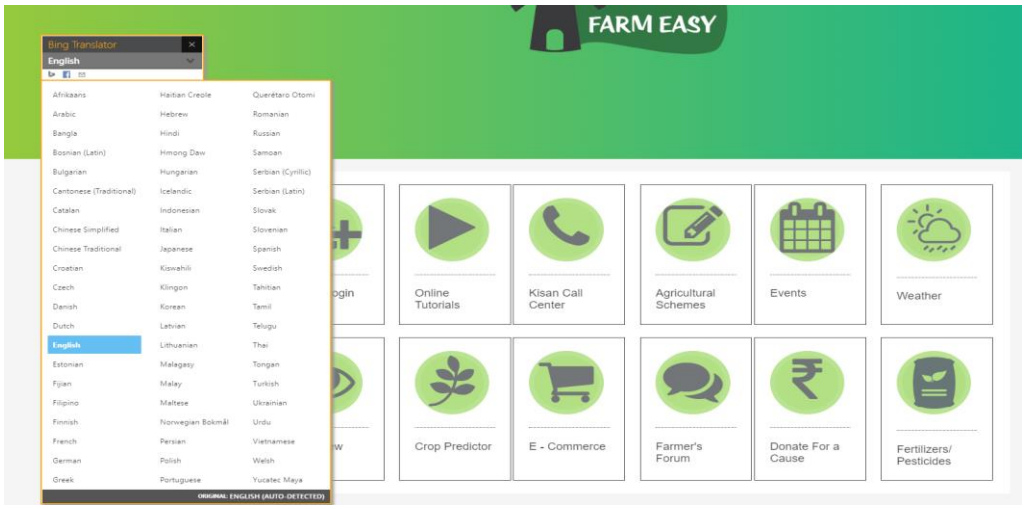
Minimum Support Prices

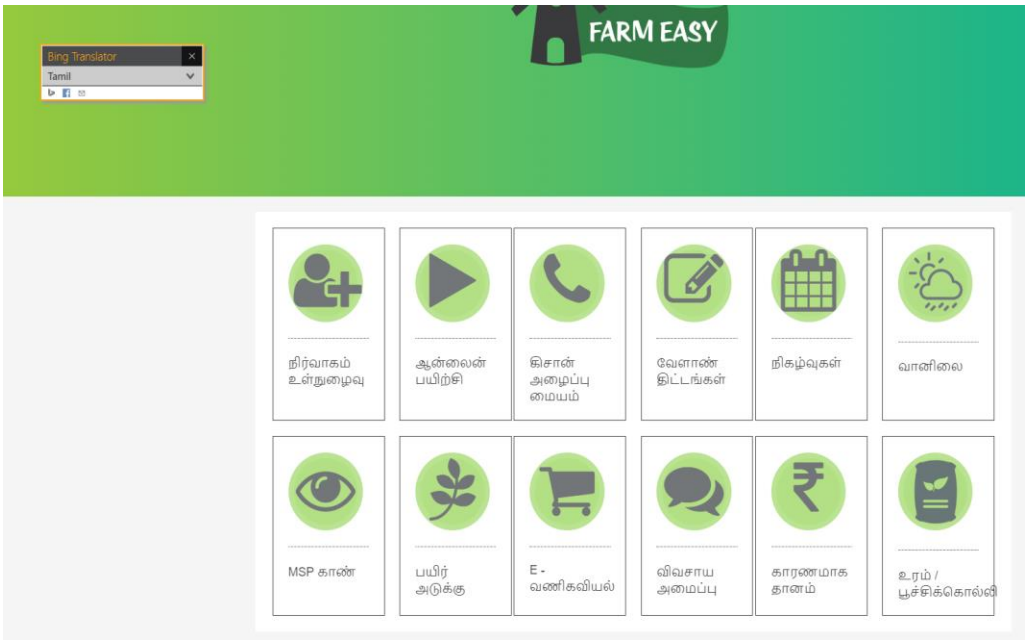
Statement Showing Minimum Support Prices - Fixed by Government (Rs.quintal)

Commodity	Variety	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
KHARIF CROPS										
PADDY	Common	1000	1080	1250	1310	1360	1410	1470	1550	1750
	Grade 'A'	1030	1110	1280	1345	1400	1450	1510	1590	1770
JOWAR	Hybrid	880	980	1500	1500	1530	1570	1625	1700	2430
	Maldandi	900	1000	1520	1520	1550	1590	1650	1725	2450
BAJRA		880	980	1175	1250	1250	1275	1330	1425	1950
MAIZE		880	980	1175	1310	1310	1325	1365	1425	1700
RAGI		965	1050	1500	1500	1550	1650	1725	1900	2897
ARHAR(Tur)		3000	3200	3850	4300	4350	4625^	5050^^	5450^	5675
MOONG		3170	3500	4400	4500	4600	4850^	5225^^	5575^	6975
URAD		2900	3300	4300	4300	4350	4625^	5000^^	5400^	5600
COTTON	Medium Staple	2500	2800	3600	3700	3750	3800	3860	4020	5150
	Long Staple	3000	3300	3900	4000	4050	4100	4160	4320	5450
GROUNDNUT IN SHELL		2300	2700	3700	4000	4000	4030	4220^	4450^	4890
SUNFLOWER SEED		2350	2800	3700	3700	3750	3800	3950^	4100^	5388
SOYABEAN	Black	1400	1650	2200	2500	2500	-	-	3050^	3399
	Yellow$$	1440	1690	2240	2560	2560	2600	2775^		
SESAMUM	-	2900	3400	4200	4500	4600	4700	5000^	5300^	6249

2. Language Convertor:

We also worked on the changing the text of the website to various language(Like tamil ,hindi and various others) so farmers don't have to go through difficulty to understand the written text in the website because most of the farmers in India can only understand the text in their mother tongue.

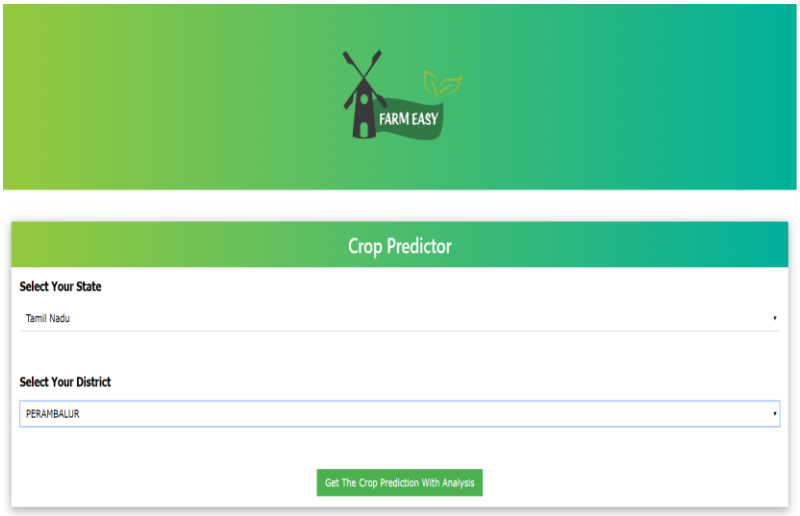




3. Crop Predictor

The farmers generally face this problem of growing those crops which are not suitable for that give climate and region. This leads to less yield of the crop and intern reduces the profits and income of the farmers and also affects the agricultural ecosystem of the country. To tackle this issue, we have designed this portal that can predict the suitable crops for a given region, we used linear regression algorithm of machine learning to predict the crop yield ratios. By this yield ratio we can accurately predict the suitable crops for a given region in India.

We used the crop production and agricultural land data set that is provided by the government. This data set gives the information about the agricultural land that each state and district of India has and what was the production of different crops in different season (it takes cares of the parameters like soil quality, climate, humidity, rain etc.). Using this dataset, we calculated the yield ratio for each crop (yield ratio = production/area). The more the production ratio the more is the probability of the crop to yield better. The data set has Approx. 3,55,000 rows and it has data since 1994 to 2016.



The Following crops are best suited for the Selected region

Click Here To Get The List Of The Crops

Season	Crop	Year	Yield Ratio(Tons/Hecter)
Whole Year	Coconut	2011	1.375e+006
Whole Year	Coconut	2013	629371
Whole Year	Sugarcane	1997	90789
Whole Year	Sugarcane	2008	25835.3
Whole Year	Coconut	2008	12829.5
Whole Year	Sugarcane	2005	12494.9
Whole Year	Sugarcane	2011	12018.4
Whole Year	Sugarcane	2004	11384.6

List of the crops that are suitable for the chosen reason.

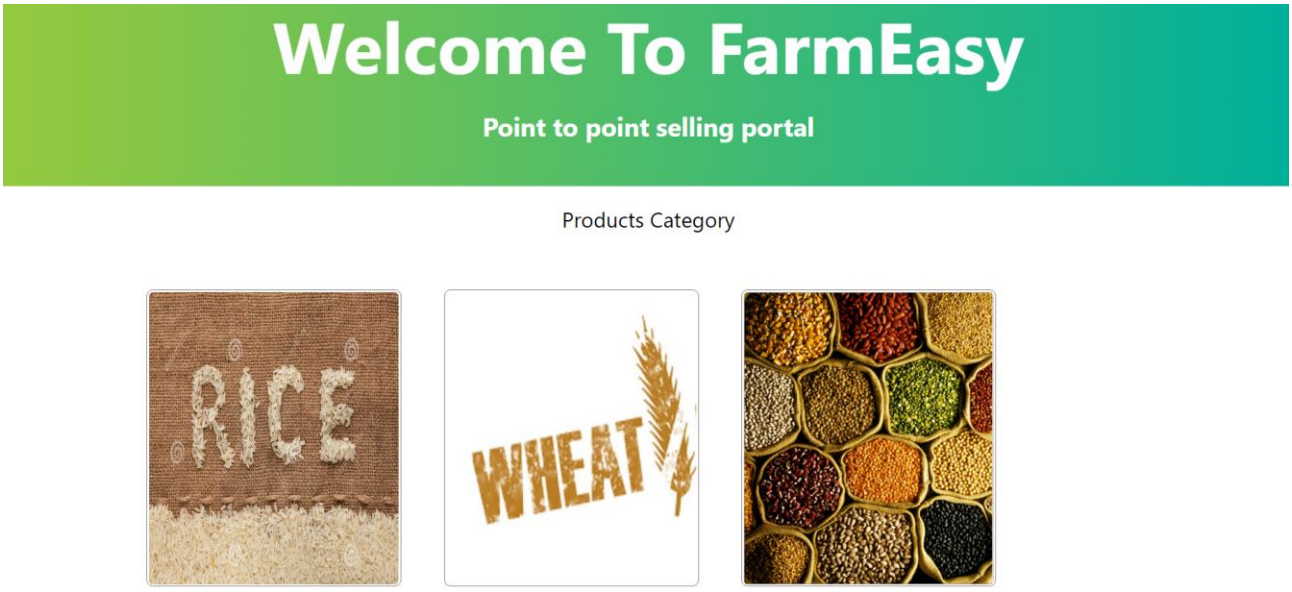
The Following crops are best suited for the Selected region

These are listed in the order of highest to lowest yield

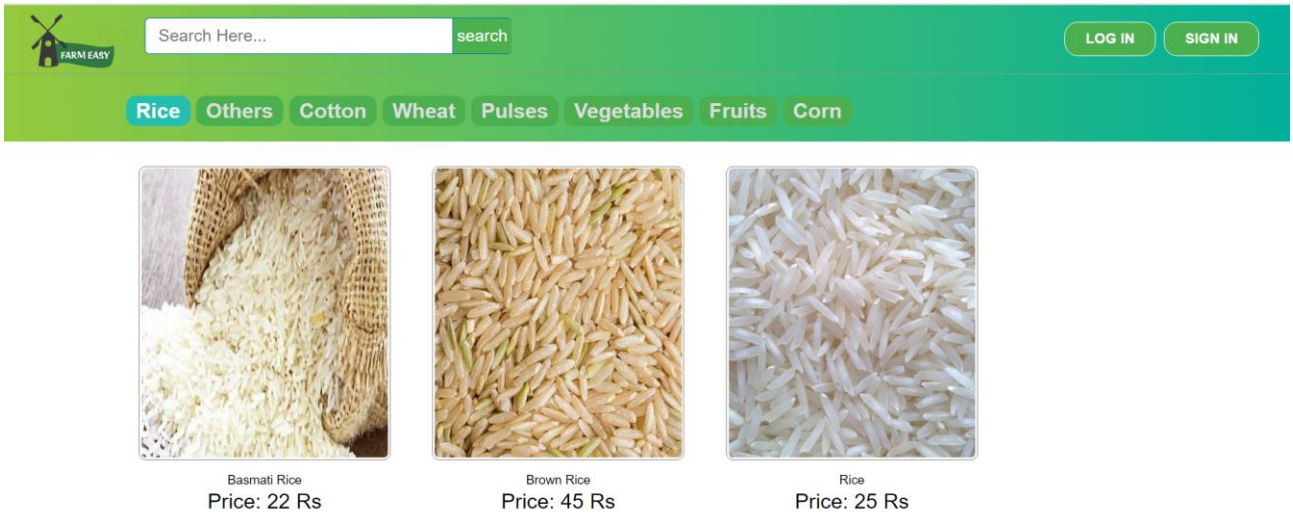
Crop
Sugarcane
Coconut
Tapioca
Banana
Groundnut
Guar seed
Rice
Onion
Maize
Turmeric

4. E commerce Portal for point to point selling of crops.

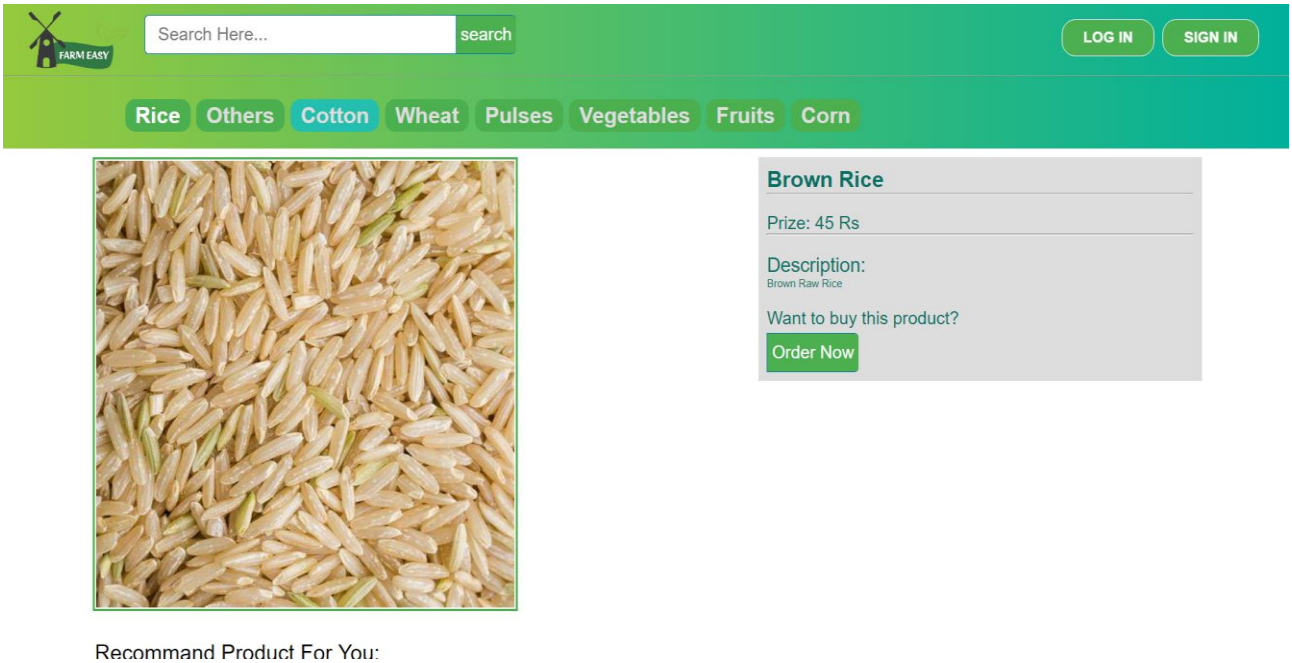
From the selling of crops to the buying of crops the whole process goes thought 2-3 different intermediate stages. Where the mncs , agents and other people work as intermediates . This intern increase the cost of the crops and reduces the farmers profits. So to avoid this situation we have deployed a e commerce portal in our website where farmers can post their crops , desired price and quantity so that they can sell it directly.



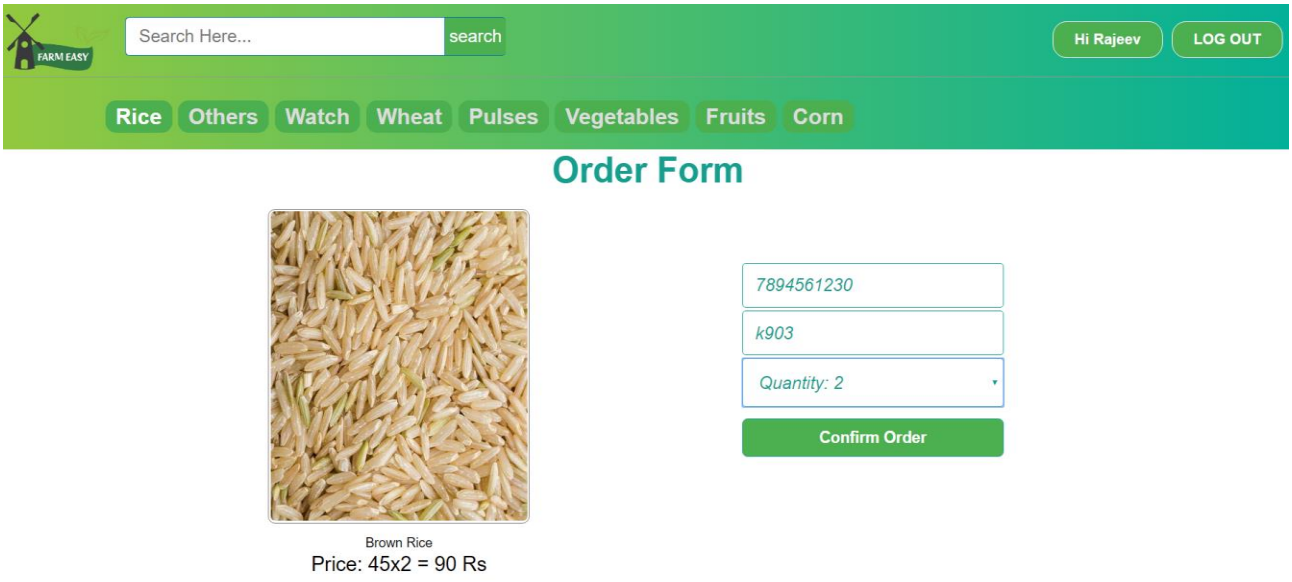
Choose a product



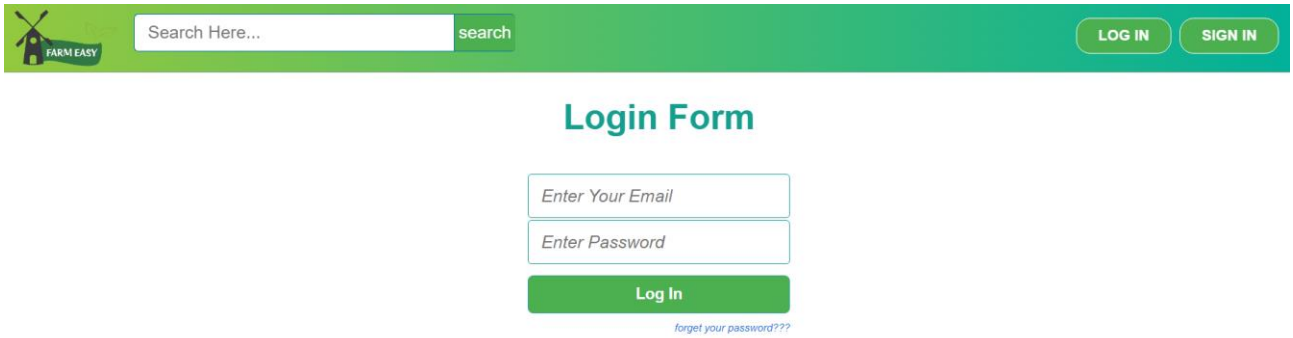
Place order



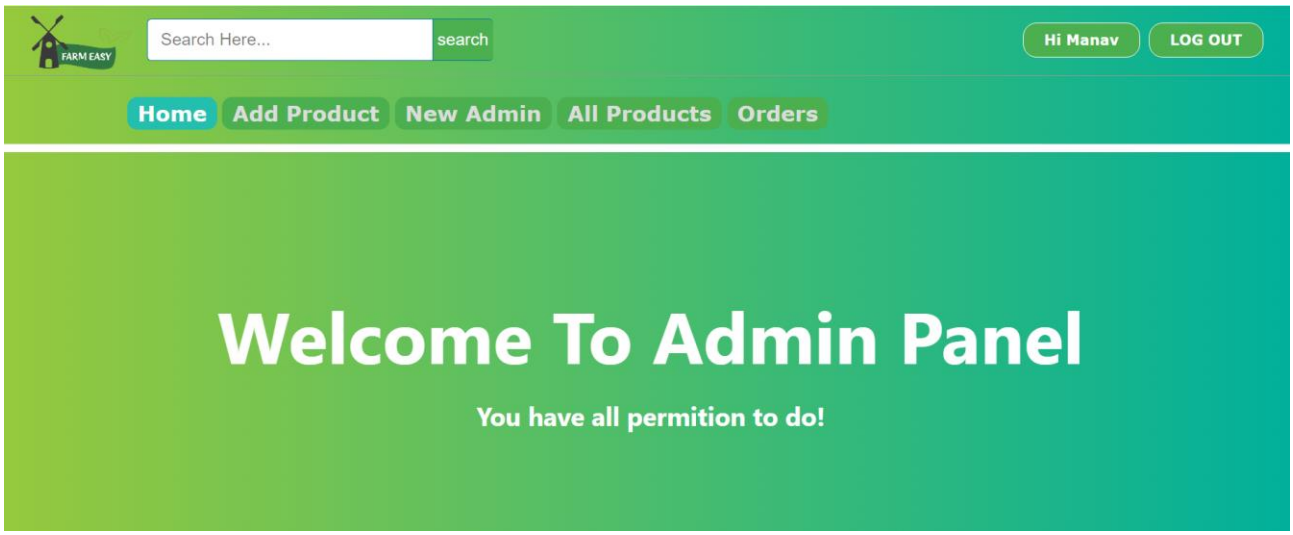
Select quantity



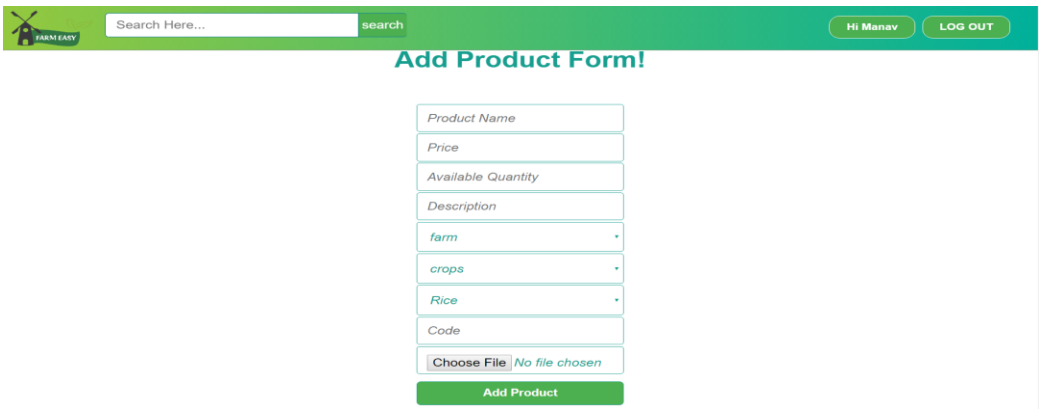
Login

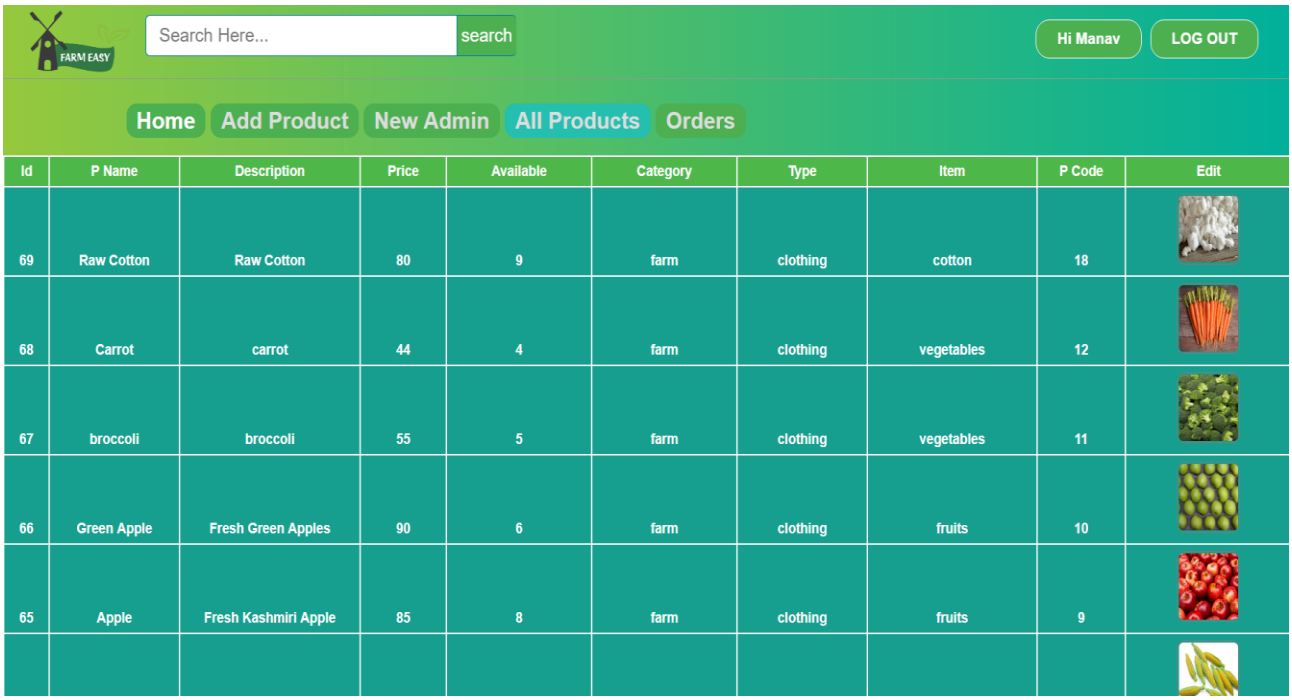


Admin home

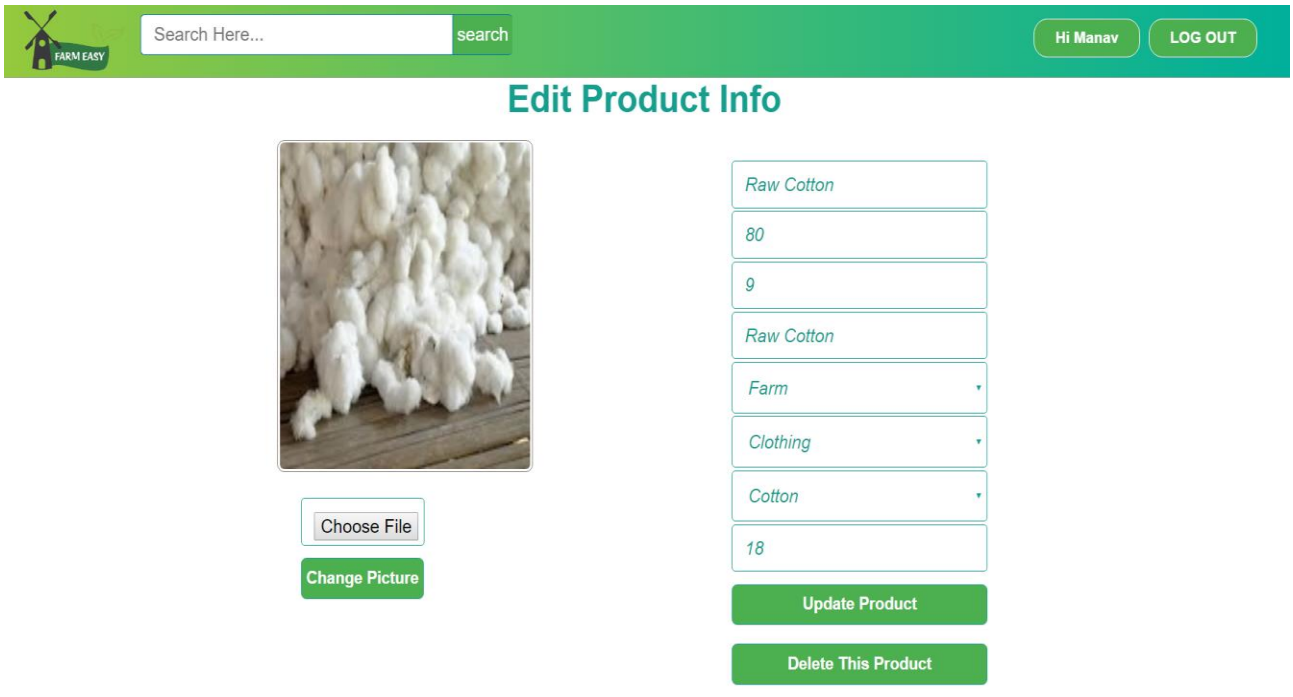


Add Products





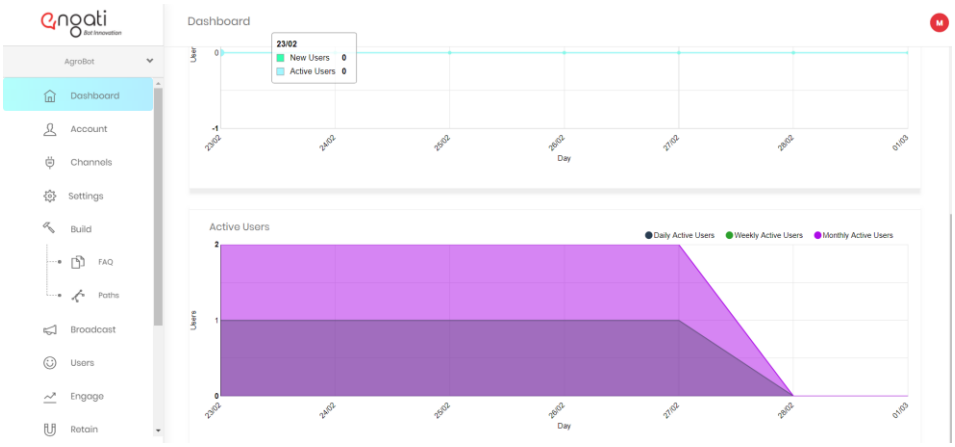
Edit products

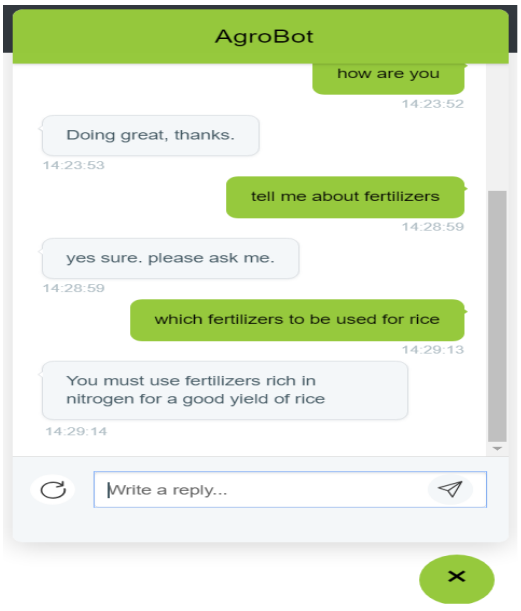


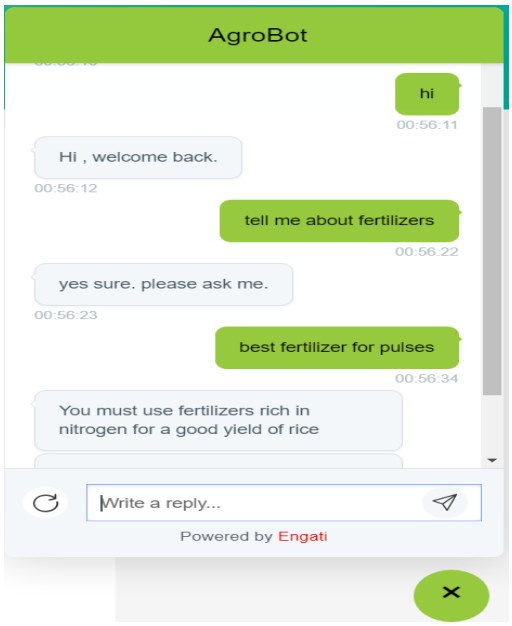
5. ChatBot

We have included a Chatbot in the portal so that the extraction of information becomes easy for the end users. As the portal will be flooded with a lot of tabs, information and data it will be difficult for the user to fetch the desired information. Thus, the deployment of Chatbot will be handy.

I have used the Engati web services to deploy the chatbot. It's a cloud-based platform where we can do the scripting online and even train the Bot to do some desired specified task. We can even train the Chatbot for some common queries and frequently asked questions (FAQ's)





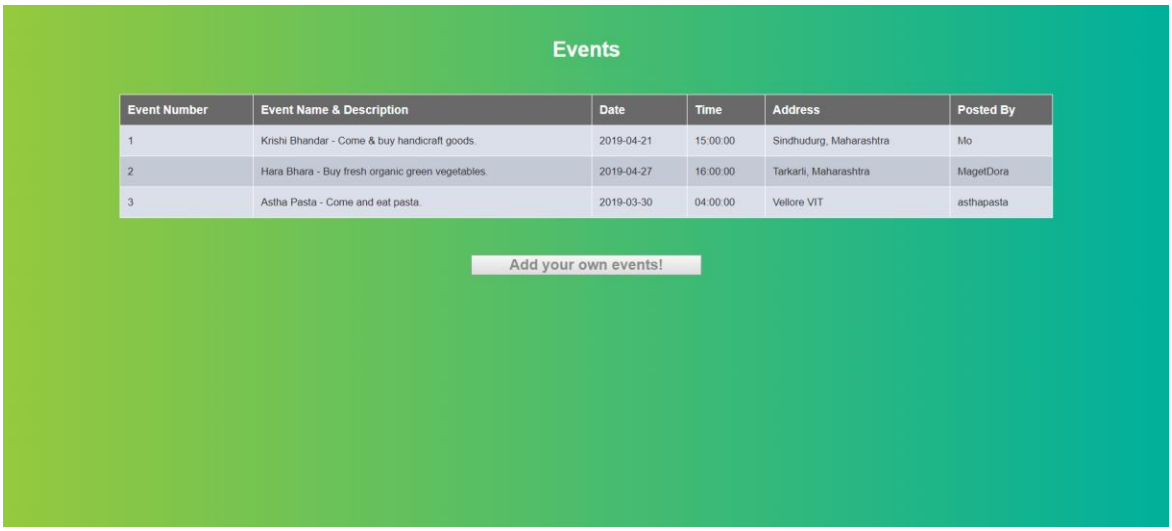


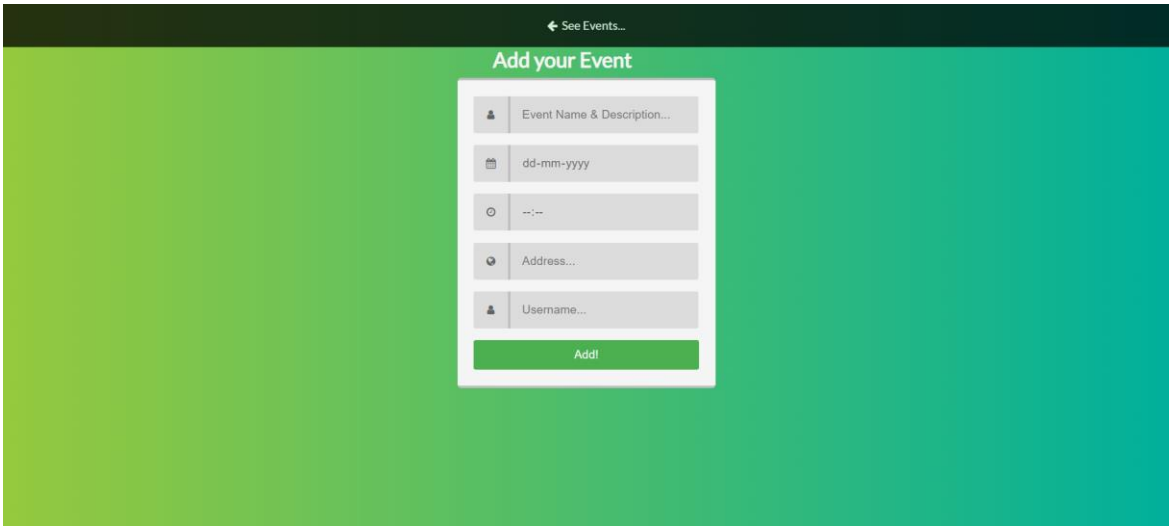
6. Agricultural Schemes

Agricultural Schemes

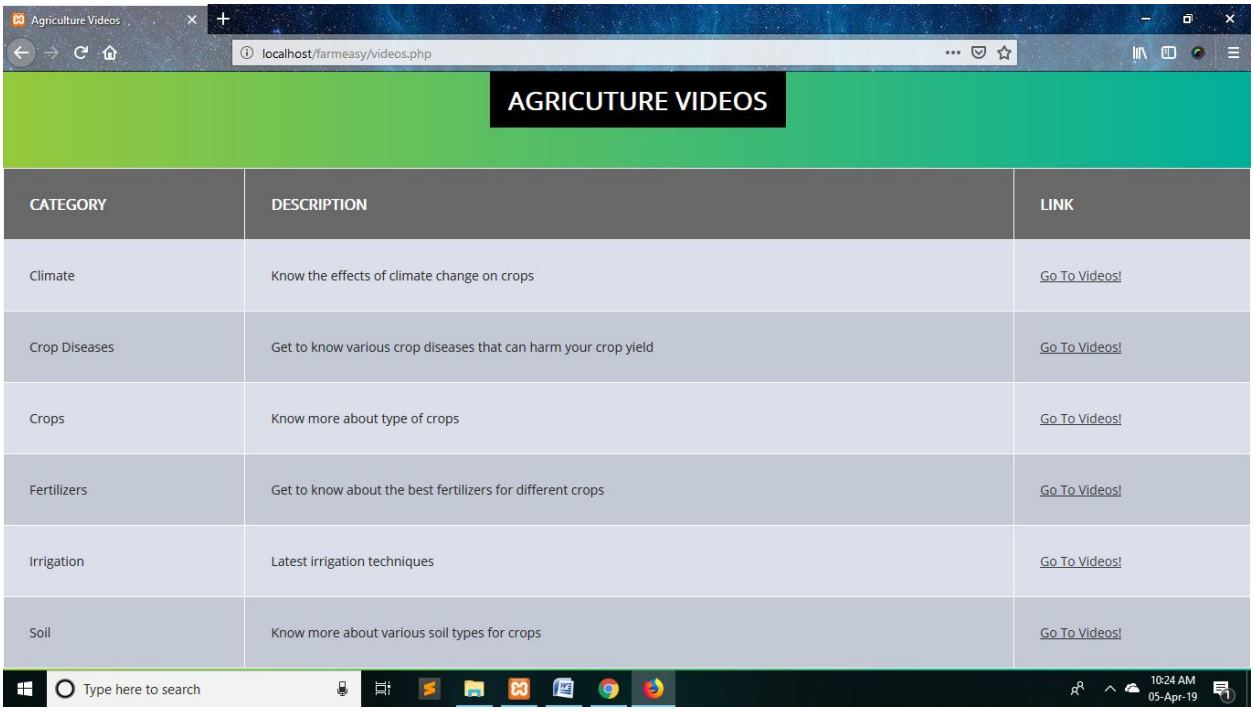
Scheme Number	Scheme Name	Scheme Description
1	Soil Health Card Scheme	Launched in 2015, the scheme has been introduced to assist State Governments to issue Soil Health Cards to all farmers in the country. The Soil Health Cards provide information to farmers on nutrient status of their soil along with recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility.
2	National Mission for Sustainable Agriculture (NMSA)	NMSA is one of the eight Missions under National Action Plan on Climate Change (NAPCC). It aims at promoting Sustainable Agriculture through climate change adaptation measures, enhancing agriculture productivity especially in rainfed areas focusing on integrated farming, soil health management, and synergizing resource conservation.
3	Neem Coated Urea (NCU)	This scheme is initiated to regulate use of urea, enhance availability of nitrogen to the crop and reduce cost of fertilizer application. NCU slows down the release of fertilizer and makes it available to the crop in an effective manner. The entire quantity of domestically manufactured and imported urea is now neem coated. It reduces the cost of cultivation and improves soil health management.
4	Pradhan Mantri Krishi Sinchai Yojana (PMKSY)	It was launched on 1st July, 2015 with the motto of Har Khet Ko Paani for providing end-to end solutions in irrigation supply chain, viz. water sources, distribution network and farm level applications. PMKSY not only focuses on creating sources for assured irrigation, but also creating protective irrigation by harnessing rain water at micro level through Jal Sanchay and Jal Sinchan.
5	Paramparagat Krishi Vikas Yojana (PKVY)	It is implemented with a view to promote organic farming in the country.?To improve soil health and organic matter content and increase net income of the farmer so as to realise premium prices. Under this scheme, an area of 5 lakh acre is targeted to be covered though 10,000 clusters of 50 acre each, from the year 2015-16 to 2017-18.
6	National Agriculture Market (e-NAM)	It provides e-marketing platform at national level and support creation of infrastructure to enable e-marketing. This innovative market process is revolutionizing agriculture markets by ensuring better price discovery. It brings in transparency and competition to enable farmers to get improved remuneration for their produce moving towards - One Nation One Market.
7	Micro Irrigation Fund (MIF)	A dedicated MIF created with NABARD has been approved with an initial corpus of Rs. 5000 crore (Rs. 2000 crore for 2018-19 & Rs. 3000 crore for 2019-20) for encouraging public and private investments in Micro irrigation. The main objective of the fund is to facilitate the States in mobilizing the resources for expanding coverage of Micro Irrigation.
8	Agriculture Contingency Plan	Central Research Institute for Dryland Agriculture (CRIDA), ICAR has prepared district level Agriculture Contingency Plans in collaboration with state agricultural universities using a standard template to tackle aberrant monsoon situations leading to drought and floods, extreme events (heat waves, cold waves, frost, hailstorms, cyclone) adversely affecting crops, livestock and fisheries (including horticulture).
9	Rainfed Area Development Programme (RADP)	Rainfed Area Development Programme (RADP) was implemented as a sub-scheme under Rashtriya Krishi Vikas Yojana (RKVY).
10	National Watershed Development Project for Rainfed Areas (NWDPRA)	The scheme of National Watershed Development Project for Rainfed Areas (NWDPRA) was launched in 1990-91 based on twin concepts of integrated watershed management and sustainable farming systems.
11	Pradhan Mantri Fasal Bima Yojana (PMFBY)	PMFBY is an actuarial premium based scheme under which farmer has to pay maximum premium of 2% for Kharif, 1.5% for Rabi food & oilseed crops and 5% for annual commercial/horticultural crops and remaining part of the actuarial/bidded premium is shared equally by the Centre and State Government. One of the objectives of the scheme is to facilitate prompt claims settlement. The claims must be settled within two months of harvest subject to timely provision of both yield data and share of premium subsidy by the State Government.
12	Livestock insurance Scheme	It aims to provide protection mechanism to the farmers and cattle rearers against any eventual loss of animals due to death. The scheme also demonstrates the benefit of the insurance of livestock to the people and popularizes it with the ultimate goal of attaining qualitative improvement in livestock and their products.
13	National Scheme on Welfare of Fishermen	This scheme was launched to provide financial assistance to fishers for construction of house, community hall for recreation and common working place. It also aims to install tube-wells for drinking water and assistance during lean period through saving cum relief component.
14	Scheme on Fisheries Training and Extension	It was launched to provide training for fishery sector so as to assist in undertaking fisheries extension programmes effectively.
15	Gramin Bhandaran Yojna	Create scientific storage capacity with allied facilities in rural areas.

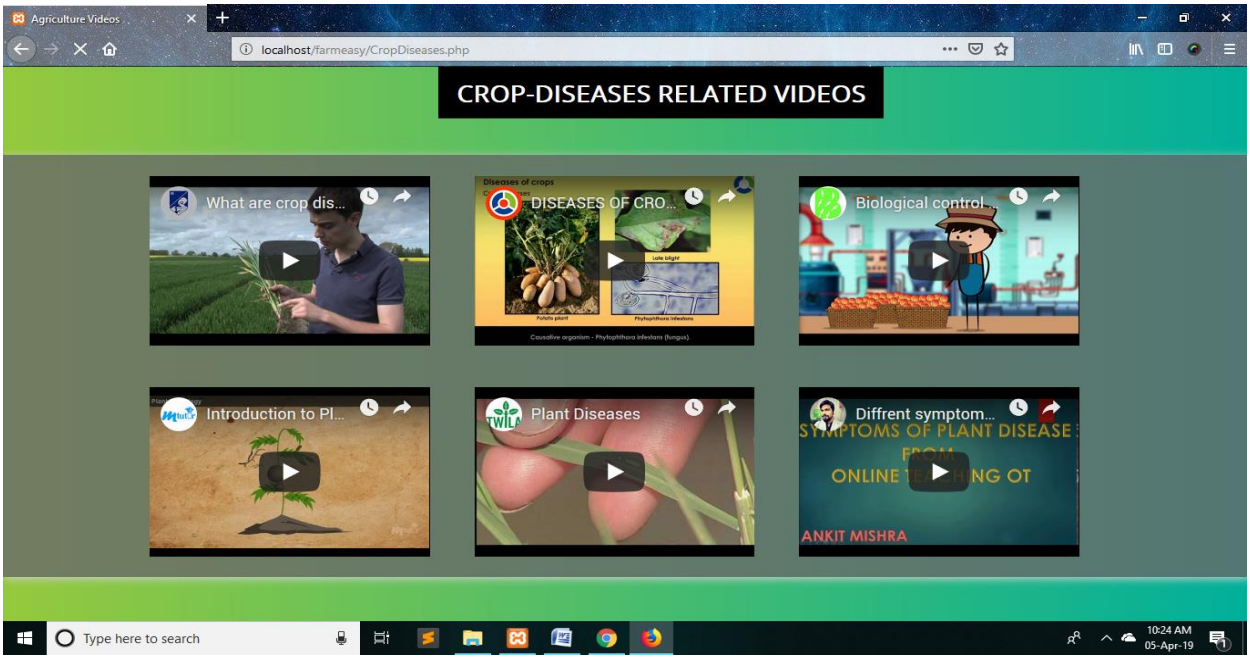
7. Events Module





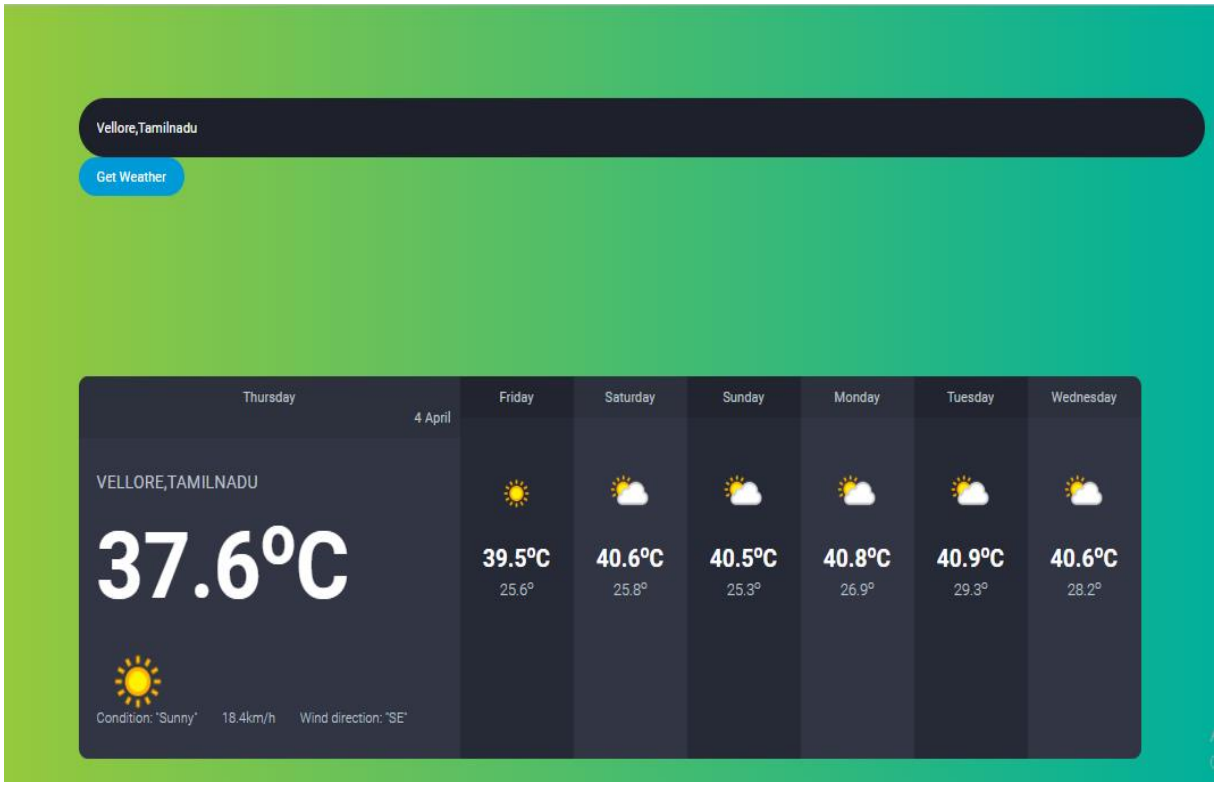
8. Farmers Tutorials





9. Weather API

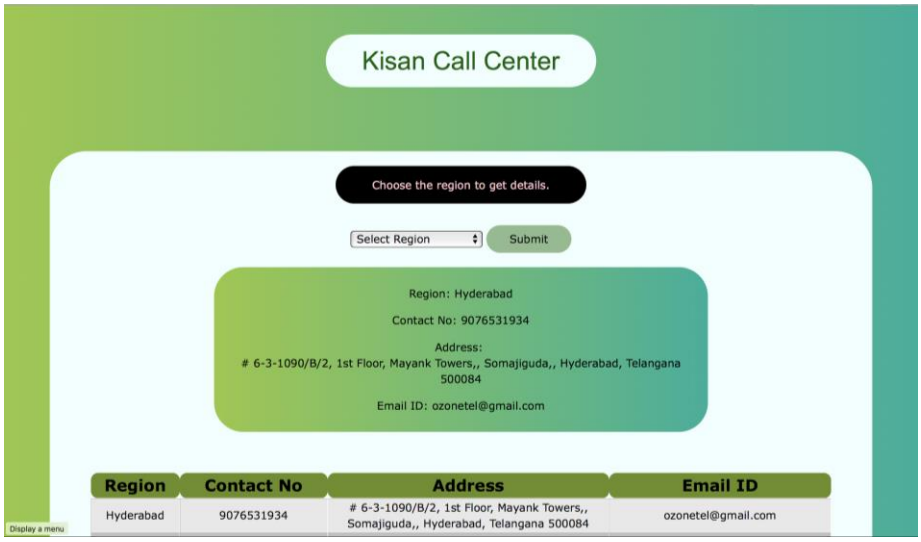
- We have designed a front end for the weather in which given the address of the particular region, one can easily view the current's weather along with next six-day forecasting of the same region.
- After entering the region, the weather box will come which will show the maximum and minimum temperature, humidity, wind speed, wind direction and condition such as sunny, mist, partly cloudy, thunderstorm etc. of the region searched.
- To build this we have first registered myself with a Weather API website named-APIXU which will help give me weather details of the requested location in the form of the JSON (JavaScript Object Notation) format.
- To send the request in order to obtain the JSON structure we have used AJAX technology. AJAX is nothing but Asynchronous JavaScript and XML.
- Using that JSON data, we have extracted my required weather attribute like maximum temperature, minimum temperature, wind direction, condition, wind speed etc. and the we put all these information into my HTML webpage using Bootstrap, JavaScript and CSS.

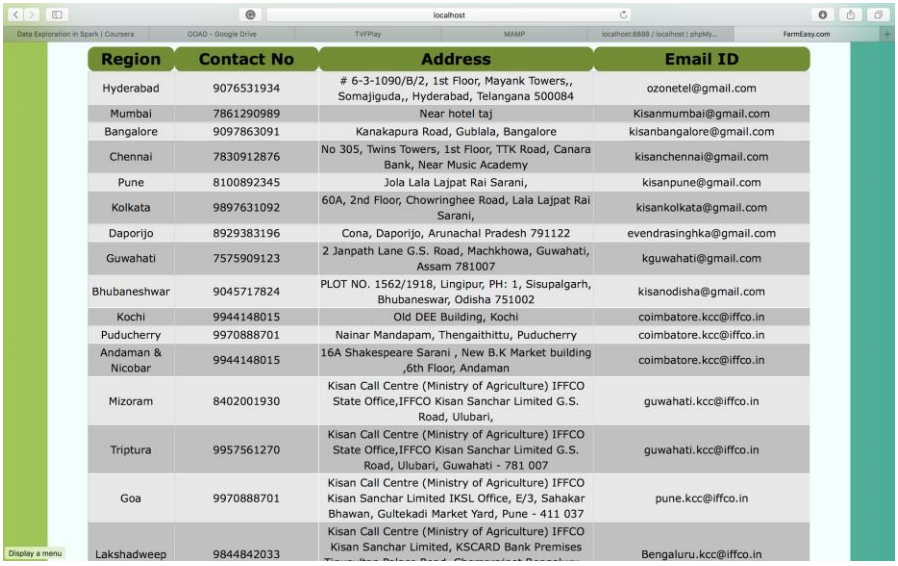


10. Kisan Call Center

The Kisan Call Center module caters as a helpline to the farmers. The platform provides region wise helpline that reaches to diverse set of farmers.

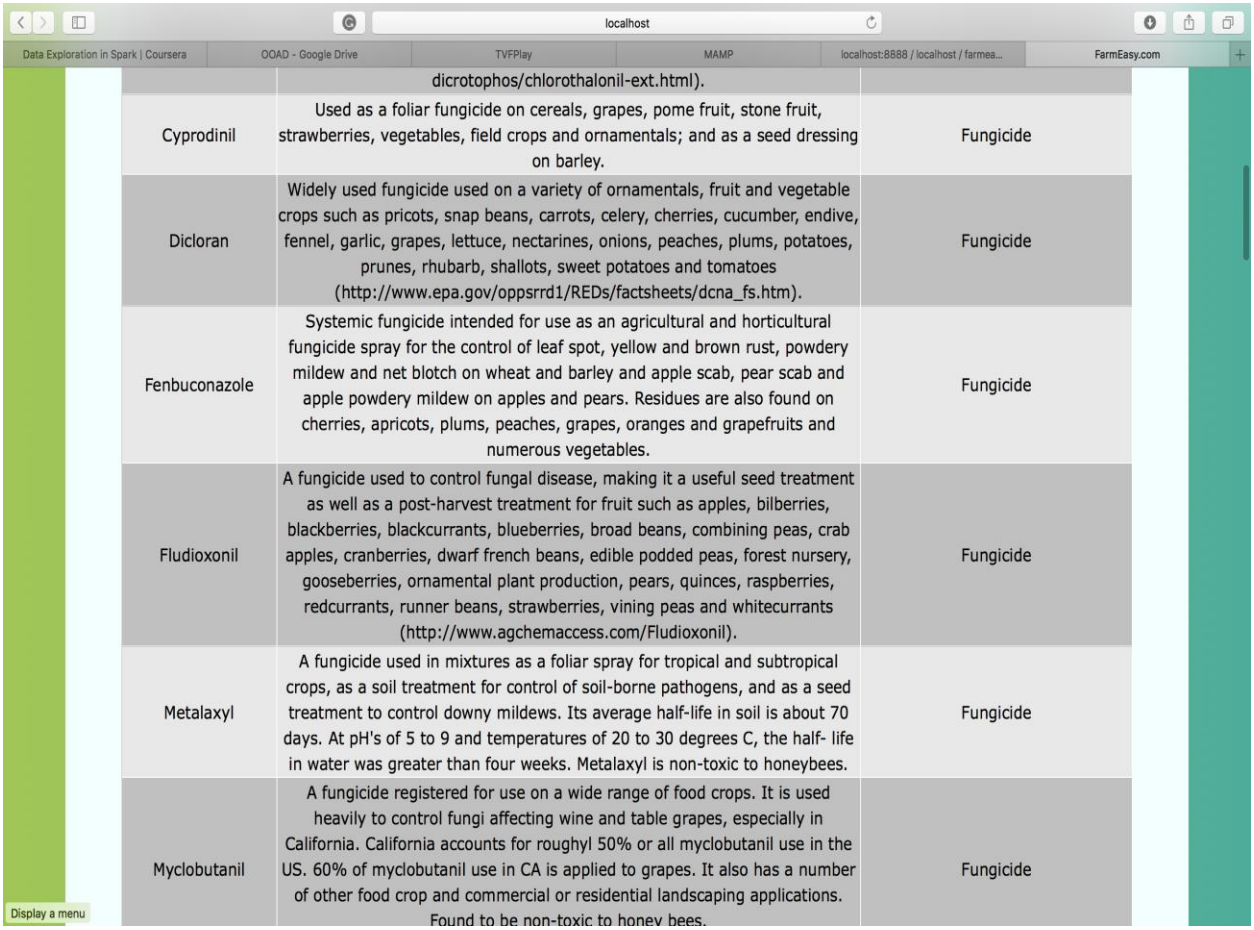
The implementation of the page includes making the website template with HTML and CSS. The data of the page were retrieved from the database stored locally and displayed. The database was queries using MySQL queries with the help of PHP - that connects the frontend with the backend.





Region	Contact No	Address	Email ID
Hyderabad	9076531934	# 6-3-1090/B/2, 1st Floor, Mayank Towers,, Somajiguda,, Hyderabad, Telangana 500084	ozonetel@gmail.com
Mumbai	7861290989	Near hotel taj	Kisanmumbai@gmail.com
Bangalore	9097863091	Kanakapura Road, Gublala, Bangalore	kisanbangalore@gmail.com
Chennai	7830912876	No 305, Twins Towers, 1st Floor, TTK Road, Canara Bank, Near Music Academy	kisanchennai@gmail.com
Pune	8100892345	Jola Lala Lajpat Rai Sarani,	kisanpune@gmail.com
Kolkata	9897631092	60A, 2nd Floor, Chowringhee Road, Lala Lajpat Rai Sarani,	kisankolkata@gmail.com
Daporijo	8929383196	Cona, Daporijo, Arunachal Pradesh 791122	evendrasinghka@gmail.com
Guwahati	7575909123	2 Janpath Lane G.S. Road, Machkhowa, Guwahati, Assam 781007	kguwahati@gmail.com
Bhubaneshwar	9045717824	PLOT NO. 1562/1918, Lingipur, PH: 1, Sisupalgarh, Bhubaneswar, Odisha 751002	kisanodisha@gmail.com
Kochi	9944148015	Old DEE Building, Kochi	coimbatore.kcc@iffco.in
Puducherry	9970888701	Nainar Mandapam, Thengaithittu, Puducherry	coimbatore.kcc@iffco.in
Andaman & Nicobar	9944148015	16A Shakespeare Sarani , New B.K Market building ,6th Floor, Andaman	coimbatore.kcc@iffco.in
Mizoram	8402001930	Kisan Call Centre (Ministry of Agriculture) IFFCO State Office,IFFCO Kisan Sanchar Limited G.S. Road, Ulubari,	guwahati.kcc@iffco.in
Triptura	9957561270	Kisan Call Centre (Ministry of Agriculture) IFFCO State Office,IFFCO Kisan Sanchar Limited G.S. Road, Ulubari, Guwahati - 781 007	guwahati.kcc@iffco.in
Goa	9970888701	Kisan Call Centre (Ministry of Agriculture) IFFCO Kisan Sanchar Limited IKSL Office, E/3, Sahakar Bhawan, Gultekadi Market Yard, Pune - 411 037	pune.kcc@iffco.in
Lakshadweep	9844842033	Kisan Call Centre (Ministry of Agriculture) IFFCO Kisan Sanchar Limited, KSCARD Bank Premises	Bengaluru.kcc@iffco.in

11. Fertilizers Module



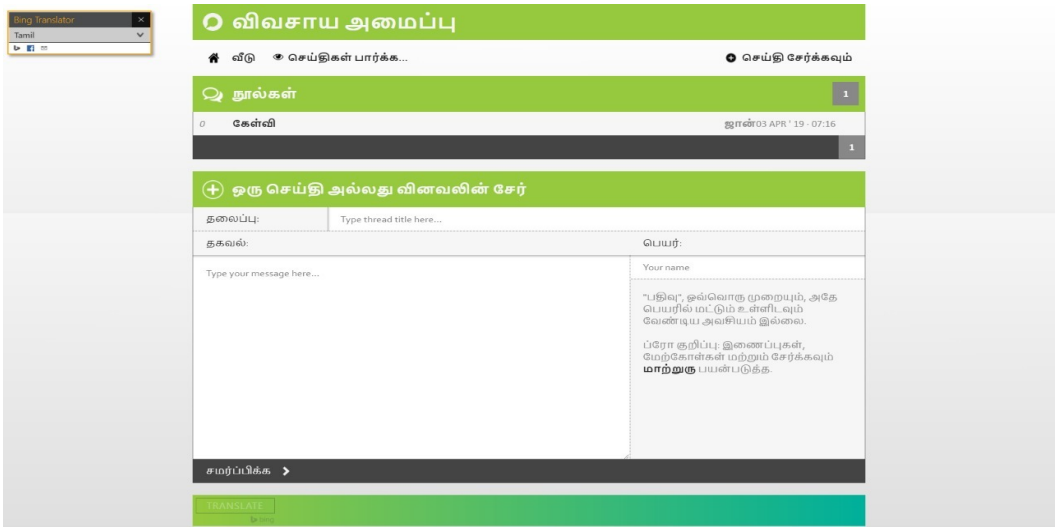
	dicrotophos/chlorothalonil-ext.html).	
Cyprodinil	Used as a foliar fungicide on cereals, grapes, pome fruit, stone fruit, strawberries, vegetables, field crops and ornamentals; and as a seed dressing on barley.	Fungicide
Dicloran	Widely used fungicide used on a variety of ornamentals, fruit and vegetable crops such as pricots, snap beans, carrots, celery, cherries, cucumber, endive, fennel, garlic, grapes, lettuce, nectarines, onions, peaches, plums, potatoes, prunes, rhubarb, shallots, sweet potatoes and tomatoes (http://www.epa.gov/oppsrrd1/REDs/factsheets/dcna_fs.htm).	Fungicide
Fenbuconazole	Systemic fungicide intended for use as an agricultural and horticultural fungicide spray for the control of leaf spot, yellow and brown rust, powdery mildew and net blotch on wheat and barley and apple scab, pear scab and apple powdery mildew on apples and pears. Residues are also found on cherries, apricots, plums, peaches, grapes, oranges and grapefruits and numerous vegetables.	Fungicide
Fludioxonil	A fungicide used to control fungal disease, making it a useful seed treatment as well as a post-harvest treatment for fruit such as apples, bilberries, blackberries, blackcurrants, blueberries, broad beans, combining peas, crab apples, cranberries, dwarf french beans, edible podded peas, forest nursery, gooseberries, ornamental plant production, pears, quinces, raspberries, redcurrants, runner beans, strawberries, vining peas and whitecurrants (http://www.agchemaccess.com/Fludioxonil).	Fungicide
Metalaxyl	A fungicide used in mixtures as a foliar spray for tropical and subtropical crops, as a soil treatment for control of soil-borne pathogens, and as a seed treatment to control downy mildews. Its average half-life in soil is about 70 days. At pH's of 5 to 9 and temperatures of 20 to 30 degrees C, the half- life in water was greater than four weeks. Metalaxyl is non-toxic to honeybees.	Fungicide
Myclobutanil	A fungicide registered for use on a wide range of food crops. It is used heavily to control fungi affecting wine and table grapes, especially in California. California accounts for roughyl 50% or all myclobutanil use in the US. 60% of myclobutanil use in CA is applied to grapes. It also has a number of other food crop and commercial or residential landscaping applications. Found to be non-toxic to honey bees.	Fungicide

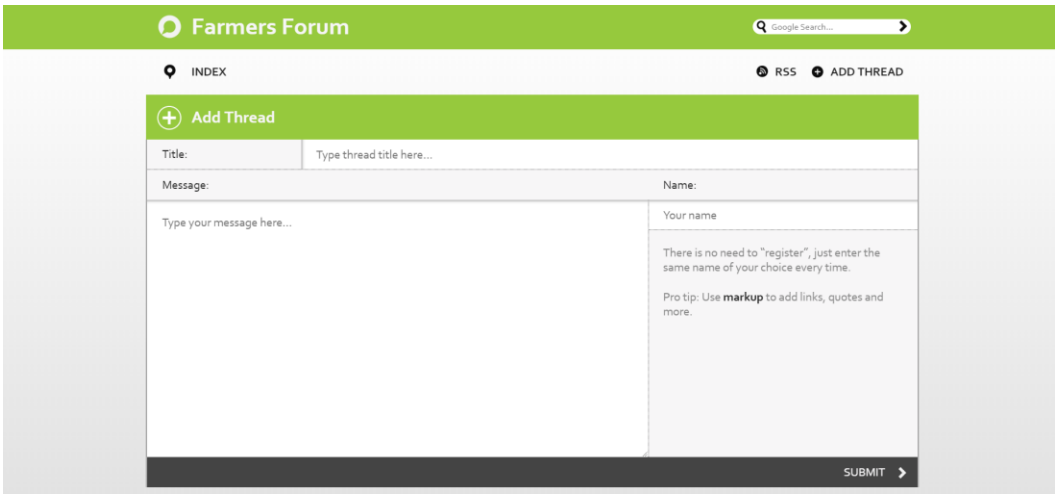
12. Farmers Forum

- We built a Famers Forum for the website that lets famers post queries regarding any topic that they have issue with.
- We used an Open Source Forum and built on top of that.
- The best feature is that there is no database connection, it is all stored as RSS feeds.

Features:

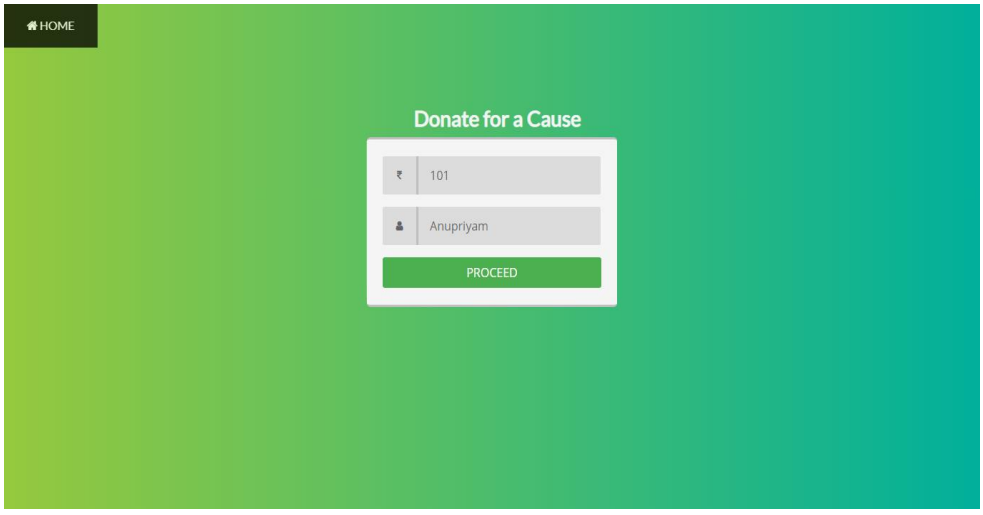
- No database connection – RSS feeds.
- No need for an account to post any query or reply to one. You just have to add your content with your name.
- Only the moderators can delete a query.

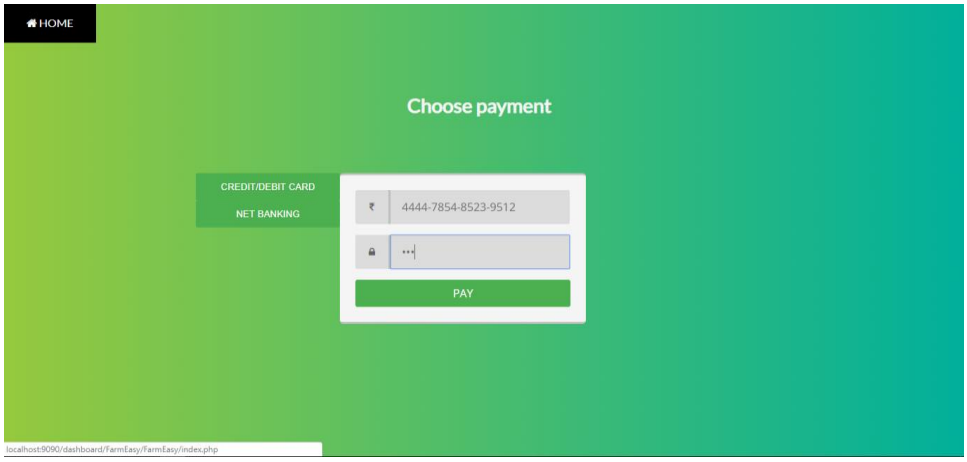


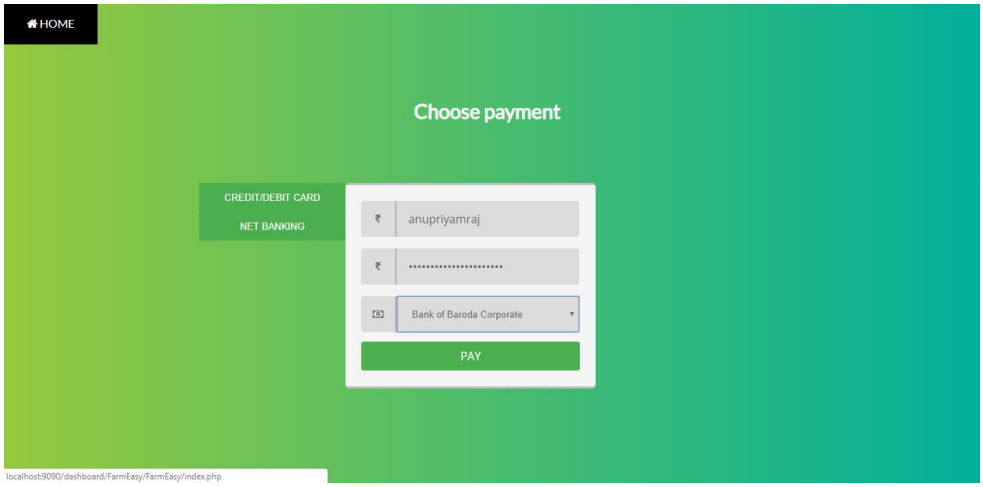


13. Donation Form.

The donation module is created with aim to provide the farmers the support and assistance that they require to support agriculture work, this money can be utilized by them in various forms. The farmers can form SHGs (Self Help Groups) and help other farmers in different ways. They can extend a helping hand by providing loans to very poor farmers to support them in the initial phase of their farming related activities. This money can be used by the community to conduct events and sessions to provide agriculture related information. Donation can be done by anyone who is willing to do so. The payment module includes two methods for payment these are Debit card / Credit card or the user can use their net banking account to make the payment Once the user selects the desired payment mode, they have to enter the credentials after which the information are validated and if the information match the record the user is transferred to the next page where they are show and confirmation message for their donation.



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Bank of Baroda Corporate
PAY
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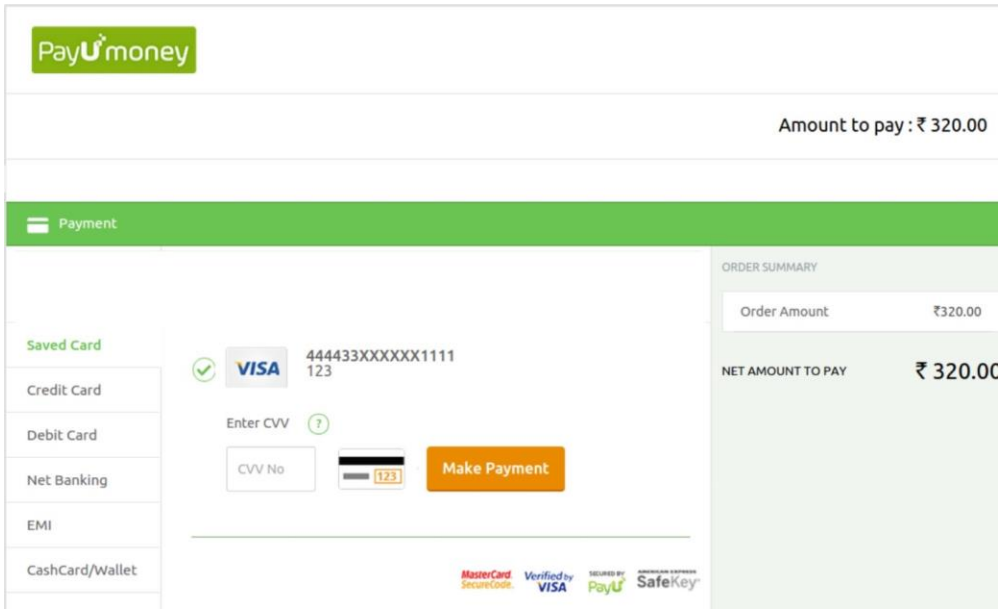
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Debit Card
Net Banking
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CashCard/Wallet
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Enter CVV
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Make Payment
ORDER SUMMARY
Order Amount
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₹ 320.00