CSE1901 - Technical Answers to Real World Problems (TARP)

Project Report

AGROGENIE

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B. Tech Computer Science and Engineering

Submitted to

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School of Computer Science and Engineering

VIT®
Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

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DECLARATION

We hereby declare that the project entitled **"Agrogenie"** submitted by us to the School of Computer Science and Engineering, Vellore Institute of Technology, Chennai Campus, Chennai 600127 in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology – Computer Science and Engineering is a record of bonafide work carried out by us. We further declare that the work reported in this report has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma of this institute or of any other institute or university.

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CERTIFICATE

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ABSTRACT

Agrogenie aims to provide an all-in-one platform for farmers with many options like weather report, latest tool & technologies available, loan schemes for farmers, information on crops, negotiating the price with buyers for their final yield and many more unique features. For efficient growth and development of the agricultural sector, there is a need to familiarize with new technologies like biotechnology, nanotechnology etc. Usage of technology would enhance sustainable livelihood opportunities for the farmers.30 percent of marginal Indian farmers are illiterate.We aim to address this issue by making the platform vernacular

KEY WORDS :*Farmers, weather, all-in-one platform, Agrogenie*

CONTENTS

1. Introduction

1.1 **Objective and goal of the project**

The goal of the project is to deliver farmers with a suitable platform to gain information and knowledge regarding everything occurring in the agricultural aspect in their locality such as equipment, weather, product prices etc. and giving extra consideration to illiterate farmers or people who aren't well versed in the use of current technology, providing them with multi language support, video tutorials and audio support.

1.2 **Problem Statement**

Farmers find it difficult to keep track of all the platforms out there. Moreover, most farmers find it difficult to use these platforms as they are mostly not vernacular. Agrogenie aims to bridge this gap by providing an all-in-one platform for farmers with many functionalities like latest weather report, loan calculator, selling surplus produce etc. and to offer a platform that can be used with ease by the farmers.

1.3 **Motivation**

In this upcoming era of digitalization and technological advancements in all sectors in any industry, the agricultural sector tend to have much more conventional methods and since agricultural sector do not require much educational qualifications either, a substantial amount of farmers will be illiterate as well. Now keeping this in mind and the growing dependency of farmers on technology like smartphones, laptops, etc. We will require web pages and apps to be much more straight-forward and simple for the them to depend on these technologies more readily and promptly and improve their efficiency.

1.4 **Challenges**

The most common challenges that agricultural app/webpage developers face are:

- **Navigation of the app/webpage-**Webpages/Apps where all functions could be accessed from a single screen is much more preferred.
- **Trust, comfort with technology, and affordances:** Easier connection, lesser bugs, low cost and ease of use are all actors to build trust upon an app or webpage.
- **Robustness of technological infrastructure:** Availability of Internet connectivity and ease of access of website/app within the locality.
- **Age:** Lack of familiarity with the technology upon aging which will lead to older population of farmers find it harder to use the app/webpage.

2. Literature Survey

As per the 2014 FAO world agriculture statistics India is the world's largest producer of many fresh fruits like banana, mango, guava, papaya, lemon and vegetables like chickpea, okra and milk, major spices like chili pepper, ginger, fibrous crops such as jute, staples such as millets and castor oil seed. India is the second largest producer of wheat and rice, the world's major food staples. Agriculture, the backbone of India, provides a principal means of livelihood for about two thirds of the Indian population. 70 percent of the world's rural poor population depends on agriculture as the main source of income and employment. The agriculture scene is changing rapidly and we can see the influence of technology in it. Questionnaire was designed in Google Forms and some offline forms were also collected by personally interviewing the farmers. According to the study it was observed that about 79 farmers do not make use of any agriculture related mobile application and very few farmers made use of the agricultural app for their agricultural activities. It is surprising to see that the farmers are not using the agricultural related applications in spite of their availability, mostly free. They do use smartphones to a large extent, but the applications used are the common ones which otherwise everyone uses (Impact of Mobile Application in Agriculture by Tabassum Shaikh). Use of biotechnological tools in agriculture could make food crops high yielding and more vigorous to biotic and abiotic problems. Nanotechnology can be used in agriculture in numerous ways. It can help in promoting soil fertility and balanced crop nutrition and effective weed control. Protected cultivation or greenhouse cultivation is the area where production of horticultural crops has improved qualitatively and quantitatively (Usage of Technology in the Agricultural Sector by Dr Kapur). As far as productivity is concerned India is still behind other countries. Thus, it is imperative that proper usage of technology is adopted in Indian agriculture

3 Requirements Specification

3.1 **Hardware Requirements**

Processor	:	2.4 GHz processor
Main Memory	:	1 GB
Ram	:	1.00GB
Hard Disk	:	2.40 GHz
Monitor	:	CRT Monitor 15 inch
Keyboard	:	Multimedia Keyboard
Mouse	:	Optical mouse

3.2 **Software Requirements**

Operating System	:	Windows
Front-End	:	HTML, CSS and JavaScript
Web Server	:	PHP
Back End	:	phpMyAdmin

4 System Design

We took the assistance of HTML, CSS and JavaScript for structuring the front-end. The necessity of essential planning was satisfied by utilizing crude HTML and bootstrap, furthermore this to give some extraordinary things we have utilized JavaScript. The shading direction was finished by utilizing CSS and shading direction code.

The back-end configuration characterizes how to function with a site. Another name of the Back-end is the server site. The backend is noticeable by the administrator.
For building up our website we have used the following technologies.

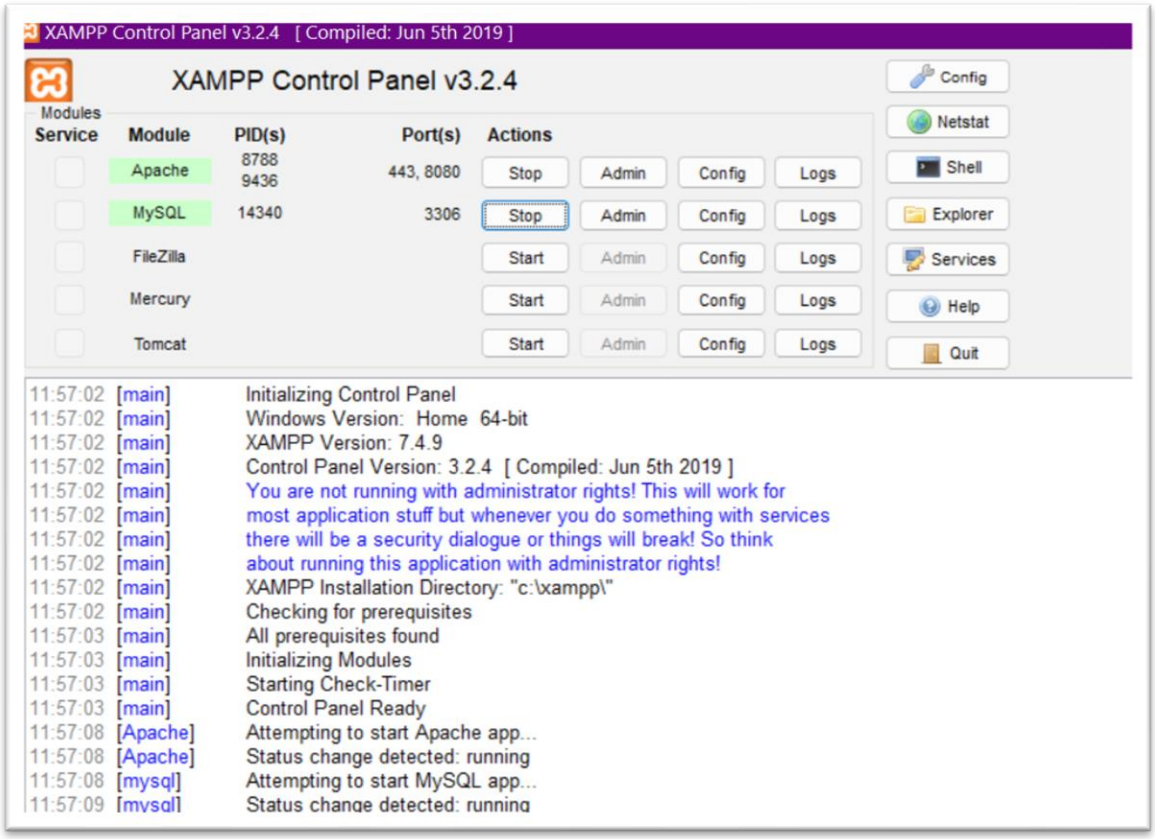
- **PHP:** PHP plays a crucial role in the backend development of a website. It is integrated with multiple databases such as MySQL, SQL Server, PostgreSQL, and Oracle. Programming languages such as PHP run on frameworks that ease the web development process.
- **Visual Studio Code:** It is a source-code editor made by Microsoft for Windows, Linux and macOS. To implement the project a code editor is essential. All HTML, CSS, PHP, Bootstrap, jQuery or JavaScript code need to be written in this type of platform.
- **XAMPP:** It is needed for creating the local web server which is essential for testing and deployment of the changes in every stage.

5 Implementation of System

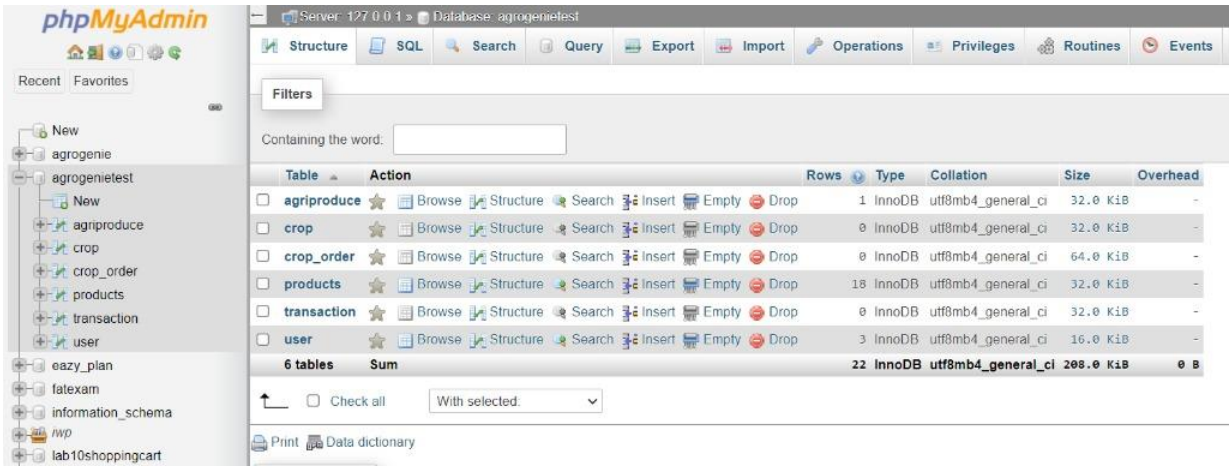
We use Apache server to handle requests and a MySQL database to store data. Both of these are managed through the XAMPP Control panel.

Apache is a web server responsible for accepting directory (HTTP) requests from Internet users and sending them their desired information in the form of files and Web pages. PHP will be used to connect the front end and the database (MySQL).

XAMPP Control Panel is a management tool that offers to supervise the actions of individual components of XAMPP.



MySQL is a relational database management system based on SQL – Structured Query Language. **phpMyAdmin** is a software tool written in PHP which is used to handle the administration of MySQL over the Web.



6. Results and Discussion

Agrogenie gives utmost importance to data security. No user is allowed access to its features without verifying his/her credentials first. In comparison with other agricultural news websites, Agrogenie provides relevant news to farmers and gives information in small blocks. As far as purchasing tools are concerned other websites usually just provide a purchasing guide. We have added the cart module where farmers can choose the tool that they would like to purchase and proceed to payment.

Analyzing other websites catering to the need of farmers to avail loans, one can see that often the information presented is overwhelming and cannot be trusted. Agrogenie puts a stop to this problem by providing genuine and latest information on loans. Agrogenie is undoubtedly the only service in the market which is an all-in-one platform for farmers with many options like weather report, latest tool & technologies available etc. We have integrated a weather module which provides accurate and reliable information.

Most websites neglect the need to provide a loan calculator. Agrogenie consists of a dynamic loan calculator which displays the total amount to be paid over the given number of years. The concept of providing catalogs on tools and crops are often overlooked by other websites. We have integrated the catalog functionality which gives the necessary information to the farmers.

By using a layered architecture in our product similar components are grouped together meaning that everything relevant to a certain layer stays in that single layer. In a time where there is a dearth of agricultural tools for farmers, Agrogenie aspires to cater to the need of farmers and have made the interface very user-friendly.
Agrogenie aims to get rid of the confusion caused by all the different apps scattered around making farmers' lives difficult. We aspire to contribute to the ever-booming agriculture sector.

7. Conclusion and Future Work

With the help of our webpage, farmers will gain a platform which is straight-forward and simple to use with tutorials and audio samples on how to use the webpage along with multi-language support that will let them gain knowledge about sustainable cropping methods and latest agricultural related discoveries and news much more promptly followed by a loan calculator that will help them on perceiving the accurate amount of loan that they can acquire. We also provide an option to buy equipment or seeds for farming and even manage them by logging in as a user.

Now being in the agricultural sector, there will always something new to add to ease the life of farmers. Now we can add functions such as locality pricing and selling products directly to consumers according to the prices that are generalized in the market, canceling out the middleman and maximizing profits for the farmers and reducing dependencies on others for sale of their products. Location Based customization of product prices, cropping methods ,equipment would prove to be essential in making farmers self-sustaining and assets to the country.

We could also in the future widen the stage for what all is being grown and maybe expand the product roster by growing foreign fauna/crops as well making India less reliant on imports and providing employment to the population as well since agricultural sector makes up 20% of the GDP.

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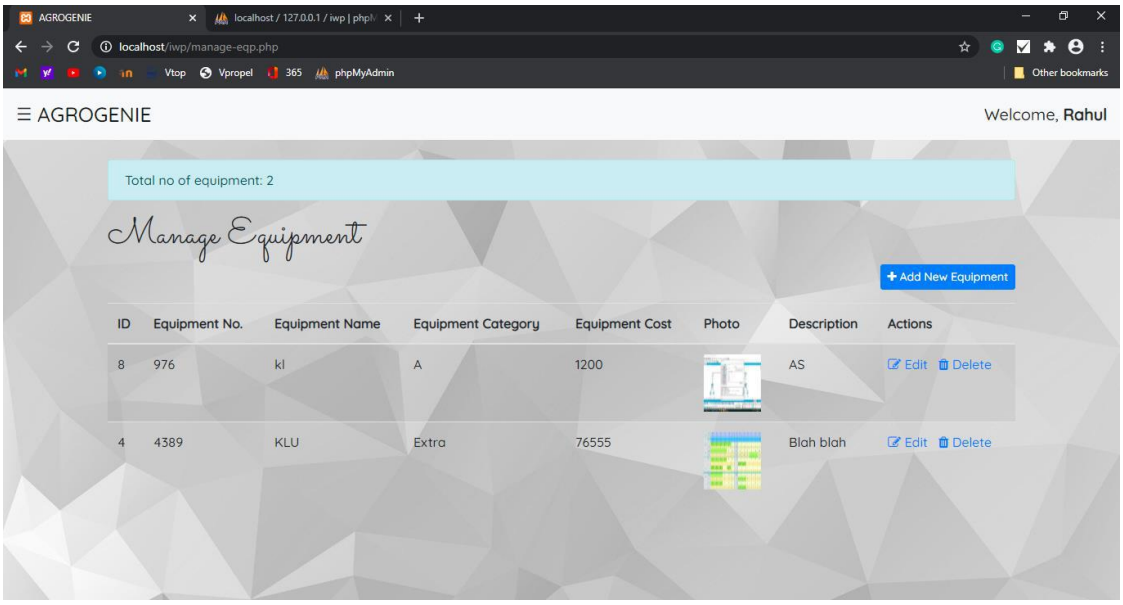
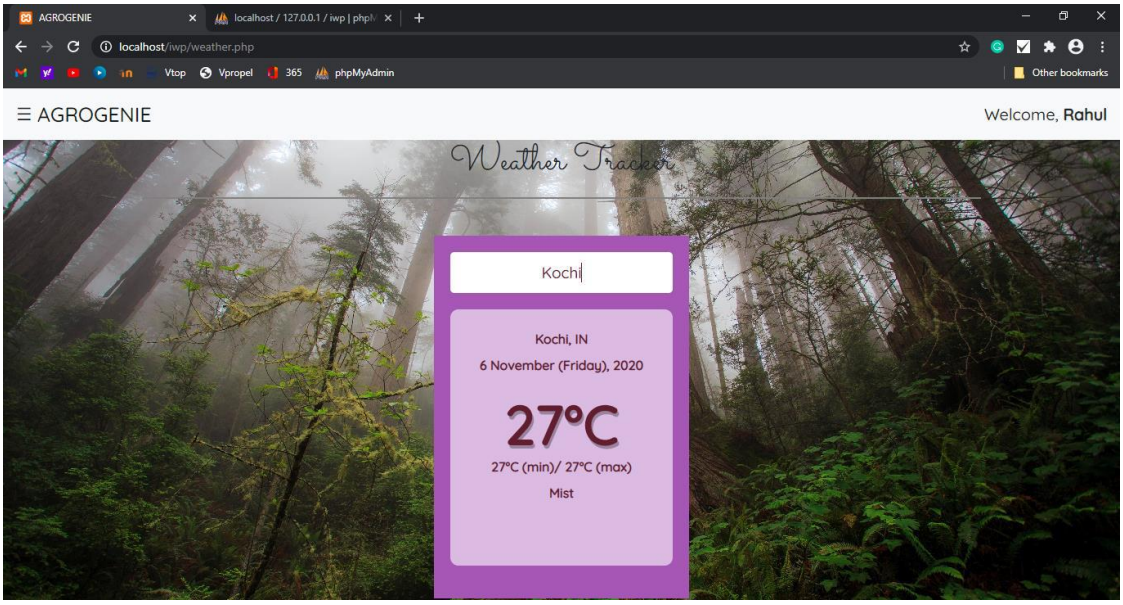
APPENDIX

1) Manage Equipment



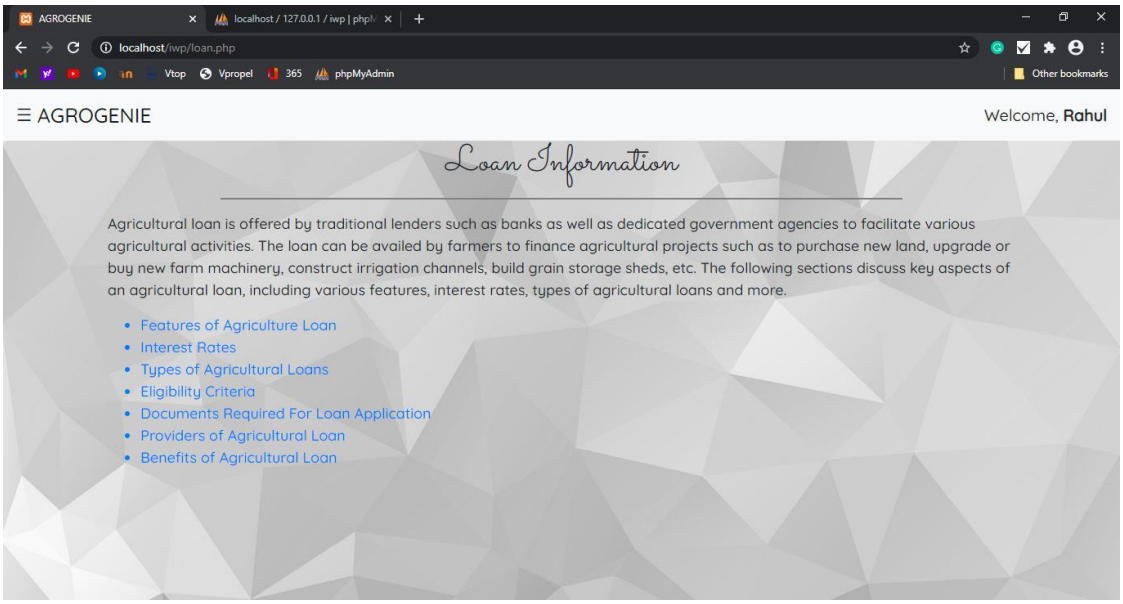
Farmers can keep track of their farm-related equipment where they can easily Add, Delete & Update the equipment at their own ease.

2) Weather Report



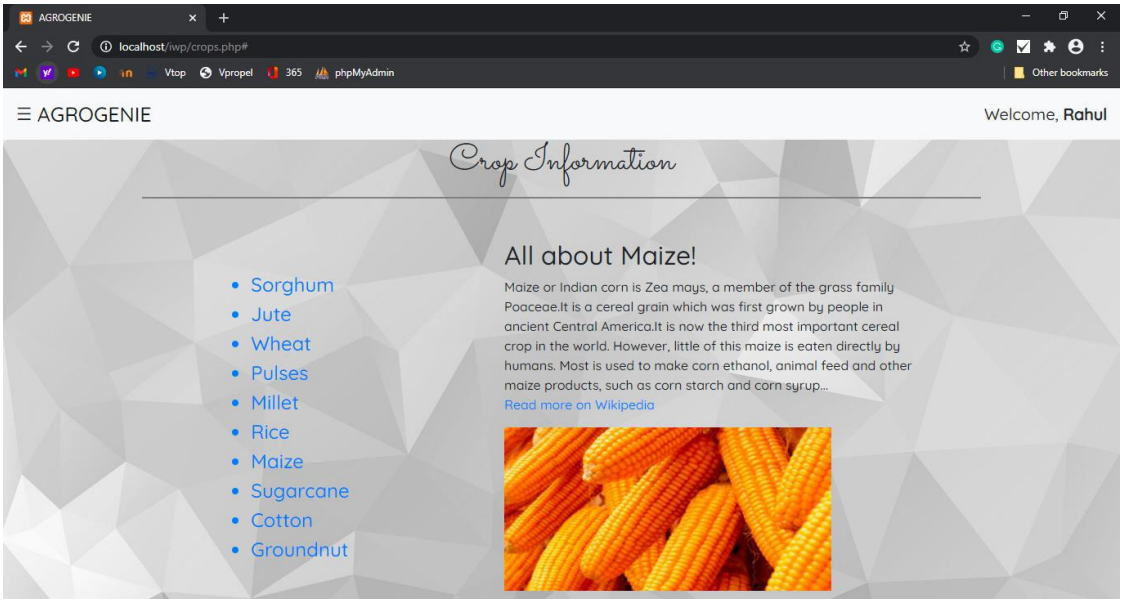
Farmers can also avail live weather updates from reliable sources.

3) Loan Information



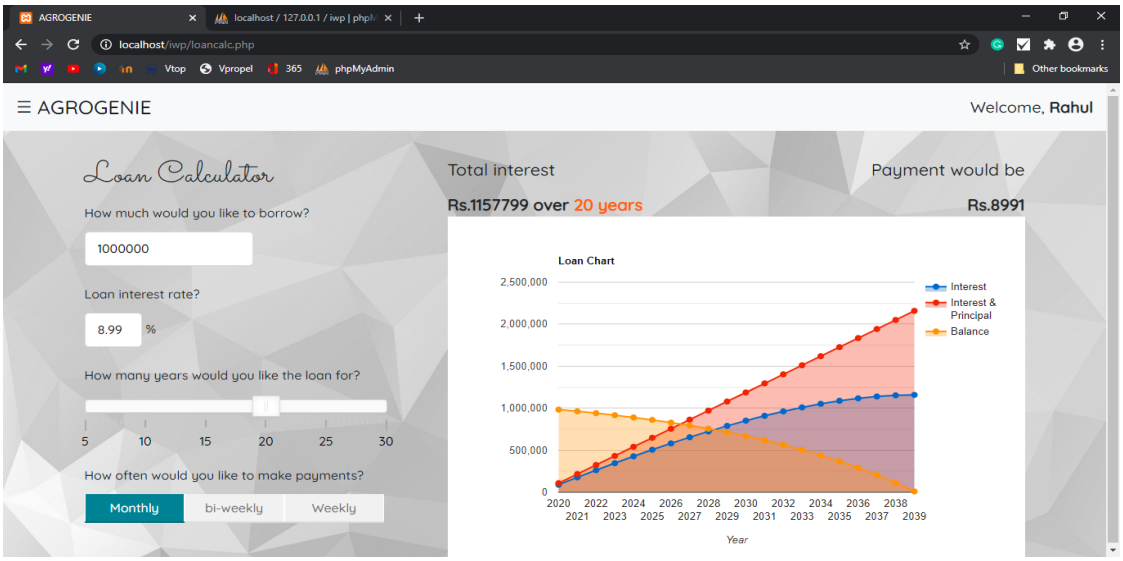
Latest and genuine information about loans is provided to the farmers with all the necessary details about the loan and its type & also how to apply for a loan.

4) Crop Information



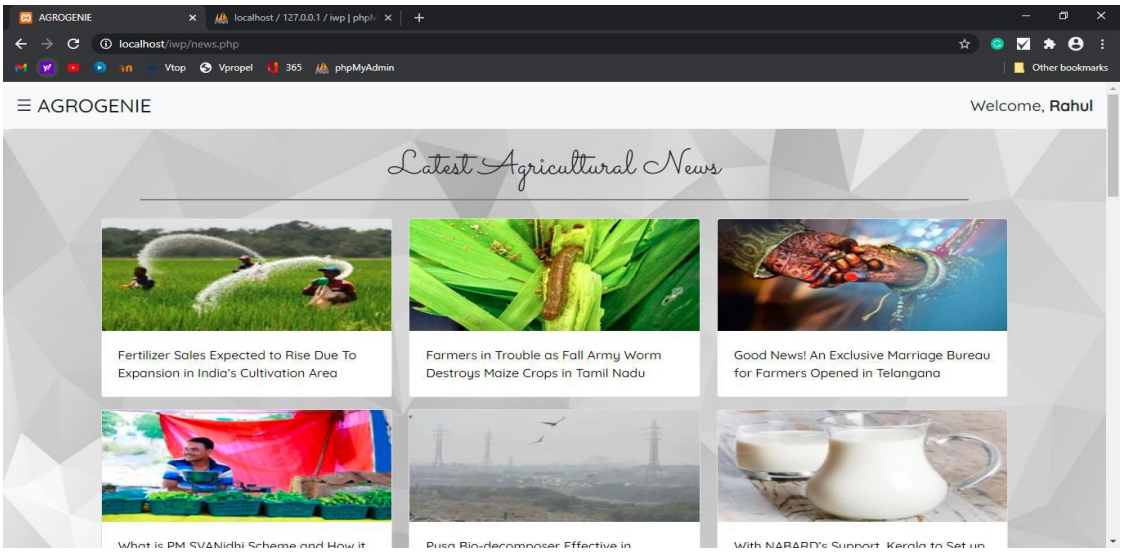
All-in-one guide is provided by Agrogenie where information about crops is shared.

5) Loan Calculator



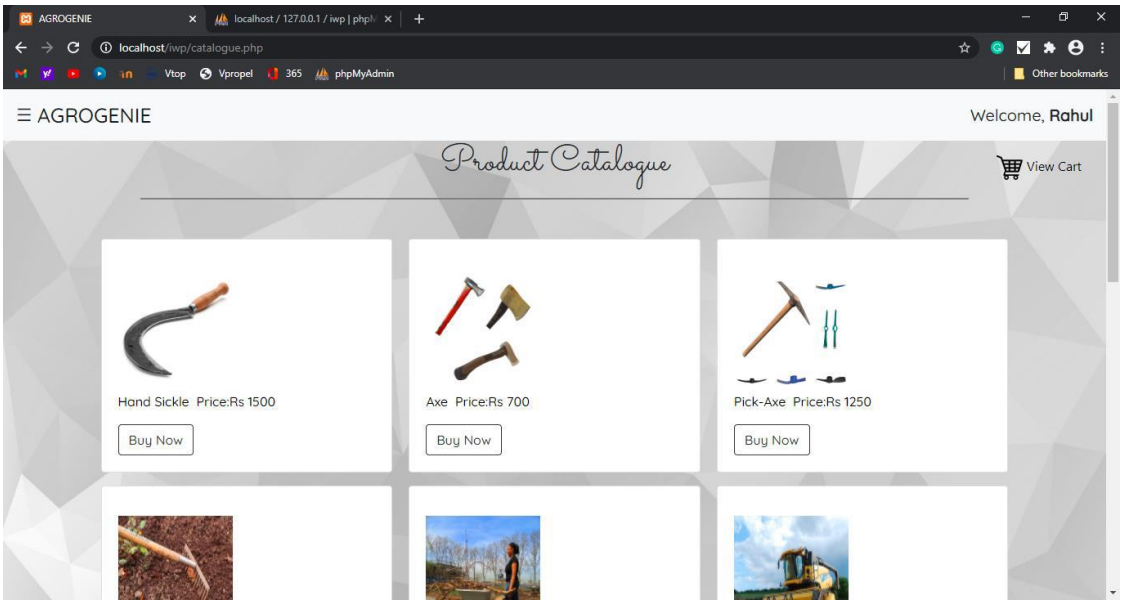
A very helpful tool for farmers is built i.e. the loan calculator where the farmers can estimate their loan period and the payments they have to pay monthly, bi-weekly or weekly.

6) Latest Agricultural News



Genuine and robust news is at the farmer's disposal where the news contains all the important farm-related information.

7) Tools Catalogue



The latest tools & technologies are provided to farmers, the desired product can be purchased by the farmer by simply adding to the cart and finishing the payment.