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Research Article

Computerized Agricultural Information Portal

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Abstract

Computerized agricultural Information Portal is developed to facilitate to general information system to manage the various information of the agricultural products and the processes involved in farming so that the farmers can access accurate information quickly and easily as and when required thereby improving their operational efficiency and effectiveness.

Proposed system in this paper would help in effective and systematic access to information and retrieving useful data about agriculture and farming. This work would be able to give the required information so that farmers can make decisions on the basis of that information.

Keywords: Agriculture, Information portal, Farming, System Security

Introduction

In current scenario, in order to seek for some information regarding farming and agriculture, a farmer had to take lot of pains and time and effort just to collect the information from various agricultural outlets.

All the information about the services being provided by the Agricultural Information Centre's and the details about the various agricultural products were stored on papers. This led to lot of human errors and thus discrepancies crept into the agricultural works. The system then was manual, in which various authorized government offices had persons to manage the agricultural know how distribution system.

On the other hand, This is site is an attempt to make the task of agricultural consultant and farmers much easier and approachable .This project ensures the consistency by enabling the farmers to seek information pertaining to agricultural products and services provided in this respect by the various agricultural government and private outlets.

This site is a avenue for getting pinch details ranging from grass root level about all sorts of farming procedure and other agricultural know how vis-à-vis seeds and fertilizers, benefit information, loans schemes, equipment details and general farmer queries about weather etc.

This web portal provides composed, compact and brisk information with just a flick of a button. This project is developed after a thorough study of the existing manual system and farmers requirements.

Objective of doing this project is to enhance our knowledge in the field of information technology using JAVA as a language. Some of the user requirements and objectives of this site are as under:

- To increase the knowledge of the user
- To facilitate brisk information access
- To facilitate farmers so that it can search for best possible farming options available
- To help farmers to select the right crop
- To act as a middle man connecting field workers and farmers
- Users can search for the different options available
- User can do online query posting etc
- User can use the portal to look for different brands of fertilizers and pesticides and breeds of crops
- User can know about different loan schemes available

Introduction to Agriculture Information Portal

This website is dedicated to online agriculture information portal. The objective of this site is to provide an opportunity to find agriculture related information to the potential users who are remotely located over a large graphical area. This site also provides automated information in globalized form.

The scopes of the project are:

- It provides information to the farmers regarding the seeds, pesticides, fertilizers, manures and rate of equipment's and machinery
- It will provide the procedural information regarding

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the agricultural process that will help the field workers to educate the farmers
- It contains information about the existing bank rates of interest and the bank loan plans for the farmers
- It contains weather information to help the farmers to better predict the best time suitable for the particular crop
- It will help the farmers to use their resources to the fullest and provide a rough estimation of the benefit that the farmers would get by giving some inputs
- The user can send their queries and get the reply

Modules of Project

The project can divided into seven main modules which are as under:

- Seeds
- Fertilizers, manures & pesticides
- Equipments
- Bank loan information
- Benefit estimation
- Farming procedure & queries
- Weather

The details of the various modules are as under:

Seeds

This module gives information about the indigenous and hybrid variety of seeds of different crops including rates and details of suppliers.

Fertilizers, Manures & Pesticides

This module gives information about the various brands of fertilizers, manures & pesticides in the market. Details of rates and suppliers can also be availed.

Equipments

This module gives information about the various typesequipments available besides equipments rates and suppliers.

Bank Loan Information

This module provides the different agriculture loans, schemes laid down by various banks giving the interest rates associated with respective schemes.

Benefit Estimation

In this module an input about the seeds, equipment & fertilizers, land size etc. to be used for a particular crop is taken from the farmer. In response to which the portal gives the rough estimates of the benefit which a farmer can incur.

Farming Procedure & Queries

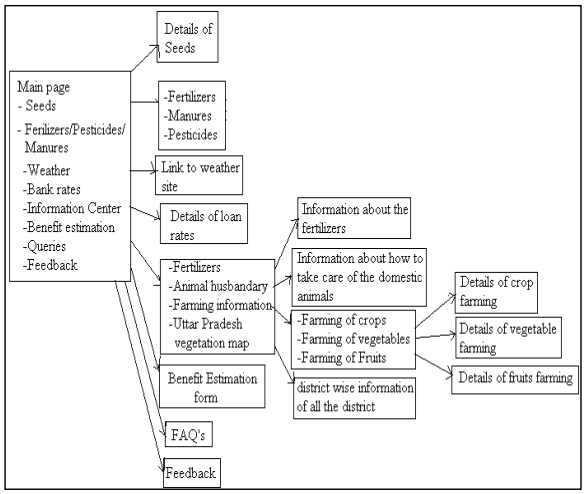
- This module gives the details pertaining to.
- The farming procedure employed for different crops, vegetables and fruits.
- Animal husbandry.
- District wise vegetation map of Uttar Pradesh having land, irrigation and fertilizers information and types of crops.

Weather

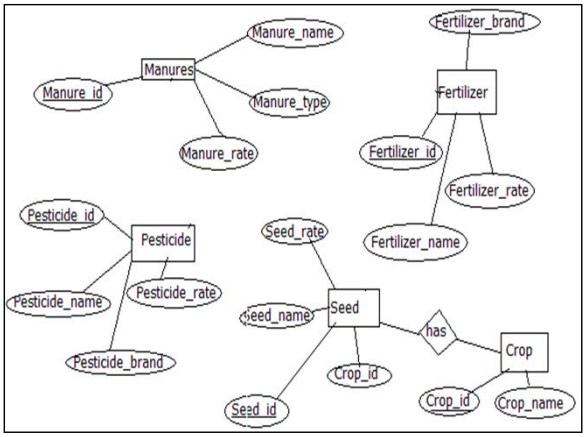
This module provides information about the It contains weather information to help the farmers to better predict the best time suitable for the particular crop.

Data Design

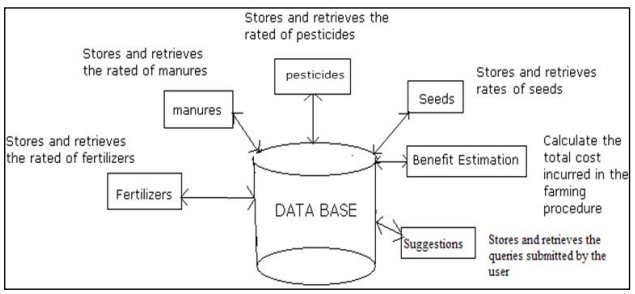
Site Map



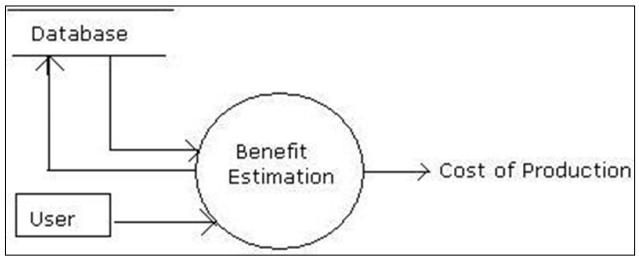
Entity –Relationship Diagram

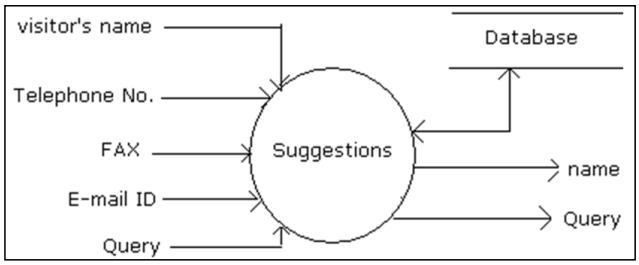


System flow diagram



Data Flow Diagram





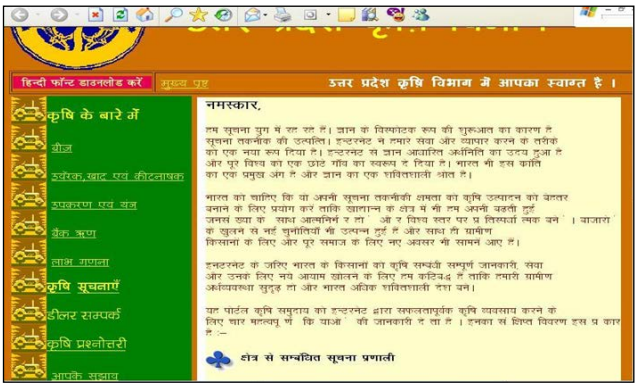
Page Design

Main page

This is the main page of our Information Portal.

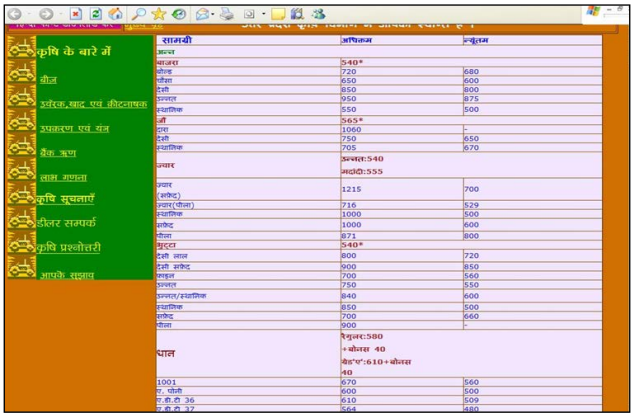
About our Site

This page gives the information about what the portal is doing.



Seed Information

This page gives the information about the rates and types of the available seeds.

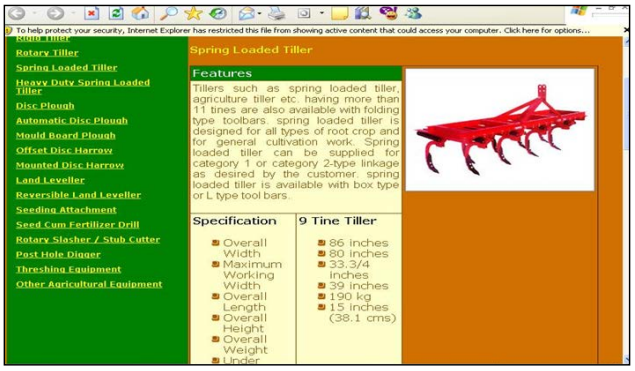


Fertilizer, Pesticide and Manure Information

This page provides information regarding the various brands of fertilizers, manures and pesticides including their rates.

Equipment Information

This page gives the details of the available farming equipments.

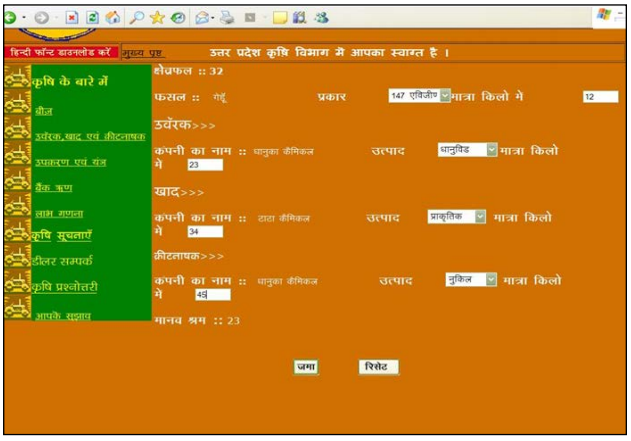


Bank Rate of Interest

This page gives the information of the banks and the details of the loan schems available including the interest rates.

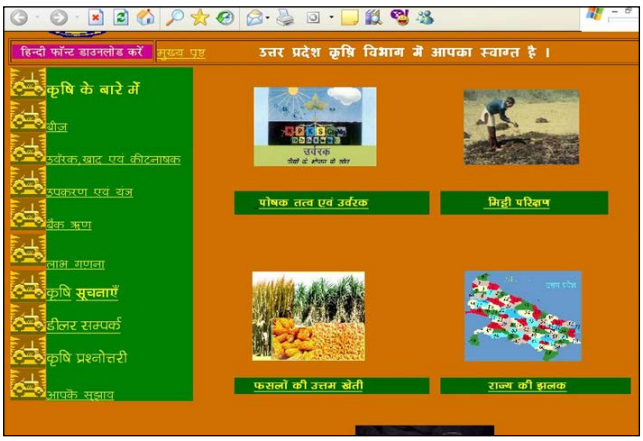
Benefit Estimation

This part of our project calculates a rough estimate of the total cost of production that the farmer will have to pay depending on the land, manpower and the brands of seeds, fertilizers etc used.

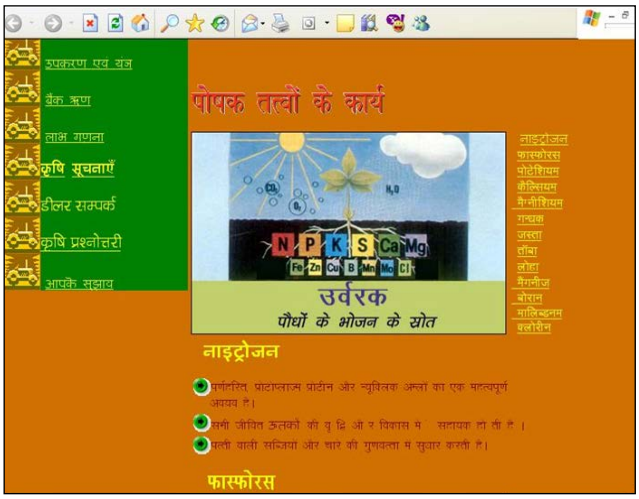


Information Center

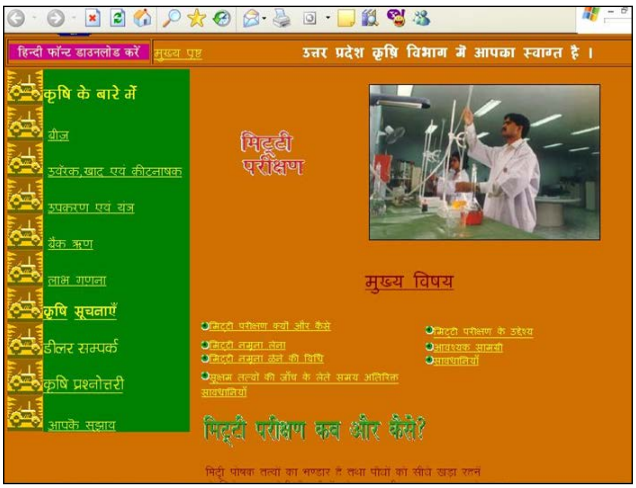
This section gives the general information about the farming procedures.



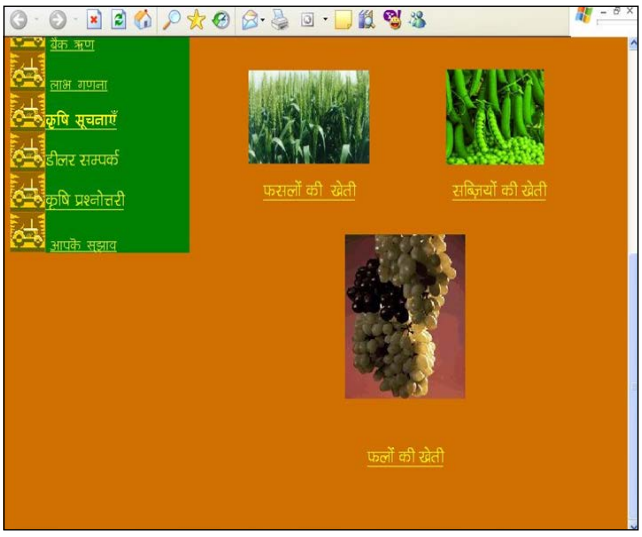
Fertilizer



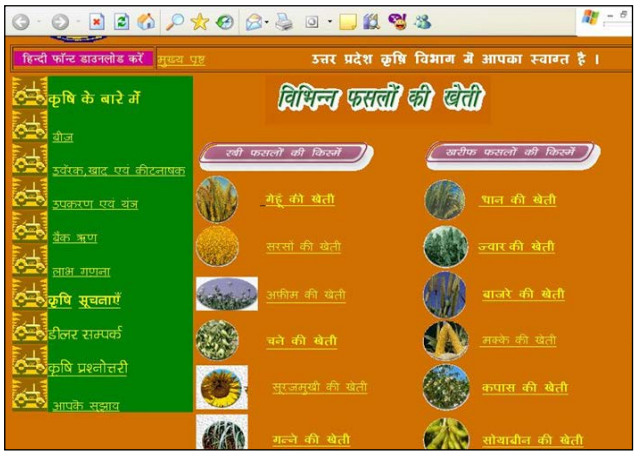
Soil Analysis



Crop Information

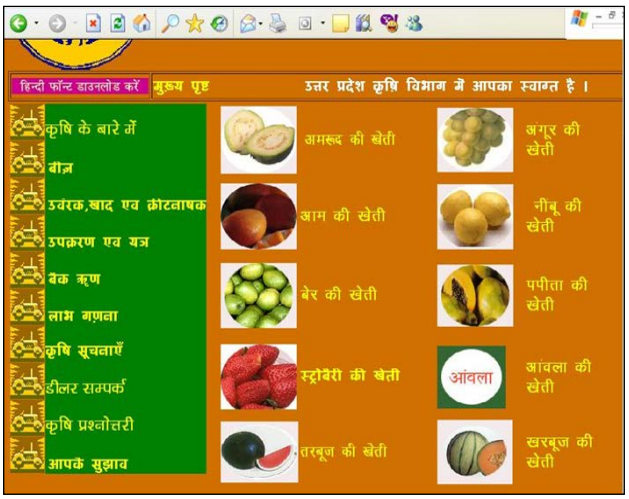


Crops Information

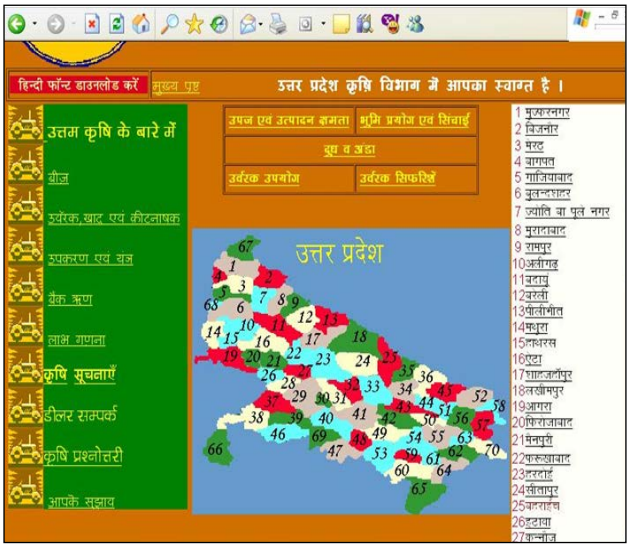


Vegetables

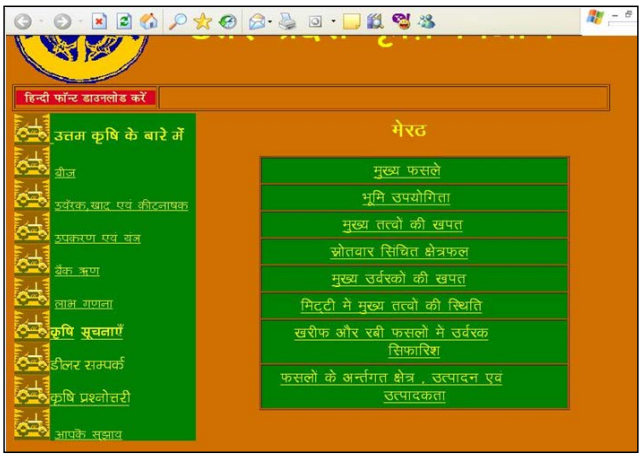
Fruits

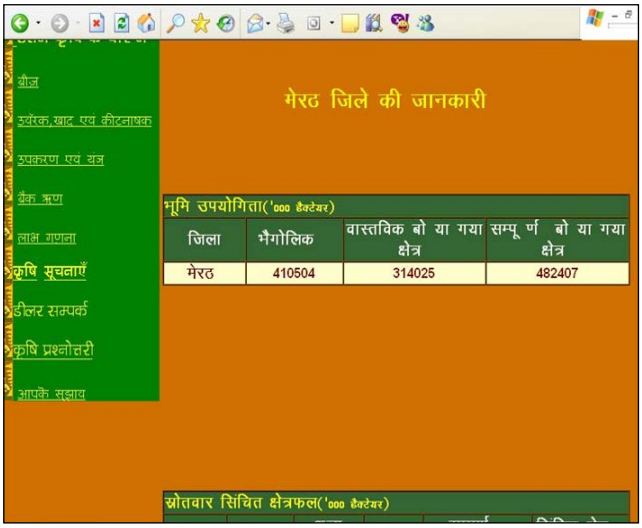


Uttar Pradesh Map

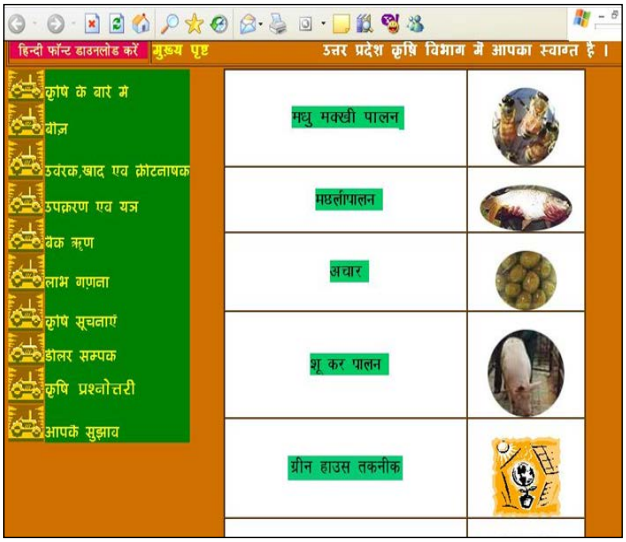


District Wise Information

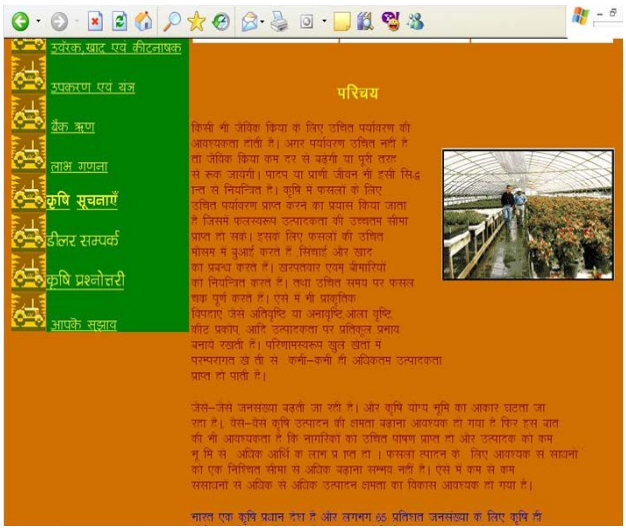




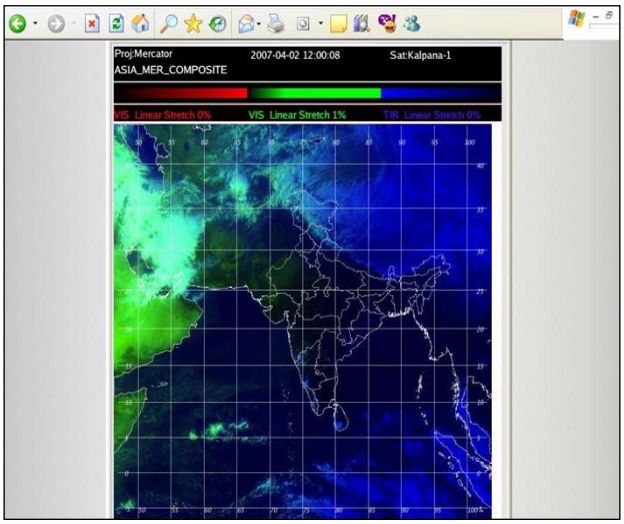
Agriculture Related Businesses



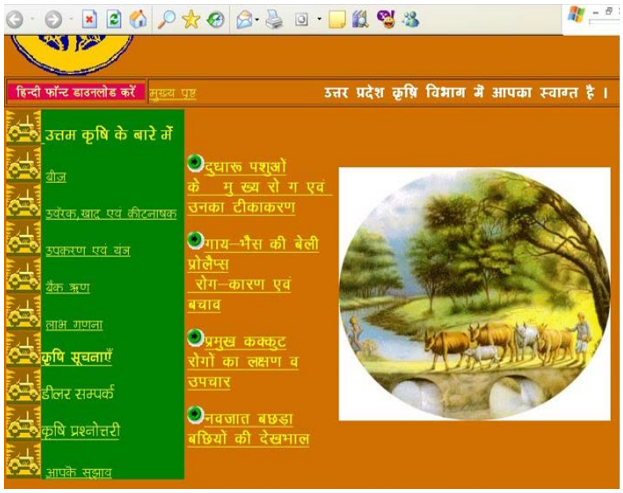
Green House Effect



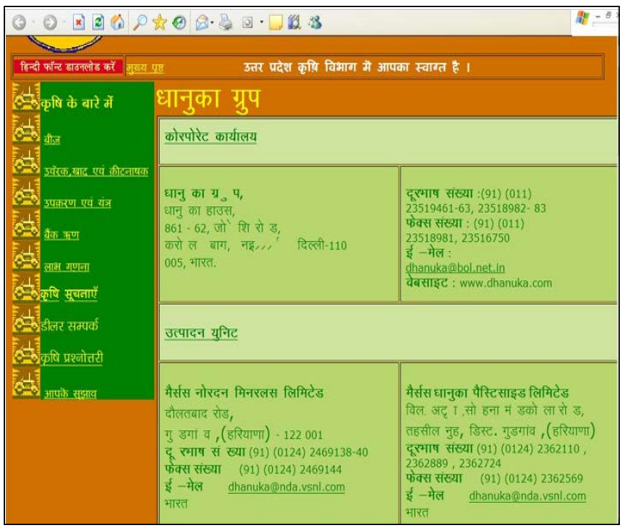
Weather Information



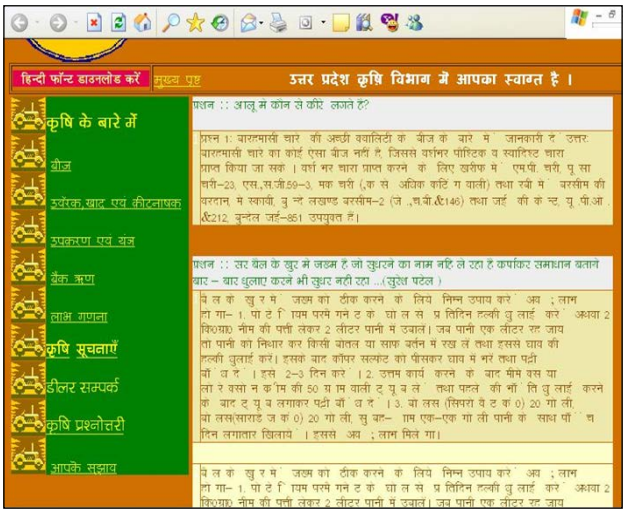
Information of Animal Husbandry



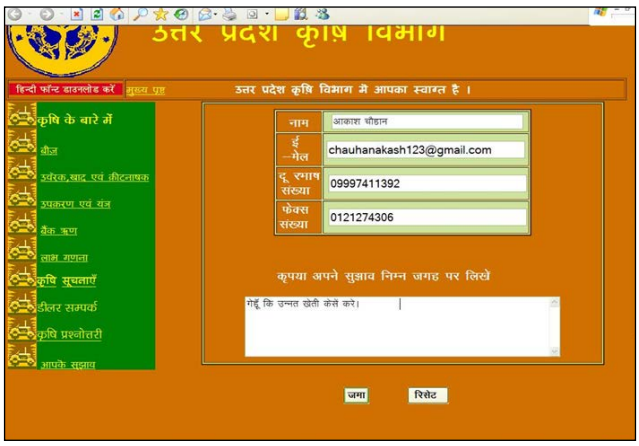
Dealer Information



Frequently Asked Question



Suggestions



Testing

Testing plays a critical role in quality assurance for software. Due to the limitation of the verification method for the previous phases, designs and requirement fault also appear in the code. Testing is used to detect these errors, in addition to the error introduced during coding phase.

Testing is a dynamic method for verification and validation, where the system is to be tested is executed and the behavior of the system is observed. Due to this testing the failure of the system can be observed, from which the presence of the fault can be reduced. However, separate activities have to be performed to identify the faults.

There are two methods of testing:

- Functional Testing
- Structural Testing
- Functional Testing

The internal logic of the system under testing is not considered and the test cases are decided from the specification or the requirement. It is often called "*Black Box Testing*". Equivalence class partitioning, boundary analysis and cause effect, graphing are examples of methods for selecting test cases for functional testing.

- Structural Testing

The test cases are decided entirely on the internal logic of the program or module being tested.

As the goal of testing is to detect any error in the programs different flavours of testing are often used.

- Unit Testing

Are used to test a module or a small collection of module and the focus is on detecting coding errors in modules.

- During Integration Testing modules are combined into sub system, which are then tested. The goal here is to test the system design.
- In system testing and acceptance testing, the entire system is tested. The goal here is to test the requirement themselves.
- Structural testing can be used for unit testing while at higher level mostly functional testing is used.

In this project we use unit testing and functional testing. System testing is a critical phase in system implementation. Testing of a system involves hardware device testing and debugging of computer program and testing information processing procedures. Testing can be done with test data, which attempts to simulate all possible condition that may arise during processing. The plan for testing are prepared and then implemented.

The testing methods adopted in the testing of the system were Independent Unit Testing and System Testing.

The testing tool used is J-Unit

Independent Unit Test (IUT)

IUT focuses first on the modules, independently of one another, to locate errors. This enables the tester to detect error in coding and logic that are contained within that module alone. Those resulting from the interaction between modules are initially avoided.

IUT is generally white box oriented which is predicted on the close examination of procedural details. It exercises all the logical decisions on their true and false side, executes all loops at their boundaries and within their operational bounds and checks whether the required validation is met. White box testing exercises internal data structures to assure their validity.

System Testing

Here the system testing involved is the most widely used testing process. It consists of five stages as shown in the figure. In general the sequence of testing activities is

component testing, integration testing than user testing. However, as defects are discovered at any one stage they required program modification to correct them and this may be required other stages in the testing process to be repeated. It is a systematic technique for testing the whole integrated system. First all the modules are integrated to form a system and them this integrated system is tested according to the test plan initially prepared. It helps to uncover errors associated with interfacing. It also tests to find discrepancies between the system and its original objectives.

It the testing of IAS, both these testing methods were applied. The different units were initially tested independently, and then all the units were combined into one to form the system, this system was again tested. All the test condition were planned in advance and documented in the Unit Test Plan (UTP) and System Test Plan (STP).

System Security

There are basically two types of security associated with this system.

- Physical Security

Damage due to natural cause like earth tremor, flooding, water logging, fire hazards, atmospheric or environmental conditions etc. for overcoming these difficulties the replica of the data are automatically stored at various networks and for environmental conditions air conditioning environment is created.

- Data Security

There are basically two problems associated with data security.

- Data not being available to the authorized person at the time of the need.
- Data becoming available to the unauthorized person

To overcome these difficulties the following access facilities has been provided

- Identification

Unique ids for the different have been provided.

- Authentication

System checks the password under the particular user identification. The computer permits the various resources to the authorized person.

- Authorization

The access control mechanism to prevent unauthorized logging to the system.

Limitation

Since every system has some limitation so our proposed system is also not untouchable in this regard. Although it includes every kind of features but it cannot be used in a huge organization where number of networks are very large, because the database used in this system is an average one. Also is does not have different kind of access feature for different users.

Conclusion

Finally, this site is acting as middle man connecting Information Provider and farmer. This is a free site for any information seeker; he can navigate this site and search for the required information.

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