**PROBLEM DESCRIPTION**

**OF**

**FARMER INFORMATION SYSTEM**

Database Mini Project

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# Introduction:

India is a developing country with large agriculture based economy. Agriculture being a primary occupation employs majority number of people. The core aspect of whole agricultural system is the farmer. Majority of farmer centric activities take place in rural areas. Also majority of the contributions in this sector come from small farmers. The new technological boom in Indian urban scenario has not touched the rural lives in effective ways. This project aims at bringing technology closer to these small and medium scale farmers in order to help them make timely and informed decisions.

The success of a crop for a farmer depends completely on the choice of crop, irrigation, seeds, fertilizers, pesticides, getting proper subsidies and market conditions. The current scheme of gaining this information is left to mercy of the local government agency (panchayat board) passing on this information. Also many farmers especially small farmers miss out on subsidy opportunities, loan schemes, market booms etc mainly due to lack of information. This project aims to bridge the information gap.

A central government body (such as central government) updates all the necessary and critical information such as crop details, subsidies on equipment and chemicals, financial schemes, soil and fertilizer analysis reports, market conditions. The farmer is able to view this information gathered from various sources and research institutes and make an informed choice. Also the information given to farmer is made specific and applicable to the region in which he has the land.

This kind of information surety helps farmers avoid losses and failed yield due to sowing of wrong crops, spraying wrong pesticides or lack of it, failing to capitalize on monetary / market conditions, etc. This system to large extent aims to help farmers get right price for the yield.

# Features:

* Provides a unique and hazel-free information flow from decision making government bodies to benefitting farmers.
* Helps flow of data collected from advanced technologies (such as weather forecasting) to reach farmers in time.
* A registration for every farmer based on existing ID scheme and land registration scheme. No additional ID / registration schemes need to be added. The farmer selects his land location form a preset locations covering the whole area. All further details are published to him based on this choice of location.
* Allows profile management for farmers with ability to upload previous crops and present sowed crops. The government can derive current crop statistics of a farmer from the database.
* Central government assured up-to-date information for farmers across the whole nation.
* Filtered and tailored information for each location and land type the farmer owns.
* Ability to manage multiple farms (can be of different type) by a farmer.
* Basic soil analysis on location basis and fertilizer recommendations. Also crop recommendations based on location and region from a system maintained Knowledge Bank.

# Activities:

The system activity based on the views / end users of the system:

**Farmer’s view**: Typically the farmer has to register with the system. The farmer is expected to provide personal details. Apart from this he has to select the location of his land. After successful creation of account the farmer can then login and upload rest of information. The farmers can typically browse through the local and national schemes and where to avail them. They are also presented with local and higher office information. They are also supposed to enter information relevant to their crops and from a Knowledge Bank maintained by the system they will be given knowledge on the scientific means of cultivation based on the details specified.

**Up loader / Data entry view**: The data entry personal are typically employed by the government. They can enter new crops, new locations, new fertilizers, and new financial schemes and update current schemes and values. They are also supposed to update the Knowledge Bank which is maintained by the system which is handy while giving farmers advices on the scientific methods of cultivation. They are typically presented with range of choices to enter / update any of above data. After choosing a data to enter / update a specialized window/form for that data is presented. It helps them enter all the required information. All associated information is also available in that window/form. Eg: while creating new crop all fertilizers are given there so that a crop can be associated with a fertilizer.

**Project Manager view**: The project manager is basically the head of the operation appointed by the government. He can add new (or delete existing) data entry users, create summarized reports.

## System Details:

The **farmer** plays the central role in the whole system. He has a unique (system specific)ID. He also has a name, address, a predefined location, a income, land details such as: area, fertility, type of soil. He can upload a set of previous crops sowed by him and current crop under irrigation.

Another central concept is the **crop** sowed (or to be sown) by the farmer. The crop again has a system specific ID, a name, a type (vegetable, herb, staple food, etc) ,its current market price, the price of seeds for this crop, suited soil and fertilizers details ,water requirement.

Chemicals necessary for modern agriculture include the **fertilizers and pesticides**. They have a name, manufacturer, system specific ID, a type attribute (to internally recognize as a pesticide / fertilizer. In user view these will be separated and displayed), the subsidized price details, approved distributor list

**Location** determines the possible weather conditions and availability of various schemes. A location has state, district, weather scenario, regional office address

**Farm equipment** plays crucial role in farmers output and efficiency. It has a name, manufacturer, subsidized price, approved distributors, a type (automated farm machinery, irrigation equipment, hand equipment, etc)

**Loan** schemes provide the required capital for buying seeds and equipment. It has a loan ID, bank giving loan; rate of interest, initial amount, term of the loan, income group which benefits from this.

**Crop Insurance** is critical in ensuring the farmers can recover from major crop failures this year. It has a unique ID, income group benefitting from this, name, annual premium, expiry (or renewal date), amount claimable.

# Query Details:

1. Farmer may want to view his information and update it (simple query).
2. Search a financial scheme or loan available to farmers by name / income range, etc (simple query).
3. Get information of a particular crop with suitable fertilizer and soil type(complex query).
4. Information on which crops are being cultivated based on income range of the farmer (simple query).
5. The data entry user can search for crops / fertilizers/ loan schemes to update / delete the data (simple query).
6. Information about which crop is suitable to be grown based on farmer’s location, soil type, weather condition (complex query).
7. Information on various insurance schemes which the farmers of a certain income range have availed for their farm equipment and crops (complex query).