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AGRICULTURE BASED APPLICATION FOR FARMERS

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Abstract - *Farmers are the backbone of our country that is facing many problems and among many problems, the important one is getting relevant information about the crop and weather details at the right time. This is an agriculture-related application with the main aim of providing better ideas to improve their practice in farming. Agriculture app which we developed provides the facilities like recent market prices, weather forecast, agricultural ideas, smart farming practices and crop knowledge. But the major problem faced by farmers today is in selling their goods, where middle persons make a profit, so seller platform is introduced and apart from these features, it also gives news related to agriculture field in various places and scheme introduced by the government. Here we have also applied a technique used to generate opinion, based on crop knowledge, weather/climatic condition and best resources the farmers hold at hand.*

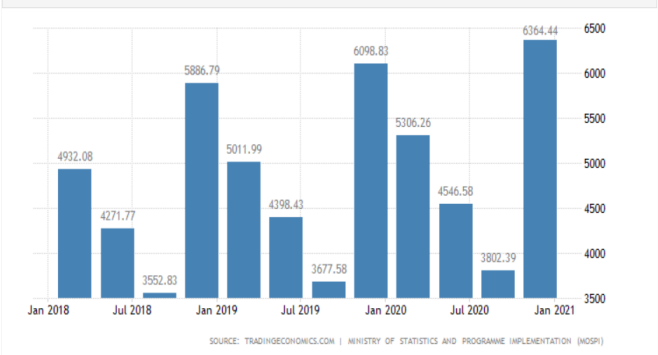
Key Words: **Right Time, App, Need, Seller Platform, Govt. Scheme, Crop Knowledge**

1. INTRODUCTION

India is an agricultural country. About seventy percent of our population depends on agriculture. One-third of our National income comes from agriculture. The development of agriculture has much to do with the economic welfare of our country. Now our country is self-sufficient in foodgrains. In the upcoming years agriculture will see major changes. The vast majority of Indian farmers, which includes small-scale producers are often unable to access the information and technological resources that could increase the yield and lead to better prices for their crops and products. The data regarding farming are available from many sources like printed media, audio and visual aids, newspaper, TV, internet, mobile etc. but the formats and structures of data are dissimilar. So it's very hard for farmer to get the information and to understand the various information which are disseminate from various sources.

Sometime many manual steps are required while processing data for transforming data from one format to another. In India, Many farmers are not aware about the outside world and the technical advancement about the farming. Most of the farmers doesn't have any idea about the rates of the crops and their products and they sell their products at any cost. In today's world, farmers gets news through newspaper and television. But not every farmer has time to read newspaper or they don't watch TV as they don't have so much time to sit in front of the TV for some time. So because of that they don't get any idea about the current values about the farming schemes at the end they has to sell their products at very low cost. And because they get very less money, they end up taking loan from the bank or any other person on interest.

As the android is the current trend in the today's world, each and every domain has android based applications. Android Smart Phone is becoming more popular due to low price and free applications. Smart phone makes all our tasks fast, efficient & accurate.



India's farm growth from 2018-2021

1.1 LITERATURE REVIEW

This section of the paper provides areas of research which has already been done.

a) Maha Farm- An Android Based Solution For Remunerative Agriculture. This paper talks about Information and Communication Technology (ICT) in agriculture is an emerging field focusing on the enhancement of agricultural and rural development in India. Using innovation could be a key live within the rural domain. The advancement of ICT may be used for providing correct and timely relevant info and services to the farmers, thereby facilitating an environment for remunerative agriculture. This paper describes a mobile based application for farmers which would exhaustively help them in their farming activities. We propose an android based mobile application – 'MahaFarm' which would include agro-based crop information, weather updates, daily market prices and news/loan informational updates. The application has been designed taking Maharashtra into consideration.

b) E-Agro Android Application this paper talks about software application is basically for sustainable development of farmers. Many times farmer is confused to take decisions regarding selection of fertilizer, pesticide and time to do particular farming actions. So to avoid this problem this application is very useful. Fertilizer schedule of every form of crop can get registered. Based on sowing date of crop, farmer will get reminders about application of fertilizer, herbicide as per schedule, pesticide for diseases and weather alerts if particular crop exceeds its favorable temperature range. Crop suggestion are given supported Soil kind, geographical location. Farmer will get real time national level crop rates to get more befit. This system combines fashionable net and mobile communication systems with GPS for economical and sleek farming. This review paper presents the introduction, theories and analysis of DBMS, use of Smartphone in agriculture. This papers developed on brief study of some common problems faced by the farmers across the nation.

c) Agriculture Based Android Application.This paper talks about AgriCom is a android based application which provides information to farmers regarding different crops and farming practices and other agricultural products. It is dynamic and interactive to take in the feedback and other input from the end users and can guide people regarding the different procedures that need to be adopted. This project shows a simulation of live environment which takes different aspects into consideration like market - demandand-supply, production forecast, fertilizer preferences etc.

c) d) 2.1.5 Online Vegetables Pricing System in Android this paper talks about Online Vegetables Pricing System is to manage the price details of the vegetables thorough online. The purpose of this project is to automate the existing manual system by the help of computerized

d) equipment's and software's. Vegetables worth info may be transfer within the info. Information retrieving and managing is also easy in this Application. Day to Day, the vegetables price information is updated periodically.

III. SYSTEM METHODOLOGY

a)User Module:
The User module do the registration in the application. The application provide the details to the user that he wants to access. All the details of user will be stored into the database and it can be secured.

b)Home Screen:
Home Screen is the main page of this Application. This module shows some category options to the user 80to their choice. By clicking someone option user get main page of that particular category which is easy to use by the user. It shows three type option:

- Weather forecast
- Market Rates
- Government Schemes

i) Weather forecasting:
This weather service is a novel concept which helps the farmers in exploring the details of the weather of a particular location. The farmer can check the details like humidity of any district on the given day, sunrise, sunset, pressure.

ii) Market Rates:
Market Price is important module of this application.it shows the entire Vegetables and fruits price list that are available in the market. The vegetable price is updated by APMC. The price of vegetable is periodically updated by the admin or head of local market members.

iii) Government Schemes:
Government of India will launch different Programs which are beneficial to Farmers but drawback of poor performance of this program are they are not able to reach every person and not able to give proper information so here we provide detailed information and Process of different programs.

iv) Prediction:
Depending on the certain market conditions of current week and previous one or two week, our system will predict future rates. So it would be beneficial for farmers to sell their commodities at a particular time in a market.

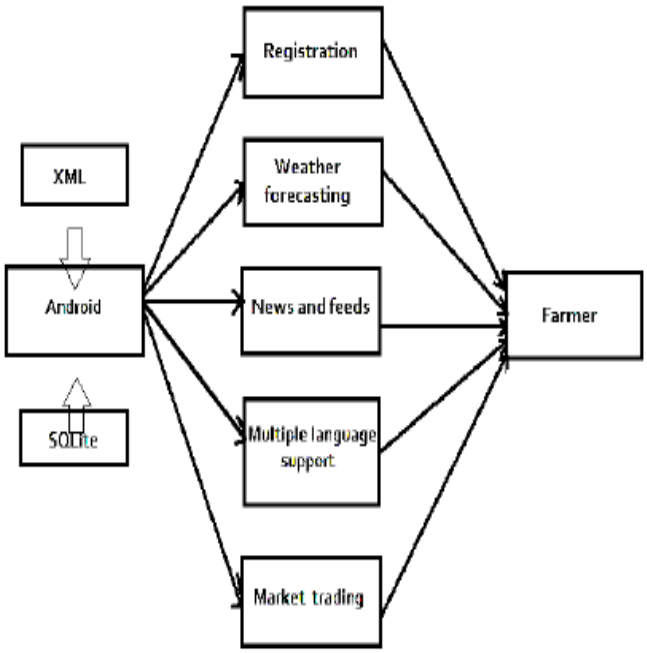


Fig: System Architecture of the proposed model

IV. Data Mining Techniques

This section will discuss the important algorithm for predicting farmer suggestions.

1) **Binary Logistic Regression**: A type of regression analysis where the dependent variable is either 0 or 1. The logistic regression model is simply a non-linear transformation of the linear regression. The logistic distribution is a Shaped distribution function where the estimated probabilities lie between 0 and 1. The estimated probability suggests the probability that the agricultural practice belongs to a particular class. If the probability is below 0.5 than it is class 0 and if it is above or equal to 0.5 it is class 1.

Naïve Bayes: A probabilistic model which implements Bayes theorem with strong independence assumptions. The probability of each agricultural practice belonging to different classes is computed. The agricultural practice belongs to the class with the highest probability is chosen.

3) **Support vector machine**: Another method used for prediction and classification is the Support Vector Machine method. The advantage of SVM method is that it has a good ability of generalization. A study conducted by Gray Et Al in 2014 showed that the SVM method had the highest accuracy prediction concerned with risks identified.

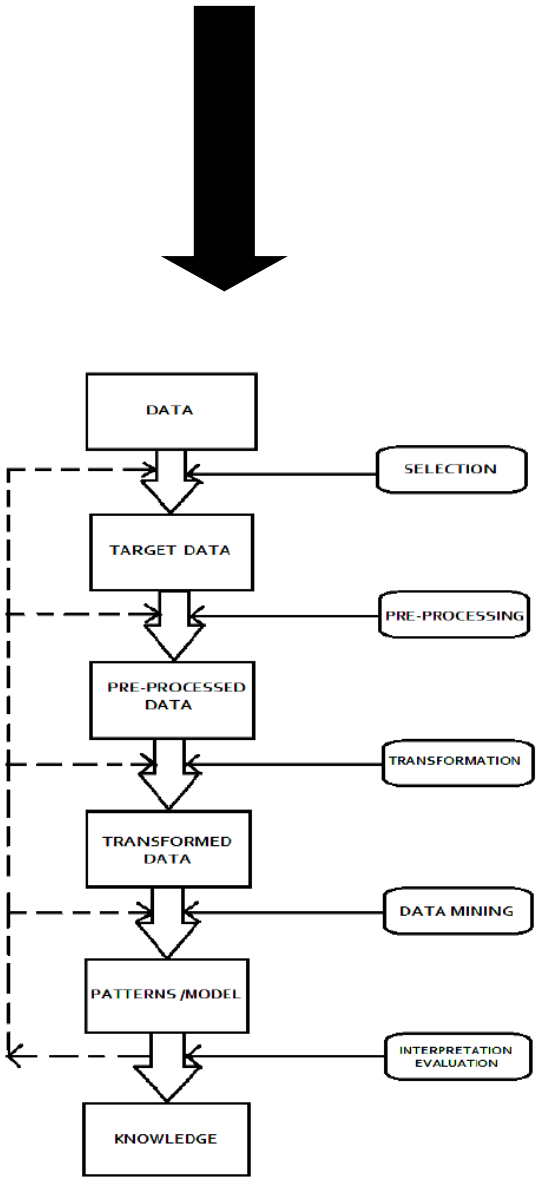


Fig: Dataflow diagram for processing of dataset

V. CONCLUSIONS

The farmers will derive greater benefit when they can make better decisions about where to sell their output after getting market prices for a variety of local and distant markets.

- One Stop Solution to all agricultural information needs.
- Location specific information delivery
- Highly authentic and reliable database on agriculture.

The crops are usually selected by its economic importance. However, the agricultural planning process requires a yield estimation of several crops. In this sense, five crops were selected for this work using the data availability as the key measure.

India is a nation in which agriculture plays a prime role. In the prosperity of the farmers, prospers the nation. Thus our work would help farmers in sowing the right seed based on

soil requirements to increase productivity and acquire profit out of such a technique. Thus the farmer's can cultivate the right crop increasing his yield and also boost the overall productivity of the nation keeping demand to supply ratio in hindsight.

However at times due to some natural events, there would be a certain amount of change in the particular region which this technique will never be able to identify and would react to such changes after a major unhealthy event would have occurred.

VI. SCOPE AND FUTURE WORK

Using data mining methods, specified above in this paper, the crop dataset is analysed and determined the optimal parameters for the wheat crop production. Multiple linear regressions are used to find the major attributes and form the equation for the yield prediction.

Various data mining techniques are implemented on the input data to assess the best performance-yielding method. In future, one can aim at an improving dataset with a large number of attributes and also implement yield prediction techniques to overcome some small changes which tend to give inaccurate results.

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