An Android Application for Supply Chain Management in Sugar Factory

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ABSTRACT

Nowadays, farmers are using the smartphones and carry their phones everywhere hence ,through phones see lots of information when they need at any time any place. An Android app will help the farmer to receive the notification from sugar factory the system greatly reduced the time and cost also sugar factory admin can easily communicate with farmer. In the sugar industry, millers plan their cane supply to ensure that the mill operates at optimum capacity throughout the entire season. They may also take into account variations in cane quality within the supply area and at different times using the season to maximize sugar production. These decisions will impact on the cane payment system in place, on their incomes as well. Other stakeholders in the supply chain, such as contractors also directly affect its management and results.

Keyword : - *k-means Clustering, IR-Tree, IR2-Tree, KR*-tree, Fast Nearest Neighbor.*

1. Introduction

Escalating market instability calls on firms to be increasingly reactive and flxibility.An impulse the development of new forms of new industrial organisation.In this contexts the control of product from supply area to processing plants. The sugar industry faces such a coordination problem especially when a large number of cane suppliers are involving and also take into account variability in cane quality to maximize sugar production. Decision made by miller's impact on the choices growers make regarding their harvest capacities and management depending on the cane payment system in place, these decisions could affect grower's incomes as well. Other stakeholders such as contractors also directly affect supply chain management and result. We investigate modelling approaches and support tools that could be valuable in negotiation between firms seeking organizational solution to problems. Firstly, we see theoretical framework used in chain analysis and secondly how it can be implemented.

Maharashtra is one of the leading states in sugar and sugarcane production in India. Sugarcane industry in Maharashtra is second largest agro based industry as well as most popular economic sector in India. Agriculture may be termed as an integrated system technique for controlling the growth and harvesting as well. It is an uncomplicated endeavor comprising of technical and practical processes that helps in the maintenance of the ecological balance. The rapid growth of mobile telephony and the recent introduction of mobile enabled information services provide a

means to overcome existing information asymmetry use of mobile devices is very common by everyone, including the farmers. Introduction of Information and Communication Technologies (ICT) has seen a keen role in daily life of farmers. Earlier, farmers used to depend on clouds for rains were looking into the Cloud Computing for their solutions towards cultivation of better Crops in modern agricultural world. The conventional methods used by the farmers, particularly in India, are very slow and unreliable. The increasing penetration of mobile networks and handsets in India therefore present an opportunity to make useful information more widely available. This could help agricultural

markets operate more efficiently, and overcome some of the other challenges faced by this sector. E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. India is the second largest producer of sugar cane.

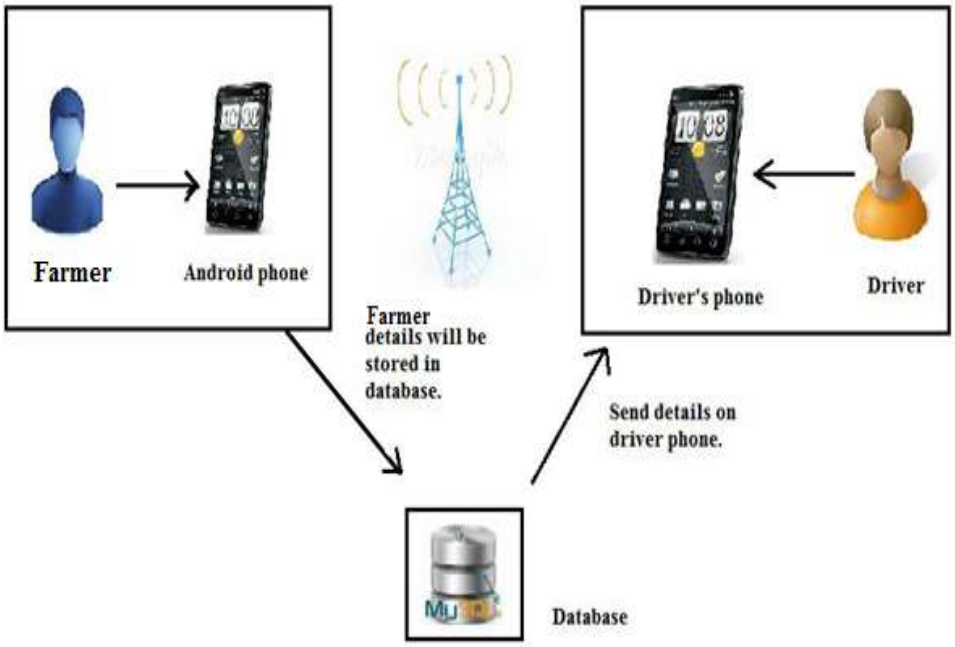


Figure: Communication Between Client and Server

2. Literature Survey

In this paper the grouping of data based on common characteristics is call clustering. Clustering algorithm fall into the unsupervised classification techniques category. Clustering algorithm classify a set of objects into a subset of clusters based on similarities. Differences between clusters have to be obvious and clearly expressed. Clustering can be applied to a wide range of domains like: marketing (market analysis and recommendations, methodological weakness), medicine (medical image segmentation),e-business(comment analysis on news portal)or e learning(prediction of students' academic performance).An efficient implementation of the k-means algorithm called the filtering algorithm, which employs kd-trees for storing the data elements. An algorithm which reduces the computations for determining the closest centroid of a data element [1].

In this paper the KR*-tree is another type of hybrid indexes which supports searches for spatial objects based on their textual contents. It extends Hybrid by augmenting with a set of words in the internal nodes. Signature file can only determine whether a given document contains query keywords IR-tree, KR*-tree and IR2-tree are all based on R-tree structure. While KR*-tree and IR2-tree are mainly for serving document filtering, they do not support document ranking.IR-tree can be manipulated with three operations, bulk loading documents, inserting documents and deleting documents. The lock of an efficient index that can simultaneously handle both the textual and spatial aspects of the documents. In this paper propose an efficient index called IR-tree, that together with a top k-document search algorithm facilitates four major tasks in document searches, namely: 1. Spatial filtering 2. Textual computation 3. Relevance computation 4. Document ranking in a fully integrated manner. [2]

In this paper the Clustering the goal of which is to partition data points into homogenous groups, arises in a number of fields such as pattern recognition, machine learning, data mining and image processing. One of the most popular clustering algorithms is k-means. There are two Limitations: - First, the solution depends heavily on the initial positions of the cluster centers, resulting in poor minima and second it can only find linearly separable clusters. K-means is an extension of the standard k-means algorithm that maps data points from the input space to a feature space through a nonlinear transformation and minimizes the clustering error in feature space. This approach has two drawbacks: it requires computation of the Eigen vectors of the kernel matrix. In this paper, the global kernel k-means algorithm a deterministic algorithm for optimizing the clustering error in feature space that employs kernel k-means as a local search procedure in order to solve the M-clustering problem. [3]

In this paper Spatial database manages multidimensional objects (such as points, rectangles etc.) and provides fast access to those objects based on different selection criteria. The importance of spatial database is reflected by the convenience of modeling entities of reality in a geometric manner. Ex:Locations of restaurants,hotels,hospitals and so on are often represented as points in a map, while larger extents such as parks, lakes and landscapes. In this paper, design of a variant of inverted index that is optimized for multidimensional points, and is thus named the spatial inverted index (SI-index). In this paper, the remedied the situation by developing an access method called the spatial inverted index (SI-index). Not only that the SI-index is fairly space economical, but also it has the ability to perform keyword-augmented nearest neighbor search in time that is at the order of dozens of milliseconds. Furthermore, as the SI-index is based on the conventional technology of inverted index.[4]

3. Existing System:

The existing system consist only paper work for storing the information of farmers and there is no security provided, due to which the information present in document may get lose. There is also no efficient communication takes place between farmer and factory manager.

4. Proposed System:

To overcome the drawbacks of previous applications, we proposed an application for android users. In our system we are mainly dealing with farmer and sugar factory communication using android application. Farmer can register themselves and put all details. Admin can send notification to farmer related to harvesting, employee's information, vehicle number, timing etc.

The combination of different technology helps this application to work efficiently, securely, and error free. The below fig 2 describe the architecture of the current proposed system. In this architecture GPS Management system is used to track the farm location and send this location to the factory. Factory manager calculates the estimation cost and this estimation cost is sends to the bank manager. Bank manager updates payment details of the farmer time to time. To store all this information, the online web server is provide for that purpose online SQL server is provide in this system architecture. farmer can get notification from factory time-to-time. Paper work get reduced. Communication between farmer and sugar factory can be efficiently done. The security is provided in our application. If any user forgot password, then he can get their password on their email account. Only registered user can login in the application.

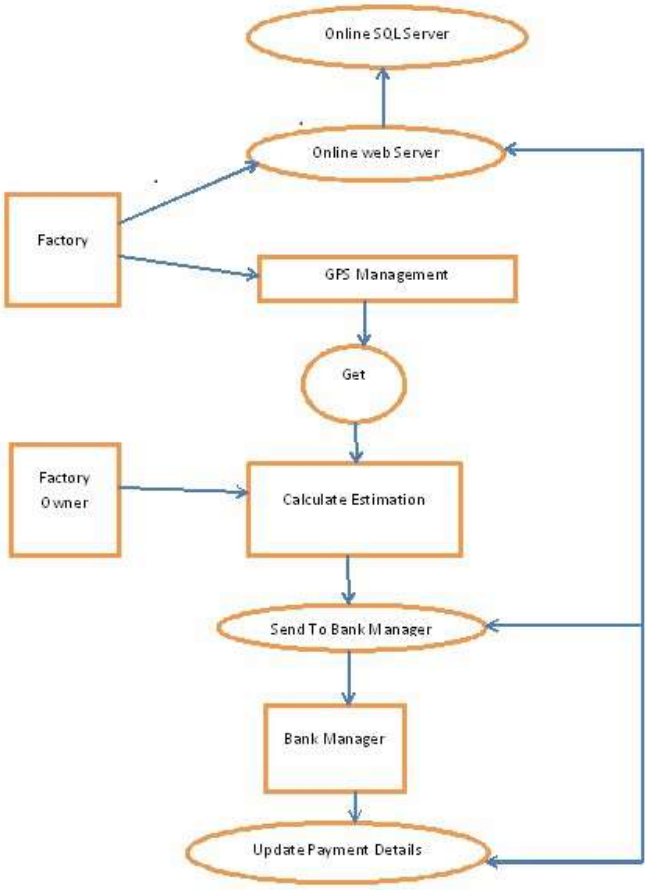


Figure -2: System Architecture

4.1 Farmer

The entity of the project is farmer. The working of the project starts with the farmer registration. Farmer needs to fill the details like name, Aadhar ID details, address, email, phone no, password. Later the farmer needs to login for getting the notifications from sugar factory. To prevent the compromise of document a new functionality we have implemented which adds more security to document. The all information of farmer will be stored in online web server i.e. online SQL server.

4.2 Factory Manager

The factory manager also plays an important role in this application. Factory manager accept the all details of farmer and send important message to the farmer in the form of notification. If they want to see any kind of data of the farmer by using the name of that farmer, they can search.

5.IMPLEMENTATION

We are implementing an application which consist of two sides contain a farmer and factory manager. Manger can search a nearest farmer by using the nearest neighbour classifier algorithm. Then they can easily search the farmer which are very close to each other for the cane crop process.

5.1 Modules:

• Client side Login and Registration

• Server side Login and Registration

• Driver Login

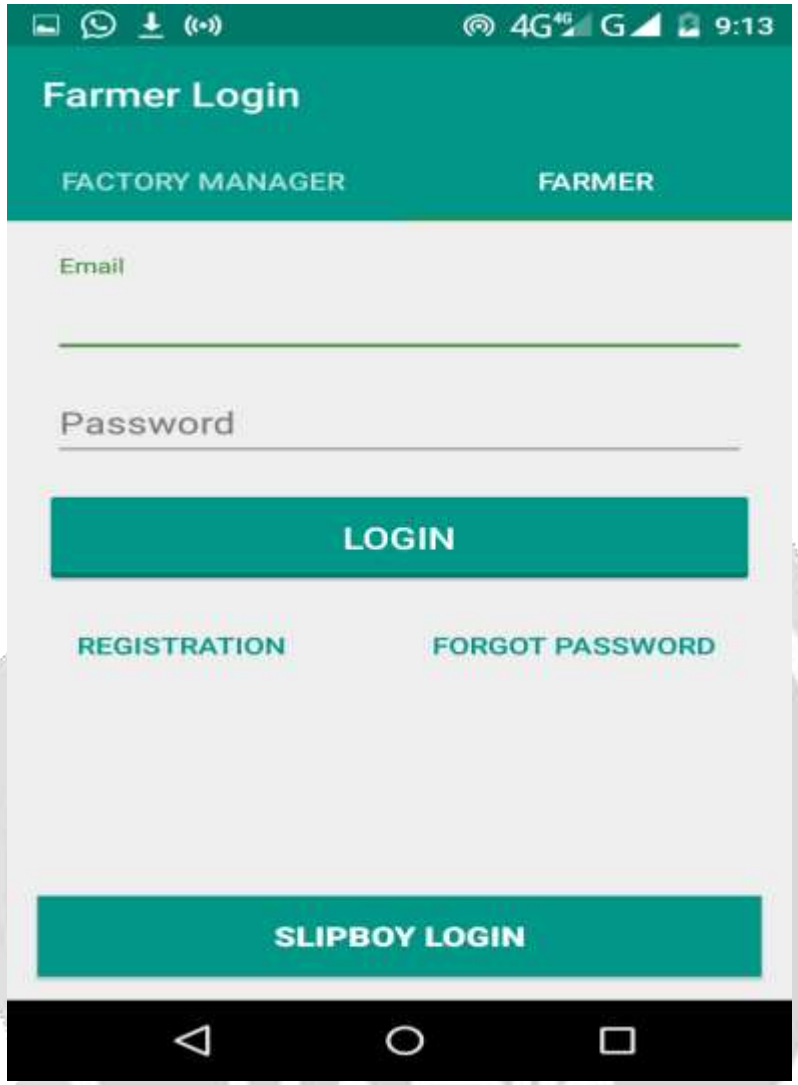
• Slip-boy Login

5.1Algorithm:

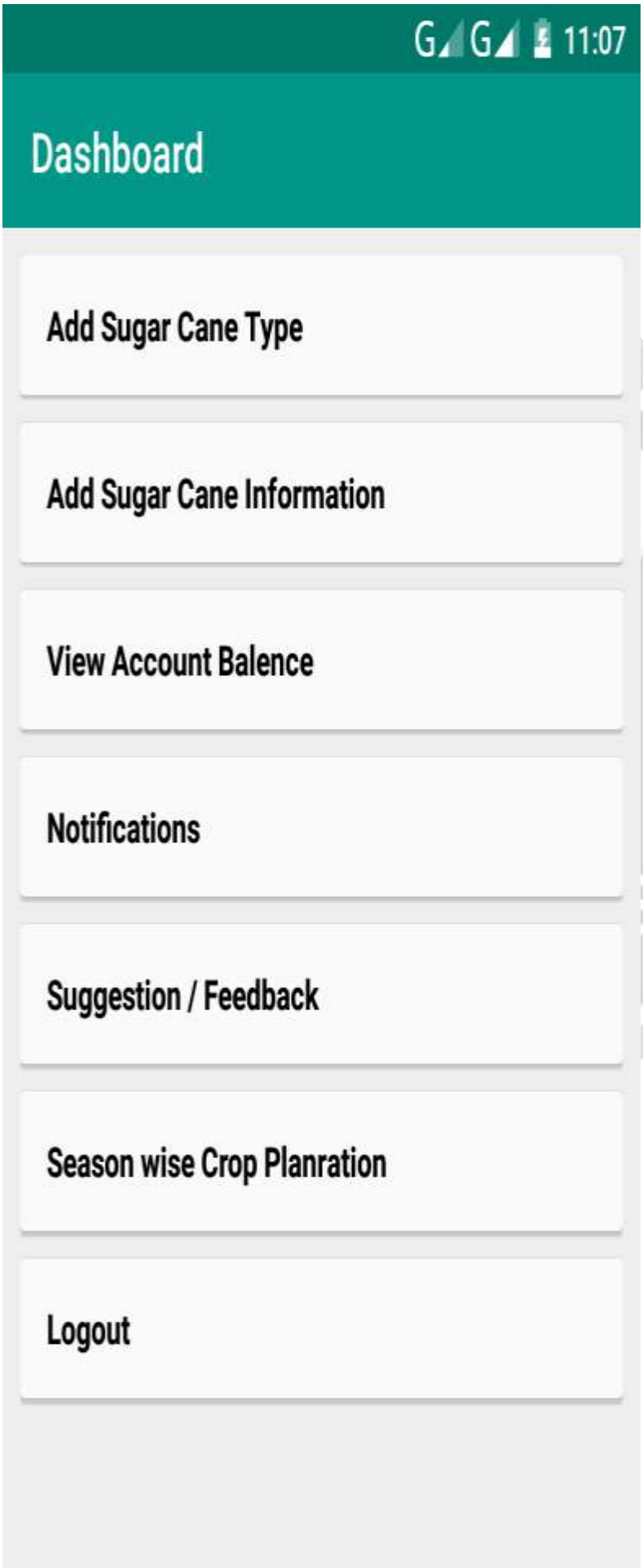
```
ALGORITHM 2 (IR2(G, T, k)).
begin
if (T is undefined)
then
T := MST of G;
compute ecc T (z) for all z in V;
C := ∅;
move := false;
repeat
diameter := MAX { ecc T ( z )} ;                    /* G = (V, E) */
z∈ V
if (C = ∅)
then
if (move = true)
then begin
move := false;
C := edges (u, z) that are one edge farther from the
center of T than in the previous iteration;
end
else
C := edges (u, z) at the center of T;
repeat
(x, y) := highest weight edge in C;
/* This splits T into two trees: subtree1 and subtree2 */
until ((C = ∅) or ( MAX { ecc T ( u )} = MAX { ecc T ( z )} ));
z ∈ subtree 2
u∈ subtree 1
if (C = ∅)
then
/* no good edge to remove was found */
move := true;
else begin
remove (x, y) from T;
get a replacement edge and add it to T;
recompute ecc T (z) for all z in V;
end
until ((diameter ≤ k) or (edges to be removed are farthest from center of T));
return T
end.
```

5.RESULT ANALYSIS:

When we open this application then some forms can be opened in which first is login form of both factory manger and farmer. Which can be shown in the given screenshots and also after successful login of farmer side the dashboard is present which also shown in the following given screenshots:



Screenshot of Main Page


11:07
Dashboard
Add Sugar Cane Type
Add Sugar Cane Information
View Account Balence
Notifications
Suggestion / Feedback
Season wise Crop Planration
Logout

Screenshot Of After Login Page

4. CONCLUSIONS

In this paper we presume that the blend of various innovation can bring about advancement of the best android application for sharing the data of agriculturist and sugar production line. We learned about the k-implies calculation, IR-Tree to look and furthermore Fast Nearest Neighbor calculation to discover closest homestead. The created application show the capacity of the sharing any sort of archive. What's more, the best application at any point created.

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