ERP Software Solution For Small And Mid-Sized Non-Governmental Organisations

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Abstract—Enterprise Resource Planning-ERP is a software solution for business and data integration that works on the policy of 'All in One'. It phases real-time data analytics and adopts a set of best practices in any firm. The seminar shall discuss the growing importance of an ERP system for effective and efficient management. It emphasizes the need of an intelligent centralized system for Non-Governmental Organizations to establish seamless communication among these organizations and also between the common people and the volunteers. A lot of small NGOs work for various social causes but not all have adequate resources to help their cause. Thus a simple and cost effective ERP system can automate management of human resource, financial resource and also share required resources easily among the NGOs. It's important to be motivated towards uplifting those who are considered 'less fortunate'. Individual progress is the foundation to a nation's progress as a whole.The Seminar will also discuss about a few case studies that have taken suitable efforts in helping such nonprofit organizations. The implementation will demonstrate a small component of the ERP system intended to help with a centralized database of several NGO's, their integrated information and draw comparisons between various aspects of social work in these organizations through the 'a priori' algorithm. Thus the seminar will broadly explain how business and technology put together can have a great impact in speeding up efforts even towards such Noble sectors.

Index Terms—Apriori algorithm, Enterprise Resource Planning, Non Governmental Organisation , Small and Mid size organization,Central Database

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1 INTRODUCTION

A country's progress starts at the ground level. Every individual's progress will mark the growth of a country as a whole. The smart way to help various causes together with more effective results would be to help such Nobel organizations that work to benefit different causes as an enterprise. As an engineer, uplifting people through the right use of technology is must and should be put in practice. Here ERP systems, a technology advancing ever since known can penetrate through this small-midsized NGO sectors and help society more easily.

Enterprise Resource Planning-ERP is a software solution for business and data integration that works on the policy of 'All in One' . It phases real-time data analytics and adopts a set of best practices in any firm. ERP gives a central view of all major business entities, using common databases maintained by a database management system.

Non-profit or Non-Governmental organizations serve many stakeholders which includes donors, funding bodies, government agencies and of course the receivers who benefit from these programs. Number of small NGOs work for various social causes but not all have adequate resources to help their cause Before implementing any management software, many of these small bodied organizations faced significant challenges-such as financial constraints, dynamic operating big

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enterprises and required appropriate volunteer force. Thus a simple and cost effective ERP system can automate management of human resource, financial resource and also share required resources easily among the NGOs.

This paper discusses ERP as a growing necessity. It details out the various reasons as to how ERP systems can help various independent NGOs and provide one enterprising roof for all such small organizations to form one huge community of its own. The paper further elaborates the critical conditions for successful ERP implementation and also analyzes a viable solution for the relevant social problem that small NGO sectors face. The algorithmic comparisons are discussed stating how the proposed `A Priori' algorithm suits the need. A few case studies have also been included to show the previous and ongoing work in this topic.

2 NEED OF ERP FOR NGO

ERP systems have the capability to bring an enormous amount of benefit to NGOs. It can help to manage financial systems, administrative systems and human re-sources across different departments. This can also enable to overcome stringent transparency obligations and multinational regulations.

NGOs depend on their IT systems to keep their organization united and functioning. An ERP can integrate these small NGOs and collaborate data for reference.

3 EXISTING ERP FOR SMALL AND MIDSIZED ORGANISATIONS

3.1 PALM

It is an efficient ERP system aimed to help the working of small as well as mid scale NGO's that generally are in the need of resources such as volunteers and funds. It can be used to manage individual or multiple projects. Modern web based technology such as Cloud Computing Architecture is used which enables users to link to project from anywhere connecting to the Internet.

Main Features of PALM Software are:-
- Provides a Project Dashboard Interface
- Makes it possible to integrate donor formats for project proposal and reporting
- Essential Components like Gantt Chart, Work Breakdown Schedule and budgets are also included in the software

3.2 SAGE ERP X3

Sage ERP X3 is comparatively quicker to implement cost effective and easy to use. It integrates business processes into one common system. As business grows, Sage ERP X3 adapts to changing needs, enabling optimization of operations. It provides a chance of flexible services.

Fig. Sage ERP X3 Platform

An ideal solution for international subsidiaries and mid market companies,
Sage ERP X3 has:-
- Customers in more than hundred countries worldwide
- A network of over 2,000 Sage professionals
- More than 4,500 customers throughout the world, with 220,000 users, who have chosen this solution.

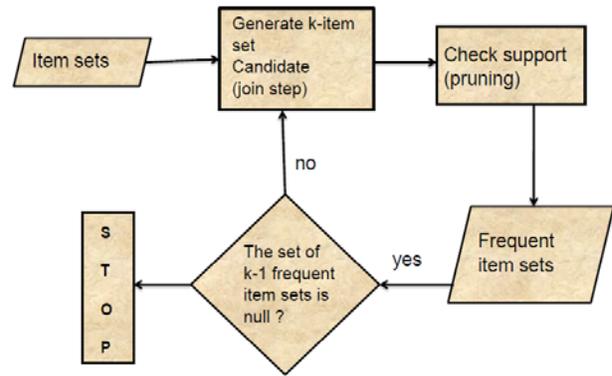# 4 APRIORI ALGORITHM

4.1 Introduction

FIG. FLOW SHOWING GENERAL APRIORI

The A Priori algorithm is an influential algorithm in mining for frequent data item sets. It implements through transactional databases. It uses a bottom up approach where frequent data sets are extended one at a time. It is fast, simple and good at finding interesting rules. The flow diagram shown above clearly describes the general steps involved in any a priori algorithm. These include mainly the initial *candidate generation* i.e. forming k data item sets of the base segregated items based on the associated frequency pattern.

The next step is *Pruning* i.e. removing the data items without any frequency pattern. Hence the computation speed increases as the unnecessary data is eliminated right at the beginning. After these steps are executed the k data item sets are further iterated and groups are formed. This process continues for k-1 iterations leading to the final optimum data item sets.

4.2 Algorithm Comparison

TABLE 1
COMPARISON OF APRIORI AND FREQUENCY PATTERN GROWTH

Apriori	Frequency Pattern Growth
Uses candidate key generation	No candidate key generation
Elaborated Data Structure	Compact Data Structure
Frequency formation without evidence	Association established with evidence
More Database scans	Less Database scans
Uses k data item sets	Uses frequent pattern tree
More Database scans	Less Database scans
Efficient for small structured databases	Better for large unstructured databases
Originates From early Market-Basket concept	Obtained to eliminate the drawbacks of slow computation algorithms

5 ERP IMPLEMENTATION MODEL FOR SMALL AND MID-SIZED NGOS

The following figure shows the basic prototype of the proposed ERP solution. Here, a central Database will contain the information of all the NGOs and a network will be formed of these organizations. Thus ERP analysis can be done using the concepts of BI and Data mining.
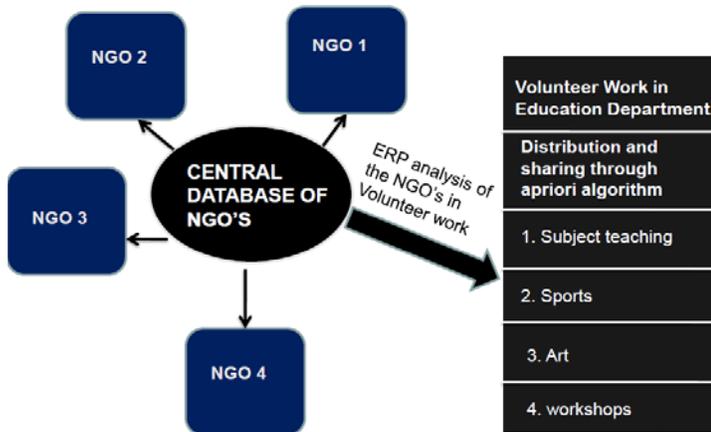

FIG. RELATIONSHIP BETWEEN ERP AND SMALL AND MID-SIZED NGOs

The Implementation can combine various aspects of resource sharing such as :-
- Sharing and transferring funds
- Sharing volunteer work in organizational activities
- Sharing volunteer work in educational department

6   RESULT ANALYSIS

From the differences shown in the Table 1 above its clear that Apriori algorithm is a simpler and faster algorithm when used for small and midsized NGOs. With no requirement of evidence in knowledge it means more amount of infrequent data items. Even though the Computation scans are more which can slow down the system for small local databases of NGOs together in one ERP its beneficial. For the large end to end system of various NGOs which can form Big Data Frequent Pattern growth algorithm is better as its cost of computation is lesser. agreement of all coauthors and any consent required from sponsors before submitting a paper. It is the obligation of the authors to cite relevant prior work.

7   CONCLUSION

7.1 Evolving "Intelligent System"

The term Evolving Intelligent Systems (EIS) was coined to define the new approach which focuses on learning, developing soft computing models.ERP is the new domain of such business intelligent systems. It's time to widen our scope of ERP software solutions into many enterprises and especially NGOs as proposed.

7.2 ERP Future Scope

- ERP is finding its way into small-mid sized enterprises and SAP has lead it on.
- Online connectivity of ERP systems will help make machines intelligent and not just diligent.
- Social media integration can be an important step in ERP evolution.
- ERP solutions are on its way into households for women to become intelligent homemakers.
- Academic institution can also incorporate ERP solutions for attendance or time table management.
- In hospitals with the facility to help the needy and the patients and monitoring the infrastructure can provider real time analysis of venturing into social help.

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