SMS based Data Retrieval for ERP System

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Abstract—This paper attempts to integrate all departments and functions across a company onto a single computer system that can serve all those different department's particular needs. This paper will propose an intelligent ERP system by integrating enterprise resource planning, data warehouse, online analytical processing and data mining. The data warehouse for this system is provided by the massive amounts of data gathered from an ERP system. Through a three process of integrating ERP systems with data warehouses, data warehouses with decision analysis and decision analysis with data mining systems, a three-tiered web-based systematic framework has been established to access the ERP system from remote location as well. The result of this study is the integration of the ERP system and data mining system.

I. INTRODUCTION

Enterprise Resource Planning (ERP) is business management software usually a suite of integrated applications that a company can use to store and manage data from every stage of business including product planning, marketing and sales, inventory management. ERP also provides an integrated real-time view of core business processes, using common databases maintained by a database management system and track business resources such as raw materials, production capacity and the status of business commitments like orders, purchase orders and payroll.

ERP facilitates information flow between all business functions, and manages connections to outside stakeholders. It is a web-based solution to extend the functionalities of ERP and company workflow applications.

It also uses SMS-based solutions which allow personnel to share information with the company's server. For example, when a customer places an order, that order begins a mostly paper-based journey from in-basket to in-basket around the company, often being keyed and rekeyed into different department's computer systems along the way which caused delays and lost orders and also causes errors.

A. BASIC CONCEPTS

The need for automation of day to day transactions along with inventory management is clear in the above paragraph and thus the system will be catering to exactly these needs of the company.

The system is a full-fledged data warehouse which uses Data mining for Business Intelligence and thus has a wide variety of areas to benefit from like:

1) Employee Module: The system will have employee database containing personal and professional information of all the employees currently under payroll and will provide all the information at one spot. It will also generate reports.
2) Supplier Module: This module will facilitate order placement, delivery confirmation and transactions from all the loyal suppliers of the company and also generate reports of the same.
3) Customer Module: This is where all the information of the existing customers will be available and it can also perform order placement, delivery confirmation and transaction management etc.
4) Product Module: Details of all the available products, their types, in essence all the products available in real time in the Company warehouse.
5) Report Module: Using data mining the system will generate Purchase Report (Daily, Weekly, Monthly, Quarterly, Half Yearly, and Yearly).
6) SMS Notification: The customers are notified about the status of their order (Successful, Completed, Cancelled, etc.)

B. BENEFITS

Employees at remote locations and nationwide offices can access the corporate workflow systems and access updated data. While on the move, the personnel can update system and receive information through SMS.

Companies cut down a lot of communication cost with this SMS based system, compared to the usual telephonic communication system.

The investment in this technology is low, and the cost and other long term benefits are enormous.

II. EXISTING SYSTEM

The existing system operates manually using files which has many disadvantages that do not give full advantage and access to customers.

Limitations of the existing system are:

- Data Redundancy
- Data Inconsistency
- Difficulty in Accessing Data
- Data Isolation
- Integrity Problems
- Atomicity Problems
- Concurrent Access Anomalies
- Security Problems

III. PROPOSED SYSTEM

As there are many limitations in the existing system we are creating an ERP system. It will install a single ERP system across the entire organization.

Here we make use of the VB.Net with SQL server with which we can implement three-tier architecture. Here web application and mobile users are the clients. Database tier is the actual database used in this system and business layer has the server in it. Using VB.Net we can develop all

user interface application such as form designing, report designing, adding or removing a user, registration or managing own account, managing the order etc. SQL server can be used to store the huge amount of data and has higher security of data. The data stored in the database will be client's information like name, address, mobile number, current orders etc. Client can access the system via mobile phone or a web application.

Along with web application the next main module is SMS sending and receiving. The administrator can send a message to the customer when the order of the customer is completed. If the order of the customer cannot be serviced it will also notify the customer through a message from the administrator such as cancelled. The customer can even retrieve the information of the desired product through a SMS on his mobile phone. The main aim of this research is mobility of data.

The following features will be covered in the application:

- Add employee/customer/order/product
- Update customer/product/order
- Delete customer/product/order
- Generate Report
- Change order Status
- Notify customer through SMS

A. *ALGORITHM USED*

We used Apriori Algorithm of data mining for creating crystal reports.

Apriori is a seminal algorithm proposed by R. Agrawal and R. Srikant in 1994 for mining frequent itemset for Boolean association rules. The name of the algorithm is based on the fact that the algorithm uses *prior knowledge* of frequent itemset properties.

Apriori employs an iterative approach known as a *level-wise* search, where *k*-itemset are used to explore (*k*+1) item sets.

D

Transaction
ACD
BCE
ABCE
BE

1-pass →

C_1

1- itemset	Count
A	2
B	3
C	3
D	1
E	3

→

L_1

Large 1-itemset	Count
A	2
B	3
C	3
E	3

C_2

2- itemset
AB
AC
AE
BC
BE
CE

2-pass →

C_2

2- itemset	Count
AB	1
AC	2
AE	1
BC	2
BE	3
CE	2

→

L_2

Large 2-itemset	Count
AC	2
BC	2
BE	3
CE	2

C_3

3- itemset
BCE

3-pass →

C_3

3- itemset	Count
BCE	2

→

L_3

Large 3-itemset	Count
BCE	2

Result →

Large itemsets	Count
BCE	2
AC	2

Fig. 1: Working of Apriori Algorithm

Algorithm:

L_1= {frequent items};
For (k= 2; L_{k-1} !=∅; k++)
Do begin
C_k= candidates generated from L_{k-1} (that is: Cartesian product L_{k-1} x L_{k-1} and eliminating any
k-1 size itemset that is not frequent);
For each transaction t in database
do
increment the count of all candidates in
C_k that are contained in t
L_k = candidates in C_k with *min_sup*
end
return $\cup_k L_k$;

IV. SYSTEM DESIGN

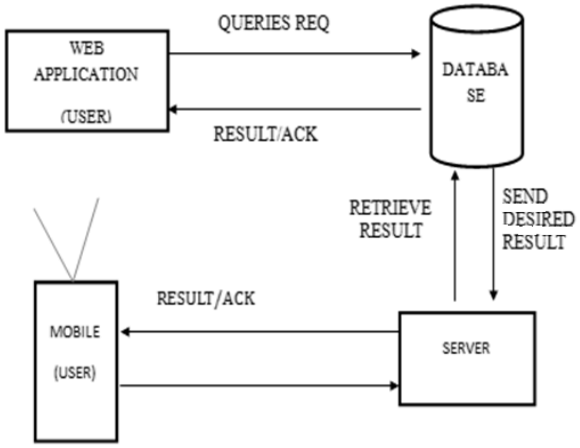

Fig. 2: System Architecture

The user can access the information from a web application or a mobile phone. The user sends the order number and the product number from the mobile to a specific server number and can retrieve the status and the product information.

From the web user can access the order status information, the product information and also various products the company provides.

V. SCREEN LAYOUTS

- To connect to the system first login to the system using username and password.

Fig. 3: Admin Login

- After successful login administrator can add employee, customer, product, vendor, order etc.

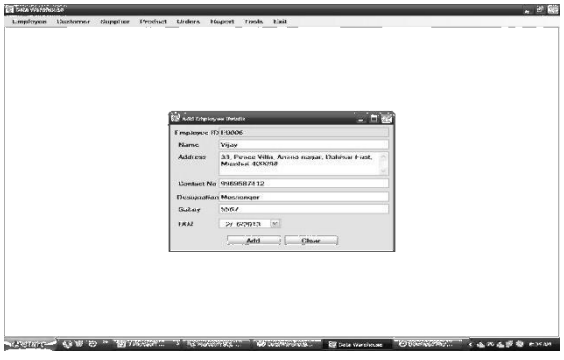

Fig. 4: Adding information

- This provides a view of what all entries have yet been made to the database.

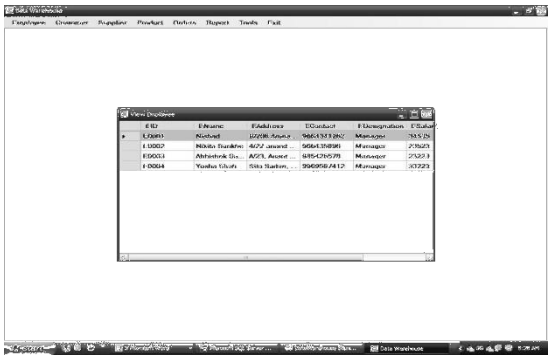

Fig. 5: View Orders

- The administrator can change the status of the order placed by the customer.

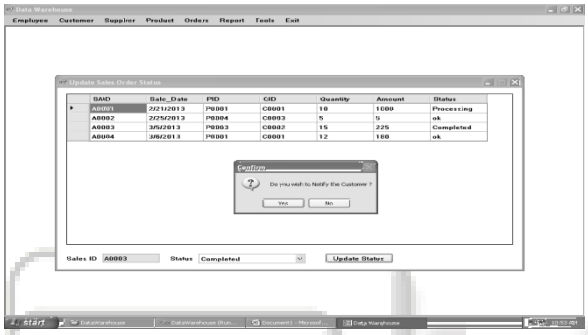

Fig. 6: Change Status

- Customer/ Supplier/ Employee report

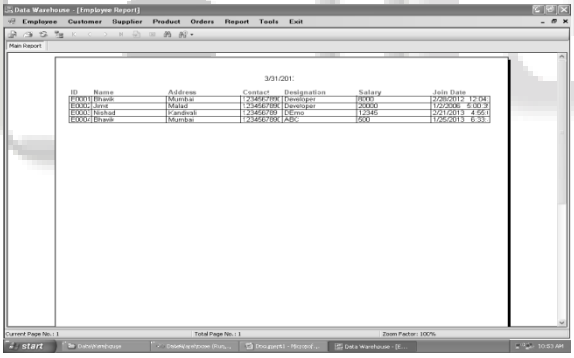

Fig. 7: Printable Report

- Generate report product wise using Apriori algorithm.

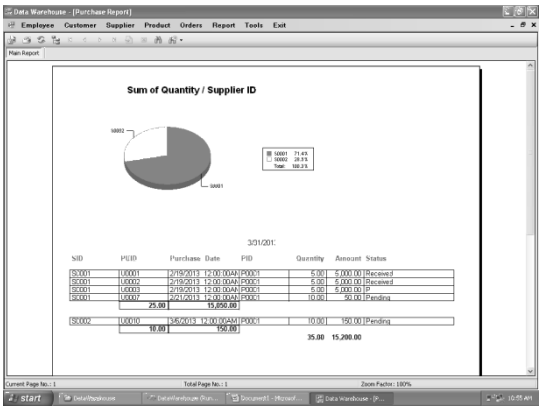

Fig. 8: Report of Product

VI. CONCLUSION

There are as many reasons for successful ERP implementations as there are for failed projects. However, success seems too often be measured by whether or not the project came in on time and under budget. The hardware or software required for this project is minimum because client needs a basic desktop or laptop or a simple mobile phone. The on-demand approach to ERP clearly delivers significant benefits, particularly for small and medium-sized organizations that may not want to invest the time and expense in a traditional on premise ERP system. This project helps in increasing the value of your enterprise through improved supply chain, also helps the organization to efficiently and cost-effectively conduct their businesses in a global economy. Considering the pervasive nature of the Internet and the growing economic trend toward globalization this concept of ERP will surely grow and expand. Whereas, fully utilizing the system to achieve improved business practices appears to be ignored. Performance measures must be developed and standardized to give organizations a clearer picture of the benefits derived from Enterprise Resource Planning implementation. Much has been written about and learned from some well-publicized successes and failures in ERP implementations. Some of it has even been directly contradictory.

VII. FUTURE DEVELOPMENT

This application currently handles only employee, customer and suppliers information there is further scope to add systems like payroll and employee management, HR tools and online billing to make it more versatile and usable.

There is also scope for introducing various features for managing account books, taxes, customer care, manufacturing process, raw material handling etc.

In future it can be more developed by including modules and different more efficient algorithms yet to be designed which might help make it all-in-one system thus being unique in its own kind in the market.

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