

BIG DATA ENTERPRISE RESOURCE PLANNING SYSTEM FOR GARMENT INDUSTRY

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Abstract:

The main purpose of these project is to handle efficiently the data of the garment industry .In these project we model the system to manage the facts and figures of raw material,quality of fabric,information of different customers,information of available stock and details of invoice etc . This paper aims to explore the demands of Enterprise Resource Planning to supportthe garment industry to preserve their data ,to have evidence of everyday transactions. In these project we have also used the big data concept which can handle large number of data which is very useful for the industry to handle their large datasets in future also. This ERP system helps to shorten the work of garment industrywith ease.

I. INTRODUCTION

Big changes came to the garment industry during the 20th century, with persistent technological revolution in machinery, fibres, planning, and globalization of the business. Asia is the biggest supplier in today's date for manufacturing more than 32 percent of the world clothing export. Among this India is currently sixth largest garment exporting country in the world. Over the recent decades, many leading garment industries in India have also become some of the big suppliers of readymade garment products for the global market.

Based on the yearly sales and market value there are some of the garment company listed below.

1. Loyal Group

Loyal Group is one of the largest textile and garment groups in India, it provides a range of products and services for textile and apparel industries. Loyal Group comprises of three composite mills, one spinning mill, one coloring house, four garment manufacturing units, one trading cum marketing company and a Joint Venture trading company in Italy. It is also one of the top garment exporters in India to have been awarded by the government.

2. Bombay Rayon Fashions Ltd

Bombay rayon fashions ltd is a vertically combined textile and garment company, engaged in the construction of a wide range of fabrics and garments

from state of the art production facilities. Apart from being the largest shirt manufacturer in India, today, Bombay Rayon Fashions Ltd has over 38,000 employees and produces over 90 million pieces garment products per year. A consistent contributor to India's GDP with its high employment.

3. Sutlej Textiles

Sutlej textiles operates in all phases of textiles and garment manufacturing. Their flexible production facilities are vertically combined, from spinning and weaving to dyeing and finishing; including making garments. It also has operating facilities in Russia, Spain, Singapore, and Sri Lanka, and many more locations. Sutlej Textiles is one of the flagship units of the multi-product conglomerate KK Birla Group. The Group has a superior presence in fertilizer, engineering, textiles, sugar, tea, coffee, food, products, media, information technology, biotechnology, and shipping.

Because of such a rapid growth in the manufacturing and transport of goods, management of data has become very crucial part because of which ERP (Enterprise Resource Planning) came into vision. An ERP system can be defined as information system for recognizing and planning the enterprise huge resources. This project develops the garment industry ERP system which is an utility system based on PHP, BIG DATA & HADOOP. The reason we use ERP in this project is because it help industries to collect, store, manage and interpret data from various business unit which actually helps in data stability. Also it enlarges the efficiency of business in accounts , sales,

marketing, inventory etc.

II. TECHNOLOGY USED

Generally all ERP systems engaged in the Garment industry, centralized relational databases and protected networks are used as the key technologies to incorporate dissimilar modules.

1. Big Data ERP

The term big data has been in use since 1990s, and its credit is given to John Mashey^[1] for making it popular. Big data^[4] usually includes data sets which sizes behind the capacity of repeatedly used software tools to manage, express and operate data easily within given time. Big data "size" is a continuously moving goal, as of 2012 ranging from a few dozen terabytes to many Exabyte of data. Big data ideology enclosed with unstructured, semi-structured and structured data, however the main attention is on unstructured data. Big data needs a set of expertise and technologies with new forms of combination to reveal perception from datasets that are multiple, hard, and in a huge scale.^[2] Big data analytics has a critical role to play in ERP management. All small-to-medium businesses produce enormous chunks of data on constant basis. Big data analytics is a process of examining, analyzing and processing huge data sets that are so hard that the regular data processing software are insufficient for their processing. Controlling, inspection and optimization of such an enormous data is an obstacle in itself. Big data when combined with ERP, gives this business the run for its money. But is important that you make a wise and sensible use of the both.

- ERP has been at the core of the biggest businesses for over three decade, so we can be forgiven for assuming that most, if not all business information will continue to go through ERP. The tendency to think about ERP as the strength of the business will continue. But big data is going to be an anomaly perhaps the anomaly that proves the rule about the core of ERP. Without appropriate data your ERP has less value with the right data to provide two-way feeds of information the value of your ERP increases impressively. ERP data is going to feed big data and big data is going to feed ERP, but they are going to run in parallel. Customers will be able to benefit from big data, and even feed the data outputs into the ERP system.

• Use of Hadoop Mapreduce in Big Data

Hadoop is a free, Java-based programming structure that helps the processing of large data sets in a distributed computing environment. With the use of hadoop it makes possible to run applications on systems with thousands of nodes including thousands of terabytes. Its distributed file system helps in fast data transfer rates among nodes and allows the system to operating continuously in case of a node malfunction. Hadoop is based on Google's MapReduce, a software framework in which an application is broken down into a huge number of tiny parts. Any of these parts can be run on any node in the bunch. The Hadoop framework is used by major companies including Google, Yahoo and IBM, largely for applications involving search engines and advertising. The preferred operating systems are Windows and Linux but Hadoop can also work with BSD and OS X. Now as we know about big data and hadoop let's talk about the difference between big data and hadoop. Big Data^[3] is nothing but a concept which facilitates managing large amount of data sets. Hadoop is just a single framework out of many mechanism. Hadoop is primarily used for batch processing. The difference between big data and the open source software hadoop is a clear and vital one. Big data can include many different kinds of data in many different kinds of formats. For example, there can be many identifiers like name and special number, or there can be information about product, sales and inventory.

MapReduce is a processing capability and a program replica for distributed computing based on java. The MapReduce algorithm contains two important tasks, namely Map and Reduce. Map takes a set of data and converts it into another set of data, where separate elements are broken down into tuples. Secondly, Reduce task, which takes the output from a map as an input and merge those data tuples into a small set of tuples. As the sequence of the name MapReduce implies, the reduce task is always performed after the map job. The big advantage of MapReduce is that it is easy to scale data processing over multiple computing node. Degrading a data processing application into mappers and reducers is sometimes serious. But, once we write an application in the MapReduce form, scaling the application to run over hundreds, thousands, or even tens thousands of machines in a bunch is purely a organizational change. This simple scalability is what has entice many programmers to use the MapReducemodel.^[5]

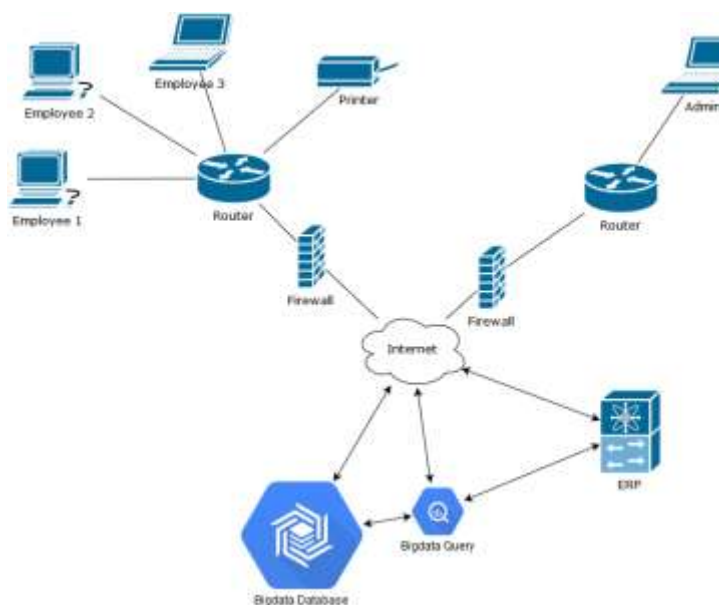


Fig1 – ERP Using Bigdata

• The Algorithm

MapReduce^[6] program executes in three stages, namely map stage, shuffle stage, and reduce stage.

- **Map stage**: The job of this map stage is to process the input data. Generally the input data is in the form of file or records and it is stored in the hadoop file system (HDFS). The input file is passed to the mapper function line by line. The mapper processes the data and creates many small chunks of data.
- **Reduce stage**: This stage is the integration of the shuffle stage and the reduce stage. The Reducer's job is to process the data that comes from the mapper stage. After processing, it produces a new set of output, which will be stored in the HDFS.

During a MapReduce job, Hadoop sends the Map and Reduce tasks to the suitable servers in the cluster. The whole structure manages all the details of data-passing such as issuing tasks, validating task completion, and copying data around the cluster between the nodes. After completion of the given tasks, the cluster gathers and decrease the data to form an suitable result, and sends it back to the hadoop server.

III. ACTIVITIES OF GARMENT MANAGEMENT

1) Record management

It can preserve funds and manage the utilization of money through record management. It can fulfill a series of record management in textile industry such as dyeing,

doubled fiber, relaxation time of raw material and final outcome and so on. Main focus of the record management is to control all the records of industry. In order to attain the target, the record management of ERP system is indulge with tasks as follows: records in security, to achieve efficient record management, resting period, group number, size control, advance message of record, organization management and other functions.

2) Fabrication management

The main aim of the fabrication management is to provide functional arrangement in resource, to deliver products according to date and time, quality and quantity of product. Fabrication management is hard to short run making and kinds of produce which builds according to sales outlook. It includes: waste control, scheduling in materials, manufacture plan management, materials plan management, business unit management, effective task, raw material utilization quantity management.

3) Stock management

Stock management is the provision of productivity. The aim is to order materials according to fixed date and time, amount and quality. We have to order the materials according to sales outlook. It includes: supply management, dye scheduling, stock plan management, stock arrangement management, advance warning of stock etc. It decreases the amount of order and serves the requirement of production, especially when industry wants the supply of materials in urgency.

4) Trade management

The procedure in which final produce is converted to goods and is ready for buying or selling is called as trade. As we know that the growth of the market have been taken place in enterprise trade mode, so the quick reply to the customers is the main aim of the trade management. The trade management focuses on the following aspects, it includes: consumer management, goods delivery management, cost management, order management, orders position management, goods refusal management, commercial management, trade statistics, survey of sales.

5) Variety management

The main focus of the variety management is aimed at performing together for good variety of material. Variety management means how we manage the quality of goods throughout the whole process. Nowadays, in keeping with the actual position of business, variety management based on three parts it includes: raw materials, incomplete product and end product. It also includes variety tests.

IV. CONCLUSION

This paper proposed a ERP platform and outlined a

method for composing web services for ERP Garment Industry. This paper zooms in the selection process to propose a Web services composition method for Bigdata platform providers in order to automatically customize an EPR service in response to a enterprise customer's need. By using various technology and various management system.

V. FUTURE SCOPE

Enterprise Resource Planning system for garment industry by using bigdata database storage will be accessible from any where with internet connectivity but only admin that is only owner of garment industry is able to modify secured data. This system is also useful in various management sectors such as Textile Industry, Import Export Industry, Goods Management etc. By using genetic algorithm in this ERP system we can earn maximum profit by providing good condition fabrics to the consumers need.

VI. REFERENCES

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