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Service Oriented Architecture in Educational Enterprise Resource Planning

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Abstract— Educational Enterprise Resource Planning (e-ERP) dramatically improves the workflow, performance & the communication between various staff members of the educational organization. e-ERP heightens the visibility & control of different activities within an organization- thus facilitating gap analysis, expedite decision making & support efficient use of resources in the rapidly changing educational environment. The goal of e-ERP is to automate all the internal & external processes of an institution and also help in improving communication among Parents, Students, Teachers, Alumni and Management. e-ERP integrates all the key processes of an educational institute, enables timely and creative analysis of data which facilitates effective decision making & reduces the teacher and registrar burden. This project usually has a communicated set of processes that cover the daily activities of an educational institute thus forming our project framework. This project understands how an educational institute works, what are the problems associated with it, which tools and information people need to run it efficiently & effectively and how the information flows within the organization. It traces information from its beginning and travels with it wherever it goes & makes it available to those who need it with its latest image. It makes information transparent. e-ERP is flexible enough to integrate data & processes from all areas of organization & unify it for easy access & workflow.

Keywords— Enterprise Resource Planning, Service Oriented Architecture, Educational System.

I. INTRODUCTION

Colleges & Universities create & use data from different parts of their institutions to inform decision making, improve teaching & learning manage enrolments, facilitate research & execute strategic plans efficiently. Increasingly educational institutions find such data sharing difficult because of out mode & disparate human resource, travel, and accounting, payroll, budgeting, and procurement & student information system. Solutions developed for business & industry have historically lacked the ability to satisfy the needs of higher education, including management of endowments, grants, universities & colleges unite older systems and explore the potential for new ERP operational systems. An ERP system typically has modular hardware and software units & services that communicate on a local area network. The modular design allows business to add or reconfigure modules while preserving data integrity in one shared database that may be centralized or distributed. ERP systems are often called back office systems indicating that customers and the general public are not directly involved. This is contrasted with front

office systems like CRM systems that deal directly with the customers or e-Business systems like e- Commerce, e- Government, e-Telecom & e- Finance. ERP systems are cross functional and enterprise wide. All functional departments that are involved in operations are integrated in one system. The situation was our educational system is annualized with computers. Standalone systems for different units can not only be very difficult to manage but also can add a lot of reluctance in data entry& ambiguity of information within the same organization. A properly planned single point integrated system (ERP) can facilitate zero exultancy, inter module information exchange& thereby a lot of savings. e-ERP will be used to collect information from the different levels of management, manipulate data according to its need & provide it in the requested format .Thus the same information can be provided indifferent views depending upon the user of the product. Thus this product will monitor all the various activities carried out in the institute and thus provide status and report at different levels of management. The information updating is generally the task of an authorized person of the institute like the registrar of the institute as he is a link between the two different levels of organization , first consisting of the principal, vice principal while the second level includes the office staff – general ledger, accountant etc, teaching staff as well as non teaching staff. He will have a tight control over the different parts of the product and will also get the status and report of what has been done in the entire day, week and month related to the activities performed by the entire staff. Thus the reports facilitate the weekly, monthly and yearly meetings. The scope of the project can also be extended to the other small scale or large scale educational institutions. The architecture of e-ERP is as shown in the Fig[1]. It consists of the Customer Relationship Management including Student Access, Corporate Access & Teacher Access. The System Administration includes Web Server, Database Server, Backup Server which is further connected to the SMS sending system, Email Server and the Financial System. It also displays the list of modules as:-

1. Infrastructure
2. Admission
3. Events & e-Notices
4. e-Library
5. Placements
6. Result analysis
7. Dead Stock Register.
8. Payroll
9. Staff & Student Data Warehouse

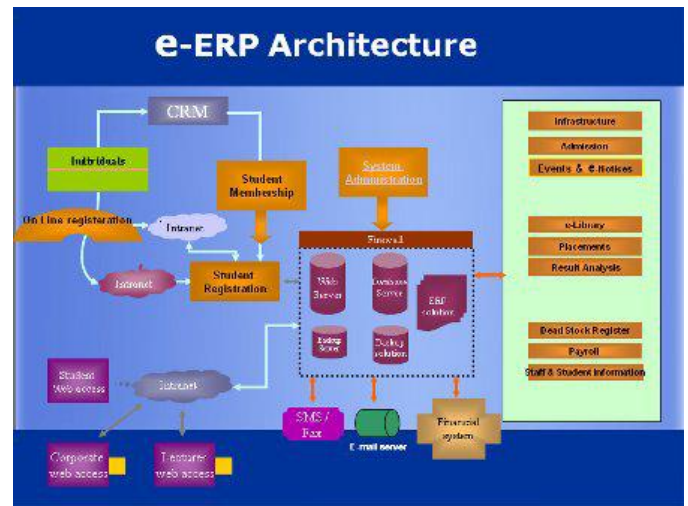


Fig 1: Architecture of Educational ERP

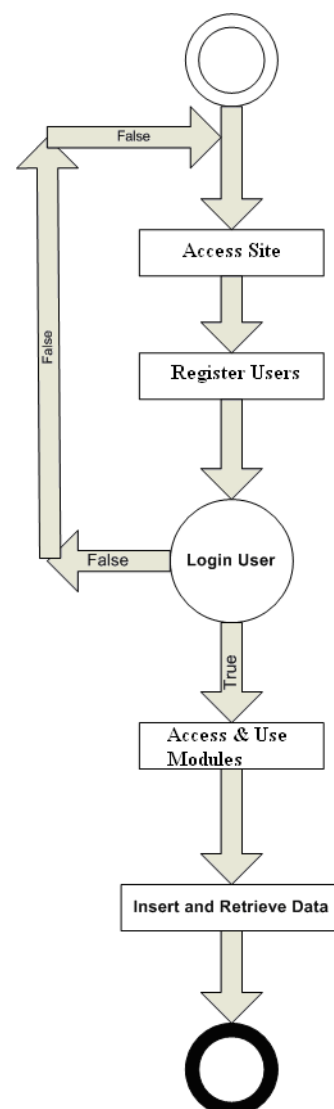


Fig 2: Educational ERP Life Cycle.

2. DOMAIN AREA OF PROJECT

The domain area of the project is the web based application the multi-tier architecture is the main consideration of .Net 2008 that allows creating the system. The PMS allows managing and maintaining the project Status and reports that are very useful for better productivity and also less time consuming.

a. Microsoft .NET Framework Common Language Runtime



Fig 3. Common Language Runtime

The (CLR) Fig [3] is responsible for run-time services such as language integration, security enforcement, and memory, process, and thread Management. In addition, the CLR Fig [3] has a role at development time when features such as life-cycle management, strong type naming, cross-language exception handling, and dynamic binding reduce the amount of code that a developer must write to turn business logic into a reusable component.

3. WORKING EXPLANATION

The Web Service has been created for Educational ERP it contains all the modules required in the institutes. e-ERP can be deployed on to the IIS server and different persons sitting on their marching can access this application as it is a web based software it contains different sections that can be used for managing and maintaining the data. Basically this software contains the new registration screen that can because to register for using the functionalities and features of this system after the user is registered he can log into the system but cannot access the different functionalities of the software unless the administrator provides him he rights to access the different functionalities of the system. Once the user has registered successfully a message will be send to the administrator who will provide rights to the user to access the different parts of the project the administrator will give rights to the user to access the screens that he is supposed to see and access. The module of Infrastructure Management can be viewed by almost all the users as it facilitates the user about the facilities& services provided by the institute like the different types of lab facilities, hardware’s including the machines, projectors, OHP’s, different technical kits, printers, modems etc, software’s like internet facility, Wi-Fi, access points etc, library which includes the total no. of books, IEEE

journals, magazines etc and last but not the least if available then the canteen

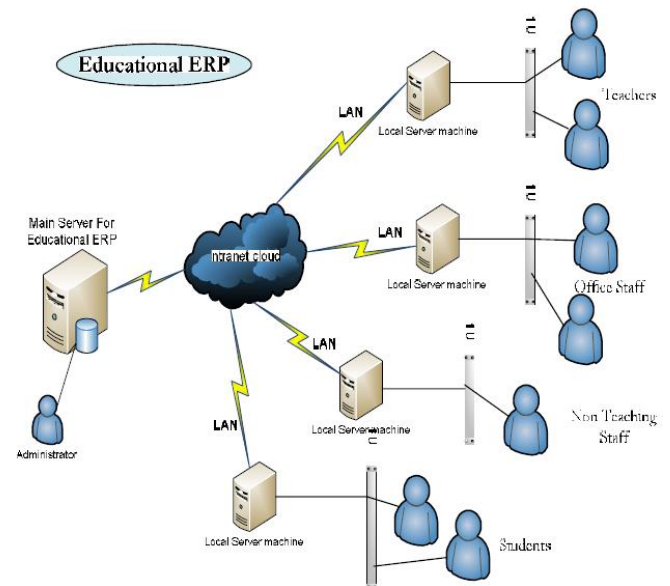


Fig 4. Over all View of Educational ERP

4. DESIGN OF THE SOFTWARE

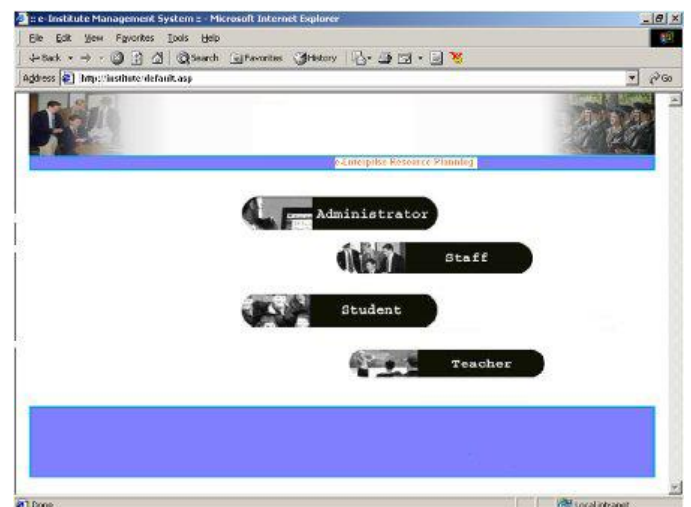


Fig 5. Main Screen

5. Conclusion

Last but not the least With Data Mining & Warehousing for Educational ERP dramatically improves performance and the communication between the various staff members of an organization. Educational ERP heightens the visibility and control over the entire administrative process right from the management stage to the development stage.

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