

Centralized ERP System for Educational Institutes

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ABSTRACT

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CampusERP is an implementation of an ERP System, which will be used primarily in educational institutes such as Engineering Colleges. There will be both Web and Flutter Application for Centralized Management of Educational Institutes. Main Goal of the project is to digitize day to day activities of an Educational Institute, further reducing load on teaching as well as non-teaching staff. This project will have primarily two main Users that would be Teacher and Student. The complete system revolves around these two users. Every module that is available in this project is some way or other beneficial to these two types of users. This project has two main modules that is Student Central Platform and Teacher Central Platform which act as base for all the other modules present. Non-primary modules include Library Management System, Student Attendance System, Online Exam & Assignment Portal, Bus Tracking System, Newsletters & Advertisement, Custom APIs, Performance Analysis, etc.

Keywords : ERP, Web-Based, Flutter, Performance Analysis, APIs.

I. INTRODUCTION

ERP stands for Enterprise Resource Planning. Enterprise resource planning (ERP) is business management software or a system which is typically used to manage departmental data of respective businesses. Enterprise Resource Planning (ERP) provides a blended view of business methods/practices, usually in real-time, using common databases such as MySQL, SQLite maintained by database management systems.

In the current system for the purpose of management details are entered manually and maintenance of records is a tedious task. There is a chance for more manual errors and loss of data. The current system

requires lots of manual work, difficult to generate reports, redundancy of data. The ERP system for Educational Institutes is to override the problems prevailing in the current system. This reduces paperwork, manual work, maintenance of data and records made easy. This system has some features like analysis of students' performance. Accessing results from the university database. The Campus ERP is error-free, more secure, most-reliable and fast management system for educational institute. The organization can maintain digital records without redundant entries. The valuable data or the information collected through CampusERP can be stored for a longer period of time with easy access and manipulation of the data at the same time.

II. LITERATURE SURVEY

[1] Swati Mishra along with Utpal Naskar, A. Dutta, Sanchita Sahu implemented a system that could store information of students as well as teaching staff. In this system main user is HOD when he/she can manage every aspect of student and staff of that respective department. HOD can also post notices corresponding to their respective departments. This system has other modules such as attendance management system, question and answer portal. This system is design to work synchronously with all available departments. They have implemented Waterfall model while developing this respective solution. In their paper on same topic they have described some modules such as Routine Module as their future scope. The question and answer portal lets anybody to ask a certain question that would be available to all the users of the system.

[2] Megha Goel's implemented College Monitoring System Along with Ankita, Ashwini, Swati and Yogita which is a management information system for educational establishments to manage student data. Their main focus is on students of that respective establishment while considering the management system. This system has modules such as Manage Admission, Fees, etc. This system also generates automated reports on data-driven decisions. This System uses HTML5, CSS3, PHP6. In their paper they have mentioned an android application as their future scope.

[3] This paper by Samkeet and team explain how SUSIMS is a cutting-edge, robust and innovative solution for university. This implementation is done taking universities into consideration. They have used Firebase Authentication along with AWS Servers for hosting purposes. Data storage is done in MySQL with PHP and cloud server is in AWS EC2. They have implemented modules such

as Attendance System, Placements Module, Alumni Association Module, Results Module, E-notes Module, Events Module, E-Library and much more.

III. PROPOSED SYSTEM

A. Student Central Platform

Student Central platform is a centralized console where Students can perform all their respective operations, tasks, duties, etc. This particular module is one of the base Module that is required to in functioning of other modules. This Platform for Student will have following sub-modules:

- Profile Management - To update Personal, Educational, Social and Communication Details
- Academics - Student can perform all the actions/tasks related to dependant modules such as Library Management, Assignment Module, Exam Module, Accounting Module and Much More
- Feedback - Student can also provide feedback w.r.t. Institute as well as Software which can be considered while improving Application

B. Teacher Central Platform

Teachers (Principal, Head of Department, Class Teacher, Professor) Central Platform is a centralized platform same as of Student Central Platform which acts as a Universal Console for managing every tasks/operations that any of the teacher may face or have.

This module is one of the primary module along with Student Central Platform on which other modules are dependent. This respective platform will have following sub-modules:

- Profile Management - To update Personal, Educational, Professional, Social and Communication Details.
- Academics - Teachers can perform various task

based on their position in Institute such as Principal - Super User, HOD - Manage Teachers and Subjects, Class Teacher - Manage Students, Professor - Manage Subject, Manage Academic Work.

- Automatic Timetable - System will generate automatic timetable based on lectures/practical's per week attribute and also in case if any teacher takes leave timetable is temporary updated and users are notified
- Other - This is a sub-module which includes functionality that are provided to teachers such as Daily Work Diary, Leave Management System, Task Management System, etc.
- Feedback - Teachers can also provide feedback w.r.t. Software which can be considered while improving Application.

C. Library Management System

This is one of the major level-2 module which depends on both Student Central Platform as well as Teacher Central Platform. As the name suggests, this module will be responsible for Managing all the task that a library may face while operation / functioning on daily basis.

This module is integrated within above mentioned base modules. No user has to traverse to any other page/application to use features of Library Management System Through Library Management System Librarian Can Manage, Allocate, Reserve, Collect Books as well as System will auto calculate fine applicable on book Submission based on policies set by librarian.

On the other hand, Student can Request Book Reservation, Check book Status and Availability through their Central Platform. All the Transactions such as Allocation, Reservation, Collection, Fine Calculation, Fine Collection are stored for future references.

D. Student Attendance System

This module is used to mark attendance of Students for their Lectures and Practical's by respective subject teacher. To mark the attendance of the students, respective teacher has to provide absent students only and rest is taken cared by the system.

This module also generates reports and shares them to respective users and parents as per policies defined by administrator. Student only have Read-Only Access to this module whereas in teacher have read/write access to this module.

E. Online Exam & Assignment Portal

Online Exam portal is one of the main module which is developed w.r.t. mobile devices as main devices for being accessed via. In this module which is present in Student and Teacher Central Platform, is used to conduct online MCQ based Exams as well as Manage Assignments.

WYSIWYG Editor is used for generating/editing MCQ exam which result in improved efficiency while managing the questions at database level.

Students can attempt the MCQ Exam from any Chromium-Based Browser no matter what the device is. Talking about Assignment Module, here subject teacher can allocate assignments to students and Students have to submit the assignment.

Here concept of Due date can also be applied based on attributes of Assignment provided by Subject Teacher.

F. Bus Tracking System

This the one of the advance module implemented in Campus ERP to track the Transport Vehicles commonly known as College Buses to better Time and Resource Management. The approach taken in this module in purely Software based.

The Driver of respective bus has to share his/her location through Campus ERP mobile application which can then be shared with respective users in real-time.

This module has a lot that can be improved and has most of the risks that need to be taken care of at earliest.

G. Newsletters & Advertisement

This module is a non-functional requirement, it is used to enhance User Experience and improve productivity.

This module is used to share Newsletter as well as advertisements about respective college through various means of communication such as Mail, WhatsApp Message, Regular Messages, Telegram Messages and much more.

This module is deeply integrated throughout the system from Logging in of the user to the system.

H. Custom APIs

As CampusERP collects a large amount of data, in situation where the institute needs real-time data from our application, this module can be used to access that information through APIs.

The most basic example is the basic information of teachers can be shared through API to respective colleges website in Staff section to make sure that respective information about teachers stays updated automatically.

I. Performance Analysis

This module is the ' X-Factor ' of CampusERP. This module is used to calculate Performance of every user (that includes teachers as well as students) based on various criteria.

This performance analysis will be carried out in each and every aspect of CampusERP. This module can be used to rate teachers as per their performance and students as well.

IV. SYSTEM DESIGN

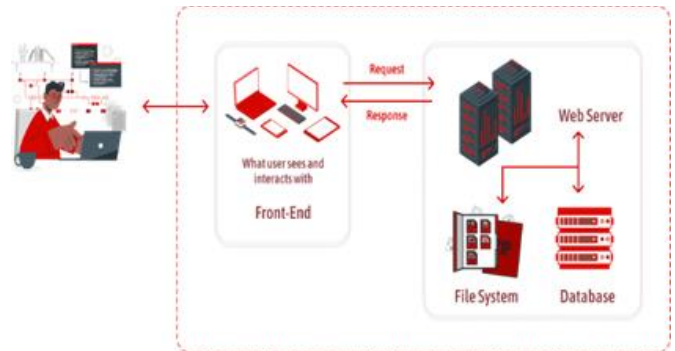


Figure 01: System Architecture

In the system architecture user interact with front end through any device front end refers to the user interface. Back end is the server, application and database that work behind the scenes to deliver information to the user. The user enters a request through the interface. A web server can manage HTTP or HTTPS based client requests for Web Resources related to one or more of its configured or served websites.

V. ALGORITHM

Custom Algorithm to Calculate Performance of Student as well as Staff:

- Step 01: Start
- Step 02: Declare WeeklyScore = 0
- Step 03: Calculate Login incidents as LoginCount
- Step 04: if (LoginCount > 10) WeeklyScore += 100
- if (LoginCount > 4 && LoginCount < 11) WeeklyScore += 75
- if (LoginCount > 0 && LoginCount < 5) WeeklyScore += 30
- if (LoginCount == 0) WeeklyScore += 0
- Step 05: Calculator every attribute in similar fashion such as ClickCount, ProfileUpdates, FeedbackCount,

BookTransactions, Attendance, etc.

Step 06: Calculate WeeklyScore & add to PerformanceScore and End.

VI. CONCLUSION

As a result of increased infrastructure support for online web-based application and Digitize India campaign launched by the Government of India, we have decided to implement RP System for Education Institutes to facilitate the day-to-day activities. This System uses combination of SQL & NoSQL Databases along with Bootstrap Framework to bring unique and awesome User-Interface. Our ERP System assist its users in their days' tasks/activities and also is beneficial for Institute in many aspects.

VII. FUTURE WORK

For future work, it would be beneficial to add accounting module which will further integrate CampusERP in respective educational institute. Modules such as Alumni Portal, Inquiry Portal can also be implemented to further enhance user experience as well as customer satisfaction.

VIII. ACKNOWLEDGMENT

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IX. REFERENCES

- [1]. Swati Mishra, Utpal Naskar, A. Dutta, Sanchita Sahu "College Automation System" , International Journal Of Computer Sciences And Engineering – Volume 4, Special Issue 6, August 2016, E-Issn: 2347-2693
- [2]. Megha Goel, Ashwini Gulhane, Swati Gajarlewar, Yogita Rasekar "College Monitoring System" , International Journal For Research In Applied Science & Engineering Technology – Volume 5, Issue 2, March 2017, Issn: 2321-9653
- [3]. Samkeet Jain, Radhika Garg, Vaibhav Krishna Bhosle, Lilash Sah "Smart University-Student Information Management System" , International Conference On Smart Technology For Smart Nation – 2017
- [4]. Pooja S. Sharma, Reshma R. Shetty, Gayatri V. Yadkikar, Prof. Dhanashri Kanade "College Automation System", International Journal For Innovative Research In Science & Technology – Volume 2, Issue 10, March 2016, E-Issn: 2349-6010

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