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Web Application for Student Management System using ERP

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Abstract - *Enterprise resource planning system (ERP) is the effective use of enterprise resources to improve systems. The main purpose of ERP is to create a system that can be used for the automated processing of data for an institution. In the Educational system, accessing information from papers is a very difficult task, it is time-consuming and requires a lot of manual effort. This Paper provides different modules and their implementations which are required by institutes for smoothly running the system and reducing manual efforts.*

***Key Words*: Web-application, Python, registration, Clearance, Bonafide, DBMS, ERP, Student management system.**

1. INTRODUCTION

In higher education management system, there are still many time-consuming tasks that can be overthrown with the help of technology. As the students have to spend a lot of time going through all these processes and the physical availability of faculty is always required. In order to conquer this problem, the management system can be made centralized and automated with the help of ERP.

An ERP-based management system will be a productive way to manage all the processes like registration form, bonafide certificate, clearance form, student details, etc. The completion of the registration process is quite hectic as the student has to fill the form and then physically submit it to the admin, which consumes a lot of time. A centralized system will make this process work in an easy way by making the process automated. The students can register through an online form, and the admin will just have to acknowledge the form.

This process won't require the physical presence of students as well as faculty. This management system can help manage all the data in a more organized manner.

The process of the bonafide application and clearance form is similar to the registration process. The student has to apply for the certificate online, and this application will go to the faculty for approval and signature. The main lead for using a centralized virtual system is that the faculty need not be physically present at their respective places. The system can be accessed irrespective of time or place. The faculty just has to approve the application online, and it will be reflected in the student's profile as approved.

Even if multiple students apply at the same time there won't be a problem for managing those students.

1.1 OBJECTIVE

The System has three major objectives, the first objective of the system is to develop a web application that stores all the student details combining multiple data and storing it efficiently. To generate a Bonafide and clearance certificate for the student so as to reduce the hectic work and time consumed. To develop an Automated system for student management making the process easy and flexible.

2. PROPOSED FRAMEWORK

The Proposed Student management system Consists of 4 modules i.e. login registration Bonafide and clearance. The functional modules of the student management system are divided into two roles the administrator and the student. The administrator should be able to view to student profile and approve the Bonafide and clearance form. Students can apply for the registration, clearance, and Bonafide form.

Student Registration: This module consists of all the information the student including the basic information history of student registration, academic work, etc.

Bonafide Module: In this module, the student can apply for the Bonafide certificate by entering his basic details and the reason for bonafide, once the students have applied, after the approval of the administrator the student would be able to download the certificate.

Clearance module: Once the Student applies for the clearance form if the student record is clear then he would get approval from all the faculty and administrator. After the approval student can Download the clearance certificate.

3. SYSTEM OVERVIEW

Operating system: Windows 2000(SP4)

About the server: My SQL is an Open-source database and it ensures high data security and high performance.

Django: It is a Python framework that enables developers to create a web application and keep the code clean and readable. It uses the MVC model view controller programming paradigm and accelerates web application development. It is well very easy to use and has robust security features. Client development tools: HTML CSS JavaScript

4. Major Vendors of ERP Solutions

The major ERP vendor for higher Education in the world is Oracle, SCT, SAP, Jenzabar, and PeopleSoft. The advantages of these ERP systems are that they are easy to use, effective management by connecting all the education stakeholders, scalable and robust platform. The limitations of this system are, as the software presents a broad range of options to its users though some intricate options could not be covered partly because of logistics and partly because of sophistication.

Vendor	Products
Oracle	Contracts, e-business, human resources, financial, manufacturing, marketing learning, maintenance, project, order, procurement, and supply chain, product lifecycle.
PeopleSoft	Customer relationship, distribution, asset lifecycle, campus enterprise, financials, homebuilder, manufacturing, project, human capital, supplier relationship, storefront, and supplier relationship self-service
SAP	Customer relationship, e-commerce, Corporate services, emissions, portfolio analysis, financials, human capital, web services, supply chain, and mobile services.
SSA	Financials, human capital, Global Customer relationship, resource planning, resource planning, performance, product lifecycle, resource planning

5. LITERATURE SURVEY

College ERP System:

Vivsvaan Sharma suggested an ERP system for college management. The system is designed to reduce workload and staff time. The system provides information to users based on their profile and role.

The system is designed keeping in mind the day-to-day problems and the manual work faced by college staff. The system automates all the work so that no manual processing is required.

E-College:

Shrikant et. al. proposed a system that will help educational institutes to save their time and function smoothly. It is designed keeping in mind the difficult task of accessing information and records from paper files and thereby overcoming the problem by automating tasks such as registration, attendance, assessment, evaluation, and generating results. The paper provides a limited set of modules that are required by educational institutes to function smoothly.

ERP for College Management System:

Shivasagar et. al. proposed a system for the managing student records, departments, faculties, library, and other information. It manages all the activities of the college on daily basis. It uses the C4.5 algorithm to analyze students based on their performance and placement prediction of students.

Web Application for Automating Clearance Processing System:

Mike Izah Omogbhemhe designed a framework suitable for implementing a clearance module system. It is a student management system that processes and manages student clearance data. Clearance System in institutes is always delayed due to high human involvement which leds to many problems. This paper suggests an effective solution to this problem.

An Android Application for College Faculty:

Upanya Singh et. al. proposed a mobile application to reduce manual work and ease out the teaching and learning process in academics. It automatically marks student attendance, stores in the mobile database, and faculty from college can view the attendance whenever required. This system reduces proxies and time of marking the attendance compared to traditional methods.

6. WORKFLOW

The central objective of the Student Management System is to provide an elegant and practical interface for the college administration, which previously was a challenge due to the considerable amount of manual paperwork that was required. The proposed system handles student data efficiently and cuts down the tedious process into a more user-friendly experience. The entire system consists of three main layers: Front end, middleware, and back end.

Front end is the interface through which the interaction between the user and the application occurs. Middleware acts as a bridge between front end and back end. Back end is the implementation of web application which includes storing and organizing data using a

database.

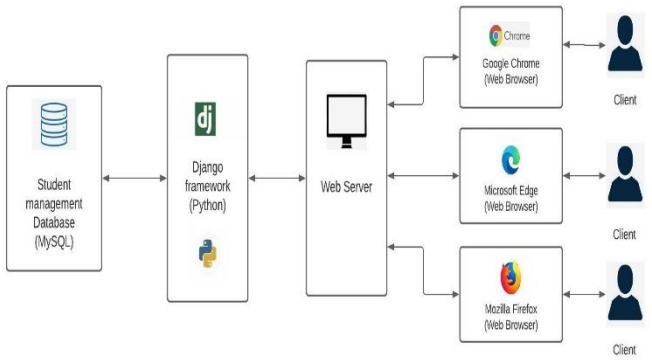

Fig -1: ERP for Student Management system.

6.1. Users

The two key intended users are Admin/faculty and student.

a) Admin has the right to edit data and to approve or deny the applications that the admin receives from the three modules-registration, bonafide, and clearance.

b) Students, once registered, can log in and access the modules to send applications. The students can track the status of their clearance form along with remarks from the faculty. The student can download the form/certificate once it is approved by the admin.

6.2. Admin Workflow:

The admin initially registers by providing their credentials which include full name, employee ID, email ID, mobile number, department, and password. After completion of initial registration, the admin can now log in using their unique employee ID and password.

The logged-in admin accesses the system where they can approve or deny application requests from students. The admin can also add in their remarks in case of disapproval of the clearance form.

The admin logs out of the system after the completion of their tasks.

1. Start

2. Register/Log in

3. View application requests from students

4. Approve or deny requests

5. Add remarks if any

6. Log out

7. Stop

6.3. Student Workflow:

The student does the initial registration by providing their details such as full name, PRN, email ID, mobile number, department, and password. After successfully registering, the student can now log in using PRN and password.

The logged-in student accesses the system and can apply for registration, clearance, or bonafide. The status of the clearance form can also be viewed in the system along with remarks from the admin if the form was disapproved. The student can also download the form/certificate after the admin approves it.

1. Start

2. Register/Log in

3. Fill the registration form, send an application for bonafide certificate/clearance certificate

4. View status of the clearance form and view remarks

5. Download form/certificate

6. Log out

7. Stop

7. FUTURE WORK

Since the system is modulated, the system can be extended efficiently. The future work is to add different modules such as attendance, leave management, and fees calculation system. By integrating these, we can have up a system that can manage the entire institution.

We could also add a complaint and feedback feature. The addition of this feature can be useful to the user as it would make the system adaptable and flexible. We could also convert this web application to a cross-platform application making it accessible on every device.

8. CONCLUSION

The ERP Student Management system overcomes the fundamental problem in maintaining and managing the data and the process by automation. Before this, it was a bit cumbersome for students to do the processes like registration, applying for bonafide, and applying for clearance. But by using this system students can easily do these processes from remote locations. Thus, the proposed system will be helpful for the students and administrators by easing their tasks.

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