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School Management ERP

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ABSTRACT: This study aims to build a framework for the integration of School Management System. Literature review, interviewing of school personnel and analysis of existing school management systems successfully implementing such system were conducted to formulate the framework of the study. Integration of Technologies like the use of biometrics for attendance and security, using mobile phones as a tool for teaching, digital library system, grading system, computerization of faculty evaluation system, enrollment system, daily time record system, and providing online services making information queries availability anytime anywhere.

KEYWORDS: ERP, Resource Management, Technology, Academic Activities, Centralized Database.

I. INTRODUCTION

The School Management System is a software application designed to manage and automate various processes within a school. The system provides a centralized platform for managing student data, staff information, academic records, attendance, fees, and other administrative tasks.

This report provides an overview of the School Management System, including its features, functionalities, and benefits. The report also discusses the current challenges faced by schools in managing their administrative tasks and how the system can help overcome these challenges. In this report, we will explore the technical architecture of the system, the various modules that make up the system, and the user interface. Additionally, we will discuss the benefits of implementing the system, such as increased efficiency, accuracy, and productivity.

We will also discuss the potential drawbacks of the system, such as high implementation costs and the need for training and technical support. Furthermore, the report will provide insights into the best practices for implementing the system and how to ensure a smooth transition from manual processes to the system.

II. RELATED WORK

In paper [1], the research discusses the creation of a platform to record students' academic performance, with each student's data being stored in different spreadsheets. The authors used the Google Cloud Platform to ensure student performance and found that the automatic generating spreadsheets script takes approximately 11.99 seconds to create one online document using one thread on a computer. The authors used four computers with the same specifications to execute the experiment, and each computer runs one application with eight threads to create 512 spreadsheets in approximately 19.86 minutes. With this strategy, the authors were able to create the required 450 spreadsheets in less than a minute and a half for the Colegio Agustín de Hipona in Mexico.

In [2], research discusses the need for an efficient framework to build a School Management System (SMS) for storing and sharing school information electronically. The framework should be built from existing frameworks and carefully analyzed to identify possible improvements. Three common tools were used to represent the framework, including the 3-tier architecture, Model-View-Controller (MVC), and Component Framework. The 3-tier architecture shows the SMS architecture together with its independent modules to identify the interaction of modules. The MVC architecture shows layers of methods and modules, while the Component Framework identifies components of the system necessary for the integration of subsystems. These frameworks help identify the subsystems of the SMS. When built efficiently, SMS can make work easier, from searching records up to printing reports.

In [3], the eLog system proposed is a hardware and software solution designed to eliminate the use of paper for recording and maintaining student data. It includes various software applications for attendance, marks, assignments, timetable, note making, etc. that can be loaded on Tablet PCs. Faculty members can use the Tablet PCs to take

attendance and perform various other tasks, and all data is stored both locally on the Tablet PCs and updated on a centralized server. The system also includes student access to data through apps and digital kiosks, digital dashboards for management to view data, and a centralized server to ensure data accuracy and consistency. The successful implementation of the system requires a strong WiFi infrastructure.

The study aimed to create a website that is browser and platform compatible, and easy for non-technical users to add, edit and manage. A PHP content management system (CMS) was used to manage the website's content, consisting of two elements - the content management application (CMA) and the content delivery application (CDA).

The website has six menus - Home, About, Admission, Gallery, Portal, and Contact Us - all created using HTML. The backend side was created using a single super administrator role, with five other roles assigned for faculty and staff - subscriber, author, contributor, editor, and administrator. Each user role has varying levels of capabilities and access.

The website's database was created using MySQL incorporated in the phpMyadmin and consists of twelve tables. The website was uploaded to a hosting server that uses PHP version 5.2.17, MySQL version 5.5.33, and Apache version 2.2.26. The website also has a login security solution feature to protect against hackers for denial of service attack (DDOS), SQL injection, and brute force.

In addition, a student portal was specifically designed using social engine framework and PHP to build a custom social network website. The portal has four sections - the login/logout page, registration, users' timeline, and control panel.

III. METHODOLOGY

A) Design the User Interface:

Create the layout and design of your website using HTML and CSS.

Determine the different pages and functionalities your School Management System will have, such as login, dashboard, student information, attendance, grades, etc.

Use CSS to style your website and make it visually appealing.

B) Set Up Django Project:

Install Django framework using pip: `pip install django`. Create a new Django project: `django-admin startproject schoolmanagement`. Navigate into the project directory: `cd schoolmanagement`. Create a Django app within the project: `python manage.py startapp core`

C) Define Models:

Identify the entities in your School Management System, such as students, teachers, classes, subjects, attendance, grades, etc. Define Django models for each entity in the `models.py` file within the core app. Set up relationships between models using fields like `ForeignKey`, `OneToOneField`, etc. Migrate the models to create database tables: `python manage.py makemigrations` and `python manage.py migrate`

D) Create Views:

Define views in the `views.py` file within the core app to handle different functionalities. Map URLs to the corresponding views in the `urls.py` file within the core app.

E) Implement Templates:

Create HTML templates for each page of your School Management System. Use Django's template engine to render dynamic data within the templates.

F) Implement JavaScript Functionality:

Enhance user interactions and add dynamic behavior to your website using JavaScript. Use AJAX to make asynchronous requests to the server and update the page content without refreshing.

G) Implement Authentication and Authorization:

Set up user authentication and authorization using Django's built-in authentication system. Implement features like user registration, login, logout, and access control based on user roles.

- H) Implement Business Logic:
Add functionality for managing student information, attendance tracking, grade calculation, etc. Implement forms for data input and validation. Write Python code to handle the logic and operations required by your School Management System.
- I) Test and Debug:
Test your website thoroughly to ensure all functionalities work as expected. Debug any issues that arise during testing.
- J) Deploy the Website:
Choose a hosting provider and deploy your Django application. Configure the server and set up the necessary dependencies. Ensure the website is accessible to users.

IV. PROPOSED ALGORITHM

Step1 : Input:

Student Name, Email, Password, Date of Birth, Gender, Contact Number, Address, Parent/Guardian Name, Parent/Guardian Email, Parent/Guardian Contact Number, Parent/Guardian Address.

Step2 :Validate Input:

Validate the input data to ensure that all required fields are filled and the input data is in the correct format.

Step3 : Generate Student ID:

Generate a unique student ID for the new student based on the current date and time and store it in the database.

Step4 : Create Student Account:

Create a new student account in the system with the provided information, including the student ID, name, email, password, date of birth, gender, contact number, address, parent/guardian name, parent/guardian email, parent/guardian contact number, and parent/guardian address.

Step5 : Store Student Data: Store the student data in the database for future reference, including the student ID, name, email, password, date of birth, gender, contact number, address, parent/guardian name, parent/guardian email, parent/guardian contact number, and parent/guardian address.

Step6 : Notify Student:

Notify the student about their registration success and provide them with their login credentials.

V. CONCLUSION AND FUTURE WORK

The School Management System Website has the potential to transform the way educational institutions manage their administrative tasks and engage with their stakeholders. As such, further improvements and enhancements can be made in the future to improve its functionality, performance, and security, such as integrating additional features, enhancing the user interface, and refining the system's security measures.

Overall, the School Management System Website represents a significant achievement in software development and a valuable asset to educational institutions seeking to streamline their administrative processes and enhance their engagement with stakeholders.

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