

College Automation System Using Cloud Computing

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Abstract

In recent years, due to technological advancements, schools and colleges are shifting their focus from digital to smart technology. Until the widespread use of smart devices and web applications, cloud computing was a very prominent academic area. The paper is primarily concerned with the development of a College Automation System based on cloud computing in order to eliminate handiwork. All the venture of college will be performed in one single platform to reduce the accord. Precise activities such as placement, student information, timetable, course details, news feed for students in respect of the latest news in the university result display and eligibility criteria will be contemplate on one platform which will be managed by administrator and professors. In student section, sharing study material of specific subject makes effortless. The building of an automated college intensive commute to college education and teaching modus operandi. College automation overcomes the space-time constraints of traditional colleges by deploying the most advanced methods, such as cloud computing and cloud storage, on the basis of digital information and networks to create a virtual education environment in which teaching, learning, and other activities are all linked together.

Keywords: Cloud Computing, College Automation, Role Based Access Control, RBAC

1. Introduction

College Automation System is a software which helps both students and the management authorities of the educational organization, holds capability to store the details of educational authorities. Also, helps to maintain their details in a vital manner.

College Automation System assist in exploring all activities taking place within the campus that students are unaware. Having a technology to handle the details of students as well as other college employees. The admin may keep track of every aspect about a certain student in department. Admin can also offer a student his or her attendance and examination allowance.

Proposes Q and A portal fascinated, where anybody may post a question and publish notifications, test forms, and study material. It gives a thorough organisation of the college's departments and facilities. All departments' operations are synchronised via a platform.

Faculty members can register by submitting information such as their employment ID, subject, and position.

Companies register with their firm name, job title, number of openings, job description, job profile, and their criteria for placement-related offers, as well as facts about the company's bond. Students can look at the firms and apply to them has been given.

Companies may then access a list of students who applied for a certain job in their organisation. The administrator has access to all portals have been considered.

An admin manages all three login accounts and may add, remove or change student information before sending it to faculty members or higher authorities. All of the information is saved on the cloud, making it incredibly straightforward and convenient for the administrator to access.

2. Layout analysis

College management system assists in modifying the existing system to site-based system. System can be monitored and controlled remotely. It reduces the manpower required, provides accurate information always. Malpractice can be reduced. All gathered and extra information can be saved and can be accessed at any time. The data which is stored in the project helps in taking intelligent and quick decisions by the management. Hence it is better to have a Web-Based Information Management system. All the stakeholder staff members can get the desired information without delay. System is essential in the colleges/hostels and universities proposed.

Role-Based Access Control is widely acknowledged as a recommended practise for managing user rights (computer permissions) inside a single system or application. The Research Triangle Institute released a paper for NIST in 2010 that examined the economic worth of RBAC for organisations and calculated benefits per employee from lower employee downtime, more efficient provisioning, and more effective access control policy management. The idea behind role-based access control is to create a set of permissions and then assign them to a user or group. Only limited access to users can be provided with the help of these permissions, increasing the level of security. Dynamic access levels may cause encryption key instability, allowing an unauthorised user to exploit the flaw. Key sharing applications in dynamic virtualized environments have demonstrated some success in addressing issue.

A constraint imposes a restriction on the possible inheritance of permits from competing roles, and may therefore be used to create adequate separation of tasks. For example, the same individual should not be permitted to both establish and authorise the creation of a login account.

3. Results and Discussion

In order to research and examine the various college automation systems in real-time settings. Using Relational Database Management, developed a dynamic college automation system. To develop a Role-Based Access Control (RBAC) algorithm for cross-user accessibility proposed.

To explore and validate the proposed efficiency with one platform to another. The goal of the project is to create a software that will reduce the amount of manual effort required to manage a college campus. Due to integration with the cloud the missing of data or any errors in data, will also be avoided. The platform contains three modules i.e., Admin Module, Student Module and Staff Module. Each module will have its own different functionalities.

A. Modules:

1. Student:

Students can access their own grades, attendance status, timetable, notice details, assignment information, university events, placement or internship activities, and other information. The entire programme is accessible to the learner only in read-only mode.

2. Faculty:

Faculty module, workers may modify, add, or delete all information, including assigning grades, attendance, and assignments, as well as activities relating to fees, scholarships, college fest calendar, events, seminars, guest lectures, and holidays.

All three organisations have access to the information that Professor has provided. System specifies the access control of published data to end users using the RBAC approached.

3. Admin:

Admin is the main module where addition, updating, and removal of all application data is processed. Admin gets full access to all information, including attendance, grades, schedules, and alerts related to events, activities, etc. It is quite significant in the college administration system extending. Module holds the employee's primary registration information in the college system. The most important duty in our system since it is required to keep the system secure. Using the faculty email address and password, the administrator creates their accounts. Account is saved according to its department and categorization. In our college management structure, administration is given the utmost emphasis. The database is completely accessible to the administrator. They have the ability to read information, change information, remove information, and so on.

4. Conclusions

The College Automation System deals with challenges specific to a certain university. The paper has successfully completed, with all of the features required. The program presents users with relevant information based on the service they have selected. Developed with a university's day-to-day challenges in consideration.

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