**College Management System**

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**Abstract**:

The modern web technology provides enabling environment for students to explore knowledge as well as the communication convenience for them to interact. Virtual learning environments are hugely diverse in size, capability and services offered can cater for individuals ranging in attainment, ages and special needs. Virtual classrooms are of three broad categories – independent, collaborate and broadcast (Atasi et al, 2008). Web-based learning approach has come to stay. It not only has dealt with standard but also classroom-based environment.

This learning approach has raised the stake on how well the benefits of collaborative learning will be properly harnessed in a web-based environment. Collaborative learning according to Zhao et al (2008) means that knowledge is not something that is delivered to students, but rather something that emerges from active dialogue among those who seek to understand and apply concepts and techniques. With collaborative learning environment there is enhanced student – student interaction which may contribute to the achievement of educational goals by influencing educational motivation and aspirations through peer relationships (Hilz, 1993). Kaye (1994) posits that to collaborate means to work together, which implies a concept of shared goals and an explicit intention of “add value” – to create something new or different through a deliberate and structured collaborative process as opposed to simply exchanging information or passing on instructions.

Web-based Virtual Classroom System (VCS) provides the platform or structure for effective collaborative learning through which quality knowledge in various forms and approaches can be gained. Some students live in other parts of the country (Nigeria) or even in other countries, and some are gainfully employed, some are hospitalized due to illness and some are physically challenged. For all these persons distance education and web-based learning (e.g VCS) may offer interesting opportunities and democratic advantages. Hilz (1997) asserts that collaborative learning at a distance may give as good results as learning in a traditional classroom, or even better.

To overcome some of these limitations outlined above, we propose to develop a “Mathematical model Web-based Virtual Classroom system” based on active learning approach. Various virtual classroom systems exist quite alright, to date there is no standard framework or model to guide developers of such systems. Our model is therefore intended to provide the much needed framework for virtual classroom system developers.

The task of this research is to examine current aspects of web-based learning environment (Virtual classrooms) in use and identify the areas for improvement and then overall goal being; to according to our requirements, develop a mathematical model web-based virtual classroom system (VCS) which will emerge as a viable tool through which collaborative learning and quality knowledge in various ways and approaches can be gained.

**Technologies Used**:

* Html
* CSS
* Java script
* Bootstrap
* React / React Native
* Java Spring Boot
* Database – Mysql
* AWS EC2, Lambda, S3

**Modular Description**:

* Admin
* Department
* Classes
* Teachers
* Students
* Parents
* Teacher\_Roles
* Subject
* Examination
* Exam\_units
* Questions
* Result
* Attendance
* Session
* Assignment
* Notifications
* Feedback

**Existing system**

The conventional educational system mainly consists of a group of teachers and students who will be gathering in a class room or seminar hall at a predefined time. The teacher will be providing the lecture to the present individuals, who will be collecting the available details. Students need to be present at the specific location at the specified time to take part in the class and thereby gain the attendance score that make them eligible for the exams. Examination will also require the students to be present at an examination location and most of the examination are still conducted in an offline fashion. Assignments are also required to be submitted by the student, and that also will be done in an offline fashion.

Main drawback of the system is that the student and the teachers have to assemble in a classroom for the entire process to be completed. This situation cannot be achieved due to the current pandemic situation. Also the current system is incapable of providing remote support for the students and also the students will be needed to visit multiple web applications or locations for accessing the details.

Current system will require the students to keep track of the university website for notifications, college website for different details from the college. Most of the colleges still uses offline application structure for the purposes. In most cases, the system also doesn’t have a method for the students to keep track of the attendance pattern and thereby improve their performance. The system also doesn’t provide any access for the parents to know about the student’s performance.

**Proposed system functionalities**

**Admin portal:**

The admin portal is mainly operated by the system administrator or the person in charge of adding details to the system. The admin is capable of managing the credentials, an SMS based password recovery system, adding of new admin entities etc. Admin is capable of adding staff to the system. Staff is mainly the teaching staff only. System uses staff as the initial point of management. Admin adds departments to the system and assigns a teacher entity as the HOD. Classes are added under the department and students are added to each of the classes. Parents are added and linked to the students.

Admin can also see all of the exam schedules, results and attendance of the students. Feedback can be seen by the admin. Notifications are created by the admin and delivered to the users across the system. Also, the system doesn’t allow any random user to generate the account. It can only be generated by the admin.

**Teacher portal:**

Teacher portal acts as the most functional portal in the system. Teachers can manage their profile, ie the credentials. System will equip the teacher to mark attendance to the students, conduct classes, exams and assignments.

**Teacher portal:**

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**preparation of requirements**

**4.Feasibility study**

**5.development of DFD**