# Academic Resources Architecture Framework Planning using ERP in Cloud Computing

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**Abstract -** *"Academic Resources Architecture Framework Planning using ERP in Cloud Computing" empowers educational institutional of varied sizes and operations to focus on delivery high quality education and not much thinking and worrying about the administrative process. It enables educational institutions to care of their administrative tasks and assists in repetitive resource-intensive activities through seamless automation. The architecture of "Academic Resources Architecture Framework Planning using ERP in Cloud Computing" is designed such a way that it meets the unique and varying needs of schools, colleges and universities or any management Systems to empower on Cloud computing. It also helps to talk Management to make affective managerial decision's leading to better management available in the Institute. All Processes Departments and Functions of an institution become automated and streamlined, leading to enhance Transparency, Productivity and Control which finally translates to higher overall efficiency. The cloud-based e-learning platform using approach of the research field of learning analytics is overall goal of research study. The E-Learning is used in educational technology, communication and information technologies and electronic media in the education.*

***Key Words***:  **Cloud Computing, Security, Privacy issues, Cloud storage, Challenges, Services, trust management, Application.**

## 1.  INTRODUCTION

Cloud computing have the mainly three services model that are (SaaS) Software as a Service, (PaaS) Platform as a Service, and (IaaS) Infrastructure as a Service. The cloud computing is have the deployment model as public, private, community, hybrid cloud. Cloud computing is concept widely accepted as a new, influential method in the field of information technology. It offers ease of access, flexibility, security, etc. [3]. In cloud computing, the word cloud (also phrased as "the cloud") is used as a metaphor for "the

Internet," so the phrase cloud computing means "a type of Internet-based computing," where different services such as servers, storage and applications are delivered to an organization's computers and devices through the Internet. Cloud computing is comparable to grid computing, a type of computing where unused processing cycles of all computers in a network are harnesses to solve problems too intensive for any stand-alone machine.
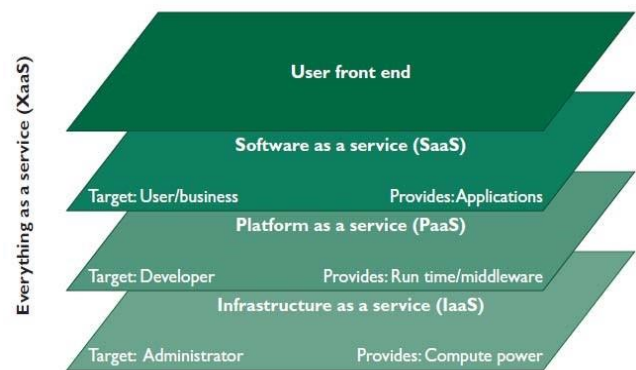


**Fig. 1** Cloud computing platform

The fig. 1 shows the mainly three types of layers of the cloud computing Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). All Processes Departments and Functions of an institution become automated and streamlined, leading to enhance Transparency, Productivity and Control which finally translates to higher overall efficiency. Over time, increased efficiency results in superior brand differentiation and enhanced quality for the institution. Adding extra features and import this on cloud which can be in handy for everyone who use this system. The cloud-based e-learning platform using approach of the research field of learning analytics is overall goal of research study. The current e-learning systems lack the appropriate infrastructures and efficacy integrated Application Model. The three different service model (SaaS) Software as a Service, (PaaS) Platform as a Service, and (IaaS) Infrastructure as a Service.

- Infrastructure as a service: IaaS is infrastructure service model it's includes storage and virtual machines. The load balancing is performed using IaaS.
- Platform as a service: PaaS is the responsible for development and delivery the programming models to IaaS. Users can access the programming models through cloud and execute a programs.
- Software as a service: SaaS supports the all applications in the cloud computing environment. This feature is accessible through the Web-browsers.

## 2. LITERATURE SURVEY

Irjet Template sample paragraph .Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. In [1] authors works on the cloud-based e-learning platform using approach of the research field of learning analytics is overall goal of this research study. The strengths of a cloud service it is possible to add value to learning process for all stakeholders. Evolution of new e-book standards as EPUB in its version 3.0 makes it possible to generate those additional features. The new features of the EPUB 3 standard makes it possible to create interactive exercises for students, nearly real time.

In [2] authors have proposed the E-Learning is used in educational technology, communication and information technologies and electronic media in the education. E learning contains the various types of media including images, video, audio, streaming videos, animation, web based learning, video based learning, audio based learning, E books etc. Lecture Audio, video data on internet is growing rapidly. By applying ASR (Automatic Speech Recognition) on lecture audio and OCR (Optical Character Recognition) on video content we can extract metadata. Speech recognition can classify into continuous or discrete system which can be speaker independent, speaker dependent or adaptive.

In [3] authors have presented, the cloud computing is concept widely accepted as, influential method in the field of information technology. It offers ease of access, flexibility, security, etc. To making a large number of cloud-based applications; one of them is the enterprise resource planning (ERP). In general, making an ERP accessible through cloud computing offers great benefits regardless of what field may use them, but in order to achieve that level of operation some guidance and assessments are needed.

In [4] authors have presented data on ERP i.e. Enterprise Resource Planning application is often viewed as strategic investment that can provide significant the competitive

advantage with positive return thus contributing to firms' revenue and growth. The main purpose of this study is to review the industry and academic literature on ERP results, to identify and discuss critical success factors which may help future ERP initiatives achieve greater success and less failure.

In [5] authors describes about importance of Cloud computing influences in many areas including E-Learning. Education is seen as important for the every individual and country's growth. Currently e-learning systems lack the appropriate infrastructures & efficacy integrated Application Model. The cloud technology gives platform to run our e-learning applications on the services basis to any end users using the internet from cloud infrastructure. Importance of the E-Learning Design features and analyses the need of cloud computing. The importance using of cloud environments for any institutes and learners usage.

In [6] authors works on System measure faculty members performance by assessing five main criteria: courses, faculty member teaching skills, students, research, and academic workshops. The system get these data input for each criterion during academic semester from faculty member. It is uses a mathematical model evaluates input data from each of five criteria and it generate a final reports that shows analytical information's on faculty members performance in selected semester, score for each criterion and conclude with final score as an overall scores for selected faculty member. In order to ensures the high performances of the proposed system recommend that following are main stakeholders of the system: quality assurance unit, pedagogical unit and IT unit. Those stakeholder need to works together in order to ensures the performance of this system. The development of education is an ongoing process, technology has major role to play in this developments. Intelligent algorithm based on mathematical equation, which will provide immediate responses to faculty members' input with correction, modification, suggestion and self-assessment resource.

In [7] authors discussed about the new place was not equipped with any systems for enabling delivery of course content over the Internet. Furthermore, university administration didn't have will to investments establishing e-learning system in the new place due to high cost, uncertainty of continuity. Only good thing is that Internet still working in most areas. So the teaching staff thought using free storage service offered by number of provider on the WEB for hosting course content start for academic activities. Therefore, started working on new system

utilizing Cloud Computing for managing courses in education fields. Cloud computing is a computing environment where one party can outsource computing resources and another party access resources via Internet.

## 3. SYSTEM DESIGN AND ARCHITECTURE

This paper is based on the MVC system architectures. The MVC or Model View Controller as it is popularly called, is a software design pattern for developing web applications. A Model View Controller (MVC) pattern is made up of the basically following three parts:

1. **Model -** The model is lowest level of the pattern which is responsible for maintaining data.
2. **View -** View is responsible for the displaying all or a portion of the data to the user.
3. **Controller -** The controller is Software Code that controls the interactions between the Model and the View.

MVC is popular as it isolates the application logic from the user interface layer and supports separation of concerns. The Controller receives all requests for the application and then works with the Model to prepare any data needed by the View. The View then uses the data prepared by the Controller to generate a final presentable response. The MVC abstraction can be graphically represented as follows in the fig. 2.
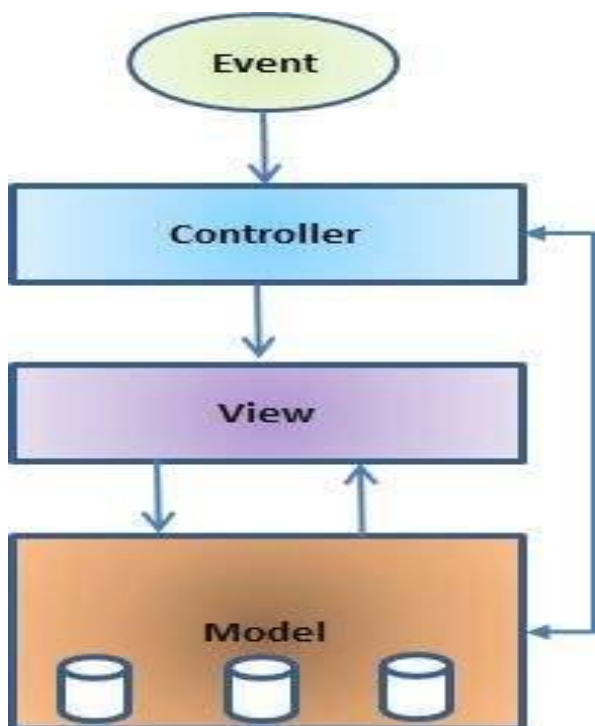


Fig. 2 MVC System Architectures

- **Model:** Model is responsible for managing the data of the application. It responds to the request from the view and it also responds to instructions from the controller to update itself.
- **View:** A view presentation of data in a particular format, triggered by a controller's decision to present the data. They are script based templating systems like JSP, ASP, PHP and very easy to integrate with AJAX technology.
- **Controller:** controller responsible for responding to user input and perform interactions on the data model objects. The controller receives the input, it validates the input and then performs the business operation that modifies the state of the data model.

➤ **Academic Calendar Module:**

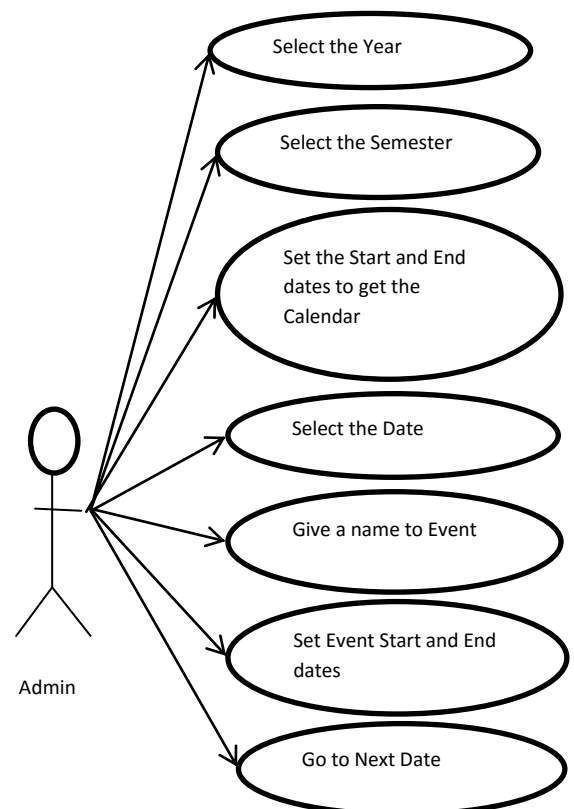The academic calendar module given the information of the whole semester schedule.



Fig. 3 Use case diagram for Academic Calendar

This module shows the plan for the whole semester for all of the users in an institution. The use case diagram of the academic calendar is shown in the above fig. 3.

> ➤ **Automatic Time Table Generation Module**:

The automatic time table generation module is used for the scheduling the daily time tables for the institutes.
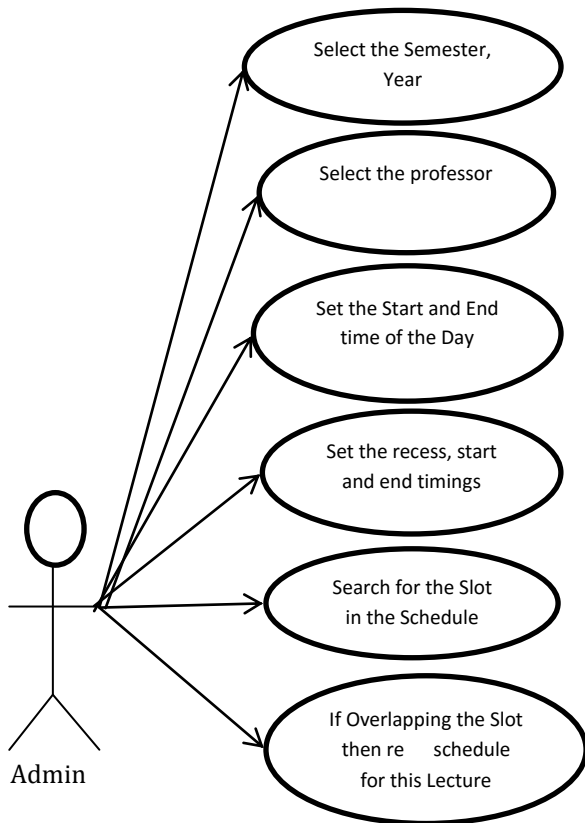


Fig. 4 Use case diagram of Automatic Timetable Generation module

- The use case diagram of the automatic time table generation module is shown in the above fig. 4. Automatic Timetable Generator it is Java based software used generate timetable automatically. Currently timetable is managed manually. It will help to manage all the periods automatically and also will be helpful for faculty to get timetable. It is the important part of the project is timetable generated automatically.

## 4. RESULTS AND ANALYSIS

The admin profile is views in fig. 5. Admin login the page, after login successfully admin click on the insert event button.
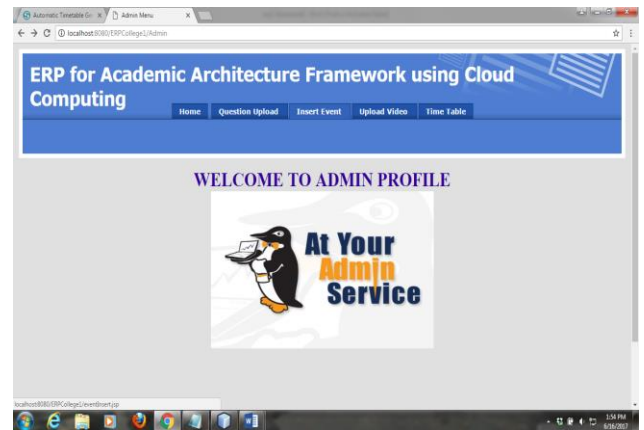


Fig.5 Admin Profile for insert event

And insert the all necessary field for the academic calendar module shown in the fig.6
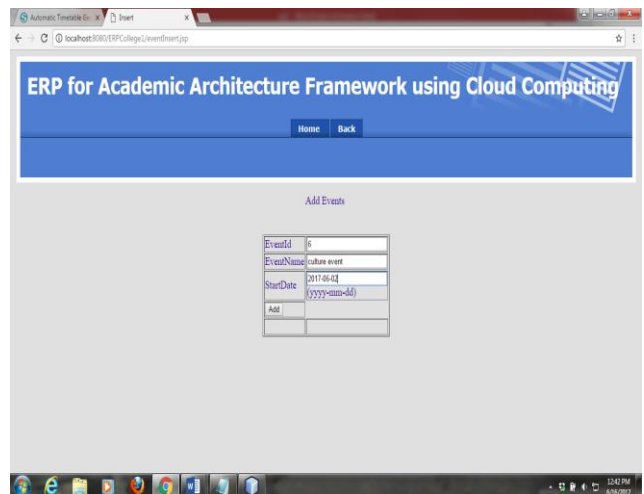


Fig. 6 Admin adding the academic calendar event

Admin is adding the event name field, the Event Id is primary key is added automatically. The admin will be added the start date of the event. After completing all the field in the add event then finally the admin click on the "Add" button. Then the event added successfully to the database. If fields are incompletes then event is not added to the database.

If the event is added successfully then that event is view to the user side module. First user login to institutes website. Then user click on the display event. The user module for the academic calendar event is shown in the following fig. 7.
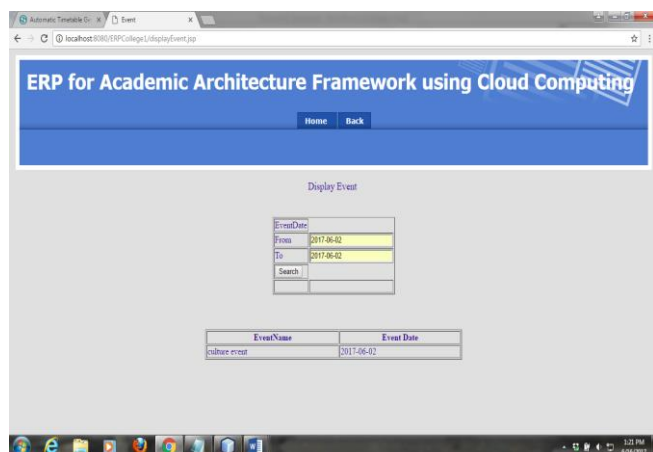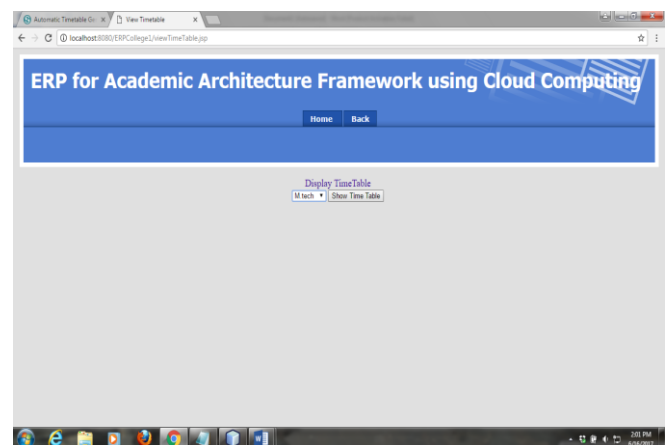
Fig.7 User side display event

The user should be enter the start date and end date for event which they inserted. After click on the submit button in the below table event name and event date will be displayed.

In the fig .8 it shows the screenshot of the automatic timetable generation module.
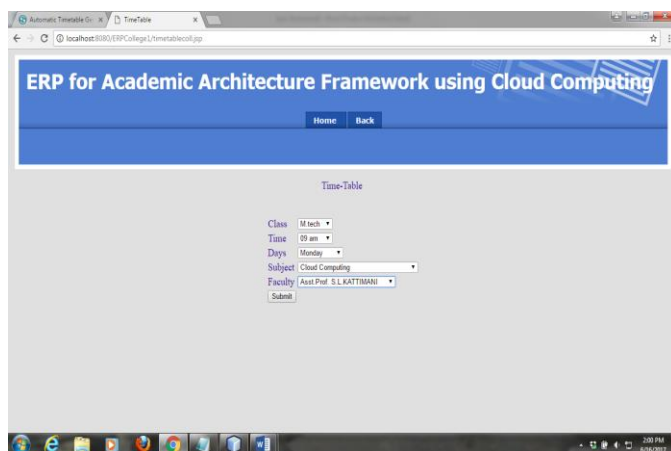


Fig. 8 Admin side Time table module

Admin should be enter the field to the time table module such as class, time, day, subject and faculty.

After entering all the field admin will be press the submit button and that schedule is added to the database of the particular class time table. In the fig. 9 shows the user (i.e. faulty, student) view the automatic time table module. User is select the class first then click on the show time table button then time table is view to the user. User is select the class first then click on the show time table button then time table is view to the user.



Fig.9 User side time table module

## 5. CONCLUTION

The paper is based on the college ERP system. Academic Enterprise architecture is a preferred framework to assist the development of architecture creation and can also be considered when measuring the alignment in institutes. The cloud-based ERP is proposed to be made by using the multi-tenant architecture. The traditional values of the ERP system do not only exist maintaining and supporting long term solutions, but also in delivering the latest technology. Automatic Timetable Generator is a web based application for generating timetable automatically. The automatic timetable is a great difficult task that to manage many faculties and allocating there subjects for them at a time manually. The effective use of "Online Examination System module", the any Educational Institute or the training centers can be use it to develop their strategy for putting the exams, and for getting better results in less time.

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