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Enterprise Resource Planning(ERP) for academic Architecture Framework using Cloud Computing

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Abstract: "Enterprise Resource Planning (ERP) for Academic Architecture Framework using 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 "Enterprise Resource Planning for Academic Architecture Framework using 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 helps to create an educational community where each of its users can get their entire job done at one Click. It's ensures better interaction between Students, Faculty, Parents and Institutional Management on cloud. It also helps to talk Management to make affective managerial decision's leading to better management available in the Institute. The E-Learning is used in educational technology, communication and information technologies and electronic media in the education. A cloud technology gives platform to run our e-learning applications on services basis to any end users using the internet from cloud infrastructure. Enterprise Resource Planning [ERP] application is often viewed as strategic investment that can provide significant the competitive advantage with positive return thus contributing to firms' revenue and growth. ERP system is to support enterprise managing has been increasing, including in an academic institutions. The Paper is composed of Four Major Modules namely Online Exam module, Audio and Video lectures module. This paper is focusses on ERP system how helpful to the Academic Architecture framework using Cloud Computing.

Keywords: Cloud Computing, ERP (Academic ERP, Business ERP), E-learning, Cloud based Services, E-smart system.

I. INTRODUCTION

The cloud computing is computing model which provide the on-demand services to the cloud users. 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 following 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. [1]. 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.

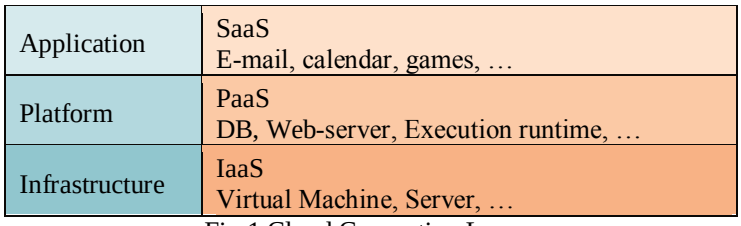

Fig.1 Cloud Computing Layers

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. The fig. 1shows 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).

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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 cloud-based e-learning platform using approach of the research field of learning analytics is overall goal of research study [2]. The E-Learning is used in educational technology, communication and information technologies and electronic media in the education [3].

Fig. 2 E- SMART LEARNING SYSTEM

The fig. 2 shows the e-smart learning system for educational field. The current e-learning systems lack the appropriate infrastructures and efficacy integrated Application Model. A cloud technology gives platform to run our e-learning applications on services basis to any end users using the internet from cloud infrastructure [4]. Enterprise Resource Planning [ERP] application is often viewed as strategic investment that can provide significant the competitive advantage with positive return thus contributing to firms' revenue and growth [5]. ERP system is to support enterprise managing has been increasing, including in an academic institutions [6].

II. RELATED WORK

In [1] 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 [2] 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 [3] 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 [4] 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 [5] 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.

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In [6] authors have presented the ERP system is to support enterprise managing has been increasing, including in an academic institutions. Unfortunately, these academic institutions usually don't have enough budget to implement an ERP system, because they typically are not profit-based enterprise. The existence of an open-source academic ERP system would be the answer. The idea be hand of restructuring regular business ERP to be transformed into academic ERP system, based on its architecture component.

III. SYSTEM DESIGN

The Paper is mainly based on the MVC (i.e. Model –View – Controller) system design architecture. The following Fig. 3 shows the MVC system design architecture.

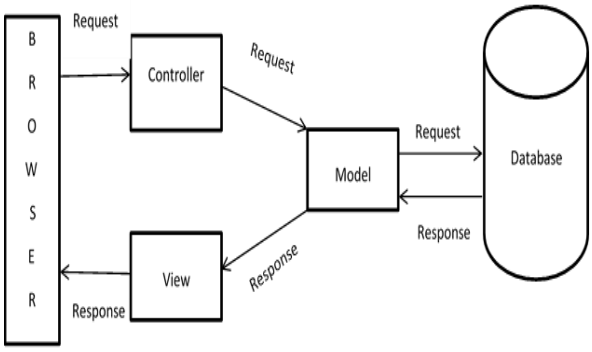

Fig. 3 MVC system design architecture

The MVC system design architecture works like, where authenticated user/admin uses a browser to get the information from the Cloud and he/she will get the result as per the fig. 3 Shows above.

- **Model:** The unchanging essence of the application/domain, the model (in the singular). In object-oriented terms, this will consist of the set of classes which model and support the underlying problem, and which therefore will tend to be stable and as long-lived as the problem itself.

- **Views:** For a given situation, in a given version there will be one or more interfaces with the model, which we'll call the views (plural). In object-oriented terms, these will consist of sets of classes which give us "windows" (very often actual windows) onto the model, e.g.
  - The GUI/widget (graphical user interface) view,
  - The CLI (command line interface) view,
  - The API (application program interface) view.

- **Controller:** A controller is an object that lets you manipulate a view. Over-simplifying a bit, the controller handles the input whilst the view handles the output. Controllers have the most knowledge of platforms and operating systems. Views are fairly independent of whether their event come from Microsoft Windows, X Windows or whatever. Controllers were Smalltalk specific. They are not of general interest and are not covered in any greater depth here. In Java's Swing architecture, for example, the view and the controller are combined (this is often done in other architectures). In Swing the combined view/controller is called the delegate.

➢ **Audio and Video Lectures Module :** The module enables students to access resources that support learning wherever they are; without need to attend a specific location at a defined time. The use of audio and video also makes it possible to present knowledge in different ways and enables different forms of interaction with learners. Audio and video to support learning is now more accessible than ever, especially for learners' off-campus. Audio and video materials can be used to enhance learning resources by showing real life scenarios, explaining concepts, observing social groups, and acting as triggers for discussion.

The fig. 4 shows the use case diagram of the audio and video module. The benefit of the audio and video module is as follows:

- Provides diverse teaching techniques for learning.
- Can be used to simplify and explain complex problems.
- Can allow students to access the learning materials as often as required.
- Allows students to learn at their own pace, with instant playback, rewind and pause.

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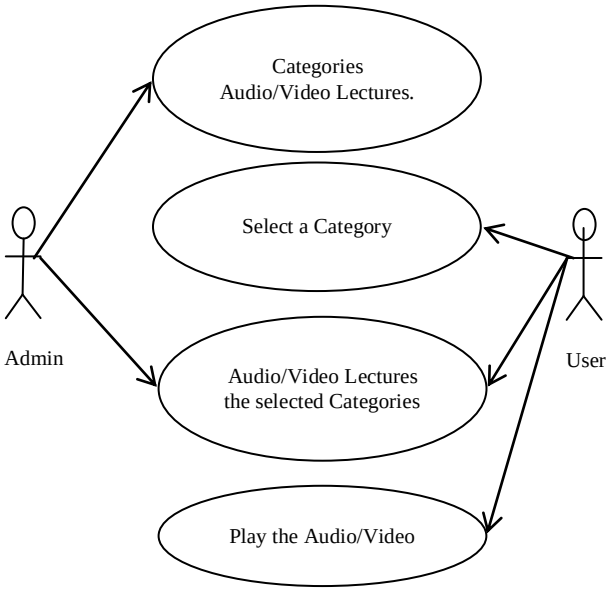

Fig. 4 Use case diagram for audio and video module

➢ **Online Exam Module:** This module provides the students of the institute to give an online tests so that they can upgrade their knowledge and the tests to be taken are added by the authorized users (Faculty/admin). The effective use of Online Examination module, to the any Educational Institute or training centers can be use it to develop their strategy for putting the exams for student, and for getting better results in less time. Online Examination is needful for a destination that is beneficial for both Institutes and students.
The fig. 5 shows the use case diagram for the online exam module.

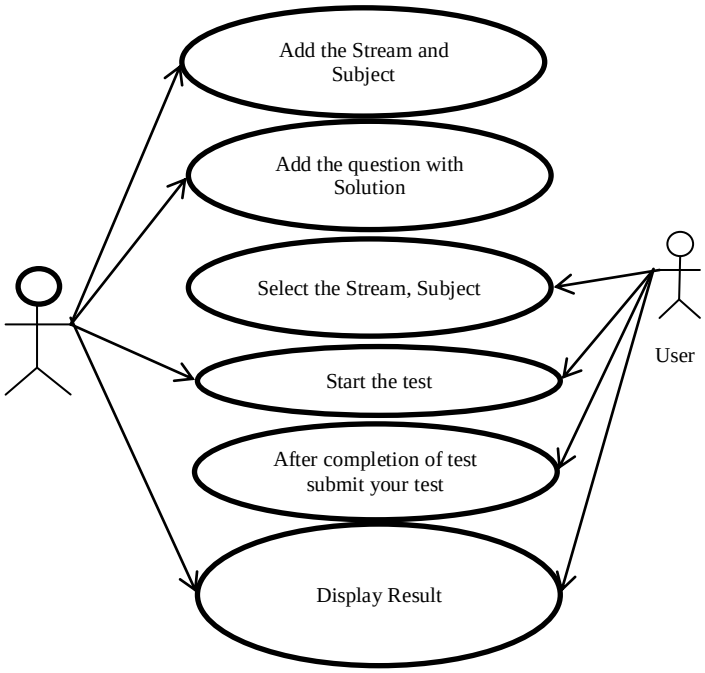

Fig. 5 Use case diagram for online exam module

Online Exam module is system that many educational institutions and the all users of this system can benefit from it. Many institutions use various paper materials and pens to process the manual examination. But in this online exam system, it provides student information, questionnaires, and answers. Candidate is given a limited time to answer the questions and after the time expiry the answer paper is disabled automatically and answers is sent to the examiner. The examiner will evaluate the answers, either through automated process or manually and the results will be sent to the candidate.

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IV. RESULTS AND ANALYSIS

The version of this The Admin profile is shown in fig. 6. When admin login the page then he/she will go to the admin profile. After login successfully the admin will be added the video to institutes website. The admin will be click the upload video button, then upload video program will be called.

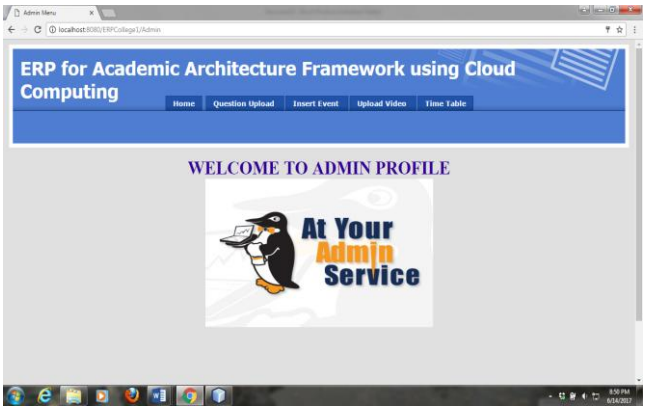

Fig 6. Admin Profile

The fig. 7 shows the upload the video file and its details.

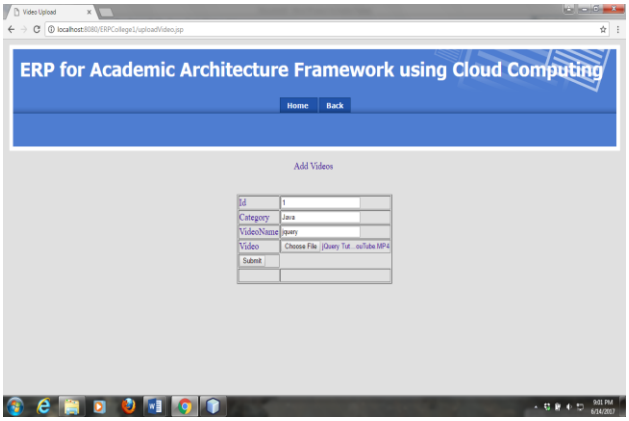

Fig. 7 uploading the video

After clicking the submit button the video will be added successfully. User will be view the added the videos. The fig. 8 shows the online examination module in the admin profile.

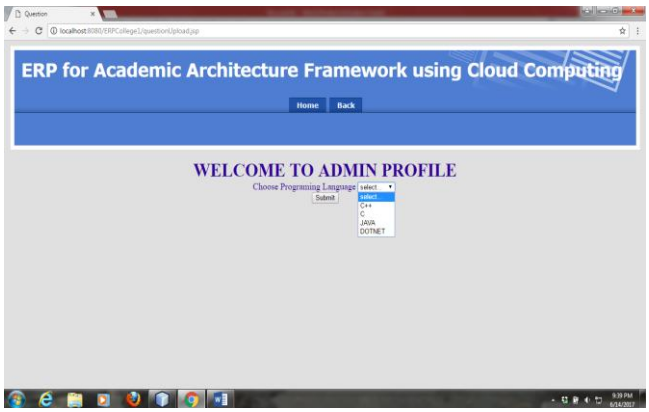

Fig. 8 Online exam module

The admin will be choose Programming languages and click the submit button. In the fig.9 shows questions are added by admin and he/she will added the correct answer for particular questions.

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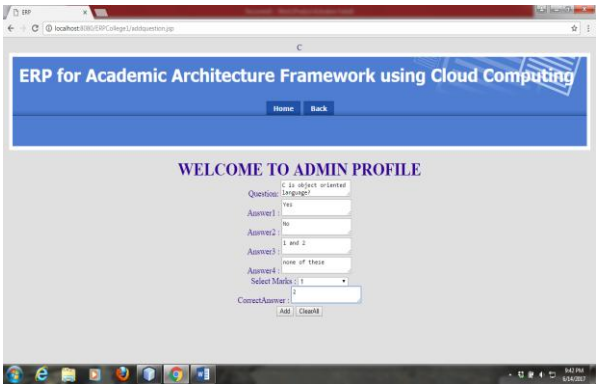

Fig. 9 Questions adding to online exam module

The user will be login the college website and selected the online exam module and choose the programming language, shown in the fig. 10. If new user want to give the test then first it will be registration in the institutes website.

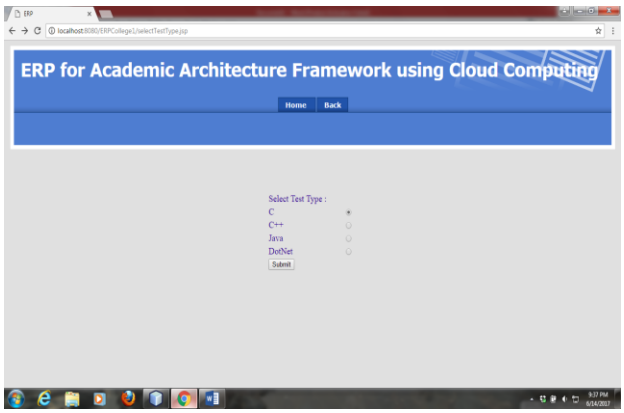

Fig.10 User profile for online exam module

After choose test type the user will be click on the submit button, the test is started with timestamp. This is shows in the fig. 11.

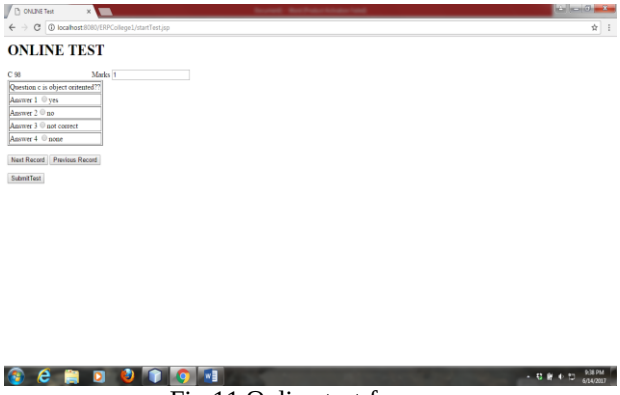

Fig.11 Online test for user

V. CONCLUSION

In this Paper, Cloud computing will be larger impact on the educational organization and virtual classroom learning environment. The approach of learning analytics in a cloud-based service, the output of such solutions can be help, teachers and students, to experience learning in a new way. Content-based video indexing and recovery in large video archives. Academic ERP requirements are Integration, Flexibility, Service evolution and Support in decision making. The development of education is ongoing process, and technology such as cloud computing and e-learning play major role in this development. The authenticated and examine premise can be concern video as well as audio resource of videos to extract content-based information mechanically.

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BIOGRAPHIES

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