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STUDENT INFORMATION SYSTEM USING CLOUD COMPUTING

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Abstract –

Cloud computing has emerged as a new compelling paradigm for the deployment of Applications and services .It represents an evolution of cloud programming models, abstractions, platforms and is a testament to the maturity and wide adoption of Cloud technologies. Cloud Computing has been intended as the future-generation technology of an IT enterprise. In order to ensure secured way of establishing, cloud storage has been used .Many Student Information system applications are available from the early days itself .These cloud based student information system has no limit of storing the data and the students can gather the data from the software through online at any time anywhere and also students can publish their own contributions through this application. The methodology present here are cost effective as well as scalable to other organizations that own Student Information System.

A Static Website to be hosted with User Management and a cloud based backend is created. JavaScript executed in the browser sends and receives data from a public backend API built using Lambda and API Gateway. The data will be generated in the form of PDF or EXCEL SHEET.

Keywords: **Cloud computing, Serverless computing, AWS services**

1. INTRODUCTION

Several trends are opening up the era of Cloud Computing, which is an Internet based development and use of computer technology. The ever cheaper and more powerful processors, together with the "software as a service" (SaaS) computing architecture, are transforming data centres into the pools of computing services on a huge scale. Due to the increase in network bandwidth and reliable yet network connections make it even possible that clients can now subscribe high quality services from data and software that resides solely on remote data centres that are monitored and maintained around the clock by content providers. Cloud Computing is an extension of this paradigm where the competencies of applications are exposed as services. These services empower the development of scalable web application in which dynamically scalable and often virtualised resources are provided as a service over the internet.

Educational establishments continue to seek opportunities to rationalize their way they manage their resources. Educational institutions can take advantage of cloud application to provide students and teachers with free or low cost alternatives to expensive, proprietary productivity tools. Student Information System provides with different types of events that are conducted by different colleges to provide knowledge on different technologies and the interest of students towards it. We can encourage and demonstrate the practice the actual methods as going beyond the horizons of textbooks and making something innovative is certainly a measure to improve an individual in practical terms. And such programs when conducted are not known by the students. So our Moto is make students aware of the events conducted in the colleges. The project "Student Information System using Cloud Computing" is about how to develop the application that is used to collect the information regarding the events and the training programs conducted by various colleges. This is a cost efficient and secure application that is built using some of the major Amazon Web Services.

2. AWS SERVICES

It is an on demand cloud computing platforms to individuals, companies and government. AWS technology is implemented at sever farms all through the world. It is available all the time, through the internet. Allow AWS subscribers to connect to their AWS system using a modern browser. It provides security for the user system. It also provides wide range of services including computing, storage, networking, database, application, deployment, management and so on. The Services which we use for this application is AWS for storing any amount of data from anywhere at any time. S3 is highly scalable, reliable and inexpensive. **Lambda services:** is the service that will help us to run the code without physically managing the servers it will execute our code only when we need and will scales automatically ,We can run the code virtually for any type of application or backend services. **API gateway:** This is the service that is provided by Amazon for the developers to create publish monitor and maintain and any scale secure API calls and here there is no minimum fees and so that we have to pay only for the API calls that we have received and it will handles thousand of API calls for all the task that we are going to perform. **Cognito:** They are mainly used for the user management and for the user authentication they can handle with millions of users with social identity providers. It will let us to add the user sign-in sign-up and the for the web and for mobile apps it will provide full access control. **Dynamo DB:** It is a NoSQL database that is used to manage large scale data and it will reduce the complexity of having volumness amount of data, we can create database tables and can store and retrieve any amount of data at any time. It will backup the data when we require and the main advantage is that it will reduce the memory consumption by deleting the expired items from our database table automatically.

3. EXISTING SYSTEM

In the existing student information systems they are mainly focused on the student data like their attendance, results, academic details, personal details and in the existing system they need to handle the physical sever and it will be very cost effective.

3.1. DISADVANTAGES OF EXISTING SYSTEM

- They need to handle the physical servers
- It is cost effective
- More space will be needed for the physical setup
- Administrator is needed

4. PROPOSED SYSTEM

Student information system using cloud computing is a web application which establishes the details about the extracurricular activities that are going to conducted in different institution so the student can gather the data and they can also register. If the students are aware of any events also they can upload the details about the events including the data, venue ,registration link etc:

We are using cloud as the backend for storing the entire data related the events and the information about the students who are going to participated in the events and the data will be generated in the form of EXCEL SHEET or PDF. Some of the AWS services like S3,Lambda,Cognito,RESTfull API, Dynamo db are used. The module split up is as follows.

- Static Web hosting(S3)
- Serverless Backend(Lambda)
- User Management(Cognito)
- RESTful API

Student Information System using cloud computing has a major significance such as follows:

- Cost efficient as the code runs only when triggered
- Highly scalable
- Disaster recovery is possible as it stores the data in data centers
- Accessible anywhere at anytime

Student Information system using AWS services has a major outline report which is as follows:

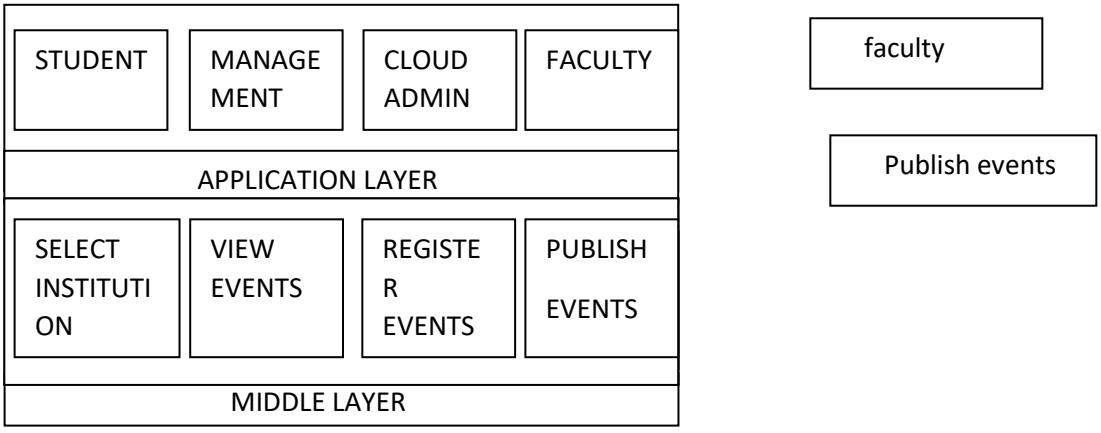
- Capital cost has to be reduced
- Accuracy
- Scalable and secured
- User friendly
- Managing and maintaining data becomes easier.

A literature review is a text of a scholarly paper, which includes the current knowledge including substantive findings, as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources, and do not report new or original experimental work. Cloud storage and cloud servers have become easier than ever to backup all our important file online. Cloud computing is an expression used to describe variety of different computing concept that involve a large number of computers that are connected through real-time communication network(typically the internet).Cloud computing is the distributed computing over a network and means the ability to run a program o many connected computers at the same time. We are now given the flexibility of accessing all our files from anywhere in the world.Fig1.represents the architectural diagram and Fig.2 represents the work flow of thesystem. In our proposed system it is a software application for educational establishments to manage the data of events. In order to ensure secured way of establishing, cloud storage has been used .Many Student Information system applications are available from the early days itself .These cloud based student information system has no limit of storing the data and the students can gather the data from the software through online at any time anywhere and also students can publish their own contributions through this application. The methodology present here are cost effective as well as scalable to other organizations that own Student Information System.

4.2. ADVANTAGES OF PROPOSED SYSTEM

- Low cost
- Highly scalable, reliable
- High data security
- Disaster recovery
- Can access from anywhere at any time

5. ARCHITECTURAL DIAGRAM:



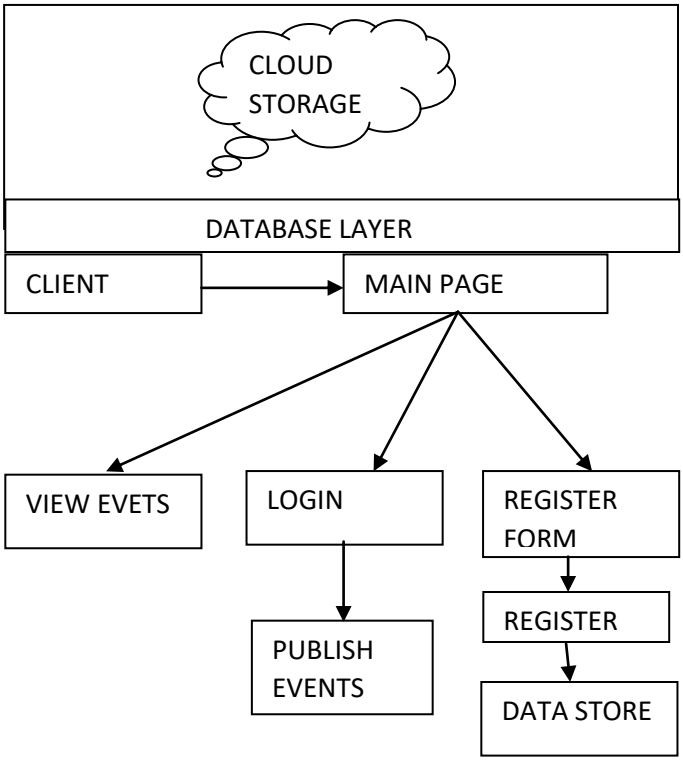


Fig.1 5.1 SYSTEM DESIGN

6. CONCLUSION

Using this application, we access the information regarding the events conducted in the Institutions directly without accessing different servers for that by consuming time and work. This is efficient and cost effective. The students can receive the data within seconds from the storage because of using the aws cloud as the backend. It will be very easy for the faculties to get the details of the event attended students and the data will be generated in the form of excel sheet. The system will be user friendly and scalable and reliable.

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