

# Cloud Based E-Learning Portal

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## Abstract:

Cloud computing has made developing and accessing apps over the Internet much easier. Services are obtained from the Internet using these technologies. Cloud computing's main goal is to give users on-demand access to hardware and software resources while only paying for what they use.

The main goal of cloud computing is to allow users to use hardware and software resources as needed by paying usage fees based on usage. There are many types of workloads in the cloud, such as batch backend jobs and client applications. Today's cloud computing technology offers convenience, economy, and scalability, so there is much less need to maintain and manage your IT infrastructure. Help the company without being oppressed. The E-Learning platform will permit impartial LMS to be embedded in specific tiers of e-studying to proportion studying substances. In short, cloud computing will make it feasible to get admission to a massive variety of studying substances clearly and flexibly online.

**Key Words:** AWS, CLOUD BASED, CSS, HTML, JAVASCRIPT, PHPMYADMIN. MYSQL, LAMP STACK.

## 1. INTRODUCTION

Copying, editing, and accessing materials from a distance are referred to as cloud computing. Information is becoming increasingly important as a result of globalization.

Cloud computing can help you with your requirements. Sharing and transmitting knowledge has been considerably easier with the invention of technology. Without consulting the provider, cloud services can be employed. A multitude of communication tools is used in education and learning. As a method of learning and teaching, the idea of building well-designed and dynamic learning environments that everyone can utilize in a student-centered setting is becoming increasingly popular. Researchers are increasingly looking at e-learning as an effective means to substitute face-to-face education as a way to improve knowledge and skills delivery around the world.

E-learning makes it simple and convenient to obtain an effective and high-quality education. Nevertheless, effectiveness depends on how Information and communications technologies are used. Learners can get a good understanding of how to use electronic educational technology through e-learning, which is based on cognitive science principles.

## 2. E-Learning current state and challenges

A process of using technology to support the traditional education system, but e-learning cannot replace the traditional system. Client-server architecture and web-based technologies are commonly used for an e-learning system.

Due to some limitations in this architecture, e-learning is not fully utilized, since it lacks interoperability and accessibility. According to previous studies, several researchers have utilized web services in order to resolve interoperability issues. E-Learning successfully addresses interoperability issues by using web services that focus on the selection and combination of learning objects.

Nowadays, e-learning applications are either commercial or open-source. In addition to the advantages of rapid implementation due to vendor support, commercial products have the disadvantage of ongoing maintenance costs. Commercial e-learning applications have their disadvantages, including high initial costs of the software, high initial an open-source e-learning application is used by most universities.

Although the cost of acquiring e-learning software is very low, Professional hiring costs for infrastructure investment and maintenance and updating the learning applications require significant investment. Due to the above phenomenon, e-learning applications, whether it's open source or commercial, require a large investment in infrastructure. If the school uses open-source e-learning software, it may need to pay more staff to continually improve the e-learning application. The use of e-learning trends today can also pose the problem of institutions building their own e-learning systems. It is more likely to occur if two or even more institutions are prepared to collaborate in the development and use of e-learning in order to reduce the cost of establishing the system. It is more likely to occur if two or much more institutions are prepared to collaborate in the development and use of e-learning in order to decrease the waste of implementing the system.

### 3. Literature work

[1] A person can use the internet to read web pages about the environment and to use evolving software applications.

Cloud computing is increasing rapidly as more industries shift their focus from investing in processing power to hiring it from specialized vendors. The education sector is no exception. The hardware and software needed for electronic learning systems are often quite extensive. Applications are being developed and accessed in a whole new way with cloud computing. Cloud computing technologies use advanced internet infrastructure to deliver applications as services. With the development of cloud computing and a grading system, it is now possible to build such e-learning system that can be provided to providers as a new way to study. As such, an e-learning system based on cloud computing infrastructures would be feasible and would be able to significantly improve investment efficiency and management capability, making the e-learning system a positive and beneficial asset for both providers and customers.

[2] E-learning testing is an integral part of the whole e-learning process. During testing, several factors should be taken into account. A structured approach to testing has been developed by defining key elements of success in recent years. In our view, they focus on many aspects but do not take seriously the academic satisfaction of their students. The learner's perspective should be accessed where it is presented in e-learning applications. Both on the learning contact pages and off the learning contact pages, but directly on the e-learning subject. Since these resources are not standard, it is important to set them up before using them for testing. Throughout this paper, we discuss a proposal that can capture the attention of the reader while using social media, using a variety of techniques, including ontologies helps us understand what students are saying and how they are saying it in e-learning.

[3] It is essential for educational institutions to have a primary goal of finding effective ways to provide new learning

opportunities, student characteristics, teacher training, and economic crisis in an effort to make learning more effective and innovate in higher education in the era of technology and knowledge. Guarda Polytechnic Institution, Portugal (IPG), recognizes the need and opportunity to create and develop e-education courses (e-learning mixed e-learning, mobile learning) tailored to the needs of students. In the past decade, we have developed and implemented a set of institutions' electronic courses that provide access to online content from anywhere. In this paper we present the results and summarize the data collected during the time we used the mobile learning solution in March 2012. However, but its primary purpose is to present our strategies, vision, and objectives regarding learning without topology. Cloud learning is the next step in the field of learning, according to us. As we've learned over the past decade, some components of the learning system require more attention than others when it comes to creating new effective and powerful learning opportunities.

[4] E-learning is a method of teaching and learning that makes use of information and communication technologies to improve collaboration and communication in the classroom. A technology specialist will also add online resources and learning environments so that the education process can take place online. The paper emphasizes the importance of e-learning in higher education at your level as well as the growth of Indian LIS education. The article also includes descriptions of some of the major initiatives in India and the targeted categories covered by online education. Describes the importance of vision in relation to information and communication technology so that future leaders can better prepare themselves for it. In this paper, we present a future vision for e-learning in India, where the need for higher education is no different than in developed countries. Learning was viewed as a grade only program, but no one can deny that it is the newest online program and has done

wonders around the world and is now benefiting from the education class as well. Education was once considered useful for grade-only programs, but no one can deny the truth that learning is the newest online program and has done wonders all over the world. It is now also proving useful to education students.

[5] The paper describes the security aspects of e-learning authentication. This study primarily seeks to determine a legitimate user of the system by gaining validity. Information on the internet can be accessed and shared by anyone. Furthermore, user hackers also need to test the web application and infrastructure to understand its structure, identify potential vulnerabilities, and use them to break or exploit the application. Our verification process has resulted in several RIPEMD-160 verification algorithms. RIPEMD-160 downloads complete secure authentication.

[6] With an ever-growing capacity for lifelong learning, primary education is replacing university education. Primary education requires well-organized organization and resource management tools, such as the portfolio. Universities in the early, platform. Universities in the early stages of portfolio implementation may face a variety of technical and organizational challenges. It is based on the views of educational institutions where sites are used with limited financial resources by a few academics with little experience in the area. A number of important points are raised by the authors, such as analysis of school requirements regarding grade education server resources, site selection technically, supported standards or tasks required for appropriate and finalized studies. Additionally, the article mentioned the often overlooked aspect of portfolio management. In this chapter, the authors discuss computational skills, how they are used in the educational environment, and how they are

applied to distance learning. In eastern and central Europe, particularly, such a solution is extremely rare.

#### **4. Benefits of using cloud computing E-Learning**

Researchers can search and find models and make discoveries faster thanks to educational cloud computing, which has many interesting applications. This allows thousands of computers to work on one problem at the same time. Researchers can search and find models and make discoveries faster thanks to educational cloud computing, which has many interesting applications. Universities can utilize cloud computing to cope with ever-increasing resource requirements and energy costs. Students desire to connect to college services using their personal mobile devices. Faculty members desire easy access and flexibility when it comes to incorporating technology into their classrooms. Researchers must have access to high-performance computing services without having to operate massive servers and storage systems. It's crucial not to overlook the importance of cloud computing in university education, as it allows students to have immediate access to a variety of academic resources, research applications, and educational tools.

In general, but not always, e-learning systems are created as distributed applications. A client application, an application server, and a database server, as well as the hardware required to support the client computers, communication infrastructure, and servers, make up the architecture of a distributed e-learning system.

##### **Key benefits of cloud based e-learning:**

There are various advantages of using cloud computing technologies for e learning.

Here are few:-

##### **Cost effective:**

In order to execute, e-learning programs do not require a computer with a high configuration.

Through their computer, mobile phone, or tablet PC with minimum configuration and internet access. Cloud computing eliminates the user's need to purchase large amounts of memory to store data locally, since data is created and accessed in the cloud. In addition, organizations also pay per use, which makes it cheaper and allows them to use only as much space as they need.

##### **Improved performance:**

The cloud-based e-learning applications use most of their applications and processes in the cloud, so client machines don't interfere with the performance when they are operating.

##### **Instant software update:**

Software updates are automatic with cloud-based e-learning applications. As a result, learners always receive updates.

##### **Improved document format compatibility:**

Some file formats and fonts do not work properly on some pcs and smartphones, so cloud-based learning applications do not have to worry about those kinds of issues. In cloud-based e-learning applications, files are opened from the cloud.

**Benefits for students:** Cloud-based e-learning offers more advantages to students. Courses can be taken online, students can take online exams, teachers can provide feedback about their courses, and students can submit assignments and projects online.

##### **Benefits for teachers:**

In addition, cloud-based e-learning offers numerous benefits to teachers. The use of online formats allows teachers to create online tests for their students, deal with and manage feedback from their students, and communicate with them regarding.

##### **Data security:**

As the data and software are located on remote servers, there is a great concern about data security since they

are susceptible to crash or disappearing without warning. While it may initially seem unreasonable, cloud computing provides several important security benefits to businesses and individuals that are using or developing e-learning solutions.

### 5. Proposed System:

In this pandemic situation, when businesses, universities, and schools were required to do everything online, including their education, the idea for the project came about. My idea was to build a “**cloud-based e-learning portal**”.

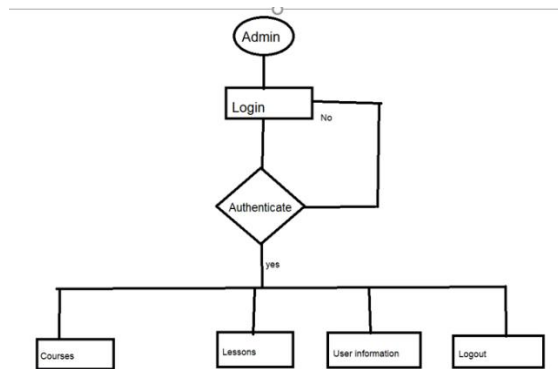
With electronic educational technology, learners can have effective multimedia learning that is based on cognitive science principles. With e-learning, learning is fast, efficient, and cost-effective for both users' ease and organizations' profitability. e learning is the framework of earning, whereas cloud-based learning works. Cloud based learning has enormous direct and positive effects on learners. At both a national and global level, the ratio of students is increasing. It simply supports students in mastering a particular software or subject. It strengthened information technology and information retention over time. It is not necessary to pay for travel expenses. The popularity of e is growing every day, and it is not going to disappear in the coming years. Cloud-based e-learning is gathering an increasing number of users and can allow learners develop their knowledge from anywhere at any time. As a result, businesses are paying more attention to this learning

tool. Easy generator is a cloud-based learning platform that includes a simple tool for creating required or in-demand courses without the need for coding knowledge. Define objectives on the easy generator and urge educators to use a solid instructional framework to measure learning success.

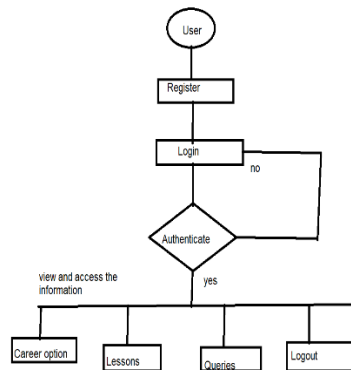
#### Data Flow Chart:

The most essential modelling tools are data flow diagrams (DFDs). A DFD is a diagram that shows how the system's components interact. A process, data used by the process, an external entity that interacts with the system, and information that travels through the system are the four components of the system. DFD is sometimes known as a bubble chart. At any level of abstraction, A DFD can be used to represent a system. The DFD can be divided into levels, each of which represents an increase in information flow and separation of functions. The steps involved in transporting data from the input to file storage and report generation in a system are referred to as DFD. A data flow diagram's most essential function is to keep the software orderly. Data flow diagrams are used by programmers to plan exactly how their new initiative will achieve its goal.

#### Admin side:



#### Client Side:



## 6. Implementation:

Google Cloud Platform (GCP), Amazon Web Services (AWS), and Microsoft Azure are examples of platforms. AWS was my choice for my project.

Project in AWS (Amazon Web Service), a renowned platform that delivers services to clients and allows them to execute laboratories and projects. They can always get the results they want. It took me many days and months to complete such a project; it may appear simple, but designing HTML and CSS requires a variety of computer languages such as JavaScript, PHP, and Backend. Any of you can do this if you have a good understanding of what you're doing.

#### Creation process:

Under this section, I'll explain how I started building the backend side of such a beautiful project using HTML and CSS (Cascading Style Sheets). I used HTML to give a font style and, in general, to develop a website structure. Which includes a heading, a paragraph, and links, among other things. H1,H2,H3,.....H6 are the six different types of headers. For a title, I used H2. I'm using the p>tag for paragraph to write something that I'll use in a project for writing a blog. I'm going to make a part where I can see what they can achieve with a website like this.

CSS was used to create the design and style of the webpage. CSS can be thought of as an HTML supporter. This specifies how HTML elements should appear on a screen, on paper, or in other media. You can customize the look of your sheets to your liking. I used a standard page and simply put a Button and a design on it. With style, you can quickly colors your website. JAVASCRIPT is a high-level programming language that is used to add functionality to a website that has been built with HTML and CSS.

PHP (short for "PHP: Hypertext Preprocessor") is an acronym for "PHP: Hypertext Preprocessor." PHP is an open source scripting language that is frequently used.) It's used to make interactive and dynamic webpages.

#### Cloud computing process:

An Amazon EC2 instance is a virtual server on Amazon's Elastic Compute Cloud (EC2) for running applications on the Amazon Web Services (AWS) infrastructure. EC2 is a service that allows business



subscribers to run software application in a computing environment. AWS is a complete and ever-evolving cloud computing platform, whereas AWS is a service that allows business subscribers to run software application in a computing environment. It's possible to make an almost limitless number of virtual machines with it (VMs). According to the AMI EC2 Service report, Amazon EC2 Service Security and Safety Cloud affiliates like IBM Smart Cloud are changing the path of leading enterprises by regulating their IT structures and delivering an online cloud. It's not tough to keep up with what's going on in the world today. You can normally buy or rent virtual photos online and upload, retry, and package them using the cloud relationship's APIs.

Go to the AWS Services tab in the top left corner of your AWS account after logging in. All of the AWS Services are organized here by area, such as compute, storage, database, and so on. In the next step, we must select Compute EC2 to create an EC2 instance. Open all of the services and select EC2 from the Compute services section. This will open the EC2 dashboard. The EC2 dashboard is shown below. Here you will find a summary of all the information about the AWS EC2 resources that are currently active. Choose the AWS Region in which you wish to provision the EC2 server in the top right corner of the EC2 dashboard. N.Virginia is the state we've chosen. AWS has ten regions throughout the world.

**LAMP STACK:** The LAMP STACK is a collection of open-source tools for developing web applications. An operating system, a web server, a database, and a

programming language are all required for a web application to function. For a database-driven and dynamic website, each layer of software is critical. The acronym LAMP stands for the following programs Linux is a free and open-source operating system. HTTP Server Apache MySQL is a relational database management system. PHP is a scripting language. Using the CTRL+ALT+T keyboard shortcut or searching for the word terminal in Ubuntu Dash will bring up the terminal. Make sure the package repository cache is up to date to ensure the program is installed with the most recent versions.

## 7. Conclusion

In the coming years, the use of e-learning technologies will skyrocket as the number of students grows. This report discusses the five most popular e-learning tools. This report discusses the five most popular e-learning tools. With each passing day, the number of e-learners continues to rise. Institutes and businesses are experimenting with and promoting e-learning technologies in order to increase students' and employees' learning abilities. Cloud-based e-learning is used by a variety of organizations and institutions to provide a realistic and reliable learning experience. Everyone is benefiting and gaining advantages in a variety of ways from the evolving e-learning solutions, including acquiring knowledge as well as learning. When using cloud computing for e-learning, all of the vital and important data uploaded by a variety of

institutions or organizations can be easily shared across the network's or cloud's users.

E-learning has become a more prevalent learning strategy in higher education institutions as the Internet has grown in popularity. In addition, the e-learning process provides students with new tools and resources for learning, allowing them to study according to their preferences to a greater level.

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