

# Simulation a platform educational by using cloud Computing

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## Abstract

*Cloud Computing is a common word in this present time also led to changed the whole scenario, cloud computing being “on demand” like other “other services”, such as electricity and mobile and etc., and several educational institutions have been considering and some of them even adopting cloud computing strategies to meet their requirements.*

*Cloud computing services are a growing necessity for educational institutions, In spite of there are still several risks are associated with clouds but its potential benefits outweigh the risks. this paper describes some of the education platforms which used in this education, Then This paper describes the process virtual simulation platform educational use of cloud computing in the Department of Computer Science, which follows the Faculty of Computer Science at the University of Kassala-Sudan. With the use of Moodle (LMS) and it has great benefits in facilitating the learning process in the Department of Computer Science when using this Moodle.*

## Keywords

Cloud Computing, Educational Platform , Moodle, LMS: learning management system

## I. INTRODUCTION

Education is considered an important element of life because it provides us with all that is needed to make our dreams come true. One of the most promising paradigms for education is e-learning. Usually referred to the intentional use of networked information and communications technology (ICT) in teaching and learning. Some other terms are also used to describe this mode of teaching and learning including online learning, virtual learning, distributed learning, network and web-based

learning. Since the last decade, there is a growing interest in e-learning from several directions. Distance education programs see it as a logical extension of their distance education activities. university-based educational organisations as well see e-learning as a way of improving access to their programs and also as a way of tapping into, organisations growing niche markets [1-2]. The growth of e-learning is directly related to the increasing access to Information and Communication Technology, as well as its decreasing cost. The capacity of Information and Communication Technology to support multimedia resource-based learning and teaching are also relevant to the growing interest in e-learning.

Growing numbers of teachers are increasingly using Information and Communication Technology to support their teaching. organisations see advantages in making their programs accessible via a range of distributed locations, including university, home and other community learning or resource centers.

Thanks to Information and Communication Technology, the dream of learning anywhere and at any time has become true. Despite this level of interest in e-learning, it has many Obstacles and restrictions. The main obstruction to the growth of e-learning is the lack of access to the necessary technology infrastructure Because without it there can be no e-learning. Bad or insufficient technology infrastructure can cause more damage than good to teachers, students and the learning experience [3].

## II. Environmental educational for Cloud Computing

Cloud computing is a rapidly growing subject which attracts many people from various disciplines. It transforms how computing resources (e.g. storage,

servers, processing, networking and applications) are provisioned, managed and delivered to users [4,5,6,7,8].

The National Institute of Standards and Technology defined five of essential features for cloud computing which include ,On-demand Self-Service, Broad Network Access, Resource Pooling, Rapid Elasticity and Measured Services [9-10]. Cloud providers may offer tremendous applications to their customers. These applications may vary widely to provide many services in education, and etc.. The hardware and systems software in the datacenters that deliver those services it is what we call a Cloud [4].

Users of cloud applications do not require expertise and knowledge to control the infrastructure segment of clouds, so abstraction and virtualization [11-12] might be provided to utilize the services of an Advanced Computing Internet with high scalability, higher throughput, quality of service and high computing power, this is known as Infrastructure as a Service (IaaS). Cloud computing providers deliver common online services which are accessed on the Internet through a web browser. These services have long been referred to as Software as a Service (SaaS). The service being sold is called Utility Computing. Thus, Cloud Computing is the sum of SaaS and Utility Computing [5]. Cloud allows consumers to not only deploy but also design, model, develop and test applications directly on the Cloud. It supports work in groups on collaborative projects where project team members are geographically distributed, this is known as Platform as a Service (PaaS). PaaS provides development infrastructure including tools and programming languages. The cloud can be used by public individuals (public cloud), a single organisation (private cloud) or more than one organisation that share the same interests and policies (community cloud). It can also be a mixture of public and private clouds (hybrid cloud) [13,14].

### **III. What is an application platform**

Just about every application today relies on other software: operating systems, database management software, even software running in the public cloud. Whatever it does and wherever it runs, all of this software together comprises an application platform. Application platforms play a fundamental role in modern computing environments. Applications and the data they use to provide all of the value that information technology brings, and virtually every application depends on an application platform. Since pretty much every organisation today relies on applications, there's a clear connection between business value and application platforms.

All applications they support to run on all kinds of computers, including mobile phones, desktops, on-premises servers, and servers in the public cloud. An

effective application platform needs for providing the right set of services on each of these. And different kinds of applications need different things from an application platform. A single-user application running on a phone needs radically different services for execution and storage than does an application that runs in the cloud and supports thousands of simultaneous users. Thinking clearly about all of this diversity it requires taking a broad view of application platforms, whatever services they provide and wherever they run. [15].

### **IV. Types Of Educational Platforms**

That the spread and development of information technology across most of the world have a significant role in the development of the educational process, which led to the emergence of many educational platforms that have helped to facilitate development of e-learning. There are many education platforms including platform free education and platform, not free education, Such as education platform Chamilo and platform (MOOC) Massive Open Online, and Open Stack is a free Open-source software platform for cloud computing.

In spite of lack of open learning platforms which provide its service in Arabic, but it has recently beginning to emerge. It is on its way to the breadth and the diversity and evolution, perhaps the most prominent of these sites and experiments include: Forum both realms Academy, Porch site, Platform Stop Online, The realization site, Tahrir Academy, Free4Arab site[16].

### **V. What is a Moodle LMS**

The Moodle (LMS) stands for Learning Management System and it's a global term for a computer system specifically developed for managing online courses, distributing course materials and allowing collaboration between students and teachers. An LMS will allow you to manage every aspect of a course, from the registration of students to the storing of test results, as well as allowing you to accept assignments digitally and keep in touch with your students. In essence, the LMS is the backbone of most e-learning activities. LMSs are built on various platforms, commonly PHP, .Net or Java and they will hook up to a database such as PostgreSQL, MySQL or SQL Server[17].

**V.1 Creation of an educational platform for the Department of Computer Science in a college of the computer science at the University of Kassala through the use of Moodle LMS.**

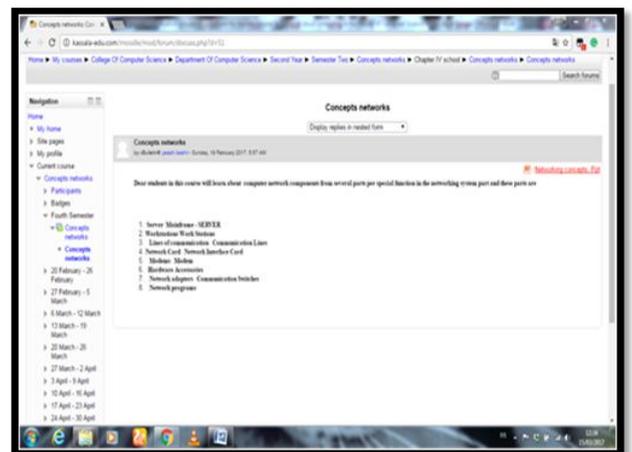
Despite the development and spread of concept of cloud computing and use in the education and the countries of Europe and some of the Arab countries, Sudan has not up to an concept and application of using cloud computing in education As with the other countries. This is due to several reasons, including lack of infrastructure to apply Cloud for the work environment to meet the urgent need to do so. We created the virtual a simulation of application concept of Cloud, with using Moodle LMS and Host Cloud, for Department of computer science, which follows to college of Computer at the University of Kassala, Where students able to access the platform from anywhere, anytime, connected to the Internet to see the lectures.



*(( Fig. 2 shows the entry of the student in order to view the lecture))*

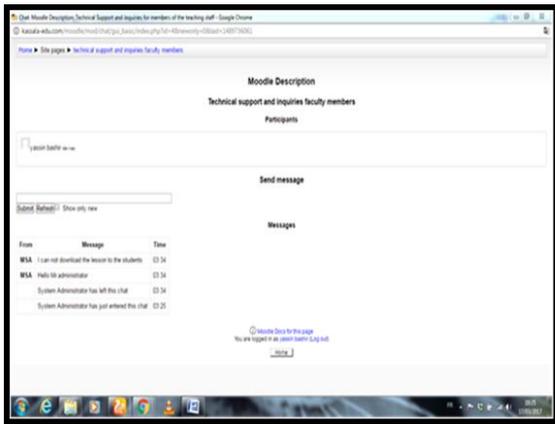


*((Fig.1 shows the entry of students in the platform))*



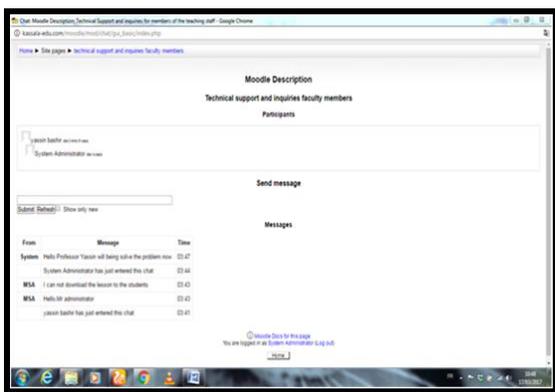
*((Fig.3 shows the entry of the student in order to view the lecture))*



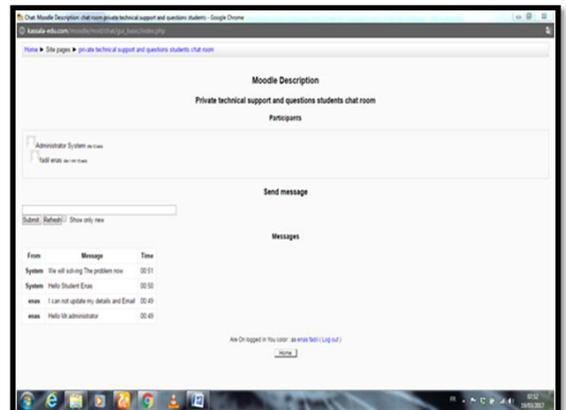


*((Fig.7 shows continues professor with admin-Online))*

also the advantage of the platform, students can be communicating with admin platform, to provide solutions problems of logging to a platform, wherefore We have created a chat room, a private for technical support To facilitate a process educational.

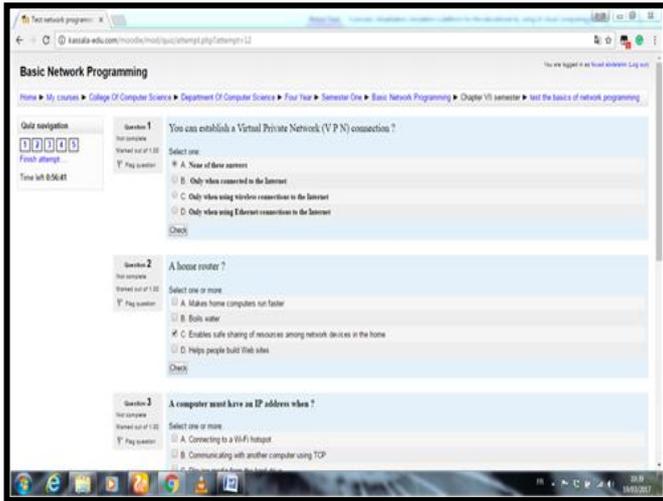


*((Fig. 8 shows continues admin with the professor - Online))*

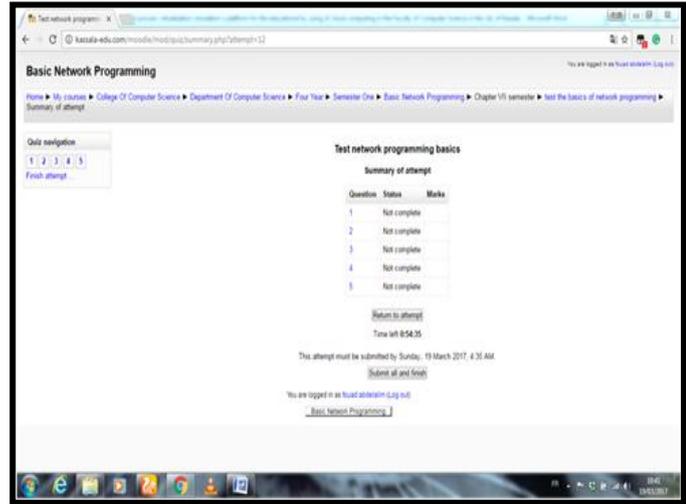


*((Fig.9 shows continues student with the admin - Online))*

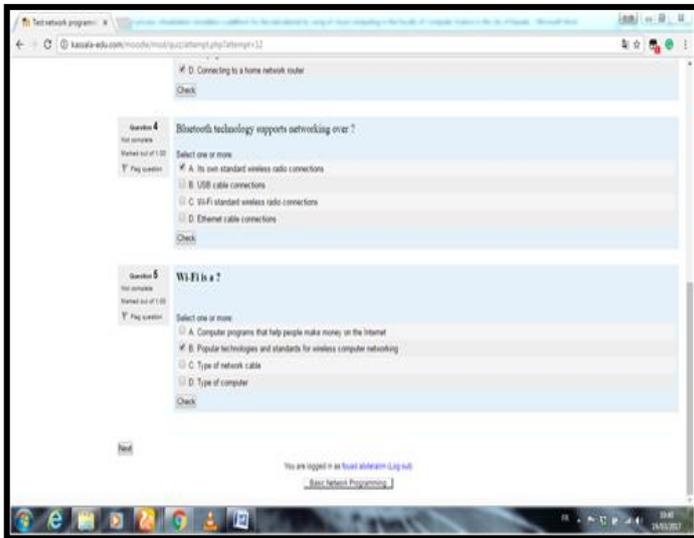
we could through an educational platform to allocate inside tests for students and so all students can log into solving tests from anywhere, and anytime. Time of testing is determined the period of time to him and proclaims to all students inside the platform, in the testing process to change the order of the correct answer-automatically way from a student to another, Students at the end of the testing process are displayed degree the test.



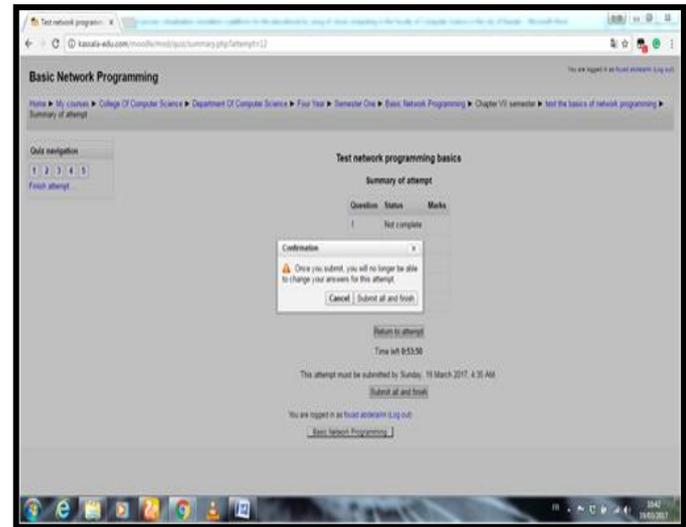
((Fig 10 shows the student entry to resolve test the basics of network programming))



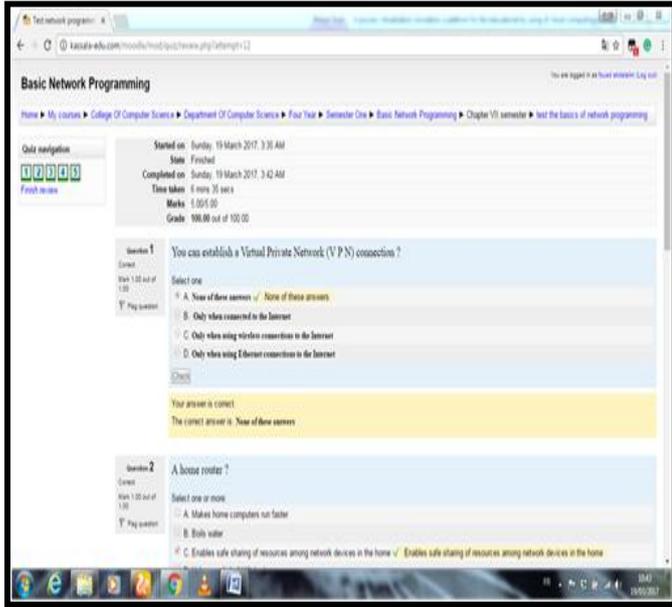
((Fig 12 shows the student entry to resolve test the basics of network programming))



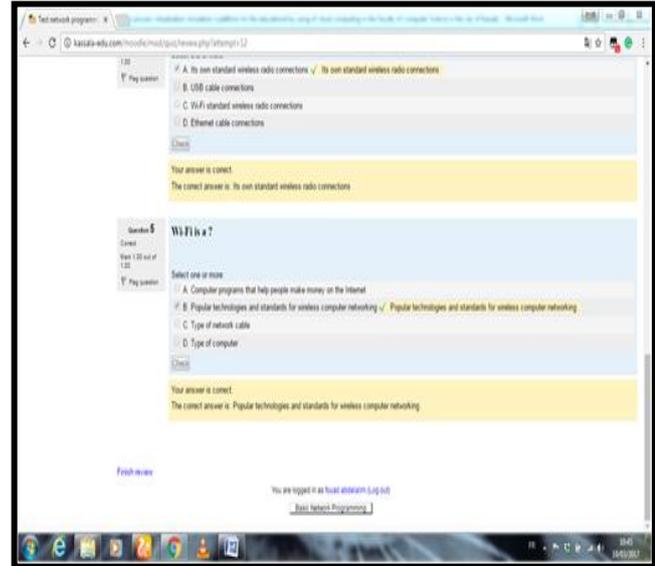
((Fig 11 shows the student entry to resolve test the basics of network programming))



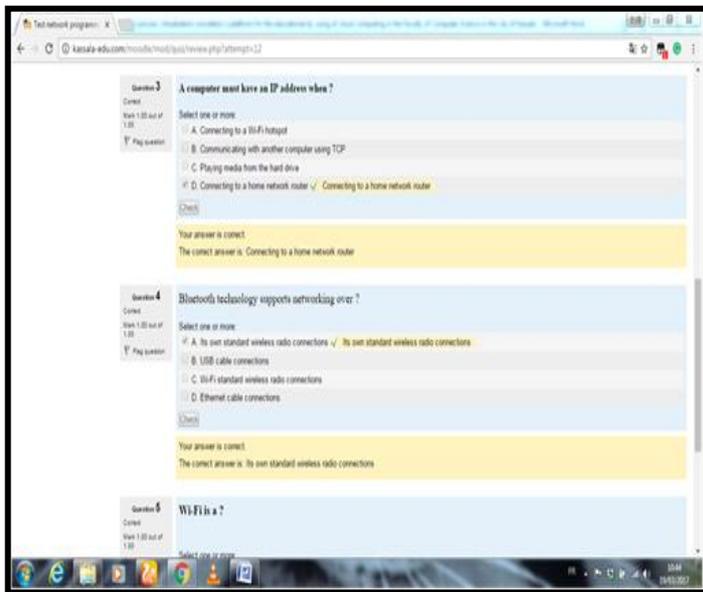
((Fig 13 shows the student entry to resolve test the basics of network programming))



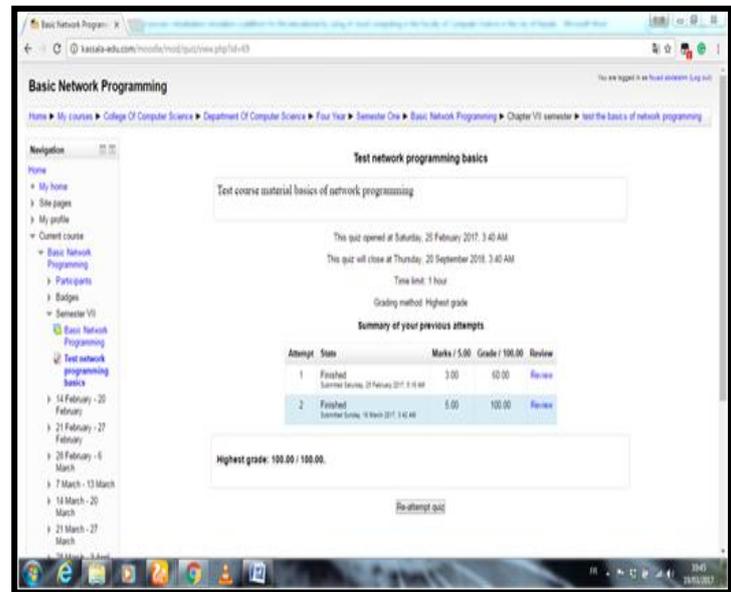
((Fig 14 shows the correct answers and degree test to student))



((Fig.16 shows the correct answers and degree test to student))



((Fig.15 shows the correct answers and degree test to student))



((Fig.18 shows final test degree to students))

## VI. Conclusion

In light of the evolution of technology and the spread of cloud computing in the world, soon in the Sudan all universities and colleges will seek keep abreast the rapid technological development in the education field, and Cloud computing is considered as new and important the alternative to the educational aspects, Through educational platform that have been applied in the Department of Computer Science, We have reached to the need to mainstreaming the use of Cloud Computing technologies in education in Sudan in the future Because in order to give the opportunity for students and teachers to fast access to different applications, systems and resources through the internet, Share files and documents and exchange of duties and projects between the students.

We can say that cloud computing technologies to improve the process of education and self-learning, if implemented in the future state of Sudan.

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