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A MULTIMEDIA BASED E-LEARNING SYSTEM FOR AN INSTITUTION

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ABSTRACT

E-Learning is the perfect way to gain knowledge in different multimedia form such as text, graphics, sounds, animations and videos which helps to convey adequate and substantial information. The objective of this research is to create a platform for fast and efficient learning of the students and to ease the stress and workload of both the students and the lecturers in general. The motivation that created this study is the way e-learning has gained more ground in this present age and have made learning easier, efficient and less stressful. The data used to develop this system was collected through the internet. The methodology employed in this study is the Structured System Analysis and Design (SSADM) methodology. The system was implemented using PHP and MySQL was used for the database. The developed system makes learning easier, efficient and effective for all 100 level computer science students.

Keyword: E-Learning, multimedia, internet, student and Learning

1.1 INTRODUCTION

Multimedia has become the most used term in education sector. The multimedia will take education to higher level especially for the Computer Science Curriculum. The base of education and training materials incorporating students on the use of digitized sound, speech, image and full motion video, with high speed computers and videodisc players that break the teacher-driven instruction promises to revolutionize the way the student should learn, but truly [14], this study shows that multimedia based e-leaning stand to increase learning content, retention, and reduces the amount of time it takes to learn materially, and to add speed to students [1].

E-learning system in is a challenging trend which will influence and enhance the competence of any student and lecturers, to grow in modern technology [2]. The world of computer is a friendly type and there is no special credential needed to become part of it. E-learning will make it possible and easy for any student, to become creative, exposed in different firms [3]. The study of this project multimedia based e-learning system is to pave way to students of Computer Science to use computer and appropriate software system, to support them during their process of learning and to understand new concepts, in different discipline, which is called E-learning system [4]. The application of the E-learning system in our universities will automatically give rise to one of the best tools for an educational empowerment in different tertiary institution in their curriculum.

Consequently, the technology does not drive itself. Multimedia base e-learning system in Computer Science Curriculum without sound instructional design is no more than an electronic book, and a very expensive overhead projector. It is not the system itself, but the way it is handled determines its effectiveness [5]. It is quite obvious that student will learn faster with the use of e-learning system software, than teaching them with blackboard and textbooks, because software has become a key element in all aspects of our day to day life[12]. For Computer science Students to be able to function very well in multimedia base e-learning system, proper software that has good quality should be one of the most important objectives during any software development [6].

The establishment of multimedia base e-learning system is an effective tool for institution especially 100 level students, to develop the students and staff, to provide training in a new product and processes on how to use the e-learning systems[7].

The study illustrates how dedicated software helps to teach required areas and to know how to develop complex software development tools[13]. Furthermore, it also illustrates how animation supports the teaching of complex data structure and algorithm, particularly how the dynamic behavior of data structures can be visualized by animations[8]. For Computer Science students, multimedia based e-learning system will help to include the training of educators in the use of the different e-learning machines [11], which stand to be the latest technology now for fast learning. This requires education not only in the available technology, but also the concept governing effective production and usage with a good comprehensive curriculum Computer Science student[9]. This research will ensure that the students and the graduates of Computer Science are adequately prepared to interact with multimedia concepts in all forms of educational settings. Because multimedia based e-learning system revolution has finally arrived, and will stay for good [10].

1.2 LITERATURE REVIEW

Fani (2020), noted that E-learning is an innovation that can be used in the learning process, not only in the delivery of learning material but also changes in the abilities of various competences of students. Through e-learning, students do not only listen to material descriptions from educators but also actively observe, do, demonstrate, and so on[1]. Teaching material can be virtualized in various formats so that it is more interesting and more dynamic so that it can motivate students to go further in the learning process.

Patrick and John (2019), designed and implemented a well functioning e-learning system is a pivotal part of the educational process as it mirrors on the usage of the system as well as the values of the implementing institution. The learning system for Sinda Day Secondary School is designed using off-the-shelf and open-source software engineering model and programming tools and database models. The system was developed using HMTL, CSS Hyper Pre-processor (PHP) and MySQL. The system is tested to prove design concepts and features. The procedures used in the back-end and front-end design and implementation allows for easy usage and integration of the e-learning system by the targeted secondary school[3].

Mgbeafulike and Okeke, (2019), designed a multimedia platforms, which include videos, audios, animations, graphics representation, and documents. The methodology used in developing the system is Structured System Analysis and Design Methodology (SSADM) because it divides the system into phases[6]. The system was developed using PHP Scripting Language as the server side language and MySQL as the Database for the system. The designed system will help to educate students more on programming with C++. It was designed to meet the active learning preferences of C++ learners and can also be used as a supporting tool for other courses.

Jiří and Monika (2013), The whole system is designed to provide multimedia presentation to students as learning resources. Created system allows lector to create quizzes and observe students success. E-

learning system also offers graphs and charts of student's results. The system is based on linear workflow. That means students can see new learning resources and tests only after previous was done. Students can also create their own learning plan by defining dates. System is able to export this plan into general calendar format or remind students via e-mail[2].

Rabiman et al. (2020), The research and development objective are to produce an LMS-based E-Learning system that is tested on Microteaching in the Mechanical Engineering Education class. The research method adopts the Hannafin and Peck approach model with specific phases (needs analysis, design, development and implementation). The developed LMS is then validated by media experts and material experts according to their capabilities[4]. The research subjects were 15 undergraduate students aged ± 22-25 years old (adults). Data collection techniques are using questionnaires and direct observation. The results of LMS-based E-Learning development research is "very feasible" to be used. The assessment is based on the LMS usability, LMS functions, visual communication, learning design, material contents, as well as language and communication. The findings in this study are that using LMS increases satisfaction and quality of learning.

Abdulaziz et al. (2014), present a model for development of e learning systems based on multimedia content. The model is called "Multimedia based e learning" and is loosely based on waterfall software development model[7]. This model consists of three distinct phases; Multimedia Content Modeling, Multimedia content Development, Multimedia content Integration. These three phases are further sub divided into 7 different activities which are analysis, design, technical requirements, content development, content production & integration, implementation and evaluation. The model defines a general framework that can be applied for the development of e learning systems across all disciplines and subjects.

Guo et al. (2020) proposed a digital rights management system based on blockchain. The system includes a new network architecture for sharing and managing online education multimedia resources based on public and private blockchain, and three specific smart contract schemes for recording multimedia digital rights, secure storage of digital certificates and non-intermediary verification. The software should be compiled into a system and run in a unified manner on various campus network platforms.

Abdulrahaman et al. (2020) pointed out that, for the application of multimedia in teaching, in addition to text and image, the existing tools also include multimedia components, such as audio, video, and animation. The conclusion is that most multimedia solutions for teaching and learning are aimed at the user audience of teaching content and solutions on topics of interest, and the successful use of different multimedia tools on different target groups and topics can be attributed to the technologies and components embedded in their development[8]. The software is managed and maintained by relevant functional departments, such as schools, teaching departments, finance departments, and network management centers.

Wang (2021) believed that mixed media and organizational innovation have become very obvious visual technologies, and have been used to changing performance strategies and improving education quality. Real teaching practice is of great significance for schools and universities to cultivate extensive brain science progress in health, ability, and substitutes. Because of this, it is naturally very crucial to use interactive media and network innovation to improve the actual training scene. Therefore, it is necessary to make a careful demand analysis and develop a multimedia network teaching management software system accordingly[13]. It not only creates teaching scenarios and strengthens the intuition and vividness of teaching but also breaks through important and difficult points. It organically integrates classroom teaching and greatly improves the efficiency of classroom teaching.

Zhang et al. (2021) believed that if the multimedia teaching management system is successfully developed, it can break through the limitations of students in the classroom, and learning of students will not be affected by time and space[14]. Regarding the teaching mode and teaching design,

Huang (2021) emphasized that the overall improvement of teaching and learning experience of teachers and students urges teachers and students to break away from traditional teaching concepts and modes and achieve two times the result with half the effort[11]. The technical advantages of AI technology in using the virtual reality teaching method in digital media art creation were given. Based on the network, educational resources and information are transmitted. It mainly combines multimedia technology, adds multimedia functions to the system, disseminates various kinds of media information through the system, processes media information, and shares information to form an idealized set of multimedia network teaching environment. At the same time,

Han and Yin (2021) started with the development of the multimedia teaching platform, analyzed performance of students before and after using the system, investigated satisfaction of students with the system, and obtained the impact of the system on English learning motivation of students. It can also provide a set of effective teaching management tools for teachers[10].

Ding et al. (2020) proposed that teachers can choose teaching methods, including synchronous teaching and asynchronous teaching. When students and teachers are online simultaneously, they can carry out synchronous teaching. When only a student or a teacher is online, asynchronous teaching can be chosen. For the questions raised by students, after teachers logging on to the system, the corresponding prompt box will pop up in the system interface, prompting students to send messages[9].

Li (2021) analyzed the feasibility of applying multimedia technology to school music education and the auxiliary function of music education, and proposed the intelligent learning characteristics of a deep learning algorithm to monitor the teaching process of music education and analyze the process quality. In the process of learning, if there are any questions, students can ask other students or teachers for answers, which can improve the efficiency of learning of students learning. According to the research of the current scholars, scholars have made indepth research on multimedia tools, teaching methods, and other aspects[12]. Through multimedia teaching, the structure of a teaching classroom, the teaching effect, and the quality of teaching have been effectively improved. However, there is still a lack of research on the development of the multimedia film and television network teaching system in remote and backward areas.

1.3 MATERIALS AND METHODS

In computer science department of Imo State University, students are always mandated to attend lectures, carry-out the departmental routine activities like, course registrations, buy course materials, write tests, quiz and exams, and submit assignments etc. in an environment where the human capacity is often time over stretched. Due to all these vigorous activities, most students face the problems of missing scripts, which most times results to the depression of the students. The effect of these normally leads to emotional in-balance, because students involved are mandated to repeat the affected course/courses.

The study also identified in some cases inconsistency in class attendance by a significant number of lecturers and students. Courses are hardly covered in each semester, which normally leads to massive failures, and those brilliant students are ill-equipped to impact to impact meaningfully to the society. With the above analysis in respect of the existing system, operations and procedures to obtain full picture of the situation prevailing so that an efficient and effective measures will be designed and implemented by the researcher to develop a standardized system of learning called “Multimedia based e-learning system

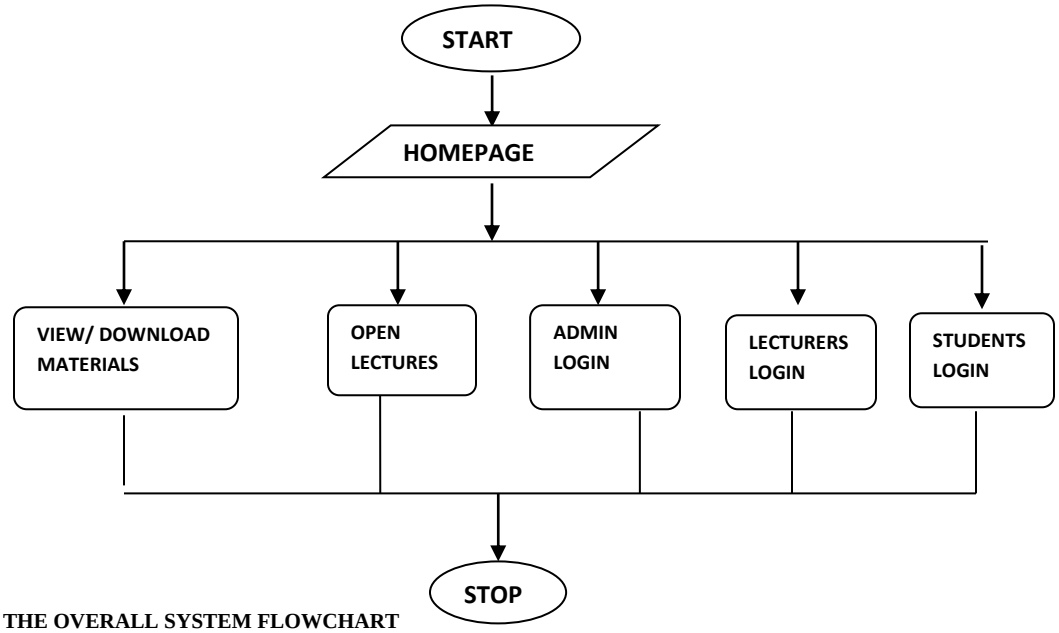

Fig 1: THE OVERALL SYSTEM FLOWCHART

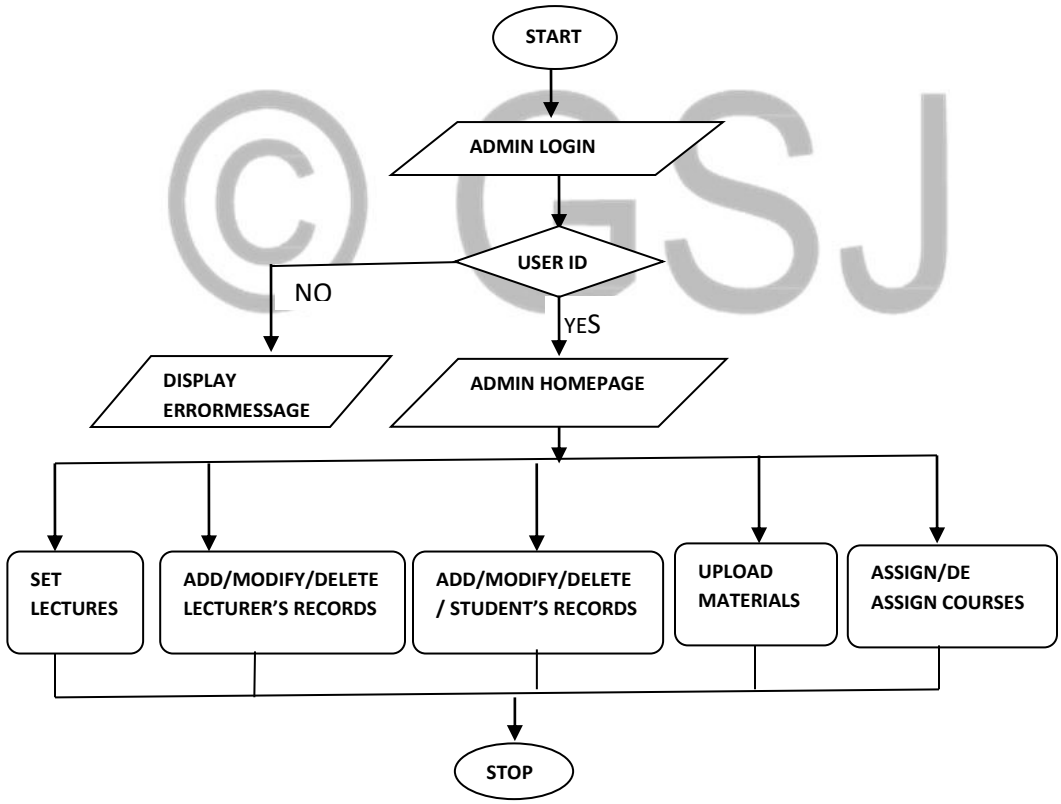

FIG 2: THE ADMIN FLOWCHART

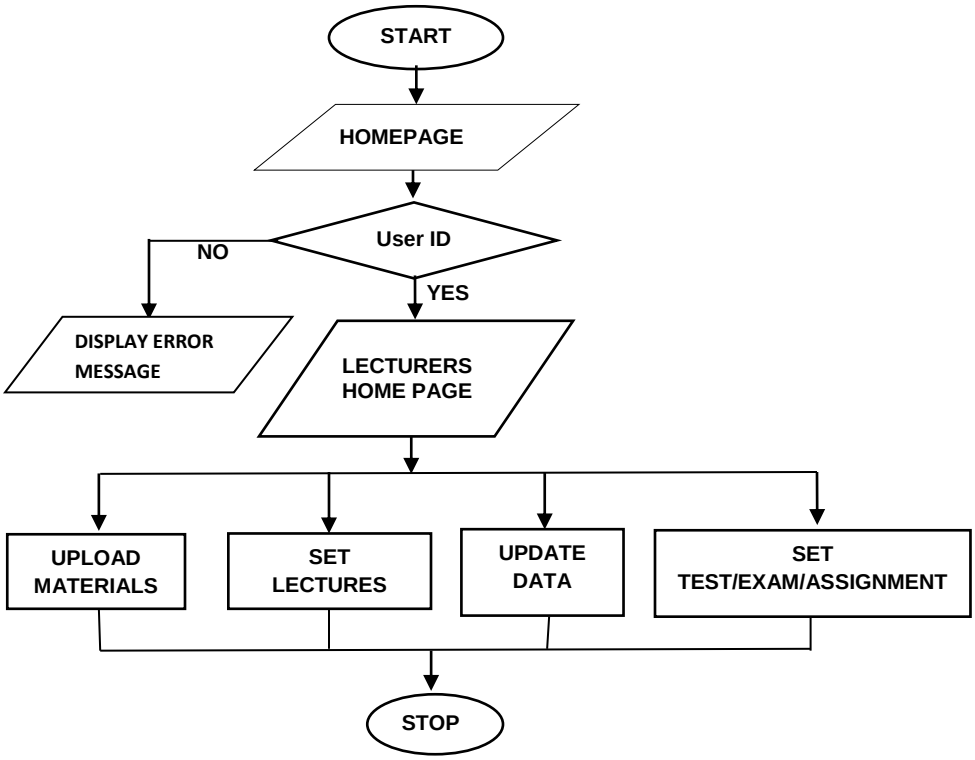

FIG 3: THE LECTURERS FLOWCHART

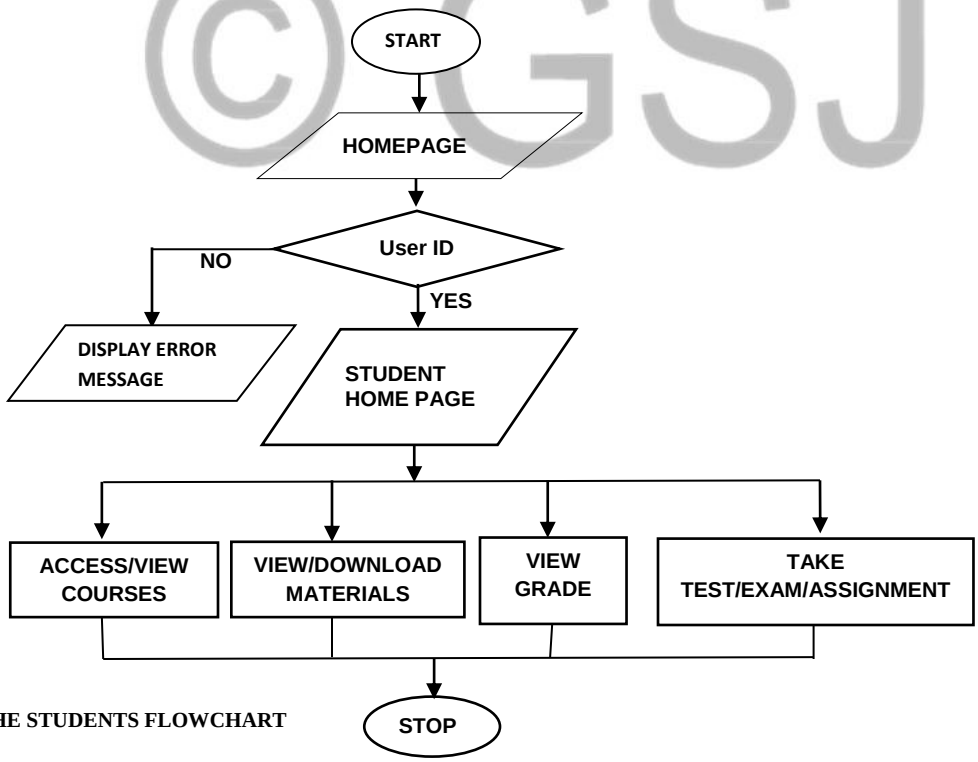

FIG 4: THE STUDENTS FLOWCHART

1.4 EXPERIMENT AND RESULT

System testing completes the system work, which has been able to change the manual ways information management in school, to a computerized method. It serves as a great improvement, eliminating the inefficiency in the manual method. This home page will allow to view the admin page as shown is figure .5. The exam page is display in figure 6 where student can login and take their exams. The menu page will allow you to register for a particular course of your choice as show in figure 7. The student page in figure 8 show how student can do their assignment, test and their exams.

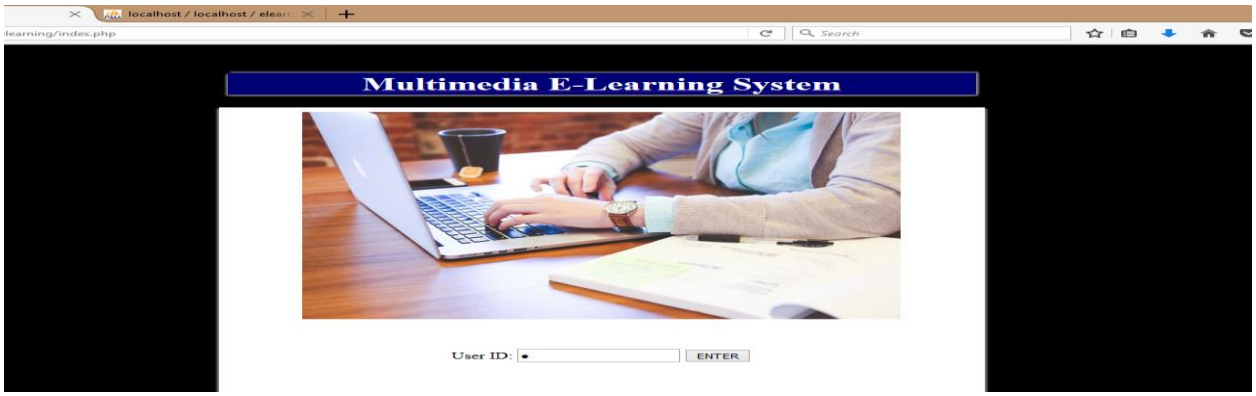

Figure 5: MULTIMEDIA BASED E-LEARNING HOMEPAGE

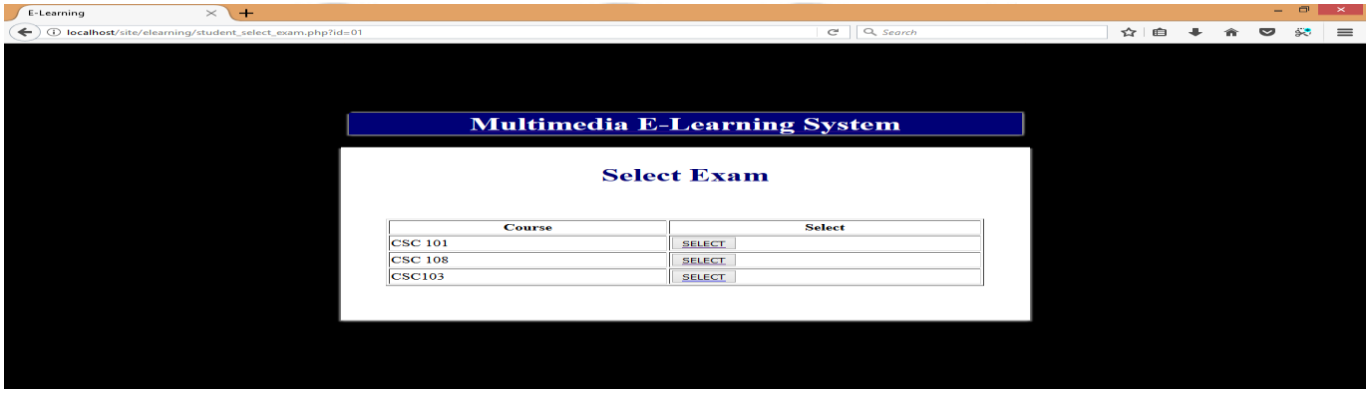

Figure 6: EXAMINATION PAGE

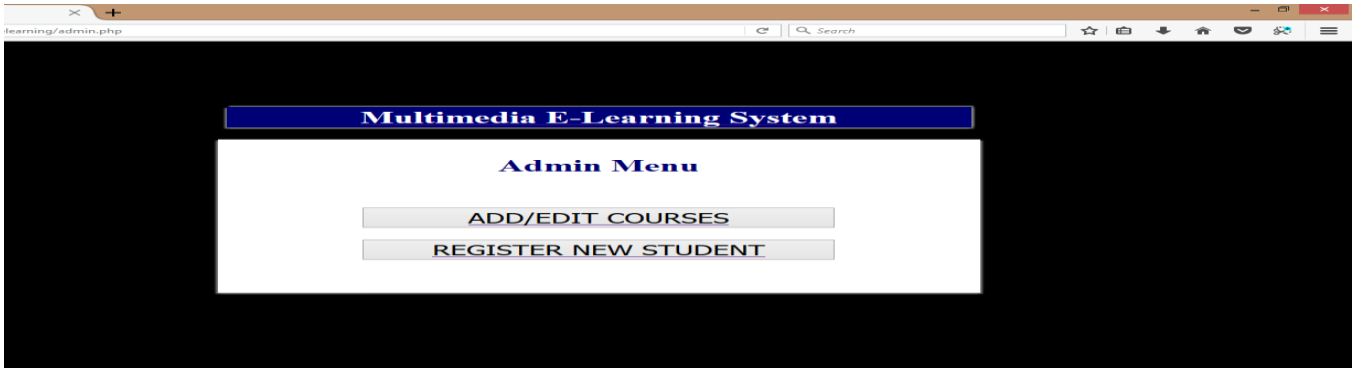

Figure 7: ADMIN MENU

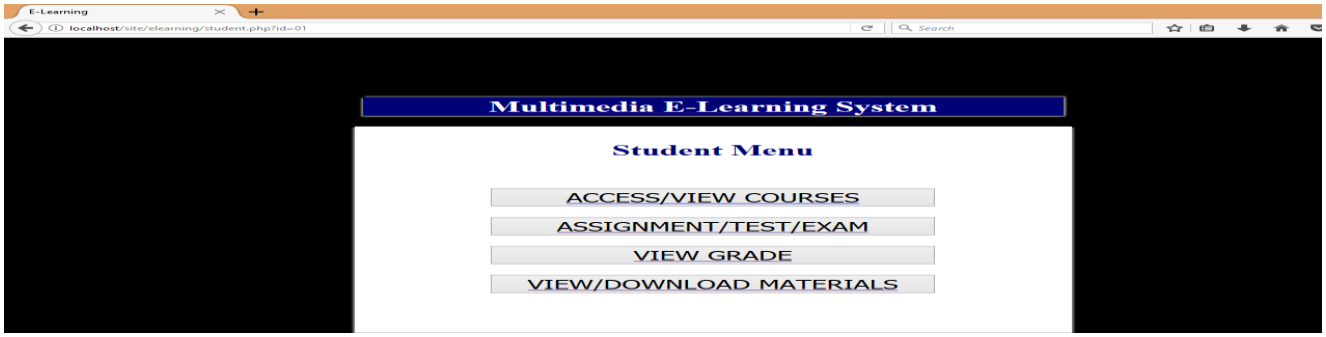

Figure 4.10: STUDENT MENU

CONCLUSION

Multimedia based e-learning system, deals with the use of e-learning software system in our educational sectors, especially for the 100 level students and the general tertiary institutions, because it is one of the effective tools for educational empowerment in our nation education system, even to the society at large. Consequently, the role and important of e-learning offers a general need to the nation and most importantly the computer science students, and generally it is something to talk about, gives value to and will serve so many useful purpose in the society at large. It is very important that all the 100 level student of computer science should try and get a working computer system, in other to make this study clearer enough to be useful to those who already have it and also for subsequent users.

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