Learning programming languages by using e-learning technology

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Abstract
Nowadays gaining new skills is a necessity and as such, avenues for gaining new skills need to be easily accessed and available. LMS which stands for Learning Management System gives you the ability to create, discover, and track courses anywhere with any device. In the past, strong softwares for handling complex databases have cooperated with digital platforms to manage and handle the curriculum of the courses and they provided evaluation tools. This paper aims to describe the Learning Management System and how it can benefit the educational process, basing on a case study of C Programming Online Course at the Near East University . The research used resources from previous studies and collected data using a case study. The findings are presented in the research. Based on the findings, it is evident that the benefits LMS has on learning programming is significant.

Keywords: Cloud Storage; LMS; Online Compiler, Software Programming;

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1. Introduction

LMS stands for Learning Management System. It's an application or a web application that you can administrate, document, track, report, and deliver of electronical technology courses or training programs. LMSs can range from systems with the ability of managing training and educational records to soft wares for delivering online or hybrid college courses over the internet with online collaboration features [1,2]. According to Information Technology, an application is a programmed computer program that was designed to help people achieve a goal or do an activity.

LMS is a framework that can handle all kinds of learning process. Most of the LMSs available are web based to give access to learning content and for better administration [1-3]. LMSs are being used by educational institutes to support classrooms teaching courses to a wide range of people and learners. Some LMSs provide performance management systems which include students' coursework, competence management, skill gap analysis, succession planning, and multi rate assessments. Nowadays techniques include competition learning to discover learning gaps and assess training material selection.

Learning online is a new way to study to achieve recognized qualifications without attending class on campus. It can aim for those who want to continue studying postgraduate alongside work, or other activities [3]. LMSs are being used for connecting students, teachers, and parents in one classroom. They are a system that allow both students and parents to view students' grades from home [4]. They allow teachers to tutor their students in a virtual manner using chat room or video chat. There are many different goal and possibilities for LMSs, but still the main goal is to make students come together with teachers to learn.

1.1. Related research

Several researchers have studied this topic. For instance, [1] studied Using PBL in mobile LMS teaching and learning. [2] studied on "A sustainable quality assessment model for the information delivery in E-learning system". [3] was interested in Learning Management Systems for higher education – an overview of available options for Higher Education Organizations. These studies have influenced this research's topic and also method of research.

1.2. Purpose of the study

*T*o understand the differences between LMS and other education system, there is a need to understand the systematic nature of LMS. This paper aims to describe the Learning Management System and how it can benefit the educational process, basing on a case study of C Programming Online Course at the Near East University .

2. Methods

2.1. Data Collection

This research used a case study and collected data using observation method. The case study was based on a C-Programming LMS system that is currently being applied at the Near East in University. Data was also drawn from previous research on the topic.

2.2. Analysing

In analysing the data for the research, the researchers used content analysis. The researchers then discussed the findings based on the findings from previous research on the topic.

3. Findings

3.1. Features of the Online Learning Programming System in Near East University

Our program delivers content courses and offers opportunities to make students interact to it in different multiple ways. Features of Online Learning Programming System [4;5;6]:

•   It's a safe closed network that doesn't have to include a lot of personal information in the profile of a student.
•   It's free to register and start learning.
•   Students and Teachers alike can share different kind of media.
•   Students can engage with each other in online discussions.
•   Teachers can widen their Personal Learning Network.
•   It's a friendly platform to the environment.
•   Students have real peer-reviews for their work along the course.
•   A calendar that keeps everything tidy and organized for both teachers and students.
•   Students can interact with each other even if they are in different schools, states, or even countries.
•   Teachers can give specific instructions to one student or specific group of students.
•   Simple and easy to use platform.
•   It provides portability and E-Learning world standards.

3.2. Content of the LMS platform

In our LMS web-based platform we have multiple contents as follows:
1.   Homepage.
2.   Online Cloud Storage.
3.   Online Compiler.
4.   LM Systems.
5.   Our Programs.
6.   Our teachers.
7.   About.

Today, you can setup multi-lingual LMS that students can log in to across different geographical regions. This way an LMS can prove beneficial to multiple students, teachers, and universities.

3.2.1.   Homepage

The homepage is the main page a visitor sees when coming to the website through a search engine or by writing the website's URL through the browse. It's being used as an attractor for first time visitors. A homepage is mainly used to navigate to other pages the website may has, and it can have a search box to navigate with it. Some websites make a custom-made homepages according to each visitor's preferences.

Features in site
• Home page (Welcome page).
• Has a general tutorial about the whole site.
• Links of other pages.
• Contact form for user to communicate with contributor and admin of the site.
• Chatting application between users and each other.
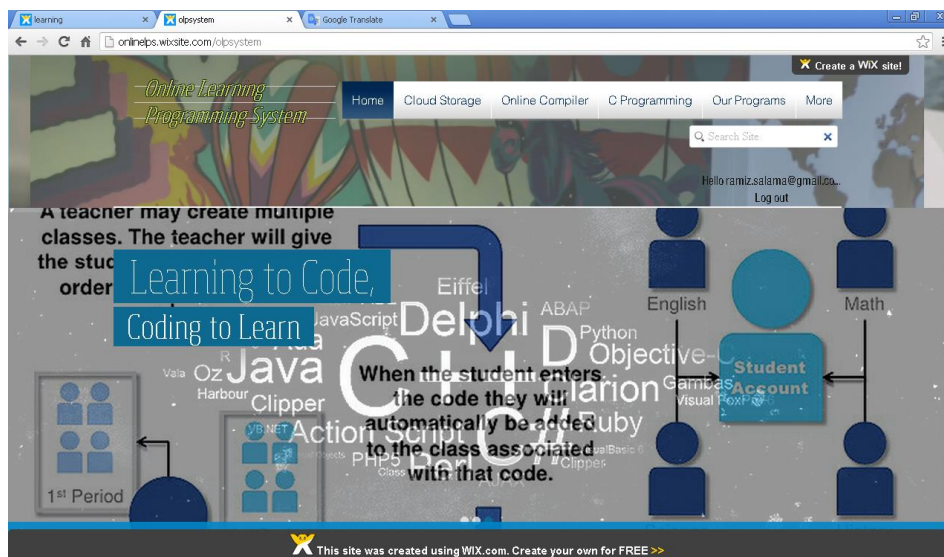• Announcements for weekly homework, exams

Figure 1: Homepage "Online Learning Programming System"

3.2.2.   Cloud Storage:

Document Management: Through cloud storage you can upload, download, and manage materials related to the course.
Why did we use Google drive as cloud storage?
Actually, we select it because of
   • It's free and has a friendly interface to interact with.
   • You can create documents and other types of files related to the course freely.
   • You can upload and manage your files in a simple easy way.
   • You can share any document you have on your drive with other teachers and even with students.
   • It has a multi-use viewer that you can view images and videos on it.

- It has different options to search for your files with.
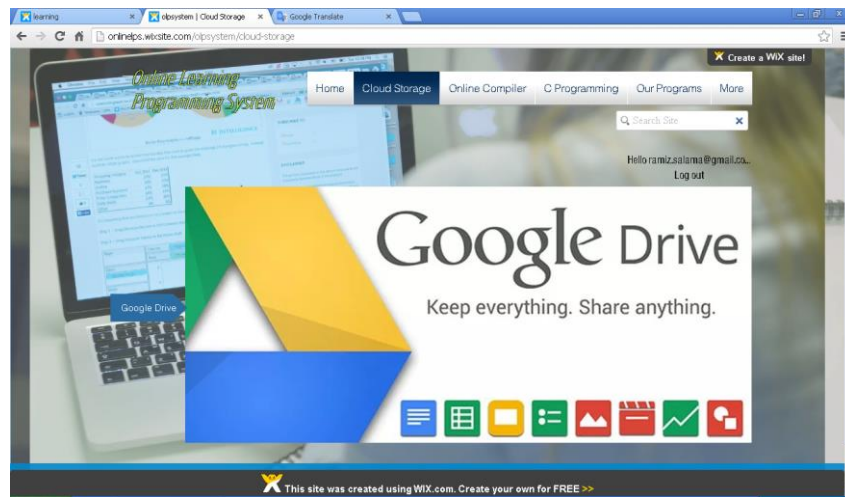- You can chat with other members of your account while working on your document.

Figure 2: Cloud Storage "Google Drive"

In this page we have cloud storage link related to advisor of programming courses. When students click on the button, it takes them to Google drive of advisor course. They can also download related material of their course.

3.2.3.   *Online Compiler (Ideone)*

•Ideone is an online compiler which you can compile, debug, and run your code on it for free.
• Support compilation time up to 10 seconds.
• Can execute codes for up to 5 sec to non-registered users and for up to 15 to registered ones.
• Support memory use of up to 256 MB per code.
• Can support a code's size, input, and output to a maximum of 64 KB.

Figure 3: Online Compiler

In this page we have an online compiler called Ideone. When students click on the link, they will go to online compiler page to start their coding.

3.2.4.   Our Program:

In our program we have a course calendar which has course schedules, deadlines, and tests. We have also a chatting tool so that students can interact with each other and send emails plus there is a discussion forum where both students and teachers can discuss course content and ask questions. Teachers in our program can upload new courses to the system after its assessment, assign roles in the course, recommend other courses, and generate various reports.

Figure 4: Our Programs "C Programming Online Course"

3.2.4.1. C Programming Online Course

In this page we try to make learning C programming easy and simplified. In this page we have an abstract about our C programming course in our department. So, it contains
• C LAB.
• Lectures of C programming.
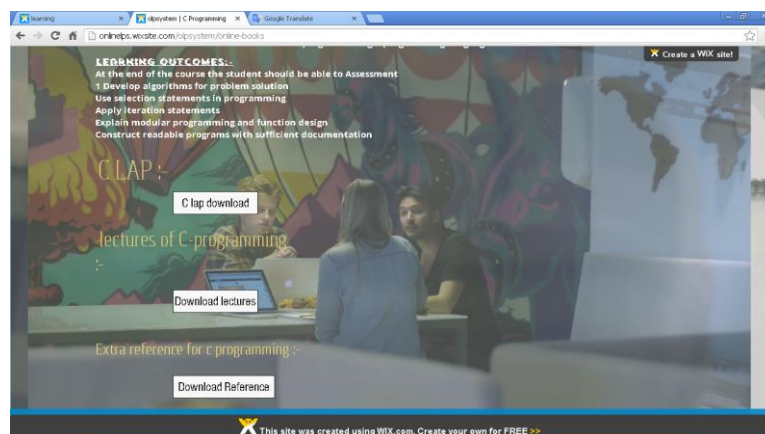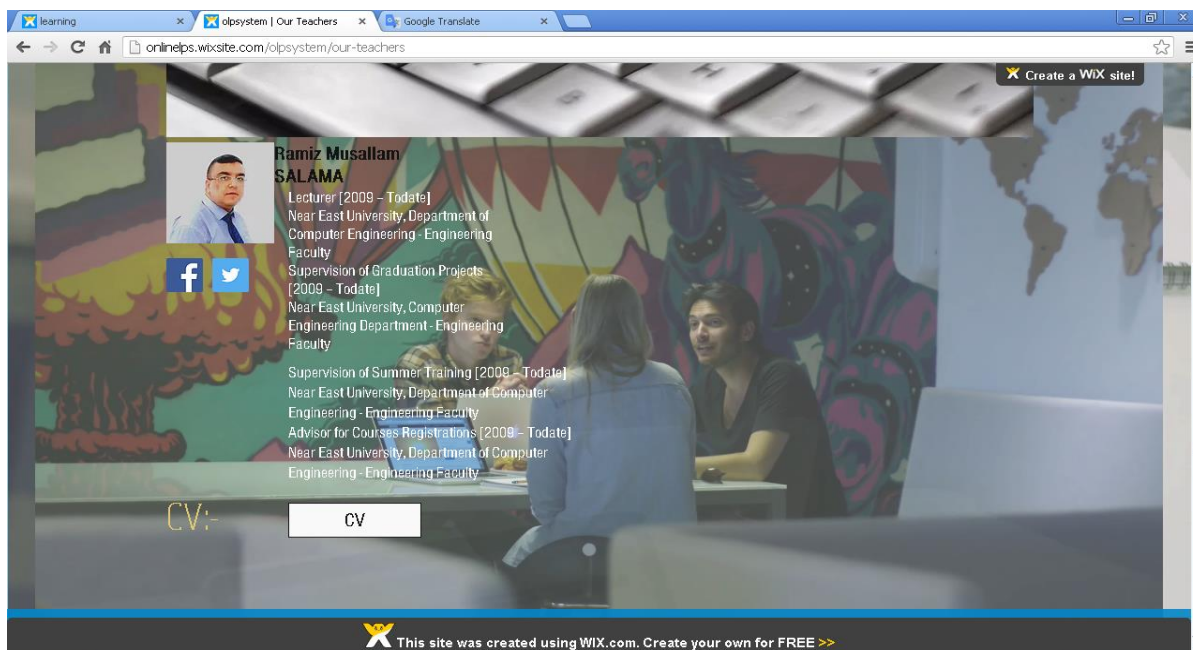• Extra references for C programming resources.

Figure 5: C Programming Online Course

Figure 6: File Dropper

3.2.5. Our teachers:

In our program teachers can participate in teaching different courses from around the globe and don't need to be in a specific area to publish courses, just a place with a stable internet connection is enough.

Figure 7: Our Teachers

3.2.6. About "Online Learning Programming System"

Here we talk about the program information like: What, How, and Why we use the program?!
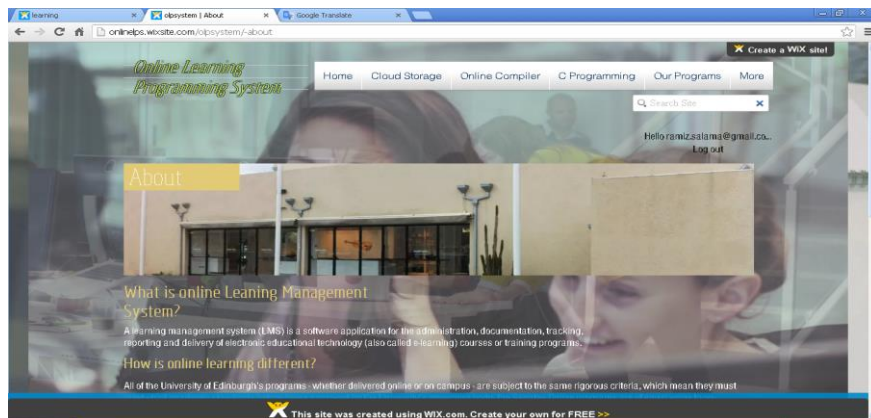

Figure 8. About "Online Learning Programming System"

4. Discussion

Advantages of Online Learning Programming System are enormous. It's a safe closed network that doesn't have to include a lot of personal information in the profile of a student; It's free to register and start learning; Students and Teachers alike can share different kind of media; Students can engage with each other in online discussions; Teachers can widen their Personal Learning Network; It's a friendly platform to the environment; Students have real peer-reviews for their work along the course [5-8].

Some other benefits include the following; A calendar that keeps everything tidy and organized for both teachers and students; Students can interact with each other even if they are in different schools, states, or even countries; Teachers can give specific instructions to one student or specific group of students; Simple and easy to use platform; It provides portability and E-Learning world standards; Positive reflections are given privately to students by teachers; Parents can track their kids' work and grades; Teachers and Parents can chat with each other; Online polls can be done on it; Students can upload assignments to the website for assessment; Teachers give feedback to students and give the final grades [8,9].

An LMS gives you the ability to create E-Learning contents (courses), divide each course into lessons and sub-lessons, deliver the content to a wide range of learners, make enrolment available to the public or some special institute, and monitor and measure learners' performance. Here are some features LMS should offer, to increase its credibility [1,9,10]:
• It should have one automatic administration to help teachers publish content.
• Students and Teachers can interact with the LMS easily.
• Make sure the courses are well published on the internet.
• Must be portable and meet the average standards.

5. Conclusion

LMS has proved useful in connecting student, parents, and teachers in a virtual classroom. It's a system that can allow both students and parents to see their students' grades from home. It allows teachers to guide students virtually with chatroom or video conference. There are a lot of possibilities with LMS, but the main target remains about getting teachers and students together for learning.

LMS is a software package that is usually used on a large scale by different kinds of learners. It allows delivering and managing of learning contents and resources to learners. Most LMSs are web based to achieve the "anytime anywhere" goal where a learner or a teacher can access a learning content and manage it respectively. In average, LMS allows students registration, publishing and managing of E-Learning courses, and content testing. LMSs can be as a simple tool one may find to do competency management, gab analysis, succession planning, certifications giving, live classes virtually, and resource allocation. Most systems give a learner self-service, self-enrolment, and access of different courses.

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