



University of Diyala - College of Science
Computer Science Department

(E-Learning System for Programming Languages)

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ABSTRACT

The growth in the field of Information Technology has been very fast in last few decades and the various applications depending on IT are also changing very drastically. One of the very popular applications is online teaching and learning (e-learning). This project is a web-based system for learning by videos the programming languages and the correct paths for learning them

The e-Learning system for programming languages is a system designed using Angular 8 framework as front end with PHP Programming language as back end and has been linked to the MY-SQL database to store the Lessons and lectures. The system contains several pages are indicated as follows consists:

Home page contain: (a) Register or login for student, (b) Login for supervisor, Registration is done by pressing the start button for the student to enter some information about him and about what he wants to study and then a special account is created for him to start teaching him the path through which he learns.

Manager Page: A page where the teacher or manager can add new lessons to the site and manage existing lessons

Courses Page: A page where the student can follow the lessons and browse the courses on the site

الاهداء

إلى النور الذي ينير لي درب النجاح (أبي)

و يا من علمتني الصمود مهما تبدلت الظروف (أمي)

إلى من يضيئون لي الطريق ويساندوني ويتنازلون عن حقوقهم لإرضائي والعيش في هناء
(أخوتي)

إلى من أنار لي الطريق وأمسك لي مشعل النور أساتذتي الفضلاء

جميع اساتذة قسم علوم الحاسبات،

إلى كل من أضاء بعلمه عقل غيره،

أو هدى بالجواب الصحيح حيره سائليه

فأظهر بسماحته تواضع العلماء

وبرحابته سماحه العارفين.

شكر وتقدير

اشكر الله العلي القدير الذي أنعم عليّ بنعمة العقل والدين. القائل في محكم التنزيل "وَفَوْقَ كُلِّ ذِي عِلْمٍ عَلِيمٌ" سورة يوسف آية 76.... صدق الله العظيم .

وقال رسول الله (صلي الله عليه وسلم): "من صنع إليكم معروفاً فكافئوه, فإن لم تجدوا ما تكافئونه به فادعوا له حتى تروا أنكم كافأتموه" (رواه أبو داوود) .

فبعد شكر المولى عز وجل ، المتفضل بجليل النعم ، وعظيم الجزاء.. يجدر بي أن أتقدم ببالغ الامتنان ، وجزيل العرفان إلى كل من وجهني ، وعلمني ، وأخذ بيدي في سبيل إنجاز هذا البحث .. وأخص بذلك مشرفي الدكتور بشار الذي قوم ، وتابع ، وصوب ، بحسن إرشاده لي في كل مراحل البحث ، والذي وجدت في توجيهاته حرص المعلم ، التي تؤتي ثمارها الطيبة بإذن الله ...

كما أحمل الشكر والعرفان لكل من أمدني بالعلم ، والمعرفة ، وأسدى ليّ النصيح ، والتوجيه ، وإلى ذلك الصرح العلمي الشامخ متمثلاً في جامعة ديالى ، وأخص بالذكر كلية العلوم ، قسم الحاسبات، والقائمين عليها , كما أتوجه بالشكر إلى كل من ساندني بدعواته الصادقة ، أو تمنياته المخلصة

أشكرهم جميعاً وأتمنى من الله عز وجل أن يجعل ذلك في موازين حسناتهم.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The increase of e-learning systems is likely to be considerable based on economic factors, but it is made to grow exponentially by learner's demands for flexibility and more learner-centered learning. E-learning is seen to provide a flexible and innovative ways of supporting and enabling quality learning and teaching. E-learning is defined as the systemic use of networked, multimedia computer technologies to improve learning [1].

E-learning has completely changed the view of both academic education and corporate training. E-learning has the ability to change the way we study, and to bring high quality, easy to get learning to everyone – so that every learner can achieve his or her full potential [2].

The main purpose of those systems is to provide a better and effective way to help students to get learning materials and information

1.2 What is ICT and Why

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. In general, there are some important things as the requirements for the implementation of ICT, there are [3]:

- The availability of tutor support services that can help students when learning difficulties.
- The existence of government officials / managers of ICT.
- The existence of the positive attitude of students and educators on computer technology.

- Availability of learning system design that can be learned / known by every student
- A system of evaluation of students' progress and feedback mechanisms developed by the organizers.

1.3 Problem Statement

- Current teaching method more individualistic (a teachers teaching method) and student find boring and less interactive.
- Student spends a lot on buying study materials and extra classes like tuitions.
- There is time limitation for the student to communicate with teacher.

1.4 Research Objective

The aim of the study is to develop a website through which the student can learn programming languages with the correct paths and to provide a better and effective way to help students to get learning materials and information

1.5 Research Scope

The research work focuses on enhancing the learning process of student for College of Science that is one of the more established Colleges in Diyala University. It is chosen as a case study, to explore its current e-learning system, as well as to develop on line e-learning system that can be used to increase efficiency of the learning process of college of science.

1.6 Expected Contribution / Benefit

With online learning, your learners can access content anywhere and anytime. They don't need to take time out from their jobs to attend classes. E-learning is also cost-effective; companies save a substantial amount on the travel and accommodation costs of both learners and instructors, as well as the venue and materials. No printing helps reduce your carbon footprint, too.

Modern learners prefer bite-sized, interactive content. They would rather watch a video or listen to a podcast than read through pages of a manual. E-learning tools enable learning designers to make content interactive. The more engaging the content is, the better the learners remember information. If they enjoy learning, they can able to recall and apply the concepts at work.

CHAPTER 2

LITERATURE REVIEW

2.1 BASIC CONCEPTS OF E-LEARNING

From the overview, we know that e-learning is getting popular all over the world. What do we understand about e-learning and why has it become so popular? This section explains e-learning concepts in detail.

E-learning definition: Schank (2002), Roffe (2002), Sambrook (2003) and Tsai & Machado (2002) refer to e-learning as “communication and learning activities through computers and networks (or via electronic means)”. To be more specific, Fry (2000) defines e-learning as “delivery of training and education via networked interactivity and a range of other knowledge collection and distribution technologies.” Wild, Griggs & Downing (2002) also had the same definition as Fry’s - they defined e-learning as the creation and delivery of knowledge via online services in the form of information, communication, education and training. Bleimann (2004) stated that e-learning is a self-directed learning that is based on technology, especially web-based technology. He also stressed that e-learning is collaborative learning.

Internet and web technology is important in e-learning; Horton (2001) defines e-learning as “the use of Internet and digital technologies to create experience that educate fellow human beings.” Apart from web-based technology, e-learning seemed to require multimedia based courseware (Evans & Fan, 2002;Lahn, 2004). Therefore, it is clear that e-learning is centered on Information and Communication Technology (ICT). It is not surprising that Hamid (2002) and Lytras, Pouloudi & Poullymenakou (2002) mentioned that e-learning evolved around Information Technology to enhance the learning performance and efficiency. Furthermore, Evans & Hasse (2001) pointed out that technology is indeed needed in e-learning to educate the learner through the usage of two-way video, two-way computer interaction, cable, satellite downlinks and Internet. Honey (2001) provided many good examples of learning activities that involved ICT. These examples include

learning from e-mail, online research, online discussion and coaching by e-mail. From these definitions and examples, we can therefore define e-learning as learning activities that involve computers, networks and multimedia technologies.

2.2 Why Go Online

There are a number of advantages to using an on-line system.

2.2.1 Online Learning Accommodates Everyone's Needs

The online method of learning is best suited for everyone. This digital revolution has led to remarkable changes in how the content is accessed, consumed, discussed, and shared. Online educational courses can be taken up by office goers and housewives too, at the time that suits them. Depending on their availability and comfort, many people choose to learn at weekends or evenings.

2.2.2 Lectures Can Be Taken Any Number of Times

Unlike classroom teaching, with online learning you can access the content an unlimited number of times. This is especially required at the time of revision when preparing for an exam. In traditional form of learning, if you can not attend the lecture, then you have to prepare for that topic on your own; in eLearning, you can attend the lectures whenever you want with ease.

2.2.3 Offers Access to Updated Content

A prime benefit of learning online is that it makes sure that you are in synchronization with modern learners. This enables the learner to access updated content whenever they want it.

2.2.4 Quick Delivery of Lessons

eLearning is a way to provide quick delivery of lessons. As compared to traditional classroom teaching method, this mode has relatively quick delivery cycles. This indicates that the time required to learn is reduced to 25%-60% of what is required in traditional learning. There are some of the reasons why the learning time is reduced by eLearning:

- Lessons starts quickly and also wrapped up in a single learning session. This enables training programs to easily roll out within a few weeks, or sometime even days.
- Learners can define their own speed of learning instead of following the speed of the whole group.
- Saves time as a student does not need to travel to the training venue. You can learn at the comfort of your own place.
- Students can choose to study specific and relevant areas of the learning material without focusing on each and every area. For example, they can skip certain areas they do not want to learn.

2.2.5 Scalability

eLearning helps in creating and communicating new training, policies, concepts, and ideas. Whether it is for formal education or entertainment, eLearning is very quick way of learning!

2.2.6 Reduced Costs

eLearning is cost effective as compared to traditional forms of learning. The reason for this price reduction is because learning through this mode happens quickly and easily. A lot of training time is reduced with respect to trainers, travel, course materials, and accommodation.

This cost effectiveness also helps in enhancing the profitability of an organization. Also, when you are studying at your own place, you are relieved from paying for travel expenses (e.g. accommodation) when training happens in another city/state and/or external learning materials.

2.3 Limitations of E-Learning

Arising from extensive literature review, e-learning limitations can be categorized as technological limitations, limitations compared to traditional campus, and personal issues. Limitations that do not fit into these categories are considered as other limitations.

2.3.1 Technological limitations

Students need necessary hardware for e-learning such as desktop or notebook computers and printers (Kathawala, Abdou, Elmulti, 2002;Hiltz, 1997). Therefore, one of the major technological limitations of e-learning is the necessity of computer hardware and relevant resources. Sambrook (2003) mentioned that the lack of hardware to support e-learning in organizations is one of the factors why Small and Medium Enterprises are not willing to engage in e-learning to educate its employees. Hardware and other ICT resources are necessary for e-learning implementation in institutions. The Vietnam government spent large sums of money in buying ICT hardware for a college that implemented elearning (Materi & Fahy, 2004). Kearsley (2000) explained that, in order to participate in online learning, both learners and staff need to have access to networked computers. From all the points listed, it is not surprising that Broadbent (2003) indicated that learners may need to buy or rent new computer equipment in order to learn. According to World Bank data, there were only about 3 million computers in Malaysia in 2003, for a total population of about 24 million (ICT at a glance Malaysia, 2003). As a result, e-learning may not be widespread in Malaysia yet.

Although, e-learning comes with benefits such as unlimited access 24 hours, 7 days a week, this privilege does not seem to be feasible for some people in rural areas due to the inability to access Internet services (Kearsley, 2000; Rumble, 2000). The Internet penetration rate in Malaysia is only 31.8 % (Phang, 2004). Bose (2003) mentioned that, while it is feasible to access to high-speed bandwidth within the university campus, it becomes a problem outside the campus, where Internet facilities are less sophisticated. Uys (2003) stated that limited telecommunication infrastructure and facilities are hindering the e-learning process.

In addition to the limited Internet coverage, technological barriers, such as limited bandwidth, are issues in e-learning today, even with fast DSL connections introduced to replace outdated 14.4 Kbps bandwidth (Chadha & Kumail, 2002, p.28). Roy (1996, p.9) provided another example of a slow connection when students in Rhode Island and Green Island could not provide answers for their instructor during an online discussion session. While e-learning is supposed to be a multimedia-rich learning environment, the limited bandwidth may hinder the learning process as the downloading of multimedia materials may take a longer time. Good examples of poor transfer rate that hinders the video streaming happened in Northern Arizona University and the National University of Singapore, where video frames transmitted via the Internet could freeze up and the audio could be interrupted at times (Collins, 2002; Lee and AlHawamdeh, 2001). Pachnowski (2003) further mentioned the problems of video conferencing as listed above caused delay in class start time and some other additional complications like loss of audio. Baker (2003) even mentioned that video conferencing might not be feasible for learners who rely on the slow dial-up connection from their homes. Even though broadband service is available in the Klang Valley of Malaysia now, this service is limited to certain locations with higher population density. For

example, even in a township like Kajang and Serdang (both in Klang Valley) broadband service is only provided to certain households with certain telephone numbers and the wireless broadband services is provided to even lesser locations such as cafes and shopping malls (Streamyx Service Area, 2004; Hotspot Service Area, 2004). As a result, it is not surprising that many elearning courses are still text-based as the Internet bandwidth may still be limited.

2.3.2 Personal issues

Kember et al.(2001) mentioned that preparation is indeed needed for newcomers as they may think that nontraditional learning such as e-learning is the same as a traditional learning environment. Besides, Dearnley (2003) stated that newcomers to nontraditional learning may get lost because they do not know what to do as there is no detailed guidance from the teacher. Kember et al. (2001) stated that these newcomers need some orientation courses in order for them to get used to a nontraditional learning environment like e-learning. Therefore, it is not surprising to see newcomers needing to be psychologically prepared for the e-learning environment.

Carr (1999) mentioned that the lack of ICT skills is one of the barriers in e-learning training. As e-learning is the product of the advanced technology, e-learners will have to learn new skills and responsibilities related to the technology (Angelina, 2002a, p.12). E-learners should be Information & Communication Technology (ICT) savvy. Hamid (2002) stated that technical skills could cause frustration to e-learning students due to the unconventional e-learning environment and isolation from others. Consequently, having to learn new technologies may be a barrier or disadvantage in e-learning for ICT novices.

E-learning is not an easy task for many as it requires a lot of selfdiscipline. As Kearsley (2000) stated, e-learning provides autonomy or freedom to learn, but the learners should have “initiative and self-discipline to study and complete

assignments”. Schott et al. (2003) asserted that the e-learning success rate was very dependent on students’ abilities to be selfdirected and internally motivated. It is therefore reasonable for Rivera and Rice (2002) to comment that learners who are not self-motivated will find web-based learning an unsatisfactory experience. Naturally, e-learning students have a higher dropout rate than their conventional counterparts (Abouchedid & Eid, 2004). E-learners need additional encouragement and support, to compensate for the isolation; motivation is the key for them to successfully complete the course (Lessons from the e-learning, 2002).

Laws, Howell and Lindsay (2003) stated that students in an open learning environment like e-learning can start or stop the course at their convenience. Although this may seem like an advantage, this means that learners can stop even if their tuition fees have been fully paid. This may be a significant disadvantage for learners who are lacking self-discipline and motivation. Thus, it is common to see e-learning students leaving postsecondary education without a degree (Choy, 2002). Data has shown that more than 50 per cent of highly nontraditional students leave their postsecondary education without associate or bachelor degrees (Choy, 2002).

Learners with poor writing skills may be at a disadvantage in an e-learning environment (Smith & Rupp, 2004). This is because learners need to communicate in a text-based environment. Therefore, the inability to write well may inhibit the learning process and lead to misunderstandings.

2.3.3 Limitations compared to Traditional Campus

Lacking physical interaction is another limitation in e-learning. Schott et al. (2003) expressed that the lack of physical interactions made e-learning students feel isolated and apprehensive. Lacking physical interaction may also affect the completion rate (Haigh, 2004). McAleavy and McCystral (1996) found out that half of the students for an Advance Diploma in Education from the University of

Ulster commented that it was rather hard to seek advice, as compared to face-to-face instruction. Physical classrooms however will enable learners to learn faster, as they can always refer to the instructors or peers for guidance. Body language is absent in e-learning. An example is when a student stated that he missed “facial and hand gestures”, from which important cues can be derived (Meyer, 2003). The lack of physical interactions shown above will hinder the learning process as pointed out by McKnight (2000), that the omission of observation of student emotions may prevent professors or instructors from responding to student’s needs.

Apart from this lack of physical interaction, e-learning is also criticized for not having facilities like traditional campuses: internship, volunteer opportunities, access to physical library, book stores, career and development counselling (McCraken, 2004). Some learning institutions tried to provide these facilities but they were too limited (McCraken, 2004). McCraken further pointed out problems such as budget, compatibility of software, and college policies, that hindered the development of integrated supporting systems.

E-learning may not be suitable for certain groups of learners, especially science students who need extensive physical science laboratory experiments (Vernon, 2002; Bourne, Harris & Mayadas, 2005). UCLA’s School of Dentistry spent around US\$750,000 to develop their online courseware but later found out that the prospective customers would rather spend more for traditional classroom-based lectures (Kypreos, 2003). This may be due to the fact that these students need to carry out a lot of laboratory experiments in order to deepen their skills and knowledge, and this may be hard to achieve through e-learning laboratory simulations

2.3.4 Design Limitations

Poor design of the e-learning courseware is a major issue for learners and e-learning providers, as pointed out by Ivergard & Hunt (2005). A poor design “gave

users a feeling of being stressed and badly treated by the system”. They further said this causes users to feel frustrated and eventually stop learning. Courseware design should be tailored to the needs of the learners: it should be easy to use and students should have easy access to guidance and information (Howell, Williams & Lindsay 2003; James-Gordon, Young & Bal, 2003). Svensson (2004) said that it is not easy to design the e-learning courseware, as it should not be limited to just content and should include other components to enhance learning. In a nutshell, the poor usability of the online course will inhibit the learner’s ability to acquire knowledge (Smulders, 2003).

Since e-learning is designed basically for the ICT savvy, it may be too technical for ICT novices (James-Gordon, Young & Bal, 2003). Angelina (2002b, p.12) also stressed the importance of ensuring equality of access to learners from all backgrounds and walks of society. In short, the courseware should be easy to use and come with detailed guidance and ultimately be suitable for all learners.

As there are many coursewares available in the market, Sambrook (2003) mentioned that it is not easy for learners to choose a suitable courseware that comes with relevant content and adequate levels. Trainers also find it hard to judge the quality of the training materials (Carr, 1999). Kearsley (2000) also mentioned there that there are many software applications that the providers and instructors have to consider before offering an online course. The appropriateness of the courseware may increase the learner’s satisfaction (Grooms, 2003). Therefore, selecting an appropriate courseware to suit learners seems to be a difficult task.

2.3.5 Other limitations

Although e-learning provides 24 hours and 7 days of unlimited access, this may not be advantageous to some individuals. Dringus (2003) said “being 24/7 is a good marketing scheme, but online learners and professors burn-out easily”. She explained that learners can post any questions in the forum or send e-mails

whenever they are free (even during weekends). This neverending learning and teaching process will easily stress both the learners and especially the instructors (Newton, 2003). It is also more time-consuming to guide online students, as academicians need to respond to each student's queries individually in writing (Kathawala, Abdou & Elmulti, 2002). Schifter (2004) mentioned that academicians are not well compensated for their e-learning involvement. These e-learning instructors have heavy workloads and this may undermine their performance and even reduce their chances to grow with the environment (Dringus, 2003). This will affect their performance in teaching or facilitating students, thus learners may only receive sub-standard services .

2.4 Angular 7 Framework and PHP with MY-SQL

Angular Is a Typescript-based open-source web application framework led by the Angular Team at Google and by a community of individuals and corporations. Angular is a complete rewrite from the same team that built AngularJS

- Version 7

Angular 7 was released on October 18, 2018. Updates regarding Application Performance, Angular Material & CDK, Virtual Scrolling, Improved Accessibility of Selects, now support Content Projection using web standard for custom elements, and dependency updates regarding Typescript 3.1, RxJS 6.3, and Node 10 (still supporting Node 8).

PHP is a general-purpose programming language originally designed for web development. It was originally created by Rasmus Lerdorf in 1994; the PHP reference implementation is now produced by The PHP Group.[6] PHP originally

stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

MySQL is an open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founders Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB.

CHAPTER 3

SYSTEM IMPLEMENTATIONS

3.1 Design of project

3.1.1 Development Environment

The environment for the development of the e-learning system in this project has been tested by upload it on “GoDaddy” web host in the internet. The system will operate in a single system environment under Windows operating system using the certain platforms. The stages of implementation are described in Sections below.

3.1.2 Home page

The home page is the main page for system which includes a welcome message for the student and three options which are logging in and logging in to the administration page and registering as a new student, Figure 3.1 show the home page of the E-learning System.



Figure 3.1: Home Page

In order for the student to enter and learn first, he must create an account by pressing the start button as a new student and a registration page will appear for him that requires him to enter some information such as the student's name, email and password

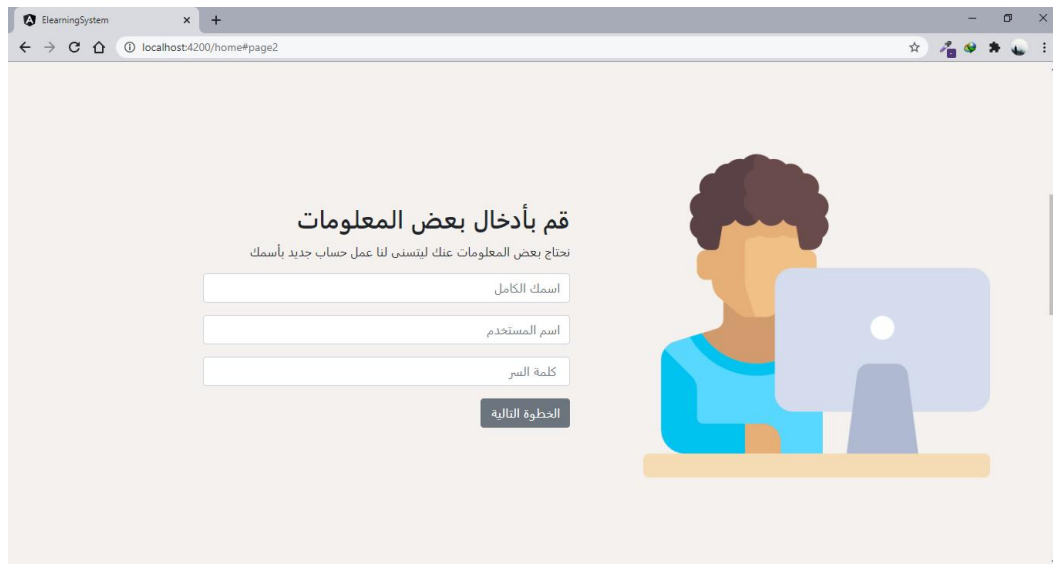


Figure 3.2 illustrate the when user select start as new student.

Figure 3.3 appears when the student clicks on the Next Step button after entering his or her personal information, which asks him to choose the path or course that he wants to learn

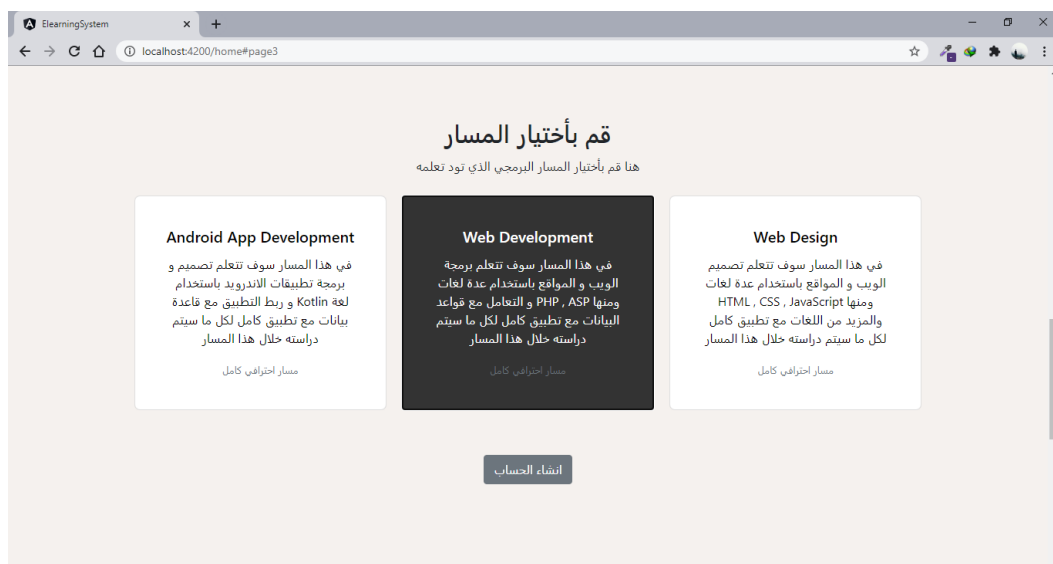


Figure 3.3: select the learning path page.

After the student chooses his own path and clicks the account creation button, he will be moved to a new page that shows him that his account has been created successfully and displays a button that will transfer him to the student login page



Figure 3.4: account was created successfully page.

3.1.3 Manager Page

When the administrator chooses to enter the administration page from the main page, he will transfer to a page requesting him a username and password to enter the administration page. Figure 3.4 show the page of manager access.

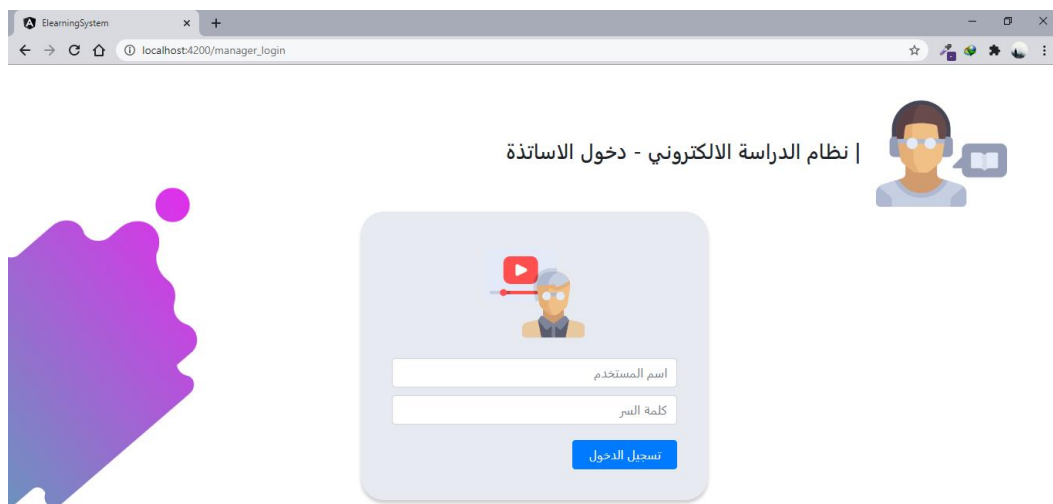


Figure 3.5: Manager login page

After the manager enters the administration page, he will take him to the administration page that contains a navbar with three buttons, the first takes him to the paths management page, the second takes him to the lessons management page, and the third is to log out of the administration panel

1. Paths Control Panel: The Tracks Management page helps the manager to add, delete and modify tracks that will be shown later to the student when registering a new account in order to choose from them what he wants to learn, the next figure show the add, delete and modify the paths.

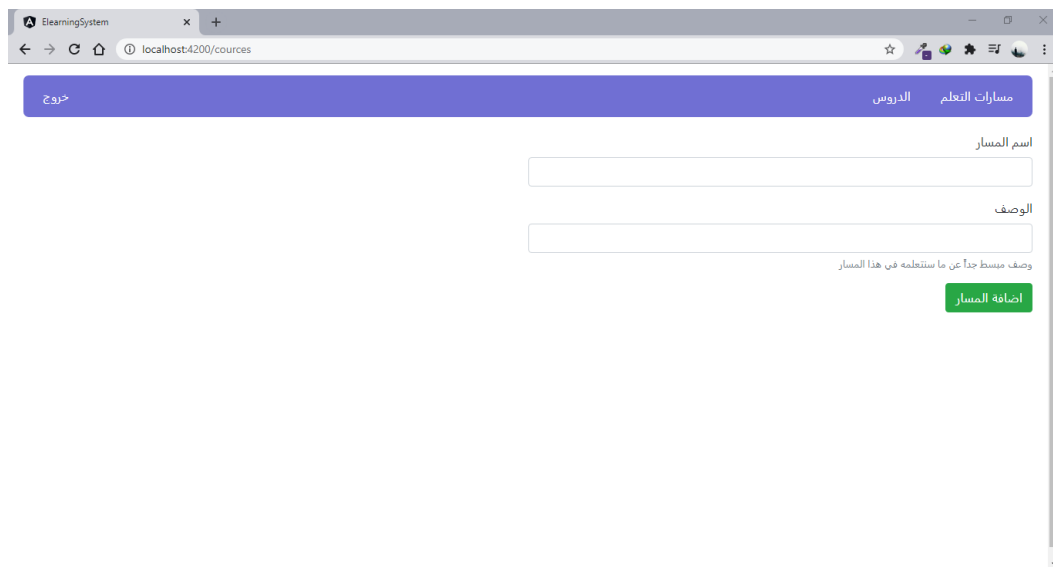


Figure 3.6 Paths control panel.

2. Lessons Control Panel: The Lesson Management page helps the principal to add, delete and amend lessons that the student will study in his own path by adding the lesson number and specifying the path for this lesson and the title of the lesson and a little description, the next figure show the add, delete and modify the lessons.

Figure 3.7: Add, Delete and Modify lessons

3.1.4 Student Pages

The student page is the page through which the student can enter the learning page after logging in with the correct information previously recorded about his account creation, the next figure shows the student login page.

Figure 3.8: student login page

After the correct login, the student will go to the lessons view page, which will show him all the lessons for the path he chose when registering, and he can press the start viewing button, which will go to a page where the required lesson is attested.

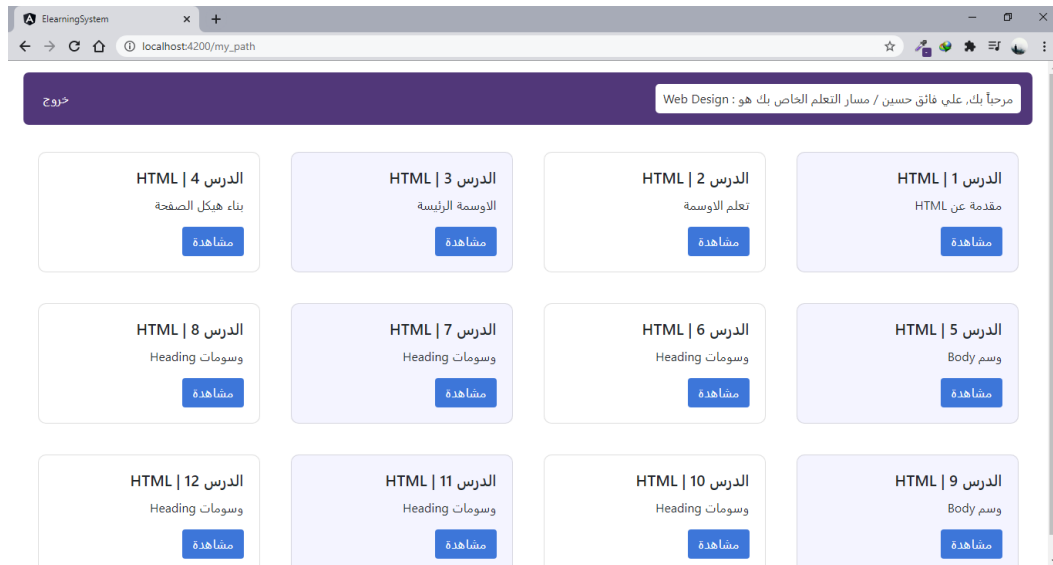


Figure 3.9: student learning page

CHAPTER 4

CONCLUSION AND SUGGESTIONS

4.1 Conclusions

In this research we have built e-learning system to learn programming languages by video designed by Angular 7 Framework as front end and PHP Programming language as back end, which added high flexibility in the process of studying students. Finally, our project is able to create an account for each student through which he can follow the lessons that are added by the teacher and can also view the lesson any time he wants and where he wants by participating in the course that added the teacher. In the end, it is possible to use the system in College of Science to provide comfortable service to both student and management and save the time and efforts in the education process.

4.2 Suggestions

Our suggestions for future work are

- We aspire to add new tools for security.
- We aim to make the system include all specialties, not just programming languages
- We hope to enable the teacher to upload attachments with the lesson.
- We aspire to have the system / teacher fully follow the student and assist him in every step

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الخلاصة

لقد كان النمو في مجال تكنولوجيا المعلومات سريعاً جداً في العقود القليلة الماضية ، كما أن التطبيقات المختلفة اعتماداً على تكنولوجيا المعلومات تتغير أيضاً بشكل كبير جداً. يعد التدريس والتعلم عبر الإنترنت (التعلم الإلكتروني) أحد التطبيقات الشائعة جداً. هذا المشروع هو نظام الكتروني لتعلم لغات البرمجة و المسارات الصحيحة لها من خلال مقاطع الفيديو.

نظام التعلم الإلكتروني للغات البرمجة هو نظام مصمم باستخدام إطار عمل Angular 7 كواجهة أمامية مع لغة برمجة PHP وقد تم ربطه بقاعدة بيانات MY-SQL لتخزين الدروس والمحاضرات. يحتوي النظام على عدة صفحات يشار إليها كما يلي:

الصفحة الرئيسية وتحتوي على: (أ) التسجيل أو تسجيل الدخول للطالب ، (ب) تسجيل الدخول للمشرف ، يتم التسجيل بالضغط على زر البدء للطالب لإدخال بعض المعلومات عنه وحول ما يريد دراسته ثم حساب خاص هو خلقه ليبدأ بتعليمه الطريق الذي يتعلم من خلاله.

صفحة المدير: الصفحة التي يمكن للمعلم / المدير إضافة دروس جديدة إلى الموقع وإدارة الدروس الموجودة

صفحة الدورات: صفحة يستطيع الطالب من خلالها متابعة الدروس وتصفح الدورات على الموقع

جامعة ديالى – كلية العلوم
قسم علوم الحاسبات



نظام التّعلم الإلكتروني لِلغات البرمجة

بحث مقدم الى مجلس كلية العلوم – جامعة ديالى – قسم الحاسبات كجزء من متطلبات الحصول
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