

Multiple Security Layers for an Interactive Website “Design, Implementation and Evaluating”

Huda Dhari, Dr. Karim Q. Hussein

Abstract—E-Learning is getting more popular day by day and is growing dramatically, because of its easy way of work by using different interactive communication systems and technologies to make the learning experience more effective.

In this project an online instructional system was developed to support E-learning by designing an educational system that lets the teachers and students to interact with it. It gives the teachers permission to add a useful objects for the students such as lectures, notes, Exams etc...Enhanced by multimedia elements, and also it gives the students permission to read all of the previous materials and interact with them .This system will help the teacher to provide a good and fast way of education for both teachers and students.

In this project, the implementation of website was carried out using PHP, HTML, WAMP SERVER for the web application and MYSQL for the database, moreover this database consists tables which includes all the required fields. This website can be viewed by using any internet browsers.

Index Terms—: HTML, CSS, PHP Apache, MySQL database, security website.

I. INTRODUCTION

Security issues become an important aspect in current websites. Idea of the current research is an applied approach to design interactive website and select the propped security technique. As per the interactive aspect and continuous interaction in the website, authors decided multilayers of security. E-Learning became an extended technology in Learning/Teaching process in related institutions. The authors will present their research enhanced with real print-out screens of the mentioned website. To realize the target of interaction as well as multiple layers of security, many selected software have been considered, details would be followed in next view pages [1].

II. MOTIVATION TOWARDS RESEARCH

Motivation could be summarized by:

- 1- It is useful for users to get the learning materials with the more effective way by using multimedia elements that will help to learn in most effected way and using the internet as a delivery tool for the students to learn from anywhere and anytime they need.
- 2- It is useful for the instructional institution to control on process of teaching as well as exam process. For instructor, the system realize many advantages like keeping effective submission to his desired instructional material systematically.

III. OBJECTIVES OF RESEARCH

Objectives could be summarized as shown:

1- To develop a system uses the web as one of the delivery mediums. However this system to be a web-based which realize interaction between teachers and students. This involves developing an intuitive user interface for both instructor and student.

2- To develop an e-learning system which could discover a possible strategy to students whom due to distance to the institution and are not able to gather knowledge that they need.

3- The online class is accessed via the Internet so end users can get entry to it virtually from any location and at any time. The online class lets the teacher create its own publish with extraordinary multimedia elements and this will assist the pupil in internet web page to learn more effectively and success way.

IV. ONLINE CLASS

In this project was developed to support E-learning by designing an educational system that makes the teachers and students to interact with it. It gives the teachers permission to add a useful objects for the students such as lectures, notes, Exams etc. enhanced by multimedia elements, and also it gives the students permission to read all of the previous materials and interact with them .This system will help the teacher to provide a good and fast way of education for both teachers and students.

V. TOOLS AND SCOPE OF RESEARCH

HTML and CSS as the front end, PHP as the server-side programming tool, Apache as the middleware and MySQL database as the backend as shown in Fig. (1) Below:

SCOPE OF RESEARCH IS TO COVER REAL NEEDS OF A MODERN INSTITUTION IN ONLINE CLASSES

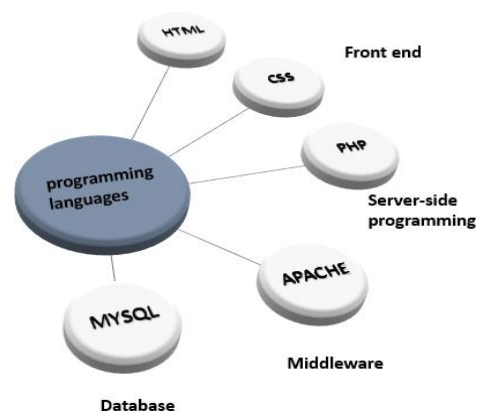


FIG. 1 TOOLS.

VI. WHY HTML & PHP?

A. Advantages of HTML, to be considered:

- 1-It is easy to understand and use.
- 2-HTML supported by all browsers.
- 3-HTML is free [2], [3].

B. Advantages of PHP, to be selected:

- 1-Fast and easy.
- 2-Cross-platform.
- 3-Constantly being improved.
- 4-PHP is free.
- 5-PHP Security [4], [5].

VII. E-LEARNING

Is an educational system or tool based on computer that allows you to learn anytime and anywhere?

Nowadays e-learning is delivered by the using of the internet, in the past e-learning was delivered though computer-based approach such as CD-ROM.by using advance technology you can feel that you are inside the classroom and all the geographical gap is dare with the use of tools.

E-learning provides the capability to share material in all types of formats such as slideshows, videos, and word documents [6].

VIII. SECURITY

Computer Security is the process of detecting unauthorized access to computer system. It is a branch of information security. It is deal with the unwanted access to computer system resources. There are many of programs that deal with attacks such as firewalls, suites, and anti-virus [1].



FIG. 2 SECURITY.

IX. ARCHITECTURE OF ONLINE CLASS

The following diagram represents general view for Online Class:

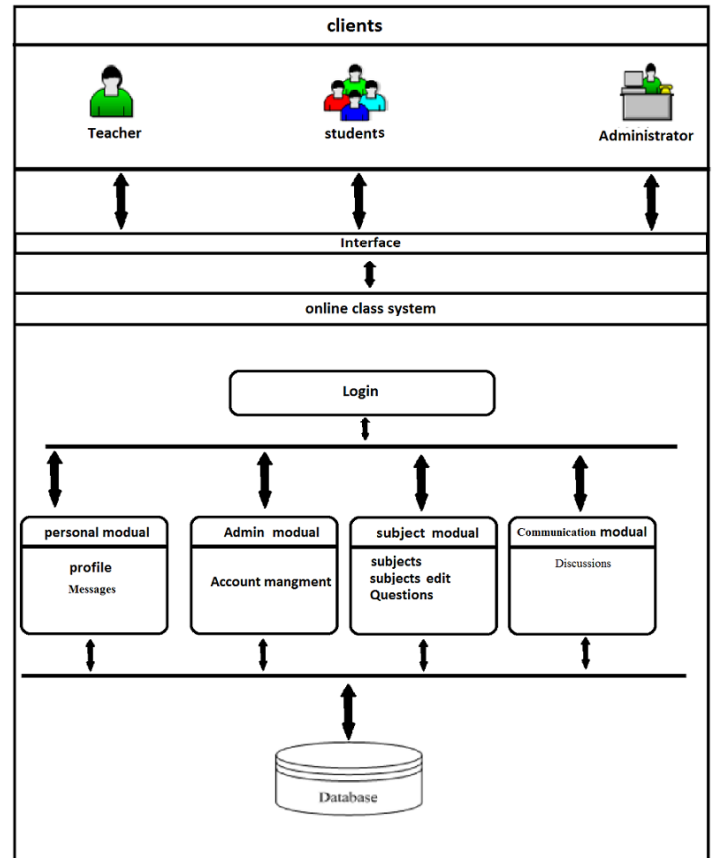


Fig. (3) Architecture of Online Class

X. OVERVIEW OF DESIGN

1-Database Design: The following diagram represents the mentioned Database of system

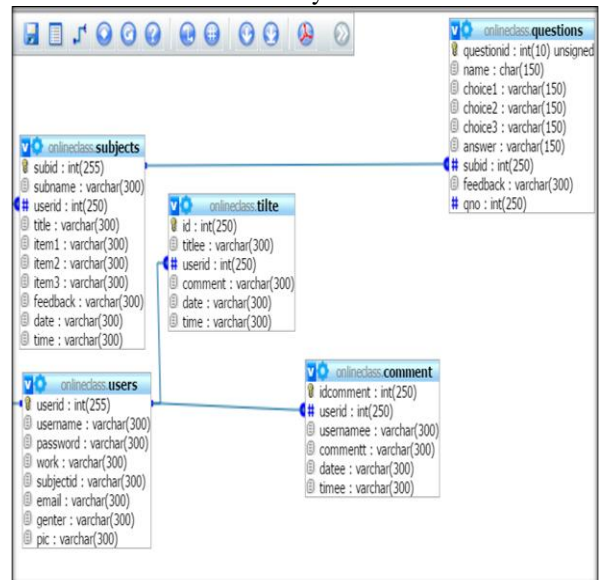


Fig.(4) Database Design

2-Interface Design: The next diagram represents real Print-Out screen of the Graphical User Interface of the system. Home page of the website which divides the website into multiple parts which are header, menu, content, and footer. Each parts of these parts have its own information.



Fig.5 Home page.

The home page has four parts of topics which are (programming languages, Languages, Science, and Engineering Drawing).each one of these parts lead the user to specific subjects. The programming language topic was divided to Html and C++ subjects, science divide into chemistry and physics subjects, Languages divided into English language and Arabic Language, and the last one is the Engineering Drawing and this includes AutoCAD subjects. This is shown in the figures below:

A. Sign-up page: Due to objective of research, it must include many layers of security; the first layer is ID & password aspect. It is shown in the fig (1-6).

The sign-up page was designed to allow the users to register with the website; the users can sign up for the online class such as teacher or student.

B. Profile page: Each user registered to the online class has its own profile which is content information about the user, also in this page the other users can leave a public message to user owned this profile. . It is shown in the fig (7).

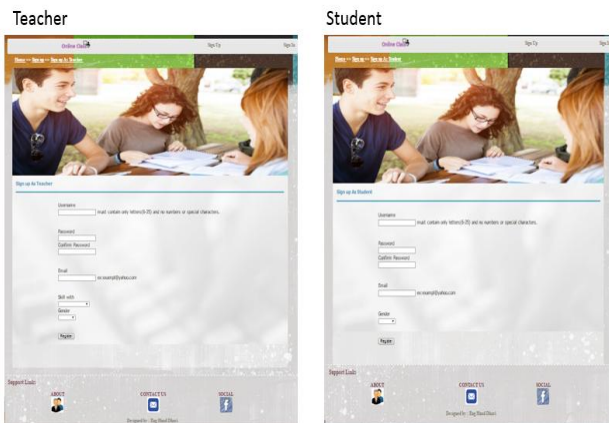


Fig. (6) Sign up page.

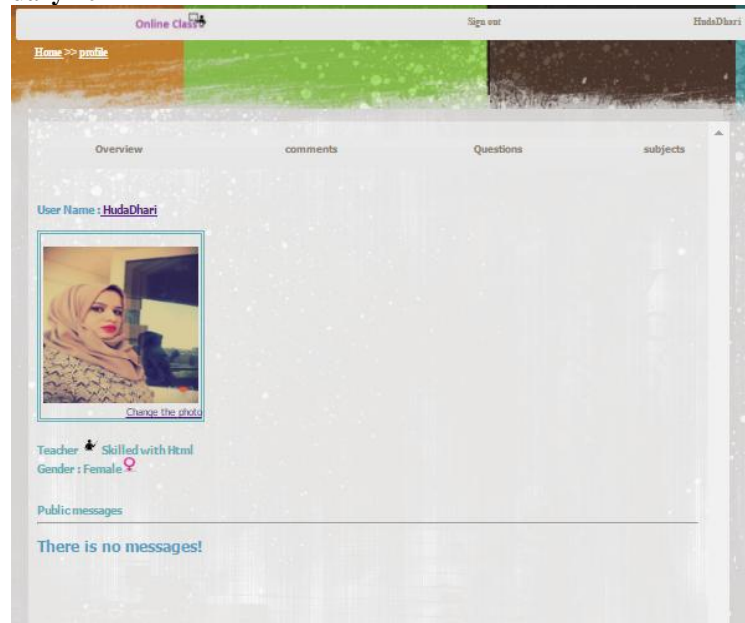


Fig. (7) Profile page.

XI. SECURITY ISSUES

In this project used three layers of security which are: user authentication (user name and password), hash function, and captcha. Username and password is the first line of defense and each user has specific one. Hash function is a one-way function that transforms a series of data into a more compressed form known as a message digest. It is used to encrypt user's password in database. And finally using captcha to help the system know that the register user is human not computer software [7], [8].

XII. EVALUATING THE WEBSITE

However many selected criteria have been considered to evaluate the output screens of the website. Eight major items of evaluating deal with computer science, instructional computer & e-Learning, instructional issues and interaction aspect as shown below:

Computer science criteria: major aspect is database and it's linking with the server besides. They all have been accomplished successfully.

Instructional computer & e-Learning: as a part of objectives, the website offer instructional material, they were found satisfactory.

Instructional issues: contents of website have been implemented according to the required recommendations of instructional technology science.

Interaction is a major target of the website; it is a dynamic website includes database and many facilities of interaction to the student.

XIII. CONCLUSION

Conclusion could be summarized as followed below:

1-The Online class system allows teachers to build easy

educational ways for the students by adding different materials to the website that the students can use and interact with.

2-All of these Materials can be accessed remotely by both teachers and students using any internet browser.

3- Electronic format is useful and easy to deal with and it provides fastest way for students to search for a specific object.

4- Storing material digitally can provide a solution for information environments with limited storage and space.

5.-Digital resources cannot become damaged through sustained use so all the educational material that the teacher will add will be in a safe place.

6- Using 3 layers of security gives the website more confidence and protection from attack.

REFERENCES

[1] Stallings, W.: ‘Cryptography and network security: principles and practices’ (Pearson/Prentice Hall, 2006. 2006).

[2] Duckett, J.: ‘HTML & CSS: design and build websites’ (2014. 2014).

[3] Powell, T.A.: ‘Web design: the complete reference’, 2000.

[4] Converse, T., and Park, J.: ‘PHP5 and MySQL bible’, 2004.

[5] Bulger, B., Greenspan, J., and Wall, D.: ‘MySQL/PHP database applications’, 2004.

[6] Epignosis LLC “E-LEARNING CONCEPTS, TRENDS, APPLICATIONS”, January 2014.

[7] Grah, J.S.: ‘Hash functions in Cryptography’, 2008.

[8] Von Ahn, L., Blum, M., Hopper, N.J., and Langford, J.: ‘CAPTCHA: Using hard AI problems for security’, in Editor (Ed.) ^ (Eds.): ‘Book CAPTCHA: Using hard AI problems for security’ (Springer, 2003, edn.), pp. 294-311.

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Huda Dhari was born in Baghdad, Iraq. Higher Diploma in Information Technology / Website Technology from UOICT, Baghdad, Iraq 2016. Assistant Lecturer at Al-Israa University, Baghdad.



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 Ph.D. in Computer Science.
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 Thesis entitled with :
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Experience :

July.2012 till now : Lecturer – Department of Computer Science – Faculty of Science – Mustansiriyah University – Baghdad-Iraq, Teaching Postgraduate

as well as Undergraduate. I am guiding many M.Sc. researches in the field of interest

Sep.2008 till July.2012 : Assistant Professor – Department of Multimedia System – Faculty of Information Technology – Al-Isra University – Amman-Jordan

In 22-7-1995 I was promoted to the class of “Lecturer” after publishing three papers.

1984-1986 :Master candidate / University of Technology . Also Assisting in touring B.A students – computer Labs’ subjects.

1981-1984 : Civil Engineer in the Iraqi Government – Computer Applications in Structural Design & Engineering Management .

I have 30 years of experiences in the academic work in Iraq , Iraq ,Libya and Jordan besides two years of practical experiences in India in a professional software company of Instructional software developments in Chaitanya Software Technologies. While I was doing my Ph.D research work in India. My promotion to Assistant professor is under process.

I have been awarded many prizes certifications & thanks letters besides some special prizes in Iraq , Libya , Jordan and India .

The Publishing Researches :

There are 29 papers have been published or accepted for publishing in many several international journals (USA , U.K , Europe Union , Korea ,India and others) and conferences .

Here is the list of some selected contributions among the previous 8 years : Journals:

1. Zeena Abdulateef Salman , Karim Q. Hussein , “3D Simulation System for Physical Lab using an Object Oriented Approach”, International Journal of Computer Applications (0975 – 8887) Volume 143 – No.1, June 2016
2. Seror Mohammed Jawad , Karim Q. Hussein , ” Mobile Exam Management System using LSA Algorithm”, International Journal of Computer Applications (0975 – 8887) Volume 148 – No.9, August 2016
3. Karim Q. Hussein , “AUTHORING SYSTEM OF DRILL & PRACTICE ELEARNING MODULES FOR HEARING IMPAIRED STUDENTS”, International Journal of Computer Science & Information Technology (IJCSIT) Vol 7, No 1, February 2015.
4. Karim Q. Hussein , “DEVELOPING AND EVALUATING A MULTITASK ARABIC E-DICTIONARY FOR ARAB DEAF PERSONS” , International Journal of Latest Research in Science and Technology ISSN (Online):2278-5299 , Volume 4, Issue 1: Page No56-61, January-February 2015.
5. Karim Q. Hussein , Maha A. Al-Bayati ,” Comparative Study Between e-One Hand Finger Spelling and e-Sign Language for Hearing Impaired Persons Regarding Day-to-Day Activities Using an Object Oriented Approach” , International Journal of Engineering and Innovative Technology (IJET) , Volume 4, Issue 7, January 2015
6. Karim Q. Hussein , Mustafa H. Ahmed, “Evaluating the Effectiveness of Arabic e-Libraries According to the Standard Criteria”

International Journal of Latest Research in Science and Technology ISSN (Online):2278-5299

Volume 3, Issue 3: Page No. 168-173, May-June 2014

7. Karim Q. Hussein, Maha A. Al-Bayati, "Mobile Learning: The Effective Role of Multimedia "Analytical Approach via an Object Oriented Strategy""

International Journal of Computer Applications (0975 – 8887), New York , U.S.A, Volume 90 – No 8, March 2014, IJCATM : www.ijcaonline.org

8. Karim Q. Hussein , Ayman Nsour , "Multimedia Enhancing Computer Based Training Modules for the Deaf , Supported by Case Study".

CIS, Computer And Information Science , CCSE , CANADA , Vol. 4 , No. 3 , May2011

9. Karim Q. Hussein , Ibrahim, El-Emary , "Security Issues of Wireless Sensors Networks in Various Application"

Communication and Network Editorial Journal, accepted to be published in August 2012 (Vol.4 No.3) , California , USA

10. Karim .Q Hussein , Ibrahiem M. M. El Emary , "Analyzing the various aspects of e-Learning modules for the Hearing Impaired Students"

Accepted to be published in May 30, 2012. International of Academic Research , (Thomson Reuters "USA"), Baku, Azerbaijan.

Books: (One Chapter)

1- Karim .Q Hussein , Learning-Oriented Technologies, Devices and Networks, Chapter 13: pages 259-273

Evaluating System for E-Learning Modules for Hearing Impaired Students (Technical Criteria in Review) .

Published by Lambert Academic Publishing

ISBN: 978-3-8433-9000-2

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Conferences:

1. Karim Q. Hussein , Maha A. Al-Bayati, "Evaluating System for e-Learning Modules for Hearing Impaired Students (Technical Criteria in Review)"

IEEE conference on AL tools Pune , India March2008

2. Maha A. Al-Bayati, Karim Q. Hussein "Generic Software of e-Exam Package for Hearing Impaired Persons (Mathematics as Case Study)"

Proceedings of the 2nd Conference on Planning and Development of Education and Scientific Research in the Arab States", King Fahd University of Petroleum & Minerals, Dhahran-Saudi Arabia. , Feb.2008

3. Karim Q. Hussein "Theory of Teaching / Learning Process for Hearing Impaired Persons via e-Learning (applied theory) ". The 3rd conference on Mobile and Computer Aided Learning, IMCL2008n, 16-18 April , Amman , Jordan..

5. Karim Q. Hussein , C.S.Warnekar "E-LEARNING SUPPORT TO HEARING IMPAIRED PERSONS "

National Conference on Innovative Development in Engineering Applications (IDEA-07), March 02 – 03,2007,BGIET,Sangrur – 148001 (Punjab) India