THESIS REPORT

UNIVERSITY ON WEB: A CASE STUDY OF USING MOODLE FOR COURSE WORK

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DECLARATION

I, Nishat Nasrin hereby state that this project is completely my own work and has not been submitted previously, in whole or in part, to qualify for other assessment.

Supervisor's Signature   Nishat Nasrin

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ABSTRACT

Moodle is actually an open source web application for producing internet-based courses and websites. It is a Course Management System (CMS). Moodle is written in PHP. It runs on nearly every available server platform, and can be used by anyone with a Web browser.

Moodle uses sound pedagogical principles to help educators create an online community which will be virtual but will give the feelings of real. It is a free and Open Source software package. The software can be customized into user's use. Moodle is basically implemented in university course, a secondary school class, a professional association or company doing training.

The challenge of my project was to learn different features of Moodle – how to use them efficiently and use of them properly. Secondly, how to install Moodle in a machine – to teach people the whole Moodle setup procedure. Lastly, to provide the teachers the overall guidelines of using Moodle without any difficulty.

I was able to complete my project successfully satisfying all the requirements that I was supposed to do.

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Chapter 1

Introduction

1.1 Background

One of the modern and effective implementations of internet technology into the educational sector is *online tutorial*. It is the fastest growing implementation of the technology that students are grabbing every second. *Online tutorial* leaves nothing impossible; it avails a novice every required material and even to an expert. This availability of information has made our life easy and independent. Now, no more leafing through the pages of books, no more going to any institutions for doing any simple courses. Our tutor, *online tutorial* is always there to assist us.

People want more and to meet this urge the technology has come up with Moodle. To make our life easier, a new technological dimension, Moodle has been launched. It is more effective than an online tutorial!

1.2 What is Moodle?

Moodle is a Course Management System (CMS). It does not cost to buy - it is available on net for free. Not only that, Moodle is an Open Source software package. So, it can be customized according to the user's use. It can be downloaded onto any computer and can be used as handy (including web hosts).

Moodle uses sound pedagogical principles; and it is able to implement the principles so nicely that teachers can develop a virtual online environment exactly like real environment.

Moodle is a Learning Management System (LMS); therefore it provides the options like: documents, graded assignments, quizzes, discussion forums, etc to the students with a user-friendly interface.

The main site of Moodle is *Moodle.org*. Moodle has been translated into over 70 languages and supports the popular SCORM standard for content packaging. Over the world there are 6500 institutions, and there are 75,000 students, faculty and staff who

have been using this Moodle. As of January, 2008, there are 16,927,590 users of Moodle in 1,713,438 courses with 38,896 registered sites. One teacher can use Moodle for up to a range of 50,000 students. [1]

1.3 Moodle Functions

There are some basic blocks of Moodle. These blocks basically help in customizing the Moodle according to the need. Each of the blocks has been discussed below.

1.3.1 Forums and Chat-rooms

We usually feel the necessity of forums whenever we face any problems. This place is in online where we leave our messages and wait for others to reply. The reply could be over hours, days, or even months.

Moodle also has forums and chat-rooms for each course; but everyone can not participate here. The course teacher will have to authorize the student. The authorized users get email copies of each new posting.

The advantage that the students are getting here is that they are getting their course-mates here. So, they can share their course-related problems easily.

1.3.2 Assignments

Course teacher can upload the homework on Moodle. Students can download them from wherever they want (and as many times as they want). Then, when they are done with their assignments, they upload their assignments on the Moodle. Teachers can mark the assignments online if they want alongwith comments and feedbacks.

Assignment is again categorized into three types:

i. *Offline tasks:* In this category, pupils do their assignments offline but obtain their marks online.

ii. *Online submission:* In this category, pupils do their assignments and then use the built-in text editor of Moodle to submit their work.

iii. *Upload assignments:* In this category, pupils complete their works using any other package (Word, Excel, Dazzle, Textease, etc.) and then submit it by browsing and uploading it on Moodle.

1.3.3 Resource Links

A course teacher can provide the links of an important site also into the course material. So, the students can directly access the site only by clicking onto the given link. This thing helps a course teacher from giving so many notes than referring to many important helpful sites.

1.3.4 Quizzes and Choices

Moodle provides option for taking online quizzes. A course teacher can even set time duration for the quiz. Quizzes can be of different types: multiple-choice-question-answer, short question-answer, or descriptive as well. Moodle also provides an excellent feature, i.e. students can take part into self-testing quizzes and they get their results immediately after the quiz; hence can justify their condition.

1.3.5 Wikis

Web pages that are editable are known as Wikis. Moodle provides several types of Wikis here, allowing everyone (or teachers only) to edit.

Wikis help a lot in doing any collaborative projects by making it easier for teachers to see who (which student) has done what.

1.3.6 Questionnaires, Choice and Survey

The above mentioned three features of Moodle are very useful. They provide users to make choices and even gather information for future use.

Anyone can create a questionnaire using tick-boxes, drop-down menus or text-boxes using Moodle. The multiple choice-question results are shown graphically.

1.3.7 Calendars

Moodle facilitates calendars reminding the upcoming events of every course work.

1.3.8 Content

We can upload commercial content like -- SCORM packages in Moodle.

1.3.9 Comprehensive Monitoring of all Activity

Teachers can also monitor all the activities of a student. Teacher can see which the sites the student has visited and what activities he has done there. [2]

1.4 Whom is this Moodle for?

Moodle provides features like: assignments, quizzes, questionnaires, forums, chat-rooms, Wikis, SCORM, etc. All these features of Moodle point towards a teaching institution. So, if any institution is seeking for an organized course management software package, then Moodle is the perfect solution for them.

1.5 What is the basic literacy needed to use Moodle?

No strict requirement is needed to use Moodle. Anyone can conveniently operate Moodle, only if he has the ability to make a course and the different materials of the course. It is not that English is mandatory. Moodle supports many different languages. So, checking the Moodle language database, and then setting it to that language anyone can use Moodle into that language.

1.6 Any Programming Literacy needed?

An impression has grown into our mind that we need to have programming literacy to customize anything of computer-related. Moodle is a blessing in that sense. No programming skill is required. Only the ability to make a course and utilize the features of Moodle perfectly is more than enough.

1.7 Technical Skills and Knowledge

i. Email and related skills: At least one should know how to use a personal computer to send, receive, and to reply to emails. One should have his/her own email account. One cannot use the account belonging to another person.

ii. Internet access and skill: Students must at least have the idea of how to use web browser to navigate the *World Wide Web*. The most commonly used browsers are *Internet Explorer, Firefox,* and *Netscape*. Pupils are expected to be able to upload a file to the course management software. [3]

1.8 How Does the Virtual Classroom of Moodle work?

The aim of virtual classroom is to provide the students a feeling of real-classroom. So, students play the major role here. Everything of Moodle is just for the students. Moodle is only then successful, if they are the active participants here. To become active means, they should follow some rules and regulations strictly on their own responsibilities. Some rules for the students have been discussed below saying how a virtual classroom of Moodle works.

 i. The virtual environment of Moodle for a course opens as soon as the class begins. It again closes when the semester ends, that is, when the course ends. The registration for a course goes on only for a few days after the class starts. Therefore, no student after that time can enroll for a course.

ii. Students are instructed to read everything uploaded on Moodle, and follow the links as given.

iii. If any student wants to drop any course, then (s)he must do it by himself/herself. It is not that the course instructor will do it for the student because of the student's poor attendance. Students are therefore requested not to rely on the instructor for this purpose.

iv. Students are requested not to be lazy in checking their course sites regularly. Due to their reluctance, they might miss the deadline of an assignment or even a quiz. [4]

1.9 Moodle themes and design – options for schools

User-interface is such a thing that makes a software product successful. This is why the world is now so engrossed into it. Moodle is also not different from it. Moodle has also tried to provide many different and attractive and user-friendly themes and designs.

Every school has their own colors and themes. So, the look and feel of the interface must match the school. The interface should not confuse a user in any way.

Some of the samples of different themes and designs are given below: [5]

Figure: 01

Chapter 1: Introduction

Figure: 02

Chapter 1: Introduction

Figure: 03

Chapter 1: Introduction
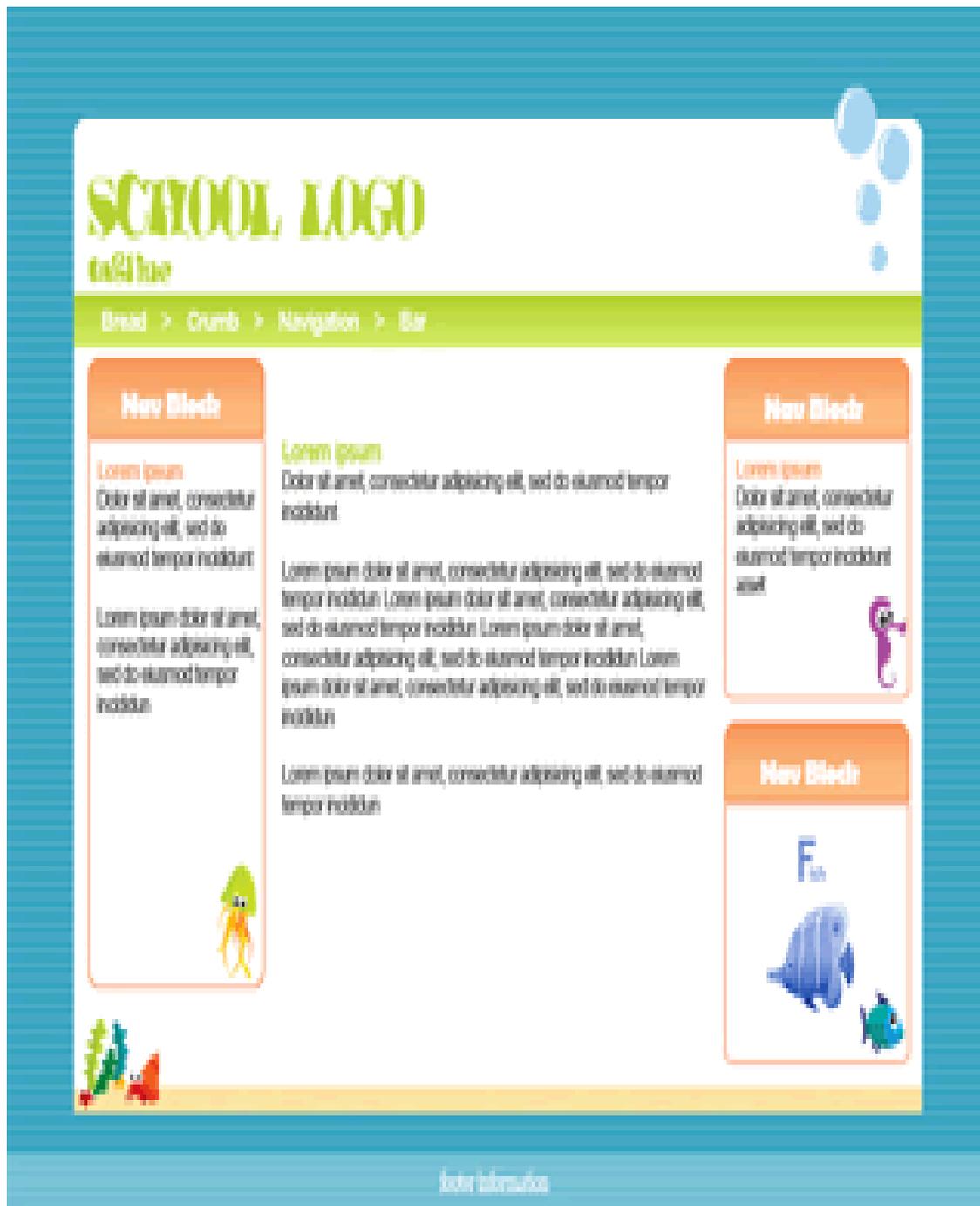
Figure: 04

Chapter 2

How is Moodle different from a course web site?

Moodle is a course management software package. It allows posting course contents, interacting with students, making quizzes, and managing grades online.

There are some traditional internet-based web sites which are almost like Moodle. Though they are good, but ever since Moodle has launched those traditional sites seem to lack some significant features. Then it has been proved that Moodle is different from them for all the features that it has. [6]

2.1 Features That Make Moodle Different

There are some people who still do not find any reason how Moodle is different from a course web site. Besides the awesome features of Moodle, it has also some outstanding attributes. Those attributes enhances the reliability in using Moodle. The traditional course web sites do not provide these reliabilities.

2.1.1 Security

Courses made on Moodle are secured. Here every student taking a course is given a unique login and password. Only the students who are registered can access the Moodle content. Thus, only the copyright materials are being posted.

As teacher can also monitor the activities of the students, so it is also ensuring security in a way. Here, students can see their own grades online every time, but they can not see other's grades.

2.1.2 Easy to Build

Building a course using Moodle is very easy. So, there is no chance of making any mistakes. Only the selection among different programs: Word, WordPerfect, PowerPoint, Excel, Outlook, Adobe Acrobat, etc. is the thing that any one needs to do.

2.1.3 Communication

Moodle has different communication tools. One of them is emailing to the students. The instructor can send email to the students (either as a group or as individual). For this purpose, the course teacher does not even have to manage the email addresses. This feature increases the communication of the course teacher with the students.

Then there are discussion boards. These boards help students solving their problems regarding a course.

Through chat-rooms students can also make instant communications. Since, chat-rooms are course-wise, so chats take place among the same course pupils. They can therefore come up with a solution from their conversation.

2.1.4 Uniformity

Different interfaces for different courses make pupils confused while browsing. Therefore, Moodle avoids this irregularity of interfaces. Throughout the Moodle, the basic navigation interface for all the courses is the same. Students, therefore find it easy using Moodle due to this uniformity. [7]

Chapter 3

History of Moodle

3.1 History of Moodle

Martin Dougiamas was the creator of Moodle. He was a WebCT administrator at Curtin University, Australia. Martin Dougiamas was a graduate of Computer Science and Education. He did his Ph.D. on *"The use of Open Source software to support a social constructionist epistemology of teaching and learning within Internet-based communities of reflective inquiry"*. His Ph.D. research helped him a lot in inventing Moodle.

3.1.2 Origin of the name

The *M* of *Moodle* stands for *"Martin"*, named after *Martin Dougiamas*, the original developer. It is also an acronym of *Modular Object-Oriented Dynamic Learning Environment.*

Moodle is considered as a verb; means an improvisational process of doing things as it occurs. Moodle is developed for both the teachers and the students.

3.1.1 How is it a Pedagogical Approach?

Moodle is aimed to create a virtual learning environment. This is being reflected through its different features. It helps a course teacher to behave exactly like a real school teacher on the web. It does not let the students understand that the course is going on virtually. Everything that are done in real-life, are done on Moodle. Here, teachers can monitor the students also. Teachers can provide assignments, quizzes, and then return these back to them alongwith their marks and additional comments. Then the web forums and chat-rooms are there to give back-ups to the students, where teachers also participate.

3.1 Deployment and development

Moodle has started evolving since 1999. Moodle was released to the public as an alpha version in November 2001, and as a more usable 1.0 release on 20th August 2000. Since, Moodle is an Open Source, its current version is now 1.9. This version was released in March 2008. This version has been translated to 61 different languages.

The development of Moodle continues as a free software project. It is being supported by a team of programmers and an international community. There is an online community called *"Moodle Community"*. It encourages debate and invites criticism regarding Moodle. [8]

3.2 Who else is using Moodle?

i. The Los Angeles District:

The Los Angeles District was looking for such a package through which it can provide training to its staff, and at the same time not cost-effective. Then they found that Moodle is a solid, open-source program for free (except for the cost of hosting). They calculated that Moodle would be the most inexpensive package. Not only that, they also found it a reliable training system. So, they moved with Moodle. Later on, after the implementation, they felt it was really a wise decision to go with Moodle. They were very satisfied using it. [9]

ii. Humboldt State University and CSU San Francisco:

Humboldt State University and CSU San Francisco in the California State University system have recently implemented Moodle to deliver a number of courses.

HSU is working for the development of Moodle. Many features requested by CSU faculty and also developed by CSU staff have already been incorporated into the core of the Moodle application.

The HSU is taking feedbacks from the students to know what they like and dislike about the Moodle, and how it can be modified to better serve HSU faculty and students. Through emails they are taking the comments. They kept their survey an anonymous.

3.3 Why did they implement Moodle?

HSU and CSU have reasons behind using Moodle into the University. They said that Blackboard Enterprise costs over $60,000 per year and would require $130,000 for set up cost. Still, would not be able to achieve the same feature that would be able with Moodle. They said that Moodle provides more instructional tools than Blackboard and any other new tools. They also commented that the open source philosophy that Moodle is built on is a good fit with the academic principles of open research, open source, and open access.

3.4 Are they now satisfied with Moodle?

Humboldt Professor Kathy Munoz and course developer Joan Van Duzer's research shows that HSU students tend to prefer Moodle to Blackboard.

HSU's associated students have also requested to switch HSU officially from Blackboard to Moodle.

3.5 Moodle Buzz: Other institutions saying about Moodle

Moodle is now a talk about topic in the universities. They express their different opinions about Moodle. Some of them are given below:

3.5.1 The Open University of the UK

"We see the development of Moodle applications, along with involvement of the Moodle Open Source community giving our students a great advantage in e-learning. Plus, the innovations added by the OU will be available to the entire Moodle community. It's a two-way creative street."

3.5.2 San Francisco State University

"The structure of Moodle is very easy,"

3.5.3 Athabasca University

"(Moodle's) appealing visual design, the ease and intuitive feel with which online activities can be added, the online help and support provided by the documentation and user groups make this a superior and user-friendly LMS."

3.5.4 Macalaster College

"I wish my other issues had such nice solutions."

3.5.5 Dordt College

"We have moved from Blackboard to Open Source Moodle, and it is going very well."

3.5.6 Luther College

"All and all we are finding Moodle a refreshing and remarkable change from our four years with Blackboard."

3.5.7 Lincoln University

"There is quite a growing interest in Moodle in NZ and we have trialed it this year. The reaction from the staff and students who used it was very positive and there were no technical problems during the trial-very stable. We plan to go over to it fully in 2006." [10]

3.6 Are there other Tools that are like Moodle?

There are some tools which are similar to Moodle in some way. They are namely, Blackboard, WebCT, eCollege, Sakai and Desire2Learn. Features like online gradebooks, web pages or calendars are there in other softwares for showing the class what they are supposed to do as their task and when is the due date for that.

Moodle is a package of all these separate softwares. It bundles together several of these approaches into an easy and secure interface. [11]

3.7 Why would a Learning Institution work to a Free Software Package?

We all know that Apache is a web server and it is *free*. Most important thing is that almost 70% of the world's websites run on Apache. If still anyone has question regarding this, then give a Google search on open source products and you will get ample materials as result. Other great examples of widely-used open source software include Linux, Sendmail and numerous other packages that you probably use daily that you do not even know about.

3.8 How do we know Moodle will still be around in the Future?

The number of users (the number of organizations and people using Moodle) installed Moodle is huge. There are many individuals and organizations who have implemented it with a great hope in future.

Besides, Moodle has a number of key strengths which when combined make a powerful case for its continuing presence and success:

- *A corporate structure which co-ordinates development, finances etc.:* This entity (Moodle Pty Ltd) employs the core team including the Founder and Lead Developer Martin Dougiamas. Although the loss of any of the core team members would be a blow to Moodle, this corporate body would remain intact and functional.

- *Moodle Partners:* The growing global network of Moodle Partners provides commercial support services which help sustain Moodle users. Crucially, Moodle Partners contribute financially to support Moodle development and the organizational aspects provided by Moodle Pty Ltd.

- *Moodle community:* The Moodle community, combined with the well funded and organizationally stable elements above is a powerful force in itself in maintaining the momentum and longevity of Moodle. [12]

Chapter 4

Methodology

4.1 What are the things a course teacher can upload for a course?

There is no binding to it as long as the material is relevant to the course. Course materials differ from course to course. For example, *musical course* might contain *audio* and *video files* as its course contents, whereas an *art* course might contain different *sketches* or even *architectural designs of buildings*. So the materials are not strict here. Moodle supports many things. Audios, videos, web links, pdf files, and many more could be uploaded using Moodle.

The thing is, an online virtual classroom environment is created using Moodle. The main objective of it is to avail all the materials of a course all the time to the students as well as to the teachers. So, everything of a course, from the beginning till end is uploaded here.

4.2 A little about the courses I picked

In my project I picked few courses. Each of the courses is different from the other. By different I mean, their course contents are different as they belong to different departments. The reason behind selecting such courses is to present the dynamic features that Moodle supports.

After long term surveying, I selected three departments that are able to utilize all the resources of Moodle completely. The three departments are: *Computer Science and Engineering, Arts and Designs* and *Music and Instruments*. The courses that I have chosen from these departments are named below alongwith their unique course materials:

- **Computer Science and Engineering Department:**
  - *CSE: 220 "Data Structure"*
    - ➢ Program Codes

> ➢ Simulation of some programs (like: binary search, quick sort, etc).

- ○ *CSE: 321 "Computer Graphics"*
  - ➢ .exe files of different programs.

- ○ *CSE: 341 "Microprocessors"*
  - ➢ A software: Registered Simulator (in .rar format).
  - ➢ Lab assignments.

- ○ *CSE: 422 "Artificial Intelligence"*
  - ➢ .ppt lecture slides.

- **Arts and Designs Department:**
  - ○ *ARTS: 107 "Introduction to Arts"*
    - ➢ Web links to important sites.
    - ➢ .pdf files.

- **Music and Instruments Department:**
  - ○ *MUS: 101 "Music a bit"*
    - ➢ Lyrics (in .doc format).
    - ➢ Audios (in .mp3 format).
    - ➢ Videos (in .wmv format).

It is regardless to mention that we can upload MS-Word file, MS-PowerPoint, notepad files, pdf files or anything of MS-Office package onto the Moodle.

4.3 How to upload a complete course with all its attributes onto the web?

Please check out the *Appendix A*. A complete guide for the teacher is given there.

Chapter 5

Basic requirements to run Moodle

5.1 Basic requirements

In order to know the requirements of Moodle, one can visit the site: *http://download.moodle.org/*. This site says everything needed to run Moodle on a machine.

Moodle is available on variety of download packages (Moodle Packages for *Windows*, Moodle packages for *Mac OS X* packages and also for *Linux*) with different levels of stability. A number of additional modules/plugins and language packs are also available.

Moodle runs without modification on *UNIX, Linux, FreeBSD, Windows, Mac OS X, NetWare and any other systems that support PHP*, including most web host providers.

5.2 Software Requirements

There should be three things into the machine to run Moodle: *Apache Server*, *MySQL database* and *PHP scripting language*. For convenience, these three things are now available in package form. So, we do not need to install them individually. Installing one package software will install those three things. Packages comprising those three that are commonly available are: apache2triad, LAMP and WAMP. There are others as well, but these are the most common ones and are used by people frequently.

As I have mentioned earlier that Moodle can be installed on different operating systems, so we need to download Moodle package according the operating system and also according to the version of the operating system. As Moodle is an open source package, many different versions of Moodle are coming all the time. Based on the operating system, we will have to find the Moodle compatible version.

In the earlier paragraph I said about WAMP and LAMP – one is a package for Windows and another one is a package for Linux. It means, "WAMP -> W: Windows, A: Apache, M: MySQL, P: PHP" and "LAMP -> L: Linux, A: Apache, M: MySQL, P: PHP".

One more thing should be mentioned that Moodle is also regularly tested with Windows XP/2000/2003 (WAMP), Solaris 10 (Sparc and x64), Mac OS X and Netware 6 operating systems. Support for PostgreSQL, Oracle and Microsoft SQL Server is also available.

5.3 Hardware Requirements

- Disk space: 160MB free (min). You will require more free space to store your teaching materials.
- Memory: 256MB (min), 1GB (recommended). The general rule of thumb is that Moodle can support 50 *concurrent* users for every 1GB of RAM, but this will vary depending on your specific hardware and software combination.
- +Windows 98/ME (minimum)
- +Windows NT/2000/XP (recommended) [13]

5.4 The Versions that I used in my Project Work

It has been about seven months I have been working on my project. When I started working I started with the latest version of Moodle, and it was then *Moodle 1.8.2+*;

Chapter 6

Installation procedure

6.1 Installation procedure

The installation procedure is a very long procedure. This is not like normal installation that we usually do in our daily life, i.e. just clicking on an .exe file and then keeping on pressing "next" button and then at the end pressing on the button "finish". Unfortunately, it is not that easy infact.

For installation, we need to configure several areas of Apache2Triad, and that is how each of the parts gets installed. The configuration should be done very carefully. Any mistakes into that will not allow installing Moodle. Once everything is done properly, then Moodle installation starts from the *localhost*.

The configuration procedure starts with the database portion, i.e. MySQL. Then we switch to PHP configuration. Finally, the Moodle installation; it takes around 20 minutes.

Since, the installation procedure is very big, so I divided the whole procedure into eight different sections: *Section: A, Section: B, Section: C, Section: D, Section: E, Section: F, Section: G and Section: H*. The installation sections have been discussed below:

[Note: The whole installation is also presented into pictorial form. Please, check out the Appendix for this.]

Section: A "Apache2Triad Installation"

We need to start with Apache2Triad installation. It is suggested to install it into C drive as it will be acting as the localhost server.

Apache2Triad installation is very easy. It is exactly like other installation procedures. Keep on clicking "next", and then at the end "finish". Do not forget to specify your desired path as well when asked for it.

Chapter 6: Installation

Section: B "Downloading Moodle and its version used"

As I mentioned earlier Moodle version should be compatible with the operating system. So, according to your operating system compatibility download your Moodle.

Section: C "Linking Moodle and Apache2Triad with each other"

Now we are ready with everything. We can start our next stage of installation now. We can not keep our Moodle anywhere we like. Moodle should be in: "C:\apache2triad\htdocs", otherwise it can not be linked with Apache2Triad. Once, it is done, the linking is complete.

Section: D "Configuring MySQL"

Now we need to configure our database, MySQL. There are some steps we need to follow. Follow the following steps:

   i.   Click onto the "Apche2Triad" and then enter into that.

   ii.   Then, click onto the folder "MySQL" and enter into that.

   iii.   Then click onto the folder "bin" and enter into that.

   iv.   Then double click on "MySQLQueryBrowser". As you do so, you will see a new window gets opened. There are some fields that user will have to fill up. Fill up those as:

> **host:** *localhost*
> **username:** *root*
> **password:** *(as your wish, but do not forget it)*
> **default schema:** *(leave it blank)*

   Now, click OK.

   iv.   As you are done with the previous step, another window is opened before your. This is where we work with databases, but we do not have think about it mush. Moodle has done everything for us. The only thing that we need to do is, we need to create a database for Moodle here. To create it, in the upper left box we write:

> ***create database moodle***

   Then press enter.

   vi.   Once you do so, click onto the execute button on the R.H.S.

Then right click on white box on the R.H.S and select "Refresh" there. You will see that a new database named *moodle* is created there alongwith the other previous databases.

viii.   Now, you are done with database configuration. Close the window.

Section: E "Configuring PHP"

i.   Enter into the path: "C:\Windows".

ii.   You will see a file looks like notepad almost named "php". Open that file.

iii.   All the configurations regarding PHP will be done here in this text file. The configuration is done only by changing the settings written there. There are four files into that file under the heading "Dynamic Extension" which need to be changed. Those four files are:

         a.php_mbstring.dll
         b.php_curl.dll
         c.php_gd2.dll
         d.php_openssl.dll

Sometimes there are semicolons in front of these files. We need to make sure that there are no semicolons (;) in front of them. As we do so, it is configured.

iv.   Lastly, in this section we will have to do one more thing. In that notepad file you will see a heading "File Uploads". It is almost in the middle of the file. There you will see something called "upload max filesize". So, set it to 40M. Now you are done.

v.   The configuration for this page is complete. So this file can be closed.

Section: F "Installing Moodle"

Now, the Moodle installation! This will take a longer time. We do Moodle installation by running it from local host server. If the above steps are done properly only then we will be able to allow install Moodle. Otherwise the server will not be able to find Moodle and will not allow us to install it.
To run Moodle from local we need to type *"http://localhost/moodle"* in our web browser. The browser then opens up page for Moodle installation.

Chapter 6: Installation

Now, Moodle installation starts. At some phases of installation you will be asked to fill up some fields asking personal information, so fill that up with valid data always.

If the following fields come, then these up with:

> **host:** *localhost*
> **username:** *root*
> **password:** *(the one you gave while configuring MySQL.)*

Fill up the forms with valid data as they keep on coming, and keep on pressing "continue". Finally, you will see "Finished". You are done with Moodle installation!

Section: G "Running Moodle"

Your Moodle is now there on your server. You can use it by writing *http://localhost/moodle* in your web browser.

Section: H "Using Moodle"

Students do not have the privilege to upload anything there. They can only download the materials and browse the sites.

Teachers can upload anything there onto the Moodle. For editing *"Turn editing on"* button should be pressed to set the mode to editing mode.

Chapter 7

Troubleshoot

7.1 Problems I faced with Moodle

While doing my project I faced problems at three different stages. Whenever I used to face any problems in doing my project, I always used to take help from internet for the solutions. Then after applying many possible solutions, I overcame those problems.

The problems that I faced are:

i.   *During installing Moodle with WAMP,*
ii.   *Copying Moodle to another machine,*
iii. *Copying Moodle to another machine when database became too large.*

7.1.1 During installing Moodle with WAMP

When I thought of installing Moodle, I thought WAMP to use. From the internet I found WAMP5 (5 means version 5) is compatible with that the latest version of Moodle, that is with Moodle 1.8.2+.

Unfortunately, even after trying so many times I could not install Moodle with this package. Then I looked for other package into the internet, and learned about Apache2Triad. I found Apache2Triad 1.5.4 is compatible with that Moodle version that I downloaded. Then, again I tried to install Moodle with this new package. Yes, this time I could do it with Apache2Triad.

7.1.2 Copying Moodle to Another Machine

At one time, I had to copy Moodle from my machine to another machine. I did not know how to do that. I copied the Moodle data, but it did not work. Later on, after so many searches onto the Google I came to know about dumping the database. In order to do this

dumping we need to write some commands from the command prompt. The commands are shown below:

> **c:\Documents and Settings\user\Desktop** mysqldump –u root –p   moodle>test.sql
> *[It copies the database moodle into a .sql file as a dump.]*

> **c:\Documents and Settings\user\Desktop** mysql –u root –p   moodle<test.sql
> *[It copies the from the dump file, .sql file to the database moodle.]*

I tried this out, and I was successful. I was very happy with this.

7.1.3 Copying Moodle to Another Machine when Database became Too Large

Then I kept on adding some more courses into the Moodle. I uploaded lots of materials for each course. I customized the Moodle according to my wish. All these customization and uploading materials increased the database of the Moodle.

Now, when I tried to copy Moodle to another machine, I could copy it without any problem. Later on, I found that some modifications to Moodle that I did were missing. Even many files and materials were not there. At first I could not trace out why it was happening. Then I realized that dumping was a temporary solution and it is only good for small database. Dumping is not the solution when we work with a large database. So, like before I looked for the solution into the internet. Then after long time, I could find the solution and it worked out!

The way I solved the problem (that is how I copied Moodle to another machine) is explained below:

Two things I had to copy from my original machine and paste them into the same location of the destination (another) machine. Those are:
- The folder *"moodledata"* in the path: *"C:\apache2triad\moodledata"*, and
- Copying the *"moodle"* database in the path:
                    "C:\apache2triad\mysql\data\moodle"

My Moodle ran perfectly onto another machine only by copying theses two folders into the destination machine.

Chapter 8

Case Studies

8.1 Different courses that I selected and uploaded onto the Moodle as an illustration

My project is all about learning Moodle, installing Moodle, and teaching Moodle. My main objective is to say people how Moodle can be used for uploading different courses of a school, how it can be used as a training package, and it can be customized into desires way.

In order to express all these through my project, I selected different courses from different department due their uniqueness in their course materials. I chose the following courses from their respective departments:

- **Computer Science and Engineering Department:**
  - *CSE: 220 "Data Structure"*
    - ➢ Program Codes
    - ➢ Simulation of some programs (like: binary search, quick sort, etc).

  - *CSE: 321 "Computer Graphics"*
    - ➢ .exe files of different programs.

  - *CSE: 341 "Microprocessors"*
    - ➢ A software: Registered Simulator (in .rar format).
    - ➢ Lab assignments.

  - *CSE: 422 "Artificial Intelligence"*
    - ➢ .ppt lecture slides.

- **Arts and Designs Department:**
  - *ARTS: 107 "Introduction to Arts"*
    - ➢ Web links to important sites.
    - ➢ .pdf files.

- **Music and Instruments Department:**
  - *MUS: 101 "Music a bit"*

> ➢ Lyrics (in .doc format).
> ➢ Audios (in .mp3 format).
> ➢ Videos (in .wmv format).

8.2 Reasons behind selecting those courses

Course materials differ from departments to departments.

- **Computer Science and Engineering Department:**
  Computer Science department contains lots of programming codes, softwares, program simulations, .exe files of programs, .ppt slides, lab assignments and so on. I tried to show that all these are possible to upload using Moodle.

- **Arts and Designs Department:**
  Arts department contains lots of books in .pdf formats. Arts require to go lots of web sites for getting different types of pictures, and hence require different web links; and web links can also be directly be linked into the Moodle. Only clicking onto the link would take the user to the site. So all these features I have shown through this course.

- **Music and Instruments Department:**
  Music department contains lots of audio and video files; through this I have shown that Moodle is capable of uploading any audio and video files.

8.3 So far I have done in my project

In my project, I implemented almost all the features of Moodle, and I was successful in implementing those. Things that I have done in my project are discussed below:

- Opened up many different courses.
- Implemented course life time (starting date and ending date of a course).
- Implemented student enrollment duration (within a certain date).
- Assigning students their accessing privilege level.
- Uploaded many different courses alongwith their different course materials.
- Opened up two different kinds of forums for every course:
  - i) student2student forum and

ii) student-teacher forum

- Opened up chat-rooms for every course.
- Implemented self-testing quizzes alongwith the solutions.
- Implemented time duration constraint into the quizzes.
- Made quizzes on multiple choice questions.
- Made quizzes on short question and answer.
- Customized calendar to show events for quiz dates and assignment dues.
- Uploaded audio files.
- Uploaded video files.
- Uploaded softwares.
- Uploaded zip files.
- Uploaded .pdf files.
- Uploaded .ppt files.
- Uploaded word files.
- Attached direct links to the web sites.
- Monitored the activities of the students (what each has done into the Moodle).
- Sent emails to the students as a group or as an individual.

Chapter 9

Thesis review

9.1 Moodle in brief

Moodle is a Course Management System (CMS). It is available on internet for free. It is an open source learning management software package. It uses sound pedagogical principles. It can be implemented to any learning or training institution very easily. It does not need any programming literacy to operate. Other than English, Moodle supports many different languages. It provides very user-friendly user-interfaces for the conveniences of the users. It creates a virtual online environment exactly like a real classroom.

9.2 Software Requirements

The machine must have MySQL database, PHP scripting language and Apache server installed. We get all these three into a package form in: LAMP (for Linux), WAMP (for Windows) or in Apache2Triad.

9.3 Hardware Requirements

- Disk space: 160MB free (min). You will require more free space to store your teaching materials.
- Memory: 256MB (min), 1GB (recommended). The general rule of thumb is that Moodle can support 50 *concurrent* users for every 1GB of RAM, but this will vary depending on your specific hardware and software combination.
- +Windows 98/ME (minimum)
- +Windows NT/2000/XP (recommended)

9.4 How does it help Students and Teachers?

The main objective of this Moodle is to help both students and teachers. Different features of Moodle have also been able to prove that Moodle is a perfect learning management system and is able to create an ideal virtual online classroom.

Both teachers and students are being benefited through this. Few reasons have been discussed below:

Teachers:
First good news for the teacher is that they are able to use this learning management software without any programming language knowledge. They do not have to worry about delivering the important and helpful materials within the class time. They can provide any helpful documents on the web whenever they feel like. They can also attach the direct links there than uploading the whole contents. They can also provide audios and videos onto the Moodle; so do not have to worry about which students have those and which students do not. Besides, to help students, they can have direct conversation in the chat-room. Confusions regarding any course content can also be solved through these forums. Students and teachers can leave their messages there. Calendars are there to remind of every upcoming event. So, the teachers do not have to keep on telling about the events. They are able accept assignments online and return those back to the students online alongwith results and remarks. So, this helps teachers from showing students their quiz copies and explaining what was their mistakes.

Students:
Students can enroll to a course and unenroll to a course by themselves. They can get all the materials of a course always and they can access it from anywhere. They can now pay more attention into the class lectures than copying down everything. They do not have worry about searching and wasting time for the perfect books for the courses. Teachers can upload the pdf of the books there onto the Moodle. They can even get the important links right there and access those directly only by clicking onto the given links.

9.5 Summary

My project was to teach how to use Moodle, install it and then implementing its different features. I have been able to do so perfectly. For doing so, I chose some courses from different departments and which are different from each other in their course materials; then I experimented on those courses. I implemented every feature of Moodle in my project. I customized the Moodle according to my use. Finally, I have also come to a conclusion that Moodle is really a very good learning management software package.

Chapter 10

Future Implementations and Improvements

10.1 Future Implementations

Moodle is now only confined within small learning system. We can expand it to other large learning areas like: aviation training, armed force training, technical trainings (e.g. driving, building construction) alongwith simulation for every move, or every step taken.

Then there can be forums of different categories where people (who are renown and established in the society) in different education sectors will participate. General people will get the chances to interact with them through forums and will get the valuable suggestions from them.

10.2 Future Improvements

Moodle 2.0 will be released within the next year. This new Moodle will allow existing Moodle implementations to link together into 'Community Hubs'. Communication across different Moodle sites and better access to relevant content will be facilitated by this Moodle. An extremely useful feature for teachers and students will also be there: peer-to-peer networking. [14]

10.2.1 Features that can be included in Moodle

If some more features can be included in Moodle, then I think it will be more user-friendly to use. Features like:

- Inserting photos or links into the text of the question.
- Putting question marks (to open help windows) in the fields of the question.
- A confirmation message box while editing any feature.

10.3 Summary

Moodle is an open source package and it is free. So, it is used by the people easily without a second thought. Every time people are coming up with new ideas to modify it for their own conveniences. The flexibility of being open source is making it possible to update Moodle and decorate it according to users' choice!

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