College of Engineering, Pune - 5

Dept. of Computer Engineering and IT

B.Tech. Project: VII Semester - Progress Report

Improvements in Moodle

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1 Abstract

Moodle [1] is an open source course management system also known as learning management system or virtual learning environment. The focus of moodle is always on giving educators the best tools to manage and promote learning. Moodle acts as a communication tool used by students and teachers thus facilitating student-teacher interaction and student collaboration [2]. It is an online learning management system providing 24/7 access to its facilities and also has features such as discussion boards and assessment tools.

Although moodle has become very popular and effective, it still has a lot of scope for improvement. In this project, our aim is to add various features and enhance the current status of moodle. The goal is on improving the available functionality and making it more user friendly thus widely spreading its use. Our focus in this project is to come up with effective solutions to existing problems and new ideas to improve its usability.These areas mainly aim at improving the shortcomings that moodle currently faces like decimal grading,submitted assignments deletion etc.
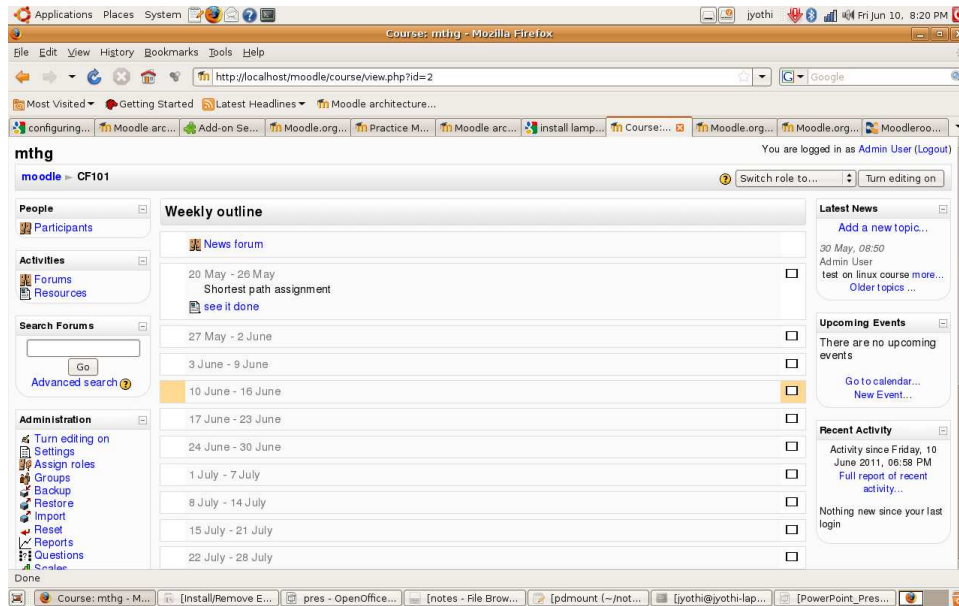
Figure 1: Assignments

2 Introduction

Moodle provides a variety of features like creating assignments, chatting, posting to forum, creating lessons, designing quizzes, conducting workshops.

2.1 Assignments

Using this, students can submit assignments. Teachers can review them and provide their feedback and assign grades.

2.2 Glossary

Participants can create a list of definitions like a dictionary using the glossary.The glossary can be viewed and browsed in different formats by others like browse by alphabet,category,date and author.An auto linking feature is also provided.

2.3 Resource

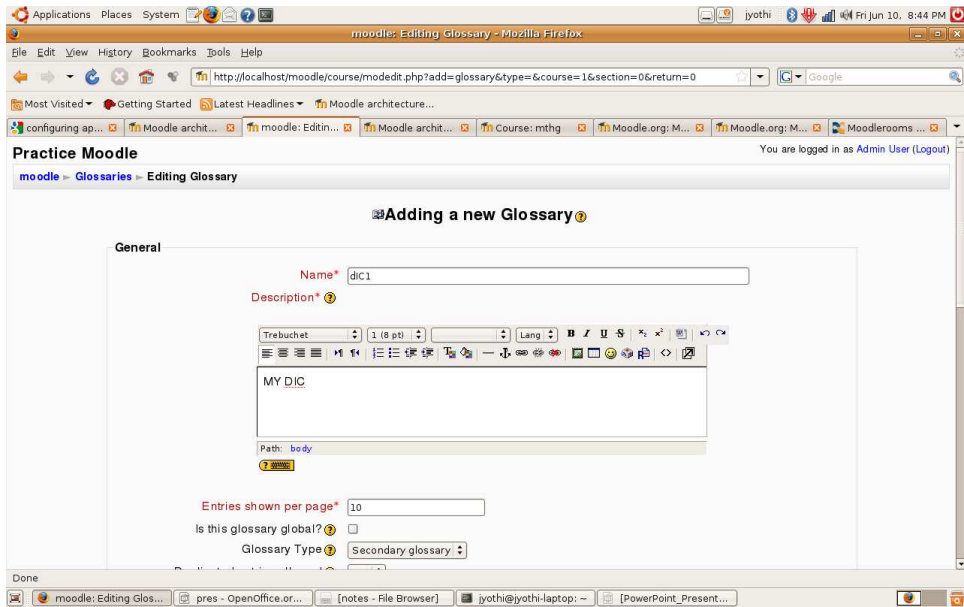Resources are basically a link within a course to a file or other material with additional information.
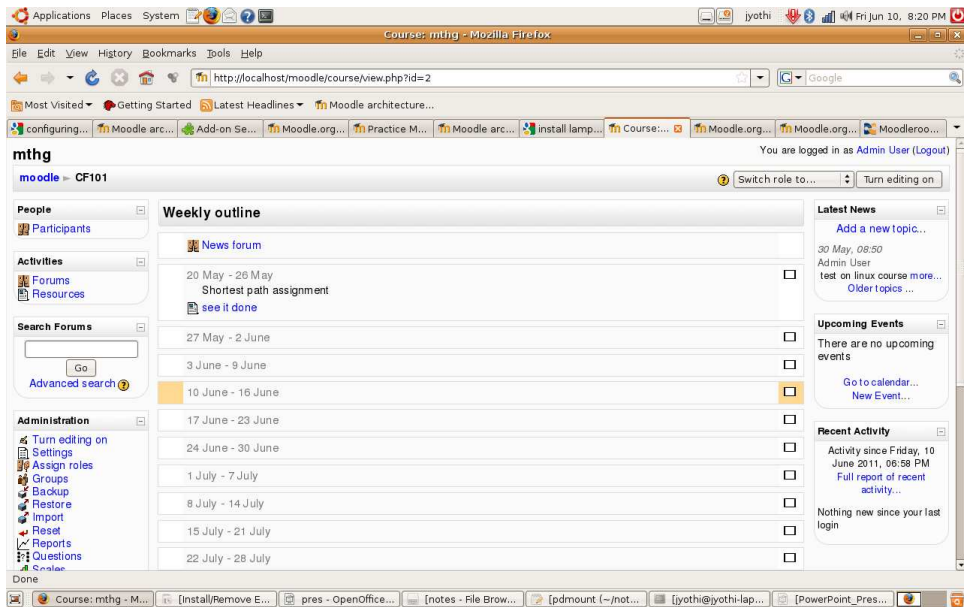
Figure 2: Glossary

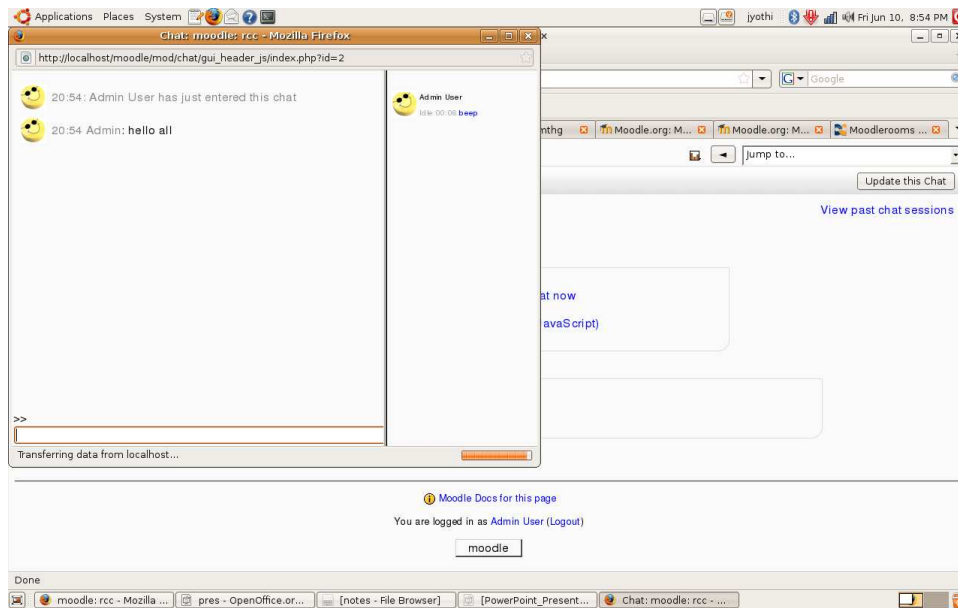Figure 3: Resource

Figure 4: Chat

2.4 Chat

Allows participants to have real-time synchronous discussions on the Web.

2.5 Quiz

The quiz features lets instructors design and implement quizzes consisting of a large variety of question types.
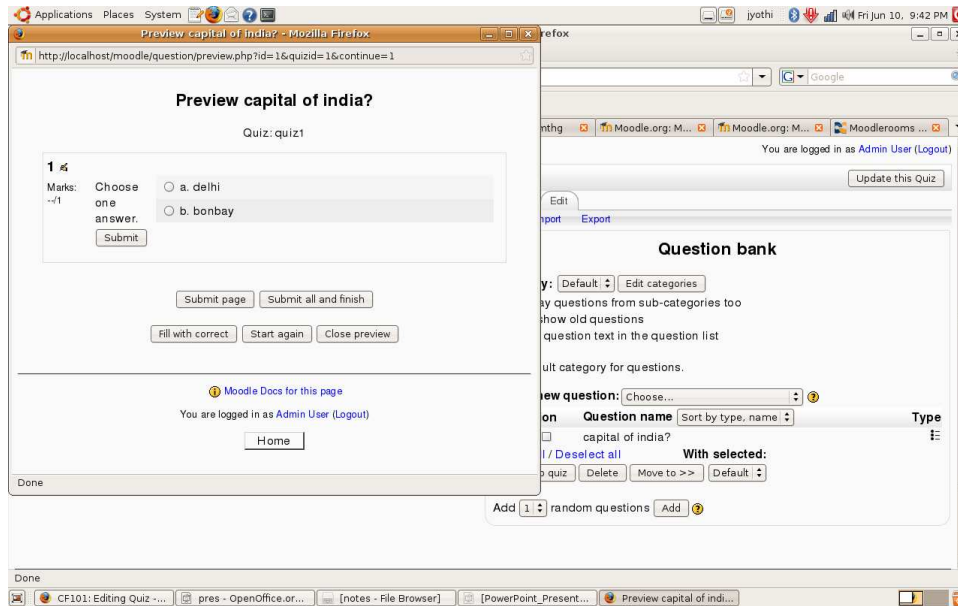
Figure 5: Quiz

2.6 Importance of moodle

Moodle enables more interaction between students and teachers and improves the overall learning experience. Many academic institutes use moodle as an alternative for hard copy submission as it is more efficient that the latter. Moodle enables online submission of assignments by students, lets teachers grade the students online and display their feedback as well. Hence it is more fast, saves time and thus is used widely in many universities.

The current moodle versions has still a lot of scope for improvement as it has a lot of bugs and issues which are unresolved. Hence we are working to solve these issues. This will help the users of moodle in the long run.

Advantages of using moodle are,

- On time submission,

- Faster than hard copy submission,

- Low cost solution for e-Learning,

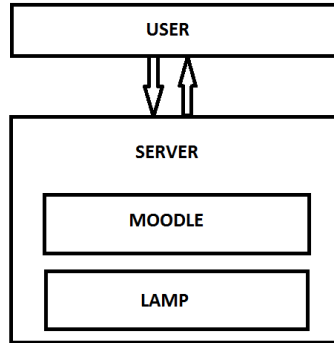- Convenience of submission from students side,

Figure 6: Architecture

3 Literature Study

In literature study, we operated moodle using various roles such as admin,teacher,student and understood its functionality.The database structure and schema of various tables were studied.We also observed moodle code organisation and the way in which it is structured although, not completely.

3.1 Moodle Architecture

As shown in figure 6, client interacts with the server using http protocol. Server comprises LAMP which is an acronym for Linux (operating system), Apache HTTP Server, MySQL (database software) and PHP [3]. These are the principal components required to build a general purpose web server.

- **Apache**: Apache is a free and open source http web server.

  - **Configuration of apache server [4]**: In order to configure an apache server, a new directory is to be created from where we want the web server to load. The configuration files are copied from the default directory to the new directory. Change the document root and directory path to point to the newly created site directory in the new configuration file. Disable the default site and Activate the new site. The server is then restarted.

- **MySql**: MySql is a relational database management system whose tables are manipulated by moodle in order to perform various operations.

- **PHP**: It is a general-purpose server-side scripting language used to produce dynamic web pages. Moodle code is written using PHP.

In order to run moodle in linux, LAMP server has to be installed. For Windows, WAMP server is used. For MAC, Mamp has to be installed.

4 Activities

4.1 Preparatory tasks

Preparatory tasks were performed in order to familiarize ourselves with the basics of moodle before moving onto the main tasks of the project.These tasks helped us in understanding its working within moodle.

4.1.1 Emails in moodle

When a new user creates an account, an email has to be sent to the user to confirm account creation. Sending emails are also required during other activities in moodle like messages etc. Postfix has to be used for this purpose. It is a free and open-source mail transfer agent (MTA) that routes and delivers electronic mail.

4.1.2 Php upload

A php code to upload files to the server has been written. Images and other data including files can be uploaded.

4.2 Problem Statement

To change the colour of students information who have submitted their assignments late.

4.2.1 Requirement Specification

The requirements necessary for the current task are as follows,
Currently, the submission details of each student were displayed to the teacher in the same colour irrespective of whether the student had submitted the assignment on time or late. So, the teacher could not identify if a student had submitted the assignment on time or not other than checking the time externally. This proved as an overhead to the teacher. Changes were made to the code in such a way that the information of a student who had submitted an assignment late was displayed in red colour.This change was visible to the teacher in the list of assignments submitted by all students. So, the teacher could identify who submitted a late assignment.

4.2.2 Design ideas for the solution

In order to solve this problem, the code of the file assignment.class.php has to be changed. This file is present in the mod/assignment/type/upload folder. Lines in the code are changed.These lines are given in the appendix.

Timemodified and *timedue* are predefined variables which are used to check the status of the time.

If the submission time of the assignment submitted by the student is less than the time when the assignment is due, then the normal colour of the details of the assignment visible to the teacher is retained.

Else, if the submission time is greater than the due time ,then the teacher can identify that the student has made a late submission since the text colour of 'draft' is changed to red.

5 Problem Definition

The following are the further improvements that will be undertaken by us and are taken from the moodle website(moodle tracker),

5.1 To delete submitted assignments [5]

This will enable a teacher to fully delete submitted assignments.

- Requirement Specification

  Until now, no delete option exists on moodle for a teacher to delete individually submitted assignments. Hence, a provision should be made such that the teacher can check on the assignment which he/she wants to delete and remove checked assignments.

5.2 To allow decimal values in assignment grading [6]

Allow floating point values while grading a student instead of just integers.

- Requirement Specification

  When a teacher grades a student on a submitted assignment, only integer values are currently present. If a teacher wishes to allocate floating values, then that provision is not available. So, a combo box can be provided that allows a user to enter a real number in addition to choosing an integer form the grades listed.

5.3 To enable creation of a progress report by teachers for students that can be viewed by the student and parents on a single page. [7]

- Requirement Specification There has been no provision of a progress report in moodle until now. With this facility, students and parents can review
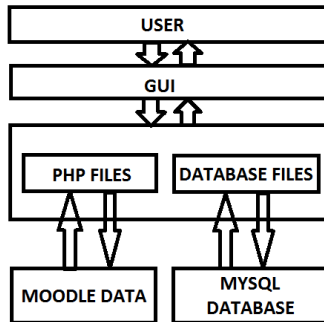
Figure 7: Moodle Code Structure

their continuous progress.

5.4 To enable allocation of submissions to teachers for assessment [8]

- Requirement Specification Currently there is no way to allocate all of submission to the teacher for assessment. The interface requires that each name be individually selected and refreshes after each selection. This is very time consuming when multiple allocations has to be done. So, an interface has to be created that will enable capturing multiple number of students for assessment by one or more reviewers.

6 Design of Moodle

6.1 Structure of moodle code

A user can access the moodle libraries through user interface. UI interacts with these libraries using PHP function calls. Moodle libraries include database and file libraries. The implementation of the PHP functions is included in the moodle libraries.

Moodle code is organised in various folders with each folder implementing a certain functionality. Examples of functionalities are messages, assignments, calendars etc. Each folder comprises of css files, php files and database files.

Database related files are present in the db folder. DB has .xml files which explain the table schema.

References

[1] http://moodle.org

[2] http://www.ulm.edu/psychology/documents/FacultyMoodleManual.pdf

[3] http://en.wikipedia.org/wiki/LAMP_%28software_bundle%29

[4] http://www.zaphu.com/2007/08/21/ubuntu-lamp-server-guide-configure-apache-mysql-and-cgi-

[5] http://tracker.moodle.org/browse/MDL-10434

[6] http://tracker.moodle.org/browse/MDL-20368

[7] http://tracker.moodle.org/browse/MDL-18007

[8] http://tracker.moodle.org/browse/MDL-26633r

7 Appendix

The modified code is as follows,

```
if($this->drafts_tracked() and $this->isopen() and !$this->is_finalized($submission))
{
  if($submission->timemodified <= $this->assignment->timedue
     || empty($this->assignment->timedue))
      {
       $output .= '<font color="#060000">'.get_string('draft', 'assignment').':</font> ';
      }
  else
      {
       $output .= '<font color="#CC0000">'.get_string('draft', 'assignment').':</font> ';
      }
}
```