Registration - Module for LMS Moodle

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Abstract

Moodle is an open source software package for producing internet-based courses and web sites. It is targeted for users having little or no knowledge of Internet programming. The purpose of this presentation is to show its capabilities and experience after one semester of usage for about 200 students.

1. Introduction

Learning Management Systems (LMS) are one group of Contents Management Systems (CMS) used for e-learning. Their role has been increasing in the recent times and complements well the traditional learning systems. The main advantages are among others availability 24/7, course and user management and tracking, extensible architecture, etc.

A nice (although somewhat outdated) survey on open-source LMS [2] lists 35 possible candidates and recommends two products: ATutor and ILIAS. The main evaluation criteria include features and functionality, cost of ownership, maintainability and ease of maintenance, usability, ease of use, and user documentation, user adoption, openness, standards compliance, integration capacity, reliability, scalability, hardware and software considerations, multilingual support, and many others.

Based on these criteria, we have undertaken a further research and finally have chosen the system Moodle [1, 3] that suits best our purposes.

The development of Moodle continues as an Open Source software project supported by a team of programmers and a huge user community all over the world. This means, that users are free to download, use, modify and even distribute it (under the terms of the GPL License from GNU).

Moodle is now used in Universities, high schools, primary schools, non-profit organisations, private companies, by independent teachers and even home schooling parents.

Runs without modification on Unix, Linux, Windows, Mac OS X, NetWare and any other systems that support PHP, including most web host providers. Data is stored in a single database: MySQL and PostgreSQL are best supported, but it can also be used with Oracle, IBM DB2, Microsoft SQL Server, Borland InterBase, Informix, Visual Foxpro, SAP DB, SQLite, Sybase, Microsoft Access, ADO and generic ODBC database access, since it uses ADOdb.

Moodle is evolving product and contains many features:
- It is Open Source. There is a very active community of more than 7000 people from all over the World working together in order to improve Moodle. There are also a Documentation project, a Language teaching community, a place to Exchange Moodle courses, etc.
- Person management - It is easy to work with for teachers, students and admins. It is also easy to install and upgrade.
- Course management - It is topic oriented.
- Modules - It has many features that any e-learning platform has to have: good Forums, Resources, Quizzes, Assignment, Chat, Choice, Glossary, Journal, Label, Lesson, Survey and Workshop, Appointment, Attendance, Dialogue, Exercise, Scheduler, Webwork, Calendar, SCORM, WebQuest, Document Management System, etc, …
- It can be integrated with any corporate system via external database authentification (SQL, LDAP, …).

2. Moodle at the KIRP FCFT

The purpose of this presentation is to show its capabilities and experience after one semester of usage at Department of Information Engineering and Process Control, Faculty of Chemical and Food Technology (KIRP FCFT). We have used it for smaller groups of students (up to 10) and also in the course Process Control Fundamentals and Laboratory Exercises of Process Control Fundamentals (LCZA) for about 200 students.

For courses with a small number of students we have used the available tools from Moodle.

LCZA is a more specialised course and due to lack of time for its preparation we have created an external module for it.
Moodle contains many packages that can be downloaded from the Internet. The basic installation of Moodle contains almost all we need. In our case we just need one thing. We have about 200 students and it is necessary for every student to have unique assignments to solve. This is why we created a new “bridge” connection that communicates with the base of Moodle and our external part with access to MATLAB generated assignments [4]. Teacher chooses a student from the scrolling menu and then he/she can see the solution of student's assignment (and inter results too) with items up individual tasks. Then he/she has an up-right quick link to regard him/her). This connection is simple PHP script, which takes information from Moodle about the student/teacher and gives them to the new external module, which generated the output that we need (assignments for students, solutions of assignments for teachers).

We can say that the e--learning module consists of two parts. The first one is the Internet module. The basic functionality of this part is as follows:

- Students are organised on groups.
- Each student can see only his/her assignments and evaluation of each of them during the course.
- Teachers can see and modify evaluation of the students. They also can login as students.
- There are several discussion boards available: announcement (only teachers can write), general (any course participant can write/respond) and teacher' forum (not seen by students). Discussions can be limited to a group or to all participants.
- Unified evaluation of students. Each laboratory exercise is evaluated with 20% for preparation and 80% for protocol where time delay penalisation system is introduced.
- User authorisation and personification. Each person involved in the course has unique login, password and role (student, teacher, and administrator). Administrator can in addition to other tasks add students, assign a student to a room, …

The second part of the module is scientific and deals with the problem of generation of unique assignments for all students. This was in a more detail described in our previous work [4].

Another solution that has been missing for our purposes was on-line registration for examinations. As this is a general requirement also useable for other courses, we have implemented it as an internal module.

3. Registration for examination module

We have implemented a module for registration for examination. The basic functionality of our module is as follows:

- Teachers can create some examination dates. They define date, time, and place of the examination. Furthermore they define maximum number of students and maximum number of points.
- Each student can registered/unregistered only himself/herself.
- Each student can be registered only on one date.
- The term of the examination is closed at 00:00 on the day of the examination.
- Each student can see only his/her total evaluation based on the results of examination.

The easiest way to start a new module is to use the template (http://moodle.org/mod/newmodule_template.zip).

Procedure how we to use the module template consists in the following steps:

- Unzip the archive newmodule\_template.zip into the directory mod/.
- Change the name of the directory to your new module name.
- Edit all the files in this directory and change all the instances of NEWMODULE to your new module name.
- Edit db/mysql.sql and put in the SQL database definitions for your module. The names of any table definitions you create there should use the prefix 'prefix\_' instead of 'mdl\_' (or whatever you've configured your moodle installation to use as a table prefix) (optional)
- Edit db/mysql.php and change all the instances of NEWMODULE to your new module name. (optional)
- Create one or more language files for your module in lang/LANG/NEWMODULE.php where LANG is the language or languages you are creating the module for use with. (usually this will be 'en') Use one of the language files for another module as a template for the file.
- Visit the admin page and your module should be noticed and registered as a new entry in the table "modules".

Now you can start adding code to the .php and .html files in this directory to make it do what you want! See the “Moodle Documentation” for more details on module development.
Our module (*registration*) is in a separate subdirectory `registration` and consists of the following mandatory elements:

- *mod.html*: a form to set up or update an instance of this module (Fig. 1),
- *version.php*: defines some meta-info and provides upgrading code,
- *icon.gif*: a 16x16 icon for the module,
- *db*: SQL dumps of all the required db tables and data (only for MySQL database),
- *index.php*: a page to list all examination dates in a course (Fig. 2),
- *view.php*: a page to view a particular examination date (Fig. 3 and 4),
- *submissions.php*: a form to define grade
- *print.php*: print version (with/without name),
- *lib.php*: functions defined by the module.

Registration module have two language files in language directories (*registration.php* in `lang/en/` and `lang/sk/`) that contain strings for this module.

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### Fig. 1. Form to set up an examination date

### Fig. 2. List of all examination dates in a course

**Termin skúšky 25.5.2005**

- **Date**: Wednesday, 25 May 2005, 07:00 AM (15 hours 25 minutes)
- **Room**: Aula
- **Maximum number of students**: 40
- **Maximum number of points**: 35

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<th>Surname</th>
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### Fig. 3. Teacher's view for an examination date
4. Conclusions

We have used the LMS Moodle for one semester and it performs satisfactory. It provides almost all basic modules needed (authorisation, presentations, assignments, test, assessments, and discussion forums). What's more, any other functionality can easily be implemented. We have added a module for registration for examination and tailored the assignment to suit our needs.

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5. References


