



The architecture and a short overview

Introduction: What is Moodle?

- Moodle is a course management system (CMS) for online learning
- MOODLE = Modular Object-Oriented Dynamic Learning Environment
- Also: a verb that describes a lazy meandering through something, doing things as they occur, an enjoyable tinkering that often leads to insight and creativity.

Introduction: What is Moodle?

- ❑ The brainchild of Martin Dougiamas (<http://dougiamas.com>)
- ❑ It has been developed as an OpenSource software project
- ❑ That means that Moodle is available free of charge under the terms of the General Public License (GNU), and has no licensing cost attached

3

Philosophy 'beneath' Moodle

- ❑ The design of Moodle is based on socio-constructivist pedagogy
- ❑ This means its goal is to provide a set of tools that support an inquiry- and discovery-based approach to online learning
- ❑ It also purports to create an environment that allows for collaborative interaction among students as a standalone or in addition to conventional classroom instruction

4

Some other issues...

- ❑ Moodle v1.0 was introduced in August 20, 2002
- ❑ Today, the newest version is Moodle v1.5
- ❑ <http://moodle.org> - web-site which is used as a center for collecting data, discussions and for cooperation of Moodle users
- ❑ <http://moodle.com> - a company for additional commercial support

5

Characteristics of Moodle project

- ❑ Moodle runs without modification on every system that supports PHP (which includes almost every webhosting provider)
- ❑ Moodle is designed in a modular way, and allows a great deal of flexibility to add (and remove) functionality at many levels
- ❑ Moodle upgrades very easily from one version to the next - it has an internal system to upgrade it's own databases and repair itself over time
- ❑ Moodle requires only one database (and can share it with other applications if necessary)
- ❑ Moodle includes comprehensive database abstraction that supports many major brands of database
- ❑ Emphasis on strong security throughout. Forms are all checked, data validated, cookies encrypted etc

6

Characteristics of Moodle project

- ❑ Moodle promotes a social constructionist pedagogy (which includes collaboration, activity-based learning, critical reflection, etc)
- ❑ Moodle is suitable for 100% online classes as well as supplementing face-to-face learning
- ❑ Moodle has a simple, lightweight, efficient, compatible, low-tech browser interface
- ❑ Course listings show descriptions for every course on the server, including accessibility to guests
- ❑ Courses can be categorized and searched - one Moodle site can support thousands of courses
- ❑ Most text entry areas (resources, forum postings, journal entries etc) can be edited using a capable, embedded WYSIWYG HTML editor

7

Managing a Moodle site

- ❑ Moodle project can be installed using manual which is part of project documentation
- ❑ Installation can be done on web-server which is working under *Apache* server, which has support for PHP and uses *MySQL* database
- ❑ Installation can also be done on local computer
- ❑ A site is managed by an admin user, defined during setup

8

Managing a Moodle site

- Plug-in "themes" allow the admin to customize the site colours, fonts, layout etc to suit local needs
- Plug-in activity modules can be added to existing Moodle installations
- Plug-in language packs allow full localisation to any language. Currently there are 43 language packs
- The code is clearly-written PHP under a GPL license - easy to modify to suit your needs

9

Managing Moodle User Accounts

- Goals are to reduce admin involvement to a minimum, while retaining high security
- Supports a range of authentication mechanisms
- Students can create their own login accounts, and email addresses are verified by confirmation
- IMAP, POP3 and NNTP protocols can be used
- Each person requires only one account for the whole server - each account can have different access
- An admin account controls the creation of courses and creates teachers by assigning users to courses
- A course creator account is only allowed to create courses and teach in them

10

Managing Moodle User Accounts

- ❑ Teachers may have editing privileges removed so that they can't modify the course (eg for part-time tutors)
- ❑ Security - teachers can add an "enrolment key" to their courses to keep out non-students
- ❑ Teachers can unenrol students manually if desired, otherwise they are automatically unenrolled after a certain period of inactivity (set by the admin)
- ❑ Students are encouraged to build an online profile including photos, description. Email addresses can be protected from display if required
- ❑ Every user can specify their own timezone, or choose the language used for the Moodle interface

11

Managing Moodle courses

- ❑ A full teacher has full control over all settings for a course, including restricting other teachers
- ❑ Choice of course formats such as by week, by topic or a discussion-focussed social format
- ❑ Flexible array of course activities - Forums, Journals, Quizzes, Resources, Choices, Surveys, Assignments, Chats, Workshops
- ❑ Recent changes to the course since the last login can be displayed on the course home page - helps give sense of community
- ❑ Most text entry areas (resources, forum postings, journal entries etc) can be edited using an embedded WYSIWYG HTML editor

12

Managing Moodle courses

- ❑ All grades for Forums, Journals, Quizzes and Assignments can be viewed on one page
- ❑ Full user logging and tracking - activity reports for each student are available with graphs and details about each module
- ❑ Mail integration - copies of forum posts, teacher feedback etc can be mailed in HTML or plain text
- ❑ Custom scales - teachers can define their own scales to be used for grading forums, assignments and journals
- ❑ Courses can be packaged as a single zip file using the Backup function

13

Managing assignments

- ❑ For every assignment, deadlines and max grades can be given
- ❑ Students can save solutions of their assignments - coded with date of saving - onto server
- ❑ Saving assignments that aren't solved on time is also allowed, but teacher is informed about the time of delay
- ❑ For every assignment, whole 'class' can be evaluated (along with comments of assignments) in one form on one page
- ❑ Teacher's comment is linked with the page on which solution of assignment is, so it can be sent to student by e-mail
- ❑ Teacher can allow re-delivering of the solution of assignment *after* evaluation, for reevaluation
- ❑ Teacher can create quizzes with various types of questions and various types of answers

14

Additional features

- ❑ 'Chat module' - which enables easy and simple textual communication between students
- ❑ 'Choice module' - enables polls about issues important for the teacher or course
- ❑ 'Forum module' - which enables various types of discussions: 'teacher-only', 'news', 'free-for-all' or 'one-discussion-thread-per-user'
- ❑ 'Journal module' - enables communication between teacher and single student
- ❑ 'Resource module' - which presents electronic content in optional format (doc, ppt, flash, video, audio ...)
- ❑ 'Survey module' - enables work analysis of whole 'class', and results are visible on web-site as tables or graphs
- ❑ 'Workshop module' - enables teacher to review and evaluate documents

15

Moodle coding rules

- ❑ In order to keep consistency and stability of project involving large group of people, there is a list of rules 'inside' Moodle that must be followed by anyone who works on the project. Here is some of them:
 - All files containing code must have .php extension
 - All files containing explanations and patterns must have .html extension
 - All text files must use Unix formatting
 - Database access is performed using functions from lib/datalib.php (whenever it's possible)
 - All variables must be initialized, or tested for existence
 - All strings must be easy for translation
 - All texts inside Moodle, especially user's, must be printed in the same way, using standard Moodle functions
- ❑ Similar rules exist for creating tables in databases

16

Coding style rules

- Variable name must be readable, english word that make sense
- Constant name must be written in upper case, starting with module name
- Function name must be english word in lower case, starting with module name
- Strings are defined using quotation marks
- Comments are marked with three slashes in front of actual comment

17

Managing Moodle project

- For successful work on the project, Moodle uses CVS (Concurrent Versioning System).
- This system is frequently used for managing source code of large software projects
- CVS saves all versions of all files, so nothing can be lost
- CVS enables linking and merging of code simultaneously developed by two or more persons
- Entire code and all of its versions are stored on central server

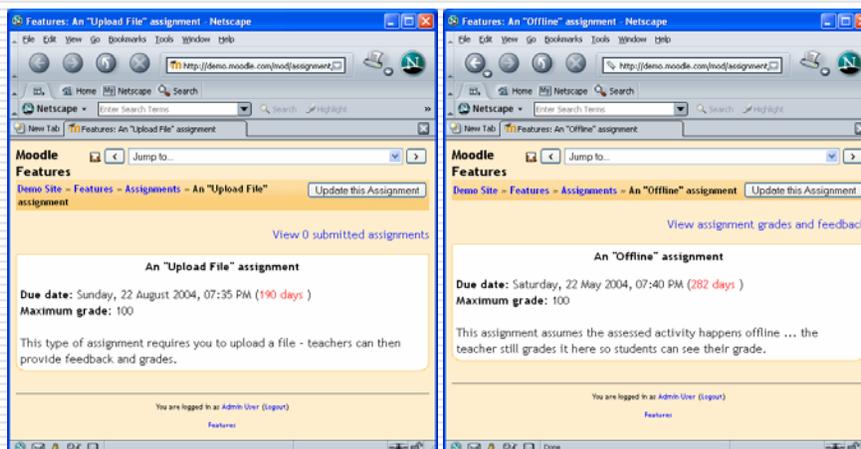
18

Some in-work possibilities

- Working with text - built-in text filters which enables following features when working on your lessons:
 - Automatic *link* insertion
 - Using math notation
 - Multimedial plug-ins
- Working with assignments and their solutions:
 - *Upload file* - assignment type
 - *Offline* - assignment type
- 'Chat' possibilities:
 - 'chat' repeating always at the same time, with public access
 - open 'chat' which can be started at any given time

19

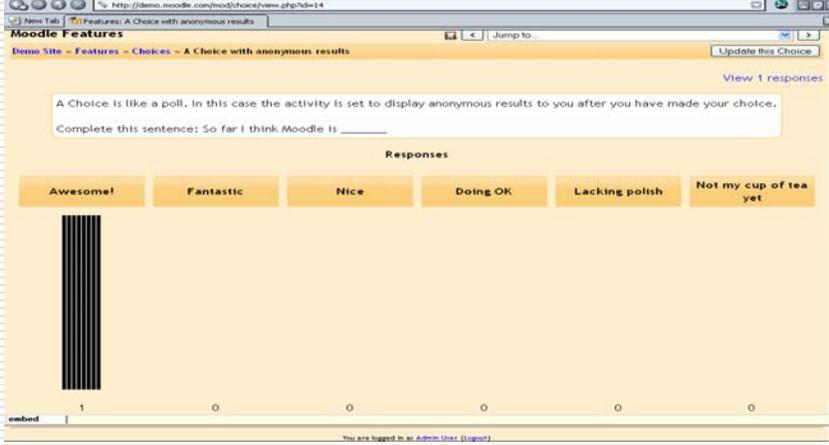
Assignments examples



20

Choices

□ with anonymous results

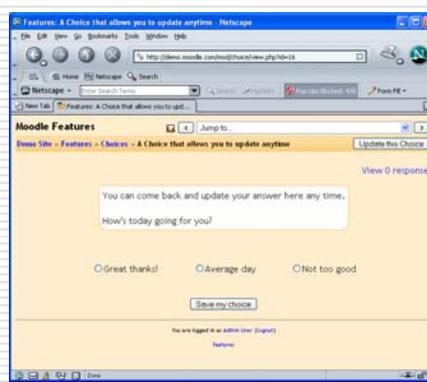
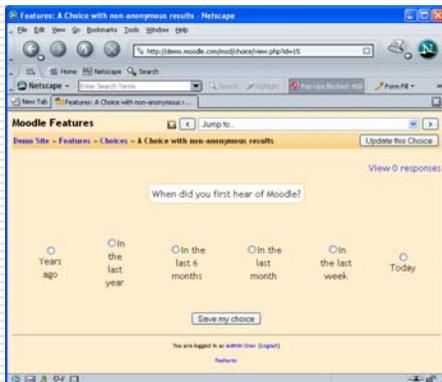


21

Choices

□ With non-anonymous results

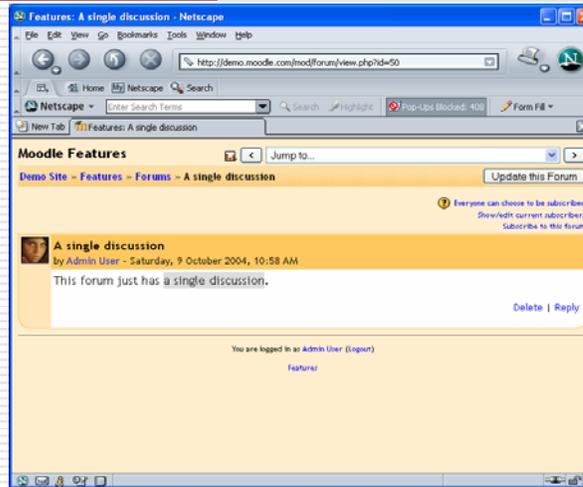
□ Which allows you to update anytime



22

Forums

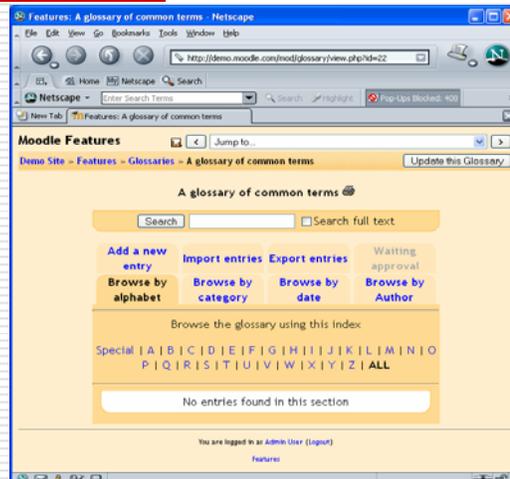
- Standard forum
- Each participant starts one discussion
- Single discussion



23

Glossaries, journals and labels

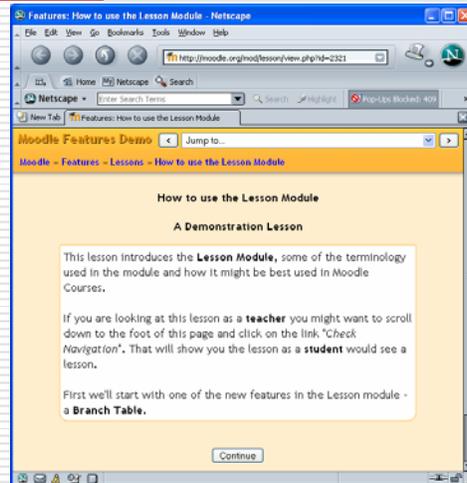
- Glossaries created by:
 - student
 - teacher
- Evaluated journals
- Labels allow insertion of HTML files in course



24

Lessons

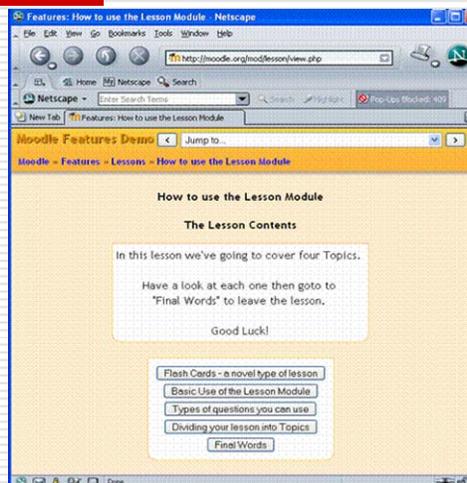
- ❑ Most important module
- ❑ Screen shows lesson in a way student can see it. Teacher's view is different, showing complete path through lesson, as well as lesson 'behavior'
- ❑ Teacher can also use *Check Navigation* option
- ❑ Screen on next slide is showing a *Branch Table*



25

Lessons

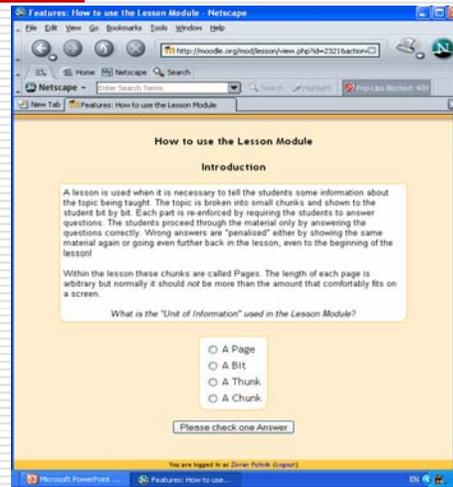
- ❑ This screen shows some branching possibilities
- ❑ There is also a recommendation for students
- ❑ Each branch can contain some textual content, questions or quizzes



26

Lessons

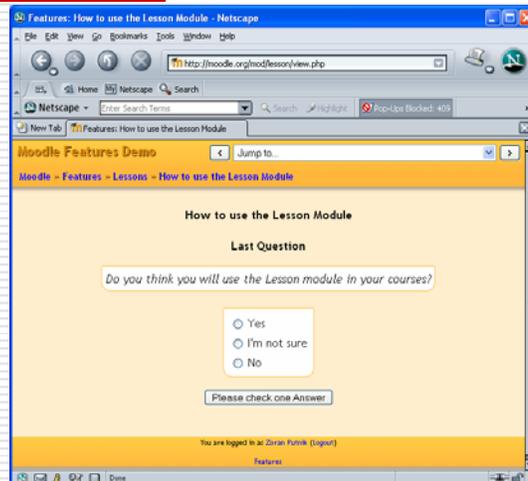
- ❑ Lesson module is used to give student some information regarding learning subject. Subject can be divided in parts (*pages*)
- ❑ After each subject, teacher can ask a question, to check student's knowledge. Student can advance only if he gives correct answer
- ❑ If student doesn't answer correctly, he can be 'punished' by returning to selected page
- ❑ Page shouldn't be bigger than one screen



27

Question page

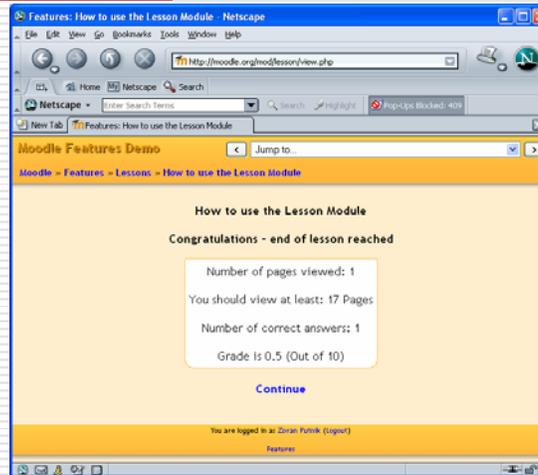
- ❑ It's possible to have page with question only, without any other information



28

End of lesson

- When all pages are learned and all questions are answered correctly, student is brought to the last page, that shows total results for the student



29

Quizzes in Moodle

- Quiz module gives teacher the possibility to create tests in form of quizzes. Some of the quiz characteristics are:
 - Order of questions, as well as order of answers can be shuffled on each quiz attempt
 - Questions can contain HTML pages and pictures
 - Questions can be choose randomly from given question categories
 - Teacher can define database of questions with questions that appears in several quizzes
 - Questions can be grouped by categories, that can be accessed by any of the courses that exist on web site
 - Quizzes are graded automatically, and can be 're-checked' and graded after answers being changed

30

Quizzes in Moodle

- Period of time, in which quiz can be attempted, can be given
- Teacher can control number of attempts to solve quiz. Every future attempt can be built on the last one
- Grading method can be defined as one of the following: highest grade, last grade, lowest grade or average grade
- Feedback can be shown to the student after answering, along with correct answers
- Students can be allowed to review their previous quiz attempts
- Quiz questions can be entered manually, by using Moodle interface, or by using *upload* option

31

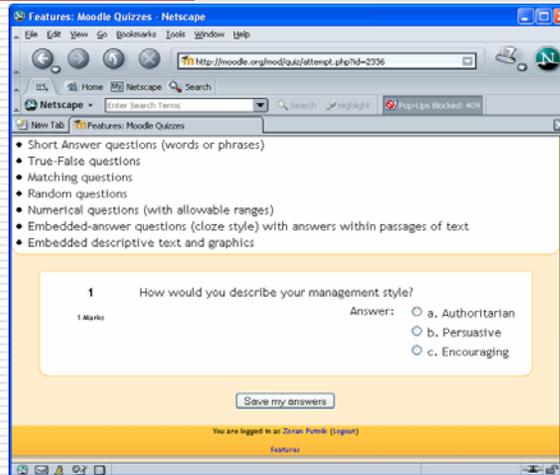
Quizzes in Moodle

- There is a numerous types of questions that can be used in quizzes:
 - Multiple choice
 - TRUE/FALSE
 - Short answer
 - Numerical
 - Calculated
 - Matching
 - Random
 - Description
 - Random short-answer matching

32

Some examples of quizzes

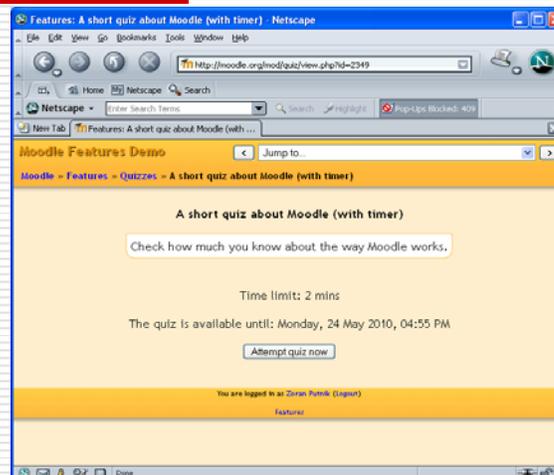
- Example of test that includes text which provides some helpful information, multiple choice question, as well as option of saving student's answer



33

Some examples of quizzes

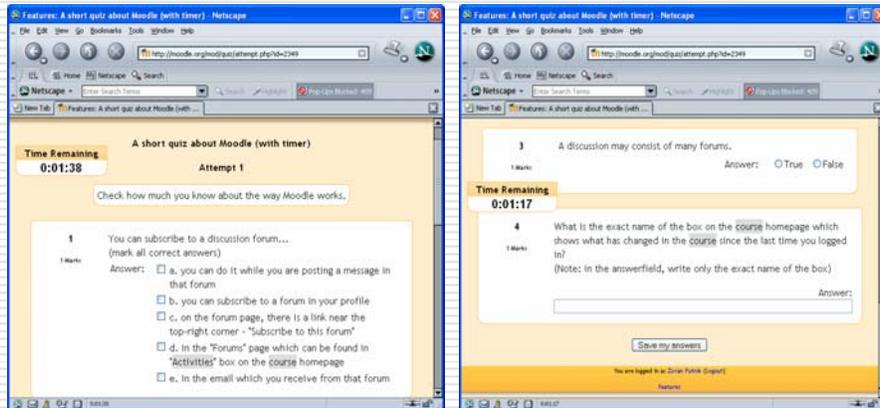
- Example of quiz which has limited time for answering (2 minutes), as well as period of time in which it is available (24 May 2010, 04:55 PM)
- At each quiz attempt, Moodle gives you information about conditions



34

Some examples of quizzes

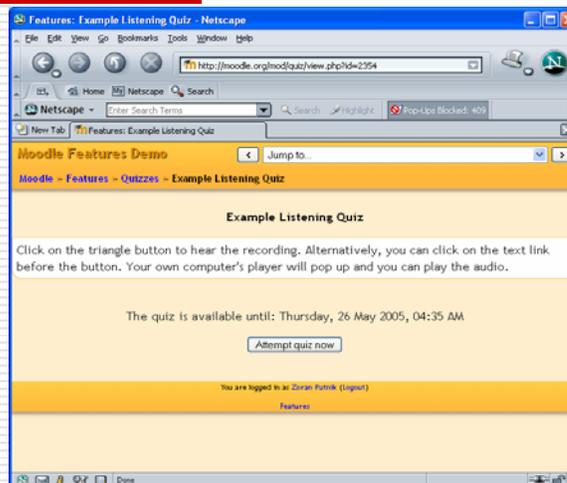
- Representation of a quiz with timer



35

Some examples of quizzes

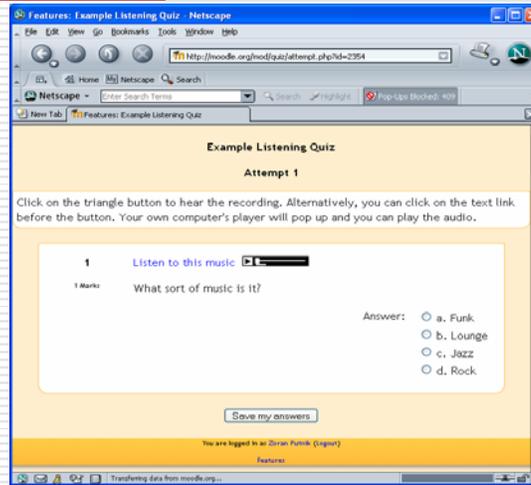
- Example of a quiz which includes an audio element
- Student must have an installed audio player, as well as speakers



36

Some examples of quizzes

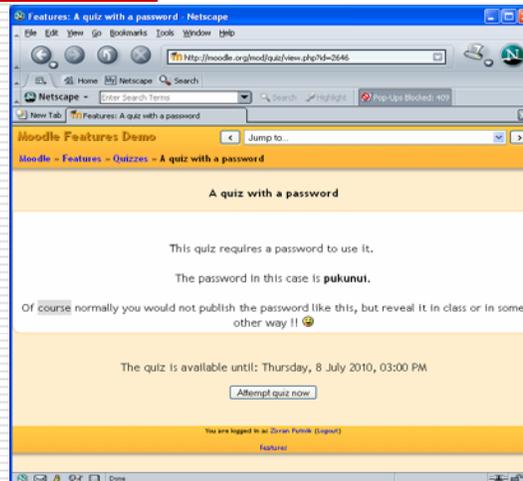
- Example of a listening quiz



37

Some examples of quizzes

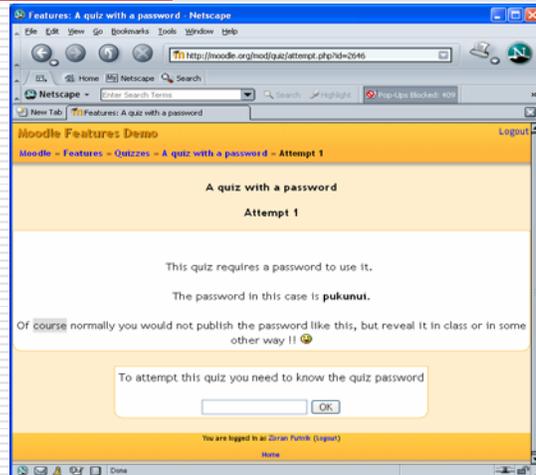
- There is a possibility of creating quiz that requires password



38

Some examples of quizzes

- ❑ Example of a quiz with a password



39

What hasn't been told ...

- ❑ Persons which are defined as course creators (by administrator) are the only people that can create or change course
- ❑ During course creating, creators work in 'editing on' regime, adding resources, lessons, quizzes ...
- ❑ During course controlling and reviewing, creators work in 'editing off' regime, and they can see course in a way that students can see it
- ❑ One of the function of a course creator is defining of a lecturer

40