

Online Assessments through Moodle Quiz

Problem statement and
Solution proposal



Online Assessments in Education

Potential Exams

Assessment tests

- Entrance / Admission
- Internal / Semester
- Placements
(Recruitment)

Online Assessments Platforms

- 800+ universities
- ~40,000 colleges
- ~10,00,000 schools



- Each seem to handle about 20 clients in education

Open source and Scalable Platforms?

Potential Exams

- Controller of Exams may wish to have “full control” of the platform

What Moodle Can?

Available capabilities

- User enrolment
- Question authoring
- Variety of Types
- Question Bank
- Randomisation
- Response Analysis

What Moodle Needs?

A Wishlist of Standard Practices

- Room management
- Time loss
accounting
- Rich psychometrics
- Q & A Security

User Stories

As a Test Administrator,
I would like to

- Restrict a candidate to a **specific location**
- **Automatically grant extra time** for lost-time due to hardware/network failures
- Manage **configurations** of multiple similar examinations
- **Isolate** authoring and delivery of questions (across servers/LANs)

Make moodle easily manageable by Controller of Examinations



Contributions from FOSSEE Project IIT Bombay

Scenario 01

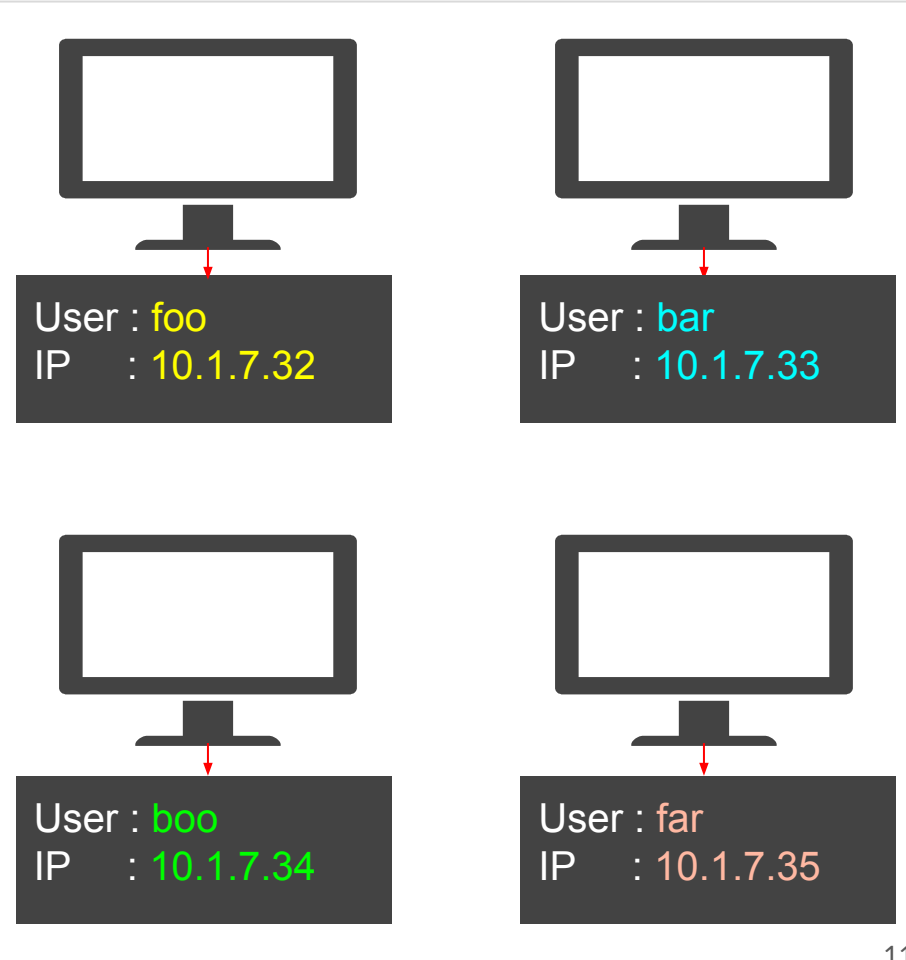
Setting up exam in
a classroom



01 User-IP Mapping



- manage a given seating arrangement
- map users to a given terminal (IP address)
- pre-assign locations and announce to users
- commonly done for pen-paper exams



Scenario 02

Factoring Hardware and Network Failures



02 Auto increment quiz time limit

- Loss of time due to system failures
- User overrides need not be created manually



1 | User starts quiz



2 | Time lost due to network problem



No need to create user-overrides



3 | Quiz time extended automatically



Heartbeat Plugin Implementation

Socket programming

- Moodle Quiz Access Rule Plugin
 - starts Node JS server
 - provides client.js
 - live monitoring of dead/alive
 - create user overrides
- User's Browser client.js
 - Connects websockets
 - Maintains ping/pong
 - New socket for every quiz page
- Node JS server
 - Creates a "RoomID" for every user-quiz-attempt
 - Calculates lost time between disconnect and connect



IIT Bombay Tests

Production Data

- PhD Recruitment 2018
- Placements 2018
- Job recruitments



Caveats?

- Socket testing with JMeter not realistic
- Code Refactoring

FOSSEE Moodle Team



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Provide Moodle Services to Exam Bodies

- **Server Setup & Maintenance**
 - **Training**
 - **Contribute to Building a Robust Exam Code & Plugins**
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Thank You