

Introduction to an automatized cheating prevention system at computerized open-book lab exams

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Organizing exams puts heavy load on the responsible departments at almost every university. To be fully prepared for fair and professional examinations, the department has to create tests, evaluate them by multiple teachers, print them, securely distribute them and after the actual examination they also have to keep all the documentation for many years. During the actual exams departments have to provide sufficient number of exam supervisors who keep an eye on the students while they are working on their tests. This is especially important when students write open-book exams, where they are allowed to use almost every help they can find online. Even if they can freely use online tutorials, forums or slides, they are strictly forbidden to utilize any kind of manual help, which typically includes instant messengers, email systems, etc. These, seemingly contradictory requirements forced us to research this area and come up with a viable solution.

Our department is responsible for organizing big amount of exams each year at Corvinus University of Budapest (CUB), which let us realize that many of the tasks above could be significantly simplified by using a Learning Management System (LMS). Since our university successfully adopted the widely used and accepted Moodle LMS[1, 3], we decided to use it to support our examination process. However, switching to computerized exams not only brought advantages, but also some disadvantages. While on one hand exams generally became safer (Moodle is capable of restricting users by authentication, quiz passwords, ip ranges, etc), on the other hand we faced the problem that users were able to save exam questions without any effort, which rendered them unusable later. Even if this problem could be fixed by some simple measurements, securing open-book exam was still a big challenge for us.

To face this challenge, our department decided to develop a software system which was responsible for making electronic open-book exams more secure. During the specification of requirements many ideas came up, including various known methods of cheating[4] and possible ways to prevent them[2]. After the usual specification of functional and non-functional requirements, we came to the following conclusion: The system has to be rock-solid, easy to use, multilingual, integrated with Moodle and it should be highly customizable. To achieve these goals, we have researched the market for similar solutions, chosen the programming and database platform, and started the actual development process. The implementation was followed by smaller test runs at optional pre-exams, but later we significantly broadened the circle of users. In the first runs we only typically added some features based on the feedback of the users, but later we moved the emphasis to stress-testing.

In this talk we plan to tell more about why one needs a system like this, if there is any similar solution available from the market, who benefits from using it, give better insight to our development process and share our experiences.

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References

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