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GRAPHICAL SIMULATION OF NUMERICAL ALGORITHMS
An Approach based on Code Instrumentation and Java Technologies
Carlos Balsa, Luís Alves, Maria J. Pereira, Pedro J. Rodrigues and Rui P. Lopes
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Keywords: E-Learning Tool, Numerical Methods, Octave, Code Instrumentation, Inspector Functions, XML, OpenGL, Website, Servlet, Open Source.

Abstract: We want to create a working tool for mathematics teachers and a corresponding learning tool for students, namely a graphical simulator of mathematical algorithms (GraSMa). To achieve it we try two different strategies. We started by annotating manually the original algorithm with inspector functions. Now we are testing a new approach that aims at automatically annotating the original code with inspector functions. To achieve this we are developing a language translator module that enables us to comment automatically on any code written in Octave language. The run of the annotated code gated by one of these two ways, records in a XML (eXtensible Markup Language) file everything that happened during the execution. Subsequently, the XML file is parsed by a Java application that graphically represents the mathematic objects and their behaviour during execution. The final application will be accessed on-line through a website (WebGraSMa) which is currently under development. In this paper we report and discuss about the procedures followed and present some intermediate results.

NETWORKING BETWEEN LMS MOODLE AND EXTERNAL APPLICATIONS

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Keywords: Prediction Market, LMS Moodle, SQL, PHP, Evaluation, Gradebook.

Abstract: The contribution introduces the use of a prediction market as a support tool in the educational process and its networking with LMS Moodle. The prediction market FreeMarket has been running at the Faculty of Economics as the part of the financial engineering courses. The quality of the predictions estimates depends on the trade activity of the market participants. That’s why it’s necessary to motivate students to trade on such a market. The paper presents one of the methods to increase the activity of students. The results of the market trades form a supplement to the final students’ evaluation in the relevant courses in the form of credits that are added to the total score of each student. FreeMarket points that students earn on the market are transferred to the credits according to the declared rate. The interconnection between FreeMarket and LMS Moodle is described together with the description of the process that transfers FreeMarket points to LMS Moodle gradebook. These processes update the students’ assignment score automatically and periodically. In the next the interconnection between LMS Moodle and application for exam report generating is explained. Finally the technological solution of networking is described.
Important Information

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