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#### **Learning and teaching programming and numerical methods with a system for automatic assessment**

In the curriculum of the college level program "Practical mathematics" a lot of emphasis is put on learning programming as well as on using acquired programming skills in various branches of mathematics. Numerical methods are naturally one of them.

Programming is a skill that is best learned by practice and numerical methods also require a significant amount of practical examples. So teachers are required to expose students to numerous problems and supervise the students' attempts to solve them. To support this teaching approach we have developed a web service called Projekt Tomo.

The service is designed to require little or no additional work from students and teachers, enabling them to focus on the content. The service works as follows: a student first downloads files containing problem descriptions to his computer. The files are opened in his preferred development environment and the student starts filling in the solutions. Executing the files checks his solutions locally. If server is available the solutions are automatically stored and optionally verified on the server.

This approach has several benefits: the service provides instant insight into the obtained knowledge to both student and teacher, all without disturbing the teaching process. There is also no need for powerful servers since all executions are done on a student computer.

Currently the system supports programming in Python (with the NumPy library) as well as programming in GNU Octave, a language quite similar to Matlab.