

# Applications of Self-Adaptive Computational Methods in Online Learning

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## **Abstract**

Online learning systems are very popular tools that increase the quality of teaching. A good online system has a lot of different assignments and examples that cover wide range of a different topics. Typical online assignments use random numbers in order to provide different initial parameters for every assignments.

By using self-adaptive computational methods it is possible to automatically create wide range of assignments which are significantly different. The method generates step by step solution and appropriate report is available to the students.

During the presentation examples from many different fields will be presented. The system can generate assignments related to calculus, numerical analysis, some selected word problems, computer code, abstract algebra, mathematical logic, set theory, statistics, topology, and many others.

In some cases, the system is able to improve itself automatically which increase quality of the final results.