

## Automated Development of Online Learning Systems by Using Predictive Methods and Large Language Models

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Online learning requires a wide range of assignments. Assignments may be related to a large class of scientific problems available in academic textbooks (computer science, mathematics, engineering, quantum computing, etc). For many scientific problems, it is possible to construct related algorithmic descriptions. Web applications are distributed computer programs that run on the server and client sides and facilitate communication between the client and the server. A finite sequence of rigorous instructions can be translated into computer code and transformed into a web application. By using large language models, it is possible to generate typical solutions for many standardized tests, which can be used in online web applications in an automated way. Applications can be automatically uploaded to the server and included in the internal databases of the system. By using AlphaGeometry and related tools, it is possible to generate step-by-step solutions to olympiad-level problems in geometry. These solutions can be used as educational tools to study problem-solving in geometry. The online homework system is developed in PHP, HTML, and JavaScript.