Leveraging Large Language Models for Scalable Assessment Creation in Higher Education

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Motivation
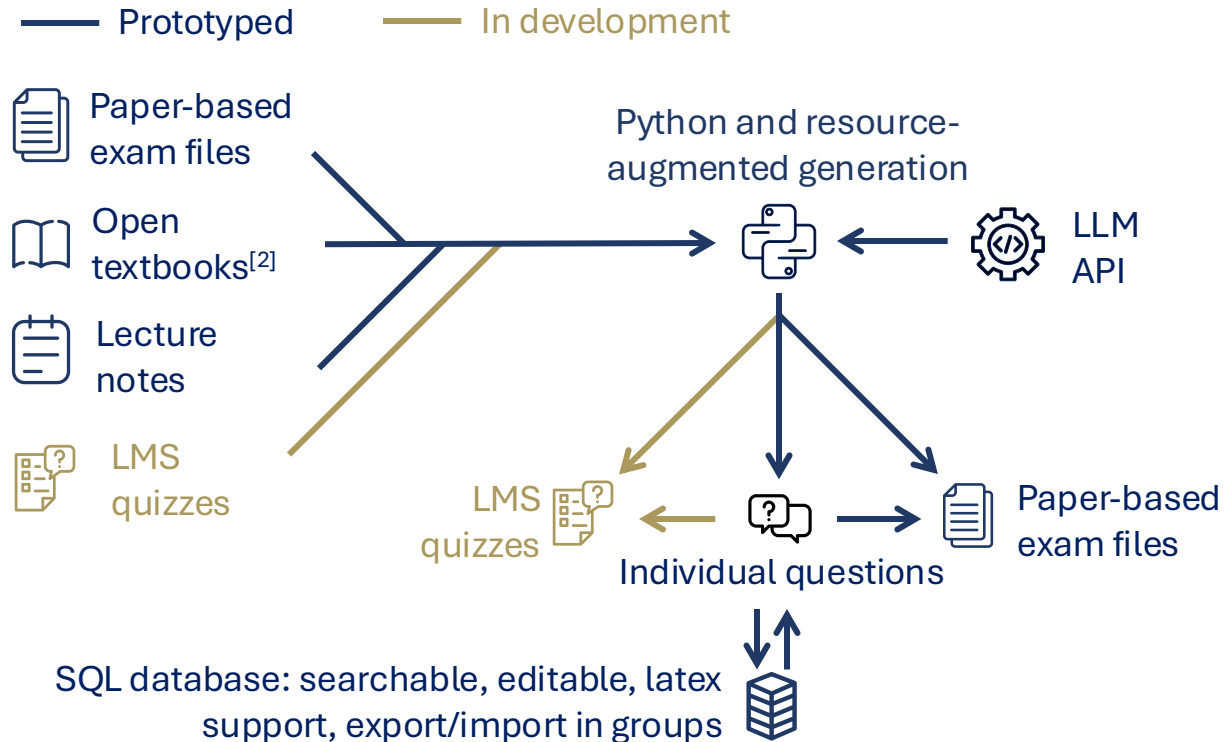
Scalable in-person proctored paper exams can require:

- Learning objective alignment
- Multiple exam versions
- Many questions with solutions
- Formatting specifications
- Continuous improvement

Goals

Develop LLM-based methods[1] for:

- Multi-version paper-based exams
- Large, open, assessment database
- Conversion between platforms
- Applicability to any course or discipline

In Development

— Prototyped   — In development

Paper-based exam files
Open textbooks[2]
Lecture notes
LMS quizzes

Python and resource-augmented generation
LLM API

LMS quizzes
Individual questions
Paper-based exam files

SQL database: searchable, editable, latex support, export/import in groups

References

[1] Nikolovski, V., Trajanov, D., & Chorbev, I. (2025). Advancing AI in Higher Education: A Comparative Study of Large Language Model-Based Agents for Exam Question Generation, Improvement, and Evaluation. Algorithms, 18(3), 144.
[2] Herman, E., Strang, G., Calculus volume 3. Openstax, 2016.

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