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Modeling a Multitier AI Framework for Secure Processing of Confidential Legal Documents

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This paper presents a multilayer architectural model designed to support secure, AI-driven processing of confidential legal documents. The platform integrates strong authentication and authorization mechanisms, ensuring controlled access to sensitive information in accordance with privacy and security requirements. A key component is an automated contract-generation module based on predefined legal templates and enhanced by advanced language models such as LegalBERT and GPT. This module is complemented by a risk-assessment system that protects personal data and enforces compliance with applicable legislation.

The architecture includes a continuous feedback environment that enables iterative improvement and optimization of system performance. Its modular and extensible design supports the development of additional intelligent components for specialized tasks, including testing and refining legal document processing with advanced NLP techniques.

Beyond document generation, the platform provides comprehensive tools for legal contract analysis. These include automated identification of key provisions, assessment of contractual favorability, and verification of compliance with mandatory statutory rules. The system also incorporates methods for evaluating the reliability of contractual partners using publicly available data sources. To support effective decision-making, it generates clear visualizations and statistical reports summarizing relevant contractual insights and risk indicators.

Overall, the proposed multilayer architecture offers a secure, extensible, and data-driven foundation for AI-assisted legal document processing, enhancing efficiency, accuracy, and regulatory conformity in legal and compliance workflows.

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