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## Development of a Web Application for Teaching the “Intelligent Data Analysis” Course

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### **Abstract:**

The article considers the development of an interactive web application for teaching the “Intelligent Data Analysis” course. The study analyzes current trends in the digitalization of education and the role of electronic educational resources in the learning process. The architecture of the web application and its main functional modules are described, including theoretical materials, practical assignments, data preprocessing tools, classification, clustering and regression modules, visualization tools, and an interactive testing system. Special attention is paid to the implementation of an AI assistant based on large language models and Retrieval-Augmented Generation (RAG) technology, which provides intelligent support to learners and generates context-based explanations from educational materials. The article presents the principles of user interface design, UML models of the system, and testing results. The scientific novelty lies in the development of a web application that effectively integrates Data Mining algorithms, interactive testing, and an AI assistant within a unified digital educational environment. This research was funded by the Ministry of Science and Higher Education, the Science Committee, and was carried out within the framework of Project AP26195651, “Development of an Adaptive Learning System Based on Artificial Intelligence for the Integration of AI Technologies into the Teaching and Research Activities of Educators.”

### **Keywords:**

Intelligent data analysis, web application, e-learning, digital education, artificial intelligence, AI assistant, Retrieval-Augmented Generation (RAG), machine learning, interactive testing, Flask, educational technologies.