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APPLICATION OF ARTIFICIAL INTELLIGENCE IN FINANCIAL RISK MANAGEMENT SYSTEMS

The purpose of the study is to apply artificial intelligence in automated financial risk management systems in order to increase the accuracy, efficiency and efficiency of managerial decision-making in the financial sector.

Within the framework of the study, a model for forecasting the credit risk of bank customers has been developed, which allows assessing solvency based on historical data and modern machine learning methods.

The object of the study is automated financial risk management systems that operate in the banking and financial sectors.

The subject of the study is artificial intelligence algorithms and models that can be integrated into automated financial risk management systems in order to improve the accuracy of forecasts and identify risky clients.

The research method is modeling using machine learning tools, in particular neural networks and ensemble learning methods.

The result of the study is the creation of an effective model for predicting credit risk, which demonstrates a high level of classification accuracy and the ability to adapt to changes in input conditions.

Within the framework of the study, a practical case of building a model for forecasting the credit risk of bank customers was implemented.

The main goal is to create an intelligent classification system capable of determining whether the client will be able to service the loan in a timely manner in the future. Such a system allows the bank to reduce the likelihood of losses due to non-repayment of loans, increase the effectiveness of risk management and make informed credit decisions.

For the simulation, an open dataset from the Kaggle platform – Home Credit Default Risk – was used.

This dataset contains more than 300,000 records of clients with various characteristics such as age, income level, number of dependents, credit history, type of housing, employment, etc.

The study analyzed the opportunities, benefits, and challenges of applying artificial intelligence in automated financial risk management systems.

The analysis of theoretical foundations, classification of financial risks, technical features of the implementation of intelligent systems, as well as practical modeling on the example of credit risk forecasting was carried out.

General approaches to financial risk management are considered, their classification and features in modern economic conditions are determined.

Particular attention is paid to the interpretation of models, which is an important factor for the implementation of AI in risk management practices in accordance with regulatory requirements.

A practical case has been implemented to build a model for forecasting the credit risk of a bank client.

Real-world data was pre-processed, several models were built and tested, and accuracy was evaluated using metrics.

At the same time, their implementation requires proper technical and organizational support, including the issues of interpretation, validation and adaptation to changes in the market environment.

In general, the results of the work confirm the high efficiency of using artificial intelligence methods for automated analysis and forecasting of financial risks.

Such models can not only increase the accuracy of risk identification, but also ensure the efficiency of decision-making in financial institutions.

At the same time, their implementation requires proper technical and organizational support, including issues of interpretation, validation and adaptation to changes in the market environment.

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