ABSTRACT

Explanatory note size – 103 pages, contains 8 illustrations, 32 tables, 5 applications, 38 references.

Topicality. The paper considers a problem of Cryptocurrency Value Formation. Analyzing the existing studies of the chosen object, namely software for predicting cryptocurrency prices, it was found that existing solutions focus on predicting high-capitalization cryptocurrencies. The issue of predicting the value of low-capitalization digital assets has not been explored, despite its importance. This highlights the need for developing an architectural solution that will allow for predicting the value of low-capitalization assets.

The aim of the study. The main goal is to improve the accuracy of predicting the value of high-volatility and low-capitalization cryptocurrencies using synthetic data generated by AOM.

The object of research: software for predicting cryptocurrency values.

The subject of research: methods for predicting numerical series.

To achieve this goal, the **following tasks** were formulated:

- analyze existing research on methods and solutions for predicting cryptocurrency values;
- analyze existing mathematical methods for predicting numerical series;
- identify information necessary for prediction;
- prepare data needed for training models;
- implement program code that solves the task using the chosen methods;
- develop a graphical interface to demonstrate the software;
- conduct a marketing analysis of the project;
- evaluate the effectiveness of the proposed solution.

The scientific novelty of the results of the master's dissertation is the further development of using a combined method for building models for predicting

cryptocurrency values and the use of synthetic data for training models for high-volatility cryptocurrencies.

The practical value of the obtained results is that is that an effective architectural solution for predicting the value of low-capitalization cryptocurrencies has been developed, which uses synthetic data for training models. This solution can be used by investors and financial analysts of the cryptocurrency market for a deeper understanding and prediction of the value of digital assets.

Relationship with working with scientific programs, plans, topics. The work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute".

Approbation. The scientific provisions of the dissertation were tested at the

V All-Ukrainian Scientific and Practical Conference of Young Scientists and Students "Software Engineering and Advanced Information Technologies" (SoftTech-2023)

Publications. The scientific provisions of the dissertation were published in abstracts of the scientific and technical conference "SoftTech-2023".

Keywords: CRYPTOCURRENCY, PRICE PREDICTION, LSTM, AOM.