ABSTRACT

Bachelor’s thesis: 97 p., 27 fig., tabl., 9 appendixes, 15 sources.

MATHEMATICAL MODELING, ECONOMETRICS, PERSPECTIVE FORECASTS, TEACHER TRAINING, REGULARIZATION, LINEAR REGRESSION, DECISION TREATMENT, BUSTING, EXTREME TRANSFER BUSTING

The object of the research is the historical data of the demand for food products of a certain grocery network.

The subject of the study is mathematical models and prediction methods: regression, extreme gradient boosting, neural networks.

The purpose of the research: the development of the program and its applications for the construction of adequate models of selected processes, estimation of forecasts and comparative analysis of alternative methods of forecasting.

The theoretical and methodological basis of the research is the work of domestic and foreign scientists in the field of economic theory, mathematical modeling of dynamic processes.

During the thesis work was created software product for computing experiments using the method of extreme gradient boosting. For the classic methods, the powerful Azure ML Studio system was used. A comparative analysis of all methods on real statistical data is carried out.

The methodology is implemented on the basis of already known methods and with the use of own developments.

The software product is implemented using the programming language R. Advice for further research is given.