

## ABSTRACT

The thesis presented on 71 pages. It contains 2 appendixes and bibliography of 18 references. 39 figures and 6 tables are given in the thesis.

Increase the level of human awareness and formation complex simplest eating habits that improve and maintain health are the goals of this work.

Part of the thesis is the comparison of some forecasting methods used in medicine, namely, decision trees, Markov chains, and artificial neural networks. The selection criteria are the principle of "white box", the presence of visualization tools consecutive periods and no retraining. To construct a mathematical model was chosen Markov chains.

In the process of work was carried out a preliminary analysis of the original dataset and dropped the extra options selected optimal parameters clustering algorithm to determine the current state of health, built a mathematical model period included between human health in time, empirically formed three stochastic matrix forecasting, designed and implemented the software and performed testing system.

Results of the development of the mathematical model presented at the Ninth Scientific Conference for undergraduates and graduate students «Прикладна математична та комп'ютинг ПМК-2017».

Keywords: Markov chain, health, forecasting, k-means, data analysis.