ABSTRACT

Master's thesis: 95 p., 21 figures, 34 tables, 5 applications, 49 sources.

Relevance: Nowadays, the use of the Internet to sell goods and /or services is in great demand. This is especially noticeable during quarantine restrictions, when people increasingly use web directories to order goods and/or services. Having a web-catalog increases the efficiency of any business.

However, just having a page listing goods and/or services is not always enough. It is important for the user of the web-catalog to be able to quickly find the goods and/or services he needs. This need can be met by segmenting web-catalog users and making recommendations based on the results.

Therefore, the popularity of solving the problem of selecting segments of users of web directories is growing. This problem can be solved by using clustering algorithms. Important factors influencing the choice of algorithm for segmentation are the quality of clustering and the running time of the algorithm.

Therefore, the study of clustering methods for users of web-catalogs of goods and services is relevant.

Relationship of work with scientific programs, plans, themes. The work was performed at the Department of Computer-Aided Management And Data Processing Systems of the National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» within the topic «Effective methods for solving job-shop scheduling problems» (state registration number 0117U000919).

The purpose of the study - is to increase the efficiency of promotion of goods and services through user segmentation and improving the mechanism of proposal formation.

To achieve this purpose, it is need to complete these **tasks**:

- analysis of existing clustering methods and quality assessments of cluster structures (comparison of methods, identification of advantages and disadvantages of existing algorithms);
- development of a hybrid clustering algorithm (which would eliminate common shortcomings of known algorithms);

- software implementation of algorithms;
- experimental studies of algorithms.

The object of study is processes of segmentation of good and services web-catalogs users.

The subject of study is algorithms of clusterization and quality estimates of clustering.

The scientific novelty of the results obtained is to develop a new gybrid EM-algorithm of the applied artificial flora optimization algorithm, which allows you to eliminate disadvantages of the classic EM-algorithm.

Publications. Materials of the work were published in a collection of articles on the seventh International Scientific and Practical Conference: «Computer modeling in chemistry and technologies and systems of sustainable development» and at the VI All-Ukrainian Scientific and Practical Conference of Young Scientists and Students "Information Systems and Technologies of Management" (ISTM-2021).

SEGMENTATION, CLUSTERING, EM-ALGORITHM, ARTIFICIAL FLORA OPTIMIZATION