ABSTRACT

Explanatory note size – 145 pages, contains 13 illustrations, 22 tables, 5 applications, 26 references.

Topicality. This work addresses the problem of intelligent analysis of SEO parameters of web resources and automatic generation of recommendations for their optimization. Search Engine Optimization (SEO) is a key component of promoting websites in search engines, and the correct configuration of SEO parameters directly affects the efficiency and visibility of a web resource. There is a clear need for a software tool capable of automating the processes of collecting, analyzing, and evaluating SEO parameters, as well as generating recommendations aimed at improving a website's performance in search engine rankings.

The aim of the study. The aim of the study is to develop a software tool for intelligent analysis of SEO parameters of web resources and automatic generation of prioritized recommendations for their optimization.

The object of research: the process of comprehensive SEO optimization of web resources based on technical, content-related, and external parameters.

The subject of research: methods, models, and algorithms of intelligent analysis of SEO indicators of web resources and the generation of automated recommendations for their optimization.

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

— to review existing software solutions for SEO auditing and evaluate their advantages and limitations;

— to develop methods for automated collection, processing, and assessment of SEO parameters;

— to design improved algorithms for the automatic generation of prioritized SEO optimization recommendations for the analyzed web resource;

— to develop a software tool for automated data collection, processing, and recommendation generation;

— to perform testing of the software tool and evaluate its effectiveness.

The scientific novelty of the results of the master's thesis lies in the development of a software solution that provides automated generation of prioritized recommendations for website optimization. The result was achieved by designing a methodology for clustering SEO indicators, which enables the automatic identification of the most significant metrics based on weight coefficients and combining them with the degree of the website’s lag behind TOP competitors. This allows for the formation of individualized priorities aimed at improving search ranking performance.

The practical value of the improved software tool can be used by website owners, digital marketers, and SEO specialists to automate the analysis of SEO parameters and enhance the effectiveness of website promotion.

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

Approbation. The scientific provisions of the dissertation were tested at the VIII International Scientific and Practical Conference of Young Scientists and Students «Software Engineering and Advanced Information Technologies (SoftTech-2025)».

Publications. The scientific provisions of the dissertation were published in:

– Vakarchuk K.A., Polupan Y.V. Software tool for issuing recommendations for solving SEO tasks of an Internet resource. Proceedings of the VIII International Scientific and Practical Conference of Young Scientists and Students «Software Engineering and Advanced Information Technologies (SoftTech-2025)». Department of Informatics and Software Engineering. May 13-15, 2025, Kyiv, Ukraine.

Keywords: SEO, WEB RESOURCE, INTELLIGENT ANALYSIS, AUTOMATIC GENERATION OF RECOMMENDATIONS, SOFTWARE TOOL.