**ABSTRACT**

Explanatory note size – 123 pages, contains 44 illustrations, 22 tables, 3 appendices, and 51 references to sources.

**Topicality.** Modern transport route management systems require the development of software that implements more accurate and faster algorithms for solving the traveling salesman problem, which provide for a large number of points the search for the best route with a relatively small error in a shorter time. The main disadvantages of the existing implementations are stochasticity, limited adaptability to the parameters of the problem and high sensitivity to the initial conditions, which leads to incorrect decisions and unnecessary expenditure of resources. Because of this, the development of a new algorithm for solving the problem of traffic optimization, which will eliminate these shortcomings, is an urgent task.

**The aim of the study.** The main goal is to improve the process of building transport routes through the development of software that implements a new algorithm for solving the traveling salesman problem, which allows you to find an optimal or near-optimal route and contributes to the improvement of traffic.

**Object of research:** software for building optimal transport routes for use in various subject areas.

**Subject of research:** methods, approaches and algorithms for solving the traveling salesman's problem based on application software for constructing approximate optimal routes.

To achieve the goal, the **following tasks** must be completed:
– analyze existing solutions and literature;
– develop a new algorithm for solving the traveling salesman problem, taking into account different input data and conditions;

– analyze the performance of the developed algorithm, comparing its results with existing methods of solving the traveling salesman's problem and possible ways to improve it;

– develop software for building optimal transport routes based on the proposed algorithm;

– to conduct experiments on various data sets, including real scenarios, in order to evaluate the performance of the software.

**The scientific novelty** of the work is the implementation of the interface and the necessary functionality when building approximate to optimal routes, taking into account the features of the proposed algorithm for solving the traveling salesman problem, which differs from the existing ones by using only essential input data and conditions and allows to improve the route search in various application options.

**The practical value** of the obtained results is that an implementation is proposed that will solve specific problems of the transport industry and provide additional opportunities for society and transport infrastructure. Communication with scientific programs, plans, topics. The work was performed at the Department of Informatics and Software Engineering of the National Technical University of Ukraine "Ihor Sikorsky Kyiv Polytechnic Institute".

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**Publications.** The scientific provisions of the dissertation are published in:

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