ABSTRACT

Master's thesis: 90 p., 23 pic., 7 tab., 37 sources, 1 supplement.

Topicality. Developing a quality software product is a complex process that requires a high level of training from the development team. In order to improve the quality and performance of software products, great attention should be paid to testing.

Manual testing in some cases takes more time to test the system, while automated testing can significantly reduce the cost of customer companies, save resources and time used to test and maintain high product quality, and reduce the risk of marketing a substandard product. or a product that does not meet the needs of users. That is why testing automation technologies are quite popular in information technology companies, whose work is related to software development.

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 problems of schedule theory» (state registration number 0117U000919)

The purpose of the study is to improve the quality and reliability of the software product by automating the testing process, which reduces the time and cost of testing.

To achieve this goal you need to perform the following tasks:

- to analyze existing methods for software testing automation;
- to analyze the known work to solve the problem set in the work;
- to develop methods for building a testing plan depending on the chosen strategy;
- to develop metaheuristic algorithms for covering the set to solve the problem of constructing a test plan;
- to perform software implementation of the developed algorithms;
- to establish integration with TeamCity;

– to analyze the data of computational experiments to determine the parameters of algorithms;

– to carry out the comparative analysis of the developed algorithms of the chosen strategy.

Object of research is the process of software testing.

Subject of research is methods of automation of verification on the basis of construction of plans of testing of software products.

The scientific novelty of the obtained results is the introduction of a system to support automated testing, which requires minimal human intervention to find errors and inconsistencies in the operation of software products**.**

AUTOMATION, TESTING OF SOFTWARE PRODUCTS, CONSTRUCTION OF TESTING PLANS, COVER SET, METAHEURISTIC ALGORITHMS, ANT COLONY OPTIMIZATION, GENETIC ALGORITHM