ABSTRACT

Explanatory note size – 117 pages, contains 10 illustrations, 27 tables, 2 applications, 18 references.

Topicality. Examines the problem of software testing automation, particularly in ensuring quality and productivity in testing complex systems. The main features of existing solutions, their advantages, such as timely adaptation of tests to code changes, reduction of defect omission risks, and increased development productivity, as well as disadvantages, such as high initial implementation costs, are analyzed. The need to improve automation approaches to effectively cover complex systems, reduce maintenance costs for the test environment, and enhance long-term economic efficiency is identified.

The aim of the study. The main target is to reduce the time required for updating test scenarios by automating the process through developing methods and tools for automatic detection of changes in program code and the corresponding adjustment of test scenarios.

The object of research: software testing processes, particularly the management and maintenance of test scenarios in an up-to-date state.

The subject of research: methods and tools for automatic updating of test scenarios during the software development process.

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

- − analyze existing tools;
- − develop the system architecture;
- − implement a system prototype;
- − Evaluate efficiency based on criteria such as accuracy and speed of test updates.

The scientific novelty of the results of the master's dissertation is the proposed architectural solution for software testing automation, which, unlike existing approaches, ensures timely adaptation of tests to code changes, reduces the risk of defect omission, and enhances the productivity of development teams. The result is achieved through the development of a modernized algorithm that optimizes the

process of updating tests, minimizing time and effort required for maintaining the test environment's relevance.

The practical value of the obtained results is that the proposed methods of testing automation are integrated into a single system that ensures ease of use for the user. The developed system can be applied in projects involving the development of complex software, requiring high flexibility, adaptability of the test environment, and reduced maintenance costs.

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».

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

1) Yaroshenko N. V., System for Automation of Test Scenario Updates / N. V. Yaroshenko, S. V. Popereshnyak // Proceedings of the II International Scientific and Practical Conference "Modern Aspects of Digitalization and Informatization in Software and Computer Engineering."

Keywords: TESTING, AUTOMATION, CODE UPDATES, EFFICIENCY.