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Zh. K. Nurimbetova, undergraduate

**APPROACH TO TESTING OF EQUIPMENT AND IDENTIFICATION**

**Abstract.** *The approach to testing of equipment and identification is considered in the article. Testing of programs can be used for demonstrating the existence of defects, but it never guarantees their absence. The main reason of this is that a complete, comprehensive testing is an inaccessible for real complex software system. Testing of programs and equipment is the main method that can provide and verify the necessary quality of components and programs complexes to identify and remove those defects and errors in the design and manufacture.*

**Keywords:** *identification, defect, testing methods.*

Ж. К. Нуримбетова, магістрант

**МЕТОДИ ТЕСТУВАННЯ ОБЛАДНАННЯ ТА ІДЕНТИФІКАЦІЯ**

**Анотація.** *У статті розглянуто методи тестування обладнання та ідентифікація. Тестування програм може бути використано для демонстрації існування дефектів, але не гарантує їхню відсутність. Основною причиною цього є те, що тестування є недоступним для складної програмної системи. Тестування програм та обладнання - основний метод, який може забезпечити і перевірити необхідну якість компонентів і комплексів програм для виявлення і усунення цих дефектів і помилок у проектуванні та виробництві.*

**Ключові слова:** *ідентифікація, дефекти, методи тестування.*

Ж. К. Нуримбетова, магістрант

**МЕТОДЫ ТЕСТИРОВАНИЯ ОБОРУДОВАНИЙ И ИДЕНТИФИКАЦИЯ**

**Аннотация.** *В статье рассматриваются методы тестирования оборудования и идентификация. Тестирование программ может быть использовано для демонстрации существования дефектов, но не гарантирует их отсутствие. Основной причиной этого является то, что тестирование является недоступным для сложной программной системы. Тестирование программ и оборудования - основной метод, который может обеспечить и проверить необходимое качество компонентов и комплексов программ для выявления и устранения этих дефектов и ошибок в проектировании и производстве.*

**Ключевые слова:** *идентификация, дефекты, методы тестирования.*

The volume of software products and the complexity of individual projects in the country rapidly increases. This is one of the reasons of problems during their development, as well as the fact that many companies which are involved in their production don't pay enough attention to automation and ensure the whole life cycle of large software systems, as well as the effective use of modern methods of managing such projects and international standards.

The main problem of managing the creation of large software systems bring together the efforts of many experts with different qualifications, so that they performed in the production of components and the whole complex as a "team" and not as a disparate group of independent, functional specialists[1]. As a result, the conceptual integrity of systems and high quality solutions to the major tasks and functions should be provided with a balanced use of resources.

The role of regulating production and integration of modules and components is increasing, the use of appropriate methods of software engineering tools. In order to ensure the quality of software products is particularly important ordered and planned testing of modules, components, and software in general. Test managers need to participate in the development of requirements for the entire system,

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as well as to develop the range of application created software complex before the testing and deliberation functions of components, their characteristics and test requirements that should be fulfilled the software. However, due to fundamental novelty and complexity of these tasks, it's difficult to perceive traditional programmers and testers of modules and smaller components a variety of national high school teachers [2]. Fundamental differences between the methods and tools of individual programming and testing of small programs and systematic technology, engineering, development and testing of modules, components and complex software systems lead to the fact that is slowly being developed and included in the practice of working on major projects of large groups of specialists.

Testing of programs and equipment is the main method that can provide and verify the necessary quality of components and complexes of programs to identify and remove those defects and errors in the design and manufacture. Technological testing has two purposes: the first is the search, detection and elimination of defects and errors in programs and in the application of the test coverage requirements for the software system; the second possibility is determined by statistical evaluation of the fact that when testing is manifest defect or error component or software complex. Both interpretations of these objectives are equally important for testing and achieving high quality of programs. Testing for search, identification and elimination of defects involves the success of testing procedures, if a defect will be found. It is different from the approach in testing when the tests are performed for demonstration that the component or software system within the requirements and, accordingly, the test will be successful if the defects won't be found. Testing of programs can be used for demonstrating the existence defects, but never guarantee their absence. The main reason of this is that a complete, comprehensive testing is an inaccessible for real complex software system. When the testing methods are evaluated and applied, it is necessary clearly define what is meant by their efficiency, it is desirable, in quantitative terms. Only with this kind of data we can talk about the correctness of the comparison and evaluation of the effectiveness of different testing methods [3].

**Identification of sources and types of defects and errors in the components and complex set of programs.** An important feature of the process of detecting errors in the programs is usually a lack of full-reference of a specific program, which should correspond to the text and the results of the operation of the program being developed. Therefore localize and to determine the existence defect by direct comparison with the software error in most cases is not possible [4]. When testing is usually at first detect an error and in the second risks, i.e. consequences and results displays some internal defect or incorrectness of programs (Fig. 1).

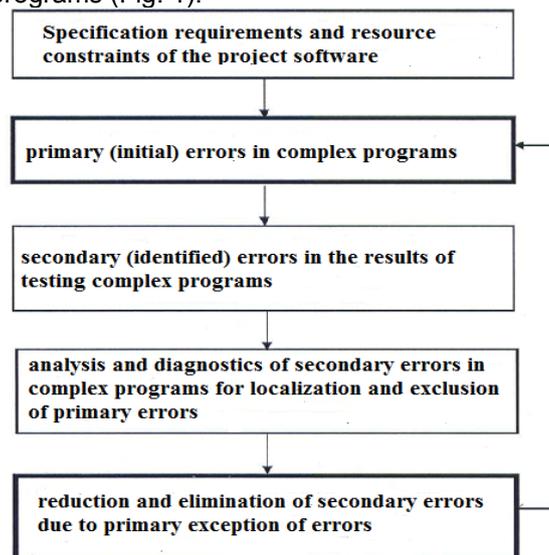


Fig. 1. Consequences and results of manifestation some internal defect or incorrectness of programs

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For complex software products with particularly high quality requirements of typical design, manufacturing, testing, and tests cannot always guarantee complete implementation of all requirements and measurement standards of customers and user of programs. It requires economic and moral incentives, as well as the will of the leaders, the organization of professionals and performers, methods and technology for the certification programs produced by independent companies [5]. Radical improvement of the quality of complex software products and ensure their competitiveness in the global market is only possible on the basis of introduction of modern technologies and standardized quality systems certification, maintains and controls the entire life cycle of software. A quality characteristic of a product or process depends on the purpose of consumer, and for which the environmental conditions is their assessment. One and the same object may have several different performances and quality estimates produced for different purposes and at different operating conditions. Differences actual and required quality of products or processes are classified as defects or errors, and are the primary incentives for the implementation of decisions to change the values defined quality. Development and maintenance of complex software products based on advanced technologies allows preventing and eliminating the most dangerous system and algorithmic errors early in the design and use repeatedly proven in other projects and program information components of high quality. However, this may not be sufficient to guarantee the identity and quality of a number of particularly high critical software. In testing strategies should take into account the characteristics of the system: the number of product components, styles, size, criticality safety and create and use components and documents. It is necessary to verify the specifications requirements for components of the program to make sure that they comply with the basic concept of the project and functions of the software product to manage changing priorities testing tasks, functions and components, as well as adding new features or components except for complex programs. In order to solve the major problems of development and application of modern systems require training and education of qualified specialists in the field of industry production of complex software products of high quality. They should be trained in modern and industrial culture programmer, which creates high-quality products. They should be able to formalize the requirements and achieve the required values for testing the quality of the operation and application of complex systems programs, taking into account the limited resources which are available to receive and improve this quality.

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