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If you want to prepare quickly a new version of the software without sacrificing quality, testing as part of the development should not be left behind. This requires a transition from slow, labor-intensive testing methods to more quick and more fully automated testing technology.

Currently existing methods for testing software do not allow you to uniquely and fully identify all the defects and to establish the correctness of the operation of the program being analyzed, so that all the existing test methods are under formal review process under study or developed software.

Software Automation Testing is the process of software verification, in which the basic functions and test steps, such as launching, initialization, execution, analysis and delivery of results, are performed automatically by the tool for automated testing.

There are two basic approaches to test automation: testing at the code level and graphical user interface testing. The first type is applied in particular unit testing. The second is an imitation of the user actions by means of special test frameworks.

The most common form of automation is testing the applications with a graphical user interface. The popularity of this type of testing is explained by two factors: firstly, the application is tested in the same way that people will use it, and secondly, you can test the application without having access to source code.

One of the major challenges of automated testing is its complexity: in spite of the fact that it eliminates part of the routine operations and accelerates the execution of tests, more resources can be spent on updating the tests themselves. This applies to both types of automation. When refactoring is often necessary to update both unit tests and test code changes that may take as much time as changing the core code. On the other hand, when the interface of the application is modified all the test suits, which are connected with updated windows, must be rewritten, which that a large number of such test suits may take significant resources.