MATHEMATICAL AND SOFTWARE METHOD OF TESTS ERROR SPEED EVALUATION

Lyudmyla Honchar[1)], Iryna Danylyuk[2)], Yaroslav Paslavsky[3)]
Ternopil National Economic University
[1)2)]PhD., associate professor; [3)]Master's Degree student

I. Statement for the task

Own use of an effective automation system for testing is minimized (for example, up to one night) test pass time without which it is impossible to confirm the fact of growth of quality (reducing the number of missed errors) of the product. System testing is carried out within the testing cycle (passage periods of the developed test set over build of the developed application) [1]. Therefore, the problem of developing software, methods and tools for assessing the quality of testing web-projects is extremely relevant.

II. The purpose of the work

The purpose of the research is to improve the quality of web-projects testing due to the use of various methods, debugging strategies, testing and evaluating the detection error of testing errors.

III. Program evaluation and project coverage

Testing the program P according to some criterion C means covering a programs components multitude P $M = \{m_1..m_k\}$ by elements or by ties $T = \{t_1..t_n\}$ – retinue of not redundant tests t_i.

Test t_i is not redundant, if there exists a covered component m_i with $M(P,C)$, not covered by any of the previous tests $t_1..t_{j-1}$. Each t_i does not correspond to the excess path p_i - the sequence of vertices from the input to the output [3].

$V(P,C)$ - the complexity of testing P according to criterion C is measured by max number of non-redundant tests covering all elements of the set $M(P,C)$.

$DV(P,C,T)$ - residual complexity of testing P according to criterion C - is measured by max number of non-redundant tests, which covering elements of the set $M(P,C)$ remaining uncovered, after running a set of tests T. The value of DV strictly and monotonously decreases from V to 0. $TV(P,C,T) = (V - DV)/V$ - assessment degree of testing P according to criterion C. Criteria for testing $TV(P,C,T) \geq L$, where $0 \leq L \leq 1$. L – level testing, specified in the requirements for the software product.
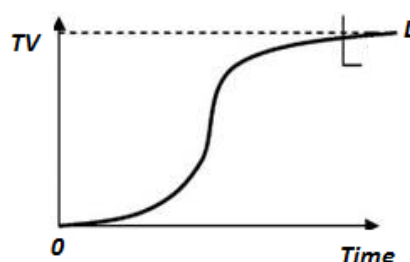

Figure 1 - Application test metric

The web-project testing strategy has been analyzed and developed in order to substantially improve its quality.

Conclusion

Thereby, the actual use of an effective testing automation system reduces the minimum passage time of the tests, without which it is impossible to confirm the fact of growth of quality (reduction of the number of missed errors) of the product.

References

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2. Rex Black, Advanced software testing. Rocky Nook, 2014.-326 p.
3. Testing Metrics - Mercury Interactive [Electronic resource] – Access mode: http://model.mercuryinteractive.com/quality