Comparison between Test-Driven Development and Conventional Development: A Case Study

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***Abstract*— In Software Engineering, different techniques and approaches are being used nowadays to produce reliable software. The software quality relies heavily on the software testing. However, not all developers are concerned with the testing stage of a software. This has affected the software quality and has increased the cost as well. To avoid these issues, researchers paid a lot of effort on finding the best technique that guarantee the software quality. In this paper we aim to explore the effectiveness of building test cases using Test-Driven Development (TDD) technique compared with the conventional technique (Test-last). The comparison measures the effectiveness of test cases with regard to number of defects, code coverage and test cases development duration between TDD and Test-Last. The results has been analyzes and presented to support the best technique. On an average, the effectiveness of test cases with regards to the selected quality factors in Test-Driven Development (TDD) was better than the conventional technique (Test-last). TDD and conventional testing had nearly the same percentage as result in code coverage. Moreover, the number of defects found and the test cases development duration spent in TDD are high compared with Test-Last. The results led to suggest some contributions and achievement that could be gained from applying TDD technique in software industry. As using TDD as development technique in young companies can produce high quality software in less time.**

***IndexTerms*—Test driven development, Conventional Development, Quality factors, Software Development Styles, Unit Testing, Experimental Analysis.**

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