Successful test management is based on test coverage and test traceability

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ABSTRACT

The research article gives a general idea of software testing by describing the best practices, such as process, management, techniques, artefacts, tools, and technology, to support test management. They can also influence the modern project management methodologies. The study identified that test coverage and test traceability are factors which supports effective software test management. The literature describes in detail about these two significant factors. Also, notices that both are directly or indirectly involved with all the core elements of software testing mentioned in the literature.

Keywords: software testing, test management, test traceability

1. INTRODUCTION

Software Quality Assurance (SQA) facilitates a set of planned and systematic activities to ensure the implementation of processes, procedures, and standards for the development and testing of software programs, applications and products (Black & Mitchell, 2016).

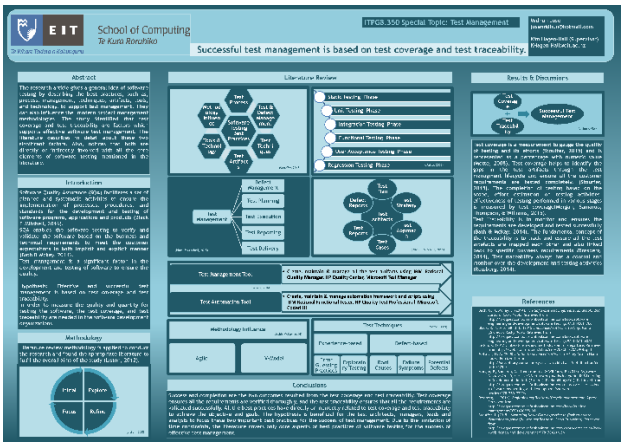
SQA enables the software testing to verify and validate the software based on the business and technical requirements to meet the customer expectations in both an implicit and explicit manner (Bath & McKay, 2014).

Test management is a significant factor in the development and testing of software to ensure the quality.

This study investigated the following hypothesis:

Effective and successful test management is based on test coverage and test traceability.

A literature review methodology was applied, using stages of Initial, Explore, Refine and Focus (Liston, 2012).



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2. RESULTS AND DISCUSSION

According to the literature, software testing best practices involve test and defect management, test processes, test techniques, test artefacts, tools and technology, and methodology influences (Stouffer, 2015).

Test management is made up of defect management, test planning, test execution, test reporting, and test delivery (Black & Mitchell, 2015).

Test artefacts include test plans, test strategies, test approaches, test cases, test reports and defect reports (Black & Mitchell, 2015).

Test coverage is a measurement to gauge the quality of testing and its efforts (Stouffer, 2015) and is represented as a percentage with numeric value (Mette, 2008). Test coverage helps to identify the gaps in the test artifacts through the test management life cycle and ensure all the customer requirements are tested completely (Stouffer, 2015). The completion of testing based on the scope, effort estimation on testing activities, effectiveness of testing performed in various stages is measured by test coverage (Morgan, Samaroo, Thompson, & Williams, 2015).

Test Traceability is to monitor and ensure the requirements are developed and tested successfully (Bath & McKay, 2014). The fundamental concept of the traceability is to track and ensure all the test artefacts are mapped to each other and also linked back to specific business requirements (Rossberg, 2014). Test traceability always has a control and monitor over the development and testing activities (Rossberg, 2014).

Success and completion are the two outcomes resulted from the test coverage and test traceability. Test coverage ensures all the requirements are verified thoroughly, and the test traceability ensures that all the requirements are validated successfully.

3. CONCLUSION

Success and completion are the two outcomes resulted from the test coverage and test traceability. Test coverage ensures all the requirements are verified thoroughly, and the test traceability ensures that all the requirements are validated successfully. All the best practices have directly or indirectly related to test coverage and test traceability to achieve the objective and goals. The hypothesis is beneficial for the test architects,

managers, leads and analysts to focus these two important best practices for the success of test management. Due to the limitation of time constraints, the literature covers only core aspects of best practices of software testing for the success of effective test management.

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