

## Automated User Story Driven Approach for Web-Based Functional Testing

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**Abstract :** Manual writing of test cases from functional requirements is a time-consuming task. Such test cases are not only difficult to write but are also challenging to maintain. Test cases can be drawn from the functional requirements that are expressed in natural language. However, manual test case generation is inefficient and subject to errors. In this paper, we have presented a systematic procedure that could automatically derive test cases from user stories. The user stories are specified in a restricted natural language using a well-defined template. We have also presented a detailed methodology for writing our test ready user stories. Our tool "Test-o-Matic" automatically generates the test cases by processing the restricted user stories. The generated test cases are executed by using open source Selenium IDE. We evaluate our approach on a case study, which is an open source web based application. Effectiveness of our approach is evaluated by seeding faults in the open source case study using known mutation operators. Results show that the test case generation from restricted user stories is a viable approach for automated testing of web applications.

**Keywords :** automated testing, natural language, restricted user story modeling, software engineering, software testing, test case specification, transformation and automation, user story, web application testing

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