Research Study Proposal of “Towards an Approach for Improving Exploratory Testing Tour Assignment based on Testers’ Profile”

Title: Towards an Approach for Improving Exploratory Testing Tour Assignment based on Testers’ Profile

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Goal

The primary goal of this study is to evaluate the effectiveness of different exploratory testing techniques when applied by undergraduate and graduate students in a higher education setting. The study aims to understand how educational background, experience, and specific testing techniques influence the identification of software defects and overall testing efficiency. The ultimate objective is to develop a structured training program that enhances students' skills in exploratory testing and prepares them for industry requirements.

Research Questions

1. How do different behavioural traits of testers influence the effectiveness and efficiency of exploratory testing?
2. Can a behavioural profiling system improve the allocation of test cases to testers in an industrial setting?
3. What are the key behavioural traits that correlate with high performance in exploratory testing?

Methodology

The study will be conducted in a controlled academic environment, involving a sample of undergraduate and graduate students from computer science and software engineering programs. Participants will be divided into two groups based on their educational level. Each group will be introduced to a variety of exploratory testing techniques, including but not limited to session-based testing, defect-based tours, and scenario-based tours.

Metrics

1. **Effectiveness Metrics:**
    - Number of defects identified: Measure the total defects found by each tester during the exploratory testing process.
    - Defect severity: Categorise defects by severity (critical, major, minor) to assess the impact of identified defects.
2. **Efficiency Metrics:**
    - Time taken to complete tests: Record the time each tester spends on completing assigned test cases.
    - Test coverage: Evaluate the percentage of the application covered by the tests performed by each tester.
3. **Qualitative Metrics:**
    - Tester satisfaction: Use surveys to measure testers' satisfaction with the test case allocation and overall testing process.
    - Task difficulty perception: Collect subjective feedback from testers on the perceived difficulty of the tasks assigned to them.