Test Evolution in Highly Configurable Systems vs. Single Systems

You are receiving this survey as our initial investigation identified you as either a test contributor of Highly Configurable System (HCS) or Single System (SS - traditional systems).

Highly Configurable System (HCS) are systems based on configuration options, such as #ifdef preprocessor directive in the C language. Single System (SS - traditional systems) are systems which do not rely on preprocessor directives or other mechanisms to allow configurations.

In this survey, we want to know your opinion regarding the differences related to testing evolution in HCS and SS. This survey should take about 10 minutes of your time.

Your participation is voluntary and confidential. You can withdraw at any time. We do not record any identifiable information.

This survey is conducted by a joint team of Computer Science researchers from the Federal University of Bahia (Brazil) and the University of California, Irvine (UCI).

We plan to include the results of this survey in a scientific publication. Should you be interested in being informed about the outcome of this study or any resulting publication, you will be provided an opportunity to indicate this at the end of the survey.

Please contact Jonatas Bastos (jonatasfbastos@ifba.edu.br) if you have any questions or comments related to the study.

Thank you!

ELECTRONIC CONSENT
Please select your choice below. Selecting the "yes" option below indicates that: i) you have read and understood the above information, ii) you voluntarily agree to participate, and iii) you are at least 18 years old. If you do not wish to participate in the research study, please decline participation by selecting "No".
* Required

Consent

1. I consent to participate in this research study *

    Mark only one oval.

    ◯ Yes

    ◯ No

Demographics

2. Are you a professional software engineer paid by any company? *

Mark only one oval.

( ) Yes

( ) No

3. How many years of development experience do you have (ex: 0, 1, 2, 3...10...)? *

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4. What is your current country of residence? *

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5. What is your highest educational qualification? *

Mark only one oval.

( ) Less than high school

( ) Graduated high school

( ) Trade/technical school

( ) Some college, no degree

( ) Bachelor's degree

( ) Advanced degree(Master's, Ph.D, M.D.)

Maintainability aspects | Based on your experience developing Highly Configurable Systems (HCS) and Single Systems (SS), choose the one that you agree the most.

6.   Are necessary more test contributors at the beginning of a project?

Mark only one oval.

⬭ Strongly Disagree

⬭ Disagree

⬭ Neutral

⬭ Strongly Agree

⬭ Agree

7.   Our investigation shows that at the beginning of a project in SS the number of test contributors is almost triple compared to HCS. Do you agree with this observation? *

Mark only one oval.

⬭ Strongly Disagree

⬭ Disagree

⬭ Neutral

⬭ Agree

⬭ Strongly Agree

8.   If you have any any additional comment, please add it here

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9. Do you agree with the statement "Code complexity in HCS test is higher than SS"
*

Mark only one oval.

○ Strongly Disagree

○ Disagree

○ Agree

○ Strongly agree

○ Neutral

10. If you have any any additional comment, please add it here

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11. The dependence of tests in HCS is higher than SS (the dependence of test code is measured by the coupling between the test code and the production code that is tested) *

Mark only one oval.

○ Strongly Disagree

○ Disagree

○ Agree

○ Strongly agree

○ Neutral

12.   If you have any any additional comment, please add it here

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13.   In our study, we found that code clones are more likely to be present in SS tests than HCS. *

Mark only one oval.

◯ Strongly Disagree

◯ Disagree

◯ Agree

◯ Strongly agree

◯ Neutral

14.   If you have any any additional comment, please add it here

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15. The variability present in HCS tests make it more difficult to maintain than SS tests.

Mark only one oval.

- ⬭ Strongly disagree
- ⬭ Disagree
- ⬭ Agree
- ⬭ Strongly agree
- ⬭ Neutral

16. If you have any any additional comment, please add it here

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Test Contributors of HCS

17. Our results indicates that in HCS the average number of test lines modified (workload) in a month is high. Do you agree? *

Mark only one oval.

- ⬭ Strongly agree
- ⬭ Agree
- ⬭ Disagree
- ⬭ Strongly Disagree
- ⬭ Neutral

18.   If you have any any additional comment, please add it here

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19.   Do you believe that the high workload negatively impact in the quality of tests? *

Mark only one oval.

( ) Strongly agree

( ) Agree

( ) Disagree

( ) Strongly Disagree

( ) Neutral

20.   If you have any any additional comment, please add it here

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21. We identified high values of the test contributors' workload in HCS (the amount of work by contributor in a project). Thus, do you agree that is it is necessary more contributors only involved with tests activities? *

Mark only one oval.

◯ Strongly Agree

◯ Agree

◯ Disagree

◯ Strongly Disagree

◯ Neutral

22. If you have any any additional comment, please add it here

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23. In our study, we observed a high concentration of test work since 20% of the test contributors are responsible for 92% of the work performed in HCS. Do you believe that the high concentration of activities cause bottlenecks in development and communication? *

Mark only one oval.

◯ Strongly agree

◯ Agree

◯ Disagree

◯ Strongly Disagree

◯ Neutral

24.   If you have any any additional comment, please add it here

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25.   Based on your experience, what are the main challenges related to testing in HCS?

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Skip to question 26

Email Information (optional)

26.   Please, provide your email if you would like to receive a copy of our study:

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