

# A survey of test smells in Java Projects

Dear Participant,

We are a group of software engineering researchers from the University of Salerno (Italy), Tampere University (Finland), and Jheronimus Academy of Data Science (The Netherlands). We work on various aspects of software quality, including test smells.

Thank you for participating in this small survey, in which we aim at collecting your experience **on test smells in Java test cases**. Test smells are symptoms of sub-optimal design choices adopted when developing test cases. For instance, test cases that exercise multiple production methods, hence not focusing the testing activity on a single method can be considered smelly.

We look for developers with a **high** knowledge of software development and testing.

Please fill out our survey in all its parts. About the survey:

- It should be done in about 8 minutes.
- We will collect and analyze your answers only in an anonymized form.
- The anonymous, aggregated data collected from the survey might be included within a research work to be submitted to software engineering conferences or journals.
- The participation is voluntary.
- You can decide to stop answering and leave the survey at any time if you want to.

Thanks in advance for your effort and time!

By clicking on the "Next" button, you consent to the conditions above.

Best regards,

Valeria Pontillo, University of Salerno (Italy)

Dario Amoroso d'Aragona, Tampere University (Finland)

Fabiano Pecorelli, Jheronimus Academy of Data Science (The Netherlands)

Dario Di Nucci, University of Salerno (Italy)

Filomena Ferrucci, University of Salerno (Italy)

Fabio Palomba, University of Salerno (Italy)

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\* Indica una domanda obbligatoria

1. By agreeing to participate in this research, I confirm that I have comprehended the objectives, risks, and benefits associated with my involvement in the study. \*

*Seleziona tutte le voci applicabili.*

☐ I agree

2. Please, provide your Prolific ID (remember to note down the Completion Code at the end of the survey). \*

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### Preliminary Questions

3. What kind of developer are you? \*

*Contrassegna solo un ovale.*

☐ Industrial Developer

☐ Open-source Developer

☐ Startup Developer

☐ Student

☐ Researcher

☐ Altro: 

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4. How many years of experience do you have in Software Development? \*

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5. How many years of experience do you have with the Java programming language? \*

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6. Please rate your level of expertise with the Java programming language. \*

*Contrassegna solo un ovale.*

1   2   3   4   5

Never ☐ ☐ ☐ ☐ ☐ Extensive experience. Wrote many programs.

7. How many years of experience do you have in Software Testing? \*

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8. To what extent do you perform each of the following types of testing in your projects? \*

*Contrassegna solo un ovale per riga.*

	Never	Rarely	Sometimes	Often	Frequently
<b>Unit Testing</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Integration Testing</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>System Testing</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Acceptance Testing</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Usability Testing</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other non-functional tests (e.g., Security, Load, etc.)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. How familiar are you with the concept of test smells, i.e., symptoms of sub-optimal design choices adopted when developing test cases? \*

*Contrassegna solo un ovale.*

	1	2	3	4	5	
I do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I am very familiar

### Test Smells Validation

Before completing the survey, we ask that you read the definitions of the following test smells.

**Eager Test:** a test method that invokes more than two methods of the object being tested. This smell results in difficulties in test comprehension and maintenance.

**Mystery Guest:** a test that uses external resources (e.g., databases or files). Use of external resources in test methods will result in stability and performance issues. Developers should use mock objects in place of external resources.

**Resource Optimism:** this smell occurs when a test method makes an optimistic assumption that the external resources, e.g., File, utilized by the test method, exists.

Now, we will provide you with four test cases and ask you to answer whether or not you find the presence of these test smells.