The questionnaire used in the on-line survey study about testing security requirements.

Testing Non-functional Requirements

Welcome!

The goal of the survey is to learn more about how **Non-functional requirements (NFRs) are tested** in IT projects/product teams.

There are neither good nor bad answers to the questions of the survey. Your opinion is the most important for us.
All collected data will be analyzed anonymously and will be communicated only in aggregated forms in scientific papers.
If you would like to get the report with the results, please leave your email at the end of the questionnaire.

The survey should take ca. 25-30 minutes.

The survey survey is conducted by the Laboratory of Software Engineering (LSE) at Poznan University of Technology.
If you have any questions about the survey, please email us: LSE@cs.put.poznan.pl

We appreciate your time and support!

Thank you in advance!
Daniel Vieira, Sylwia Kopczyńska, Mirosław Ochodek

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Testing Non-functional Requirements

Your project/product team

While answering the following questions, please think about:

the last **IT project** you took part in or the last **IT product** you worked on in/for which **at least one NFR** (non-functional requirement) **was specified**.

NFRs are requirements that describe *"how"* system works, they regard security, performance, availability, interoperability, maintainability etc.

In the following questions, we will refer to the last IT project you took part in /the last IT product you worked on as "your project/product team".

* 1. When was the last time you participated in your project/product team?
Provide just the year (e.g., 2019)

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* 4. Which of the following **categories** best describes the **type of the product/service** developed within your project/product team?

○ Web application (incl. e-business but NOT only web services)

○ Web Services / Service Oriented Architecture (SOA)

○ Database

○ Desktop application standalone

○ Desktop application client-server

○ Mobile Application

○ Embedded

○ IoT (Internet of Things) system

○ Library

○ Other (please specify)

[   ]

* 5. Which **industry sector** was your project/product team **developed for**?

○ Aerospace

○ Agriculture

○ Automotive

○ Aviation

○ Construction

○ Defense

○ Education

○ Electronics & computer

○ Energy

○ Entertainment

○ Finance/ Banking/ Insurance

○ Gaming

○ Gas and Oil

○ Government

○ Human Resources / Payroll

○ Other (please specify)

○ Information Technology

○ Manufacturing

○ Marketing

○ Media, Publishing

○ Medical & health care

○ Pharmaceuticals

○ Sales, Retail & Business Development

○ Security and Protective Services

○ Services

○ Social Media

○ Telecommunication

○ Transportation

○ Travelling

○ Utilities

* 6. Assess **the impact of the consequences** when there would be **a failure of the system** developed in your project/product concerning the following aspects:

	N/A	Low	Medium	High
Human life or health is in danger	○	○	○	○
Environment is harmed	○	○	○	○
Economic loss is present	○	○	○	○

* 7. What was **the size of the organization** of your project/product team?

○ Micro (1-10 persons)

○ Small (11-50 persons)

○ Medium (51-250 persons)

○ Large (250+ persons)

* 8. How **many people participated** in your project/product team?

○ up to 3

○ 3-9

○ 10-18

○ 19-27

○ over 27

* 9. Was the project/product team **distributed** (members worked from different locations)?

○ No, the team was on the same site

○ Yes, the team members were working from different sites or remotely

* 10. In which **countries** was your project/product developed?

☐ Afghanistan	☐ Ghana	☐ Oman
☐ Albania	☐ Greece	☐ Pakistan
☐ Algeria	☐ Grenada	☐ Palau
☐ Andorra	☐ Guatemala	☐ Palestine State
☐ Angola	☐ Guinea	☐ Panama
☐ Antigua and Barbuda	☐ Guinea-Bissau	☐ Papua New Guinea
☐ Argentina	☐ Guyana	☐ Paraguay
☐ Armenia	☐ Haiti	☐ Peru
☐ Australia	☐ Holy See	☐ Philippines
☐ Austria	☐ Honduras	☐ Poland
☐ Azerbaijan	☐ Hungary	☐ Portugal
☐ Bahamas	☐ Iceland	☐ Qatar
☐ Bahrain	☐ India	☐ Romania
☐ Bangladesh	☐ Indonesia	☐ Russia
☐ Barbados	☐ Iran	☐ Rwanda
☐ Belarus	☐ Iraq	☐ Saint Kitts and Nevis
☐ Belgium	☐ Ireland	☐ Saint Lucia
☐ Belize	☐ Isreal	☐ Saint Vincent and the Grenadines
☐ Benin	☐ Italy	☐ Samoa
☐ Bhutan	☐ Jamaica	☐ San Marino
☐ Bolivia	☐ Japan	☐ Sao Tome and Principe
☐ Bosnia and Herzegovina	☐ Jordan	☐ Saudi Arabia
☐ Botswana	☐ Kazakhstan	☐ Senegal
☐ Brazil	☐ Kenya	☐ Serbia
☐ Brunei	☐ Kiribati	☐ Seychelles
☐ Bulgaria	☐ Kuwait	

- [ ] Brunei
- [ ] Bulgaria
- [ ] Burkina Faso
- [ ] Burundi
- [ ] Côte d'Ivoire
- [ ] Cabo Verde
- [ ] Cambodia
- [ ] Cameroon
- [ ] Canada
- [ ] Central African Republic
- [ ] Chad
- [ ] Chile
- [ ] China
- [ ] Colombia
- [ ] Comoros
- [ ] Congo (Congo-Brazzaville)
- [ ] Costa Rica
- [ ] Croatia
- [ ] Cuba
- [ ] Cyprus
- [ ] Czechia (Czech Republic)
- [ ] Democratic Republic of the Congo
- [ ] Denmark
- [ ] Djibouti
- [ ] Dominica
- [ ] Dominican Republic
- [ ] Ecuador

- [ ] Kiribati
- [ ] Kuwait
- [ ] Kyrgyzstan
- [ ] Laos
- [ ] Latvia
- [ ] Lebanon
- [ ] Lesotho
- [ ] Liberia
- [ ] Libya
- [ ] Liechtenstein
- [ ] Lithuania
- [ ] Luxembourg
- [ ] Madagascar
- [ ] Malawi
- [ ] Malaysia
- [ ] Maldives
- [ ] Mali
- [ ] Malta
- [ ] Marshall Islands
- [ ] Mauritania
- [ ] Mauritius
- [ ] Mexico
- [ ] Micronesia
- [ ] Moldova
- [ ] Monaco
- [ ] Mongolia
- [ ] Montenegro
- [ ] Morocco

- [ ] Serbia
- [ ] Seychelles
- [ ] Sierra Leone
- [ ] Singapore
- [ ] Slovakia
- [ ] Slovenia
- [ ] Solomon Islands
- [ ] Somalia
- [ ] South Africa
- [ ] South Korea
- [ ] South Sudan
- [ ] Spain
- [ ] Sri Lanka
- [ ] Sudan
- [ ] Suriname
- [ ] Sweden
- [ ] Switzerland
- [ ] Syria
- [ ] Tajikistan
- [ ] Tanzania
- [ ] Thailand
- [ ] Timor-Leste
- [ ] Togo
- [ ] Tonga
- [ ] Trinidad and Tobago
- [ ] Tunisia
- [ ] Turkey
- [ ] Turkmenistan

- [ ] Denmark
- [ ] Djibouti
- [ ] Dominica
- [ ] Dominican Republic
- [ ] Ecuador
- [ ] Egypt
- [ ] El Salvador
- [ ] Equatorial Guinea
- [ ] Eritrea
- [ ] Estonia
- [ ] Eswatini (Swaziland)
- [ ] Ethiopia
- [ ] Fiji
- [ ] Finland
- [ ] France
- [ ] Gabon
- [ ] Gambia
- [ ] Georgia
- [ ] Germany

- [ ] Moldova
- [ ] Monaco
- [ ] Mongolia
- [ ] Montenegro
- [ ] Morocco
- [ ] Mozambique
- [ ] Myanmar
- [ ] Namibia
- [ ] Nauru
- [ ] Nepal
- [ ] Netherlands
- [ ] New Zealand
- [ ] Nicaragua
- [ ] Niger
- [ ] Nigeria
- [ ] North Korea
- [ ] North Macedonia
- [ ] Norway

- [ ] Tonga
- [ ] Trinidad and Tobago
- [ ] Tunisia
- [ ] Turkey
- [ ] Turkmenistan
- [ ] Tuvalu
- [ ] Uganda
- [ ] Ukraine
- [ ] United Arab Emirates
- [ ] United Kingdom
- [ ] United States of America
- [ ] Uruguay
- [ ] Uzbekistan
- [ ] Vanuatu
- [ ] Venezuela
- [ ] Vietnam
- [ ] Yemen
- [ ] Zambia
- [ ] Zimbabwe

- [ ] Other (please specify)

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Testing Non-functional Requirements

Information about respondent

* 11. What was your **role** in your project/product team?

☐ Tester / Test engineer / QA engineer

☐ Test manager

☐ Quality assurance representative

☐ Developer / Software engineer

☐ Scrum Master

☐ Product Owner

☐ Coach

☐ Middle management

☐ Executive management

☐ Business analyst / Requirements engineer

☐ Architect

☐ DevOps

☐ Business operations / support

☐ Other (please specify)

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[                                    ]
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* 12. How many **years** were you **working in IT** at the time you last participated in your project/product team?

○ up to 1 year

○ 1-2 years

○ 3-5 years

○ 5-10 years

○ 10+ years

* 13. How many **years of experience in testing** did you have at the time you last participated in your project/product team?

○ up to 1 year

○ 1-2 years

○ 3-5 years

○ 5-10 years

○ 10+ years

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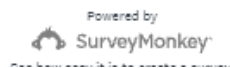
Testing Non-functional Requirements

Security Testing

is about investigating the degree to which **a product or system protects information and data** so that persons or other products or systems have the degree of data access appropriate to their types and levels of authorization.

It consists of:

- **Confidentiality** - the degree to which a product or system ensures that data are accessible only to those authorized to have access;
- **Integrity** - the degree to which a system, product or component prevents unauthorized access to, or modification of, computer programs or data;
- **Non-repudiation** - the degree to which actions or events can be proven to have taken place so that the events or actions cannot be repudiated later;
- **Accountability** - the degree to which the actions of an entity can be traced uniquely to the entity;
- **Authenticity** - the degree to which the identity of a subject or resource can be proved to be the one claimed.

* 14. How much was the **effort** dedicated to test **Security** in your project/product team?

- ○ Not tested
- ○ Definitely low
- ○ Rather low
- ○ Neither low nor high
- ○ Rather high
- ○ Definitely high
- ○ I don't know

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If the answer other than "Not tested" was selected questions 15 and 24 were asked:

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Security Testing - Details

* 15. Was testing **Security valuable** in your project/product team?

○ Definitely Valuable

○ Rather Valuable

○ Neither Valuable nor Not Valuable

○ Rather Not Valuable

○ Definitely Not Valuable

16. Which of the following **approaches** were **used** to test **Security** in your project/product team?

☐ Code reviews

☐ Automated static analysis

☐ Binary code analysis

☐ Fuzz testing

☐ Source and binary code fault injection

☐ Risk analysis

☐ Vulnerability scanning

☐ Penetration testing

☐ Architecture reviews

17. What other **approaches** were **used** to test **Security** in your project/product team?

* 18. What **tools** were **used** to test **Security** in your project/product team?

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* 19. To what extent was testing **Security automated** in your project/product team?

○ Fully Manual

○ More Manually less Automated

○ 50% Manually / 50% Automated

○ Less Manually More Automated

○ Fully Automated

* 20. In which **stage** of introducing new features was testing **Security performed** in your project/product team?

☐ Study and Concept

☐ Requirements Specification

☐ System Design

☐ Implementation

☐ Acceptance

☐ Maintenance

☐ Other (please specify)

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* 21. On which **level** was testing **Security** performed in your project/product team?

☐ Acceptance

☐ System

☐ Integration

☐ Unit

☐ I don't know

* 21. On which **level** was testing **Security** performed in your project/product team?

☐ Acceptance

☐ System

☐ Integration

☐ Unit

☐ I don't know

* 22. Who was primarily **responsible** for testing **Security** in your project/product team?

☐ Developers

☐ Separate testers in the team

☐ DevOps

☐ Internal QA/Testing team

☐ External QA/Testing team

☐ User(s)

☐ Client

☐ Other (please specify)

[   ]

* 23. How was the **effort** (budget and time) needed to test **Security estimated/planned** in your project/product team?

○ Together with other activities in the total package

○ For performing quality assurance as a whole

○ For individual quality assurance measures

○ For each requirement separately

○ Not planned

○ I don't know

○ Other (please specify)

[   ]

* 24. What **challenges** concerning testing **Security** were faced in your project/product team?

☐ Difficulty in specifying quantifiable requirements

☐ Difficulty in specifying tests

☐ Conflict between requirements

☐ Long time needed for testing

☐ High cost

☐ Lack of knowledge

☐ Lack of priority

☐ Lack of Security testing culture

☐ Available tools did not suit our needs

☐ None

☐ Other (please specify)

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If the answer "Not tested" was selected questions 15 and 16 were asked:

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Reasons for not testing Security

* 15. Why **Security** was **NOT tested** in your project/product team?

- [ ] No requirements concerning Security
- [ ] Too complicated
- [ ] High cost
- [ ] Too little time
- [ ] More knowledge would be needed
- [ ] Tools did not suit our needs
- [ ] Lack of Security testing culture
- [ ] Management decision
- [ ] Other (please specify)

* 16. Did **NOT testing Security** have a **negative impact** on your project/product team?

○ Definitely No

○ Rather No

○ Neither No nor Yes

○ Rather Yes

○ Definitely Yes

○ I don't know

* 17. Describe the **impact** of **NOT testing Security**
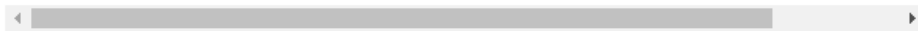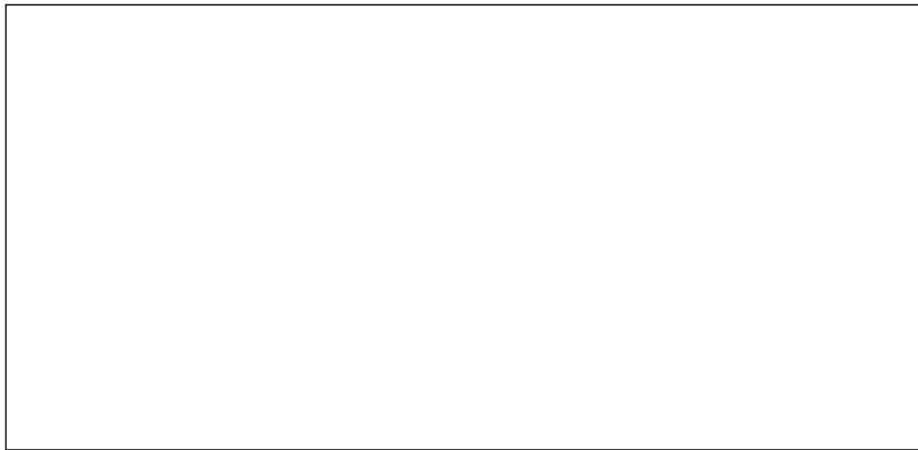
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Testing Non-functional Requirements

Testing NFRs during COVID-19

For the last several months the way we work has changed and we have been facing new challenges. Please share your recent experience with us!

80. *If you **are still involved** in your project/product team -*

What **challenges** in **testing NFRs** (non-functional requirements) have you been **facing due to the COVID-19 pandemic** in your project/product team?

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Final remarks

81. Comments, suggestions concerning this survey

82. If you would like to get the report with the results, please leave your email here:

100%

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