

Welcome, this is the report we created for your project.

We analysed the reviews that have been merged in the last year, focusing on which changes were applied to the code under review.

We found out that you successfully merged **269** reviews!

(please, note that we restricted the scope of our tool only to the Java files in your project)

ID: 17

Text / Instructions

# Code changes happening during code review in your project

How does your code change thanks to the work your team puts during the reviews? The code changes that happen during the review process are, substantially, one of the main outcomes of the code review process. We call them *review changes*. How do these review changes look like in your project?

We could classify the review changes that happened during your code review process in two main categories:

- 1. **Functional** changes
- 2. **Evolvability** changes

**1. Functional** changes impact how the program functions. A reviewer may require a functional change to the code, for instance, to check how the variables or resources are used, as well as to improve an algorithm.

Here an example from your project:

```
354 int sourceId = editQuery.getInitialPointList().getFirstPoint();
```

```
354 int sourceId = editQuery.getInitialPointList().getFirstPoint();
355 // In the context of the code under review, we should use the value as part of a default value
356 if (sourceId == PositionConstants.NONE) {
357     sourceId = PositionConstants.EMPTY;
358 }
```

[Link to review](#)

**2. Evolvability** changes do not directly impact the functionality of a program, but make the software more maintainable and easier to evolve.

Examples of evolvability changes are reorganising the code, removing dead lines, and adding a comment.

ID: 19

Text / Instructions

Most of the changes that happen during the reviews in your projects are evolvability changes. For this reason, we further divided the **Evolvability** changes in **3 groups**:

**2.1 Documentation:** Changes that tackle any issue in the documentation of the code. They include changes to comments and names in the program.

An example from your project:

789  
790  
791  
792  
793  
794  
795

```
789 /**  
790  * Compute the size of a label.  
791  */  
792  
793  
794  
795
```

791  
792  
793  
794  
795

```
791 /**  
792  * Compute the size of a label. This method uses "UI data" to retrieve the label size. It must be called in UI  
793  * thread to have right result, otherwise code=detailDimension=code will be used.  
794  */  
795
```

[Link to review](#)

**2.2 Visual Representation:** Changes that modify the layout of the code. In other words, any formatting that does not impact the compilation result.

An example from your project:

91  
92  
93  
94  
95  
96  
97

```
91 )  
92  
93 if (line.getReferenced().contains(column)) {  
94     if (empty) {  
95         result.append("R2");  
96     } else {  
97         result.append(", R2");  
98     }  
99 }
```

137  
138  
139  
140  
141  
142  
143

```
137 }  
138  
139 if (line.getReferenced().contains(column)) {  
140     if (empty) {  
141         result.append("R2");  
142     } else {  
143         result.append(", R2");  
144     }  
145 }
```

[Link to review](#)

**2.3 Structure:** Changes to the organisation of the code itself or how a particular solution is implemented (without having an effect on the functionality of the code).

124  
125  
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136  
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139

```
124 static {  
125     TOOLFILTERS FROM EXTENSIONS = new ArrayList<ToolFilter>();  
126  
127     // Laurent Pasard  
128     // Generally we try to separate the eclipse extension management with the pure API to be more easily  
129     // testable.  
130     // The extensions could be managed in a separate ToolFilterRegistry listener and the available ToolFilter  
131     // accessible via a ToolFilterRegistry which could used from ToolManagement.  
132     // See example with ResourceStrategyRegistryListener and ResourceStrategyRegistry  
133  
134  
135  
136  
137  
138  
139 }
```

137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
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149  
150  
151  
152  
153

```
137 }  
138  
139 if (line.getReferenced().contains(column)) {  
140     if (empty) {  
141         result.append("R2");  
142     } else {  
143         result.append(", R2");  
144     }  
145 }  
146  
147  
148  
149  
150  
151  
152  
153 }
```

[Link to review](#)

ID: 20

Text / Instructions

# Visualising Review Changes Stats

This is a mock-up of our tool interface. Please take into account the space limitation; the following figure is meant to just give a general overview of the data. Our tool interface adds three new visualization on the bottom of the page.

The single graphs will be shown again with more details later in the report.

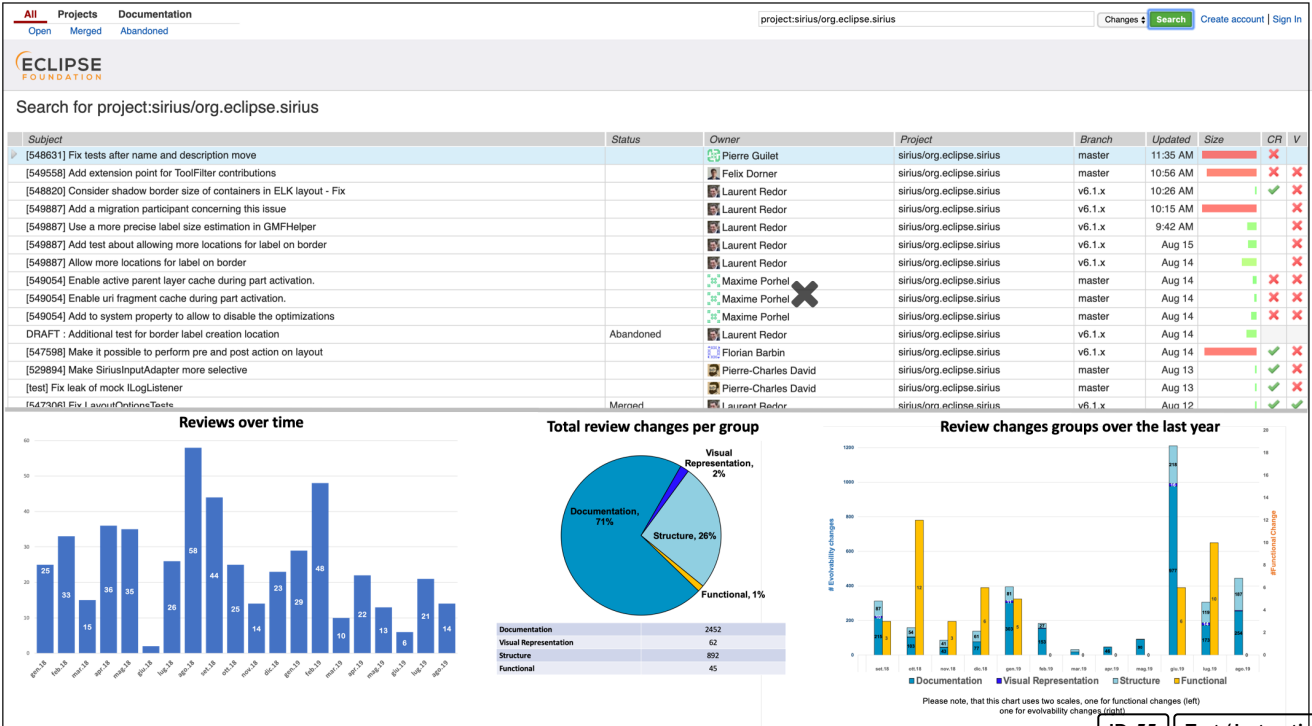
The graph in the bottom left shows the number of reviews merged per month.

The graph in the middle shows the amount of review changes according to the types we have presented before: Documentation (2.1), Visual representation (2.2), Structure (2.3) and Functional (1).

The graph in the bottom right shows the distribution of the review changes over the last year.

ID: 21

Text / Instructions



if you could let us know what you think about it.

Space Cell

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	No Answer
The information is clear and easy to understand	<div><div></div><div>The information is clear and easy to understand: Strongly Disagree</div></div>	<div><div></div><div>The information is clear and easy to understand: Disagree</div></div>	<div><div></div><div>The information is clear and easy to understand: Neutral</div></div>	<div><div></div><div>The information is clear and easy to understand: Agree</div></div>	<div><div></div><div>The information is clear and easy to understand: Strongly Agree</div></div>	<div><div></div><div>The information is clear and easy to understand: No Answer</div></div>
This summary is useful for my project and contains relevant information	<div><div></div><div>This summary is useful for my project and contains relevant information: Strongly Disagree</div></div>	<div><div></div><div>This summary is useful for my project and contains relevant information: Disagree</div></div>	<div><div></div><div>This summary is useful for my project and contains relevant information: Neutral</div></div>	<div><div></div><div>This summary is useful for my project and contains relevant information: Agree</div></div>	<div><div></div><div>This summary is useful for my project and contains relevant information: Strongly Agree</div></div>	<div><div></div><div>This summary is useful for my project and contains relevant information: No Answer</div></div>
This information can be useful for a developer	<div><div></div><div>This information can be useful for a developer: Strongly Disagree</div></div>	<div><div></div><div>This information can be useful for a developer: Disagree</div></div>	<div><div></div><div>This information can be useful for a developer: Neutral</div></div>	<div><div></div><div>This information can be useful for a developer: Agree</div></div>	<div><div></div><div>This information can be useful for a developer: Strongly Agree</div></div>	<div><div></div><div>This information can be useful for a developer: No Answer</div></div>
This information can be useful for a project manager	<div><div></div><div>This information can be useful for a project manager: Strongly Disagree</div></div>	<div><div></div><div>This information can be useful for a project manager: Disagree</div></div>	<div><div></div><div>This information can be useful for a project manager: Neutral</div></div>	<div><div></div><div>This information can be useful for a project manager: Agree</div></div>	<div><div></div><div>This information can be useful for a project manager: Strongly Agree</div></div>	<div><div></div><div>This information can be useful for a project manager: No Answer</div></div>
This information reflects my expectations of the code review process of the project	<div><div></div><div>This information reflects my expectations of the code review process of the project: Strongly Disagree</div></div>	<div><div></div><div>This information reflects my expectations of the code review process of the project: Disagree</div></div>	<div><div></div><div>This information reflects my expectations of the code review process of the project: Neutral</div></div>	<div><div></div><div>This information reflects my expectations of the code review process of the project: Agree</div></div>	<div><div></div><div>This information reflects my expectations of the code review process of the project: Strongly Agree</div></div>	<div><div></div><div>This information reflects my expectations of the code review process of the project: No Answer</div></div>

ID: 22

Radio Button Grid

2. Feel free to add any further comments about your answers above or the information:

ID: 70

Essay / Long Answer

## Details - Chart 1

This graph shows the amount of changes per group happened in your code review process from August 2019 to September 2018.

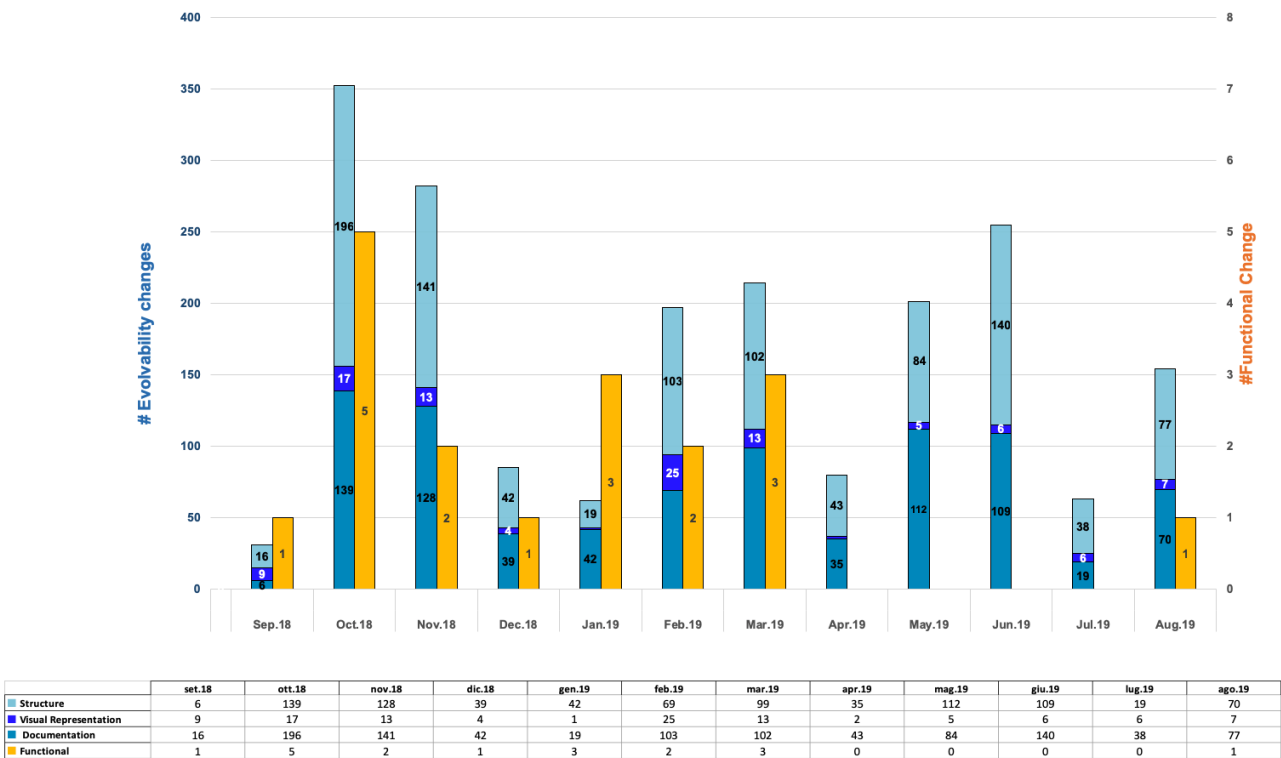




# Details - Chart 2

This visualisation shows the amount of code review changes per group during last year.

Please take note that this chart uses two scales: one for functional changes (right), one for evolvability changes (left).



5. After you have looked at this visualization for your project, it would be great if you could let us know what you think about it:

Space Cell

The graph is clear and easy to understand

This summary is useful for my project and contains relevant information

This information can be useful for a developer

This information can be useful for a project manager

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	No Answer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The graph is clear and easy to understand: Strongly Disagree	The graph is clear and easy to understand: Disagree	The graph is clear and easy to understand: Neutral	The graph is clear and easy to understand: Agree	The graph is clear and easy to understand: Strongly Agree	The graph is clear and easy to understand: No Answer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This summary is useful for my project and contains relevant information: Strongly Disagree	This summary is useful for my project and contains relevant information: Disagree	This summary is useful for my project and contains relevant information: Neutral	This summary is useful for my project and contains relevant information: Agree	This summary is useful for my project and contains relevant information: Strongly Agree	This summary is useful for my project and contains relevant information: No Answer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This information can be useful for a developer: Strongly Disagree	This information can be useful for a developer: Disagree	This information can be useful for a developer: Neutral	This information can be useful for a developer: Agree	This information can be useful for a developer: Strongly Agree	This information can be useful for a developer: No Answer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This information can be useful for a project manager: Strongly Disagree	This information can be useful for a project manager: Disagree	This information can be useful for a project manager: Neutral	This information can be useful for a project manager: Agree	This information can be useful for a project manager: Strongly Agree	This information can be useful for a project manager: No Answer

Space Cell	<div><div>Strongly Disagree</div><div>Disagree</div><div>Neutral</div><div>Agree</div><div>Strongly Agree</div><div>No Answer</div></div>
<div>This information reflects my idea of the temporary distribution of the changes in our review:</div> <div>Strongly Disagree</div>	<div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>Strongly Disagree</div></div><div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>Disagree</div></div><div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>Neutral</div></div><div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>Agree</div></div><div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>Strongly Agree</div></div><div><div><div></div><div>This information reflects my idea of the temporary distribution of the changes in our review:</div><div>No Answer</div></div></div></div></div></div></div></div>
<div><div>ID: 30</div><div>Radio Button Grid</div></div>	
<div>6. Feel free to add any further comments about your answers above or the visualization:</div> <div><div></div></div> <div><div>ID: 72</div><div>Essay / Long Answer</div></div>	
<div>Considering all the information seen so far, it would be great if you could give us some feedback by answering the next few questions:</div> <div><div>ID: 50</div><div>Text / Instructions</div></div>	
<div>7. The whole report is useful for my project and contains relevant information.</div> <div><div>Strongly Disagree</div><div>Disagree</div><div>Neutral</div><div>Agree</div><div>Strongly Agree</div><div>No Answer</div><div><div><div></div>Strongly Disagree</div><div><div></div>Disagree</div><div><div></div>Neutral</div><div><div></div>Agree</div><div><div></div>Strongly Agree</div><div><div></div>No Answer</div></div></div> <div><div>ID: 3</div><div>Rating (Likert Scale)</div></div>	
<div><div><div></div></div><div>This question has display logic</div><div><div>View Conditions</div></div></div> <div><div>8. Please specify:</div><div><div></div></div><div><div>ID: 73</div><div>Essay / Long Answer</div></div></div>	
<div>9. I have learned something about my project that I have not been aware of before.</div> <div><div>Strongly Disagree</div><div>Disagree</div><div>Neutral</div><div>Agree</div><div>Strongly Agree</div><div>No Answer</div><div><div><div></div>Strongly Disagree</div><div><div></div>Disagree</div><div><div></div>Neutral</div><div><div></div>Agree</div><div><div></div>Strongly Agree</div><div><div></div>No Answer</div></div></div> <div><div>ID: 6</div><div>Rating (Likert Scale)</div></div>	
<div><div><div></div></div><div>This question has display logic</div><div><div>View Conditions</div></div></div> <div><div>10. Please specify:</div><div><div></div></div><div><div>ID: 74</div><div>Essay / Long Answer</div></div></div>	
<div>11. The results made me curious. I plan to investigate further the code review process of my project.</div> <div><div>Strongly Disagree</div><div>Disagree</div><div>Neutral</div><div>Agree</div><div>Strongly Agree</div><div>No Answer</div><div><div><div></div>Strongly Disagree</div><div><div></div>Disagree</div><div><div></div>Neutral</div><div><div></div>Agree</div><div><div></div>Strongly Agree</div><div><div></div>No Answer</div></div></div> <div><div>ID: 7</div><div>Rating (Likert Scale)</div></div>	
<div>12. This report provides information that is not available in any other tool I</div>	

know.

Strongly Disagree Disagree Neutral Agree Strongly Agree No Answer

☐Strongly ☐Disagree ☐Neutral ☐Agree ☐Strongly Agree ☐No Answer

ID: 15 Rating (Likert Scale)

13. Having this kind of information at ready would have a positive influence over the Code Review process of my team.

Strongly Disagree Disagree Neutral Agree Strongly Agree No Answer


☐Strongly ☐Disagree ☐Disagree ☐Neutral ☐Agree ☐Strongly Agree ☐No Answer

ID: 16 Rating (Likert Scale)

14. Based on the information you have seen in this report, I would change something in the code review practices of my project:

Space Cell	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	No Answer
<b>Code review policies (e.g., mandatory review after each commit)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Code review policies (e.g., mandatory review after each commit): Strongly Disagree		Code review policies (e.g., mandatory review after each commit): Disagree	Code review policies (e.g., mandatory review after each commit): Neutral	Code review policies (e.g., mandatory review after each commit): Agree	Code review policies (e.g., mandatory review after each commit): Strongly Agree	Code review policies (e.g., mandatory review after each commit): No Answer
<b>Use of tools (e.g., static analysis tools like Check style or FINDBUGS)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use of tools (e.g., static analysis tools like Check style or FINDBUGS): Strongly Disagree		Use of tools (e.g., static analysis tools like Check style or FINDBUGS): Disagree	Use of tools (e.g., static analysis tools like Check style or FINDBUGS): Neutral	Use of tools (e.g., static analysis tools like Check style or FINDBUGS): Agree	Use of tools (e.g., static analysis tools like Check style or FINDBUGS): Strongly Agree	Use of tools (e.g., static analysis tools like Check style or FINDBUGS): No Answer
<b>Reviewers assignment (e.g., by finding specific reviewers for specific defects)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reviewers assignment (e.g., by finding specific reviewers for specific defects): Strongly Disagree		Reviewers assignment (e.g., by finding specific reviewers for specific defects): Disagree	Reviewers assignment (e.g., by finding specific reviewers for specific defects): Neutral	Reviewers assignment (e.g., by finding specific reviewers for specific defects): Agree	Reviewers assignment (e.g., by finding specific reviewers for specific defects): Strongly Agree	Reviewers assignment (e.g., by finding specific reviewers for specific defects): No Answer

ID: 57 Radio Button Grid

 This question has display logic

View Conditions ▼


15. Please, give us further details on this:

ID: 64 Essay / Long Answer

16. I think that the information of this report might help with ...

Space Cell	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	No Answer
<b>To understand how resources are spent on our project</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To understand how resources are spent on our project: Strongly Disagree		To understand how resources are spent on our project: Disagree	To understand how resources are spent on our project: Neutral	To understand how resources are spent on our project: Agree	To understand how resources are spent on our project: Strongly Agree	To understand how resources are spent on our project: No Answer
<b>To avoid performing the same mistakes again</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To avoid performing the same mistakes again: Strongly Disagree		To avoid performing the same mistakes again: Disagree	To avoid performing the same mistakes again: Neutral	To avoid performing the same mistakes again: Agree	To avoid performing the same mistakes again: Strongly Agree	To avoid performing the same mistakes again: No Answer

ID: 66 Radio Button Grid

 This question has display logic

View Conditions ▼

17. Please, give us further details on this (optional):

ID: 75 Essay / Long Answer

18. If you want, please give further feedback on our report. (Optional)



## Background

To improve the scientific validity of your feedback, It would be great if you could answer to the following demographic questions too.

Role in OSS project



19. What is your involvement with the development of the project analyzed in this report?

- ☐ I am a core developer
- ☐ I have committing/merging rights
- ☐ I am an external contributor (no merge rights)
- ☐ I am an active user (e.g., I open issue reports, but do not develop any code in it)
- ☐ I am an external user (I am not involved in the development at all)
- ☐ Other - Write In Please enter an 'other' value for this selection.

20. What is your current job?

- ☐ Professional Developer
- ☐ Academic Researcher
- ☐ Industrial Researcher
- ☐ Project Manager
- ☐ Spare-time Developer
- ☐ Student
- ☐ Other - Write In Please enter an 'other' value for this selection.

21. How many years have you developed software in a professional setting?

I have no experience in software development in a professional setting

☐

I have no experience in software development in a professional setting

1 year or less   2 years   3-5 years   6-10 years   11 years or more

☐

1 year or less

☐

2 years

☐

3-5 years

☐

6-10 years

☐

11 years or more

22. How often do you currently program software?



Not at all   About once a year   About once a month   About once a week   Daily or more often

☐ Not at all ☐ About once a year ☐ About once a month ☐ About once a week ☐ Daily or more often

23. How many years have you performed code reviews?

I have never done code review   1 year or less   2 years   3-5 years   6-10 years   11 years or more

☐ I have never done code review ☐ 1 year or less ☐ 2 years ☐ 3-5 years ☐ 6-10 years ☐ 11 years or more

24. How often do you currently perform code reviews?



Not at allAbout once a yearAbout once a monthAbout once a weekDaily or more often

☐Not at all☐About once a year☐About once a month☐About once a week☐Daily or more often

ID: 52Rating (Likert Scale)

Publicly share answers

In addition to analyzing your data in an anonymous form, can we also share your answers (in an anonymous form) in a publicly available dataset? **\*This question is required.**

*(Selecting "yes" allows other researchers and the public to benefit from your answers and effort)*

-- Please Select --

ID: 77Dropdown Menu

25. If you have any comments on the report or on the topic, please add them here.

ID: 79Essay / Long Answer

Thank you very much for reading our report. We hope it gave you useful insights!  
Also, we thank you for the time you spent giving us feedback.

You are awesome!

If you are interested in the detailed data that we used to create this report, don't  
hesitate to contact us at: fregnan@ifi.uzh.ch

ID: 1Text / Instructions