

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 **28** 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:

```
708 try {
709     configuration.setRemoteRepositories(child.getRemoteArtifactRepositories());
710     File parentFile = child.getParentFile();
711
712     if(parentFile != null) {
713         return lookup(ProjectBuilder.class).build(parentFile, configuration).getProject();
714     }
715 }
```

```
708 try {
709     configuration.setRemoteRepositories(child.getRemoteArtifactRepositories());
710     File parentFile = child.getParentFile();
711     if(parentFile == null && child.getParent() != null) { // workaround HMG-6723
712         parentFile = child.getParent().getFile();
713     }
714     if(parentFile != null) {
715         return lookup(ProjectBuilder.class).build(parentFile, configuration).getProject();
716     }
717 }
```

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.

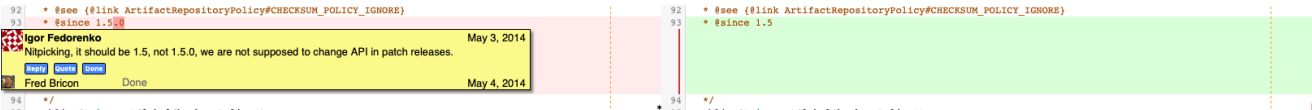
ID: 19

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.

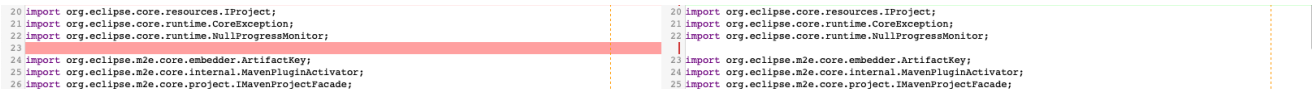
An example from your project:



[Link to review](#)

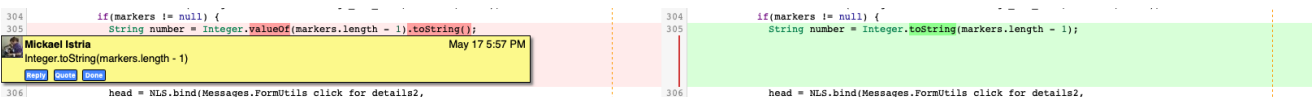
**2.2 Visual Representation:** Changes that modify the layout of the code. In other words, any formatting that does not impact the compilation result.

An example from your project:



[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).



[Link to review](#)

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# 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.

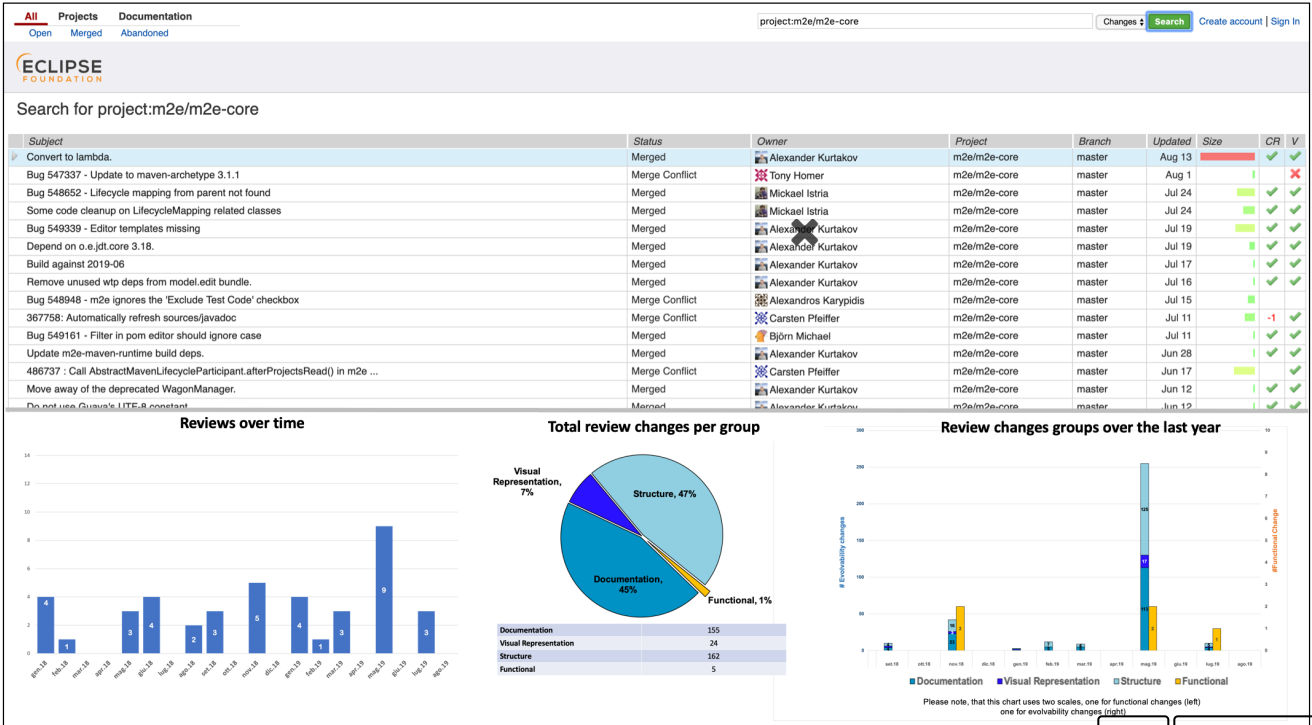
The single graphs will be shown again with more details later in the report.

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.

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ID: 55 [Text / Instructions](#)

1 After you have looked at this interface for your project, it would be great

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

Space Cell	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 information is clear and easy to understand	The information is clear and easy to understand: Strongly Disagree	The information is clear and easy to understand: Disagree	The information is clear and easy to understand: Neutral	The information is clear and easy to understand: Agree	The information is clear and easy to understand: Strongly Agree	The information 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	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	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	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
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This information reflects my expectations of the code review process of the project	This information reflects my expectations of the code review process of the project: Strongly Disagree	This information reflects my expectations of the code review process of the project: Disagree	This information reflects my expectations of the code review process of the project: Neutral	This information reflects my expectations of the code review process of the project: Agree	This information reflects my expectations of the code review process of the project: Strongly Agree	This information reflects my expectations of the code review process of the project: No Answer
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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

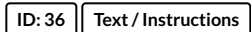
## Details - Chart 1

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





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



ID: 30 Radio Button Grid

6. Feel free to add any further comments about your answers above or the visualization:

ID: 72Essay / Long Answer

Considering all the information seen so far, it would be great if you could give us some feedback by answering the next few questions:

ID: 50Text / Instructions

7. The whole report is useful for my project and contains relevant information.

Strongly DisagreeDisagreeNeutralAgreeStrongly AgreeNo Answer  
☐ Strongly Disagree☐ Disagree☐ Neutral☐ Agree☐ Strongly Agree☐ No Answer

ID: 3Rating (Likert Scale)

This question has display logic

View Conditions ▼

8. Please specify:

ID: 73Essay / Long Answer

9. I have learned something about my project that I have not been aware of before.

Strongly DisagreeDisagreeNeutralAgreeStrongly AgreeNo Answer  
☐ Strongly Disagree☐ Disagree☐ Neutral☐ Agree☐ Strongly Agree☐ No Answer

ID: 6Rating (Likert Scale)

This question has display logic

View Conditions ▼

10. Please specify:

ID: 74Essay / Long Answer

11. The results made me curious. I plan to investigate further the code review process of my project.

Strongly DisagreeDisagreeNeutralAgreeStrongly AgreeNo Answer  
☐ Strongly Disagree☐ Disagree☐ Neutral☐ Agree☐ Strongly Agree☐ No Answer

ID: 7Rating (Likert Scale)

12. This report provides information that is not available in any other tool I know.

Strongly DisagreeDisagreeNeutralAgreeStrongly AgreeNo Answer  
☐ Strongly Disagree☐ Disagree☐ Neutral☐ Agree☐ Strongly Agree☐ No Answer

ID: 15Rating (Likert Scale)

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

Strongly DisagreeDisagreeNeutralAgreeStrongly AgreeNo Answer  
☐ Strongly Disagree☐ Disagree☐ Neutral☐ Agree☐ Strongly Agree☐ No Answer

ID: 16Rating (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
Code review policies (e.g., mandatory review after each commit)	<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)	<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)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
						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
To understand how resources are spent on our project	<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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
						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)

ID: 8

Essay / Long Answer

Background

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

ID: 53 | Text / Instructions

## 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.

ID: 81

Radio Buttons

## 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.

ID: 11

Radio Buttons

## 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

ID: 13

Radio Buttons

## 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

ID: 14

Rating (Likert Scale)

## 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

ID: 51

Radio Buttons

## 24. How often do you currently perform code reviews?

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

ID: 52

Rating (Likert Scale)

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 -- 



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

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](mailto:fregnan@ifi.uzh.ch)