



CodeDiffVis Survey

We designed this survey to assess the usefulness of CodeDiffVis during code review. This survey takes approximately 15 minutes to complete.

The survey questions are in English only, yet feel free to answer in English, German, French or Italian.



Section A: Participant ID

- A1. If you keep a copy of the following unique code, you can use it to request the removal of your responses from this survey at any time.

```
$(document).ready(function(){ var colors = ["Absolute Zero","Acid green","Aero","Aero blue","African violet","Air superiority blue","Alabaster","Alice blue","Alloy orange","Almond","Amaranth","Amaranth (M&P)","Amaranth pink","Amaranth purple","Amaranth red","Amazon","Amber","Amber (SAE/ECE)","Amethyst","Android green","Antique brass","Antique bronze","Antique fuchsia","Antique ruby","Antique white","Ao (English)","Apple green","Apricot","Aqua","Aquamarine","Arctic lime","Army green","Artichoke","Arylide yellow","Ash gray","Asparagus","Atomic tangerine","Auburn","Aureolin","Avocado","Azure","Azure (X11/web color)","Baby blue","Baby blue eyes","Baby pink","Baby powder","Baker-Miller pink","Banana Mania","Barbie Pink","Barn red","Battleship grey","Beau blue","Beaver","Beige","B'dazzled blue","Big dip o'ruby","Bisque","Bistre","Bistre brown","Bitter lemon","Bitter lime","Bittersweet","Bittersweet shimmer","Black","Black bean","Black chocolate","Black coffee","Black coral","Black olive","Black Shadows","Blanched almond","Blast-off bronze","Bleu de France","Blizzard blue","Blond","Blood red","Blue","Blue (Crayola)","Blue (Munsell)","Blue (NCS)","Blue (Pantone)","Blue (pigment)","Blue (RYB)","Blue bell","Blue-gray","Blue-green","Blue-green (color wheel)","Blue jeans","Blue sapphire","Blue-violet","Blue-violet (Crayola)","Blue-violet (color wheel)","Blue yonder","Bluetiful","Blush","Bole","Bone","Bottle green","Brandy","Brick red","Bright green","Bright lilac","Bright maroon","Bright navy blue","Bright yellow (Crayola)","Brilliant rose","Brink pink","British racing green","Bronze","Brown","Brown sugar","Brunswick green","Bud green","Buff","Burgundy","Burlywood","Burnished brown","Burnt orange","Burnt sienna","Burnt umber","Byzantine","Byzantium","Cadet","Cadet blue","Cadet blue (Crayola)","Cadet grey","Cadmium green","Cadmium orange","Cadmium red","Cadmium yellow","Café au lait","Café noir","Cambridge blue","Camel","Cameo pink","Canary","Canary yellow","Candy apple red","Candy pink","Capri","Caput mortuum","Cardinal","Caribbean green","Carmine","Carmine (M&P)","Carnation pink","Carnelian","Carolina blue","Carrot orange","Castleton green","Catawba","Cedar Chest","Celadon","Celadon blue","Celadon green","Celeste","Celtic blue","Cerise","Cerulean","Cerulean blue","Cerulean frost","Cerulean (Crayola)","CG blue","CG red","Champagne","Champagne pink","Charcoal","Charleston green","Charm pink","Chartreuse (traditional)","Chartreuse (web)","Cherry blossom pink","Chestnut","China pink","China
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Section B: Code Review Visualizations

- B1.** According to the Cambridge dictionary, visualization is "the act or an example of creating an image, etc. to represent something".

Visualization tools automate this process by taking input data and generate the output accordingly: e.g., showing dependencies between objects as a graph.

Please rate the following statement.

Code review would benefit from visualization tools.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- B2.** Why do you think a visualization tool would be helpful for a code review? (*Optional*)

- B3.** Why do you think a visualization tool would not be useful for a code review? (*Optional*)

- B4.** Please answer the following questions:

	Yes	No	No answer
Do you know any visualization tools for code review?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you use any visualization tools for code review?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- B5.** What tools do you know? (*Optional*)



B6. What tools do you use? (Optional)

Section C:

This is a short overview about the developed tool CodeDiffVis (CDV). We will explain to you the visualization and its features step by step.

CDV works in addition to GitLab merge requests, a web based tool to perform code review on the changes. CDV opens in a separate window and draws the graph according to the changes in the merge request. Unfortunately during the survey you will not be able to try the prototype of CDV. Its features will be illustrated through videos. Please keep this into account while answering the questions. The code review example is taken from an Eclipse Scout project. Here is a short preview of how CDV integrates with GitLab:

The *graph* contains nodes that represent classes, interfaces and methods. Links between nodes represent any kind of dependencies (for example, class / interface hierarchies, or method calls).

represents a Java class. Classes are denoted with *C*, Abstract classes with *A* and Interfaces with *I* the circle is added to nodes that contain at least one method in the code change rounded corners of a node indicate a method inner classes are denoted with a label on the top with the corresponding class file name represents a method call. "getConfiguredLabel" of class "AddedStringField" calls "get" from "TEXTS" nodes that do not represent Java components are shown with their full name The (change-based) color scheme for nodes and links is: added, changed, deleted, generated, unchanged, non-Java

The graph, taken from a merge request from the Eclipse Scout framework, can be read as follows

HelloWorldForm contains inner classes MainBox, TopBox and MessageField The method getConfiguredEnabled was deleted from MessageField HelloWorldForm and TopBox reference the newly added class AddedStringField which has two methods Their generated counterparts, HelloWorldFormData and AddedString, where adjusted accordingly There have been changes in two non-Java files

C1. Please answer the following questions about the information displayed with the *graph* of CodeDiffVis.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
The graph was easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The graph displays sufficient information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In the graph, I thought it was useful to see whether a node	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In the graph, I would find it useful to see whether a node	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In the graph, the color-coding of nodes is clear.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2. Do you have any additional remarks about the information displayed with the graph? (Optional)



C3. In the video below, you see the layout features of CDV:

Zoom in and out of the graph Drag single nodes Nodes and spheres do not overlap on collision Connected nodes are highlighted on hover

Please evaluate the following claims on CodeDiffVis' layout features:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
The layout features are easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The layout features seem to be useful for a code review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C4. Do you have any additional remarks on the layout features of CDV? (Optional)

C5. In the video below, you see the *graph-to-code* features of CDV:

Clicking on a node jumps to the line of source code Not yet clicked nodes are highlighted with a thicker border to track the progress of the review

Please evaluate the following claims on CodeDiffVis' graph-to-code features:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
The graph-to-code features are easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The graph-to-code features seem to be useful for a code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C6. Do you have any additional remarks on the *graph-to-code* features of CDV? (Optional)

C7. In the video below, you see the *code-to-graph* navigation features of CDV:

Hovering over a line of code in the source code jumps to the node and highlights its neighbors

Please evaluate the following claims on CodeDiffVis' code-to-graph features:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
The code-to-graph features are easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The code-to-graph features seem to be useful for a code	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C8. Do you have any additional remarks on the *code-to-graph* features of CDV? (Optional)



C9. In the video below, you see the graph customization features of CDV:

Add connected nodes, i.e. class references or method calls (shift + click on node to expand) *Remove nodes* arbitrary, i.e. to track the progress on already reviewed nodes (rightclick on node to remove)

Please evaluate the following claims on CodeDiffVis' graph customization features:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
The graph customization features are easy to understand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The graph customization features seem to be useful for a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C10. Do you have any additional remarks on the customization features of CDV? (*Optional*)

C11. Please rate the following statements about the benefits of CodeDiffVis (CDV).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
CDV provides information that is not available in any	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
With CDV I would be able to understand code changes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CDV would help me to keep track of my progress during	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
With CDV I could orient myself better in the merge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
With CDV I would find it easier to navigate through the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C12. Considering the statements above, do you have any additional remarks about CodeDiffVis? (*Optional*)

C13. Please answer the below question about CodeDiffVis.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	I don't know
I would like to use this tool.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D: Final Demographic Questions

All questions in this section are optional.

D1. What is your nationality?

D2. What is your gender?

Male	<input type="checkbox"/>
Female	<input type="checkbox"/>
Prefer to not disclose	<input type="checkbox"/>
Prefer to self-define	<input type="checkbox"/>

Prefer to self-define



D3. How old are you?

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D4. Your working experience as a developer in a professional setting; e.g. as an employee of an IT-company or as an Open-Source contributor.

	None	1 year or less	2 years	3-5 years	6-10 years	11 years or more
For how many years have you developed software in a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For how many years have you developed Java software in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For how many years have you performed code review in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D5. How often do you do programming or code reviews?

	Never	About once a year	About once a month	About once a week	Daily or more often
How often do you currently do programming?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you currently do code reviews?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D6. How many hours per week, on average, do you spend on programming?

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D7. How many hours per week, on average, do you spend on reviewing code of other developers?

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D8. What is you current occupation? (Multiple answers are possible)

Professional Developer
Academic Researcher
Industrial Researcher
Project Manager
Spare-time Developer
Student
Other

<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

Other

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Section E: General Feedback

Thank you for filling in all answers so far. You are almost done.

E1. All you data is anonymous! We will analyze it, may we also share it in a public research dataset?

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

Yes	<input type="checkbox"/>
No	<input type="checkbox"/>



E2. Do you have any final remarks about CodeDiffVis or this survey? (*Optional*)

E3. Would you like to be contacted to try our tool CDV?

Yes ☐
No ☐

E4. Would you like to be contacted for an interview as follow-up of this survey?

Yes ☐
No ☐

E5. Please leave the email address at which you would like to be contacted.

Thank you very much for participating!

If you have any further remarks or questions, please contact the author of the survey.