

Understanding Reproducibility Challenges and Their Impacts on Stack Overflow

Dear developer, thank you for being a part of this study!

Many questions of Stack Overflow discuss coding issues (e.g., error, exception). Such questions often contain code segments with the issue descriptions. Developers prefer to reproduce the issue discussed in the questions while attempting to answer such questions. We produced a catalog of reproducibility challenges to reproduce the issues using the code examples posted in Stack Overflow questions. This survey aims at understanding how the developers perceive the catalog of our reproducibility challenges. Besides, we plan to know the developers' viewpoints on the prevalence, impact, and potential fixes to those challenges.

This survey is used to evaluate a Ph.D. research of X and it is not used for any commercial endeavors by any means. Your inputs will help tremendously and greatly appreciated it!

The survey will take 40-45 minutes for you to complete. Two of the participants will be selected randomly for a 25 CAD gift each.

All the responses will be anonymized and we will not share your personal information with anyone else. The survey is governed by Ethics approval from the University of X and thus we are bound by law to ensure your privacy.

Thank you very much for your participation!

Sincerely, X

* Required

What do we mean by the reproducibility of issues of Stack Overflow questions?

Reproducibility means a complete agreement between the reported issues and the investigated issues. Consider the following question:

/***** START QUESTION *****/

java.lang.NullPointerException on ArrayList

I have the following code:

```
for (int i=0; i<wallMaterialName.size(); i++){
if (Math.abs(calculatedWallUValue - alternativeWallUValue) > 0.01){
    if(wallMaterialName.get(i).charAt(0) == 'A'){          //*****ERROR IN HERE*****
        PreparedStatement prepStateMat = con.prepareStatement("select * from concretestonefloor where value<?
order by value desc limit 1");
        prepStateMat.setFloat(1, (Float)wallMaterialLambda.get(i));
        ResultSet rsMaterial = prepStateMat.executeQuery();
        //...
    }
    //...
}
}
```

When I run the code, a "java.lang.NullPointerException" appear. The error comes from this code:

```
if(wallMaterialName.get(i).charAt(0) == 'A')
```

I don't know why the arraylist is empty since I have checked that it contains some data. Anybody knows how to solve this problem? Thanks.

/***** END QUESTION *****/

In this question, the developer claimed that s/he was getting "java.lang.NullPointerException" while running the code. While the other developers were trying to answer the question, most likely they were facing difficulties to produce the exception using the included code example. One user thus commented, "Could you add more code to analyze?"

That is, the reported issues can be reproduced using the code examples, on the contrary, such issues can always not be reproduced due to some unmet challenges.

1. Please indicate whether or not you consent to participate *

Mark only one oval.

☐

I consent to participate in the study

☐

I do not consent, and hence prefer not to participate *Skip to section 25 (Thank You)*

2. Do you answer Stack Overflow questions related to object-oriented programming (preferably Java)? *

Mark only one oval.

- ☐ Yes
- ☐ No *Skip to question 66*

**Information
About You**

In this section, we ask you questions to know your software development experience, experience in object-oriented programming (especially Java), and answering questions of Stack Overflow.

3. How many years of experience do you have in object-oriented programming (preferably Java)? *

Mark only one oval.

- ☐ 2 or less
- ☐ 3 - 5
- ☐ 6 - 8
- ☐ 9 - 11
- ☐ 12 - 14
- ☐ 15 or more

4. Profession *

Mark only one oval.

- ☐ Software Developer
- ☐ Technical lead
- ☐ Student
- ☐ Research engineer
- ☐ Other: _____

5. Year(s) of experience in software development *

Mark only one oval.

- ☐ 2 or less
- ☐ 3 - 5
- ☐ 6 - 8
- ☐ 9 - 11
- ☐ 12 - 14
- ☐ 15 or more

6. What is your account age (in year) in Stack Overflow? *

Mark only one oval.

- ☐ 2 or less
- ☐ 3 - 5
- ☐ 6 or more

7. How many questions have you answered in Stack Overflow? *

Mark only one oval.

- ☐ 1 - 10
- ☐ 11 - 20
- ☐ 21 - 30
- ☐ 31 - 40
- ☐ 41 - 50
- ☐ 50+

Challenges of Reproducibility of Issues Reported at Stack Overflow Questions

In the next sections, we will present four questions that discuss code issues and include code examples. You will be asked to reproduce the issue using the code example. You could use your development environment (i.e., IDE) or this online compiler (https://www.tutorialspoint.com/compile_java_online.php) to compile and execute Java code.

Then, we ask a question to know the reproducibility status (i.e., reproducible or irreproducible). If the issue cannot be reproduced, we ask to list the challenges that prevent reproducibility. Otherwise, we ask the list of actions that you perform to modify the code example to reproduce the issue. Finally, you need to give the modified code examples.

Question 1: Java: Resetting all values in the program

I am working on this program where at the end of the game I ask the user if they want to play again. If they say yes, I need to start a new game. I made a restart() method:

```
public void restart(){
    Game g = new Game();
    g.playGame();
}
```

However when I call this method some of the values in my program stay at what they were during the previous game.

Is there a game to just clear everything and create a new instance of the game with all the default values?

8. Reproducibility status *

Mark only one oval.

- ☐ I can reproduce the issue *Skip to question 12*
- ☐ I cannot reproduce the issue

Reproducibility challenges for question 1

Report the challenges that prevent the issue the reproducibility using the given code examples.

9. Did you find the following challenges? *

Mark only one oval per row.

	Yes	No
Class/Interface/Method not found	<input type="radio"/>	<input type="radio"/>
Important part of code missing	<input type="radio"/>	<input type="radio"/>

10. Did you find additional challenges while reproducing the issues (other than the above-mentioned list of challenges)? Report the challenges and explain briefly why such challenges appear.

11. Please give the modified code example. *

Copy and paste your modified code below.

Skip to question 15

List of editing actions for
question 1

List the actions that are performed to modify the given code example
to reproduce the issue.

12. List of actions performed to reproduce the issue *

Check all that apply.

- ☐ Addition of Classes and Methods
- ☐ Inclusion of Native and External Libraries
- ☐ Exception Handling
- ☐ Object Creation, Identifier Declaration and Initialization
- ☐ Invocation of Methods
- ☐ Deletion of Redundant and Erroneous Statements
- ☐ Code Migration
- ☐ External File, Database and Dataset Creation
- ☐ Debugging
- ☐ No Action

13. Did you perform additional actions while reproducing the issues (other than the above-mentioned list of actions)? Report the actions and explain briefly why such actions need to perform.

14. Please give the modified code example. *

Copy and paste your modified code below.

Please evaluate your task completion experience for questions 1 by answering the following questions.

Mental demand: How much mental and perceptual activity was required (e.g., thinking, deciding, calculating, remembering, looking, searching, etc.)? Was the task easy or demanding, simple or complex, exacting, or forgiving?

Physical demand: How much physical activity was required? Was the task easy or demanding, slow or brisk, slack or strenuous, restful, or laborious?

Temporal demand: How much time pressure did you feel due to the rate or pace at which the tasks occurred? Was the pace slow and leisurely or rapid and frantic?

Performance: How successful do you think you were in accomplishing the goals of the task set by the experimenter (or yourself)? How satisfied were you with your performance in accomplishing these goals?

Effort: How hard did you have to work (mentally and physically) to accomplish your level of performance?

Frustration: How insecure, discouraged, irritated, stressed, and annoyed versus secure, gratified, content, relaxed, and complacent did you feel during the task?

15. Mental demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

16. Physical demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

17. Temporal demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

18. Performance *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

19. Effort *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

20. Frustration level *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

Question 2: Getting Error On Xml resultSet in java

when I try to run to execute java code it displays an error. which I used to get XML type resultSet from oracle using the following method in java

```
poxml = XMLType(rs.getOPAQUE(1));
```

it shows cannot find symbol --- symbol : method getOPAQUE(int)

21. Reproducibility status *

Mark only one oval.

- ☐ I can reproduce the issue *Skip to question 25*
- ☐ I cannot reproduce the issue

Reproducibility challenges for question 2

Report the challenges that prevent the issue the reproducibility using the given code examples.

22. Did you find the following challenges? *

Mark only one oval per row.

	Yes	No
External library not found	<input type="radio"/>	<input type="radio"/>
Identifier/Object type not found	<input type="radio"/>	<input type="radio"/>
Too short code snippet	<input type="radio"/>	<input type="radio"/>

23. Did you find additional challenges while reproducing the issues (other than the above-mentioned list of challenges)? Report the challenges and explain briefly why such challenges appear.

24. Please give the modified code example. *

Copy and paste your modified code below.

Skip to question 28

List of editing actions for
question 2

List the actions that are performed to modify the given code example
to reproduce the issue.

25. List of actions performed to reproduce the issue *

Check all that apply.

- ☐ Addition of Classes and Methods
- ☐ Inclusion of Native and External Libraries
- ☐ Exception Handling
- ☐ Object Creation, Identifier Declaration and Initialization
- ☐ Invocation of Methods
- ☐ Deletion of Redundant and Erroneous Statements
- ☐ Code Migration
- ☐ External File, Database and Dataset Creation
- ☐ Debugging
- ☐ No Action

26. Did you perform additional actions while reproducing the issues (other than the above-mentioned list of actions)? Report the actions and explain briefly why such actions need to perform.

27. Please give the modified code example. *

Copy and paste your modified code below.

Please evaluate your task completion experience for questions 2 by answering the following questions.

28. Mental demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

29. Physical demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

30. Temporal demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

31. Performance *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

32. Effort *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

33. Frustration level *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

Question 3: get
resource is null

I have an @Test method with invocationCount=3.

Each time this method is run, there is a call for preparing some doc into another method.

All it's working GREAT when the @Test is run for the 1st time.

The doc is succesfully found and loaded:

```
final DocumentRegistryResource documentRegistryResource =  
    RestClientFactory.getInstance().createDocumentRegistryResource(  
        getUserRestAuth());  
final File importFile = new File(  
    this.getClass().getResource("/documents-template-  
test.xml").getFile());  
BUT, at the 2nd and 3rd invocation, i receive a null exception:
```

```
this.getClass().getResource("/documents-template-test.xml")
```

is no longer found.

34. Reproducibility status *

Mark only one oval.

- ☐ I can reproduce the issue *Skip to question 38*
- ☐ I cannot reproduce the issue

Reproducibility challenges
for question 3

Report the challenges that prevent the issue the reproducibility
using the given code examples.

35. Did you find the following challenges? *

Mark only one oval per row.

	Yes	No
Class/Interface/Method not found	<input type="radio"/>	<input type="radio"/>
Database/File/UI dependency	<input type="radio"/>	<input type="radio"/>

36. Did you find additional challenges while reproducing the issues (other than the above-mentioned list of challenges)? Report the challenges and explain briefly why such challenges appear.

37. Please give the modified code example. *

Copy and paste your modified code below.

[Skip to question 41](#)

List of editing actions for question 3

List the actions that are performed to modify the given code example to reproduce the issue.

38. List of actions performed to reproduce the issue *

Check all that apply.

- ☐ Addition of Classes and Methods
- ☐ Inclusion of Native and External Libraries
- ☐ Exception Handling
- ☐ Object Creation, Identifier Declaration and Initialization
- ☐ Invocation of Methods
- ☐ Deletion of Redundant and Erroneous Statements
- ☐ Code Migration
- ☐ External File, Database and Dataset Creation
- ☐ Debugging
- ☐ No Action

39. Did you perform additional actions while reproducing the issues (other than the above-mentioned list of actions)? Report the actions and explain briefly why such actions need to perform.

40. Please give the modified code example. *

Copy and paste your modified code below.

Please evaluate your task completion experience for questions 3 by answering the following questions.

41. Mental demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

42. Physical demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

43. Temporal demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

44. Performance *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

45. Effort *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

46. Frustration level *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

Question 4: Use Sounds in java

When I create an object from below class and send the address of audio to its constructor, I have to send the complete address like:

```
"C:\Documents and Settings\TheHero\My
Documents\NetBeansProjects\project1\src\project1\s1.wav"
```

But I want to use this code just with the name of sound like: "s1.wav".

I copied the sound into the src folder and then use "s1.wav" and the result was "java.io.FileNotFoundException".

If I use the complete address of sound when I run the program on another computer it does not work. I'm right?

```
public class MusicPlayer {
    private String filename;

    public MusicPlayer(String filename) {
        this.filename = filename;
    }
    public void play() {
        try {
            InputStream in = new FileInputStream(filename);
            AudioStream as = new AudioStream(in);
            AudioPlayer.player.start(as);

        } catch (IOException e) {
            e.printStackTrace();
        }
    }
}
```

47. Reproducibility status *

Mark only one oval.

- ☐ I can reproduce the issue [Skip to question 51](#)
- ☐ I cannot reproduce the issue

[Skip to question 51](#)

Reproducibility challenges
for question 4

Report the challenges that prevent the issue the reproducibility using the given code examples.

48. Did you find the following challenge? *

Mark only one oval per row.

	Yes	No
Outdated code (e.g., <code>AudioStream</code> / <code>AudioPlayer</code> class is outdated)	<input type="radio"/>	<input type="radio"/>

49. Did you find additional challenges while reproducing the issues (other than the above-mentioned list of challenges)? Report the challenges and explain briefly why such challenges appear.

50. Please give the modified code example. *

Copy and paste your modified code below.

Skip to question 54

List of editing actions for question 4

List the actions that are performed to modify the given code example to reproduce the issue.

51. List of actions performed to reproduce the issue *

Check all that apply.

- ☐ Addition of Classes and Methods
- ☐ Inclusion of Native and External Libraries
- ☐ Exception Handling
- ☐ Object Creation, Identifier Declaration and Initialization
- ☐ Invocation of Methods
- ☐ Deletion of Redundant and Erroneous Statements
- ☐ Code Migration
- ☐ External File, Database and Dataset Creation
- ☐ Debugging
- ☐ No Action

52. Did you perform additional actions while reproducing the issues (other than the above-mentioned list of actions)? Report the actions and explain briefly why such actions need to perform.

53. Please give the modified code example. *

Copy and paste your modified code below.

Please evaluate your task completion experience for questions 4 by answering the following questions.

54. Mental demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

55. Physical demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

56. Temporal demand *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

57. Performance *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

58. Effort *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

59. Frustration level *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
Low	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	High

Impacts of Reproducibility

60. What are the impacts on the reproducibility challenges to answer a question? *

Here, moderate means kind of irritating, got past it and was able to answer properly; severe means wasted a lot of time to reproduce the issue, but got past it and was able to answer it properly; blocker means could not reproduce and hence could not answer.

Mark only one oval per row.

	Not a problem	Moderate	Severe	Blocker	No opinion
Class/Interface/Method not found	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Important part of code missing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External library not found	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Identifier/Object type not found	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Too short code snippet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Database/File/UI dependency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Outdated code	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

61. Please provide the rationale for your selections above in a couple of sentences *

62. Given a strict budget to solve the catalog of reproducibility challenges, which three you would like to prioritize above others? *

C1: Class/Interface/Method not found; C2: Important part of code missing; C3: External library not found; C4: Identifier/Object type not found; C5: Too short code snippet; C6: Database/File/UI dependency; C7: Outdated code

Mark only one oval per row.

	C1	C2	C3	C4	C5	C6	C7
First choice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Second choice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Third choice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

63. If you found additional challenges (other than the above-mentioned challenges), rank the challenges from most harmful to least harmful.

For example, you found three additional challenges, such as challenge1, challenge2, and challenge3. If you think that challenge2 is most harmful then challenge1. Then write in the order challenge2, challenge1, challenge3.

Tool Needs

64. What kind of tool support do you need to assist with these reproducibility challenges? *

Tool Support

65. How do you agree with the following options? *

Mark only one oval per row.

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
A tool that suggests users improve the code examples to support reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A tool that warns users about reproducibility challenges that are severe or may block the reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An IDE (e.g., Eclipse) plugin support reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A browser plugin to support reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A website that guides users to improve reproducibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A static analyzer that examines code segments to find reproducibility challenges	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Submission

66. Would you like us to provide you an anonymized summary of the survey responses when it is complete? *

Mark only one oval.

- ☐ Yes Skip to question 68
- ☐ No Skip to section 25 (Thank You)

67. Would you like to be considered for a gift in appreciation for your participation in this survey? *

Mark only one oval.

- ☐ Yes *Skip to question 68*
☐ No *Skip to section 25 (Thank You)*

Email

68. Please provide your email to send a summary of the survey responses. *

Thank
You

Thank you for taking the time to complete this survey. We truly value the information you have provided. Your responses will contribute to our study of understanding reproducibility challenges.

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