Interview Invitation

Dear [DEVELOPER'S NAME],

Hi! We are reaching out to inquire if you would be willing to participate in our interview regarding code snippet adaptation.

The interview is part of our academic research to investigate developers' perceptions and behaviors regarding code snippet adaptations. As you probably know, reusing and adapting code snippets is an efficient way of software development, and you may have used this approach multiple times in practice.

By mining open-source software repositories, we noticed that you have reused and adapted code snippets from the Stack Overflow post: [SO ANSWER POST URL]
to your GitHub repository: [GITHUB FILE URL].

Therefore, we would greatly appreciate your participation in the interview to share your knowledge about how to adapt code snippet to your context with us. Your insights and expertise on this topic will be invaluable in contributing to our understanding and enriching our research. It is important to ensure that you are fully informed and comfortable with the entire process. Thus, we would like to clarify the following:

- Firstly, your participation will be entirely voluntary, and you have the right to refuse to answer any questions and withdraw from the interview at any point without any consequences.
- Secondly, this interview is solely for academic research purposes. Any data and information provided during the interview will be treated with strict confidentiality and will only be analyzed and reported in an anonymized manner.
- Thirdly, this interview will be recorded and transcribed. The recordings will be destroyed once the transcription is completed.

If you agree to participate, we will arrange a suitable time for the interview. We can conduct the interview through a video call or a virtual meeting, depending on your preference and availability. We estimate that the interview will take approximately 30 minutes.

If you have any questions, concerns, or if you need further information about the interview or our research, please do not hesitate to contact me at zhangthr@nudt.edu.cn.

We sincerely appreciate your consideration and look forward to your positive response.Thank you for your time and willingness to contribute to our study.

Best Regards,
Tanghaoran Zhang

Interview Design

Study introduction & Research Consent (5 minutes)

(Slide 1: Welcome)

Hi, [NAME]! Thank you for participating in today's interview and volunteering your time to help us enrich our research on code snippet adaptation. This interview will take you about 30 minutes.

(Slide 2: Example)

Here we provide a real-world case to illustrate how a code snippet from Stack Overflow is adapted based on developers' context.

Alice came across a programming problem that required her to convert a set (mTags) to a comma-delimited string. She searched solutions on SO and found a relevant post. She copied the code snippet in the post and pasted it to a method in her code file. Then she made adaptations based on the context to ensure that the synthesized code could successfully compile and run. She found that a variable, list, in the FOR statement is undeclared. Given that the method is to transfer an existing attribute in the code context, i.e., mTags, she replaced list with mTags.

In this interview, we call such adaptation that uses code elements in the context as a context-based adaptation (CA).

(Slide 3: Consent)

Before our interview, we need to double check that you are fully informed and comfortable with the whole process. Thus, we would like to clarify that:

- Firstly, your participation would be entirely voluntary, you have the right to refuse to answer any questions and withdraw at any point during the interview without any consequences.
- Secondly, this interview only aims for academic research. Any data and information provided during the interview will be treated with strict confidentiality. And it will only be analyzed and reported in an anonymized manner.
- Thirdly, this interview will be recorded and transcribed. Recordings will be destroyed after transcription is completed.

Do you have any questions about the consent and this interview?

If you agree to participate, I will begin to record this meeting, is that okay with you?

Data Collection & Discussion (20-25 minutes)

(Slide 4-16)

If there is an unclear point in survey, require them to elaborate.

- I am confused about your answer ...
- You mean that ... Is that correct or is there anything I missed?

Demographic Information (1 minute)

(Slide 17-18)

Closing Thoughts (2 minutes)

(Slide 19)

Thanks for volunteering your time and efforts. We truly appreciate thoughtful responses during the interview. Your insights and expertise are valuable for our understanding of code snippet adaptation.

Do you have any further questions about the study?

Thanks. If you know anyone who might also be interested in this study, could you please pass on our survey to them? [LINK]

What is an email we can use for you to redeem you a $10 Amazon gift card? You will receive it in a week from today.

Slide 1

WELCOME TO OUR INTERVIEW ABOUT
CODE SNIPPET ADAPTATION

Interviewer: Tanghaoran Zhang (Ph.D Student)

The Key Laboratory of Software Engineering for Complex Systems

Changsha, Hunan, China

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Slide 2

A Motivating Example

The simplest way to comma-delimit a list?

The SO code snippet[1]

The GitHub code file (part)[2]

[1] https://stackoverflow.com/questions/668952/the-simplest-way-to-comma-delimit-a-list/669165
[2] https://github.com/CMPUT301W15T10/301-Project/blob/master/src/com/cmput301/cs/project/models/Claim.java.

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Slide 3

Research Consent

- Please double check that:
- Firstly, your participation will be entirely voluntary, and you have the right to refuse to answer any questions and withdraw from the interview at any point without any consequences.
- Secondly, this interview is solely for academic research purposes. Any data and information provided during the interview will be treated with strict confidentiality and will only be analyzed and reported in an anonymized manner.
- Thirdly, this interview will be recorded and transcribed. The recordings will be destroyed once the transcription is completed.

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Slide 4

Q1: How often do you reuse code snippets?

- A. Always
- B. Usually
- C. Sometimes
- D. Rarely
- E. Never

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Slide 5

Q2: What are the sources of your reused code snippets?

- A. From online programming Q&A communities (e.g., Stack Overflow).
- B. From other open-source projects.
- C. From your code bases.
- D. From code generation tools.
- E. Others, please specify _____.

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Slide 6

Please recall how you completed **a code snippet adaptation** most recently and answer the following questions:

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Q3: How frequently do you perform the following actions before adaptation?

• Evaluate if the code snippet you found match your context.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Evaluate the quality of the code snippet you found.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Carefully understand the code snippet you found.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

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Q4: How frequently do you perform the following actions during adaptation?

• Skim through your code context during adaptation.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Refer to other code files in your project during adaptation.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Encapsulate the code snippet rather than directly insert it into your code context.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

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Q4: How frequently do you perform the following actions during adaptation?

• Modify your code context to fits the code snippet.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Use tools to support the adaptation process.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

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Q5: How frequently do you perform the following actions after adaptation?

• Document the source and origin of the snippet.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Document the adaptations you have made.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

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Q5: How frequently do you perform the following actions after adaptation?

• Debug or run tests to check the correctness of your adaptations.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

• Encounter bugs caused by your adapted code snippets.

• A. Always   B. Usually   C. Sometimes   D. Rarely   E. Never

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Q6: What are the challenges you come across when adapting code snippets to your context?

• What are the possible causes of the challenge?
• How did you overcome it?

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Q7: Can you discuss any best practices or techniques you use to adapt online code snippet to your context?

- Can you describe an example?
- When will you use?
- What steps will you perform during adaptation?
- What prior knowledge is required for your strategy?

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Now let's brainstorm for the future of code snippet adaptation.

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Q8: What features do you expected from the automated tools?

- A more innovative one or a more conservative one?
- Which code properties will the tool focus on?
- Which activities will the tool support?

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Q9: Will current prevalent large language models influence code snippet reuse and adaptation?

- Will you still use traditional code search? If so, when will you use it?
- What are their advantages and disadvantages?
- Will code adaptation be replaced by accurate code generation?
- How will you utilize LLMs to in your code reuse process?

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Demographic Information

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Q10: How long have you been engaged in software development?
- A. Less than 1 year.
- B. 1~3 year(s).
- C. 3~5 years.
- D. 6~10 years.
- E. More than 10 years.

Q11: What is your current job title?

☐ Full-stack developer ☐ Test engineer
☐ Front-end developer   ☐ Project manager
☐ Back-end developer   ☐ Designer
☐ Mobile developer   ☐ Professor
☐ Operation engineer   ☐ Student

Others, please specify _____.

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THANKS FOR PARTICIPATION