

Work Practices and Challenges in Pull-Based Development: The Contributor's Perspective

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Introduction

Pull Request

1. Contributor creates a local branch and fixes issues
2. Contributor opens a pull request
3. Project Owner reviews and merges the request

Contribution

- How OSS projects works using the pull-based development model
- Address the weak aspects of development process
- How to take action against the barriers

Research Method

Research Questions

- How do contributors prepare (for) a contribution in social coding sites using the pull-based development model?
 - What do contributors do before and after coding a PR?
 - How do contributors assess the quality of their PR?
 - How do contributors communicate about an intended change?
- What are the challenges of contributing in social coding sites using the pull-based development model?

Design

- Two rounds
 - Pilot and final
 - In order to clarify questions and explore more
- Question types
 - 4 open-ended
 - 4 Likert scale
 - 11 multiple choice

Participant

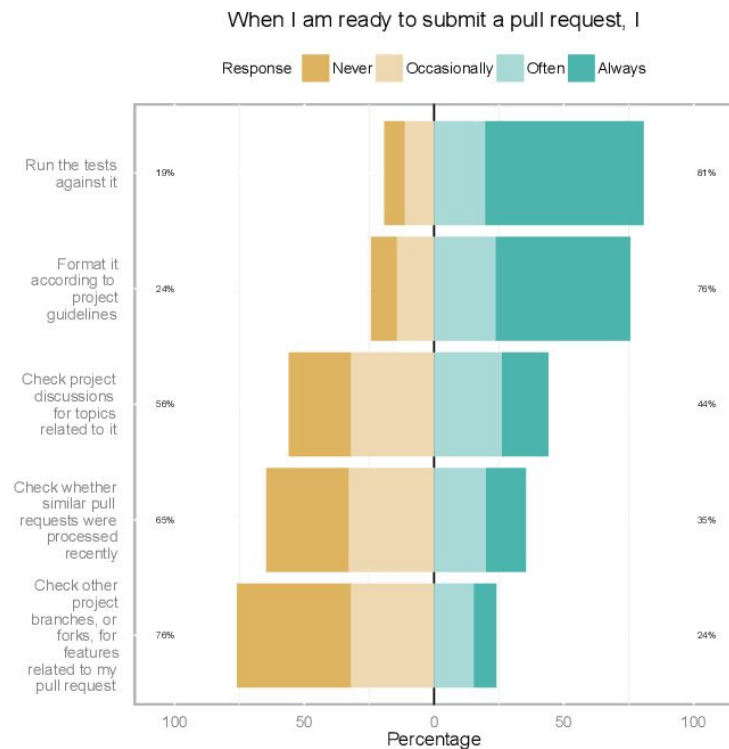
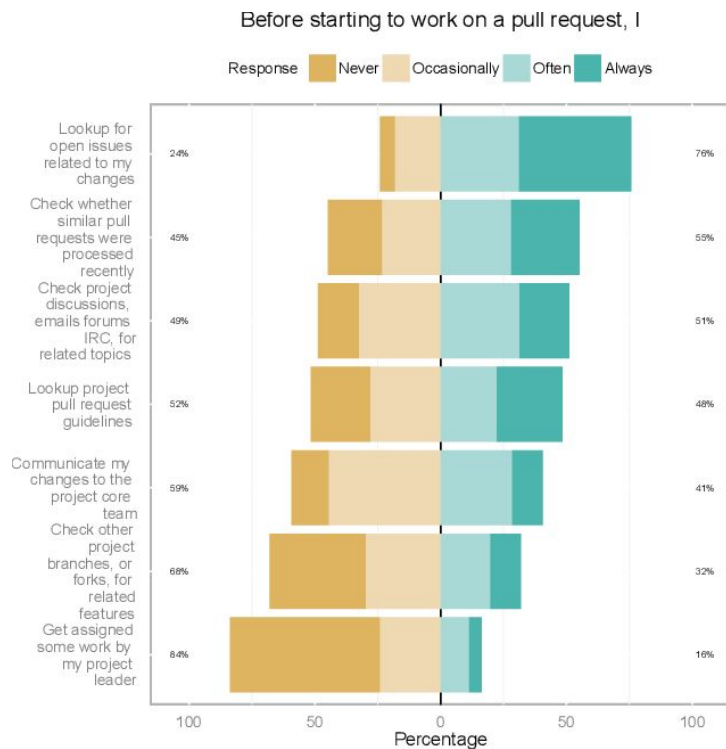
- Select contributors from active repositories
 - At least one PR per week
 - Top three contributors per repository
- Number of Participants
 - Pilot: Received 32 answers from 445 contributors (7% response rate)
 - Final: Received 760 answers from 4172 contributors (18% response rate)

Analysis

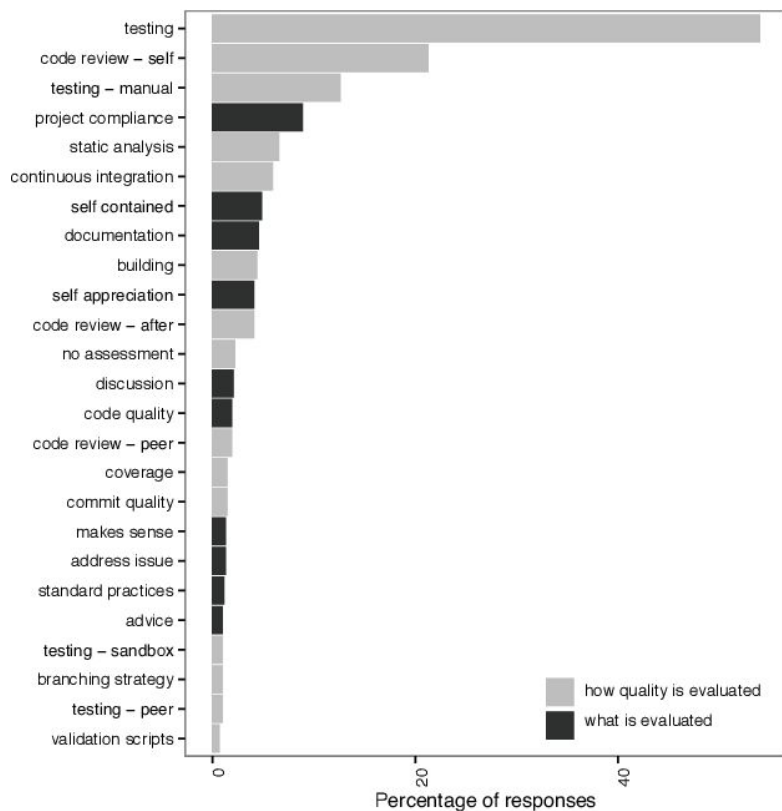
- Applied manual coding on the 4 open-ended questions
 - a. 2 authors individually coded a different set of 50 (out of 760) answers for each question.
 - b. Extracted and integrated codes together
 - c. The agreed-upon codes were then applied to all the answers
- When new codes emerged, they were integrated in the code set

Result

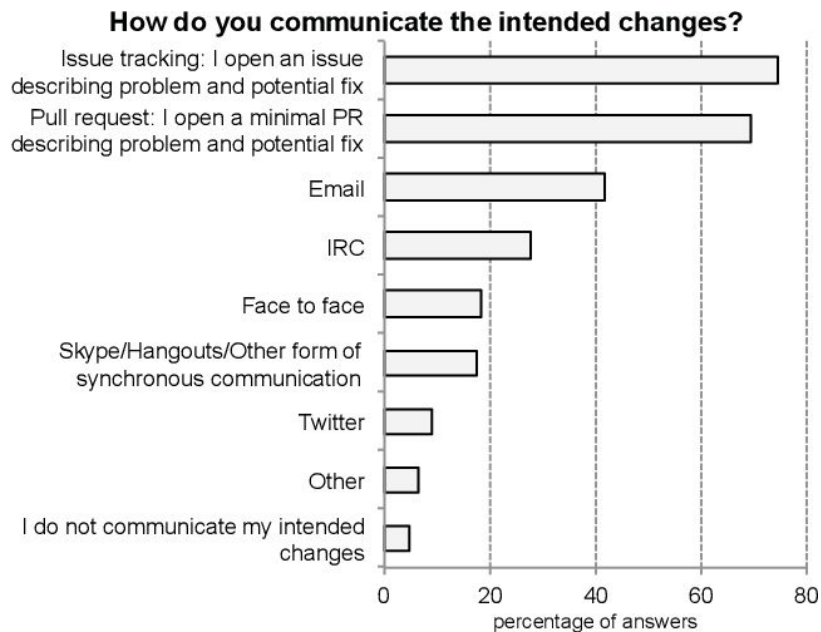
What are contributors' work practices?



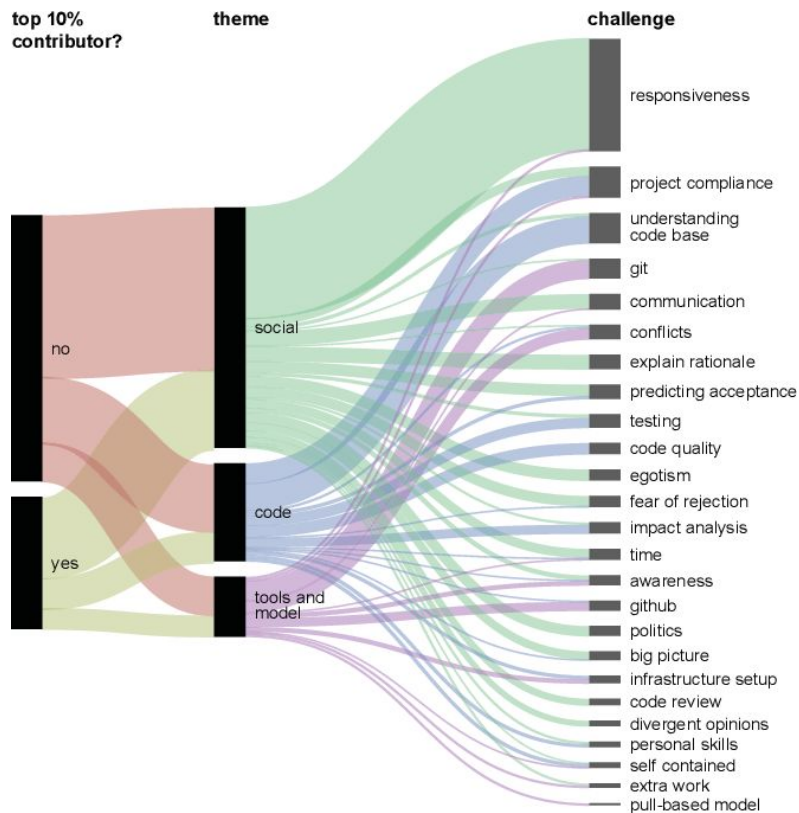
How do contributors assess their code?



How are changes communicated?



What are the challenges of contributing?



Questions

Questions for Discussion

- What communication method would you prefer while working on a PR?
 - Email, PR, Issue, or etc.
 - What's their benefits and disadvantages?
- Is PR the best way to communicate for OSS communities?
 - If **Yes**: what can be improved?
 - If **No**: why and what's your best choice?