

A Structured Survey on the Usage of the Issue Tracking System provided by the GITHUB Platform



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CONTEXT

Studies addressing issue tracking systems (ITS) analyze how this tool can support the team during the development of a software project. We have replicated the analyses reported in a former study addressing the ITS offered by the GitHub platform.

PUBLIC OF INTEREST

Researchers interested in replicating experiments in Software Engineering and practitioners interested on the GitHub platform.

FINDINGS

- Few open-source projects use ITS (15% of our sample).
- Even taking only those projects with at least one issue, 86% of our sample have recorded less than 50 issues.
- Larger projects (both in LOC and number of developers) tend to use ITS more extensively. The correlations in the original paper were stronger than what we have found now.
- Projects led by popular developers tend to use ITS more extensively. Correlations were stronger in the former paper.
- Labels are not frequently used and the most common labels refer to automated actions, defects, and task prioritization.
- Issue reporters are typically developers.
- There is a moderate correlation between the number of forks created from a project or the number of developers following its leader and the number of issues reported for the project. This correlation was also stronger in the former paper.
- There are only weak or moderate correlations between the number of reporters in a project, the use of labels, the use of frequently-used labels or the number of comments and the average time required to resolve an issue. These correlations were also stronger in the former paper.
- Developers tend to mark issues as resolved by mentioning them on commits to the version control system. This allows some traceability between the changes made to the code and the issue they resolve. However, few issues are resolved through these means and most of them are related to bugs, new features, and feature enhancements – that is, they are closely related to the source-code!

ENOUGH TALK ... SHOW ME THE NUMBERS!

≈ 38.000.000
PROJECTS ON THE PLATFORM

220.000
SELECTED PROJECTS

76.909
ANALYZED PROJECTS

11.662
PROJECTS WITH ISSUES

226.340
ISSUES

159.118
RESOLVED ISSUES

1,54
ISSUES/KLOC

304.033
LABELS

2.596
UNIQUE LABELS

52%
ISSUES W/ LABELS

2 or 3
LABELS/ISSUE

7.000
ISSUES CLOSED
BY COMMIT

ORIGINAL REFERENCE FOR THE RESEARCH:

Neto, C., Barros, M. "A Structured Survey on the Usage of the Issue Tracking System provided by the GITHUB Platform", XI Simpósio Brasileiro de Componentes, Arquiteturas e Reúso de Software, SBCARS 2017, Fortaleza, Brasil (in Portuguese)