SPRINT: An Assistant for Issue Report Management

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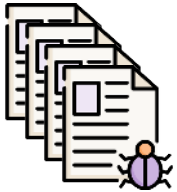
CHARTERED 1693

Software Evolution and Analysis Lab

Issue Report Management

Issue Reports



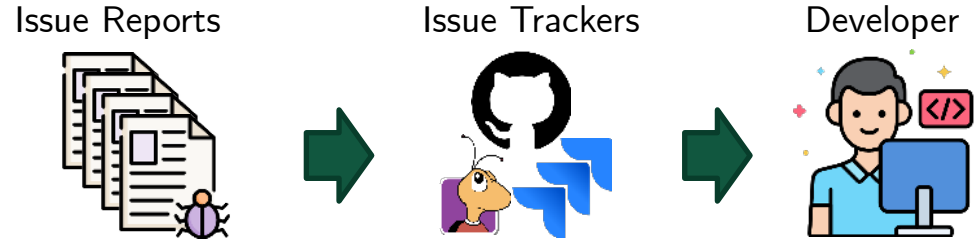
Issue Trackers



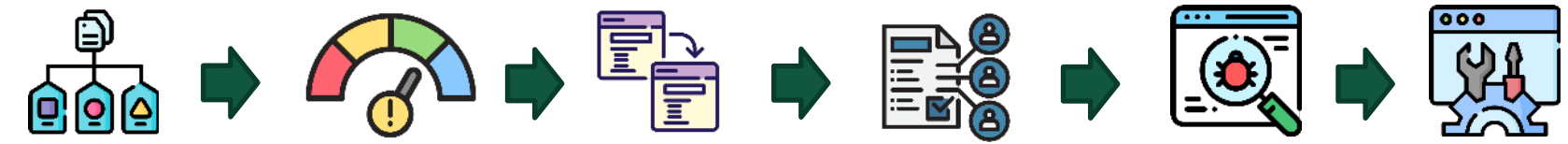
Developer



Issue Report Management

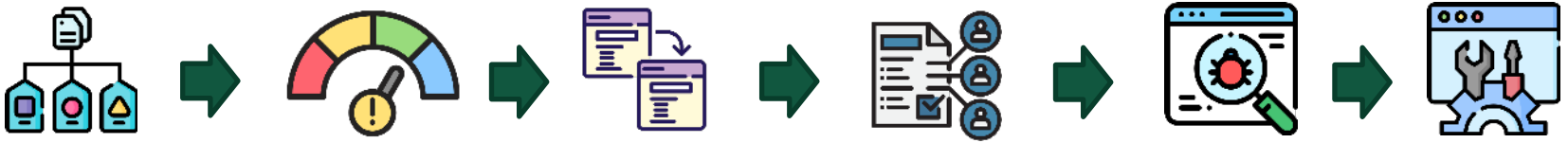


Issue Report Management Tasks



Issue Report Management

Issue Report Management Tasks



Existing Issue Management Tools

Find Duplicates



Probot



Bug Localizer



Priority Scheduler



PR Agent



Issue Report Management



Not Integrated with ITS



Single Feature



Not Open Source

Existing Issue Management Tools

Find Duplicates



Probot



Bug Localizer



Priority Scheduler



PR Agent



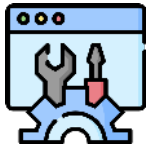
Our Vision: Integrated Issue Resolution



Issue Categorization



Severity Prediction



Program Repair



Issue Trackers



Similar Issue Identification



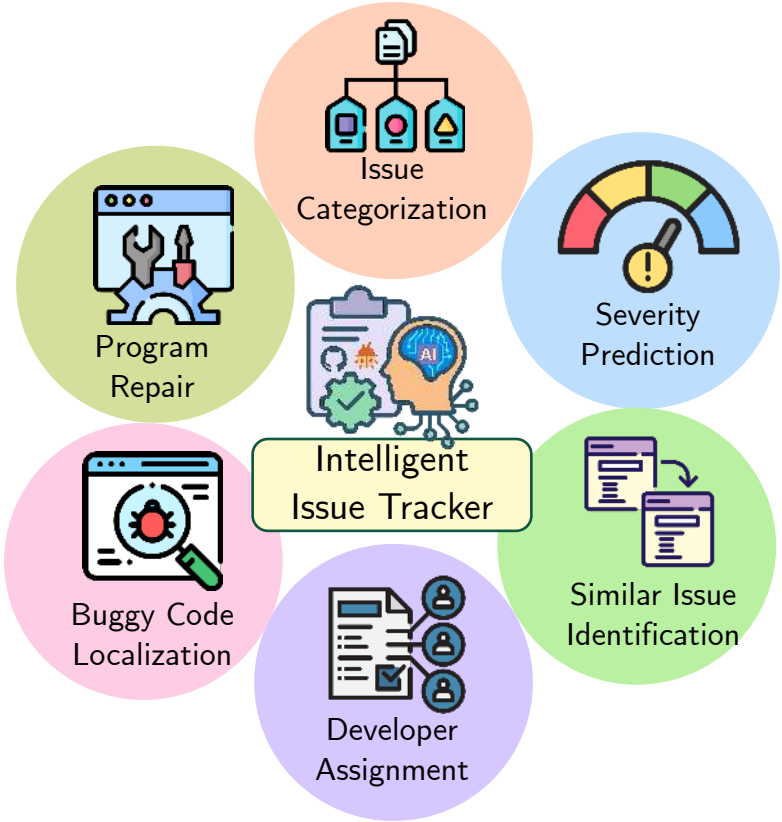
Buggy Code Localization



Developer Assignment

Our Vision: Integrated Issue Resolution

An Intelligent Issue Tracker to support various issue management tasks



Leverage SOTA solutions for performing the tasks

SPRINT
ISSUE REPORT ASSISTANT

SPRINT is a GitHub plugin that aims to assist developers in issue report management



GitHub Plugin



Extensible & Scalable



Multi-featured



Open Source

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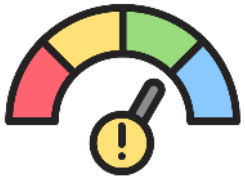
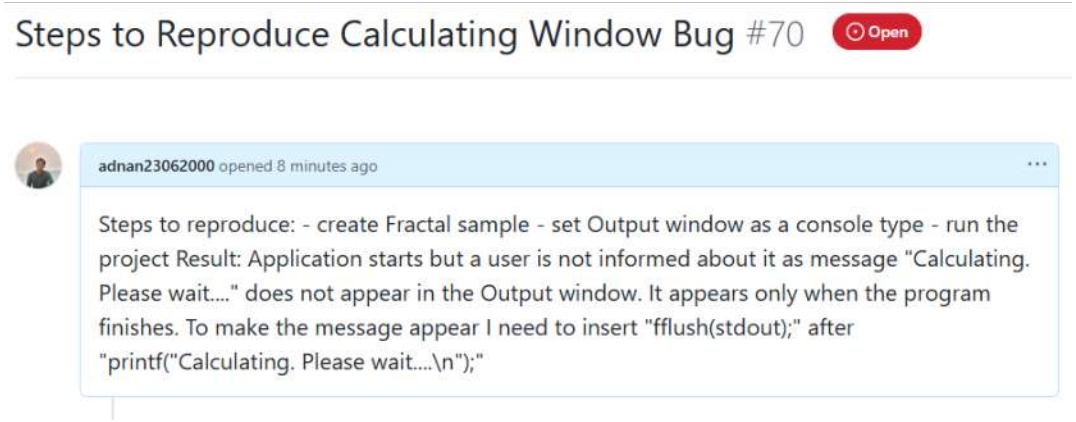
SPRINT's Features


Issue Severity Prediction


Similar Issue Identification


Buggy Code Localization

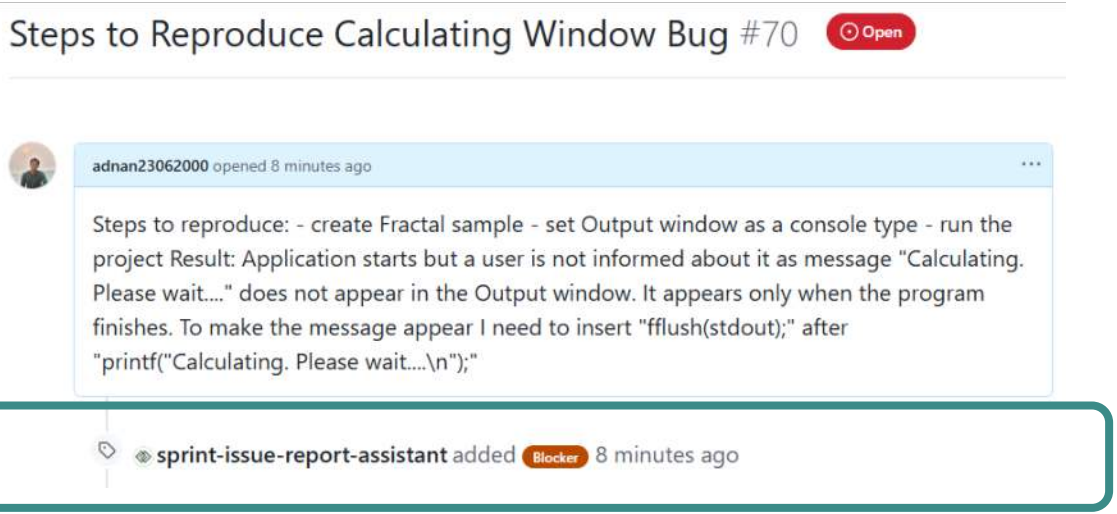
SPRINT's Suggestions



SPRINT's Suggestions



Severity Level



SPRINT's Suggestions



Similar Issues

Steps to Reproduce Calculating Window Bug #70 Open

adnan23062000 opened 8 minutes ago

Steps to reproduce: - create Fractal sample - set Output window as a console type - run the project Result: Application starts but a user is not informed about it as message "Calculating. Please wait...." does not appear in the Output window. It appears only when the program finishes. To make the message appear I need to insert "fflush(stdout);" after "printf("Calculating. Please wait....\n");"

sprint-issue-report-assistant 1 hour ago

🎯 Similar Issues:

The following issues are potentially similar to the given issue:

#5 - After creating tables, when I create and save relationships, the information is not saved.

#12 - After defining multiple entities and establishing foreign key relationships in the Entity-Relationship Diagram

sprint-issue-report-assistant added Duplicate 1 hour ago

SPRINT's Suggestions



Buggy Code Files

Steps to Reproduce Calculating Window Bug #70 Open

adnan23062000 opened 8 minutes ago

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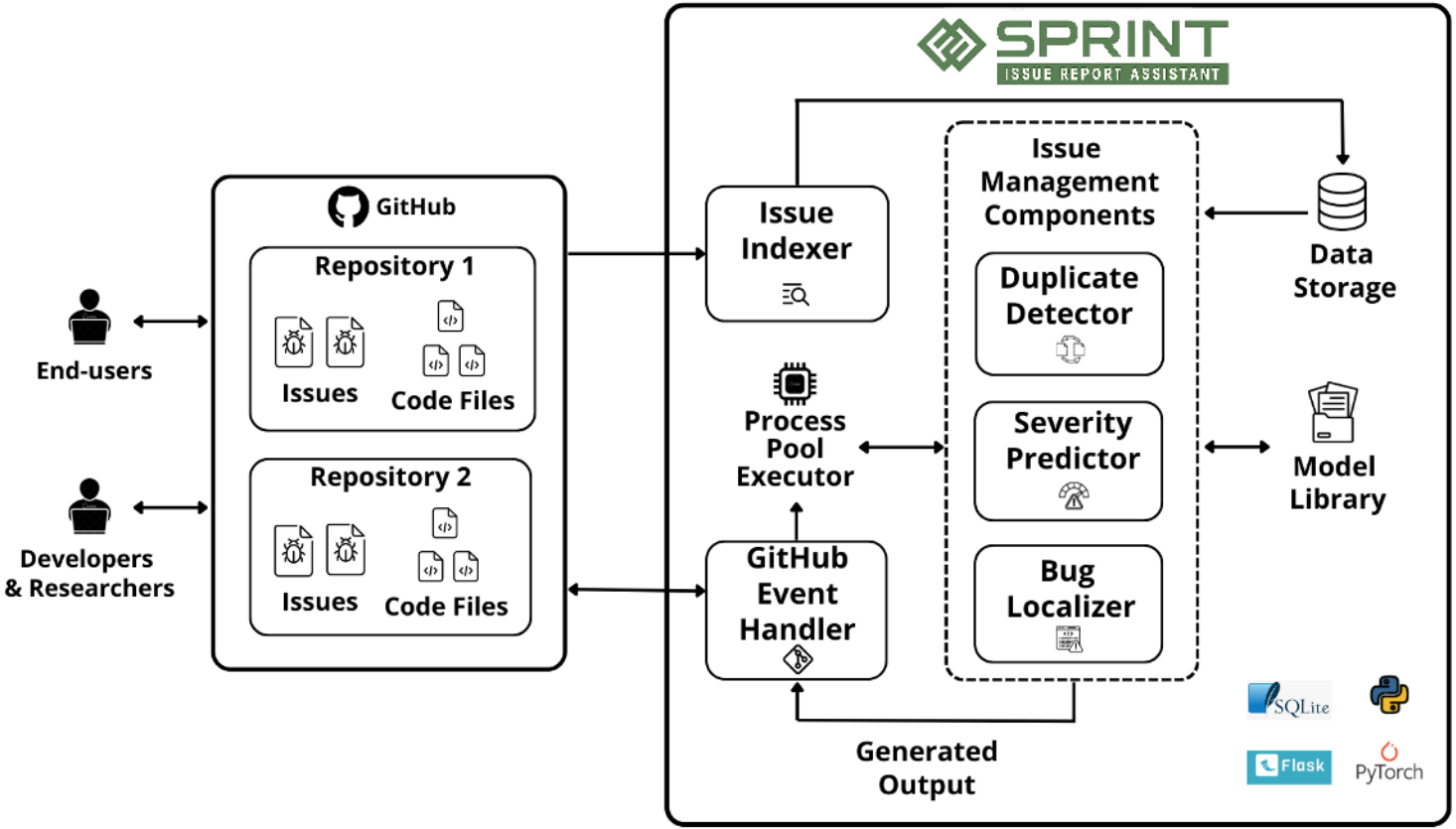
sprint-issue-report-assistant 5 minutes ago

Potential Buggy Code Files:

The following code files may contain the bug or related to the bug in the given issue:

DeploymentValidator.java HelmDeployer.java ShellDeployer.java

SPRINT's Architecture



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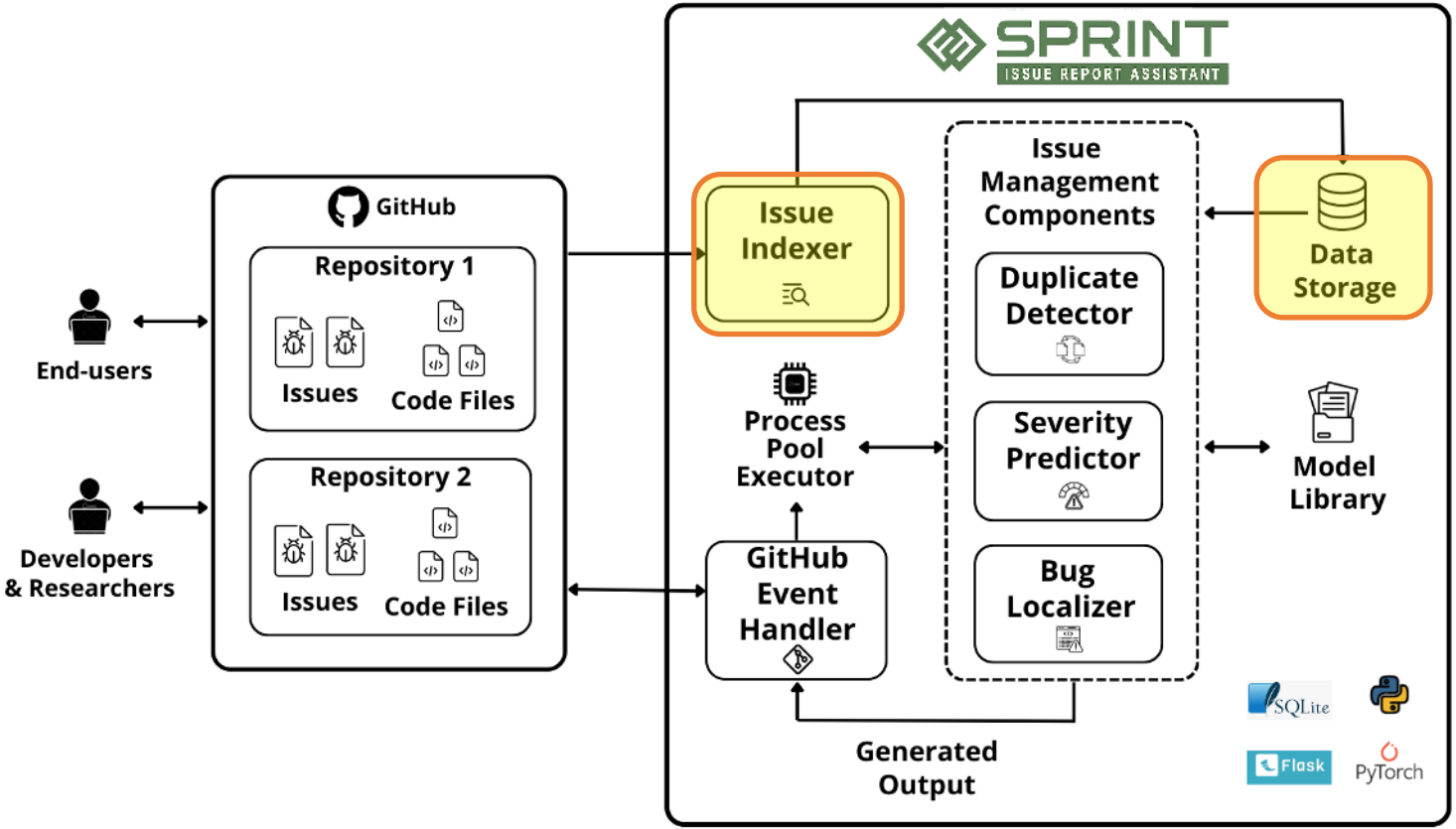

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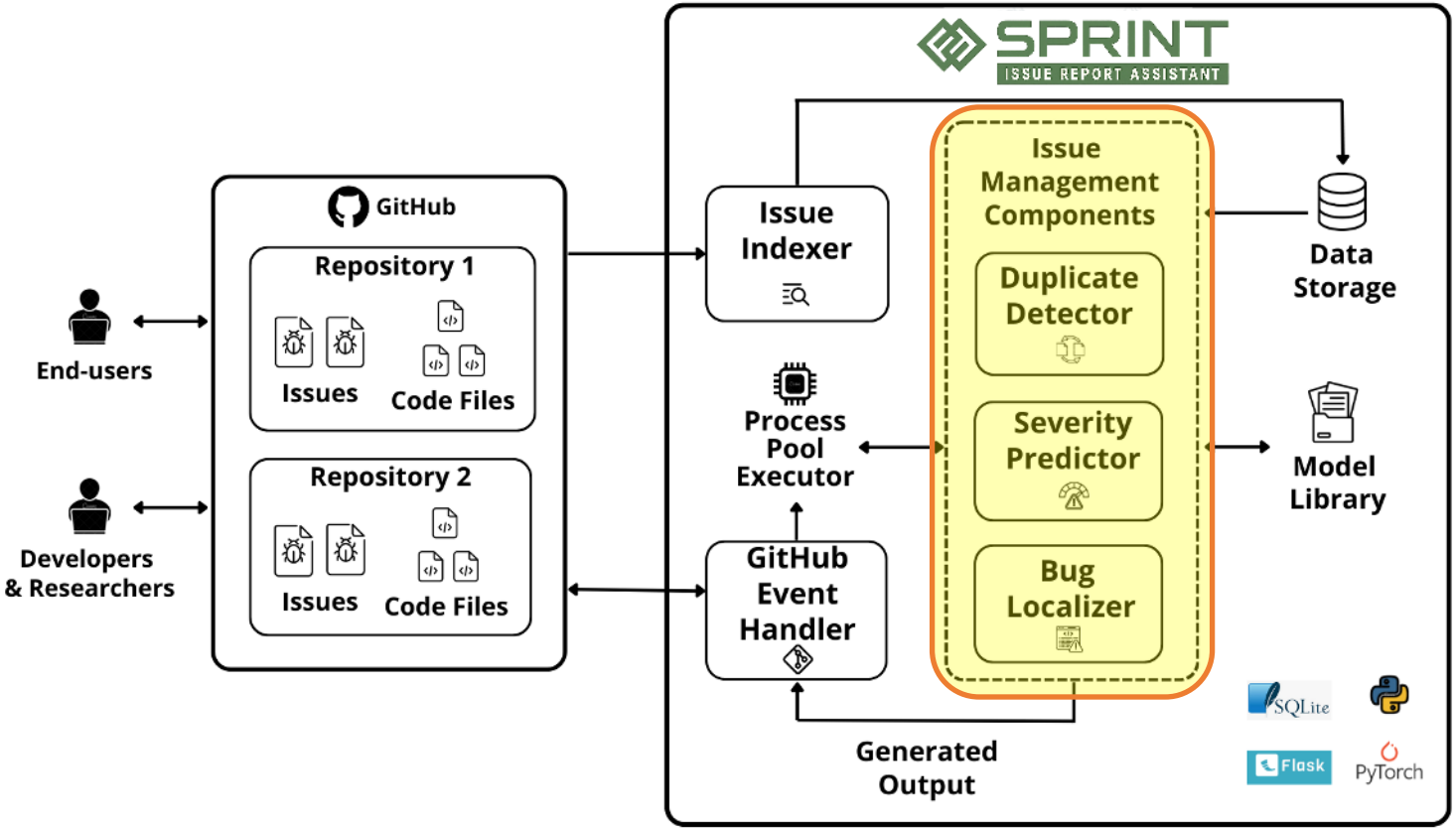

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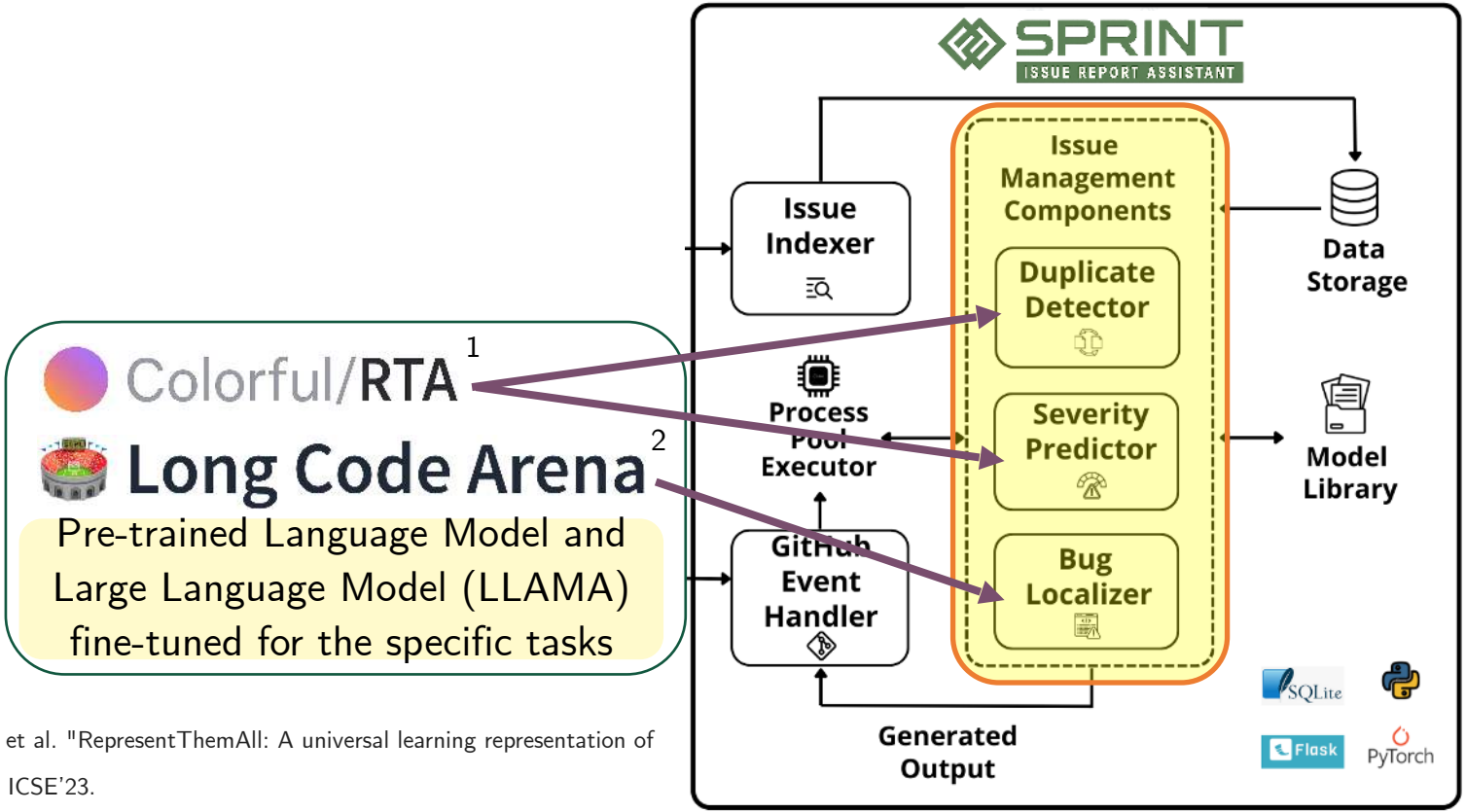


1 Fang, Sen, et al. "RepresentThemAll: A universal learning representation of bug reports." ICSE'23.

2 Bogomolov, Egor, et al. "Long Code Arena: a Set of Benchmarks for Long-

SPRINT's Architecture

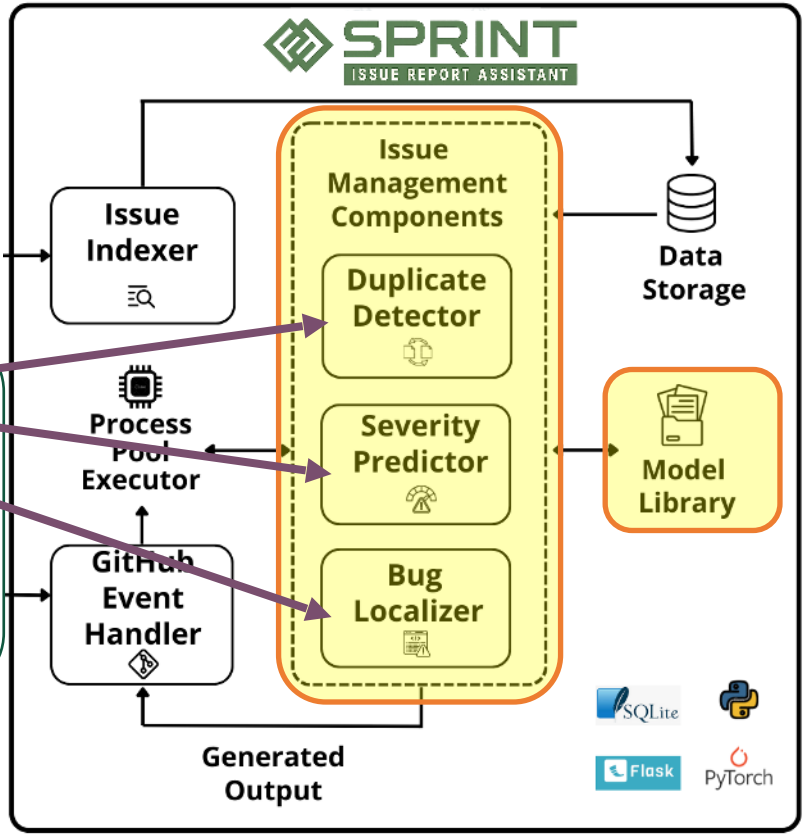


Extensible & Scalable

Colorful/RTA [1]

Long Code Arena [2]

Pre-trained Language Model and Large Language Model (LLAMA) fine-tuned for the specific tasks





Comprehensive Documentation

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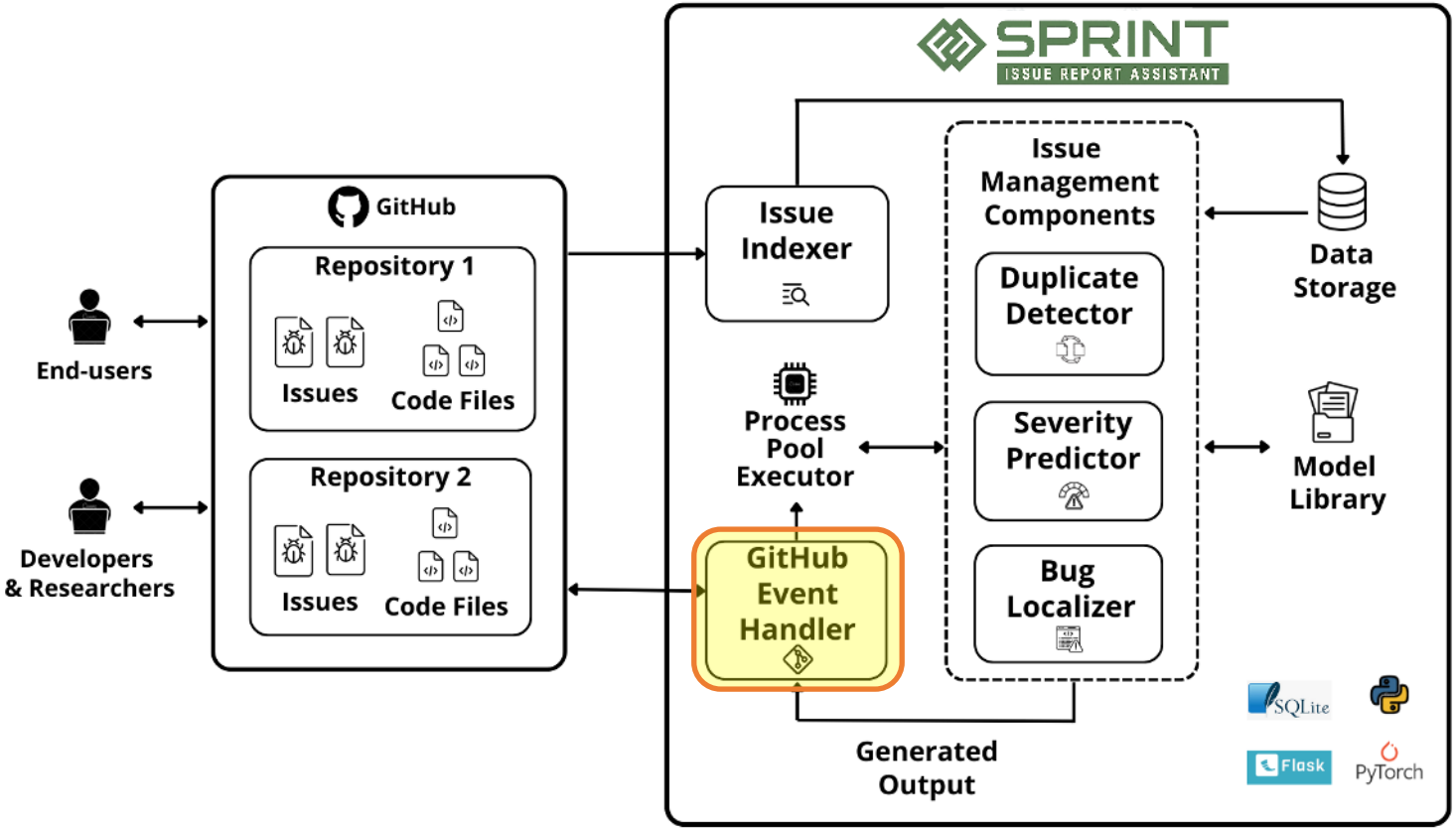

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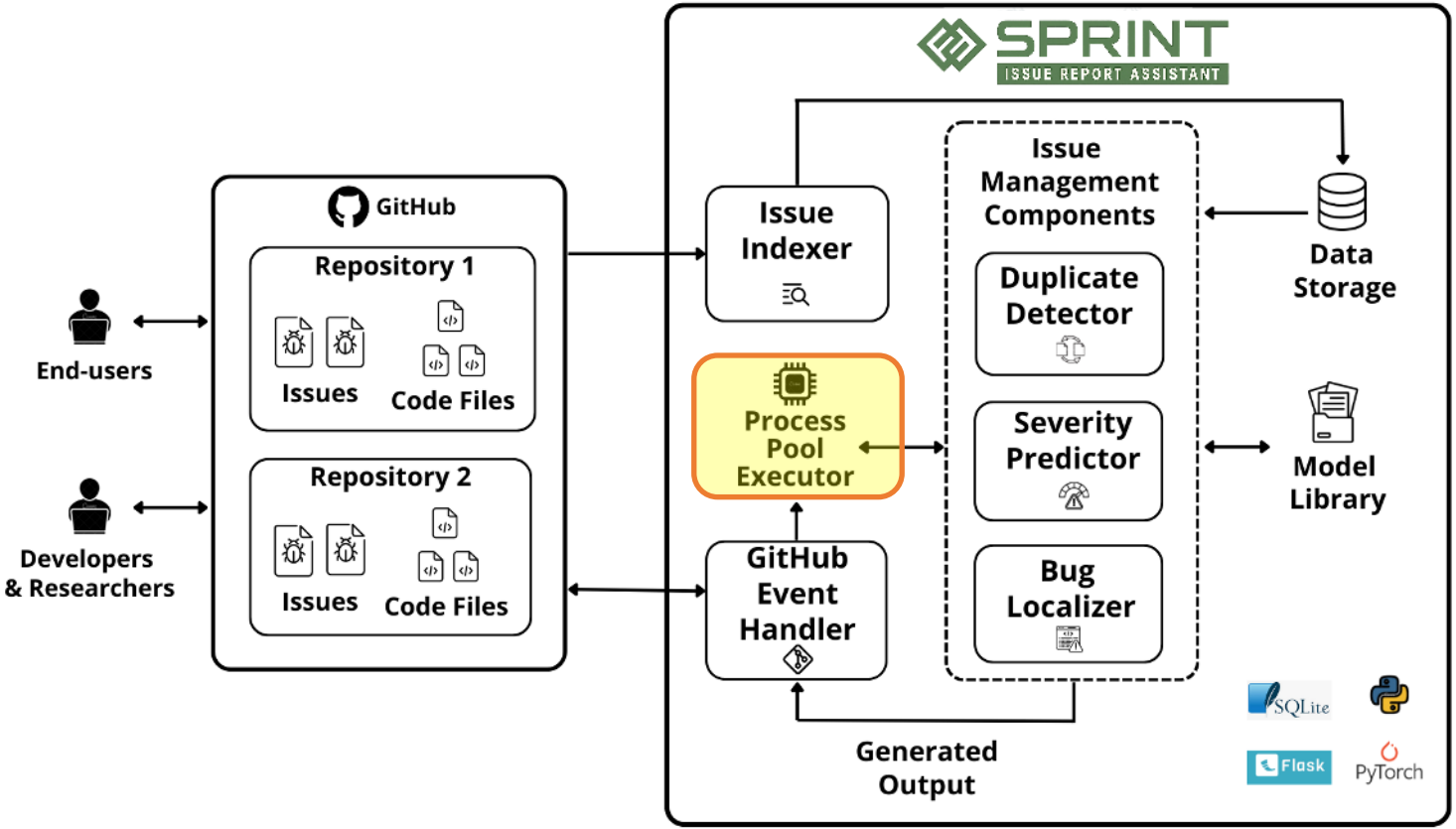

Evaluation

User Study

5 Professional Developers from Samsung Research

Goal

Evaluate Usability, Usefulness, and Predictive Performance

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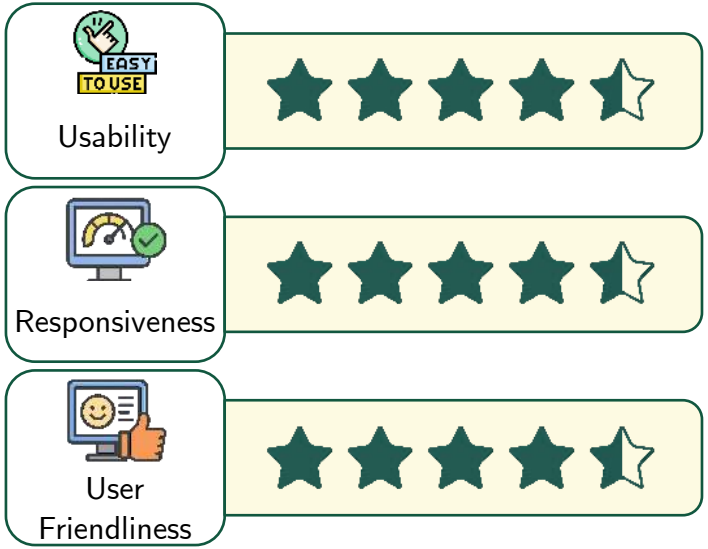

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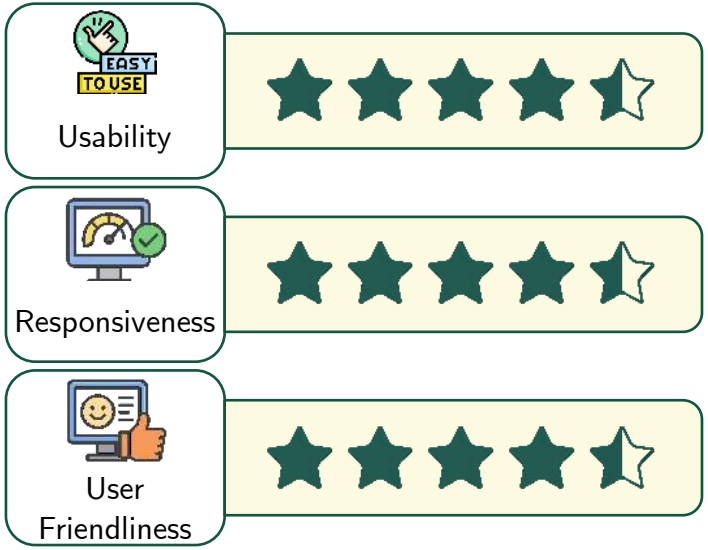
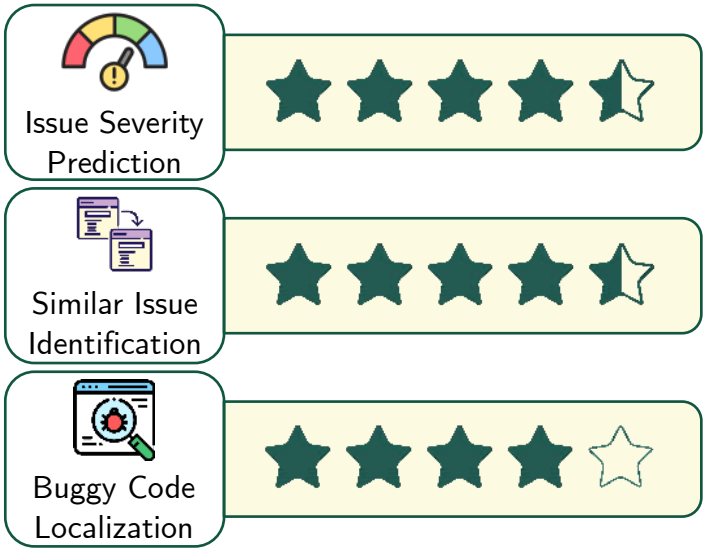
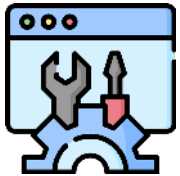




Future Work



Integrate more issue management features, e.g., Program Repair



Extend compatibility to other issue trackers, e.g., Bugzilla or Jira



Improve Buggy Code Localization Performance



SCAN ME

Let's get connected!

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