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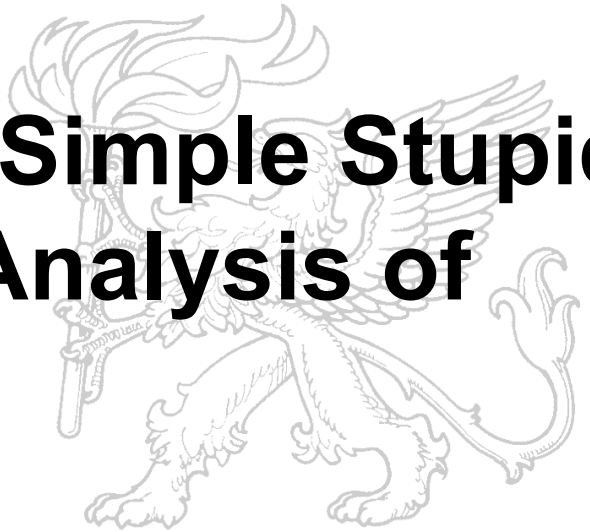

On the Rise and Fall of Simple Stupid Bugs: a Life-Cycle Analysis of SStuBs

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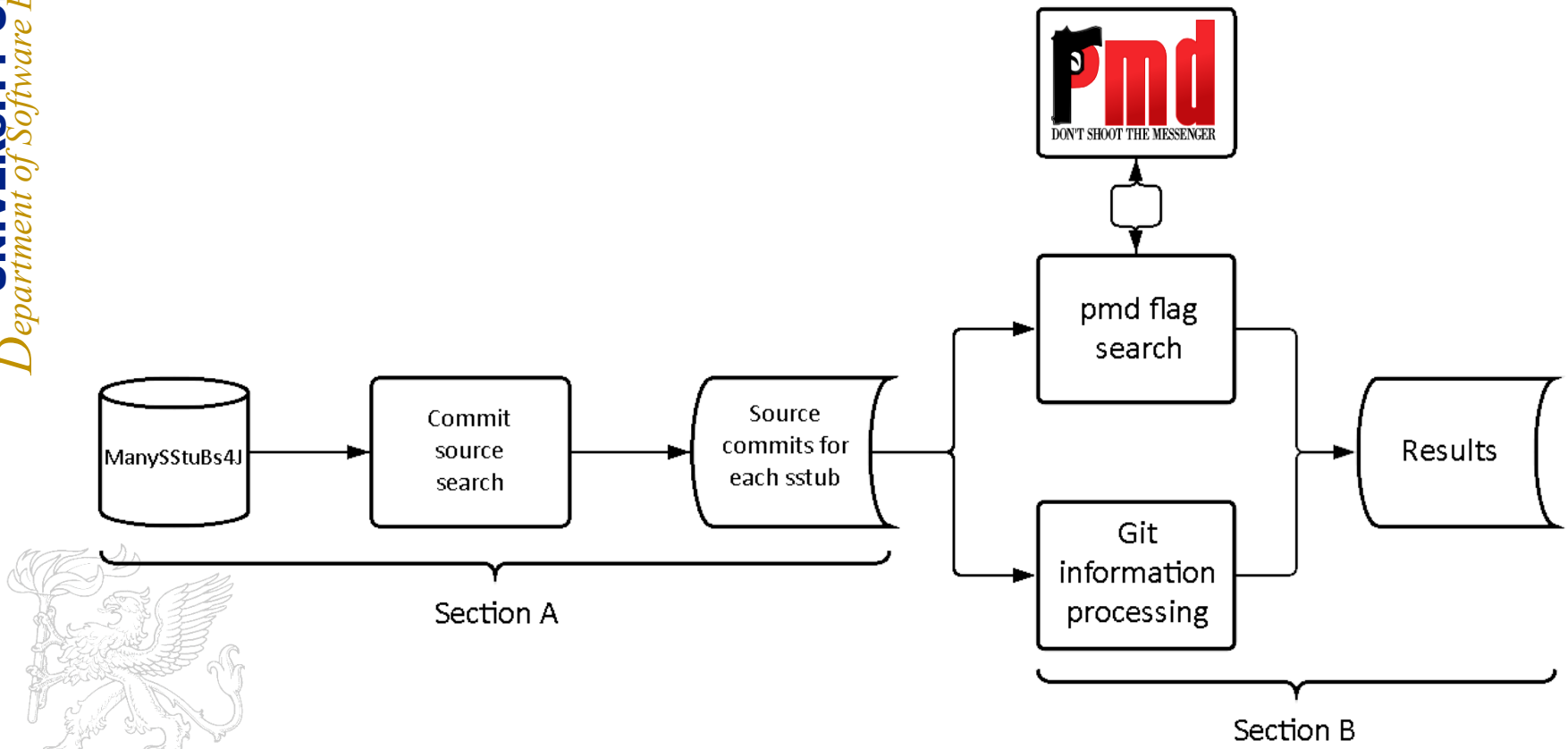
Introduction

- Larger systems, and tight deadlines -> easy to make mistakes
- SStuBs - ManySStuBs4J
- Our research questions:
  - **RQ1**: Are SStuBs more likely to occur in code that is modified by multiple developers?
  - **RQ2**: Are SStuBs more likely to appear in newly added or modified code blocks?
  - **RQ3**: How long does it take to fix SStuBs, do authors notice their own mistakes faster?
  - **RQ4**: Can PMD flag SStuB lines as being error prone?

Approach

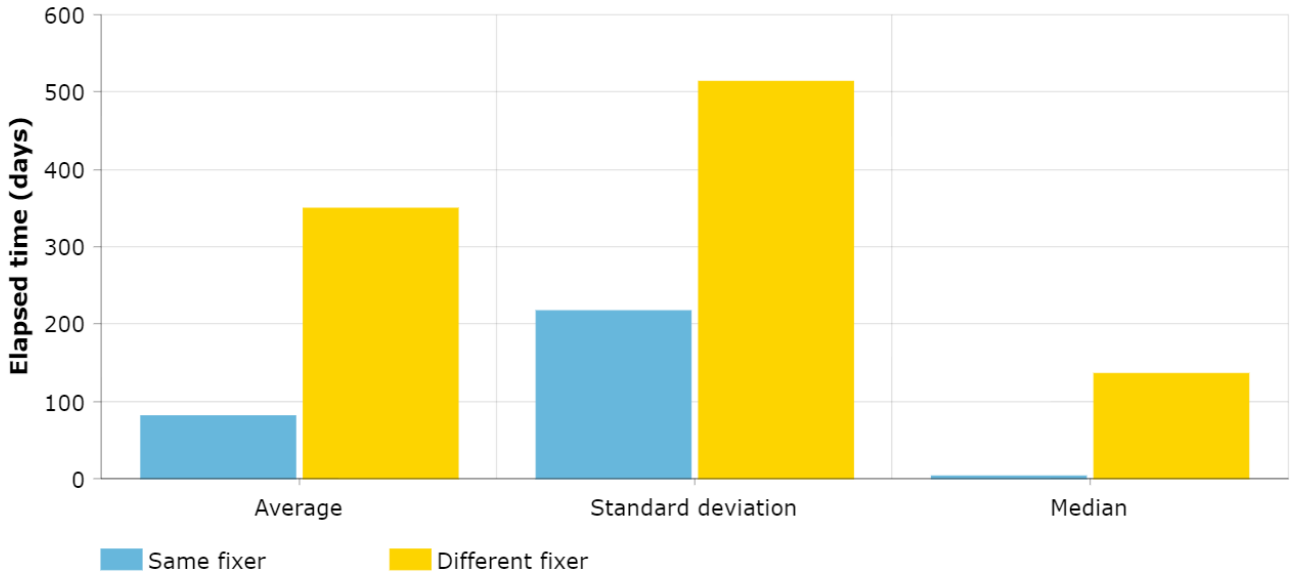

pmd
DON'T SHOOT THE MESSENGER
pmd flag search
ManySStuBs4J
Commit source search
Source commits for each sstub
Results
Git information processing
Section A
Section B

Results

- **RQ1**: Are SStuBs more likely to occur in code that is modified by multiple developers?
  - The SStuBs typically appear more in larger chunks of code written by the *same developer*
- **RQ2**: Are SStuBs more likely to appear in newly added or modified code blocks?
  - Most SStuBs are added in the *same commit as their neighboring lines*
- **RQ4**: Can PMD flag SStuB lines as error prone?
  - Lines with SStuBs are *not* considered *error prone by PMD*

Results – RQ3

- **RQ3**: How long does it take to fix a SStuBs, do authors notice their own mistakes faster?
- SStuB fixes take too long
- Quickly noticed by the same developer who introduced them



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Thank you for your attention!

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https://github.com/MBalazs8796/MSR2021_LifeCycle