PySStuBs: Characterizing Single-Statement Bugs in Popular Open-Source Python Projects

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Single-statement bugs\(^1\) harm developer productivity

\(^1\)Also known as Simple Stupid Bugs (SSStuBs)
There is still little knowledge about SStuBs in different environments

Karampatsis and Sutton²

Java

Maven

This study

Python

²How often do single-statement bugs occur? The ManySStuBs4J dataset, MSR 2020
We gathered data from popular Python projects on GitHub.
We identify SSstuBs in Python code using Abstract Syntax Trees (ASTs)
We found 20 different SSuB patterns in Python projects.
Many of the SStuBs we identified relate to Python’s dynamic typing system.

Changing the value assigned to a variable

```
number = "1"  number = 1
```

Adding a function around an expression

```
number = "1"  number = int("1")
```
Our dataset is publicly available online!³

PySSStuBs

73k SSStuBs!

20 SSStuB patterns!

1,000 Python projects!

³https://zenodo.org/record/4589607#.YJLOTaKYVhE