



Automatic Test Assertion Generator

a time-saving tool for software development

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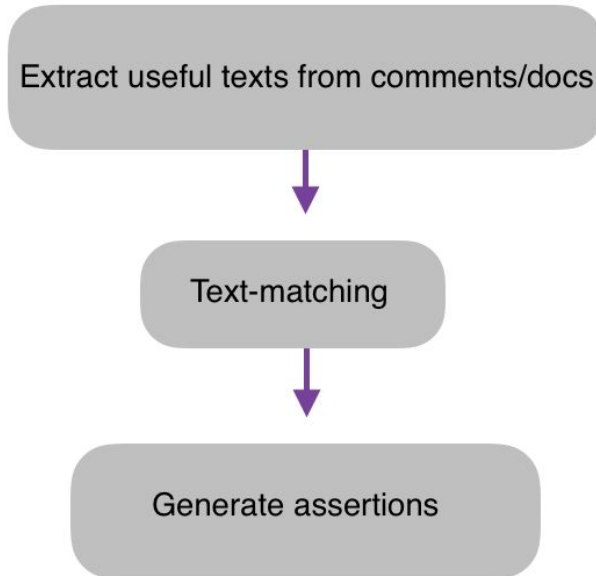
Motivation

Test assertions:
important but time-consuming

Automatically generating test
assertion:
dramatically cut down the cost of
software engineering

Underlying Technologies And Approaches

Natural-Language Processing





Example

```
1  /* check whether the block has already been allocated
2  | throw CannotWriteException if the block has not been allocated yet
3  */
4  public void checkAllocated(Block b) {...}
5
6
7  public void test() {
8      Block testB = new Block();
9      if (!testB.isAllocated()) {
10         try {
11             testB.checkAllocated();
12             error("CannotWriteException not thrown");
13         } catch (CannotWriteException e) {
14             // successfully throw exception
15         }
16     } else {
17         testB.checkAllocated();
18         // should not throw exception here
19     }
20 }
```



Current Solution and Its Limitations

Toradocu

- Translate Java comments into test assertions
- Matching texts in the Javadoc comments with method and variable names
- Still need to improve in correctness
- Only detect @tagged descriptions for exceptional behaviors

Our Tool [EXTENSION]

- Looking at the docs of methods and variables for text-matching
- Detect descriptions in natural language for exceptional behaviors
- Better correctness