Static Code Analysis

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Static Code Analysis

Static code (or program) analysis is the analysis of computer software that is performed without actually executing programs.

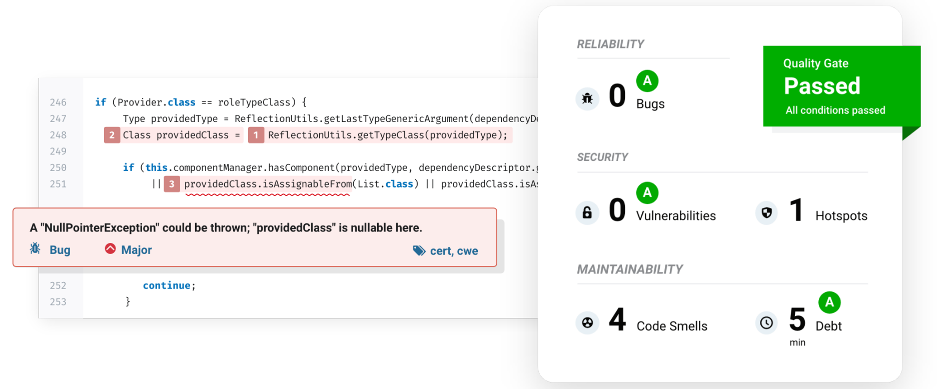
- Identification of coding errors
- Individuation of duplicated code
- Computation of software metrics
- Formal methods (e.g., Hoare logic, Model Checking)

```
//is the element inside the visible window?
var a = w.scrollLeft();
var b = w.scrollTop();
var o = t.offset();
var x = o.left;
var y = o.top;

var ax = settings.accX;
var ay = settings.accY;
var th = t.height();
var wh = w.height();
var tw = t.width();
var ww = w.width();

if (y + th + ay >= b &&
    y <= b + wh + ay &&
    x + tw + ax >= a &&
    x <= a + ww + ax) {

        //trigger the custom event
        if (!t.appeared) t.trigger('appear', settings.data);

    } else {

        //it scrolled out of view
        t.appeared = false;
    }
};

//create a modified fn with some additional logic
var modifiedFn = function() {

    //mark the element as visible
    t.appeared = true;

    //is this supposed to happen only once?
    if (settings.one) {

        //remove the check
```

Automated Tools

Automated tools that perform static code analysis can identify issues that reduce code readability, maintainability, quality.

- IDE code inspection functionalities (e.g., IntelliJ Idea)
- SonarQube



```
if (Provider.class == roleTypeClass) {
    Type providedType = ReflectionUtils.getLastTypeGenericArgument(dependencyDe
    Class providedClass = ReflectionUtils.getTypeClass(providedType);

    if (this.componentManager.hasComponent(providedType, dependencyDescriptor.g
        || providedClass.isAssignableFrom(List.class) || providedClass.isAs
```

A "NullPointerException" could be thrown; "providedClass" is nullable here.

```
            continue;
        }
```