



Static Code Analysis



Dario Campagna

Head of Research and Development

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)

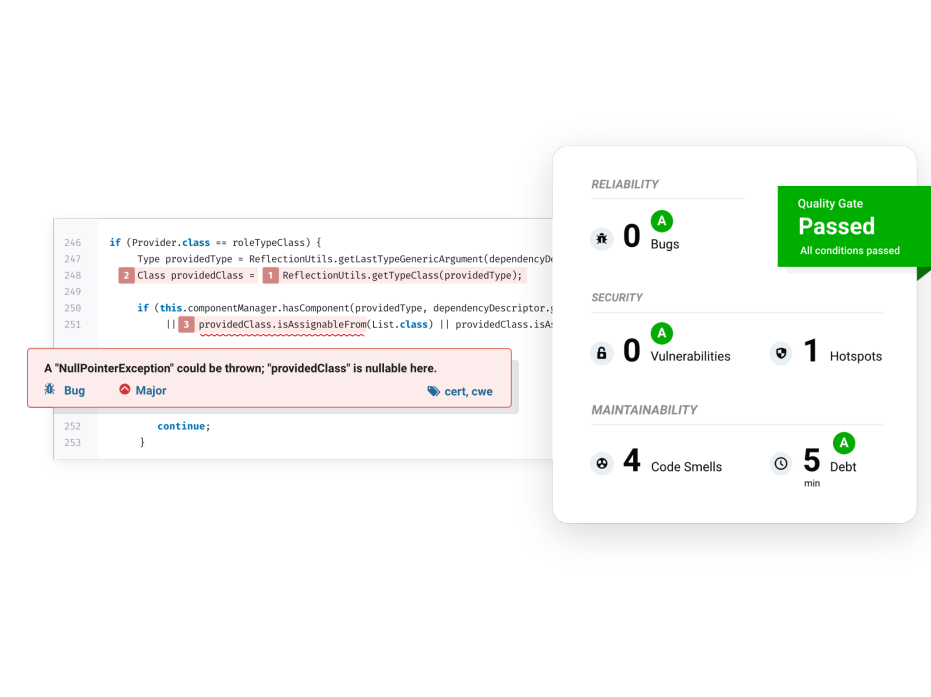
```
59 //is the element inside the visible window?
60 var a = w.scrollLeft();
61 var b = w.scrollTop();
62 var o = t.offset();
63 var x = o.left;
64 var y = o.top;
65
66 var ax = settings.accX;
67 var ay = settings.accY;
68 var th = t.height();
69 var wh = w.height();
70 var tw = t.width();
71 var ww = w.width();
72
73 if (y + th + ay >= b &&
74     y <= b + wh + ay &&
75     x + tw + ax >= a &&
76     x <= a + ww + ax) {
77     //trigger the custom event
78     if (!t.appeared) t.trigger('appear', settings.data);
79
80 } else {
81     //it scrolled out of view
82     t.appeared = false;
83 }
84 };
85
86 //create a modified fn with some additional logic
87 var modifiedFn = function() {
88     //mark the element as visible
89     t.appeared = true;
90
91     //is this supposed to happen only once?
92     if (settings.one) {
93         //remove the check
94         t.unbind('scroll', check);
95         t.unbind('scroll', fn.appear.checks);
96     }
97 }
```



Automated Tools

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

- IDE code analysis functionalities (e.g., [IntelliJ inspections](#))
- [SonarQube](#)



Using automated tools for static-code analysis

- Check/select/configure the inspection rules in default profiles/configuration
 - Too restrictive/permissive rules
 - Rules that you prefer to ignore
 - Rules you want to check and are not included
- Review the rule documentation to confirm it checks for the expected conditions
- Use inspection results as a way to uncover information about your code
- Do not fix violations just because they are reported by the tool, take informed decisions
- Maintain the inspection rules

