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Java static code analysis

Unique rules to find Bugs, Vulnerabilities, Security Hotspots, and Code Smells in your JAVA code

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Classes and methods that rely on the default system encoding should not be used

Code Smell

Simple class names should be used

Code Smell

Variables should not be declared before they are relevant

Code Smell

Extensions and implementations should not be redundant

Code Smell

"==" and "!=" should not be used when "equals" is overridden

Code Smell

An abstract class should have both abstract and concrete methods

Code Smell

Sets with elements that are enum values should be replaced with EnumSet

Code Smell

String operations should not rely on the default system locale

Code Smell

Comments should not be located at the end of lines of code

Code Smell

Track uses of "CHECKSTYLE:OFF" suppression comments

Code Smell

Loggers should be "private static final" and should share a naming convention

Code Smell

Empty arrays and collections should be returned instead of null

Analyze your code

Code SmellMajorQuick Fixcert

Returning null instead of an actual array, collection or map forces callers of the method to explicitly test for nullity, making them more complex and less readable.

Moreover, in many cases, null is used as a synonym for empty.

Noncompliant Code Example

```
public static List<Result> getAllResults() {
    return null; // Noncompliant
}

public static Result[] getResults() {
    return null; // Noncompliant
}

public static Map<String, Object> getValues() {
    return null; // Noncompliant
}

public static void main(String[] args) {
    Result[] results = getResults();
    if (results != null) { // Nullity test r
        for (Result result: results) {
            /* ... */
        }
    }

    List<Result> allResults = getAllResults();
    if (allResults != null) { // Nullity test r
        for (Result result: allResults) {
            /* ... */
        }
    }

    Map<String, Object> values = getValues();
    if (values != null) { // Nullity test re
        values.forEach((k, v) -> doSomething(k, v));
    }
}
```





Compliant Solution

```
public static List<Result> getAllResults() {
    return Collections.emptyList(); // Compliant
}

public static Result[] getResults() {
    return new Result[0]; // Compliant
}
```

https://rules.sonarsource.com/java/RSPEC-1168

1/2

Track uses of "NOPMD" suppression comments  Code Smell
Packages should have a javadoc file 'package-info.java'  Code Smell
The members of an interface or class declaration should appear in a pre-defined order  Code Smell
Abstract class names should comply with a naming convention  Code Smell

```
public static Map<String, Object> getValues() {  
    return Collections.emptyMap();           // Compliant  
}  
  
public static void main(String[] args) {  
    for (Result result: getAllResults()) {  
        /* ... */  
    }  
  
    for (Result result: getResults()) {  
        /* ... */  
    }  
  
    getValues().forEach((k, v) -> doSomething(k, v));  
}
```

See

- [CERT, MSC19-C](#). - For functions that return an array, prefer returning an empty array over a null value
- [CERT, MET55-J](#). - Return an empty array or collection instead of a null value for methods that return an array or collection

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