Implementation Smell

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| --- | --- | --- |
| Smell Name | Coding Rule | Tool |
| Missing Default Case | Missing Switch Default | CheckStyle |
| Inconsistent Naming Convention | Local Variable Naming Convention / Local Variable Name | PMD / CheckStyle |
|  | Formal Parameter Naming Convention | PMD |
|  | Method Naming Convention / Method Name | PMD / CheckStyle |
|  | Class Naming Convention | PMD |
|  | GenericsNaming | PMD |
|  | AbbreviationAsWordInName | CheckStyle |
|  | AbstractClassName | CheckStyle |
|  | CatchParameterName | CheckStyle |
|  | ConstantName | CheckStyle |
|  | IllegalIdentifierName | CheckStyle |
| Complex Expression | Simplify Boolean Expression | CheckStyle |
|  | Simplify Conditional | PMD |
|  | Simplify Boolean Return | PMD/CheckStyle |
|  | Simplified Ternary | PMD |
| Duplicate Entity | Redundant Import | CheckStyle |
|  | Redundant Modifier | CheckStyle |
|  | Copy Paste Detector | PMD |
| Misplaced Attributes | Variable Declaration Usage Distance | CheckStyle |
|  | Declaration Order | CheckStyle |
| Improper Alignment | Indentation | CheckStyle |
|  | FileTabCharacter | CheckStyle |
|  | NeedBraces | CheckStyle |
|  | UselessParatheses | PMD |
|  | LeftCurly | CheckStyle |
|  | RightCurly | CheckStyle |
|  | ParenPad | CheckStyle |
|  | MethodParamPad | CheckStyle |
| Incomplete Tasks | Todo Comment | CheckStyle |
| Long Statement | Line Length | CheckStyle |
| Long Method | Method Length / Long Method | CheckStyle / DesigniteJava |
| Long Parameter List | Excessive Parameter List | PMD / DesigniteJava |
| Incomplete Conditional | Empty Control Statement | PMD |
| Empty Catch Block | Empty Catch Block | PMD / CheckStyle |
| Magic Number | Magic Number | CheckStyle |
| Dead Code | Unused Formal Parameter | PMD |
|  | Unused Local Variables | PMD / CheckStyle |
|  | Unused Private Fields | PMD |
|  | Unused Private Method | PMD |
|  | Unused Imports | CheckStyle |
| Redundant Modifier | Redundant Modifier | CheckStyle |
| Empty Block | EmptyBlock | CheckStyle |
| Wrong Resource Handling | Close Resource | PMD |
| Unnecessary Memory Allocation | Avoid Instantiating Objects In Loops | PMD |
| Incomplete Documentation | Comment Required | PMD |
|  | Comment Size | PMD |
|  | Comment Content | PMD |
|  | Javadoc Method | CheckStyle |
|  | Javadoc Type | CheckStyle |
|  | Missing Javadoc Package | CheckStyle |
|  | Javadoc Variable | CheckStyle |

Design Smell

|  |  |  |
| --- | --- | --- |
| God Class | God Class | PMD |
| Data Class | Data Class | PMD |
| Large Class | Too Many Methods | PMD |
|  | Too Many Fields | PMD |
| Law of Demeter | Law of Demeter | PMD |
| High Coupling | Coupling Between Objects | PMD |
|  | Class Fan Out Complexity | CheckStyle |
| Deficient Encapsulation | Visibility Modifier | CheckStyle |
|  | Excessive Public Count | PMD |
|  | Deficient Encapsulation | DesigniteJava |
| Leaky Encapsulation | Final Parameters | CheckStyle |
|  | Final Class | CheckStyle |
|  | Hidden Field | CheckStyle |
| Utility Class | Use Utility Class | PMD |
|  | Hide Utility Class Constructor | CheckStyle |
| Cyclomatic Complexity | Cyclomatic Complexity | PMD |
| Cognitive Complexity | Cognitive Complexity | PMD |
| Broken Hierarchy | Broken Hierarchy | DesigniteJava |
| Broken Modularization | Broken Modularization | DesigniteJava |
| Cyclic Hierarchy | Cyclic Hierarchy | DesigniteJava |
| Cyclically-dependent Modularization | Cyclically-dependent Modularization | DesigniteJava |
| Deep Hierarchy | Deep Hierarchy | DesigniteJava |
| Dependency Cycles between Packages/Subsystems | Dependency Cycles between Packages/Subsystems | DesigniteJava |
| Hub-like Modularization | Hub-like Modularization | DesigniteJava |
| Imperative Abstraction | Imperative Abstraction | DesigniteJava |
| Insufficient Modularization | Insufficient Modularization | DesigniteJava |
| Missing Hierarchy | Missing Hierarchy | DesigniteJava |
| Multifaceted Abstraction | Multifaceted Abstraction | DesigniteJava |
| Multipath Hierarchy | Multipath Hierarchy | DesigniteJava |
| Rebellious Hierarchy | Rebellious Hierarchy | DesigniteJava |
| Unexploited Encapsulation | Unexploited Encapsulation | DesigniteJava |
| Unnecessary Abstraction | Unnecessary Abstraction | DesigniteJava |
| Unutilized Abstraction | Unutilized Abstraction | DesigniteJava |
| Wide Hierarchy | Wide Hierarchy | DesigniteJava |