

Java static code analysis

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

1.	Components should not be vulnerable to intent redirection Vulnerability
2.	XML parsers should not allow inclusion of arbitrary files Vulnerability
3.	HTTP responses should not be vulnerable to session fixation Vulnerability
4.	Extracting archives should not lead to zip slip vulnerabilities Vulnerability
5.	Dynamic code execution should not be vulnerable to injection attacks Vulnerability
6.	NoSQL operations should not be vulnerable to injection attacks Vulnerability
7.	HTTP request redirections should not be open to forging attacks Vulnerability
8.	Deserialization should not be vulnerable to injection attacks Vulnerability
9.	Endpoints should not be vulnerable to reflected cross-site scripting (XSS) attacks Vulnerability
10.	Database queries should not be vulnerable to injection attacks Vulnerability
11.	XML parsers should not be vulnerable to XXE attacks Vulnerability
12.	A secure password should be used when connecting to a database Vulnerability
13.	XPath expressions should not be vulnerable to injection attacks Vulnerability
14.	I/O function calls should not be vulnerable to path injection attacks Vulnerability
15.	LDAP queries should not be vulnerable to injection attacks Vulnerability
16.	

	OS commands should not be vulnerable to command injection attacks <u>Vulnerability</u>
17.	"@SpringBootApplication" and "@ComponentScan" should not be used in the default package <u>Bug</u>
18.	"@Controller" classes that use "@SessionAttributes" must call "setComplete" on their "SessionStatus" objects <u>Bug</u>
19.	"wait" should not be called when multiple locks are held <u>Bug</u>
20.	"PreparedStatement" and "ResultSet" methods should be called with valid indices <u>Bug</u>
21.	Files opened in append mode should not be used with ObjectOutputStream <u>Bug</u>
22.	"wait(...)" should be used instead of "Thread.sleep(...)" when a lock is held <u>Bug</u>
23.	Printf-style format strings should not lead to unexpected behavior at runtime <u>Bug</u>
24.	Methods "wait(...)", "notify()" and "notifyAll()" should not be called on Thread instances <u>Bug</u>
25.	Methods should not call same-class methods with incompatible "@Transactional" values <u>Bug</u>
26.	Recursion should not be infinite <u>Bug</u>
27.	Loops should not be infinite <u>Bug</u>
28.	Double-checked locking should not be used <u>Bug</u>
29.	Resources should be closed <u>Bug</u>
30.	Hard-coded credentials are security-sensitive <u>Security Hotspot</u>
31.	Methods returns should not be invariant <u>Code Smell</u>
32.	"ThreadGroup" should not be used <u>Code Smell</u>

33.	"clone" should not be overridden Code Smell
34.	Assertions should be complete Code Smell
35.	Tests should include assertions Code Smell
36.	Silly bit operations should not be performed Code Smell
37.	Child class fields should not shadow parent class fields Code Smell
38.	JUnit test cases should call super methods Code Smell
39.	TestCases should contain tests Code Smell
40.	Short-circuit logic should be used in boolean contexts Code Smell
41.	Methods and field names should not be the same or differ only by capitalization Code Smell
42.	Switch cases should end with an unconditional "break" statement Code Smell
43.	"switch" statements should not contain non-case labels Code Smell
44.	Future keywords should not be used as names Code Smell
45.	Thread suspensions should not be vulnerable to Denial of Service attacks Vulnerability
46.	A new session should be created during user authentication Vulnerability
47.	JWT should be signed and verified with strong cipher algorithms Vulnerability
48.	Cipher algorithms should be robust Vulnerability
49.	Encryption algorithms should be used with secure mode and padding scheme Vulnerability

50.	Server hostnames should be verified during SSL/TLS connections <u>Vulnerability</u>
51.	Insecure temporary file creation methods should not be used <u>Vulnerability</u>
52.	Passwords should not be stored in plain-text or with a fast hashing algorithm <u>Vulnerability</u>
53.	Server certificates should be verified during SSL/TLS connections <u>Vulnerability</u>
54.	Persistent entities should not be used as arguments of "@RequestMapping" methods <u>Vulnerability</u>
55.	"HttpSecurity" URL patterns should be correctly ordered <u>Vulnerability</u>
56.	LDAP connections should be authenticated <u>Vulnerability</u>
57.	Cryptographic keys should be robust <u>Vulnerability</u>
58.	Weak SSL/TLS protocols should not be used <u>Vulnerability</u>
59.	"SecureRandom" seeds should not be predictable <u>Vulnerability</u>
60.	Cipher Block Chaining IVs should be unpredictable <u>Vulnerability</u>
61.	Basic authentication should not be used <u>Vulnerability</u>
62.	Regular expressions should not be vulnerable to Denial of Service attacks <u>Vulnerability</u>
63.	"HttpServletRequest.getRequestSessionId()" should not be used <u>Vulnerability</u>
64.	Hashes should include an unpredictable salt <u>Vulnerability</u>
65.	Calls to methods should not trigger an IllegalArgumentException <u>Bug</u>
66.	Unsupported methods should not be called on some collection implementations <u>Bug</u>

67.	Cast operations should not trigger a <code>ClassCastException</code> Bug
68.	Members ignored during record serialization should not be used Bug
69.	<code>Map "computeIfAbsent()" and "computeIfPresent()"</code> should not be used to add "null" values. Bug
70.	Regex lookahead assertions should not be contradictory Bug
71.	Back references in regular expressions should only refer to capturing groups that are matched before the reference Bug
72.	Regex boundaries should not be used in a way that can never be matched Bug
73.	Regex patterns following a possessive quantifier should not always fail Bug
74.	Regular expressions should be syntactically valid Bug
75.	Assertions comparing incompatible types should not be made Bug
76.	JUnit5 inner test classes should be annotated with <code>@Nested</code> Bug
77.	Only one method invocation is expected when testing checked exceptions Bug
78.	Assertion methods should not be used within the try block of a try-catch catching an <code>Error</code> Bug
79.	Getters and setters should access the expected fields Bug
80.	Zero should not be a possible denominator Bug
81.	Locks should be released Bug
82.	<code>"runFinalizersOnExit"</code> should not be called Bug
83.	

	"ScheduledThreadPoolExecutor" should not have 0 core threads Bug
84.	"Random" objects should be reused Bug
85.	The signature of "finalize()" should match that of "Object.finalize()" Bug
86.	Jump statements should not occur in "finally" blocks Bug
87.	"super.finalize()" should be called at the end of "Object.finalize()" implementations Bug
88.	Using slow regular expressions is security-sensitive Security Hotspot
89.	Using publicly writable directories is security-sensitive Security Hotspot
90.	Using clear-text protocols is security-sensitive Security Hotspot
91.	Accessing Android external storage is security-sensitive Security Hotspot
92.	Receiving intents is security-sensitive Security Hotspot
93.	Broadcasting intents is security-sensitive Security Hotspot
94.	Expanding archive files without controlling resource consumption is security-sensitive Security Hotspot
95.	Configuring loggers is security-sensitive Security Hotspot
96.	Using weak hashing algorithms is security-sensitive Security Hotspot
97.	Using unsafe Jackson deserialization configuration is security-sensitive Security Hotspot
98.	Setting JavaBean properties is security-sensitive Security Hotspot
99.	Disabling CSRF protections is security-sensitive Security Hotspot
100.	

	Using non-standard cryptographic algorithms is security-sensitive Security Hotspot
101.	Using pseudorandom number generators (PRNGs) is security-sensitive Security Hotspot
102.	Mocking all non-private methods of a class should be avoided Code Smell
103.	Empty lines should not be tested with regex MULTILINE flag Code Smell
104.	Methods setUp() and tearDown() should be correctly annotated starting with JUnit4 Code Smell
105.	Class members annotated with "@VisibleForTesting" should not be accessed from production code Code Smell
106.	"String#replace" should be preferred to "String#replaceAll" Code Smell
107.	Derived exceptions should not hide their parents' catch blocks Code Smell
108.	String offset-based methods should be preferred for finding substrings from offsets Code Smell
109.	"default" clauses should be last Code Smell
110.	"equals" method parameters should not be marked "@Nonnull" Code Smell
111.	A conditionally executed single line should be denoted by indentation Code Smell
112.	Conditionals should start on new lines Code Smell
113.	Cognitive Complexity of methods should not be too high Code Smell
114.	Factory method injection should be used in "@Configuration" classes Code Smell
115.	"static" base class members should not be accessed via derived types Code Smell
116.	Instance methods should not write to "static" fields Code Smell

117.	"indexOf" checks should not be for positive numbers Code Smell
118.	Method overrides should not change contracts Code Smell
119.	Whitespace and control characters in literals should be explicit Code Smell
120.	Null should not be returned from a "Boolean" method Code Smell
121.	Classes should not access their own subclasses during initialization Code Smell
122.	"Object.wait(...)" and "Condition.await(...)" should be called inside a "while" loop Code Smell
123.	IllegalMonitorStateException should not be caught Code Smell
124.	JUnit assertions should not be used in "run" methods Code Smell
125.	Class names should not shadow interfaces or superclasses Code Smell
126.	"Cloneables" should implement "clone" Code Smell
127.	Try-with-resources should be used Code Smell
128.	"readResolve" methods should be inheritable Code Smell
129.	"for" loop increment clauses should modify the loops' counters Code Smell
130.	Fields in a "Serializable" class should either be transient or serializable Code Smell
131.	Package declaration should match source file directory Code Smell
132.	Generic wildcard types should not be used in return types Code Smell
133.	"switch" statements should have "default" clauses Code Smell

134.	Execution of the Garbage Collector should be triggered only by the JVM Code Smell
135.	Constants should not be defined in interfaces Code Smell
136.	String literals should not be duplicated Code Smell
137.	Methods should not be empty Code Smell
138.	"Object.finalize()" should remain protected (versus public) when overriding Code Smell
139.	Exceptions should not be thrown in finally blocks Code Smell
140.	Constant names should comply with a naming convention Code Smell
141.	The Object.finalize() method should not be overridden Code Smell
142.	XML operations should not be vulnerable to injection attacks Vulnerability
143.	JSON operations should not be vulnerable to injection attacks Vulnerability
144.	XML signatures should be validated securely Vulnerability
145.	XML parsers should not be vulnerable to Denial of Service attacks Vulnerability
146.	XML parsers should not load external schemas Vulnerability
147.	Mobile database encryption keys should not be disclosed Vulnerability
148.	Reflection should not be vulnerable to injection attacks Vulnerability
149.	Authorizations should be based on strong decisions Vulnerability
150.	OpenSAML2 should be configured to prevent authentication bypass Vulnerability

151.	Server-side requests should not be vulnerable to forging attacks Vulnerability
152.	Collections should not be modified while they are iterated Bug
153.	Equals method should be overridden in records containing array fields Bug
154.	Reflection should not be used to increase accessibility of records' fields Bug
155.	AssertJ assertions with "Consumer" arguments should contain assertion inside consumers Bug
156.	The regex escape sequence \cX should only be used with characters in the @_ _ range Bug
157.	Regular expressions should not overflow the stack Bug
158.	Tests method should not be annotated with competing annotations Bug
159.	Assertions should not be used in production code Bug
160.	DateTimeFormatters should not use mismatched year and week numbers Bug
161.	Unicode Grapheme Clusters should be avoided inside regex character classes Bug
162.	Case insensitive Unicode regular expressions should enable the "UNICODE_CASE" flag Bug
163.	Assertions should not compare an object to itself Bug
164.	Regex alternatives should not be redundant Bug
165.	Alternatives in regular expressions should be grouped when used with anchors Bug
166.	AssertJ methods setting the assertion context should come before an assertion Bug
167.	AssertJ configuration should be applied

	Bug
168.	JUnit5 test classes and methods should not be silently ignored Bug
169.	"ThreadLocal" variables should be cleaned up when no longer used Bug
170.	Strings and Boxed types should be compared using "equals()" Bug
171.	InputStream.read() implementation should not return a signed byte Bug
172.	"compareTo" should not be overloaded Bug
173.	"iterator" should not return "this" Bug
174.	Map values should not be replaced unconditionally Bug
175.	Week Year ("YYYY") should not be used for date formatting Bug
176.	Exceptions should not be created without being thrown Bug
177.	Collection sizes and array length comparisons should make sense Bug
178.	Consumed Stream pipelines should not be reused Bug
179.	Intermediate Stream methods should not be left unused Bug
180.	All branches in a conditional structure should not have exactly the same implementation Bug
181.	Optional value should only be accessed after calling isPresent() Bug
182.	Overrides should match their parent class methods in synchronization Bug
183.	Value-based classes should not be used for locking Bug
184.	Expressions used in "assert" should not produce side effects

	Bug
185.	"volatile" variables should not be used with compound operators Bug
186.	"getClass" should not be used for synchronization Bug
187.	Min and max used in combination should not always return the same value Bug
188.	Assignment of lazy-initialized members should be the last step with double-checked locking Bug
189.	"String" calls should not go beyond their bounds Bug
190.	Raw byte values should not be used in bitwise operations in combination with shifts Bug
191.	Getters and setters should be synchronized in pairs Bug
192.	Non-thread-safe fields should not be static Bug
193.	"null" should not be used with "Optional" Bug
194.	Unary prefix operators should not be repeated Bug
195.	"=+" should not be used instead of "+=" Bug
196.	"read" and "readLine" return values should be used Bug
197.	Inappropriate regular expressions should not be used Bug
198.	Conditionally executed code should be reachable Bug
199.	"notifyAll" should be used Bug
200.	Blocks should be synchronized on "private final" fields Bug
201.	

	Non-serializable objects should not be stored in "HttpSession" objects Bug
202.	"wait", "notify" and "notifyAll" should only be called when a lock is obviously held on an object Bug
203.	Null pointers should not be dereferenced Bug
204.	Loop conditions should be true at least once Bug
205.	A "for" loop update clause should move the counter in the right direction Bug
206.	Non-public methods should not be "@Transactional" Bug
207.	Servlets should not have mutable instance fields Bug
208.	"toString()" and "clone()" methods should not return null Bug
209.	".equals()" should not be used to test the values of "Atomic" classes Bug
210.	Return values from functions without side effects should not be ignored Bug
211.	Child class methods named for parent class methods should be overrides Bug
212.	Inappropriate "Collection" calls should not be made Bug
213.	Silly equality checks should not be made Bug
214.	Dissimilar primitive wrappers should not be used with the ternary operator without explicit casting Bug
215.	"InterruptedException" should not be ignored Bug
216.	Classes extending java.lang.Thread should override the "run" method Bug
217.	"Double.longBitsToDouble" should not be used for "int" Bug

218.	Values should not be uselessly incremented Bug
219.	Silly String operations should not be made Bug
220.	Non-serializable classes should not be written Bug
221.	"hashCode" and "toString" should not be called on array instances Bug
222.	Collections should not be passed as arguments to their own methods Bug
223.	"BigDecimal(double)" should not be used Bug
224.	Invalid "Date" values should not be used Bug
225.	Reflection should not be used to check non-runtime annotations Bug
226.	Custom serialization method signatures should meet requirements Bug
227.	"Externalizable" classes should have no-arguments constructors Bug
228.	Classes should not be compared by name Bug
229.	Related "if/else if" statements should not have the same condition Bug
230.	Synchronization should not be done on instances of value-based classes Bug
231.	"Iterator.hasNext()" should not call "Iterator.next()" Bug
232.	Identical expressions should not be used on both sides of a binary operator Bug
233.	Loops with at most one iteration should be refactored Bug
234.	Variables should not be self-assigned Bug

235.	"StringBuilder" and "StringBuffer" should not be instantiated with a character Bug
236.	Methods should not be named "toString", "hashCode" or "equal" Bug
237.	"Thread.run()" should not be called directly Bug
238.	"equals" method overrides should accept "Object" parameters Bug
239.	The Object.finalize() method should not be called Bug
240.	Enabling file access for WebViews is security-sensitive Security Hotspot
241.	Enabling JavaScript support for WebViews is security-sensitive Security Hotspot
242.	Constructing arguments of system commands from user input is security-sensitive Security Hotspot
243.	Using unencrypted files in mobile applications is security-sensitive Security Hotspot
244.	Using biometric authentication without a cryptographic solution is security-sensitive Security Hotspot
245.	Using unencrypted databases in mobile applications is security-sensitive Security Hotspot
246.	Authorizing non-authenticated users to use keys in the Android KeyStore is security-sensitive Security Hotspot
247.	Allowing user enumeration is security-sensitive Security Hotspot
248.	Allowing requests with excessive content length is security-sensitive Security Hotspot
249.	Disabling auto-escaping in template engines is security-sensitive Security Hotspot
250.	Allowing deserialization of LDAP objects is security-sensitive Security Hotspot
251.	Setting loose POSIX file permissions is security-sensitive

	Security Hotspot
252.	Formatting SQL queries is security-sensitive Security Hotspot
253.	Deprecated annotations should include explanations Code Smell
254.	Restricted Identifiers should not be used as Identifiers Code Smell
255.	Redundant constructors/methods should be avoided in records Code Smell
256.	Records should be used instead of ordinary classes when representing immutable data structure Code Smell
257.	"Stream.toList()" method should be used instead of "collectors" when unmodifiable list needed Code Smell
258.	Operator "instanceof" should be used instead of "A.class.isInstance()" Code Smell
259.	String multiline concatenation should be replaced with Text Blocks Code Smell
260.	Single-character alternations in regular expressions should be replaced with character classes Code Smell
261.	Reluctant quantifiers in regular expressions should be followed by an expression that can't match the empty string Code Smell
262.	Constructors of an "abstract" class should not be declared "public" Code Smell
263.	Similar tests should be grouped in a single Parameterized test Code Smell
264.	Tests should be stable Code Smell
265.	Test methods should not contain too many assertions Code Smell
266.	AssertJ "assertThatThrownBy" should not be used alone Code Smell
267.	Character classes in regular expressions should not contain the same character twice

	Code Smell
268.	Names of regular expressions named groups should be used Code Smell
269.	Regexes containing characters subject to normalization should use the CANON_EQ flag Code Smell
270.	Regular expressions should not be too complicated Code Smell
271.	JUnit assertTrue/assertFalse should be simplified to the corresponding dedicated assertion Code Smell
272.	Only one method invocation is expected when testing runtime exceptions Code Smell
273.	Exception testing via JUnit ExpectedException rule should not be mixed with other assertions Code Smell
274.	"@Deprecated" code marked for removal should never be used Code Smell
275.	Vararg method arguments should not be confusing Code Smell
276.	Whitespace for text block indent should be consistent Code Smell
277.	'List.remove()' should not be used in ascending 'for' loops Code Smell
278.	Collection constructors should not be used as java.util.function.Function Code Smell
279.	"else" statements should be clearly matched with an "if" Code Smell
280.	"Class.forName()" should not load JDBC 4.0+ drivers Code Smell
281.	Java features should be preferred to Guava Code Smell
282.	Nullness of parameters should be guaranteed Code Smell
283.	"Integer.toHexString" should not be used to build hexadecimal strings Code Smell

284.	Asserts should not be used to check the parameters of a public method Code Smell
285.	Assignments should not be redundant Code Smell
286.	Methods should not have identical implementations Code Smell
287.	"java.nio.Files#delete" should be preferred Code Smell
288.	Unused "private" classes should be removed Code Smell
289.	"Stream.peek" should be used with caution Code Smell
290.	"Map.get" and value test should be replaced with single method call Code Smell
291.	"@RequestMapping" methods should not be "private" Code Smell
292.	Raw types should not be used Code Smell
293.	"Arrays.stream" should be used for primitive arrays Code Smell
294.	Printf-style format strings should be used correctly Code Smell
295.	Assertion arguments should be passed in the correct order Code Smell
296.	Ternary operators should not be nested Code Smell
297.	"writeObject" should not be the only "synchronized" code in a class Code Smell
298.	Reflection should not be used to increase accessibility of classes, methods, or fields Code Smell
299.	Static fields should not be updated in constructors Code Smell
300.	"Thread.sleep" should not be used in tests Code Smell

301.	"entrySet()" should be iterated when both the key and value are needed Code Smell
302.	"DateUtils.truncate" from Apache Commons Lang library should not be used Code Smell
303.	Multiline blocks should be enclosed in curly braces Code Smell
304.	"readObject" should not be "synchronized" Code Smell
305.	"Preconditions" and logging arguments should not require evaluation Code Smell
306.	Boolean expressions should not be gratuitous Code Smell
307.	"Lock" objects should not be "synchronized" Code Smell
308.	Classes with only "static" methods should not be instantiated Code Smell
309.	"Threads" should not be used where "Runnables" are expected Code Smell
310.	Inner class calls to super class methods should be unambiguous Code Smell
311.	Unused type parameters should be removed Code Smell
312.	Parameters should be passed in the correct order Code Smell
313.	"ResultSet.isLast()" should not be used Code Smell
314.	"static" members should be accessed statically Code Smell
315.	Silly math should not be performed Code Smell
316.	Classes named like "Exception" should extend "Exception" or a subclass Code Smell
317.	Exceptions should be either logged or rethrown but not both Code Smell

318.	Objects should not be created only to "getClass" Code Smell
319.	Primitives should not be boxed just for "String" conversion Code Smell
320.	Constructors should not be used to instantiate "String", "BigInteger", "BigDecimal" and primitive-wrapper classes Code Smell
321.	"URL.hashCode" and "URL.equals" should be avoided Code Smell
322.	Two branches in a conditional structure should not have exactly the same implementation Code Smell
323.	Unused assignments should be removed Code Smell
324.	"Object.wait(...)" should never be called on objects that implement "java.util.concurrent.locks.Condition" Code Smell
325.	A field should not duplicate the name of its containing class Code Smell
326.	JUnit4 @Ignored and JUnit5 @Disabled annotations should be used to disable tests and should provide a rationale Code Smell
327.	Anonymous inner classes containing only one method should become lambdas Code Smell
328.	"switch" statements should not have too many "case" clauses Code Smell
329.	"for" loop stop conditions should be invariant Code Smell
330.	Sections of code should not be commented out Code Smell
331.	Non-constructor methods should not have the same name as the enclosing class Code Smell
332.	Exception types should not be tested using "instanceof" in catch blocks Code Smell
333.	Classes from "sun.*" packages should not be used Code Smell

334.	Throwable and Error should not be caught Code Smell
335.	Unused method parameters should be removed Code Smell
336.	Only static class initializers should be used Code Smell
337.	Empty arrays and collections should be returned instead of null Code Smell
338.	"@Override" should be used on overriding and implementing methods Code Smell
339.	Enumeration should not be implemented Code Smell
340.	Synchronized classes Vector, Hashtable, Stack and StringBuffer should not be used Code Smell
341.	Unused "private" methods should be removed Code Smell
342.	Try-catch blocks should not be nested Code Smell
343.	Track uses of "FIXME" tags Code Smell
344.	Deprecated elements should have both the annotation and the Javadoc tag Code Smell
345.	Assignments should not be made from within sub-expressions Code Smell
346.	Generic exceptions should never be thrown Code Smell
347.	Labels should not be used Code Smell
348.	Utility classes should not have public constructors Code Smell
349.	Local variables should not shadow class fields Code Smell
350.	Redundant pairs of parentheses should be removed Code Smell

351.	Inheritance tree of classes should not be too deep Code Smell
352.	Nested blocks of code should not be left empty Code Smell
353.	Methods should not have too many parameters Code Smell
354.	Unused "private" fields should be removed Code Smell
355.	Collapsible "if" statements should be merged Code Smell
356.	Unused labels should be removed Code Smell
357.	Standard outputs should not be used directly to log anything Code Smell
358.	OS commands should not be vulnerable to argument injection attacks Vulnerability
359.	"ActiveMQConnectionFactory" should not be vulnerable to malicious code deserialization Vulnerability
360.	Logging should not be vulnerable to injection attacks Vulnerability
361.	Exceptions should not be thrown from servlet methods Vulnerability
362.	Return values should not be ignored when they contain the operation status code Bug
363.	Repeated patterns in regular expressions should not match the empty string Bug
364.	AssertJ assertions "allMatch" and "doesNotContains" should also test for emptiness Bug
365.	Double Brace Initialization should not be used Bug
366.	Non-primitive fields should not be "volatile" Bug
367.	"toArray" should be passed an array of the proper type Bug

368.	Neither "Math.abs" nor negation should be used on numbers that could be "MIN_VALUE" Bug
369.	The value returned from a stream read should be checked Bug
370.	"@NonNull" values should not be set to null Bug
371.	"Iterator.next()" methods should throw "NoSuchElementException" Bug
372.	"compareTo" results should not be checked for specific values Bug
373.	Math operands should be cast before assignment Bug
374.	Ints and longs should not be shifted by zero or more than their number of bits-1 Bug
375.	"compareTo" should not return "Integer.MIN_VALUE" Bug
376.	Boxing and unboxing should not be immediately reversed Bug
377.	"equals(Object obj)" should test argument type Bug
378.	"Serializable" inner classes of non-serializable classes should be "static" Bug
379.	The non-serializable super class of a "Serializable" class should have a no-argument constructor Bug
380.	Method parameters, caught exceptions and foreach variables' initial values should not be ignored Bug
381.	"equals(Object obj)" and "hashCode()" should be overridden in pairs Bug
382.	Disclosing fingerprints from web application technologies is security-sensitive Security Hotspot
383.	Having a permissive Cross-Origin Resource Sharing policy is security-sensitive Security Hotspot
384.	

	Delivering code in production with debug features activated is security-sensitive Security Hotspot
385.	Searching OS commands in PATH is security-sensitive Security Hotspot
386.	Allowing both safe and unsafe HTTP methods is security-sensitive Security Hotspot
387.	Creating cookies without the "HttpOnly" flag is security-sensitive Security Hotspot
388.	Creating cookies without the "secure" flag is security-sensitive Security Hotspot
389.	Using hardcoded IP addresses is security-sensitive Security Hotspot
390.	'serialVersionUID' field should not be set to '0L' in records Code Smell
391.	Permitted types of a sealed class should be omitted if they are declared in the same file Code Smell
392.	Switch arrow labels should not use redundant keywords Code Smell
393.	Text blocks should not be used in complex expressions Code Smell
394.	Pattern Matching for "instanceof" operator should be used instead of simple "instanceof" + cast Code Smell
395.	Call to Mockito method "verify", "when" or "given" should be simplified Code Smell
396.	Character classes should be preferred over reluctant quantifiers in regular expressions Code Smell
397.	Consecutive AssertJ "assertThat" statements should be chained Code Smell
398.	Chained AssertJ assertions should be simplified to the corresponding dedicated assertion Code Smell
399.	Exception testing via JUnit @Test annotation should be avoided Code Smell
400.	Escape sequences should not be used in text blocks Code Smell

401.	Simple string literal should be used for single line strings Code Smell
402.	Boxed "Boolean" should be avoided in boolean expressions Code Smell
403.	Type parameters should not shadow other type parameters Code Smell
404.	"read(byte[],int,int)" should be overridden Code Smell
405.	An iteration on a Collection should be performed on the type handled by the Collection Code Smell
406.	"StandardCharsets" constants should be preferred Code Smell
407.	"@CheckForNull" or "@Nullable" should not be used on primitive types Code Smell
408.	Composed "@RequestMapping" variants should be preferred Code Smell
409.	"write(byte[],int,int)" should be overridden Code Smell
410.	Functional Interfaces should be as specialised as possible Code Smell
411.	Null checks should not be used with "instanceof" Code Smell
412.	"close()" calls should not be redundant Code Smell
413.	"ThreadLocal.withInitial" should be preferred Code Smell
414.	"Stream" call chains should be simplified when possible Code Smell
415.	Packages containing only "package-info.java" should be removed Code Smell
416.	Arrays should not be created for varargs parameters Code Smell
417.	Jump statements should not be redundant Code Smell

418.	Test classes should comply with a naming convention Code Smell
419.	Loggers should be named for their enclosing classes Code Smell
420.	Methods should not return constants Code Smell
421.	"private" methods called only by inner classes should be moved to those classes Code Smell
422.	"enum" fields should not be publicly mutable Code Smell
423.	Abstract methods should not be redundant Code Smell
424.	Arrays should not be copied using loops Code Smell
425.	Static non-final field names should comply with a naming convention Code Smell
426.	JUnit rules should be used Code Smell
427.	Nested "enum"s should not be declared static Code Smell
428.	"catch" clauses should do more than rethrow Code Smell
429.	Mutable fields should not be "public static" Code Smell
430.	The diamond operator ("<>") should be used Code Smell
431.	"finalize" should not set fields to "null" Code Smell
432.	Subclasses that add fields should override "equals" Code Smell
433.	Catches should be combined Code Smell
434.	Methods of "Random" that return floating point values should not be used in random integer generation

	Code Smell
435.	
	Parsing should be used to convert "Strings" to primitives Code Smell
436.	
	Classes should not be empty Code Smell
437.	
	Fields in non-serializable classes should not be "transient" Code Smell
438.	
	Boolean checks should not be inverted Code Smell
439.	
	Redundant casts should not be used Code Smell
440.	
	"@Deprecated" code should not be used Code Smell
441.	
	"toString()" should never be called on a String object Code Smell
442.	
	Annotation repetitions should not be wrapped Code Smell
443.	
	Multiple variables should not be declared on the same line Code Smell
444.	
	Strings should not be concatenated using '+' in a loop Code Smell
445.	
	Maps with keys that are enum values should be replaced with EnumMap Code Smell
446.	
	Lambdas should be replaced with method references Code Smell
447.	
	Parentheses should be removed from a single lambda input parameter when its type is inferred Code Smell
448.	
	Abstract classes without fields should be converted to interfaces Code Smell
449.	
	Lambdas containing only one statement should not nest this statement in a block Code Smell
450.	
	"Collections.EMPTY_LIST", "EMPTY_MAP", and "EMPTY_SET" should not be used Code Smell
451.	

	Local variables should not be declared and then immediately returned or thrown Code Smell
452.	Unused local variables should be removed Code Smell
453.	Private fields only used as local variables in methods should become local variables Code Smell
454.	"public static" fields should be constant Code Smell
455.	Loops should not contain more than a single "break" or "continue" statement Code Smell
456.	Declarations should use Java collection interfaces such as "List" rather than specific implementation classes such as "LinkedList" Code Smell
457.	"switch" statements should have at least 3 "case" clauses Code Smell
458.	A "while" loop should be used instead of a "for" loop Code Smell
459.	The default unnamed package should not be used Code Smell
460.	"equals(Object obj)" should be overridden along with the "compareTo(T obj)" method Code Smell
461.	Package names should comply with a naming convention Code Smell
462.	Nested code blocks should not be used Code Smell
463.	Array designators "[]" should be on the type, not the variable Code Smell
464.	Array designators "[]" should be located after the type in method signatures Code Smell
465.	Type parameter names should comply with a naming convention Code Smell
466.	Overriding methods should do more than simply call the same method in the super class Code Smell
467.	Classes that override "clone" should be "Cloneable" and call "super.clone()" Code Smell

468.	Public constants and fields initialized at declaration should be "static final" rather than merely "final" Code Smell
469.	Local variable and method parameter names should comply with a naming convention Code Smell
470.	Exception classes should be immutable Code Smell
471.	Field names should comply with a naming convention Code Smell
472.	Primitive wrappers should not be instantiated only for "toString" or "compareTo" calls Code Smell
473.	Case insensitive string comparisons should be made without intermediate upper or lower casing Code Smell
474.	Collection.isEmpty() should be used to test for emptiness Code Smell
475.	String.valueOf() should not be appended to a String Code Smell
476.	Interface names should comply with a naming convention Code Smell
477.	"throws" declarations should not be superfluous Code Smell
478.	Unnecessary imports should be removed Code Smell
479.	Return of boolean expressions should not be wrapped into an "if-then-else" statement Code Smell
480.	Boolean literals should not be redundant Code Smell
481.	Modifiers should be declared in the correct order Code Smell
482.	Empty statements should be removed Code Smell
483.	Class variable fields should not have public accessibility Code Smell
484.	

	URIs should not be hardcoded Code Smell
485.	
	Class names should comply with a naming convention Code Smell
486.	
	Method names should comply with a naming convention Code Smell
487.	
	Comma-separated labels should be used in Switch with colon case Code Smell
488.	
	JUnit5 test classes and methods should have default package visibility Code Smell
489.	
	Track uses of "TODO" tags Code Smell
490.	
	Deprecated code should be removed Code Smell
491.	
	Annotated Mockito objects should be initialized Bug
492.	
	Custom resources should be closed Bug
493.	
	Threads should not be started in constructors Code Smell
494.	
	"main" should not "throw" anything Code Smell
495.	
	Track lack of copyright and license headers Code Smell
496.	
	Octal values should not be used Code Smell
497.	
	Exit methods should not be called Code Smell
498.	
	HTTP response headers should not be vulnerable to injection attacks Vulnerability
499.	
	Members of Spring components should be injected Vulnerability
500.	
	Classes should not be loaded dynamically Vulnerability
501.	

	Equality operators should not be used in "for" loop termination conditions Code Smell
502.	"Bean Validation" (JSR 380) should be properly configured Code Smell
503.	Spring beans should be considered by "@ComponentScan" Code Smell
504.	Number patterns should be regular Code Smell
505.	Lazy initialization of "static" fields should be "synchronized" Code Smell
506.	Wildcard imports should not be used Code Smell
507.	Modulus results should not be checked for direct equality Code Smell
508.	Comparators should be "Serializable" Code Smell
509.	"Serializable" classes should have a "serialVersionUID" Code Smell
510.	"switch" statements and expressions should not be nested Code Smell
511.	Constructors should only call non-overridable methods Code Smell
512.	Methods should not be too complex Code Smell
513.	Control flow statements "if", "for", "while", "switch" and "try" should not be nested too deeply Code Smell
514.	"if ... else if" constructs should end with "else" clauses Code Smell
515.	Control structures should use curly braces Code Smell
516.	Expressions should not be too complex Code Smell
517.	Mockito argument matchers should be used on all parameters Bug

518.	Spring "@Controller" classes should not use "@Scope" Bug
519.	Constructor injection should be used instead of field injection Bug
520.	Classes that don't define "hashCode()" should not be used in hashes Bug
521.	Floating point numbers should not be tested for equality Bug
522.	Increment (++) and decrement (--) operators should not be used in a method call or mixed with other operators in an expression Code Smell
523.	Limited dependence should be placed on operator precedence Code Smell
524.	Custom getter method should not be used to override record's getter behavior Code Smell
525.	Tests should use fixed data instead of randomized data Code Smell
526.	Spring's ModelAndViewAssert assertions should be used instead of other assertions Code Smell
527.	Lambdas should not have too many lines Code Smell
528.	"@EnableAutoConfiguration" should be fine-tuned Code Smell
529.	Enum values should be compared with "==" Code Smell
530.	Spring components should use constructor injection Code Smell
531.	Regex patterns should not be created needlessly Code Smell
532.	Track uses of disallowed constructors Code Smell
533.	Java 8's "Files.exists" should not be used Code Smell
534.	"Optional" should not be used for parameters

	Code Smell
535.	Tests should be kept in a dedicated source directory Code Smell
536.	"this" should not be exposed from constructors Code Smell
537.	Classes should not have too many "static" imports Code Smell
538.	Escaped Unicode characters should not be used Code Smell
539.	Inner classes should not have too many lines of code Code Smell
540.	Inner classes which do not reference their owning classes should be "static" Code Smell
541.	"deleteOnExit" should not be used Code Smell
542.	Public methods should not contain selector arguments Code Smell
543.	Java parser failure Code Smell
544.	Track uses of disallowed methods Code Smell
545.	Types should be used in lambdas Code Smell
546.	"java.time" classes should be used for dates and times Code Smell
547.	The names of methods with boolean return values should start with "is" or "has" Code Smell
548.	Files should contain only one top-level class or interface each Code Smell
549.	Classes should not have too many fields Code Smell
550.	The ternary operator should not be used Code Smell
551.	Standard functional interfaces should not be redefined

	Code Smell
552.	"NullPointerException" should not be caught Code Smell
553.	"NullPointerException" should not be explicitly thrown Code Smell
554.	Classes should not have too many methods Code Smell
555.	Methods should not have too many lines Code Smell
556.	Track uses of "NOSONAR" comments Code Smell
557.	Classes and enums with private members should have a constructor Code Smell
558.	Track comments matching a regular expression Code Smell
559.	Statements should be on separate lines Code Smell
560.	Classes should not be coupled to too many other classes (Single Responsibility Principle) Code Smell
561.	"java.lang.Error" should not be extended Code Smell
562.	Anonymous classes should not have too many lines Code Smell
563.	Public types, methods and fields (API) should be documented with Javadoc Code Smell
564.	Exception handlers should preserve the original exceptions Code Smell
565.	Checked exceptions should not be thrown Code Smell
566.	Public methods should throw at most one checked exception Code Smell
567.	"switch case" clauses should not have too many lines of code Code Smell
568.	Methods should not have too many return statements

	Code Smell
569.	
	Magic numbers should not be used
	Code Smell
570.	
	Files should not have too many lines of code
	Code Smell
571.	
	Lines should not be too long
	Code Smell
572.	
	JEE applications should not "getClassLoader"
	Bug
573.	
	Math should not be performed on floats
	Bug
574.	
	"equals" methods should be symmetric and work for subclasses
	Bug
575.	
	Literal suffixes should be upper case
	Code Smell
576.	
	Unicode-aware versions of character classes should be preferred
	Code Smell
577.	
	Use Java 12 "switch" expression
	Code Smell
578.	
	"serialVersionUID" should not be declared blindly
	Code Smell
579.	
	"Stream.collect()" calls should not be redundant
	Code Smell
580.	
	Local constants should follow naming conventions for constants
	Code Smell
581.	
	Unit tests should throw exceptions
	Code Smell
582.	
	Test methods should comply with a naming convention
	Code Smell
583.	
	Value-based objects should not be serialized
	Code Smell
584.	
	Default annotation parameter values should not be passed as arguments
	Code Smell
585.	
	Method parameters should be declared with base types

	Code Smell
586.	
	Fields should not be initialized to default values Code Smell
587.	
	Multiple loops over the same set should be combined Code Smell
588.	
	Classes without "public" constructors should be "final" Code Smell
589.	
	Unnecessary semicolons should be omitted Code Smell
590.	
	Literal boolean values and nulls should not be used in assertions Code Smell
591.	
	Test assertions should include messages Code Smell
592.	
	Mutable members should not be stored or returned directly Code Smell
593.	
	Redundant modifiers should not be used Code Smell
594.	
	"private" and "final" methods that don't access instance data should be "static" Code Smell
595.	
	Files should not be empty Code Smell
596.	
	Collection methods with O(n) performance should be used carefully Code Smell
597.	
	"Exception" should not be caught when not required by called methods Code Smell
598.	
	"collect" should be used with "Streams" instead of "list::add" Code Smell
599.	
	Switches should be used for sequences of simple "String" tests Code Smell
600.	
	"final" classes should not have "protected" members Code Smell
601.	
	Underscores should be used to make large numbers readable Code Smell
602.	
	"Serializable" inner classes of "Serializable" classes should be static

	Code Smell
603.	Member variable visibility should be specified Code Smell
604.	Classes and methods that rely on the default system encoding should not be used Code Smell
605.	Simple class names should be used Code Smell
606.	Variables should not be declared before they are relevant Code Smell
607.	Extensions and implementations should not be redundant Code Smell
608.	"==" and "!=" should not be used when "equals" is overridden Code Smell
609.	An abstract class should have both abstract and concrete methods Code Smell
610.	Sets with elements that are enum values should be replaced with EnumSet Code Smell
611.	String operations should not rely on the default system locale Code Smell
612.	Comments should not be located at the end of lines of code Code Smell
613.	Track uses of "CHECKSTYLE:OFF" suppression comments Code Smell
614.	Loggers should be "private static final" and should share a naming convention Code Smell
615.	Track uses of "NOPMD" suppression comments Code Smell
616.	Packages should have a javadoc file 'package-info.java' Code Smell
617.	The members of an interface or class declaration should appear in a pre-defined order Code Smell
618.	Abstract class names should comply with a naming convention Code Smell
619.	Strings literals should be placed on the left side when checking for equality

	<u>Code Smell</u>
620.	Files should contain an empty newline at the end <u>Code Smell</u>
621.	Source code should be indented consistently <u>Code Smell</u>
622.	A close curly brace should be located at the beginning of a line <u>Code Smell</u>
623.	Close curly brace and the next "else", "catch" and "finally" keywords should be on two different lines <u>Code Smell</u>
624.	Close curly brace and the next "else", "catch" and "finally" keywords should be located on the same line <u>Code Smell</u>
625.	An open curly brace should be located at the beginning of a line <u>Code Smell</u>
626.	An open curly brace should be located at the end of a line <u>Code Smell</u>
627.	Tabulation characters should not be used <u>Code Smell</u>
628.	Functions should not be defined with a variable number of arguments <u>Code Smell</u>
629.	Local-Variable Type Inference should be used <u>Code Smell</u>
630.	Migrate your tests from JUnit4 to the new JUnit5 annotations <u>Code Smell</u>
631.	Track uses of disallowed classes <u>Code Smell</u>
632.	Track uses of "@SuppressWarnings" annotations <u>Code Smell</u>