



Departamento de Lenguajes y
Sistemas Informáticos

Uso de SonarCloud

Arquitectura - Práctica 1

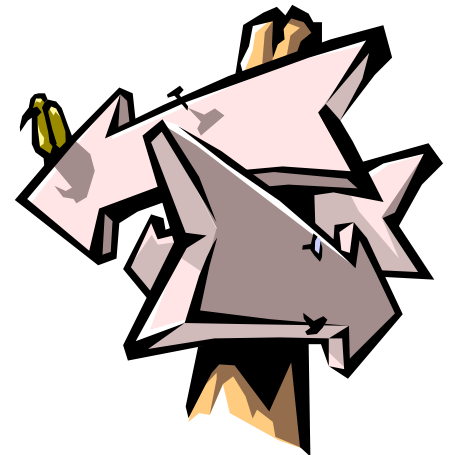


Arquitectura e Integración de Sistemas Software

2020/2021

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Justificación del uso de SonarCloud

- SonarQube soporta diversas opciones de despliegue (Docker, cloud, instalación, etc.)
- Usaremos la versión en la nube SonarCloud, porque:
 - No requiere instalar nada
 - Su uso es gratuito
 - Nos permite acceder a los resultados ubicuamente
 - Las limitaciones de usar solo proyectos públicos y la rama máster no son un impedimento

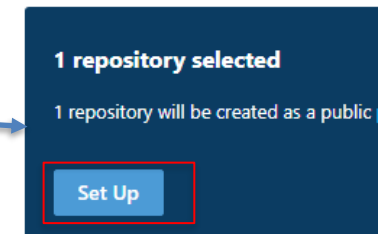
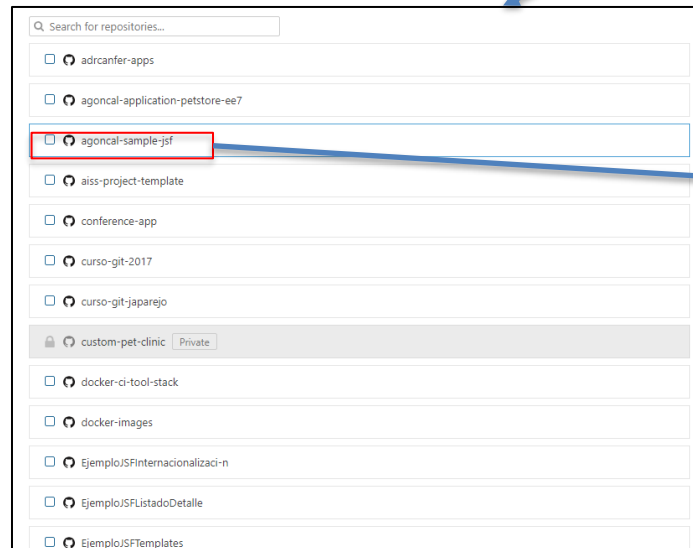
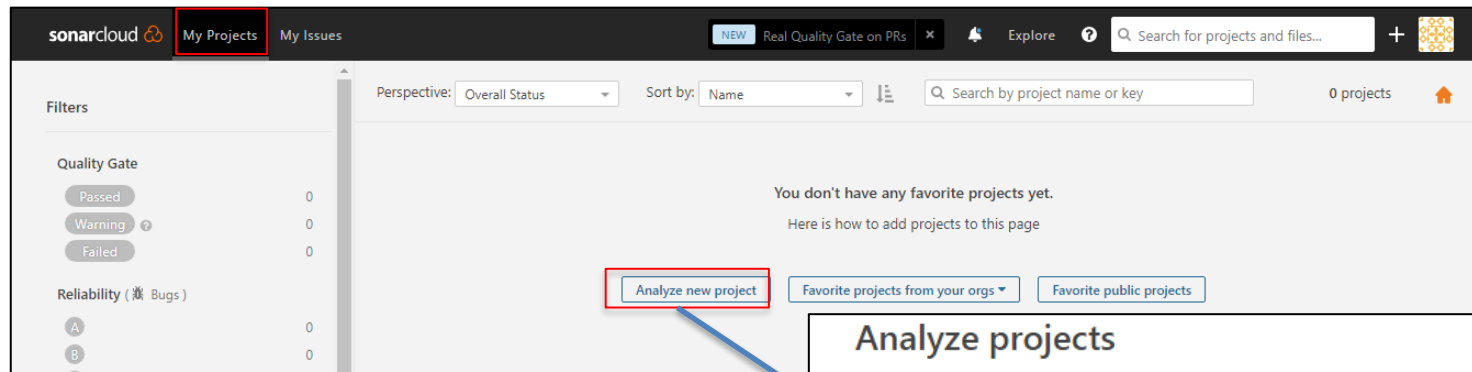
Creación de cuenta y Login

<https://sonarcloud.io/sessions/new>:

The image illustrates the process of creating a SonarCloud account and logging in. It is composed of three main parts:

- Top Left (Login Prompt):** A white box with the SonarCloud logo and the text "Log in or Sign up to SonarCloud". It features three buttons: "With Azure DevOps", "With Bitbucket", and "With GitHub". The "With GitHub" button is highlighted with a red border, and a blue arrow points from it to the middle section.
- Middle (GitHub Authorization):** A light gray box showing the GitHub authorization screen. At the top, it says "SonarCloud by sonarcloud would like access to". Below this, it lists permissions for "Your account (japarejo)", "Resources", and "Emails". A green button labeled "Authorize SonarCloud by sonarcloud" is highlighted with a red border. A blue arrow points from this button to the right section. Below the button, it states "Authorizing will redirect to https://sonarcloud.io". At the bottom, it notes "Not owned or operated by GitHub", "Created 10 months ago", and "More than 1K GitHub users".
- Right (SonarCloud Dashboard):** A screenshot of the SonarCloud dashboard. The top navigation bar includes "sonarcloud", "My Projects", and "My Issues". The main content area shows a "Quality Gate" table with columns for "Passed", "Warning", and "Failed", all with a count of 0. Below this is a "Reliability (Bugs)" table with columns for "A" and "B", also with counts of 0. A message states "You don't have any favorite projects yet. Here is how to add projects to this page" with buttons for "Analyze new project", "Favorite projects from your orgs", and "Favorite public projects".

Configuración de un nuevo proyecto



Configuración del análisis – Con Java y Maven desde la consola

1 repository selected
1 repository will be created as a public

Set Up

Choose another analysis method

With GitHub Actions

With Travis CI

With CircleCI

With other CI tools

Manually

Analyze your project

We initialized your project on SonarCloud, now it's up to you to launch analyses!

Below are the commands to use to do an analysis.
If you are using Travis CI, the SonarCloud Travis Add-on makes it easier to run these commands with your CI process.
Simply [follow the guide to integrating with Travis CI](#).

1 Provide a token

☒ Generate a token

Analyze "EjemplosCursoJava"

Generate

1 Provide a token

Analyze "EjemplosCursoJava" 1: 715081cf146a0a17ce00875f3f17146399f4ebe8 ✖

The token is used to identify you when an analysis is performed. If it has been compromised, you can revoke it at any point of time in your [user account](#).

Continue

Project Key
japarejo_EjemplosCursoJava **Copy**

Organization Key
japarejo-github **Copy**

What option best describes your build?

Maven | Gradle | .NET | C, C++ or ObjC | Other (for JS, TS, Go, Python, PHP, ...)

Configure the SONAR_TOKEN environment variable

1 Name of the environment variable: SONAR_TOKEN

2 Value of the environment variable: 9d5c5f47e7845cf3a24613eaad8b4db5b4214e8d

Execute the SonarScanner for Maven from your computer

Update your `pom.xml` file with the following properties:

```
<properties>
  <sonar.projectKey>gii-is-DP1_spring-petclinic</sonar.projectKey>
  <sonar.organization>gii-is-dp1</sonar.organization>
  <sonar.host.url>https://sonarcloud.io</sonar.host.url>
</properties>
```

Copy

Run the following command in the project folder:

```
mvn verify org.sonarsource.scanner.maven:sonar-maven-plugin:sonar
```

Copy

Configuración del análisis – Con Java y Gradle desde la consola

1 repository selected
1 repository will be created as a public

Set Up

Choose another analysis method

With GitHub Actions

With Travis CI

With CircleCI

With other CI tools

Manually

Analyze your project

We initialized your project on SonarCloud, now it's up to you to launch analyses!

Below are the commands to use to do an analysis. If you are using Travis CI, the SonarCloud Travis Add-on makes it easier to run these commands with your CI process. Simply [follow the guide to integrating with Travis CI](#).

1 Provide a token

☒ Generate a token

Analyze "EjemplosCursoJava" **Generate**

☐ Use existing token

The token is used to identify you when an analysis is performed. If it has been compromised, you can revoke it at any point of time in your [user account](#).

2 Run analysis on your project

Continue

Project Key
japarejo_EjemplosCursoJava **Copy**

Organization Key
japarejo-github **Copy**

Gradle .NET C, C++ or ObjC Other (for JS, TS, Go, Python, PHP, ...)

Configure the SONAR_TOKEN environment variable

1 Name of the environment variable: SONAR_TOKEN

2 Value of the environment variable: 9d5c5f47e7845cf3a24613eaa8b4db5b4214e8d

OJO! Es importante anotar el token en lugar seguro

Execute the SonarScanner for Gradle from your computer

Update your `build.gradle` file with the `org.sonarqube` plugin and its configuration:

```
plugins {
    id "org.sonarqube" version "3.1.1"
}
```

sonarqube {
 properties {
 property "sonar.projectKey", "gii-is-DP1_spring-petclinic"
 property "sonar.organization", "gii-is-dp1"
 property "sonar.host.url", "https://sonarcloud.io"
 }
}

Open your terminal and run the following command in your project's folder.

```
./gradlew sonarqube
```

Configuración de permisos para realizar el análisis

Overview Issues Security Hotspots Measures Code Activity Administration ▾

PUBLIC 

☒ Public ☐ Private

- General Settings
- Branches & Pull Requests
- Analysis Method
- Quality Profiles
- Quality Gate
- New Code
- Links
- Permissions**
- Background Tasks
- Update Key
- Webhooks
- Deletion

Analyze private projects with our Paid Plan

- ✓ Unlimited private projects
- ✓ Strict control over who can view your private data
- ✓ No commitments, cancel anytime
- ✓ 14 days free trial.

[Upgrade](#) [Learn more](#)

All Users Groups

Search for users or groups...


Administer
Issues ?

Administer
Security
Hotspots ?


Administer ?

Execute
Analysis ?

 Anyone

 **Jose Antonio Parejo Maestre**
japarejo@github

 **Members**
All members of the organization

 **Owners**
Owners of organization



Ejecución de un análisis – Con Java y Maven desde la consola

```
setx "SONAR_TOKEN" "<tu token>"
```

```
mvn -fn verify org.sonarsource.scanner.maven:sonar-maven-plugin:sonar  
-Dmaven.test.failure.ignore=true -Djacoco.haltOnFailure=false
```

a observar los resultados ...

es un proceso que puede tardar bastante...

*Os hemos dejado un script (sonar.bat) para ayudaros a lanzar un análisis si deseáis hacerlo (requiere tener instalado Maven en tu computadora)

Ejecución de un análisis – Con Java y Maven desde Eclipse

The image shows the Eclipse IDE interface with the following components and annotations:

- Package Explorer:** Shows the project structure. The `extjwnl` project is selected.
- Run Configurations:** The `m2 Maven Build` configuration is selected.
- Launch Configuration Dialog:**
 - Name:** `análisis sonar`
 - Base directory:** `${workspace_loc:/extjwnl}` (labeled **tu proyecto**)
 - Goal:** `org.sonarsource.scanner.maven:sonar-maven-plugin:sonar`
 - User settings:** `C:\Users\japar\.m2\settings.xml`
 - Options:** ☐ Offline, ☐ Update Snapshots, ☐ Debug Output, ☐ Skip Tests, ☐ Non-recursive, ☐ Resolve Workspace artifacts, **1** Threads.
 - Parameters Table:**

Parameter Name	Value
<code>maven.test.failure.ignore</code>	<code>true</code>
<code>jacoco.haltonfailure</code>	<code>false</code>
 - Maven Runtime:** `EMBEDDED (3.6.3/1.16.0.20200610-1735)`

Command Line:

```
mvn org.sonarsource.scanner.maven:sonar-maven-plugin:sonar -Dmaven.test.failure.ignore=true -Djacoco.haltonfailure=false
```

Inspección de los resultados del análisis

- Una vez ejecutado el análisis nos debería aparecer el proyecto en el listado general con un resumen de sus mediciones:

The screenshot displays the SonarCloud web interface. At the top, the navigation bar includes 'sonarcloud', 'My Projects', 'My Issues', a 'NEW' badge for 'PHP analysis uses PHPDoc to i...', a search bar, and a home icon. Below this, the breadcrumb trail shows 'Proceso Software y Gestión II'. The main navigation menu includes 'Projects', 'Issues', 'Quality Profiles', 'Rules', 'Quality Gates', 'Members', and 'Administration'. The 'Filters' sidebar on the left shows 'Quality Gate' with 'Passed' (20) and 'Failed' (23) counts, and 'Reliability' with 'A' (9) and 'B' (26) counts. The main content area shows a project card for 'G1-13' with a 'Failed' status. The card displays various metrics: 11 Bugs (B), 0 Vulnerabilities (A), 5 Code Smells (A), and 0.0% Duplications. The project is marked as 'PUBLIC' and shows the last analysis date as April 7, 2019, 11:49 AM. The project size is 2.1k files, including XML, JSP, and other formats.

sonarcloud My Projects My Issues **NEW** PHP analysis uses PHPDoc to i... Explore Search for projects and files...

Proceso Software y Gestión II

Projects Issues Quality Profiles Rules Quality Gates Members Administration

Filters

Quality Gate

Passed 20

Failed 23

Reliability (Bugs)

A 9

B 26

Perspective: Overall Status Sort by: Name Search by project name or key **55 projects**

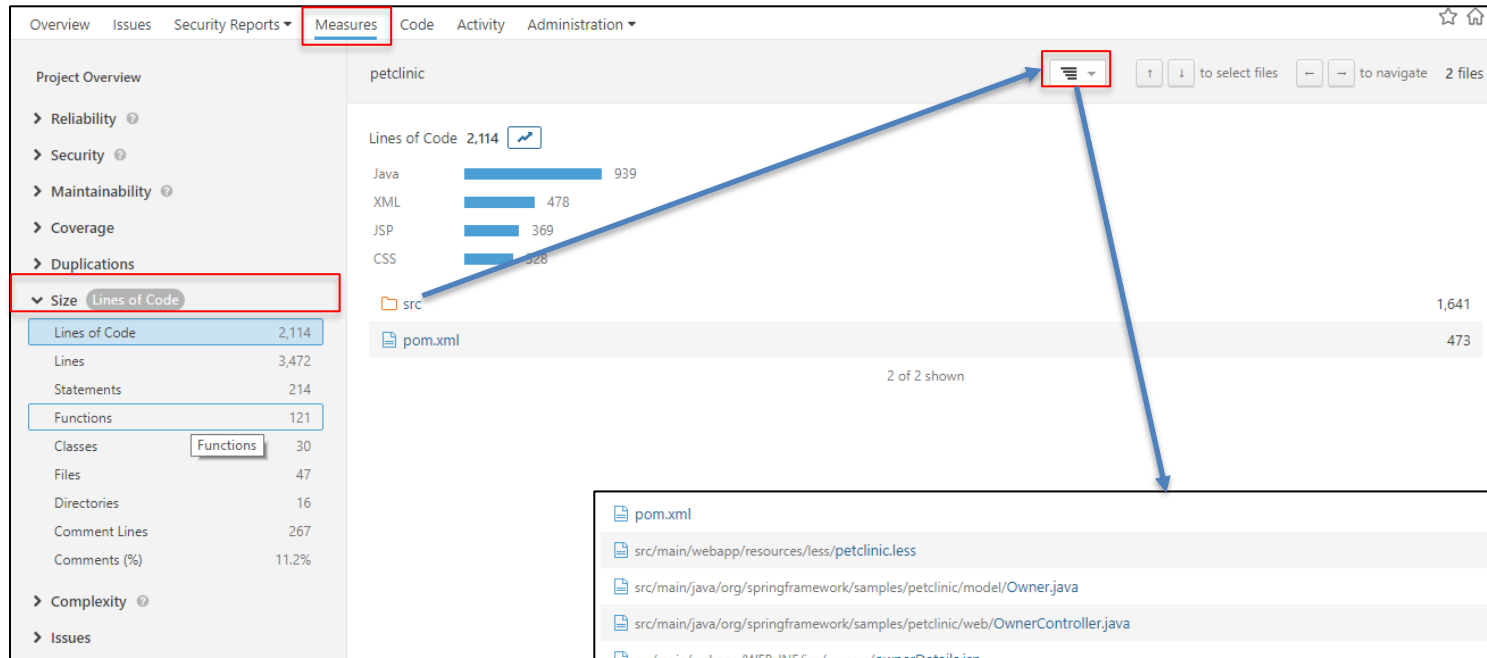
G1-13 **Failed** **PUBLIC**

Last analysis: April 7, 2019, 11:49 AM

11 **B** Bugs | 0 **A** Vulnerabilities | -- Hotspots Reviewed | 5 **A** Code Smells | 0.0% Duplications

2.1k **S** XML, JSP, ...

Métricas del tamaño



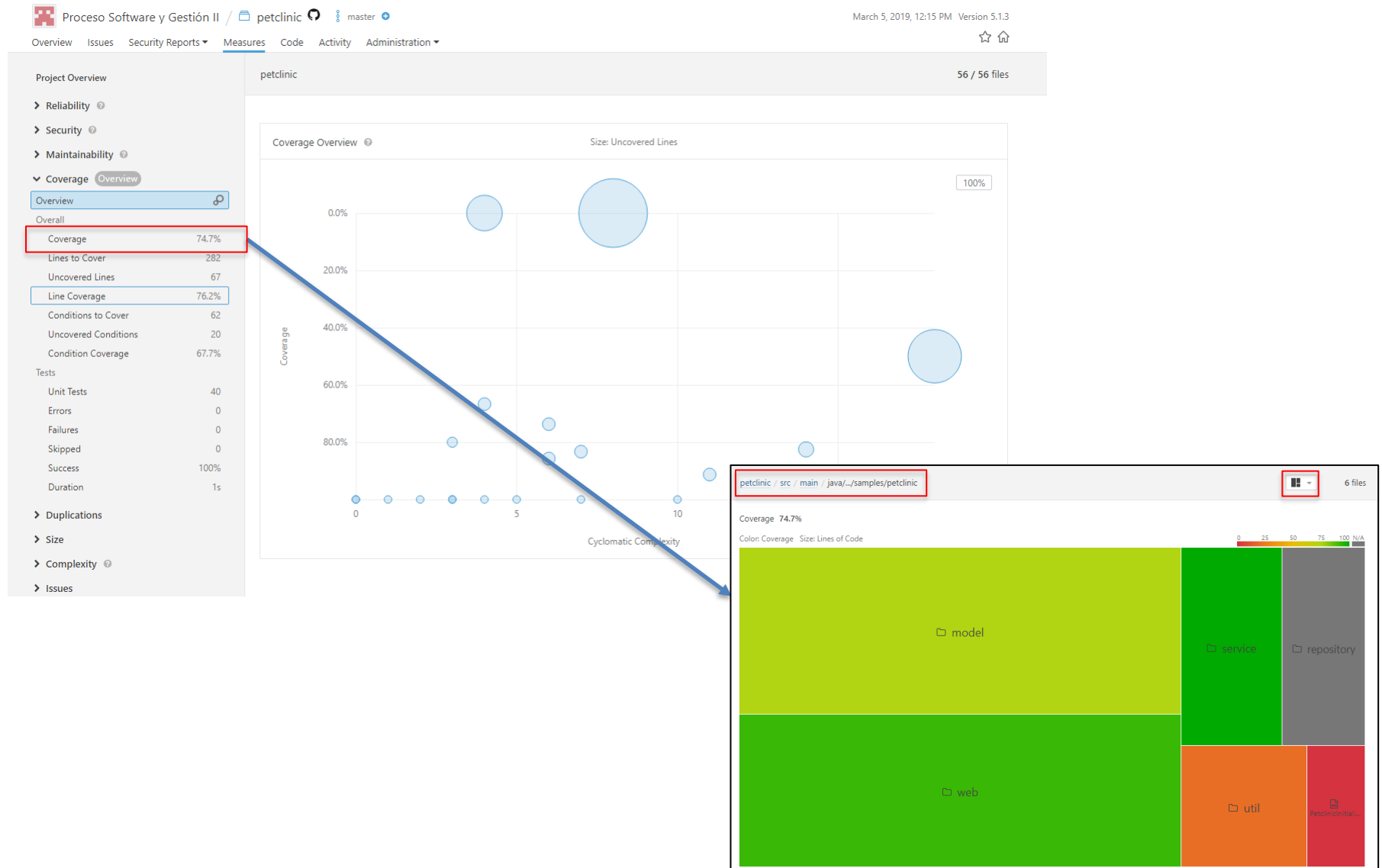
pom.xml	473
src/main/webapp/resources/less/petclinic.less	182
src/main/java/org/springframework/samples/petclinic/model/Owner.java	96
src/main/java/org/springframework/samples/petclinic/web/OwnerController.java	88
src/main/webapp/WEB-INF/jsp/owners/ownerDetails.jsp	86
src/main/java/org/springframework/samples/petclinic/web/PetController.java	78
src/main/java/org/springframework/samples/petclinic/service/ClinicServiceImpl.java	75
src/main/java/org/springframework/samples/petclinic/model/Pet.java	69
src/main/webapp/WEB-INF/jsp/pets/createOrUpdateVisitForm.jsp	62
src/main/webapp/resources/less/header.less	62
src/main/java/org/springframework/samples/petclinic/util/CallMonitoringAspect.java	57
src/main/java/org/springframework/samples/petclinic/web/VisitController.java	52
src/main/webapp/WEB-INF/jsp/pets/createOrUpdatePetForm.jsp	50
src/main/webapp/resources/less/typography.less	50
src/main/webapp/WEB-INF/jsp/owners/ownersList.jsp	46
src/main/java/org/springframework/samples/petclinic/model/Vet.java	44
src/main/java/org/springframework/samples/petclinic/model/Visit.java	43
src/main/webapp/WEB-INF/jsp/vets/vetList.jsp	41
src/main/webapp/resources/less/responsive.less	34
src/main/webapp/WEB-INF/jsp/owners/createOrUpdateOwnerForm.jsp	33

Métricas de complejidad del código

The screenshot displays the SonarCloud web interface for a project named 'petclinic'. The 'Measures' tab is selected in the top navigation bar. On the left sidebar, under 'Project Overview', the 'Complexity' section is expanded, showing 'Cyclomatic Complexity' with a value of 156 and 'Cognitive Complexity' with a value of 42. The main content area shows a table of files sorted by Cyclomatic Complexity in descending order. The table includes file paths and their corresponding complexity scores.

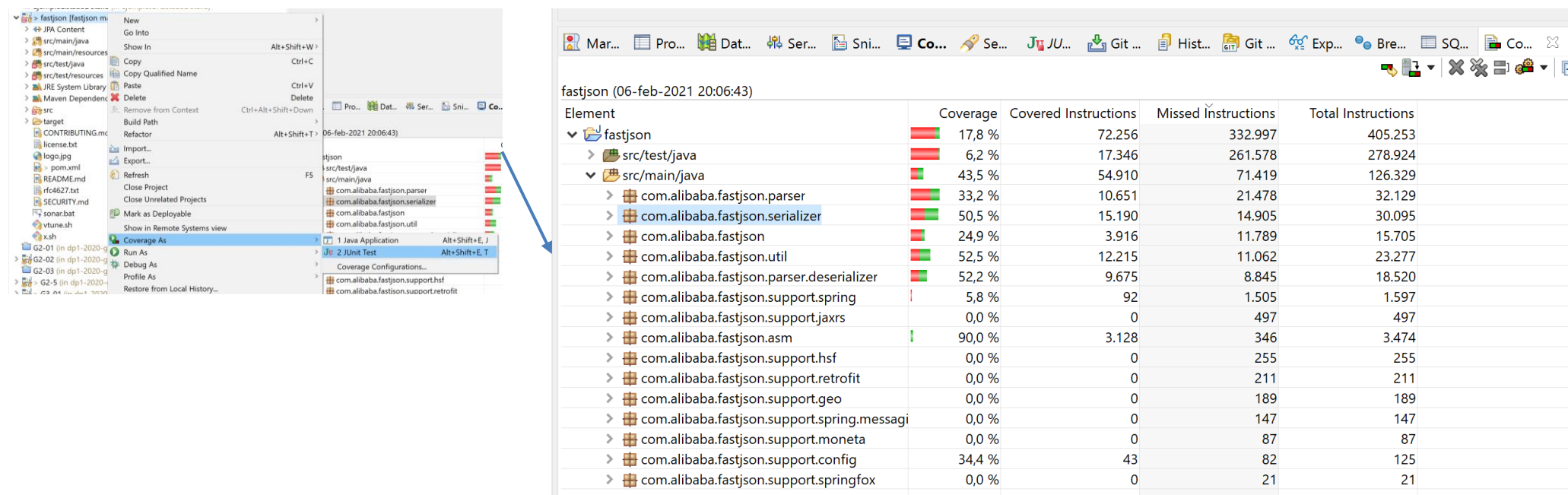
File Path	Cyclomatic Complexity
src/main/java/org/springframework/samples/petclinic/model/Owner.java	18
src/main/java/org/springframework/samples/petclinic/web/OwnerController.java	14
src/main/java/org/springframework/samples/petclinic/web/PetController.java	14
src/main/java/org/springframework/samples/petclinic/model/Pet.java	11
src/main/java/org/springframework/samples/petclinic/service/ClinicServiceImpl.java	10
src/main/java/org/springframework/samples/petclinic/util/CallMonitoringAspect.java	8
src/main/java/org/springframework/samples/petclinic/model/Visit.java	7
src/main/java/org/springframework/samples/petclinic/web/VisitController.java	7
src/main/java/org/springframework/samples/petclinic/web/PetValidator.java	6
src/main/java/org/springframework/samples/petclinic/model/Vet.java	6
src/main/webapp/WEB-INF/jsp/pets/createOrUpdatePetForm.jsp	5
src/main/java/org/springframework/samples/petclinic/web/PetTypeFormatter.java	5
src/main/webapp/WEB-INF/jsp/owners/createOrUpdateOwnerForm.jsp	4
src/main/webapp/WEB-INF/jsp/pets/createOrUpdateVisitForm.jsp	4
src/main/java/org/springframework/samples/petclinic/util/EntityUtils.java	4
src/main/java/org/springframework/samples/petclinic/model/Person.java	4
src/main/java/org/springframework/samples/petclinic/PetclinicInitializer.java	4
src/main/webapp/WEB-INF/jsp/vets/vetList.jsp	4
src/main/java/org/springframework/samples/petclinic/model/BaseEntity.java	3
src/main/java/org/springframework/samples/petclinic/model/NamedEntity.java	3
src/main/webapp/WEB-INF/jsp/owners/ownerDetails.jsp	3
src/main/webapp/WEB-INF/jsp/owners/ownersList.jsp	3

Cobertura de pruebas



Plugins de Eclipse para el cálculo de métricas

- Eclipse tiene un conjunto de plugins para el cálculo de métricas
- Algunos incluso vienen instalados por defecto, como el de cobertura de pruebas:



The screenshot shows the Eclipse IDE interface. On the left, the Project Explorer displays the project structure for 'fastjson'. The 'src/main/java' directory is expanded, showing several classes including 'com.alibaba.fastjson.parser', 'com.alibaba.fastjson.serializer', 'com.alibaba.fastjson', 'com.alibaba.fastjson.util', 'com.alibaba.fastjson.parser.deserializer', 'com.alibaba.fastjson.support.spring', 'com.alibaba.fastjson.support.jaxrs', 'com.alibaba.fastjson.asm', 'com.alibaba.fastjson.support.hsf', 'com.alibaba.fastjson.support.retrofit', 'com.alibaba.fastjson.support.geo', 'com.alibaba.fastjson.support.spring.messaging', 'com.alibaba.fastjson.support.moneta', 'com.alibaba.fastjson.support.config', and 'com.alibaba.fastjson.support.springfox'. A blue arrow points from the 'com.alibaba.fastjson.serializer' class in the Project Explorer to the 'Coverage' view on the right.

The 'Coverage' view on the right displays the coverage data for the 'fastjson' project, dated '06-feb-2021 20:06:43'. The table shows the following data:

Element	Coverage	Covered Instructions	Missed Instructions	Total Instructions
fastjson	17,8 %	72.256	332.997	405.253
src/test/java	6,2 %	17.346	261.578	278.924
src/main/java	43,5 %	54.910	71.419	126.329
com.alibaba.fastjson.parser	33,2 %	10.651	21.478	32.129
com.alibaba.fastjson.serializer	50,5 %	15.190	14.905	30.095
com.alibaba.fastjson	24,9 %	3.916	11.789	15.705
com.alibaba.fastjson.util	52,5 %	12.215	11.062	23.277
com.alibaba.fastjson.parser.deserializer	52,2 %	9.675	8.845	18.520
com.alibaba.fastjson.support.spring	5,8 %	92	1.505	1.597
com.alibaba.fastjson.support.jaxrs	0,0 %	0	497	497
com.alibaba.fastjson.asm	90,0 %	3.128	346	3.474
com.alibaba.fastjson.support.hsf	0,0 %	0	255	255
com.alibaba.fastjson.support.retrofit	0,0 %	0	211	211
com.alibaba.fastjson.support.geo	0,0 %	0	189	189
com.alibaba.fastjson.support.spring.messaging	0,0 %	0	147	147
com.alibaba.fastjson.support.moneta	0,0 %	0	87	87
com.alibaba.fastjson.support.config	34,4 %	43	82	125
com.alibaba.fastjson.support.springfox	0,0 %	0	21	21

Plugins de Eclipse para el cálculo de métricas

<http://metrics2.sourceforge.net/update/>

Metrics - net.sourceforge.metrics - McCabe Cyclomatic Complexity (avg/max per method)							
Metric	Total	Mean	Std. Dev.	Maximum	Resource causing Maximum	Method	
Number of Overridden Methods (avg/max per type)	126	0,583	1,27	14	/net.sourceforge.metrics/src/net/sourceforge/metrics/calculators/M...		
Number of Attributes (avg/max per type)	479	2,218	3,877	32	/net.sourceforge.metrics/tgsrc/com/touchgraph/graphlayout/Node.j...		
Number of Children (avg/max per type)	90	0,417	1,463	12	/net.sourceforge.metrics/src/net/sourceforge/metrics/calculators/C...		
Number of Classes (avg/max per packageFragment)	216	12,706	9,392	44	/net.sourceforge.metrics/tgsrc/com/touchgraph/graphlayout/Interac...		
Method Lines of Code (avg/max per method)	9474	5,958	8,411	68	/net.sourceforge.metrics/tgsrc/com/touchgraph/graphlayout/GLPan...	scrollSelectPanel	
Number of Methods (avg/max per type)	1504	6,963	8,843	75	/net.sourceforge.metrics/tgsrc/com/touchgraph/graphlayout/TGPan...		
Nested Block Depth (avg/max per method)		1,662	1,087	7	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	run	
Depth of Inheritance Tree (avg/max per type)		2,338	1,248	6	/net.sourceforge.metrics/src/net/sourceforge/metrics/properties/Me...		
Number of Packages	17						
Afferent Coupling (avg/max per packageFragment)		10,118	15,777	58	/net.sourceforge.metrics/src/net/sourceforge/metrics/core		
Number of Interfaces (avg/max per packageFragment)	0	0	0	0	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder		
McCabe Cyclomatic Complexity (avg/max per method)		1,936	1,809	21	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	filter	
src		2,021	1,768	21	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	filter	
net.sourceforge.metrics.builder		2,079	2,37	21	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	filter	
MetricsBuilder.java		2,491	2,998	21	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	filter	
MetricsBuildVisitor		5,143	6,707	21	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	filter	
filter	21						
executeUI	6						
executeHeadless	4						
execute	2						
MetricsBuildVisitor	1						
visit	1						
visit	1						
CalculatorThread		3,4	2,417	8	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	run	
MetricsBuilder		2,444	1,771	7	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	build	
FilterResult		3,667	1,7	6	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	process	
Command		1,364	0,881	4	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	equals	
Queue		2,2	0,98	3	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	queue	
ChangedCommand		1	0	1	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	ChangedCommand	
AddedCommand		1	0	1	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	AddedCommand	
RemovedCommand		1	0	1	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	RemovedCommand	
ProgressQueue.java		1,63	0,867	4	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Progr...	run	
MetricsNature.java		1,75	1,09	4	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Metric...	configure	
Semaphore.java		1,2	0,4	2	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Sema...	P	
ProgressQueueCommand.java		1	0	1	/net.sourceforge.metrics/src/net/sourceforge/metrics/builder/Progr...	ProgressQueueCommand	
IMetricsProgressListener.java		0	0				
net.sourceforge.metrics.ui		2,225	1,955	12	/net.sourceforge.metrics/src/net/sourceforge/metrics/ui/MetricsTabl...	setMetrics	
net.sourceforge.metrics.calculators		2,01	1,845	11	/net.sourceforge.metrics/src/net/sourceforge/metrics/calculators/N...	countMethods	
net.sourceforge.metrics.ui.preferences		1,906	1,74	10	/net.sourceforge.metrics/src/net/sourceforge/metrics/ui/preference...	getColumnText	
net.sourceforge.metrics.ui.layeredpackage		2,225	1,814	9	/net.sourceforge.metrics/src/net/sourceforge/metrics/ui/layeredpac...	damp	
net.sourceforge.metrics.core		1,798	1,427	8	/net.sourceforge.metrics/src/net/sourceforge/metrics/core/MetricDe...	createFrom	
net.sourceforge.metrics.core.sources		2	1,583	8	/net.sourceforge.metrics/src/net/sourceforge/metrics/core/sources/...	initializeChildren	

Enlaces

- Guías de uso de github:

<https://guides.github.com/>

- Documentación oficial de Sonar Cloud

<https://sonarcloud.io/documentation>

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