

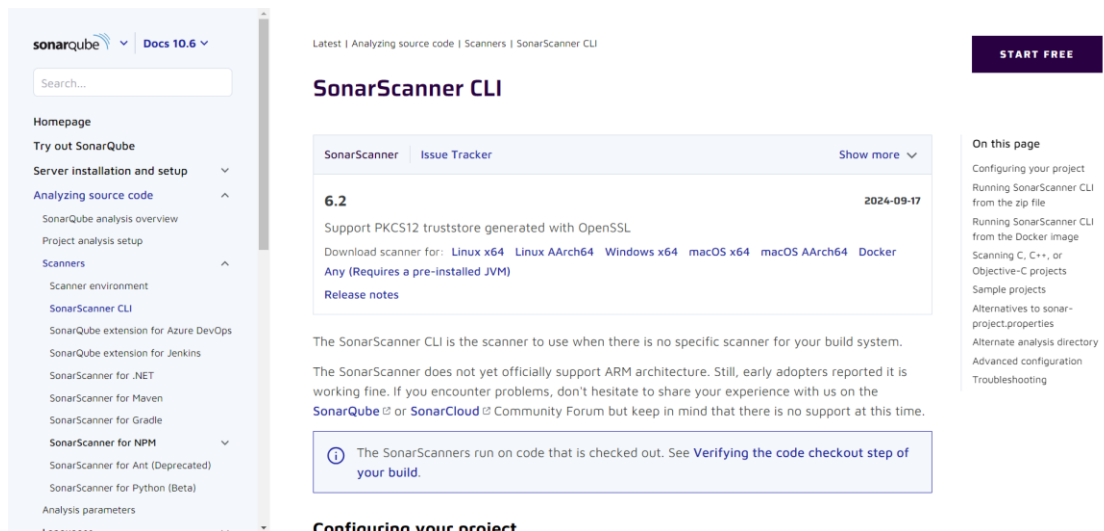
Name:- Bhagyesh Patil

Roll :- 36

## Experiment no 8

**Aim:** Create a Jenkins CICD Pipeline with SonarQube / GitLab Integration to perform a static analysis of the code to detect bugs, code smells, and security vulnerabilities on a sample Web / Java / Python application.

### Step 1: Download sonar scanner

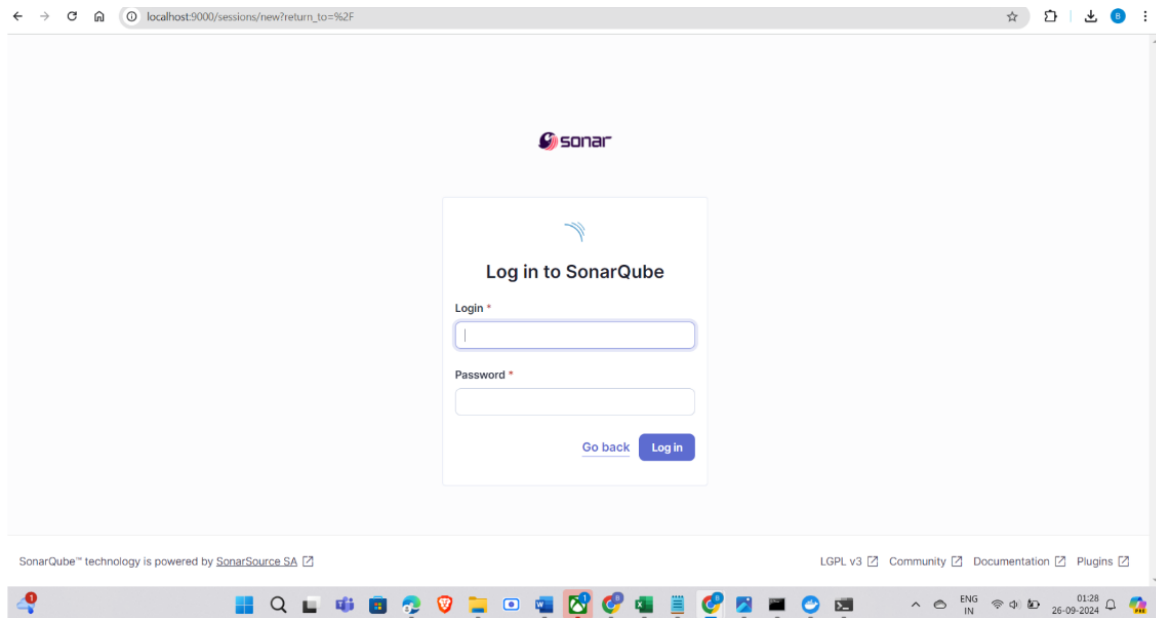


The screenshot shows the SonarScanner CLI documentation page. The left sidebar contains a navigation menu with links to 'Homepage', 'Try out SonarQube', 'Server installation and setup', 'Analyzing source code', 'Scanners', 'Scanner environment', 'SonarScanner CLI', 'SonarQube extension for Azure DevOps', 'SonarQube extension for Jenkins', 'SonarScanner for .NET', 'SonarScanner for Maven', 'SonarScanner for Gradle', 'SonarScanner for NPM', 'SonarScanner for Ant (Deprecated)', 'SonarScanner for Python (Beta)', and 'Analysis parameters'. The main content area is titled 'SonarScanner CLI' and features a '6.2' version update from '2024-09-17'. It lists download links for Linux x64, Linux AArch64, Windows x64, macOS x64, macOS AArch64, and Docker. A note states that the scanner requires a pre-installed JVM. Below this, a text block explains that the SonarScanner CLI is used when no specific scanner is available for the build system, and it mentions that ARM architecture is not yet officially supported. A callout box indicates that SonarScanners run on checked-out code and refers to the 'Verifying the code checkout step of your build'. On the right, a 'START FREE' button is visible, and a 'On this page' section lists links for configuring projects, running the CLI, scanning C/C++ projects, sample projects, alternatives to sonar-project.properties, alternate analysis directories, advanced configuration, and troubleshooting.

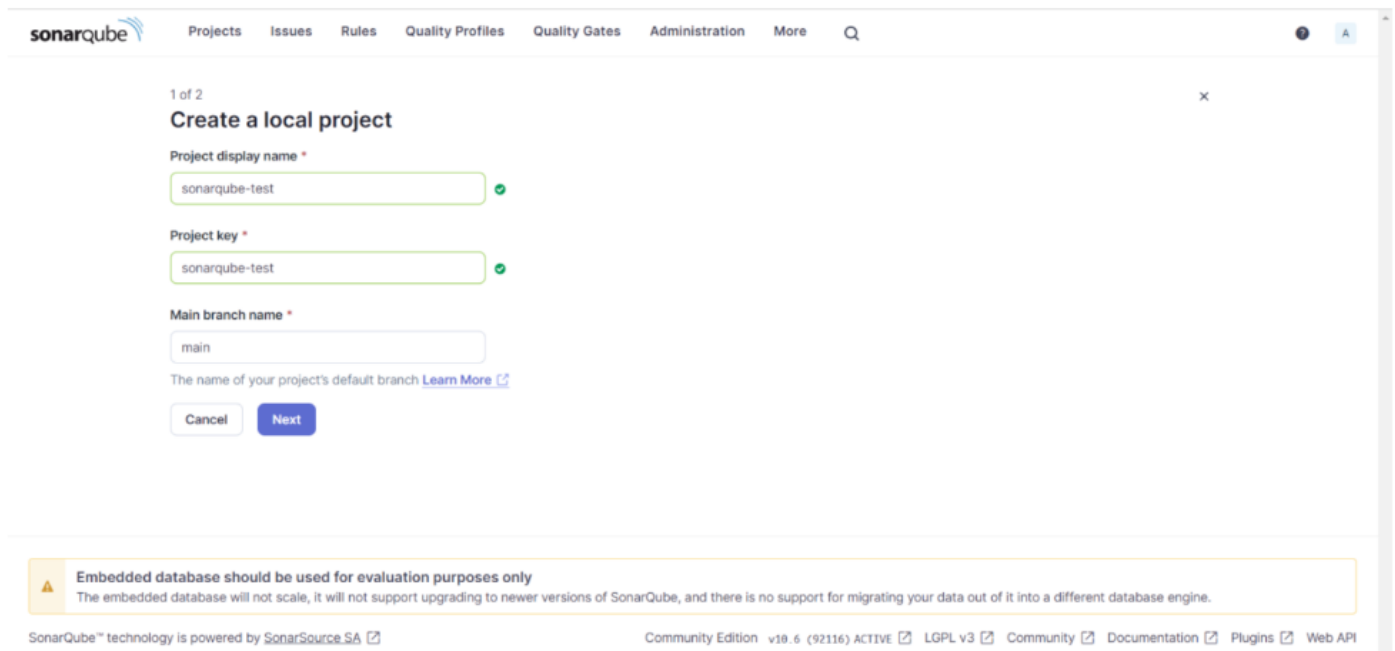
### 1. Command: docker pull sonarqube

```
C:\Windows\System32>docker pull sonarqube
Using default tag: latest
latest: Pulling from library/sonarqube
Digest: sha256:72e9feec71242af83faf65f95a40d5e3bb2822a6c3b2cda8568790f3d31aecde
Status: Image is up to date for sonarqube:latest
docker.io/library/sonarqube:latest
```

### 2. Login the details



### 3. Give the name of the project



### 4. Open up Jenkins Dashboard on localhost, port 8081 or which ever port it is at for you.

Dashboard >

+ New Item

Build History

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

built-in node (0 of 10 executors busy)

All +

S	W	Name ↓	Last Success	Last Failure	Last Duration
✓	☀	bbparil	10 days #1	N/A	5.3 sec ▶
⋮	☀	bhagyesh	N/A	N/A	N/A ▶
✗	☁	bhagyesh patil opo	N/A	1 day 0 hr #2	8.7 sec ▶
✗	☁	bhagyesh_mavev	N/A	1 day 0 hr #2	7.8 sec ▶
⋮	☀	bhagyesh_niraj	N/A	N/A	N/A ▶
✗	☁	bhagyesh_Niraj_final	N/A	6 hr 13 min #1	4.7 sec ▶
✓	☀	bhagyeshpipi	8 days 10 hr #1	N/A	5.5 sec ▶
✗	☁	bp_nk	N/A	6 hr 13 min #1	9.4 sec ▶
✓	☀	lipo	1 day 0 hr #1	N/A	0.36 sec ▶

Add description

## 5. to Manage Jenkins and search for SonarQube Scanner for Jenkins and install it.

Name

sonarqube

Server URL

Default is http://localhost:9000

http://localhost:9000

Server authentication token

SonarQube authentication token. Mandatory when anonymous access is disabled.

- none -

+ Add

Advanced

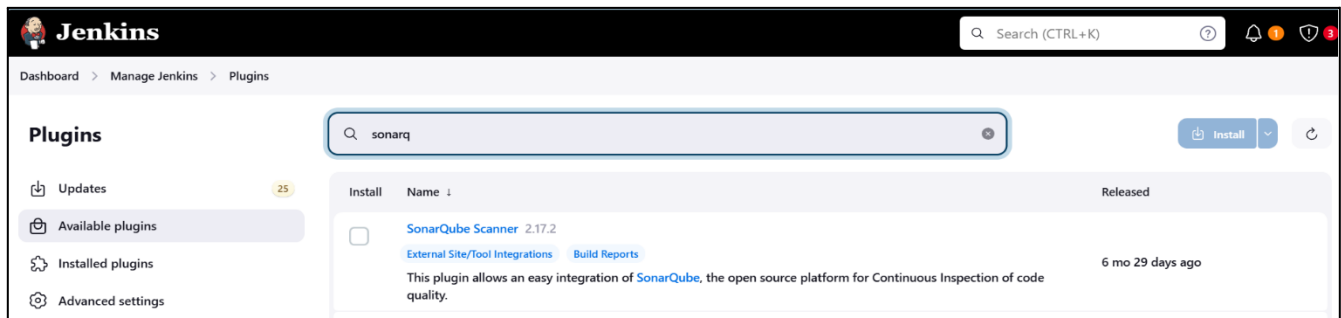
## 2.SonarQubeServers

and enter the details.

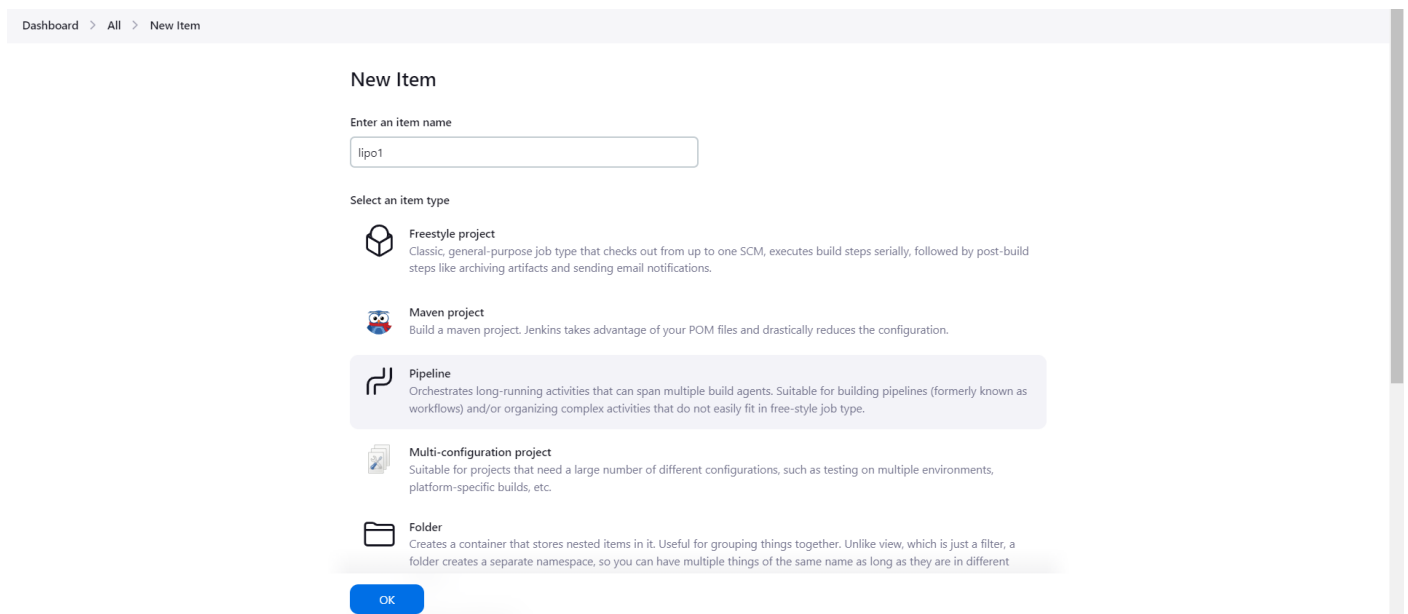
Enter the Server Authentication token if needed.

In SonarQube installations: Under **Name** add <project name of sonarqube> for me  
**adv\_devops\_7\_sonarqube**

In **Server URL** Default is <http://localhost:9000>



## 6. After configuration, create a New Item → choose a pipeline project.



### This is java code put in the pipeline script

Under Pipeline script, enter the following:

```
node {
  stage('Cloning the GitHub Repo') {
    git 'https://github.com/shazforiot/GOL.git'
  }

  stage('SonarQube analysis') {
    withSonarQubeEnv('<Name_of_SonarQube_environment_on_Jenki
ns>') {
      sh """
        <PATH_TO_SONARQUBE_SCANNER_FOLDER>/bin/sonar-scanner \
        -D sonar.login=<SonarQube_USERNAME> \
        -D sonar.password=<SonarQube_PASSWORD> \
        -D sonar.projectKey=<Project_KEY> \
```

```

-D sonar.exclusions=vendor/**,resources/**,**/*.java \
-D sonar.host.url=<SonarQube_URL>(default:
http://localhost:9000/)""""
}
}

```

#### Definition

Pipeline script

#### Script ?

```

1 node {
2   stage('Cloning the GitHub Repo') {
3     git 'https://github.com/shazforiot/GOL.git'
4   }
5
6   stage('SonarQube analysis') { withSonarQubeEnv('<Name_of_SonarQube_environment_on_Jenkins>') {
7     sh """
8     <PATH_TO_SONARQUBE_SCANNER_FOLDER>/bin/sonar-scanner \
9     -D sonar.login=admin \
10    -D sonar.password=admin> \
11    -D sonar.projectKey=sonarqube \
12    -D sonar.exclusions=vendor/**,resources/**,**/*.java \
13    -D sonar.host.url=http://localhost:9000
14    """
15   }
16 }
17 }

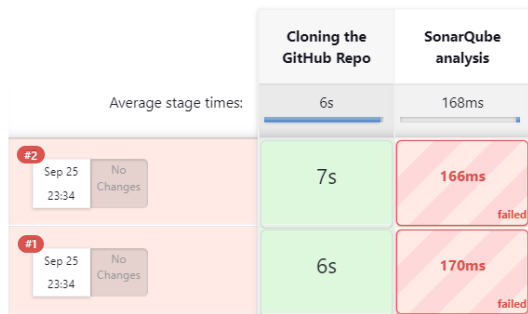
```

☒ Use Groovy Sandbox ?

[Pipeline Syntax](#)

## 7. Build project

#### Stage View



#### Permalinks

- [Last build \(#2\), 1 day 1 hr ago](#)
- [Last failed build \(#2\), 1 day 1 hr ago](#)
- [Last unsuccessful build \(#2\), 1 day 1 hr ago](#)
- [Last completed build \(#2\), 1 day 1 hr ago](#)

## 8. Check Console

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#9'

Timings

Git Build Data

Pipeline Overview

Pipeline Console

Replay

Pipeline Steps

Workspaces

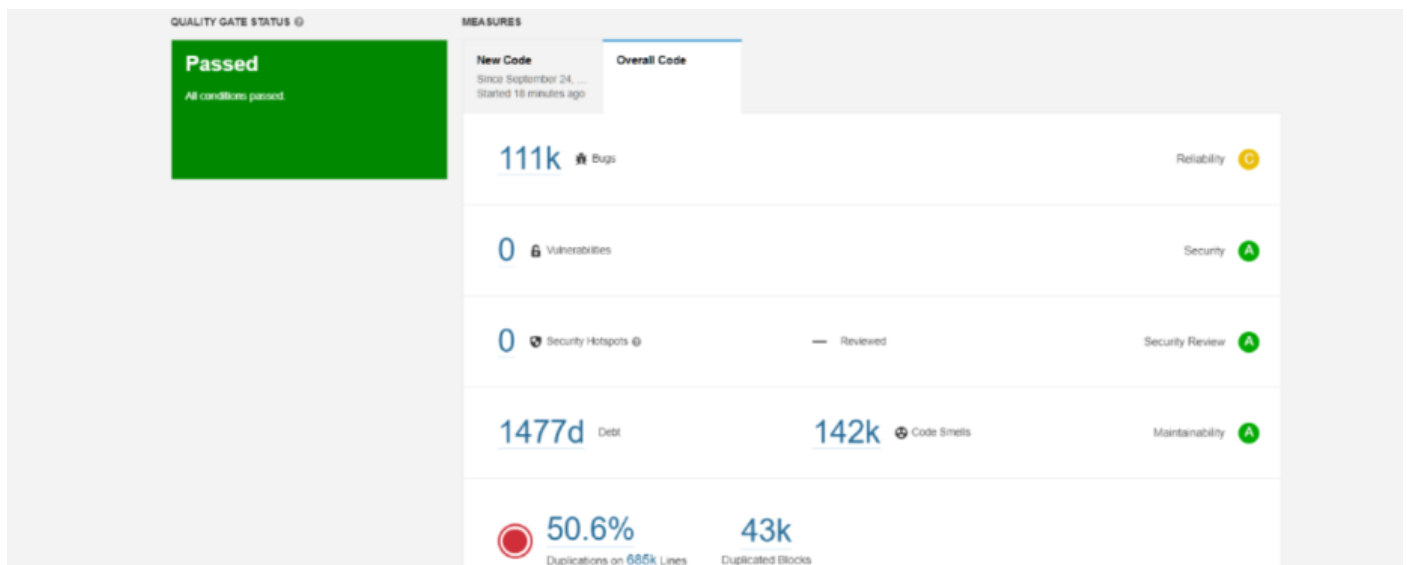
Previous Build

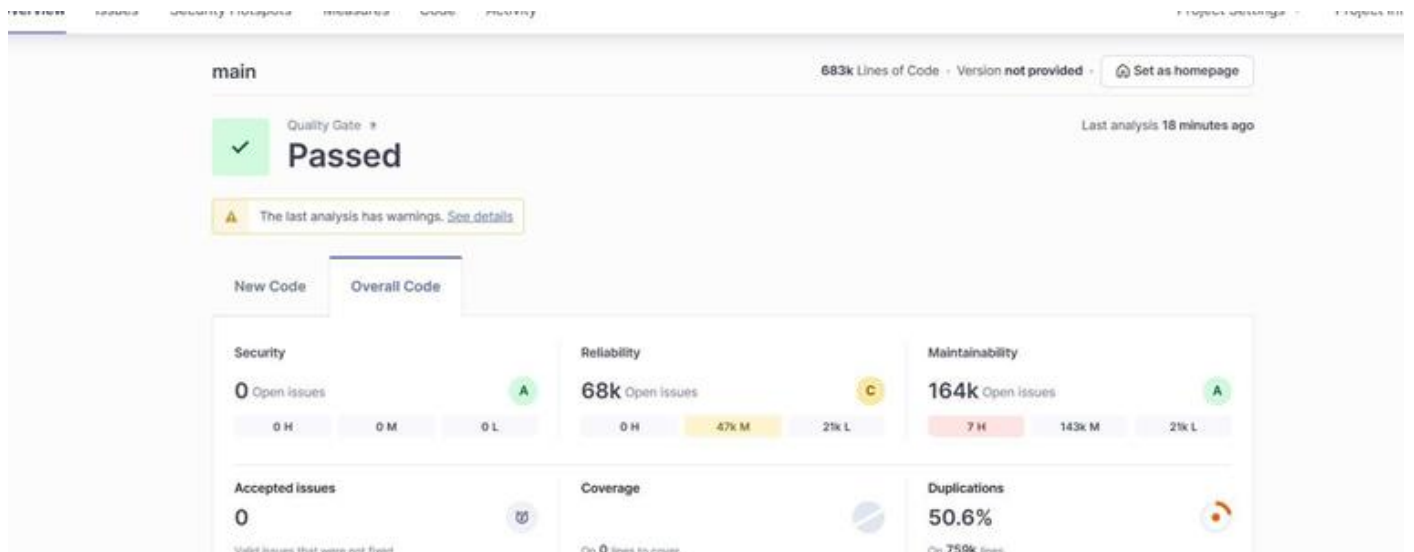
### Console Output

Skipping 4,246 KB. [Full Log](#)

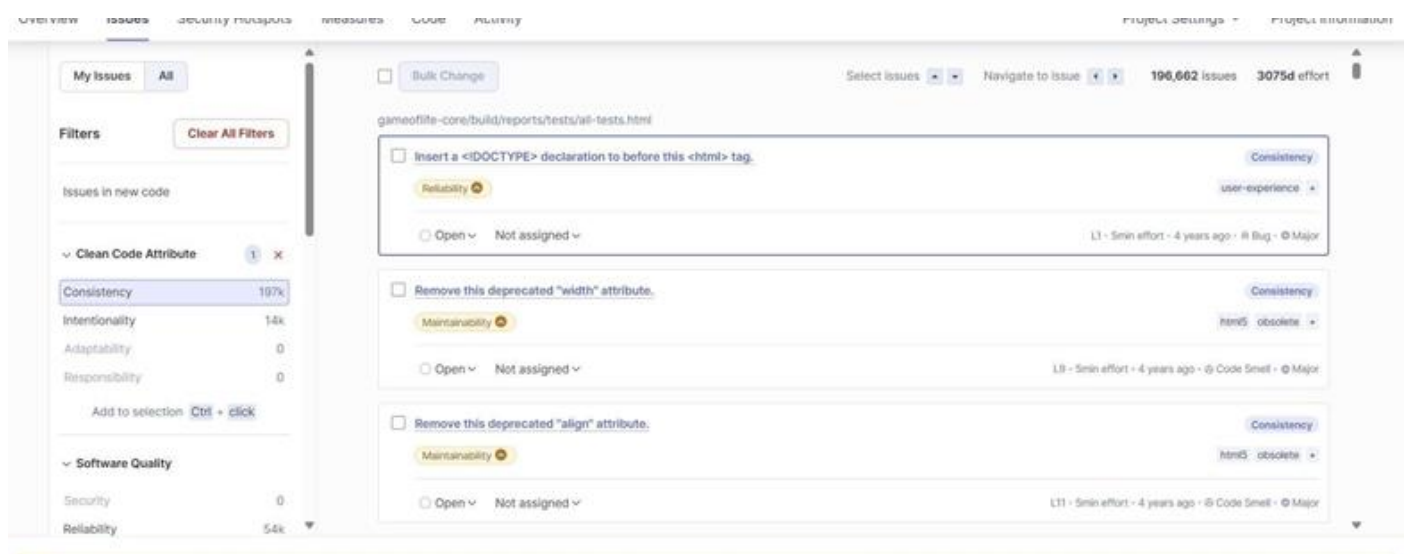
```
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 512. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 248. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 886. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 249. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 662. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 615. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 664. Keep only the first 100 references.
16:19:49.751 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 913. Keep only the first 100 references.
16:19:49.752 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 810. Keep only the first 100 references.
16:19:49.752 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 668. Keep only the first 100 references.
16:19:49.752 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 548. Keep only the first 100 references.
16:19:49.752 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 543. Keep only the first 100 references.
16:19:49.752 WARN Too many duplication references on file gameoflife-web/tools/jmeter/docs/api/org/apache/jmeter/visualizers/PropertyControlGui.html for block at line 152. Keep only the first 100 references.
```

## 9. Now, check the project in SonarQube





## 10 .Consistency



## 11. Intentionality

OverviewIssuesSecurity HotspotsMeasuresCodeActivity

Project SettingsProject Information

My IssuesAll

FiltersClear All Filters

Issues in new code

Clean Code Attribute1X

Consistency197k

Intentionality14k

Adaptability0

Responsibility0

Add to selectionCtrl + click

Software Quality

Security0

Reliability14k

Bulk Change

Select IssuesNavigate to Issue13,887 issues59d effort

gameoflife-acceptance-tests/Dockerfile

Use a specific version tag for the image.

Intentionality

Maintainability

No tags

OpenNot assigned

L1 • 5min effort • 4 years ago • @ Code Smell • @ Major

Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.

Intentionality

Maintainability

No tags

OpenNot assigned

L12 • 5min effort • 4 years ago • @ Code Smell • @ Major

Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.

Intentionality

Maintainability

No tags

OpenNot assigned

L12 • 5min effort • 4 years ago • @ Code Smell • @ Major

## 12. Bugs

Bulk Change

Select IssuesNavigate to Issue67,624 issues1646d effort

gameoflife-core/build/reports/tests/all-tests.html

Add "lang" and/or "xml:lang" attributes to this "<html>" element

Intentionality

Reliability

accessibilitywcag2-a

OpenNot assigned

L1 • 2min effort • 4 years ago • @ Bug • @ Major

Insert a <!DOCTYPE> declaration to before this <html> tag.

Consistency

Reliability

user-experience

OpenNot assigned

L1 • 5min effort • 4 years ago • @ Bug • @ Major

Add "<th>" headers to this "<table>".

Intentionality

Reliability

accessibilitywcag2-a

OpenNot assigned

L9 • 2min effort • 4 years ago • @ Bug • @ Major



## 13. Code smell

The screenshot shows a code quality tool interface. On the left, there's a 'Filters' sidebar with a 'Clear All Filters' button. Under 'Clean Code Attribute', 'Consistency' is set to '10-4x'. Under 'Software Quality', 'Maintainability' is selected with a value of '10-2x'. The main area displays a list of code smells. The first smell is 'Use a specific version tag for the image.' with a 'Maintainability' icon. The second and third smells are 'Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.' with a 'Maintainability' icon. Each smell has an 'Open' button and a 'Not assigned' status. The top right shows '163,781 issues' and '1705d effort'.

Issue	Category	Severity	Effort
Use a specific version tag for the image.	Maintainability	Major	1705d
Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.	Maintainability	Major	1705d
Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.	Maintainability	Major	1705d

## 14. Cyclomatic Complexities

The screenshot shows a code quality tool interface with a 'measures' tab selected. On the left, there's a sidebar with various measures: Security, Reliability, Maintainability, Security Review, Duplications, Size, Complexity, and Cyclomatic Complexity. The 'Cyclomatic Complexity' measure is selected, showing a value of 1,112. The main area displays a list of code smells. The first smell is 'Cyclomatic Complexity' with a value of 1,112. The second and third smells are 'gameoflife-acceptance-tests' and 'gameoflife-build' with values of 18 and 1,094 respectively. The fourth smell is 'gameoflife-core' with a value of 18. The fifth smell is 'gameoflife-deploy' with a value of 1,094. The sixth smell is 'gameoflife-web' with a value of 1,094. The seventh smell is 'pom.xml' with a value of 1,094. The bottom right shows '6 of 6 shown'.

Measure	Value
Security	1,112
Reliability	1,112
Maintainability	1,112
Security Review	1,112
Duplications	1,112
Size	1,112
Complexity	1,112
Cyclomatic Complexity	1,112

Issue	Category	Severity	Effort
Cyclomatic Complexity	Complexity	Major	1,112
gameoflife-acceptance-tests	Complexity	Major	18
gameoflife-build	Complexity	Major	1,094
gameoflife-core	Complexity	Major	18
gameoflife-deploy	Complexity	Major	1,094
gameoflife-web	Complexity	Major	1,094
pom.xml	Complexity	Major	1,094