

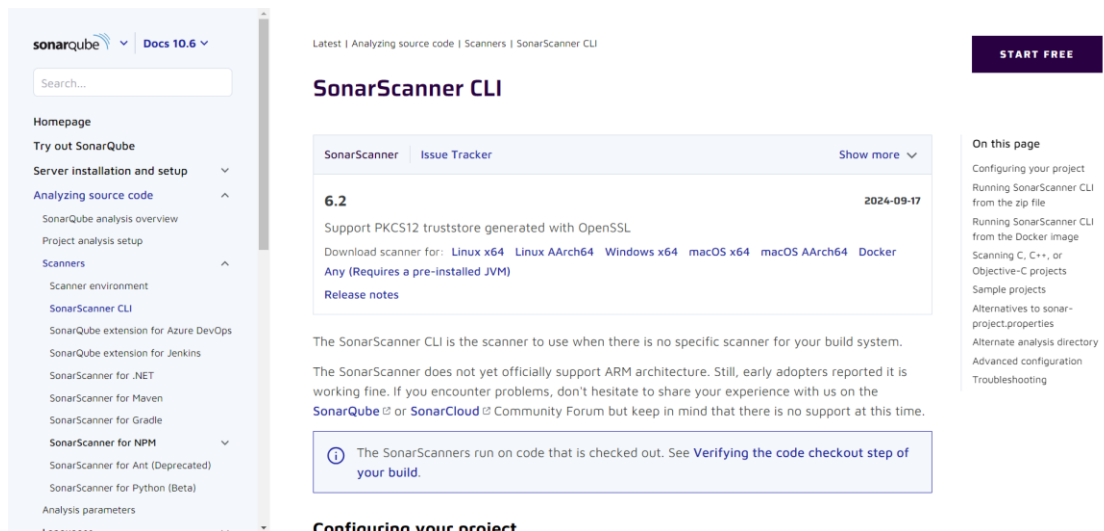
Name:- Bhagyesh Patil

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

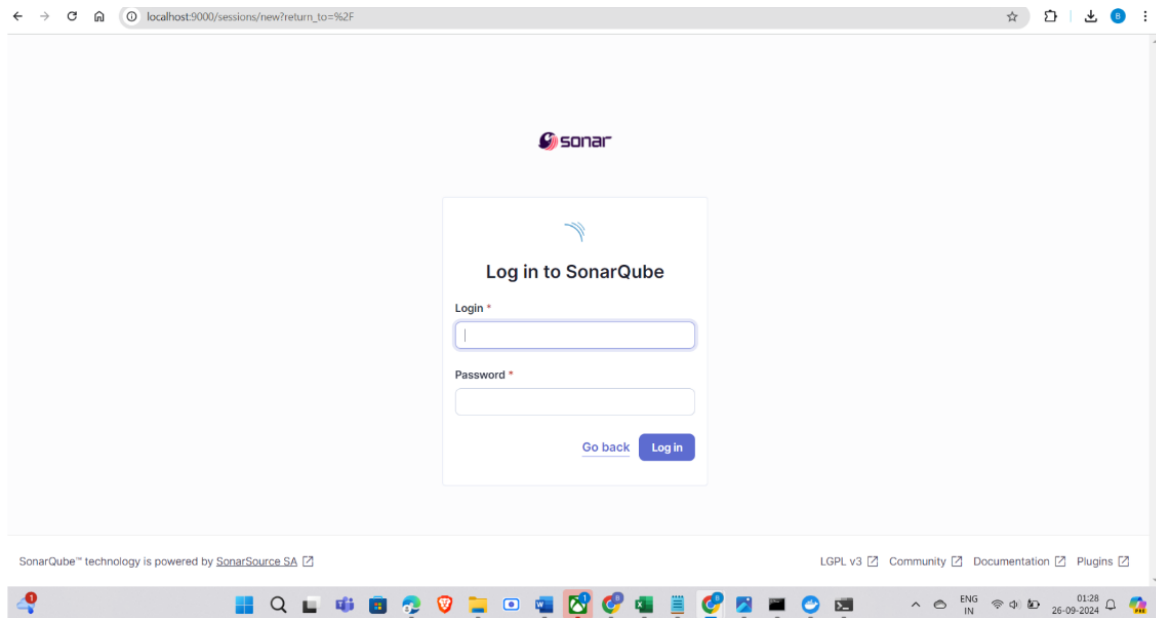


The screenshot shows the SonarScanner CLI documentation page. The left sidebar contains a navigation menu with links to 'Homepage', 'Try out SonarQube', 'Server installation and setup', 'Analyzing source code', 'Scanners', 'Scanner environment', 'SonarScanner CLI', 'SonarQube extension for Azure DevOps', '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'. The right sidebar, titled 'On this page', lists links for 'Configuring your project', 'Running SonarScanner CLI from the zip file', 'Running SonarScanner CLI from the Docker image', 'Scanning C, C++, or Objective-C projects', 'Sample projects', 'Alternatives to sonar-project.properties', 'Alternate analysis directory', 'Advanced configuration', and 'Troubleshooting'.

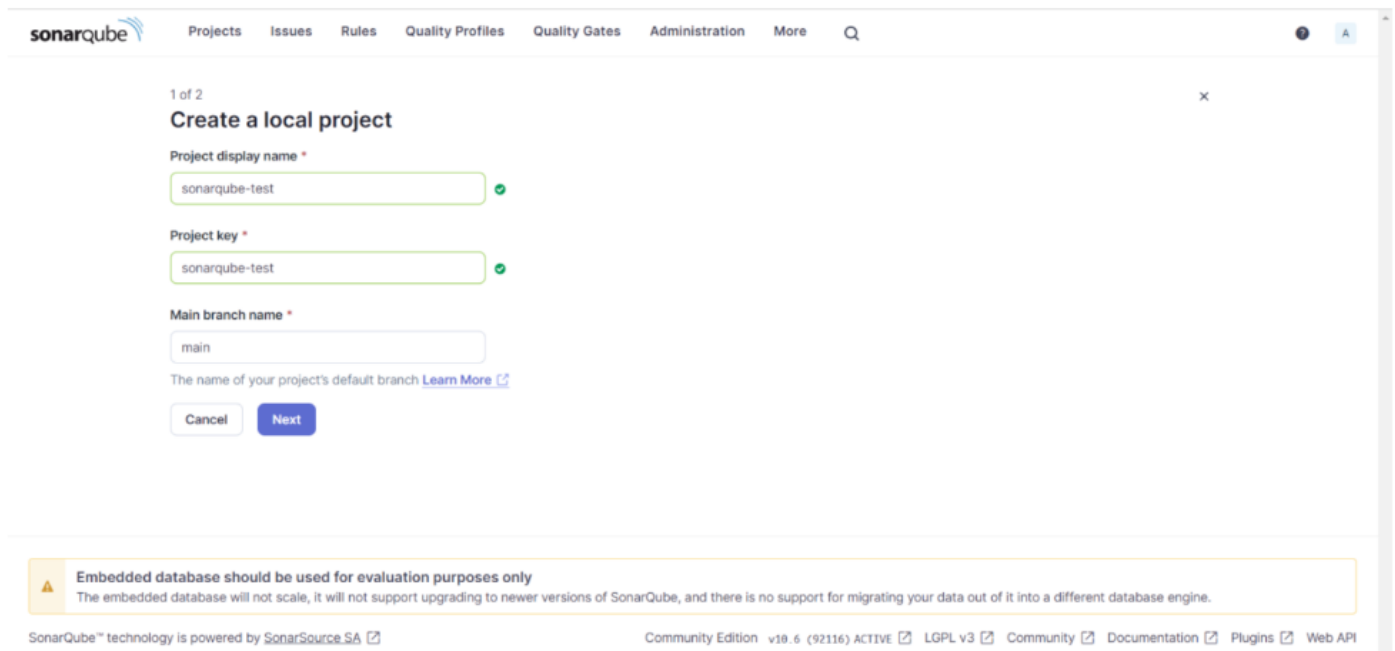
### 1. Command: docker pull sonarqube

```
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

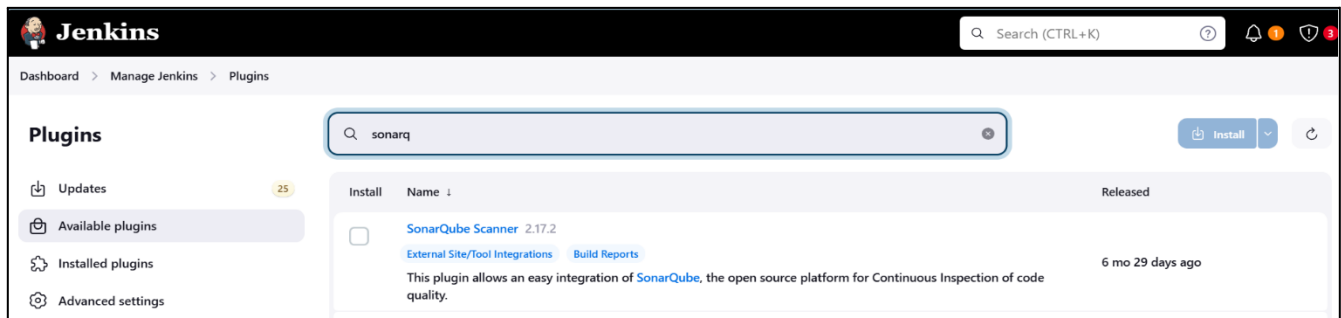
## 2.SonarQubeServers

and enter the details.

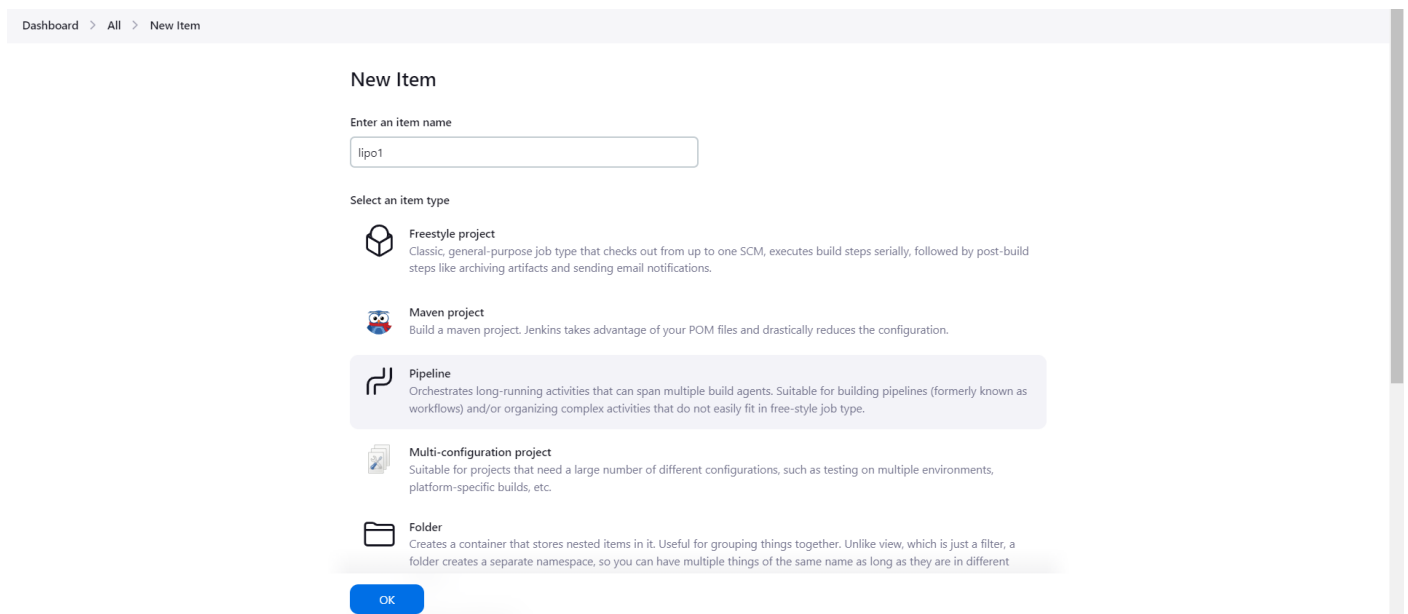
Enter the Server Authentication token if needed.

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 }

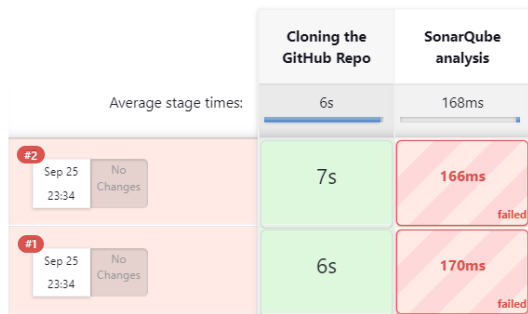
```

☒ 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](#)

## This error come in pc but next step output come in clg pc

### Console Output

[Download](#)[Copy](#)[View as plain text](#)

```
Started by user bbpatil
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in C:\ProgramData\Jenkins\jenkins\workspace\lipo12
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Cloning the GitHub Repo)
[Pipeline] git
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/shazforiot/GOL.git
> git.exe init C:\ProgramData\Jenkins\jenkins\workspace\lipo12 # timeout=10
Fetching upstream changes from https://github.com/shazforiot/GOL.git
> git.exe --version # timeout=10
> git --version # 'git version 2.46.0.windows.1'
> git.exe fetch --tags --force --progress -- https://github.com/shazforiot/GOL.git +refs/remotes/origin/* # timeout=10
> git.exe config remote.origin.url https://github.com/shazforiot/GOL.git # timeout=10
> git.exe config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
> git.exe rev-parse "refs/remotes/origin/master^{commit}" # timeout=10
Checking out Revision ba799ba7e1b576f04a4612322b0412c5e6e1e5e4 (refs/remotes/origin/master)
> git.exe config core.sparsecheckout # timeout=10
> git.exe checkout -f ba799ba7e1b576f04a4612322b0412c5e6e1e5e4 # timeout=10
> git.exe branch -a -v --no-abbrev # timeout=10
> git.exe checkout -b master ba799ba7e1b576f04a4612322b0412c5e6e1e5e4 # timeout=10
Commit message: "Update Jenkinsfile"
```

## 8. Check Console

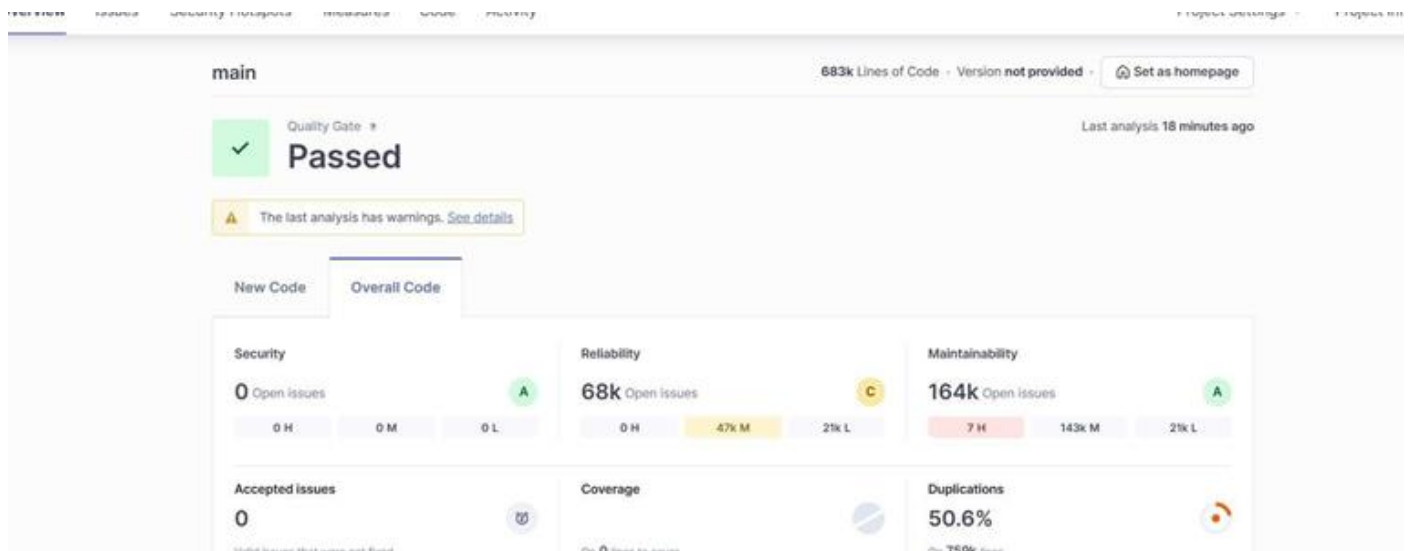
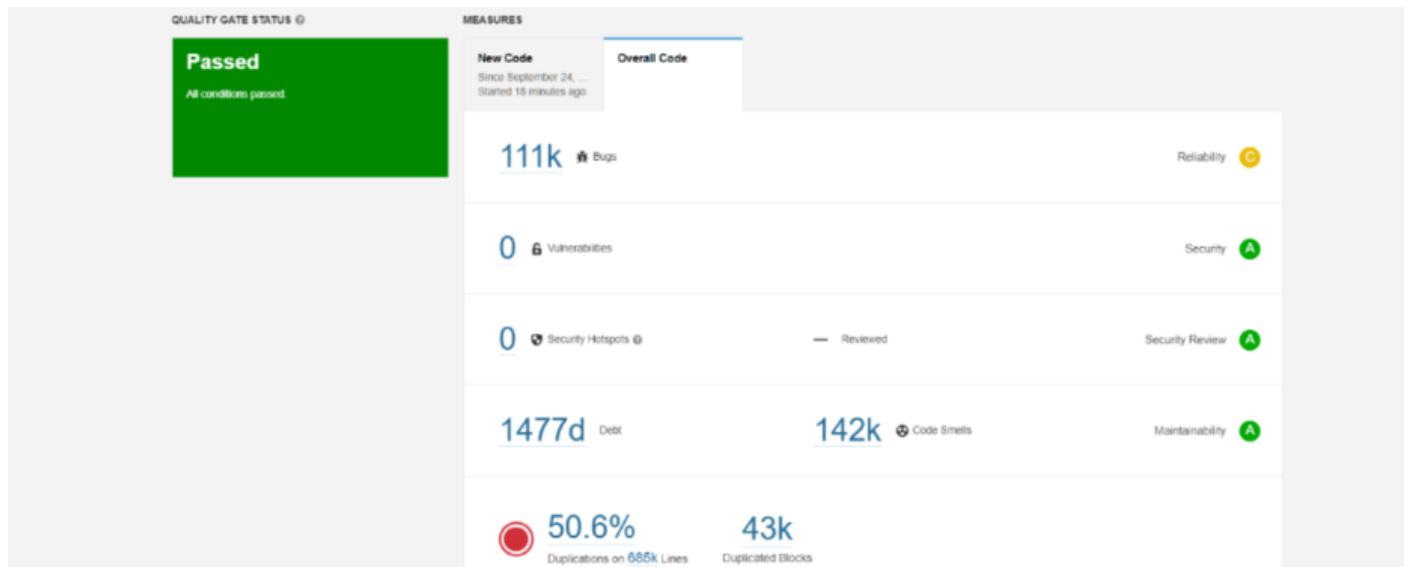
[Status](#)[Changes](#)[Console Output](#)[View as plain text](#)[Edit Build Information](#)[Delete build '#9'](#)[Timings](#)[Git Build Data](#)[Pipeline Overview](#)[Pipeline Console](#)[Replay](#)[Pipeline Steps](#)[Workspaces](#)[Previous Build](#)

### Console Output

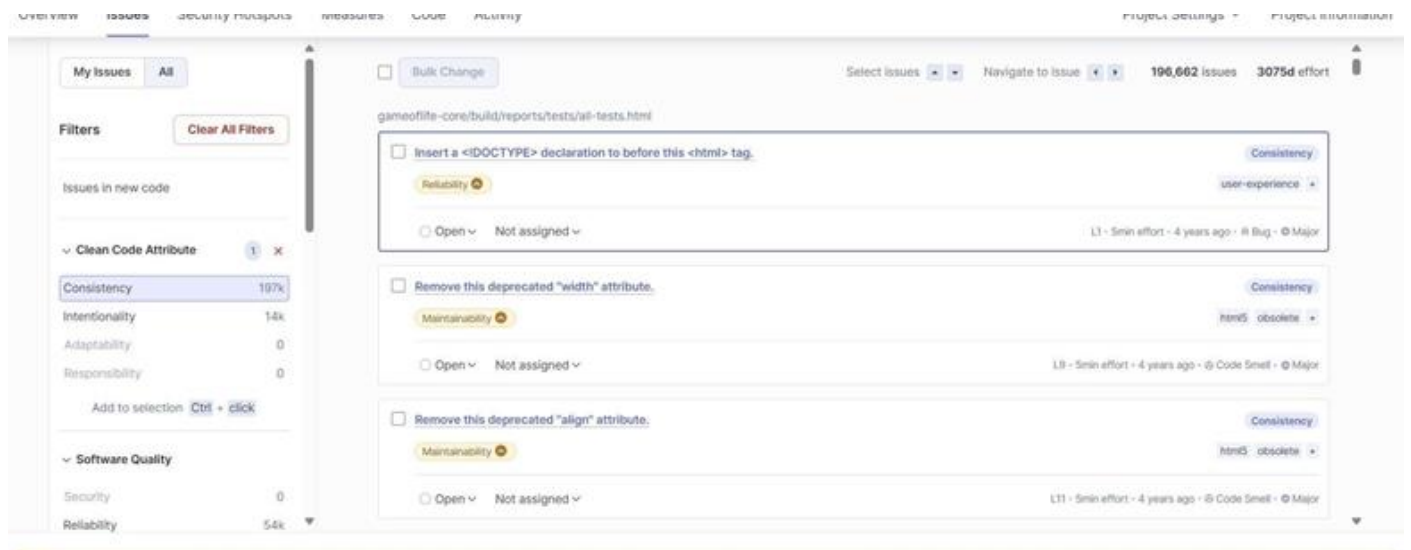
[Skipping 4,246 KB. Full Log](#)

```
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 Attribute1 X

Consistency197k

Intentionality14k

Adaptability0

Responsibility0

Add to selectionCtrl + click

Software Quality

Security0

Reliability14k

Bulk Change

Select Issues

Navigate to Issue

13,887 Issues

59d 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 issues

Navigate to issue

67,624 Issues

1646d 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 displays a software interface for managing code quality issues. On the left, a 'Filters' sidebar includes a 'Clear All Filters' button and sections for 'Issues in new code' and 'Clean Code Attribute'. Under 'Clean Code Attribute', 'Consistency' is set to '10-4s'. Under 'Software Quality', 'Maintainability' is selected with a value of '10-4s'. The main area shows a list of issues for the file 'gameoflife-acceptance-tests/Dockerfile'. Three issues are visible, all related to 'Maintainability' and 'Intentionality'. Each issue has a 'Bulk Change' button, a 'Select Issues' dropdown, and a 'Navigate to issue' dropdown. The top issue is 'Use a specific version tag for the image.' with a 'No tags' dropdown. The other two issues are 'Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.' with 'No tags' dropdowns. The bottom right corner shows '163,781 issues' and '1705d effort'.

## 14. Cyclomatic Complexities

The screenshot shows a software interface for managing code quality measures. The top navigation bar includes 'Overview', 'Issues', 'Security hotspots', 'Measures', 'Code', and 'Activity'. The 'Measures' tab is active. On the left, a sidebar lists various measures: 'Security', 'Reliability', 'Maintainability', 'Security Review', 'Duplications', 'Size', 'Complexity', and 'Cyclomatic Complexity'. 'Cyclomatic Complexity' is selected, showing a value of '1,112'. The main area displays a table of cyclomatic complexity for various code elements. The table has two columns: the element name and its complexity value. The elements listed are 'gameoflife-acceptance-tests', 'gameoflife-build', 'gameoflife-core', 'gameoflife-deploy', 'gameoflife-web', and 'pom.xml'. The complexity values are: 'gameoflife-acceptance-tests' (—), 'gameoflife-build' (—), 'gameoflife-core' (18), 'gameoflife-deploy' (—), 'gameoflife-web' (1,094), and 'pom.xml' (—). The bottom right corner shows '6 of 6 shown'.