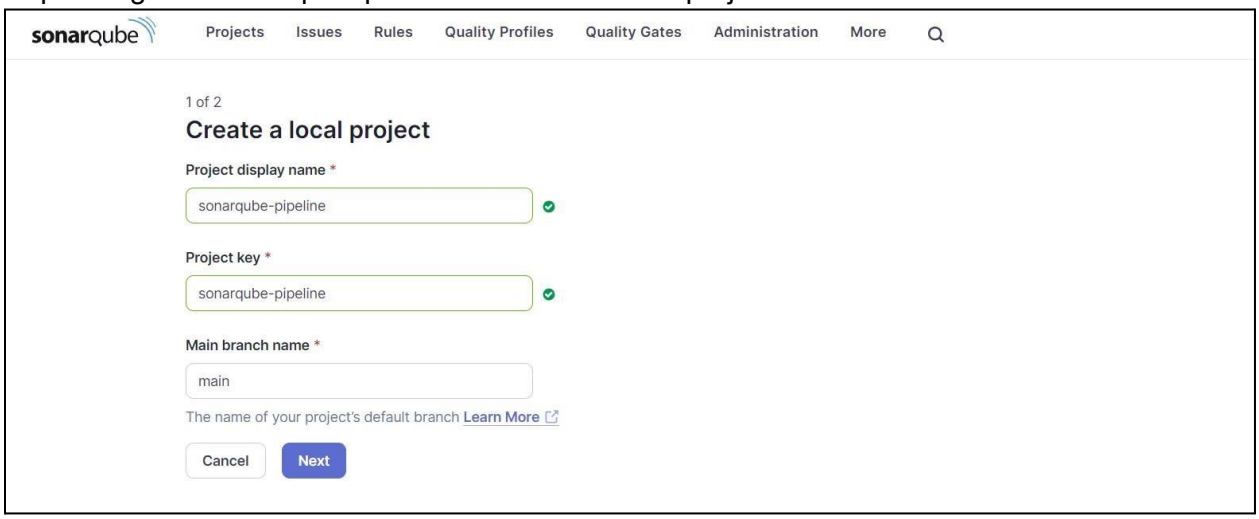
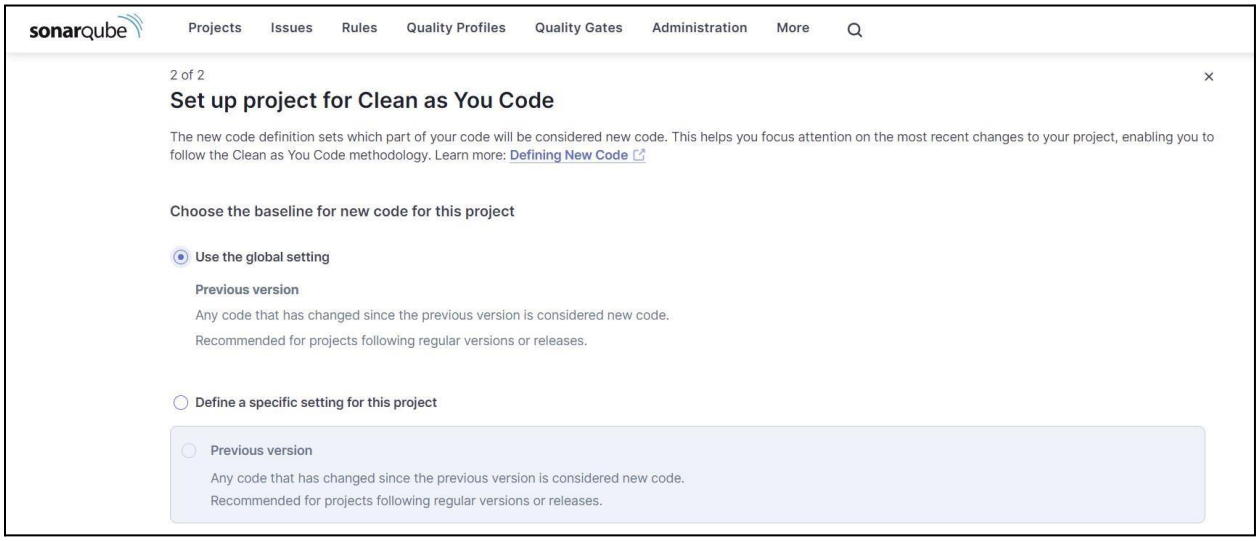
Name : **Devansh Wad hwani**
Class : **D15A**
Roll No. : **64**

Experiment 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.

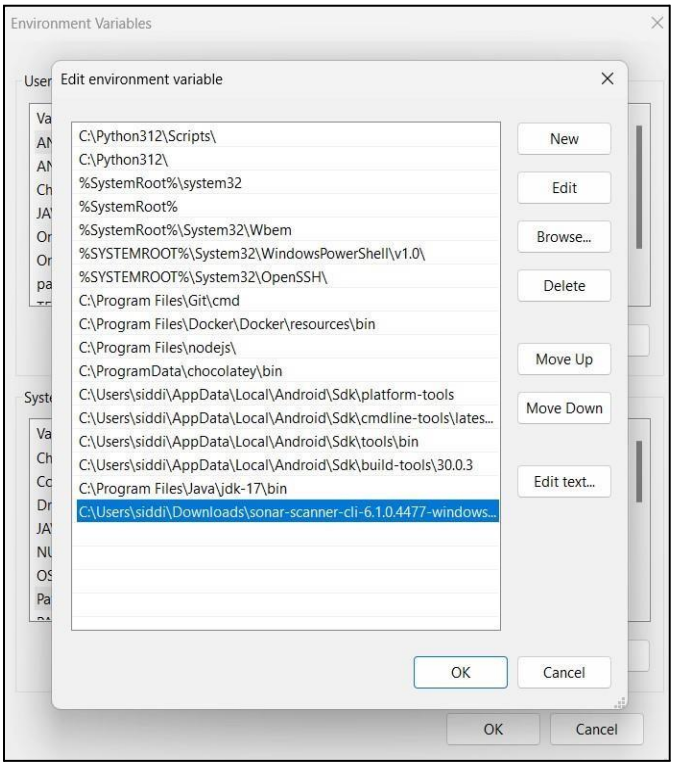
Step 1: Log in to sonarqube portal and create a local project.



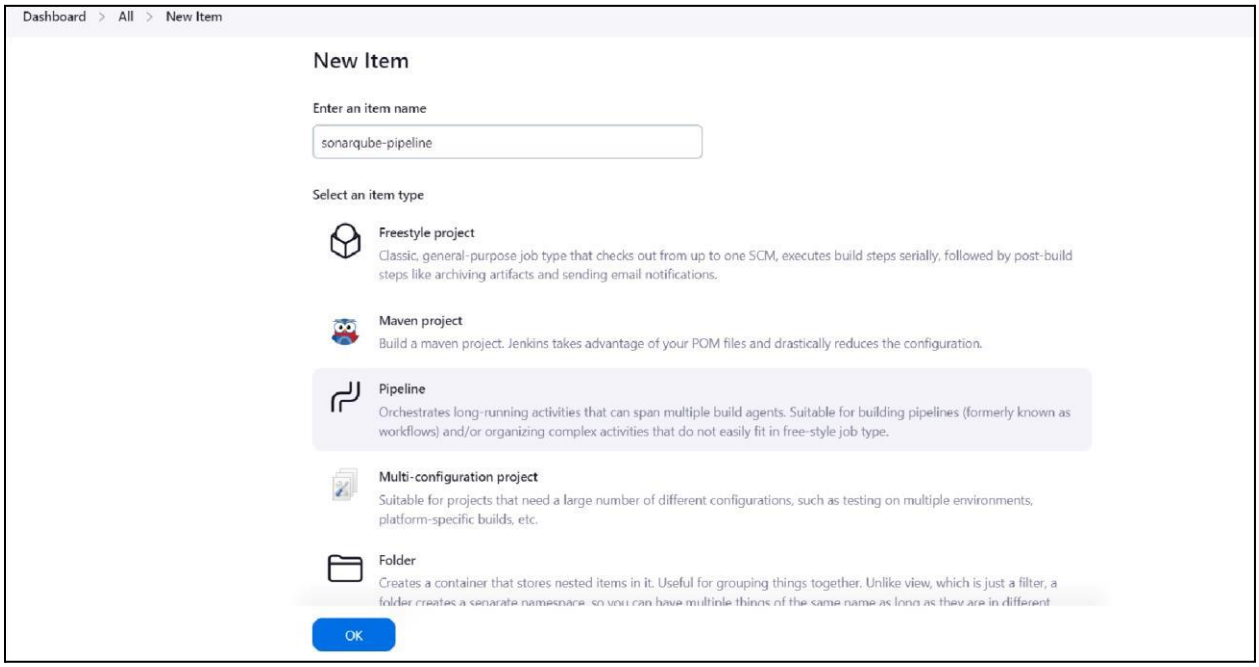


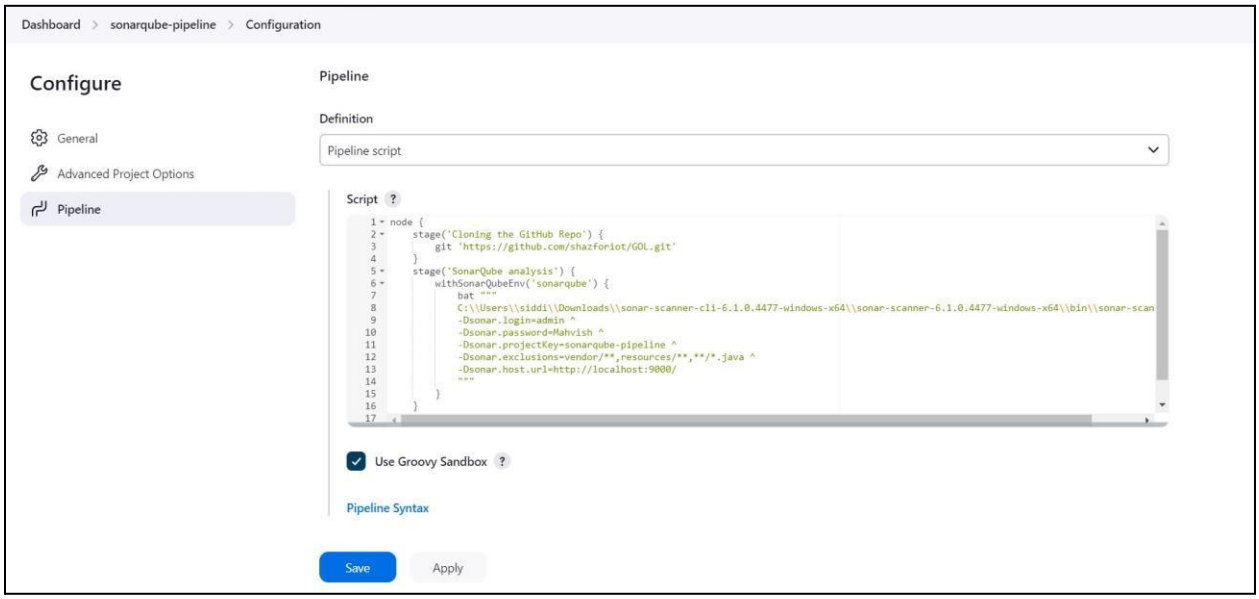
Step 2: Go to [download sonarscanner](#) to download sonar scanner

After the download is complete, extract the file and copy the path to bin folder Go to environment variables, system variables and click on path Add a new path, paste the path copied earlier.

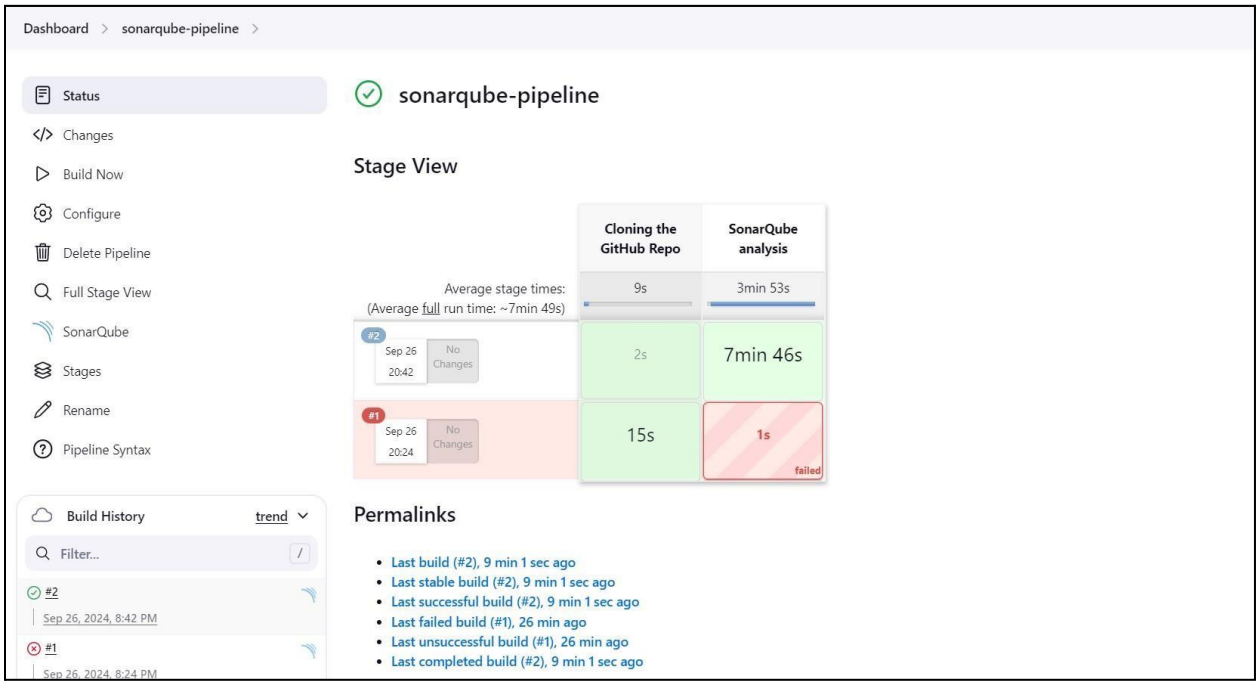


Step 3: Create a New Item in Jenkins, choose Pipeline.

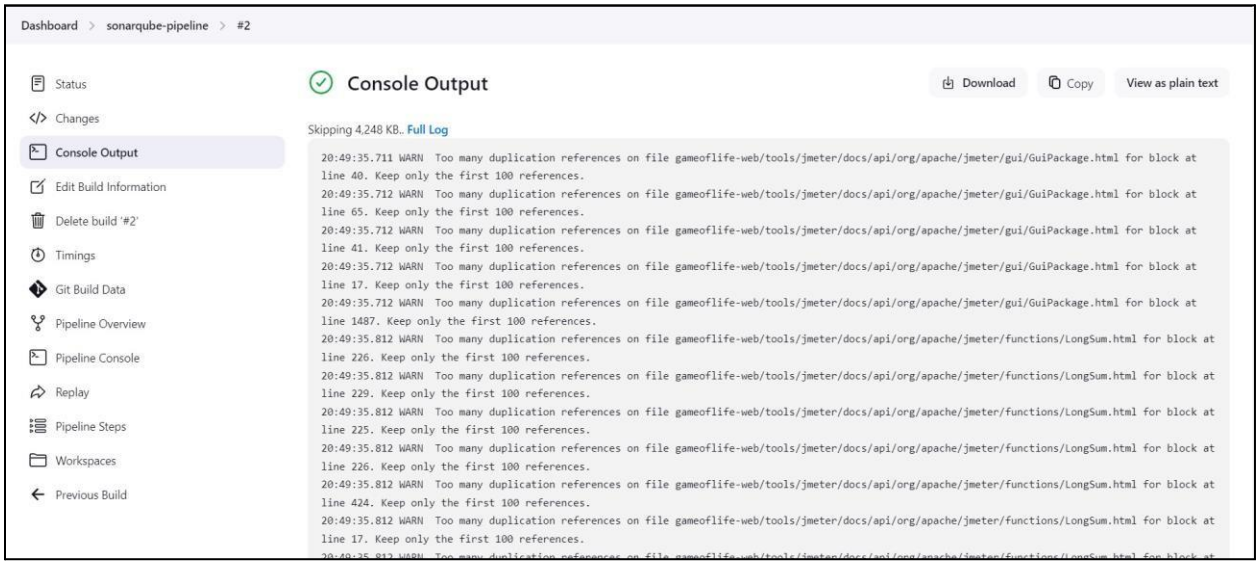




Step 4: Save the pipeline and build it.

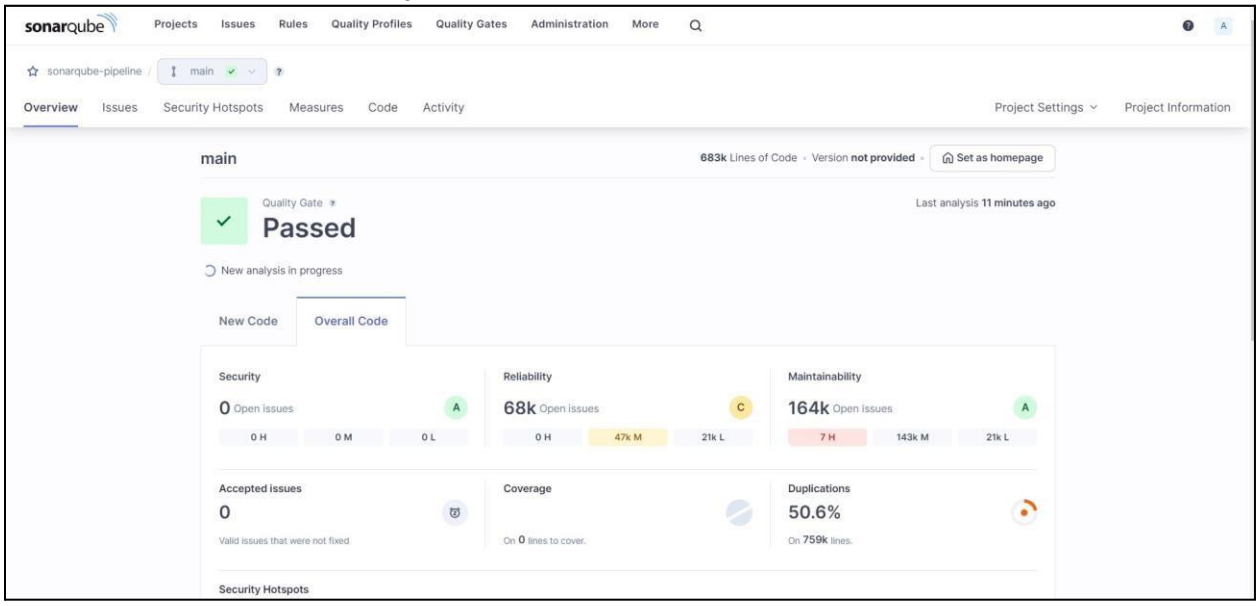


Console output:

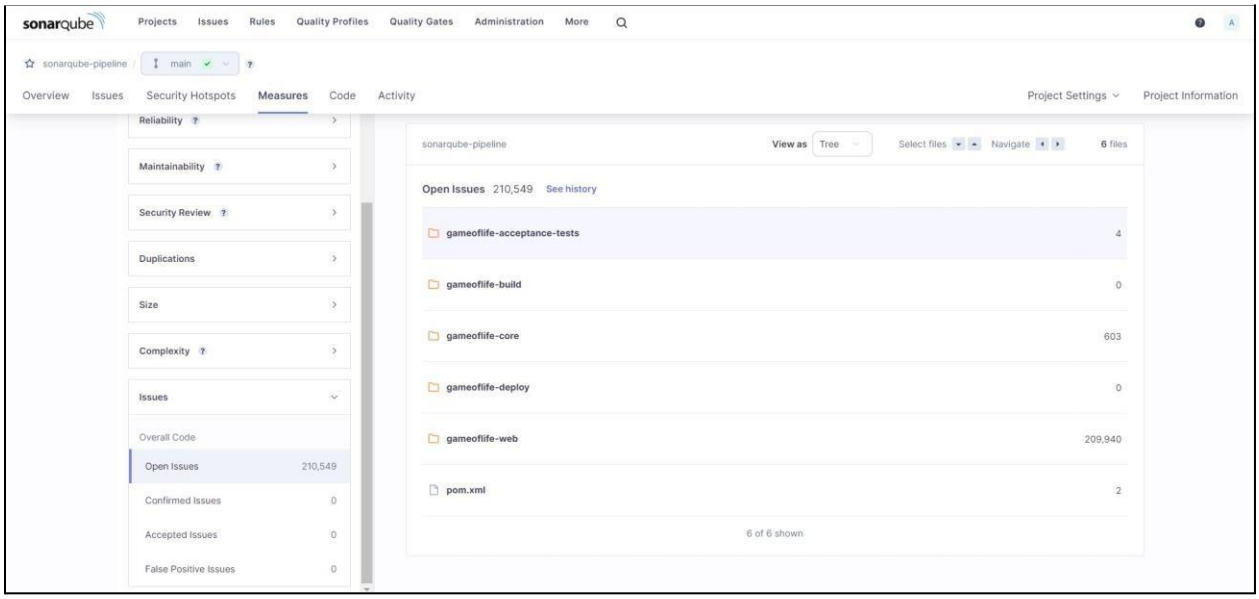


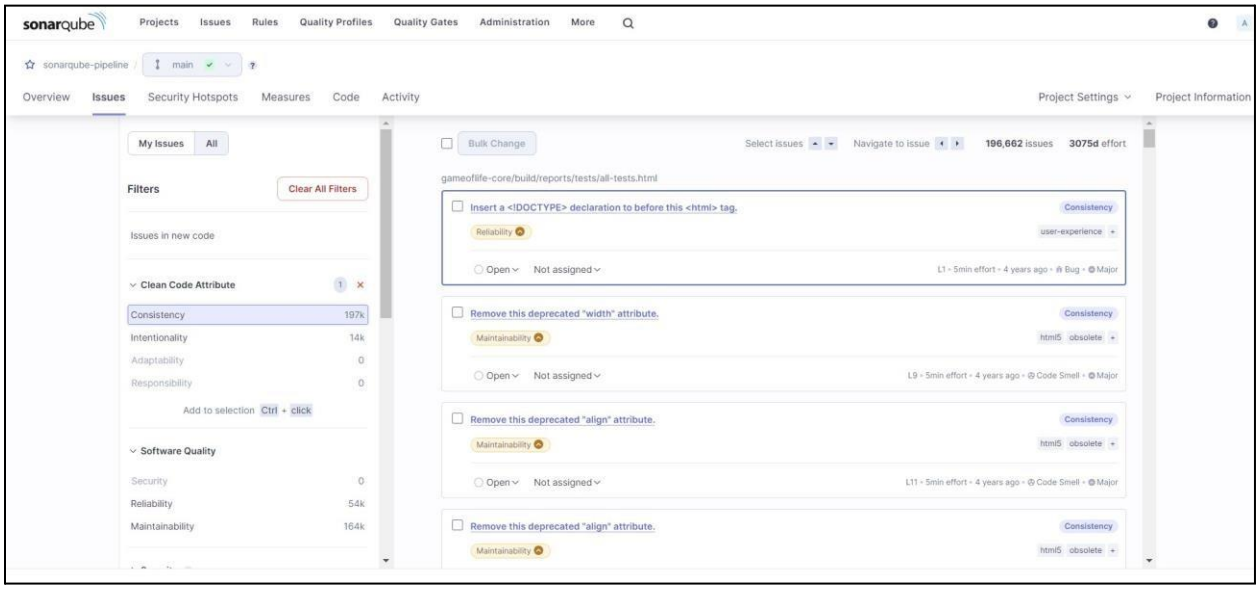
```
20:50:01.832 INFO  ANALYSIS SUCCESSFUL, you can find the results at: http://localhost:9000/dashboard?id=sonarqube-pipeline
20:50:01.832 INFO  Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
20:50:01.832 INFO  More about the report processing at http://localhost:9000/api/ce/task?id=159a9d05-1f5f-4e17-bd27-3643a32a836a
20:50:12.108 INFO  Analysis total time: 7:37.235 s
20:50:12.110 INFO  SonarScanner Engine completed successfully
20:50:12.849 INFO  EXECUTION SUCCESS
20:50:12.851 INFO  Total time: 7:44.878s
[Pipeline] }
[Pipeline] // withSonarQubeEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

Step 5: After that, check the project in SonarQube



Under different tabs, check all different issues with the code.


sonarqube
Projects
Issues
Rules
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
Reliability
Maintainability
Security Review
Duplications
Size
Complexity
Issues
Overall Code
Open Issues 210,549
Confirmed Issues 0
Accepted Issues 0
False Positive Issues 0
sonarqube-pipeline
View as Tree
Select files
Navigate
6 files
Open Issues 210,549 See history
gameoflife-acceptance-tests 4
gameoflife-build 0
gameoflife-core 603
gameoflife-deploy 0
gameoflife-web 209,940
pom.xml 2
6 of 6 shown


sonarqube
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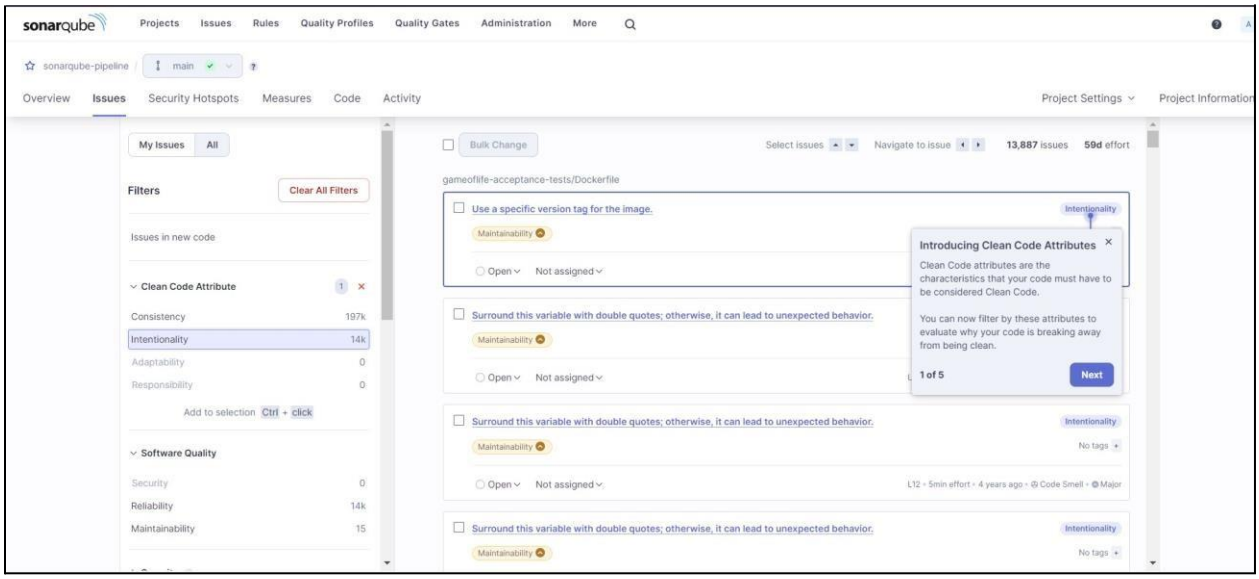
Issues
Rules
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
My Issues
All
Filters
Clear All Filters
Issues in new code
Clean Code Attribute
Consistency 197k
Intentionality 14k
Adaptability 0
Responsibility 0
Add to selection Ctrl + click
Software Quality
Security 0
Reliability 54k
Maintainability 164k
Bulk Change
Select issues
Navigate to issue
196,662 issues
3075d effort
gameoflife-core/build/reports/tests/all-tests.html
Insert a <!DOCTYPE> declaration to before this <html> tag.
Consistency
Reliability
user-experience
Open
Not assigned
L1 · 5min effort · 4 years ago · Bug · Major
Remove this deprecated "width" attribute.
Consistency
Maintainability
html5 obsolete
Open
Not assigned
L9 · 5min effort · 4 years ago · Code Smell · Major
Remove this deprecated "align" attribute.
Consistency
Maintainability
html5 obsolete
Open
Not assigned
L11 · 5min effort · 4 years ago · Code Smell · Major
Remove this deprecated "align" attribute.
Consistency
Maintainability
html5 obsolete


sonarqube
Projects
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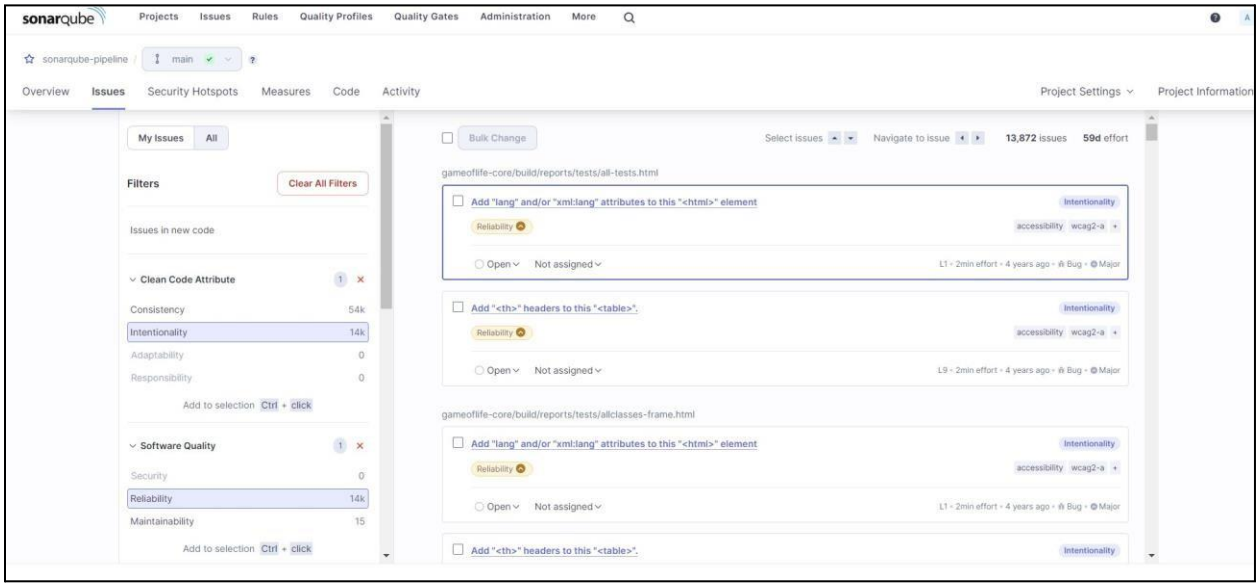
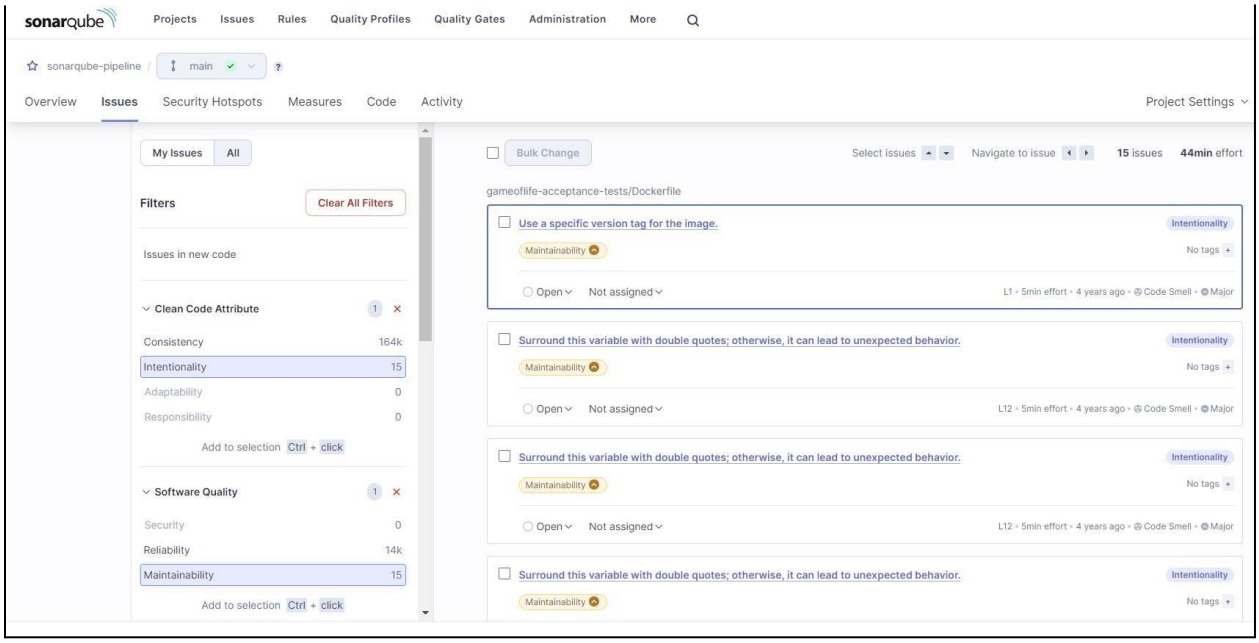
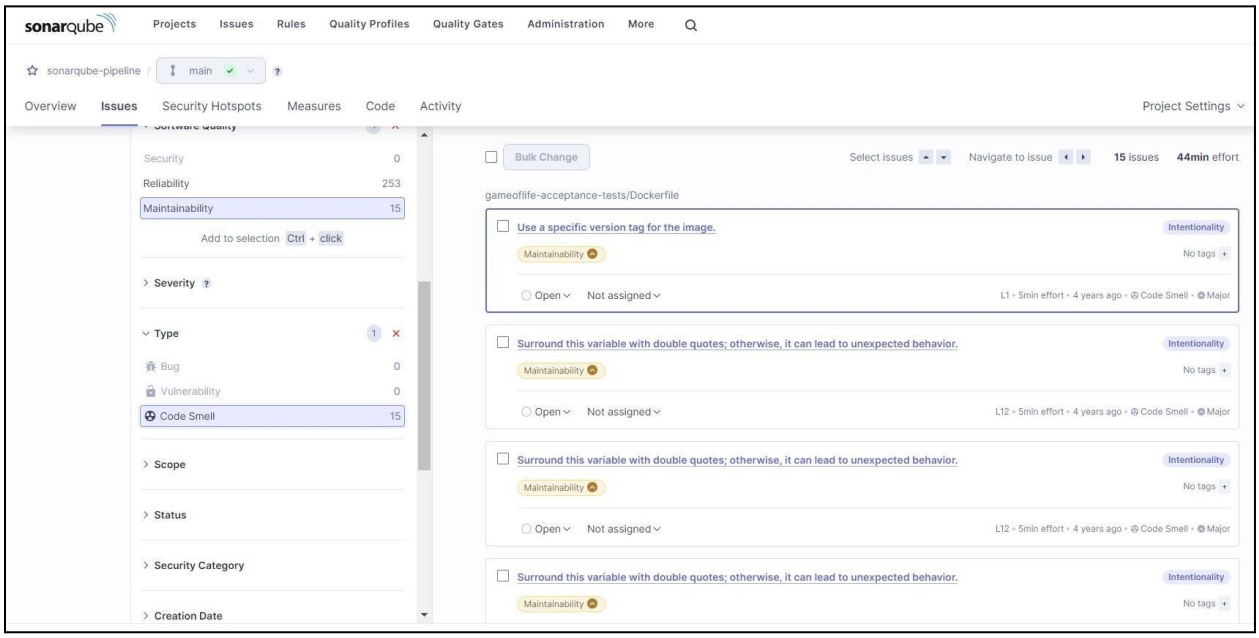
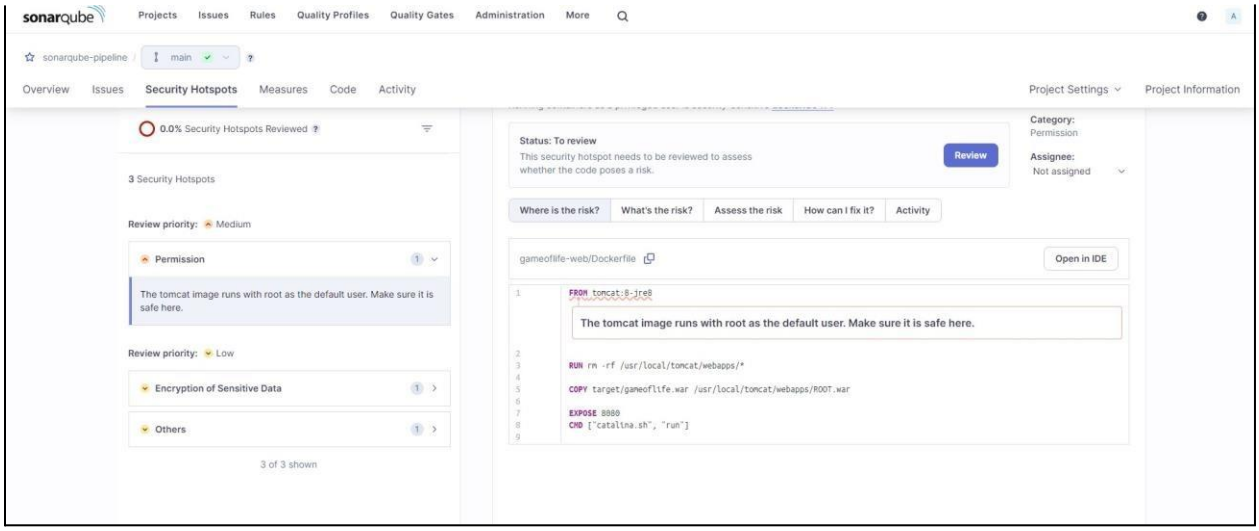
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
My Issues
All
Filters
Clear All Filters
Issues in new code
Clean Code Attribute
Consistency 197k
Intentionality 14k
Adaptability 0
Responsibility 0
Add to selection Ctrl + click
Software Quality
Security 0
Reliability 14k
Maintainability 15
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
Open
Not assigned
Introducing Clean Code Attributes
Clean Code attributes are the characteristics that your code must have to be considered Clean Code.
You can now filter by these attributes to evaluate why your code is breaking away from being clean.
1 of 5
Next
Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.
Maintainability
Open
Not assigned
Surround this variable with double quotes; otherwise, it can lead to unexpected behavior.
Intentionality
Maintainability
No tags
Open
Not 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


sonarqube
Projects
Issues
Rules
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
My Issues
All
Filters
Clear All Filters
Issues in new code
Clean Code Attribute
Consistency 54k
Intentionality 14k
Adaptability 0
Responsibility 0
Add to selection Ctrl + click
Software Quality
Security 0
Reliability 14k
Maintainability 15
Bulk Change
Select issues
Navigate to issue
13,872 issues
59d effort
gameoflife-core/build/reports/tests/all-tests.html
Add "lang" and/or "xml:lang" attributes to this "<html>" element
Intentionality
Reliability
accessibility wcag2-a
Open
Not assigned
L1 • 2min effort • 4 years ago • Bug • Major
Add "<th>" headers to this "<table>".
Intentionality
Reliability
accessibility wcag2-a
Open
Not assigned
L9 • 2min effort • 4 years ago • Bug • Major
gameoflife-core/build/reports/tests/allclasses-frame.html
Add "lang" and/or "xml:lang" attributes to this "<html>" element
Intentionality
Reliability
accessibility wcag2-a
Open
Not assigned
L1 • 2min effort • 4 years ago • Bug • Major
Add "<th>" headers to this "<table>".
Intentionality


sonarqube
Projects
Issues
Rules
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
My Issues
All
Filters
Clear All Filters
Issues in new code
Clean Code Attribute
Consistency 164k
Intentionality 15
Adaptability 0
Responsibility 0
Add to selection Ctrl + click
Software Quality
Security 0
Reliability 14k
Maintainability 15
Add to selection Ctrl + click
Bulk Change
Select issues
Navigate to issue
15 issues
44min effort
gameoflife-acceptance-tests/Dockerfile
Use a specific version tag for the image.
Intentionality
Maintainability
No tags
Open
Not 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
Open
Not 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
Open
Not 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


sonarqube
Projects
Issues
Rules
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Security 0
Reliability 253
Maintainability 15
Add to selection Ctrl + click
Severity
Type
Bug 0
Vulnerability 0
Code Smell 15
Scope
Status
Security Category
Creation Date
Bulk Change
Select issues
Navigate to issue
15 issues
44min effort
gameoflife-acceptance-tests/Dockerfile
Use a specific version tag for the image.
Intentionality
Maintainability
No tags
Open
Not 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
Open
Not 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
Open
Not 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


sonarqube
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Issues
Rules
Quality Profiles
Quality Gates
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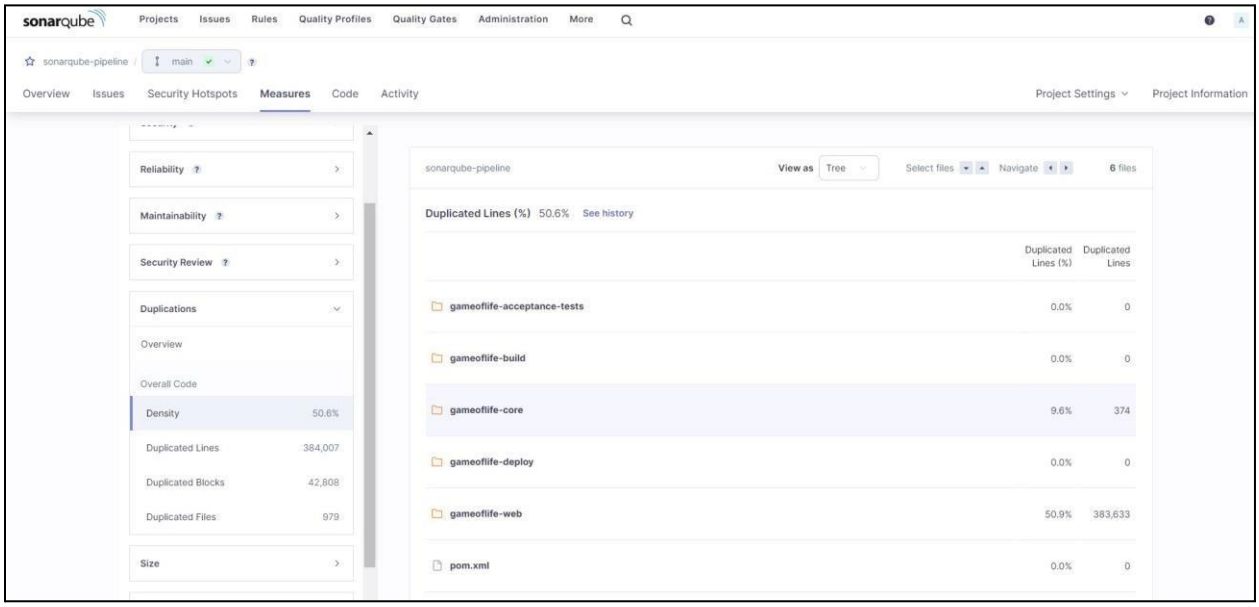
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
0.0% Security Hotspots Reviewed
3 Security Hotspots
Review priority: Medium
Permission
The tomcat image runs with root as the default user. Make sure it is safe here.
Review priority: Low
Encryption of Sensitive Data
Others
3 of 3 shown
Status: To review
This security hotspot needs to be reviewed to assess whether the code poses a risk.
Review
Category:
Permission
Assignee:
Not assigned
Where is the risk?
What's the risk?
Assess the risk
How can I fix it?
Activity
gameoflife-web/Dockerfile
Open in IDE
FROM tomcat:8-jre8
The tomcat image runs with root as the default user. Make sure it is safe here.
RUN rm -rf /usr/local/tomcat/webapps/*
COPY target/gameoflife.war /usr/local/tomcat/webapps/ROOT.war
EXPOSE 8080
CMD ["catalina.sh", "run"]


sonarqube
Projects
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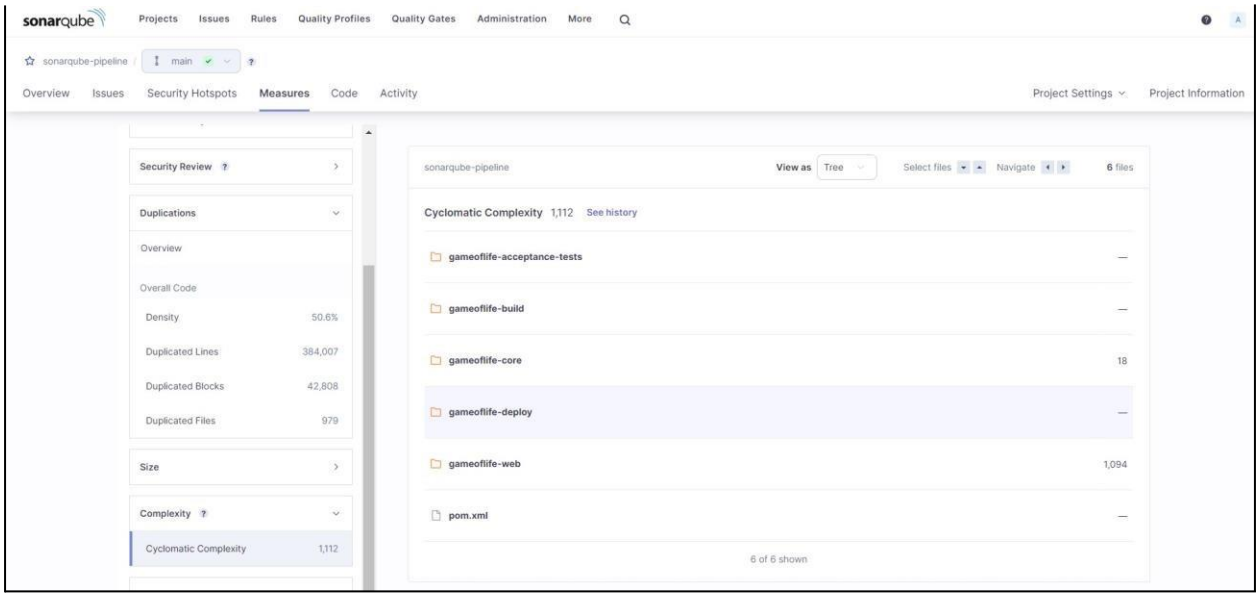
Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
Reliability
Maintainability
Security Review
Duplications
Overview
Overall Code
Density 50.6%
Duplicated Lines 384,007
Duplicated Blocks 42,808
Duplicated Files 979
Size
sonarqube-pipeline
View as Tree
Select files
Navigate
6 files
Duplicated Lines (%) 50.6%
See history
Duplicated Lines (%)
Duplicated Lines
gameoflife-acceptance-tests 0.0% 0
gameoflife-build 0.0% 0
gameoflife-core 9.6% 374
gameoflife-deploy 0.0% 0
gameoflife-web 50.9% 383,633
pom.xml 0.0% 0


sonarqube
Projects
Issues
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Quality Profiles
Quality Gates
Administration
More
sonarqube-pipeline
main
Overview
Issues
Security Hotspots
Measures
Code
Activity
Project Settings
Project Information
Security Review
Duplications
Overview
Overall Code
Density 50.6%
Duplicated Lines 384,007
Duplicated Blocks 42,808
Duplicated Files 979
Size
Complexity
Cyclomatic Complexity 1,112
sonarqube-pipeline
View as Tree
Select files
Navigate
6 files
Cyclomatic Complexity 1,112 See history
gameoflife-acceptance-tests —
gameoflife-build —
gameoflife-core 18
gameoflife-deploy —
gameoflife-web 1,094
pom.xml —
6 of 6 shown