

Sonarqube

It is an open source platform for continuous inspection of code quality to perform automatic reviews with static analysis of code detects bugs & code smells in 29 programming languages.

↳ It will generate the report if any issues in code.

↳ It will support multiple databases (MySQL, Oracle, PostgreSQL...)

Relational db:- Oracle, MySQL, PostgreSQL, MySQL Server

In Relational DB stores data in the form of rows & columns like spread sheet. These DB's used for very big applications.

non Relational DB:- mongo, cloudant, DYNAMODB

In non Relational DB, data store in the form of document like JSON format. These DB's used for small applications.

↳ for testing the source code by using unit test cases is called Code Coverage

JUnit → Java Project

NUnit → .Net Projects

CUnit → C lang

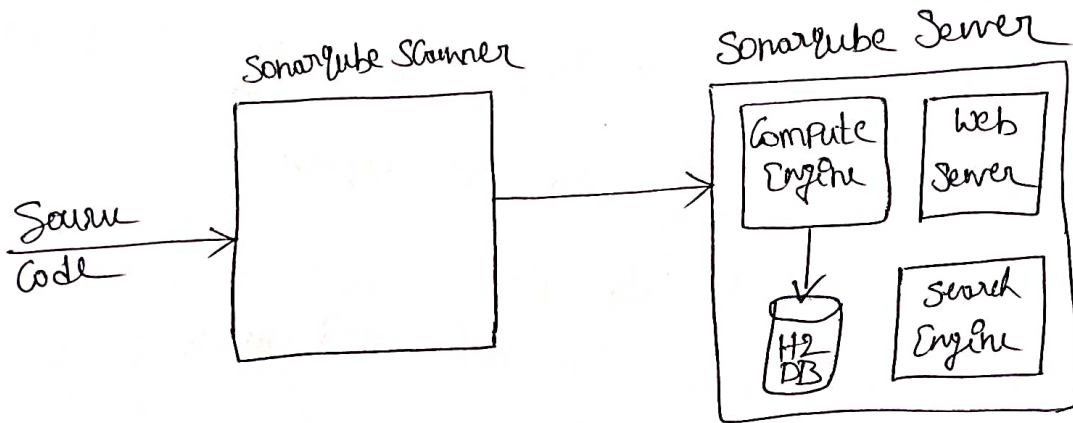
↓
these unit test cases developer can write using testing framework.

According to industry standards Code Coverage is min. 80%.

↳ Sonarqube having inbuilt db called as H2 database. if you want to configure external db then you can configure or else Sonarqube uses inbuilt db.

Open source:- Java, JavaScript, C#, Python, Groovy, PHP, Puppet... etc
for supports Sonarqube Open source.

Commercial:- ABAP, COBOL, PL/SQL, RPG... etc for support
Commercial Sonarqube this is not an open source
for these languages.



Once source code gets into the Sonarqube Scanner, the Sonarqube Scanner will give the report after scanning of code. Then this report can send to Sonarqube Server. In Sonarqube Server we have 4 components like Compute Engine, H2DB, webserver & Search Engine.

The Compute Engine is receives the report from Sonarqube Scanner & it's going to ^{data} be classified into three categories

- i) Bugs
- ii) vulnerabilities
- iii) Code Smell

this data can be stored into the H2 DB i.e internal or if you want to store outside db then you need to configure here.

The web server is used to show the data in the form of GUI. The developers can access the webserver for seeing data.

Search Engine is used here one technology i.e Elastic Search. Whatever you searching in this server, the Search Engine is going to give quick response to user.

Installation Sonarqube Server:-

Go to documentation 'install sonarqube in ubuntu & linux'
then better understanding easily.

↓
sudo su

↓
install Java, PostgreSQL, ZIP

↓
Install 'sonarqube' Server "zip file or any" &
unzip [opt directory]

↓
useradd sonar

↓
Give Permission for 'sonar' user on visudo file
[Sonar ALL=(ALL) NOPASSWD:ALL]

↓
change owner & group Permission [opt/sonarqube-7.8]
[sonarqube install path]

Chown -R sonar:sonar [opt/sonarqube-7.8]

Chmod -R 775 [opt/sonarqube-7.8]

Su - sonar (switch to sonar user)

Cd [opt/sonarqube-7.8]

↓
[bin, conf, data, elasticSearch, lib, logs, temp, web]

↓
Sonarqube Server starts in [Linux, mac, windows]
↓
/sonar.sh start
} here change port number or
db also change here if
you configure outside db.
then restart sonarqube.

↓
sonar.log
logs info shows for
sonarqube

↓
Sonarqube starts & paste URL then
sonarqube server address.

↳ Sonarqube Server is runs in only sonar user. So switch to sonar user & then

[sh sonar.sh start	→ for starting Sonar
	sh sonar.sh status	→ for checking status shows running
]		

↳ ~~Sonar~~ Even if in sonar user the Sonarqube shows not running then check logs [sonar logs, web logs, ce logs]. here shows error whatever shows that you can delete,

→ sudo rm -rf /opt/sonarqube-7.8/temp



then Again Start Sonarqube in sonar user.

here shows status as running.

↳ Sonarqube is not running when we are trying to run as root user because the Sonarqube only runs as sonar user.

PS -cf | grep Sonarqube → shows Problem of sonarqube

↳ Even if you are not login to the Sonarqube then in dashboard shows [Projects, Issues, Rules Quality Profile & Gates].

if you don't want shows before login to the Sonarqube then → Go to Administration → Security →

Force user authentication "Enable here".

↳ you need give ^{Configure} Sonarqube Credentials [URL, username & password] in pom.xml. instead of username & password you can Configure token in pom.xml file.

mvn Sonar:Sonar (2) mvn clean package Sonar:Sonar
↓
pluginname &
Goal same

this plugin is going to work as Sonar Scanner.

When we run that command, the SonarQube Scanner will give report in the form of Bugs, vulnerabilities & Code smells. If any bug & Code smell shows developer can fix these issues. SonarQube maintain version history of projects. Then version will enter in pom.xml file.

Issues:- All the Project issues [Bug, vulnerability & Code smell]

shows under the Issues section.

Bug → A coding mistake that can lead an error

vulnerability → A point in your code that's open to attack

Code smell → A maintainability issue that makes your code confusing & difficult to maintain.

Rule:- Based on the rules issues can be generated, if rule is not satisfies then going to consider as an issue.

You can write own rules also for identifying the issues only this possible in earlier versions. By default SonarQube Server will Sonar rules if you want to check then check for each language of rules, [All lang default rules = 2370]

Quality Profile:- It means collection of rules apply which are going to when executing the report. By default profile is Sonar way. You can create own quality profile for any languages. If you want create own profile for 'Java' then create it. Create that profile,

By default Java rules^{all} are come here in the form of
Bugs rules -
vulnerability rules -
Code smell rules -
Security hotspot rules -

out of this rules you can add what's rules you want for that Quality Profile.

If you want to apply this Quality Profile for Particular Project, Goto that Project → Administration → click 'Quality Profile' → select 'Profile name'

Quality Gates:- Collection of conditions going to mark as a Passed or failure. By default qualityGates is Sonarway & here shows default condition. if you want to create any Quality Gate & create it. Goto that Quality Gate & Add the condition here.

Coverage → Entire Code Coverage
Coverage on new Code → updated Code only (80%)
Condition Coverage →
Duplication → 3.0

If you want to apply this Quality Gate for Particular Project, Goto that Project → Administration → click 'Quality Gates' → select 'Gate name'.

NOTE:- Code Coverage is nothing but how many lines of code is tested by unit test case.

Administration:-

Configuration:-



Add some external for that any languages so here that external files consider as a under of that program language.
[.j & .java]

Security:-



Create user & Groups & Give Permission

Projects:-



Project shows here

System:-



web server, Search Engine, databases info. shows here.

NOTE:- Sonarcloud is Public code analysis application.