CTIP 환경 구축 (1)

T6

201513205 송승현

201511273 여찬종
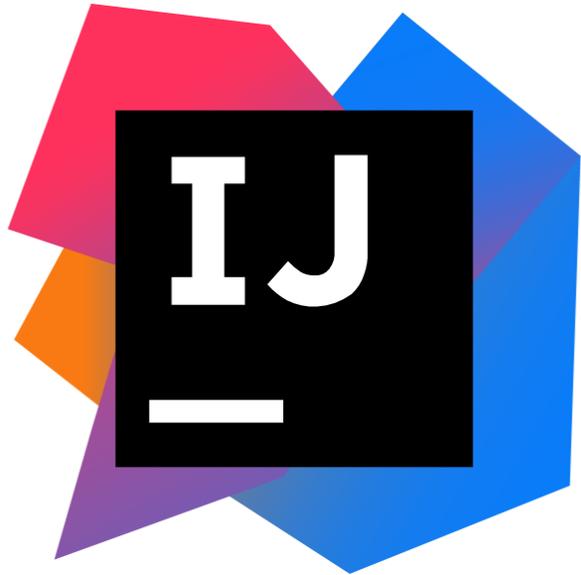
201612368 이지우

201811301 한지희

CONTENTS

01 IDE IntelliJ

eclipse 보다 안정적인 플러그인 제공

코드의 자동완성 기능

02 Automatic Build Gradle

✔ Update된 Task를 체크해 Incremental Build

→ Build 시간 단축

✔ 플러그인 추가와 같은 Customizing이 간편

03 Unit Testing JUnit5

✔ 다양한 검증 함수 지원

→Test 메소드를 통한 독립적인 테스트

→Assert 메소드를 통한 간결한 결과 판단

✔ 테스팅 결과가 설정한 커버리지를 만족하는지

확인 가능

IntelliJ Gradle Build
JUnit Testing
Jacoco Coverage

04 Configuration Management Git

✔ 개발자와 서버 저장소의 독립성

→Git을 통해 각 개발자의 버전관리 용이

→GitHub를 통한 코드 공유로 공동 작업 용이

05 CI GitHub Actions
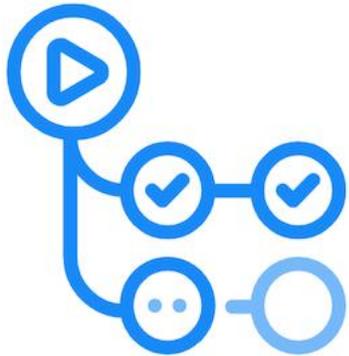
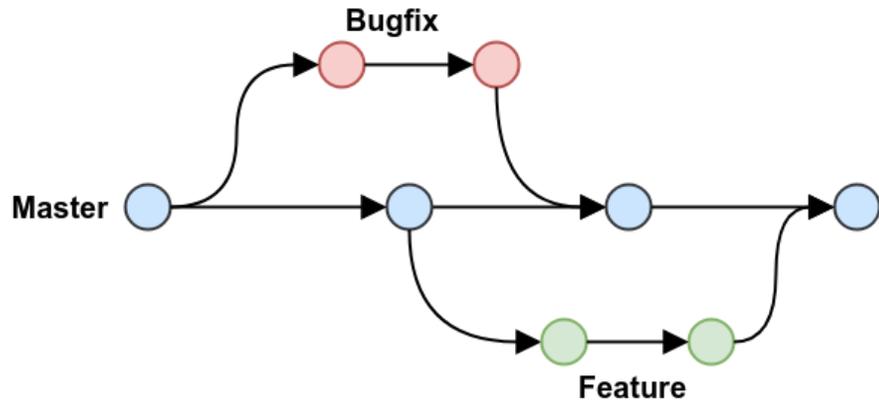GitHub Actions

❌ **Jenkins** 에 비해 느린 Build

✅ GitHub에서 바로 확인 가능

✅ Marketplace에 배포된

Junit, Sonarqube, Jira 등의 Actions를 통해

간편한 workflow(자동화 도구) 구축 가능

GitHub의 효과적 사용을 위해 Master[main]를 통해 push되는 작업에 대해서만 Build

workflow/_.yml 파일

```
on:
  push:
    branches: [main]
  pull_request:
    branches: [main]
```

Build with Gradle Succeed

Junit Test Report

Test All Pass

✅ Merge remote-tracking branch 'origin/main' Java Testing #34

🏠 Summary

GitHub Actions / JUnit Test Report
succeeded 4 minutes ago in 0s

Jobs

✅ build_testing

✅ JUnit Test Report

7 tests run, 0 skipped, 0 failed.

↗ View more details on GitHub Actions

---

5 tests run, 0 skipped, 2 failed.

ANNOTATIONS

✕ Check failure on line 19 in src/test/java/IntCalculatorTest.java

🐙 github-actions / JUnit Test Report

IntCalculatorTest.testSum

java.lang.AssertionError: expected:<4> but was:<8>

◀

Raw output

✕ Check failure on line 37 in src/test/java/IntCalculatorTest.java

🐙 github-actions / JUnit Test Report

IntCalculatorTest.testDivision

java.lang.AssertionError: expected:<4> but was:<3>

◀

Raw output

↗ View more details on GitHub Actions

Test Fail

```
              }
21   21
22   22            @Test
 ⬍           @@ -34,7 +34,7 @@ public void testProduct() {
34   34            @Test
35   35            public void testDivision() {
36   36                int result = calculator.divide(9, 3);
37   -                Assert.assertEquals(3, result);
     37   +            Assert.assertEquals(4, result);
```

✕ Check failure on line 37 in src/test/java/IntCalculatorTest.java

🐙 GitHub Actions / JUnit Test Report

IntCalculatorTest.testDivision

java.lang.AssertionError: expected:<4> but was:<3>

◀

Raw output

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06 Team Communication Slack

✓ 채널 분리를 통한 개발팀과의 의사소통 구분 가능

✓ 검증팀이 많이 사용해본 도구

✓ 원하는 정보만 알림으로 받아볼 수 있음

S/W V&V ⌄

@ 멘션 및 반응
⋮ 더 보기

▼ 채널
🔒 개발팀
🔒 검증팀
일반
builds
➕ 채널 추가

▶ 다이렉트 메시지
▶ 앱

incoming-webhook 앱 오후 11:57
⛔ Failed GitHub Actions

8398a7@action-slack

repo	**message**
plat67/OOADProject	add unit test, slack
commit	**author**
683e09cb	thanos73k<59728699+thanos73k@users.noreply.github.com>
action	**job**
action	build_testing
took	**eventName**
26 sec	push
ref	**workflow**
refs/heads/main	Java Testing

오늘 ⌄

incoming-webhook 앱 오전 12:00
✅ Succeeded GitHub Actions

8398a7@action-slack

repo	**message**
plat67/OOADProject	Update main.yml
commit	**author**
7f09733a	union93<union93@konkuk.ac.kr>
action	**job**
action	build_testing
took	**eventName**
2 min 7 sec	push
ref	**workflow**
refs/heads/main	Java Testing

GitHub Actions
Build Succeed/Fail
Slack으로 알림

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07 System Testing **TestQuality**

✅ Test Plan과 Test Case 생성

✅ Test 실행 시기와 결과, 담당자 관리

✅ 테스트 결과 모니터링, 보고서 모니터링 가능

Test Plan, Test Case 생성
Test 결과 및 진행 상황 파악 가능

Create Test Plan Run

Name	
Test Plan *	TP1 OOAD ✕ ▼
	No Test Cases exists ⊕ Create Test Case now.
Start Time	04/08/2021 📅
Milestone	Select Milestone... ▼
	☐ Save Permanently

Cancel Save

☰ Create Test

	No Test Suites Exists ⊕ Create Test Suite now.
Type	Functionality
Priority	Medium
Assigned To	Select Assigned To...
Estimate	
Precondition	
	☐ Is Automated
Steps *	⊕ Add Steps

Cancel Save

◆ Create Test Suite

Name *	
Test Plan *	TP1 OOAD ✕ ▼
Parent Test Suite	Select Parent Test Suite... ▼
Description	
Assigned To	Select Assigned To... ▼

Cancel Save

User invite complete for thanos73k@gmail.com. ✕

☰ Test Plans
⬚ Test Plans for the project.

✓	Pass	0 / 0
⟳	Pending	0 / 0
⊙	Fail	0 / 0
⊘	Block	0 / 0
↺	Retest	0 / 0
⏭	Skip	0 / 0

[1D] [7D] [1M] [3M]

No Runs Available

✔ Pass ✕ | ⟳ Pending ✕ | ⊙ Fail ✕ | ⊘ Block ✕ | ↺ Retest ✕ | ⏭ Skip ✕

☰ Test Plans ⊕ ☰

Key	Name	Description	Updated At ↑
TP1	OOAD		about an hour ago

☰ Test Plan Runs ⊕ ☰

Key	Name		Complete	Created At ↑	Status	Blocked	% Executed

You have no active Test Plan Runs

⊕ Create Test Plan Run

08 Static Code Analysis SonarQube

✔ Web Server를 통해 다양한 분석 결과 확인 용이

→Code Smell, Bug 등의 Issue

→Reliability, Security 등의 관점에서의 분석 결과 등

✔ Marketplace를 통한 PMD, Checkstyle 연결 용이

Static Code Analysis PMD,Checkstyle, FindBugs

✔ 잠재적인 결함(미사용 변수, 중복 코드 등)을 분석

✔ 개발팀에게 협업에서의 코딩 스타일에 대한 분석 제공

✔ 속도가 빠르고 실제 결함일 수 있는 정확도가 높음

Sonarqube + PMD + Checkstyle

Search for projects...

My Issues | **All**

Bulk Change

↑ ↓ to select issues   ← → to navigate   🔄 1 / 17 issues   2h 20min effort   🏠

Filters

∨ Type

🐞 Bug — 0
🔒 Vulnerability — 0
☢ Code Smell — 17

∨ Severity

❶ Blocker — 7   ⬇ Minor — 5
⬆ Critical — 0   ⓘ Info — 0
⬇ Major — 5

> Scope

> Resolution

> Status

> Security Category

> Creation Date

> Language

> Rule

> Tag

> Project

> Assignee

> Author

📄 OOADProject / src/main/java/Main.java

Move this file to a named package. Why is this an issue?   5 hours ago ∨ % ▼
☐ ☢ Code Smell ▼ ⬇ Minor ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 convention ∨

Replace this use of System.out or System.err by a logger. Why is this an issue?   24 minutes ago ∨ L51 % ▼
☐ ☢ Code Smell ▼ ⬆ Major ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 bad-practice, cert, owasp-a3 ∨

Directly append the argument of String.valueOf(). Why is this an issue?   24 minutes ago ∨ L51 % ▼
☐ ☢ Code Smell ▼ ⬇ Minor ▼ ○ Open ▼ Not assigned ▼ 5min effort Comment   🏷 clumsy ∨

Directly append the argument of String.valueOf(). Why is this an issue?   24 minutes ago ∨ L51 % ▼
☐ ☢ Code Smell ▼ ⬇ Minor ▼ ○ Open ▼ Not assigned ▼ 5min effort Comment   🏷 clumsy ∨

📄 OOADProject / src/test/java/MainTest.java

Add at least one assertion to this test case. Why is this an issue?   25 minutes ago ∨ L7 % ▼
☐ ☢ Code Smell ▼ ❶ Blocker ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 junit, tests ∨

Add at least one assertion to this test case. Why is this an issue?   25 minutes ago ∨ L11 % ▼
☐ ☢ Code Smell ▼ ❶ Blocker ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 junit, tests ∨

Add at least one assertion to this test case. Why is this an issue?   25 minutes ago ∨ L15 % ▼
☐ ☢ Code Smell ▼ ❶ Blocker ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 junit, tests ∨

Add at least one assertion to this test case. Why is this an issue?   25 minutes ago ∨ L19 % ▼
☐ ☢ Code Smell ▼ ❶ Blocker ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 junit, tests ∨

Add at least one assertion to this test case. Why is this an issue?   25 minutes ago ∨ L23 % ▼
☐ ☢ Code Smell ▼ ❶ Blocker ▼ ○ Open ▼ Not assigned ▼ 10min effort Comment   🏷 junit, tests ∨

∨ Repository

SonarQube Java	628
FindBugs Java	450
Checkstyle Java	357
FindBugs Contrib Java	307
PMD Java	268
Find Security Bugs Java	115
I18n Issues Analyzer Repository Java	17
PMD Unit Tests Java	17
Common Java Java	6

09 Plan - Issue Tracking Jira

✔ OOAD에 적합(스프린트, 스크럼 별 이슈 관리)

✔ Issue 관리에 대한 History를 통해 비슷한 Issue 발생 시의 처리 용이

✔ 담당자, 레이블 등에 대한 설정이 쉽고, 자동화를 통해 스프린트/스크럼 마다 편리한 Issue관리 가능

09 Overall