

# SW Verification

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# 목차

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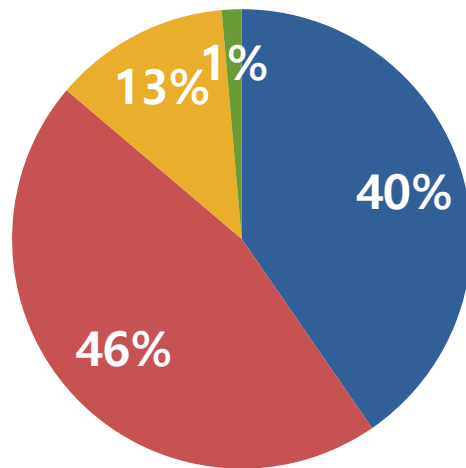
- CI
- Eclipse vs IntelliJ
- IntelliJ
- JUnit
- Maven vs Gradle
- Gradle

# What is CI?

- # Continuous Integration (지속적인 통합)
- # 다수의 개발자가 만든 코드를 통합하기 용이
- # 개발 도중에도 테스트 및 품질 측정이 가능하므로 비용 절약 가능

# Eclipse vs IntelliJ

2017년 점유율

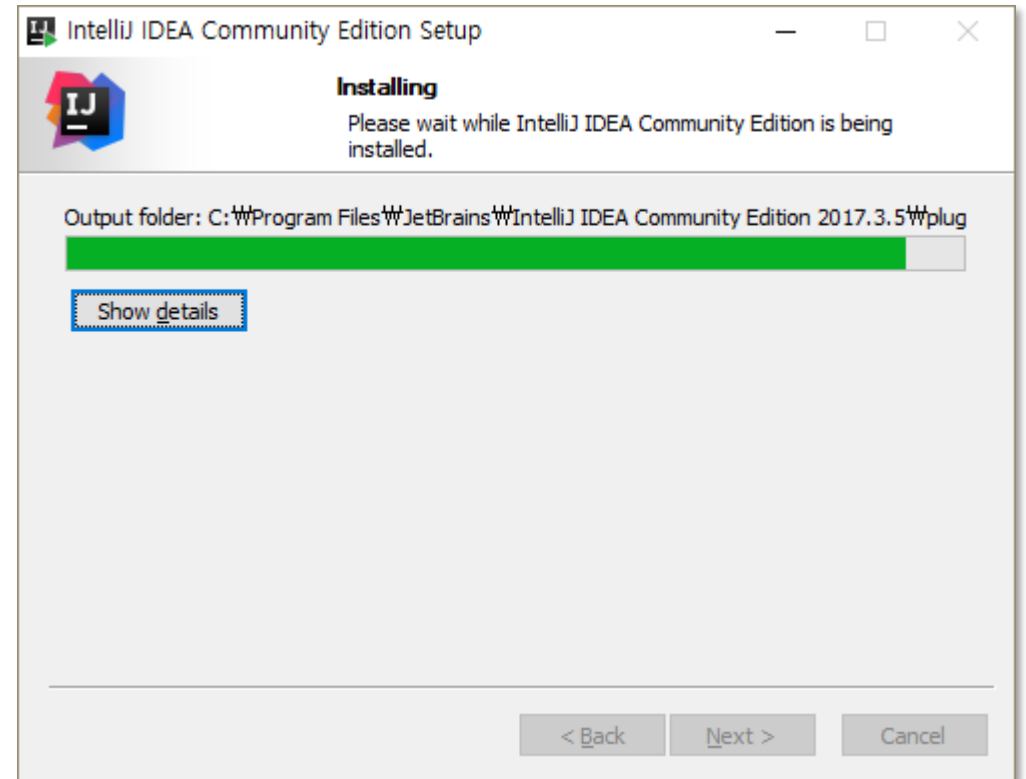
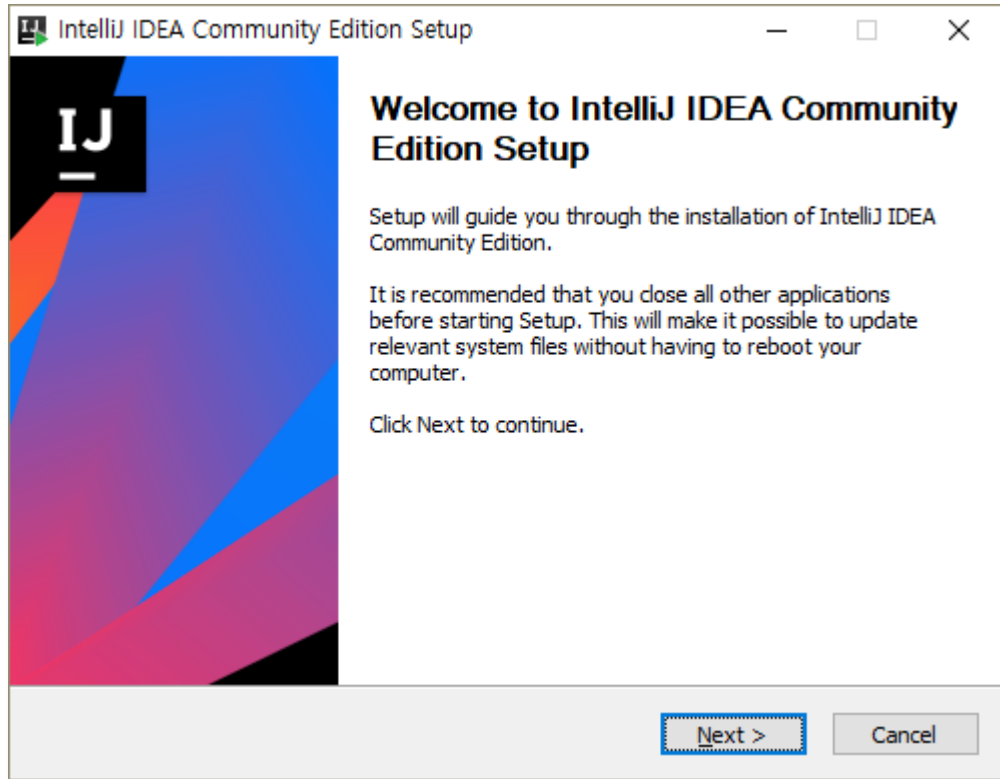


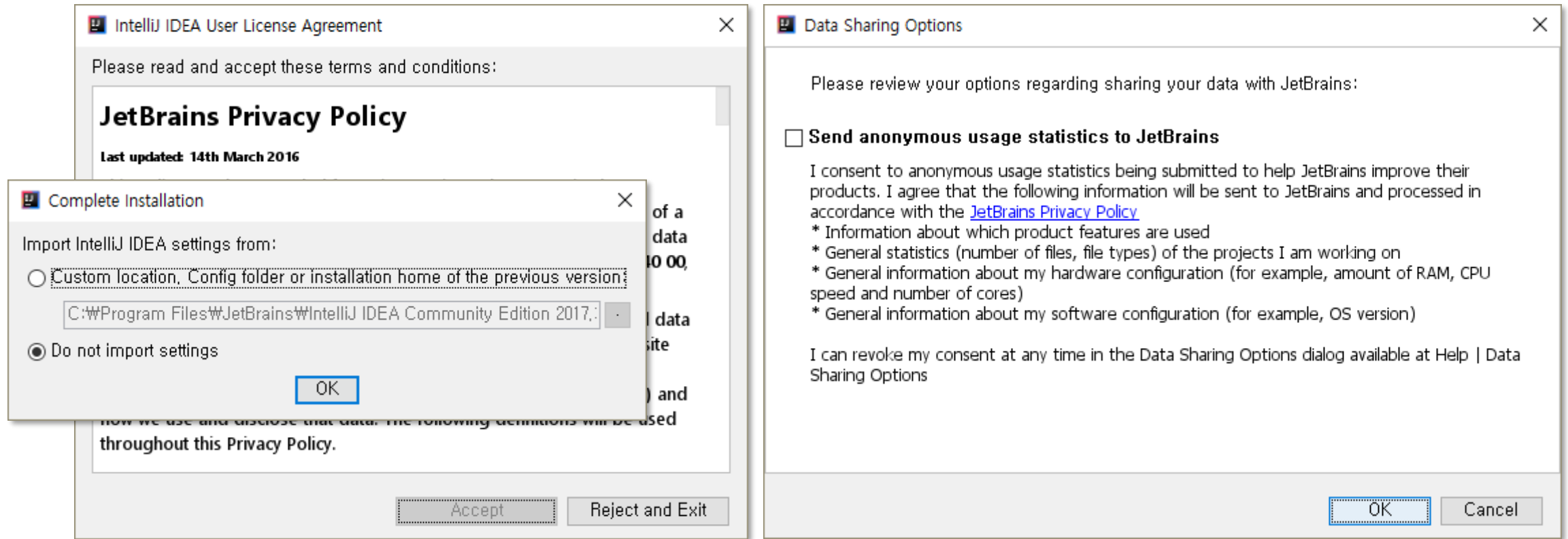
■ Eclipse ■ IntelliJ  
■ NetBeans ■ Others

\* 자료 참조 : Dunebook

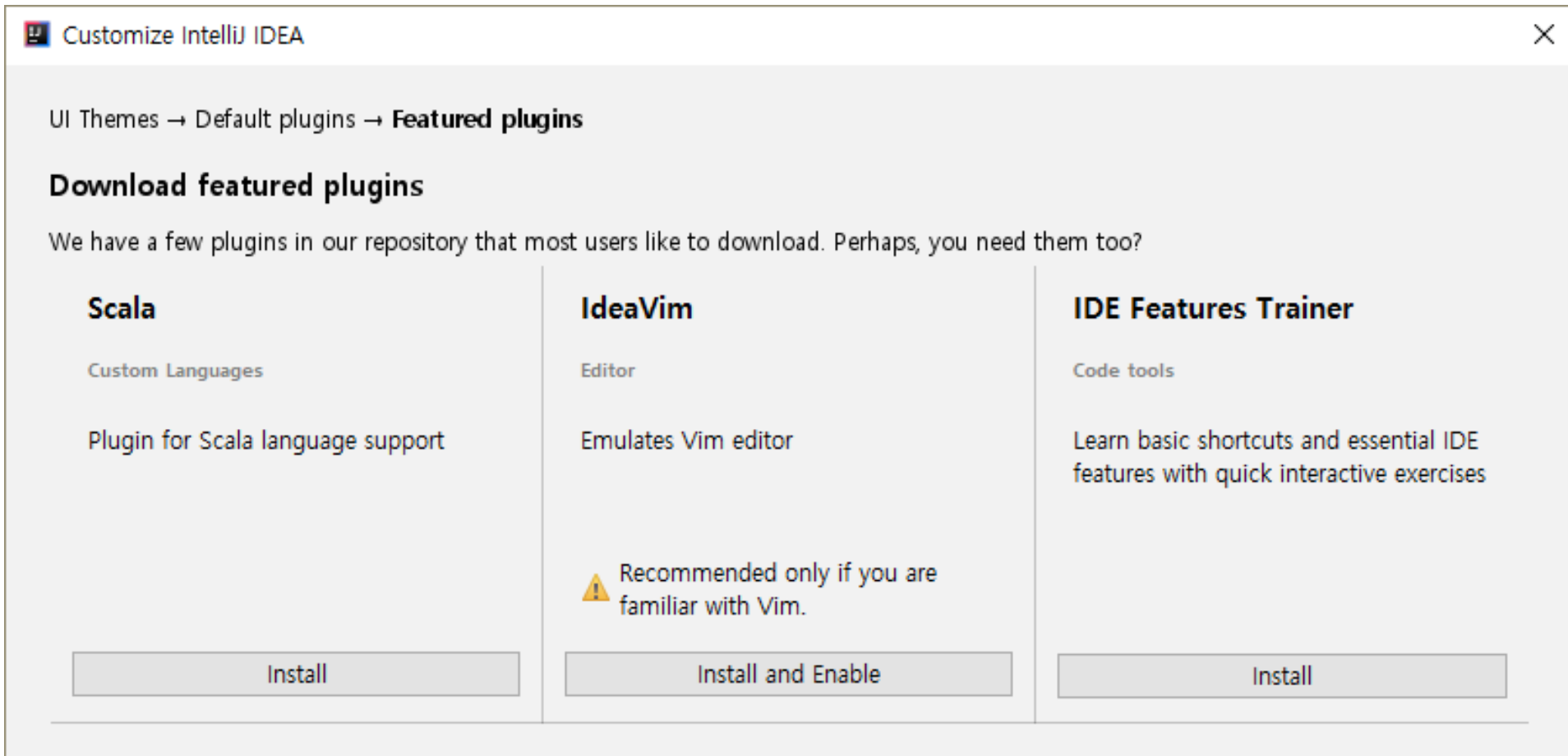
- # Eclipse : 확장기능과 플러그인, 디버깅 도구 등의 유용성 보유. 중복된 플러그인이 많고 시스템 요구사항이 높은 편
- # IntelliJ : 일부 작업의 자동화, 다양한 언어의 플러그인 및 통합 컨트롤 지원. 비교적 최신의 UI. 학생은 엔터프라이즈용 에디션 무료 제공(1년)
- # 2017년 Eclipse IDE의 시장 점유율이 40.5%로 하락하면서 IntelliJ IDEA의 비중 상승

# IntelliJ

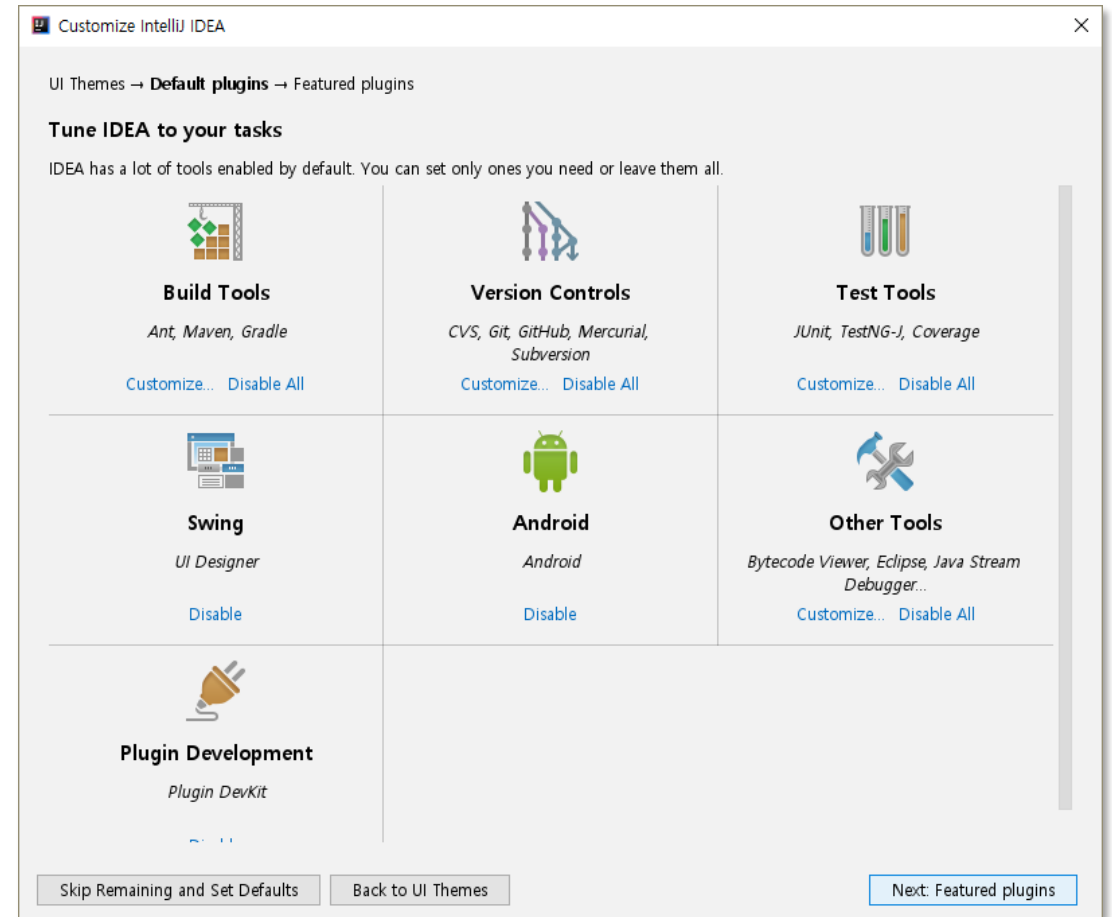
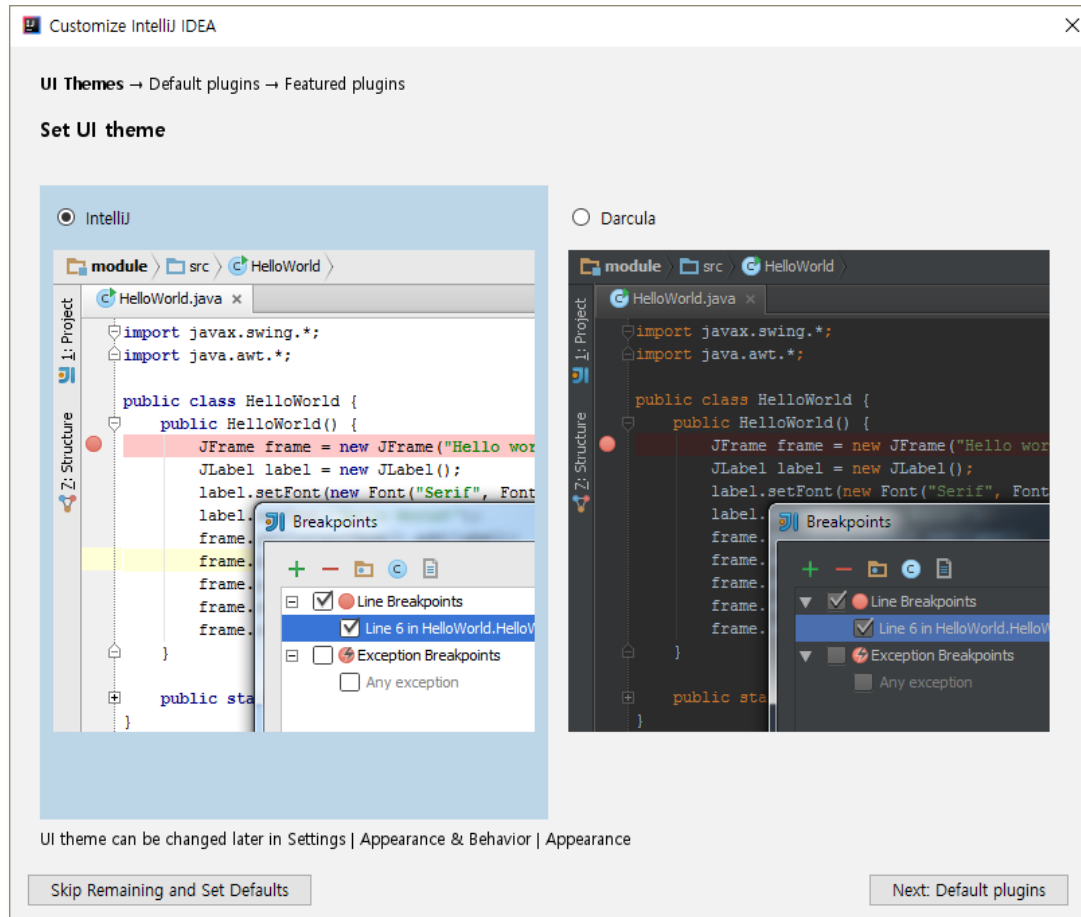




# IntelliJ

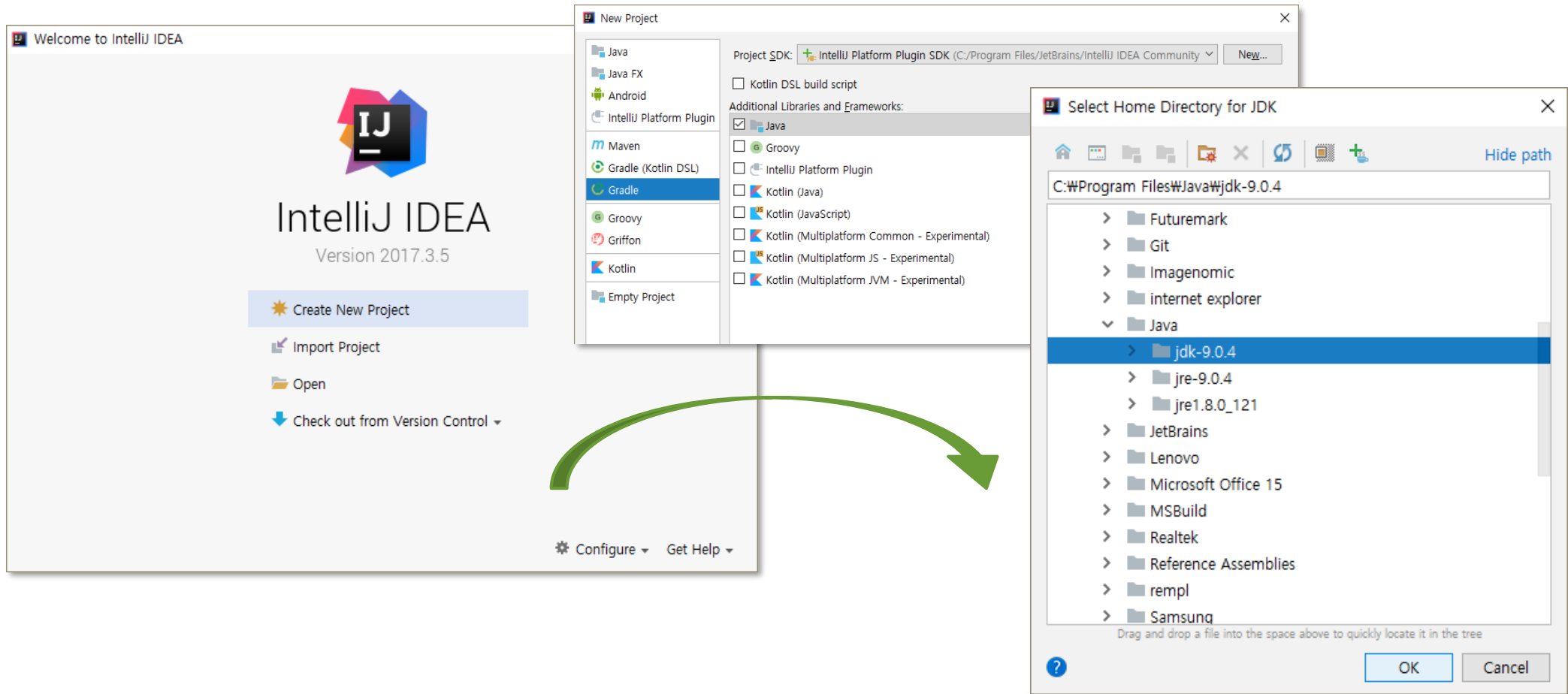


# IntelliJ





# IntelliJ



# IntelliJ

The image shows two overlapping 'New Project' dialog boxes in IntelliJ IDEA. The larger, background dialog has the following settings:

- Use auto-import
- Group modules:  using explicit module groups  using qualified names
- Create separate module per source set
- Store generated project files externally
- Use default gradle wrapper (recommended)
- Use local gradle distribution
- Gradle home: [empty field]
- Gradle JVM:  Use Project JDK (java version "9.0.4", path: C:/Program Files/Java/jdk-9.0.4)

The smaller, foreground dialog has the following settings:

- Groupid:
- Artifactid:
- Version:

A green curved arrow points from the foreground dialog to the right, indicating the next step in the process.

The image shows the IntelliJ IDEA main window for a new project named 'teamproject'. The interface includes:

- Menu bar: File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, Help
- Project view: Shows 'teamproject' and 'External Libraries'.
- Main editor area: Displays search shortcuts:
  - Search Everywhere Double Shift
  - Go to File Ctrl+Shift+N
  - Recent Files Ctrl+E
  - Navigation Bar Alt+Home
  - Drop files here to open
- Build tool window: Shows 'Build: Sync' and 'teamproject: syncing...' with a progress bar.

# JUnit

# Java 기반 코드의 테스트를 위한 프레임워크

# 단위모듈이 정확히 구현되었는지 확인하는 역할

assertEquals(x, y)	x와y가 같으면 테스트 통과
assertTrue(b)	b가 true이면 테스트 통과
assertFalse(b)	b가 false이면 테스트 통과
assertNull(o)	객체o가 null이면 테스트 통과
assertNotNull(o)	객체o가 null이 아니면 테스트 통과
assertSame(ox, oy)	ox와 oy가 같은 객체를 참조하고 있으면 테스트 통과
assertNotSame(ox, oy)	ox와oy가 같은 객체를 참조하고 있지 않으면 통과
assertfail	테스트를 실패 처리

# JUnit

The screenshot shows an IDE with two files open: Sum.java and SumTest.java. Sum.java contains methods for sum, min, mul, and div. SumTest.java contains test methods for sum, min, and mul. A context menu is open over Sum.java with 'Create Test' selected. Below the code, a test runner window shows the results of running SumTest. The test runner indicates that 4 tests were discovered, but the 'mul' test failed. The failure message is: 'java.lang.AssertionError: Expected :-2 Actual :15'. The stack trace shows the failure occurred in SumTest.mul at line 32.

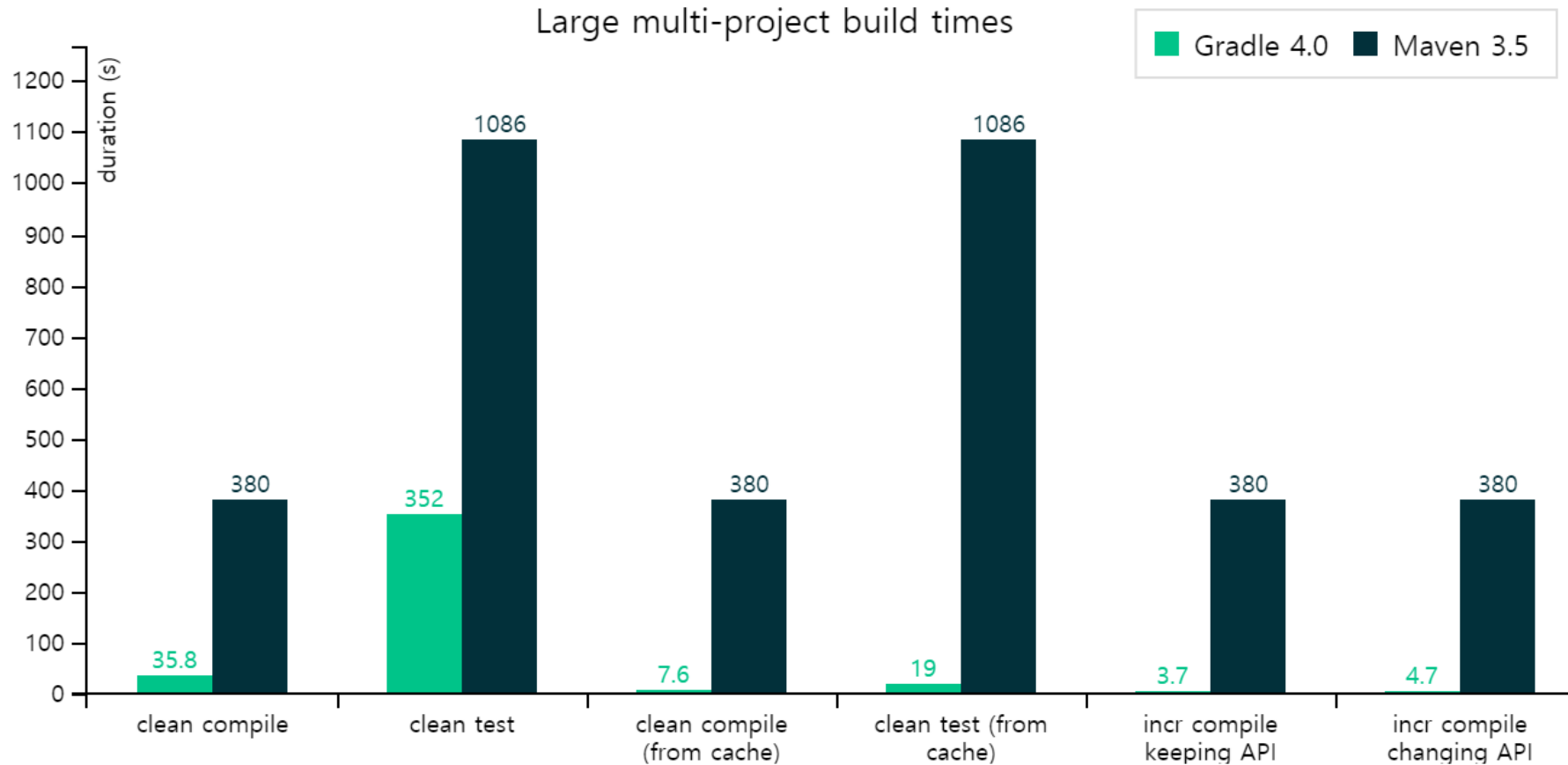
The screenshot shows the JUnit dialog box with the following settings:

- Testing library: JUnit4
- Class name: SumTest
- Superclass: (empty)
- Destination package: (empty)
- Generate:  setUp/@Before,  tearDown/@After
- Generate test methods for:  Show inherited methods

Member	
<input checked="" type="checkbox"/>	sum(sum1:int, sum2:int):int
<input checked="" type="checkbox"/>	min(min1:int, min2:int):int
<input checked="" type="checkbox"/>	mul(mul1:int, mul2:int):int
<input checked="" type="checkbox"/>	div(div1:int, div2:int):int
<input type="checkbox"/>	main(args:String[]):void

Buttons: ? (help), OK, Cancel

# Maven vs Gradle



\* 자료 : Gradle

# Gradle



Scoop is a command-line installer for Windows inspired by Homebrew.

```
$ scoop install gradle
```

## Accelerate developer productivity

From mobile apps to microservices, from small startups to large enterprises, Gradle helps teams build, automate and deliver better software, faster.

The current Gradle release is version 4.6, released on 28 Feb 2018. The distribution zip file comes in two flavors:

- Binary-only
- Complete, with docs and sources

1. Install Gradle

2. Get Started Guides

3. Free Training

# Gradle

PC > 문서 > project-test

이름

- .git
- .gradle
- .settings
- bin
- gradle
- src
- .classpath
- .project
- .travis
- README.md

PC > 문서 > project-test >

이름

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PC > 문서 > project-test > build > libs

이름

- project-test

```
Windows PowerShell
PS C:\Users\하현규\Documents\project-test> gradle init
BUILD SUCCESSFUL in 1s
2 actionable tasks: 2 executed
PS C:\Users\하현규\Documents\project-test> gradle build
<-----> 0% CONFIGURING [0s]

BUILD SUCCESSFUL in 1s
1 actionable task: 1 up-to-date
PS C:\Users\하현규\Documents\project-test>
```

# Gradle

Travis CI interface for repository 'Nineclown / software-verification'. The build status is 'unknown'. The build history shows a successful build for 'set gradle build' on the 'master' branch, committed by 'nineclown'.

```
Worker information
mode of "/usr/local/clang-5.0.0/bin" changed from 0777 (rwxrwxrwx) to 0755 (rwxr-x-x)
Build system information
Build language: java
Build group: stable
Build dist: trusty
Build id: 350282381
Job id: 350282802
Runtime kernel version: 4.14.12-041412-gene
travis-build version: b2a89dad8
Build image provisioning date and time

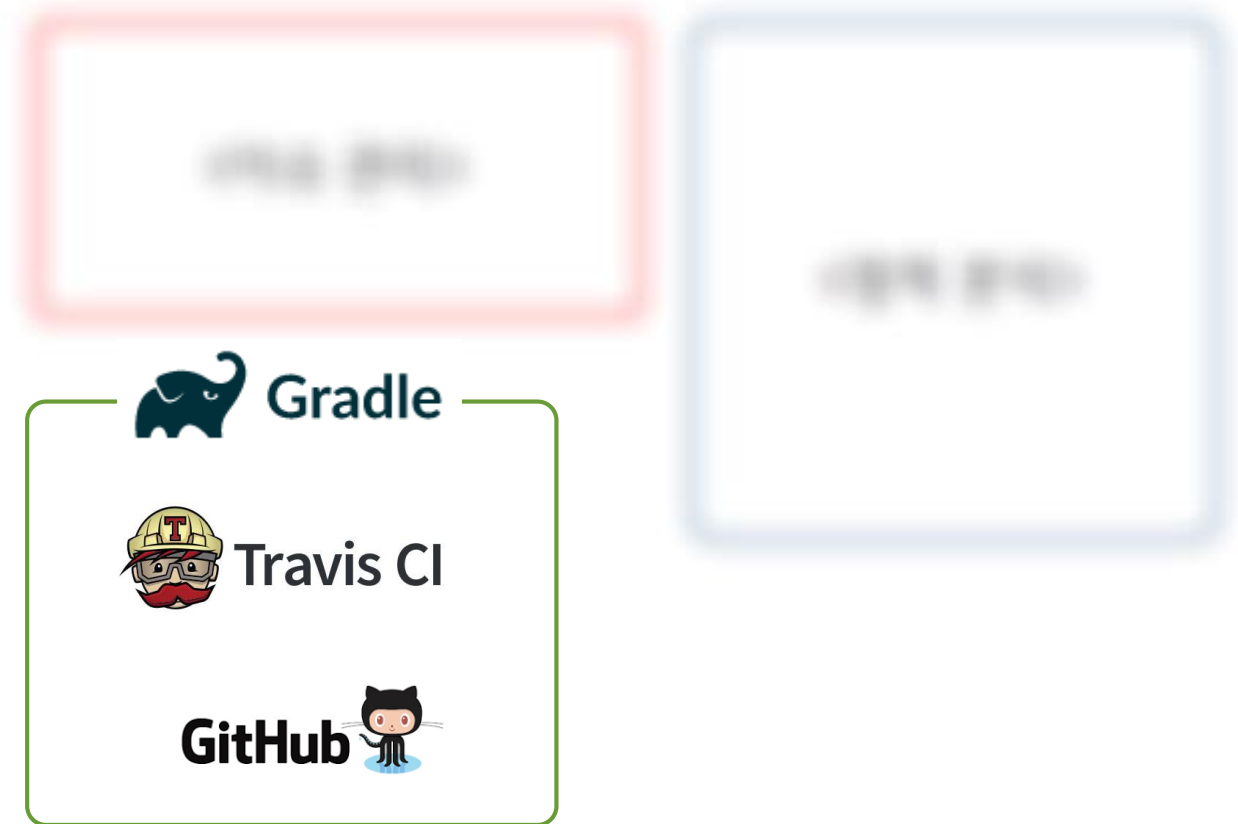
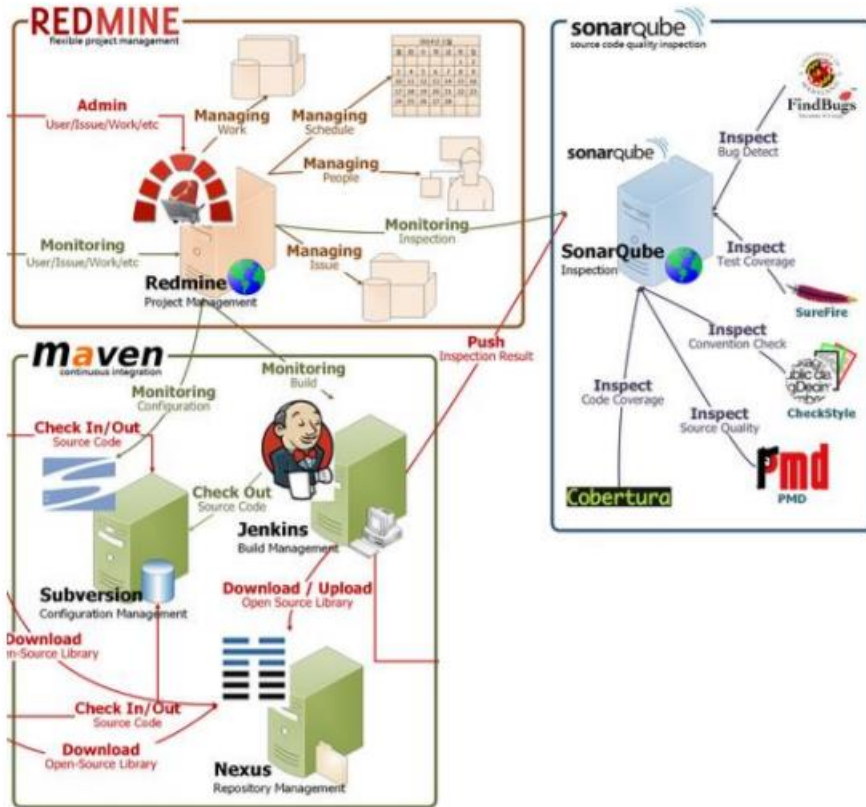
473
474 The command "gradle build" exited with 0.
475
476 Done. Your build exited with 0.
490
491 The command "gradle build" exited with 1.
492
493 Done. Your build exited with 1.
```

Travis CI interface for repository 'Nineclown / software-verification'. The build status is 'unknown'. The build history shows a list of builds with their status, branch, commit ID, and build number.

Branch	Build Name	Status	Build Number	Commit ID
master	JUnit test	Created	#4 created	0a97131
master	set gradle build	Passed	#3 passed	fd98b9c
master	2	Passed	#2 passed	3dfbc06
master	create project	Failed	#1 failed	03d8bc8



# 정리



- 점유율이 높은 도구 중에서 적합하다고 판단되는 도구 선택
- Eclipse보다 가볍고 편리한 IntelliJ 통합 개발 도구 사용
- Maven보다 가볍고 빠른 Gradle 빌드 도구 사용

감사합니다 :)