

# Software Verification

Introduction to Software Testing & Static Analysis

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2조

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이상혁

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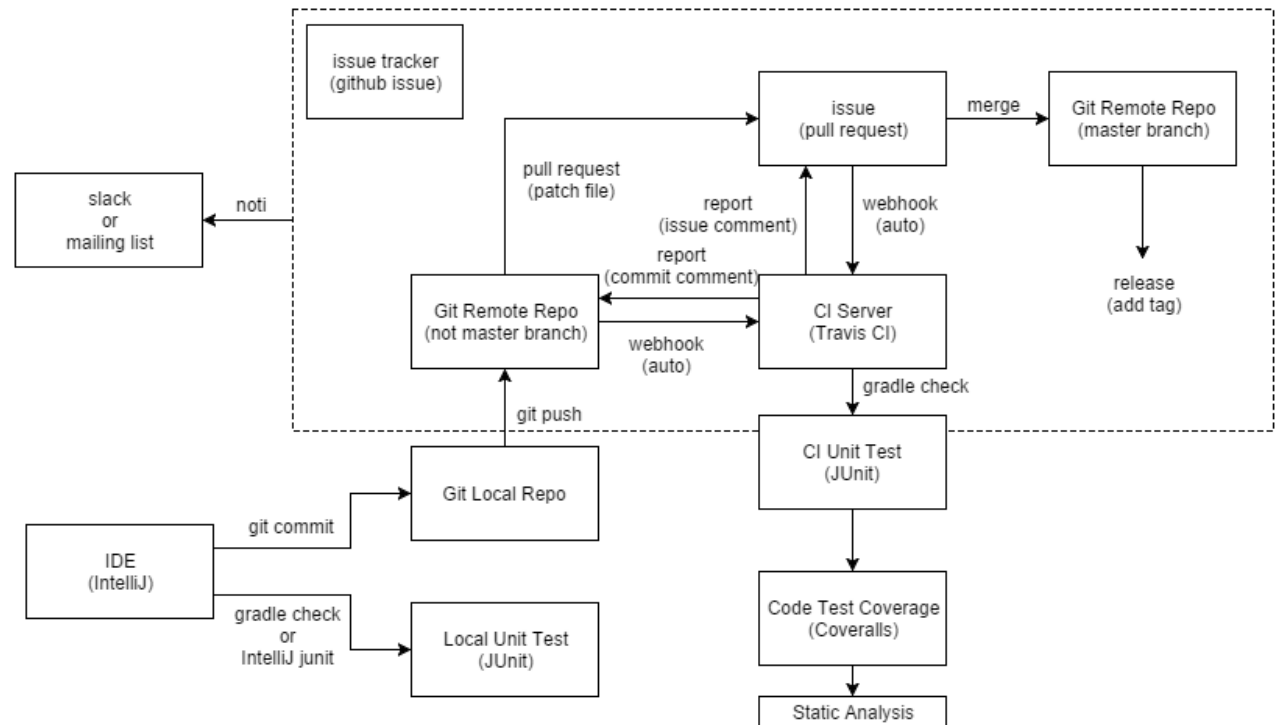
왕홍강

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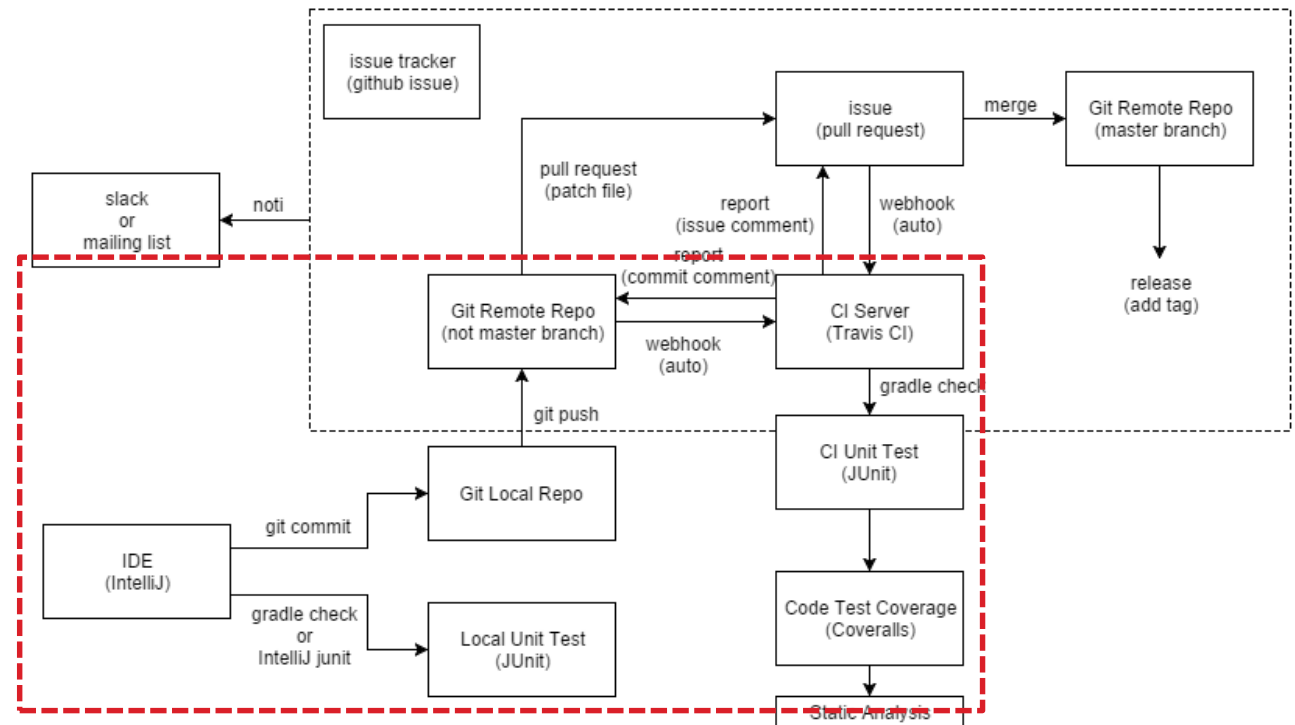
김태영

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# Overview



# Overview



# Install JDK

JDK 8 다운로드 페이지 [\(여기\)](#) 접속

이용약관 동의, 자신의 OS에 맞게 다운로드

Overview
Downloads
Documentation
Community
Technologies
Training

## Java SE Development Kit 8 Downloads

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a development environment for building applications, applets, and components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and running on the Java platform.

See also:

- Java Developer Newsletter: From your Oracle account, select **Subscriptions**, expand **Technology**, and subscribe to **Java**.
- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

JDK 8u73 Checksum  
JDK 8u74 Checksum

### Java SE Development Kit 8u73

You must accept the [Oracle Binary Code License Agreement for Java SE](#) to download this software.

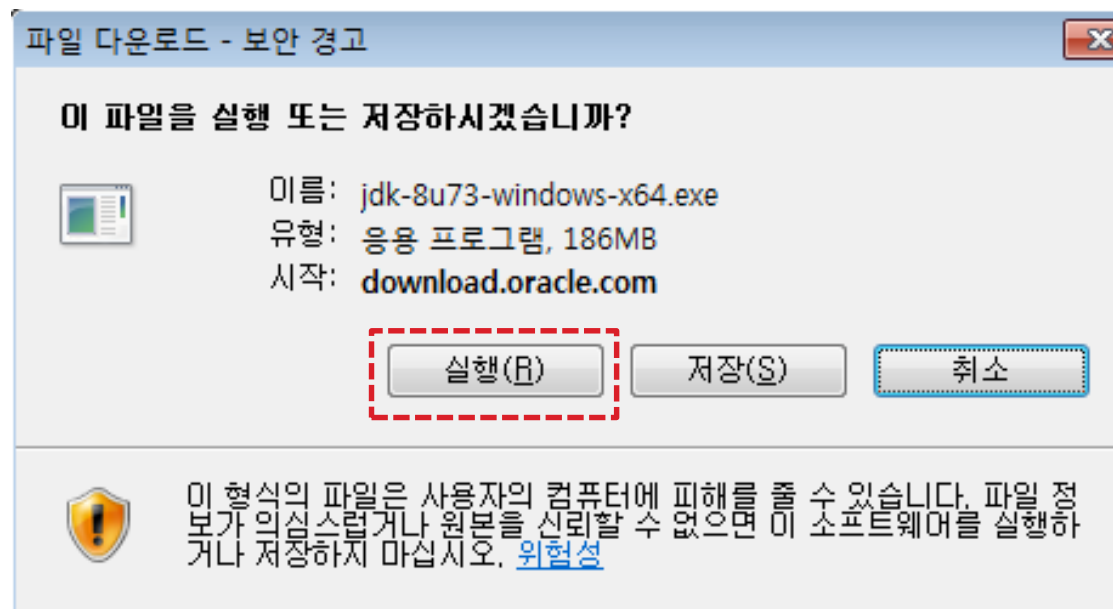
Accept License Agreement
  Decline License Agreement

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	77.73 MB	<a href="#">jdk-8u73-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	74.68 MB	<a href="#">jdk-8u73-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86	154.75 MB	<a href="#">jdk-8u73-linux-i586.rpm</a>
Linux x86	174.91 MB	<a href="#">jdk-8u73-linux-i586.tar.gz</a>
Linux x64	152.73 MB	<a href="#">jdk-8u73-linux-x64.rpm</a>
Linux x64	172.91 MB	<a href="#">jdk-8u73-linux-x64.tar.gz</a>
Mac OS X x64	227.25 MB	<a href="#">jdk-8u73-macosx-x64.dmg</a>
Solaris SPARC 64-bit (SVR4 package)	139.7 MB	<a href="#">jdk-8u73-solaris-sparcv9.tar.Z</a>
Solaris SPARC 64-bit	99.08 MB	<a href="#">jdk-8u73-solaris-sparcv9.tar.gz</a>
Solaris x64 (SVR4 package)	140.36 MB	<a href="#">jdk-8u73-solaris-x64.tar.Z</a>
Solaris x64	96.78 MB	<a href="#">jdk-8u73-solaris-x64.tar.gz</a>
Windows x86	181.5 MB	<a href="#">jdk-8u73-windows-i586.exe</a>
Windows x64	186.84 MB	<a href="#">jdk-8u73-windows-x64.exe</a>

# Install JDK

JDK 8 다운로드 페이지 [\(여기\)](#) 접속

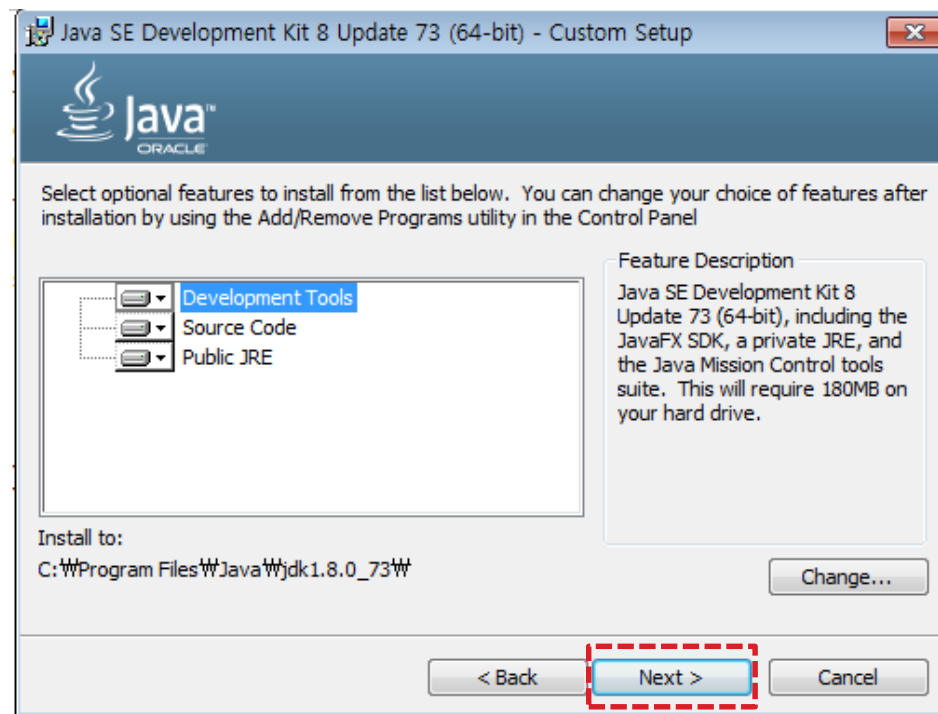
다운로드 완료 후 실행



# Install JDK

JDK 8 다운로드 페이지 [\(여기\)](#) 접속

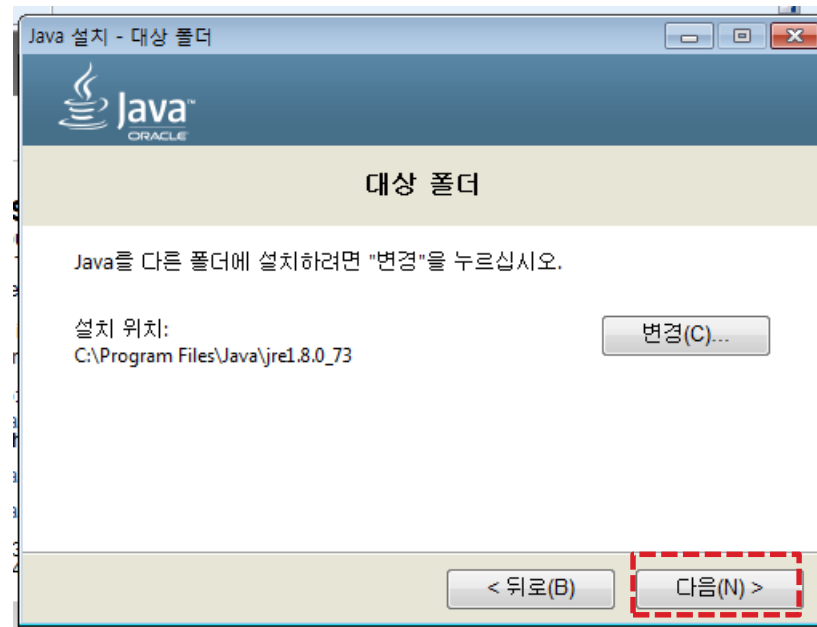
다운로드 완료 후 실행 > 설치 옵션 지정



# Install JDK

JDK 8 다운로드 페이지 [\(여기\)](#) 접속

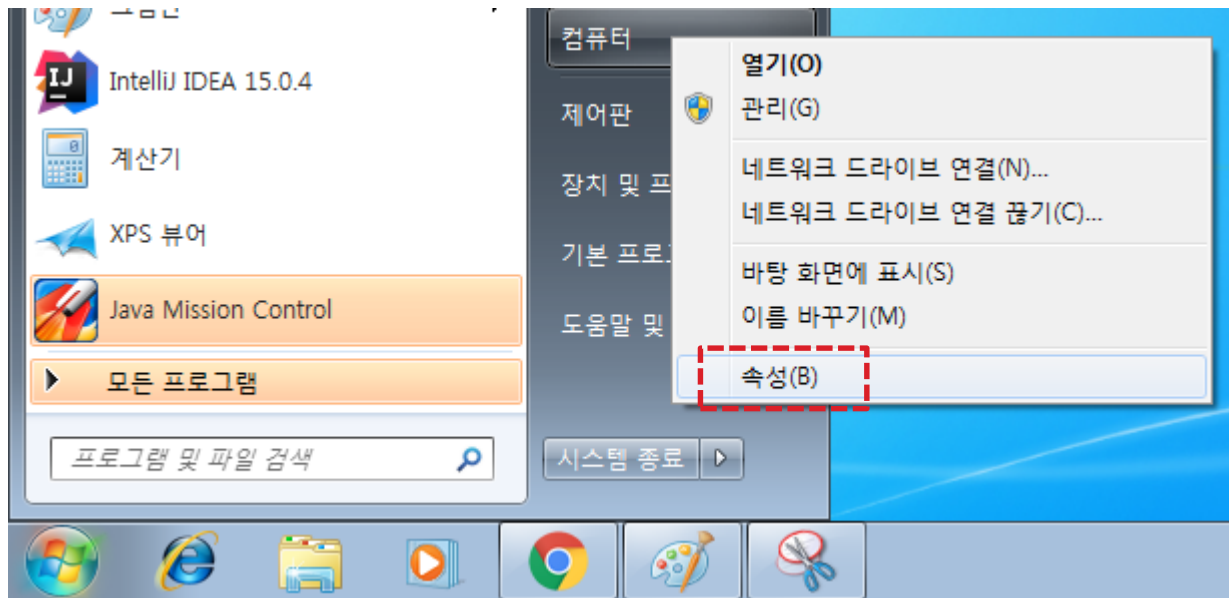
다운로드 완료 후 실행 > 설치 옵션 지정 > JRE 설치



# Install JDK

JAVA\_HOME 설정

컴퓨터 속성 클릭

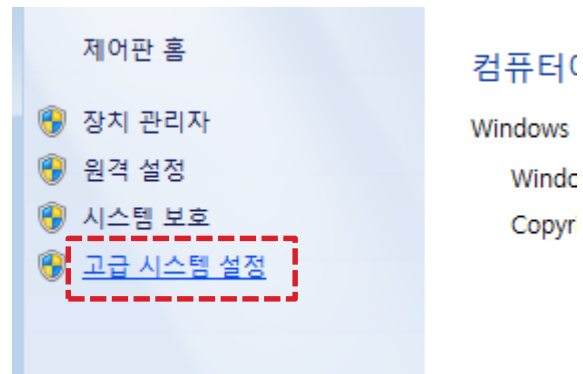




# Install JDK

## JAVA\_HOME 설정

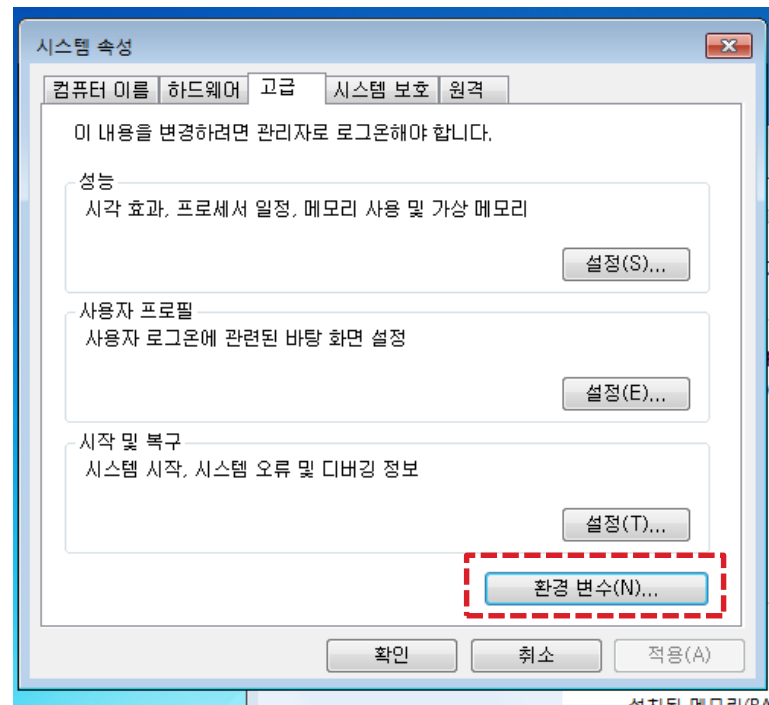
컴퓨터 속성 클릭 > 고급 시스템 설정 클릭



# Install JDK

## JAVA\_HOME 설정

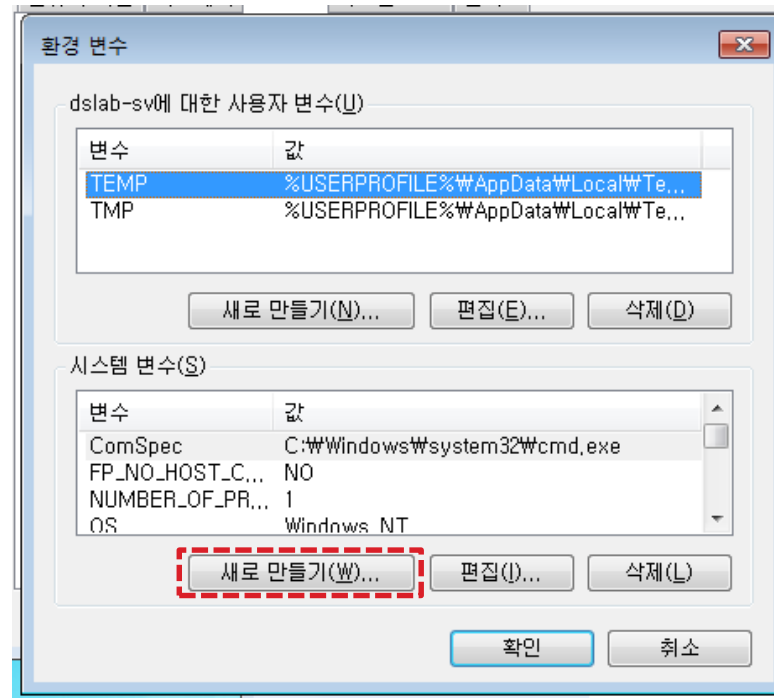
컴퓨터 속성 클릭 > 고급 시스템 설정 클릭 > 환경 변수 클릭



# Install JDK

## JAVA\_HOME 설정

컴퓨터 속성 클릭 > 고급 시스템 설정 클릭 > 환경 변수 클릭 > 새로 만들기(시스템 변수) 클릭



# Install JDK

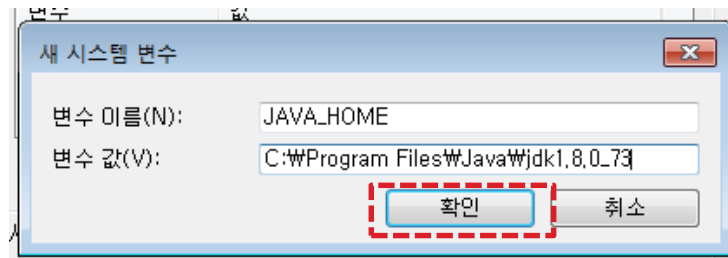
## JAVA\_HOME 설정

컴퓨터 속성 클릭 > 고급 시스템 설정 클릭 > 환경 변수 클릭 > 새로 만들기(시스템 변수) 클릭 >

변수 이름 : JAVA\_HOME

변수 값 : (JDK가 설치된 경로)

입력 후 확인 클릭 > 재부팅



# Install IntelliJ

## IntelliJ VS Eclipse

사실 IDE는 개인 취향...

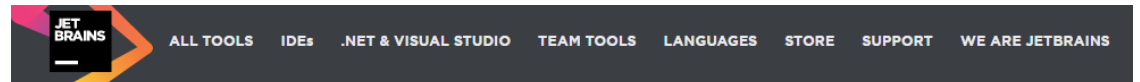
### IntelliJ 의 장점 (개인적으로 이클립스보다 좋다고 생각 하는 점)

- 어시스트 기능이 정말 좋음
- 이클립스보다 가벼움
- 직관적인 디버거
- 편한 Refactoring 기능
- 깔끔한 테마

# Install IntelliJ

Jetbrains 학생 라이선스 구매 (무료)

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Our software will be registered to your real name.

Email address:

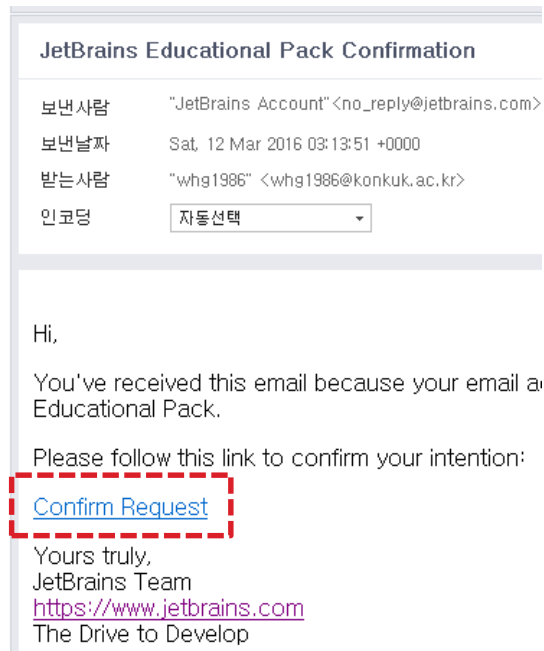
Your valid university email address, e.g. john.smith@mit.edu. We'll send you further instructions.

**APPLY FOR FREE PRODUCTS**

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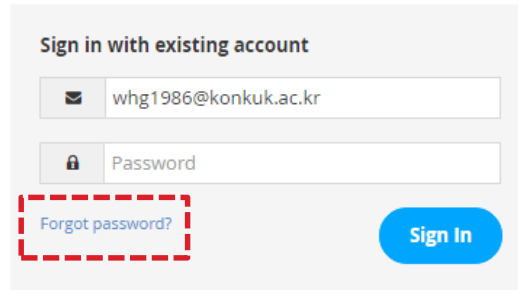




# Install IntelliJ

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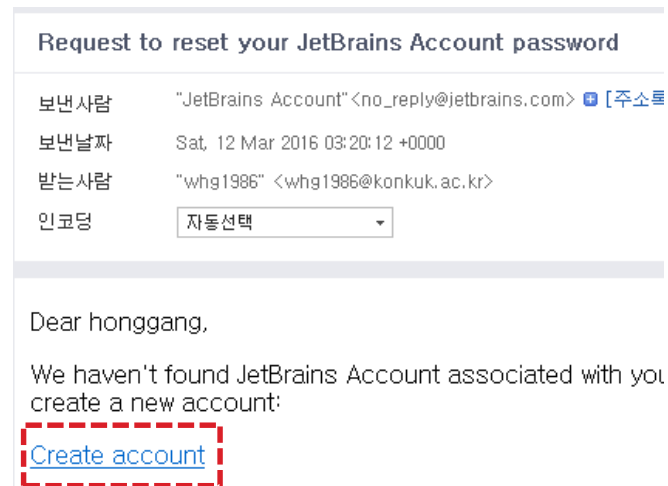
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# Install IntelliJ

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# Install IntelliJ

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Last Name	<input type="text" value="wang"/>
Email	<input type="text" value="whg1986@konkuk.ac.kr"/>
User Name	<input type="text" value="whg1986"/>
Please make sure you choose a strong password as your account will have access to your purchases	
Password	<input type="password" value="*****"/>
Repeat Password	<input type="password" value="*****"/>
<input checked="" type="checkbox"/> I have read and agree to JetBrains Privacy Policy	
<input type="button" value="Submit"/>	

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- WebStorm
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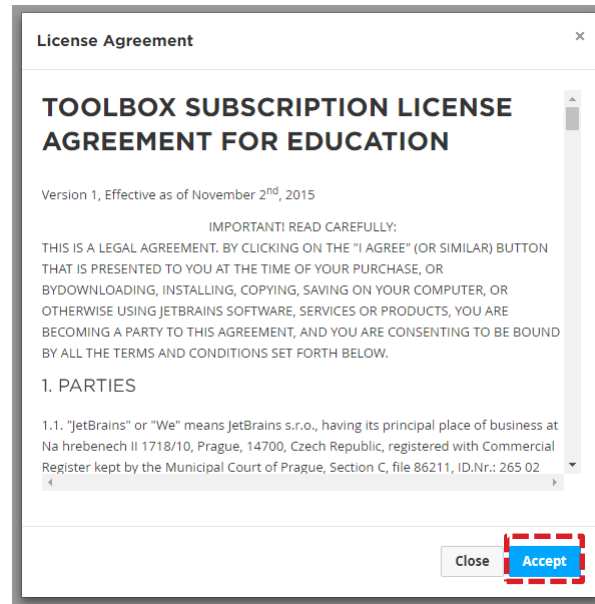
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# Install IntelliJ

## IntelliJ 다운로드 & 설치

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## Download IntelliJ IDEA

[OS X](#)[WINDOWS](#)[LINUX](#)

### Community

Java, Groovy, Scala and Android development

[DOWNLOAD](#)

239 MB

### Ultimate

Web, mobile and enterprise development

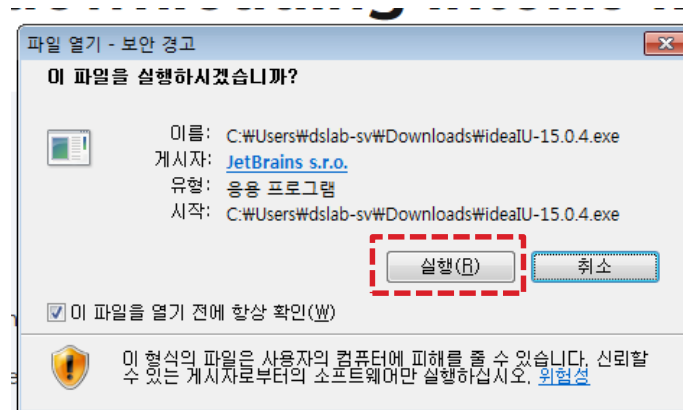
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# Install IntelliJ

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# Install IntelliJ

IntelliJ 다운로드 & 설치

Next 클릭

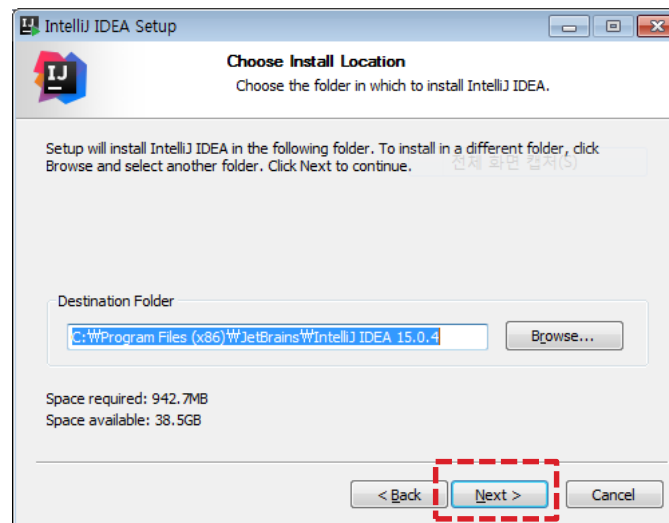




# Install IntelliJ

## IntelliJ 다운로드 & 설치

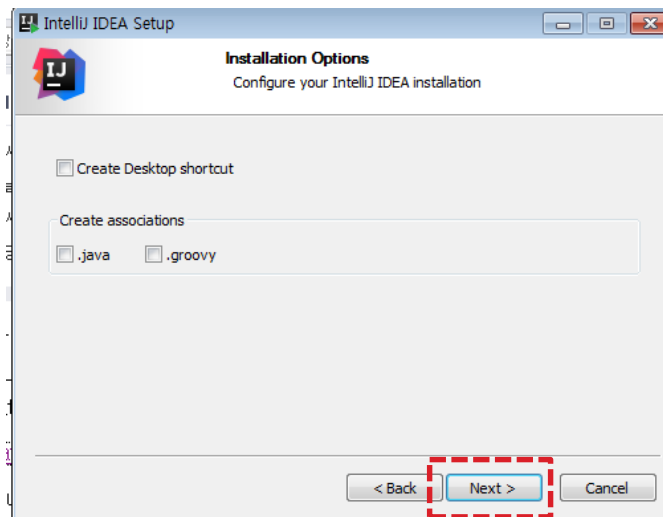
Next 클릭 > 경로 지정 후 Next 클릭



# Install IntelliJ

## IntelliJ 다운로드 & 설치

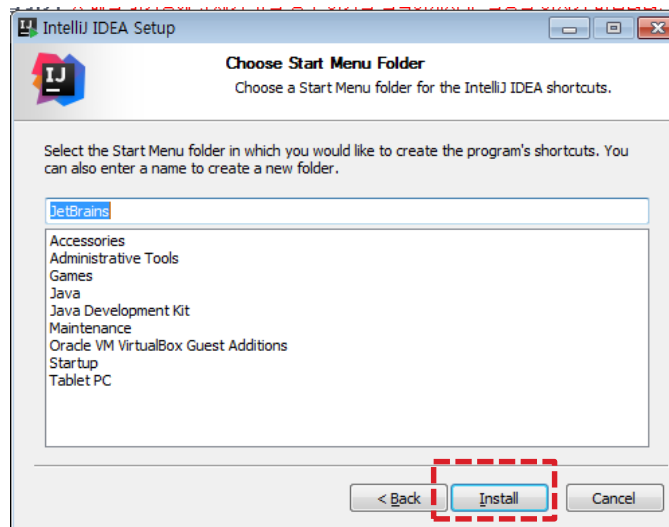
Next 클릭 > 경로 지정 후 Next 클릭 > 바로가기 등 설정 후 Next 클릭



# Install IntelliJ

## IntelliJ 다운로드 & 설치

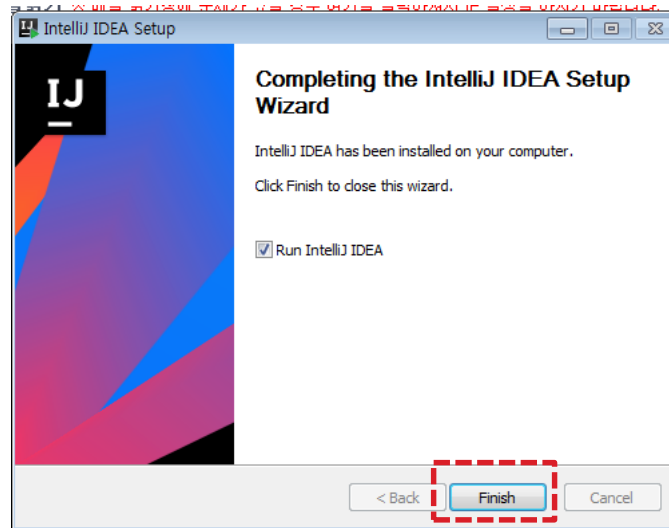
Next 클릭 > 경로 지정 후 Next 클릭 > 바로가기 등 설정 후 Next 클릭 > **Install** 클릭



# Install IntelliJ

## IntelliJ 다운로드 & 설치

Next 클릭 > 경로 지정 후 Next 클릭 > 바로가기 등 설정 후 Next 클릭 > Install 클릭 > Finish 클릭



# Install IntelliJ

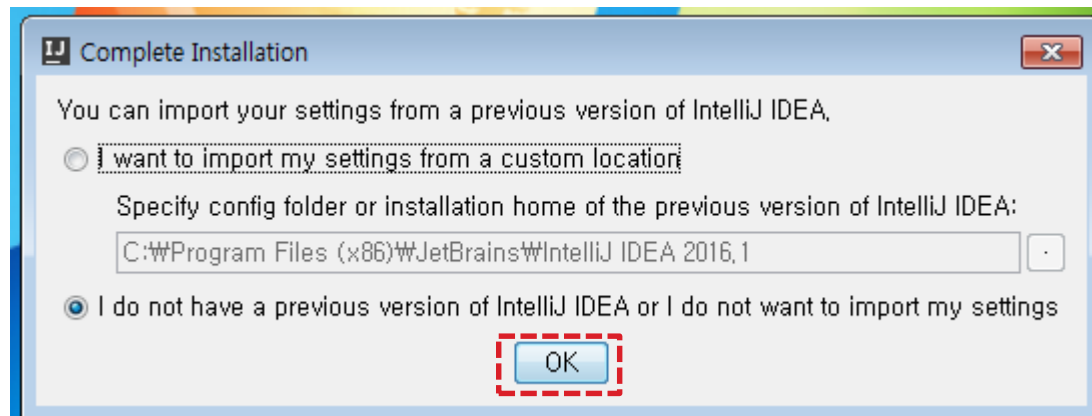
## IntelliJ 초기 설정



# Install IntelliJ

IntelliJ 초기 설정

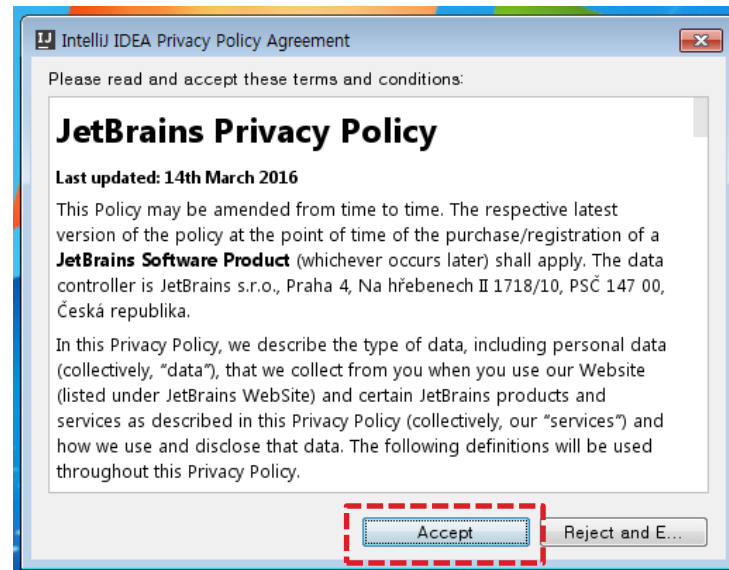
OK 클릭



# Install IntelliJ

## IntelliJ 초기 설정

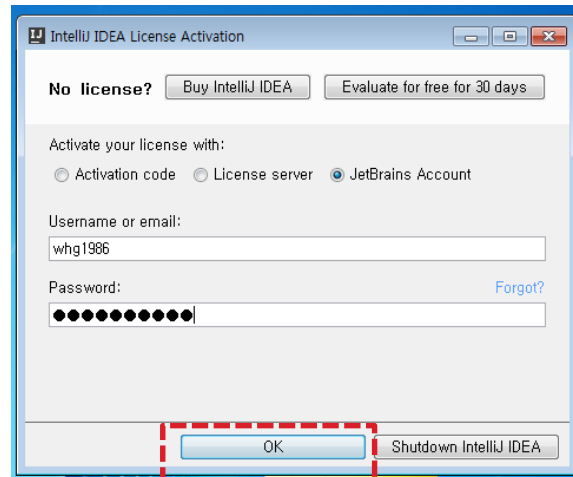
OK 클릭 > Accept 클릭



# Install IntelliJ

## IntelliJ 초기 설정

OK 클릭 > Accept 클릭 > 라이선스 정보 입력 후 OK 클릭

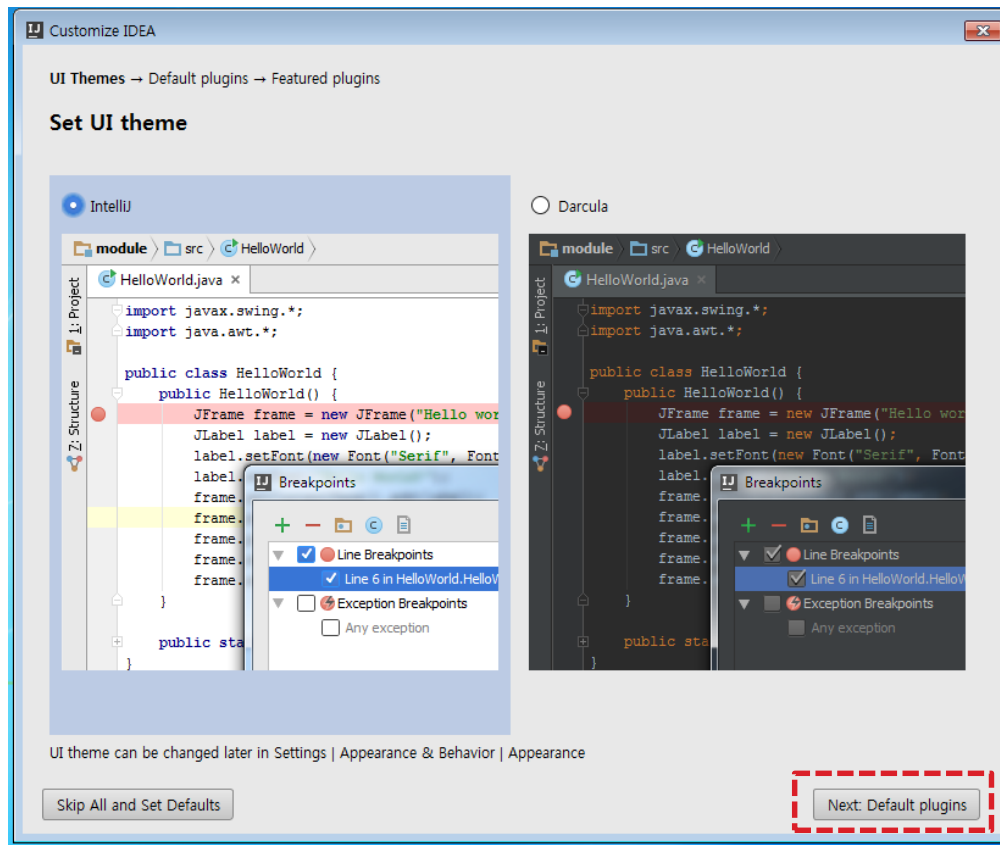




# Install IntelliJ

## IntelliJ 초기 설정

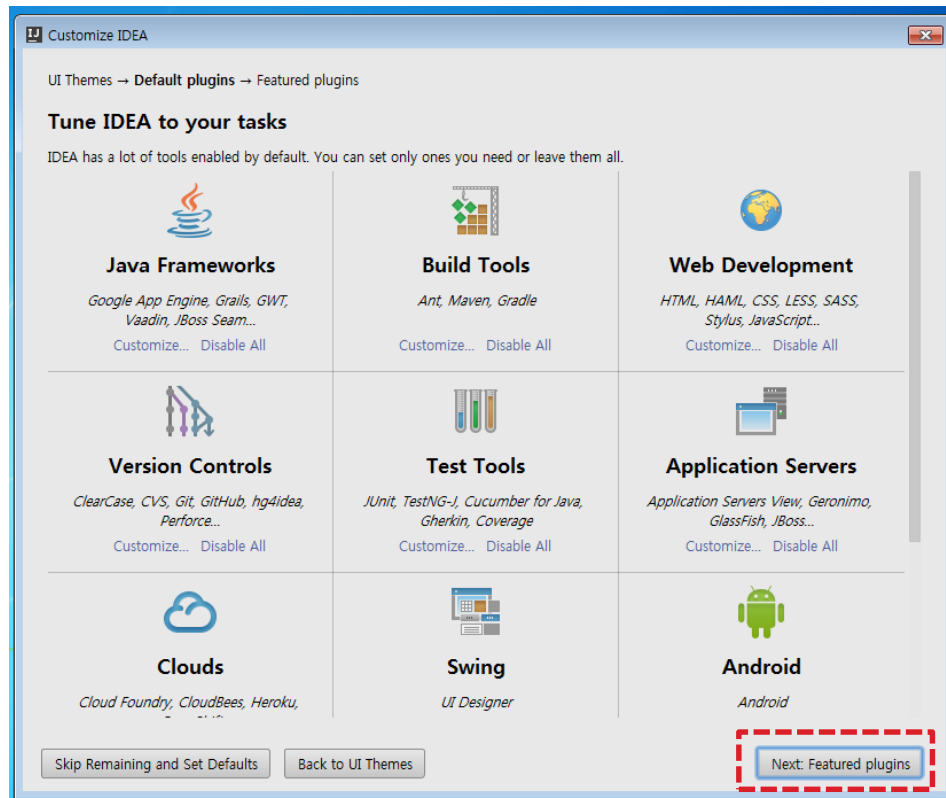
OK 클릭 > Accept 클릭 > 라이선스 정보 입력 후 OK 클릭 > 테마 설정 후 Next 클릭



# Install IntelliJ

## IntelliJ 초기 설정

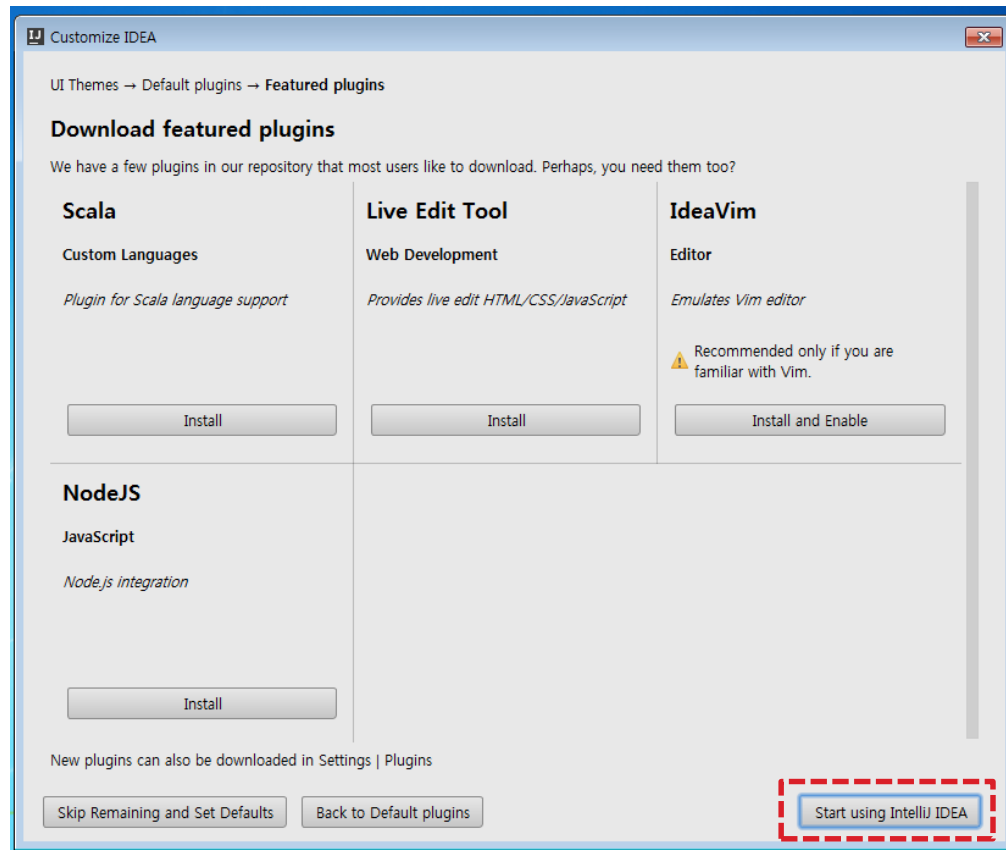
OK 클릭 > Accept 클릭 > 라이선스 정보 입력 후 OK 클릭 > 테마 설정 후 Next 클릭 > 기본 플러그인 설정 후 Next 클릭



# Install IntelliJ

## IntelliJ 초기 설정

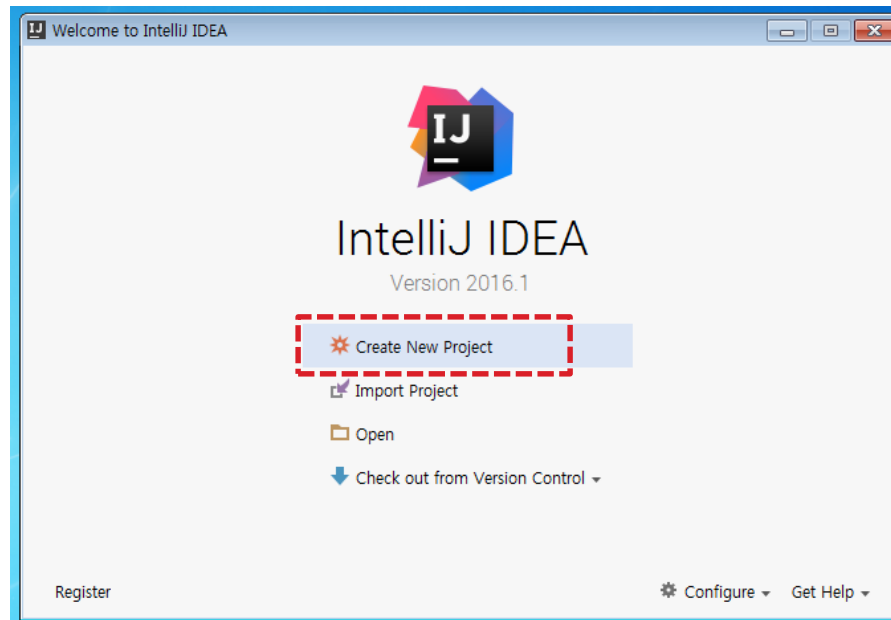
### Start using IntelliJ IDEA 클릭



# New Project

신규 프로젝트 생성

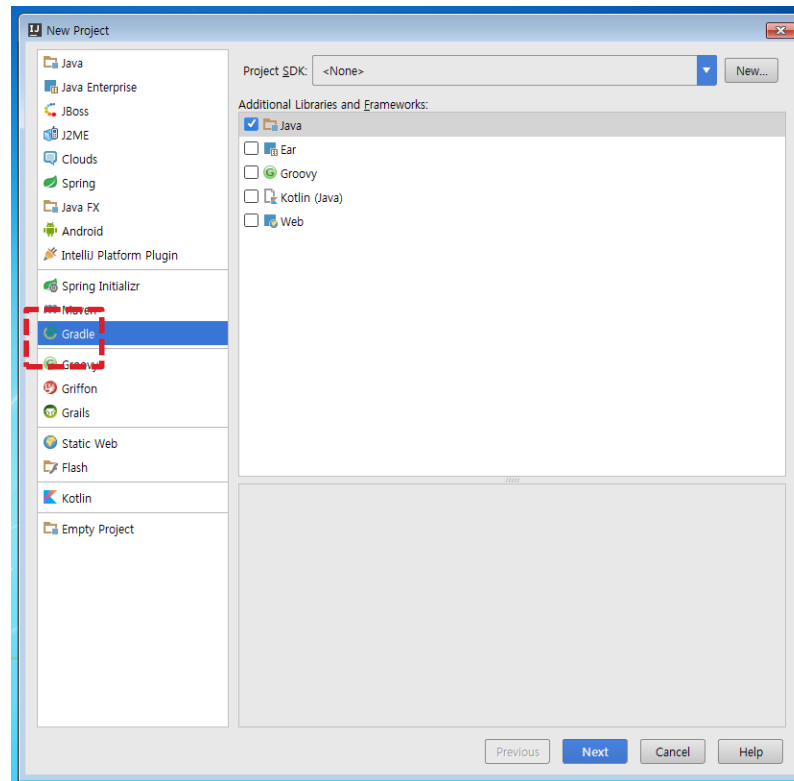
Create New Project 클릭



# New Project

## 신규 프로젝트 생성

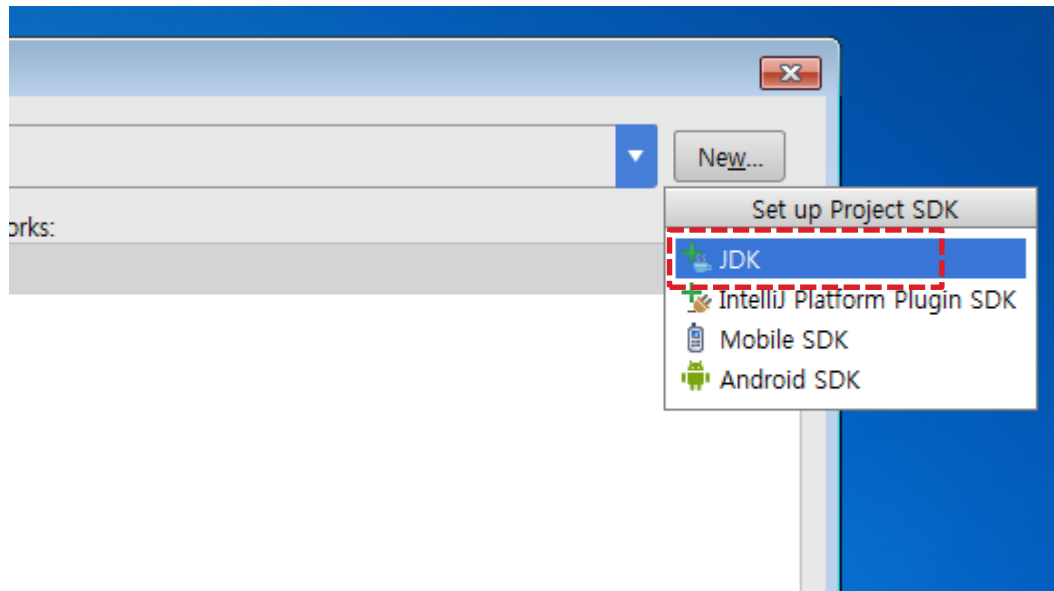
Create New Project 클릭 > 좌측 메뉴에서 Gradle 클릭



# New Project

## 신규 프로젝트 생성

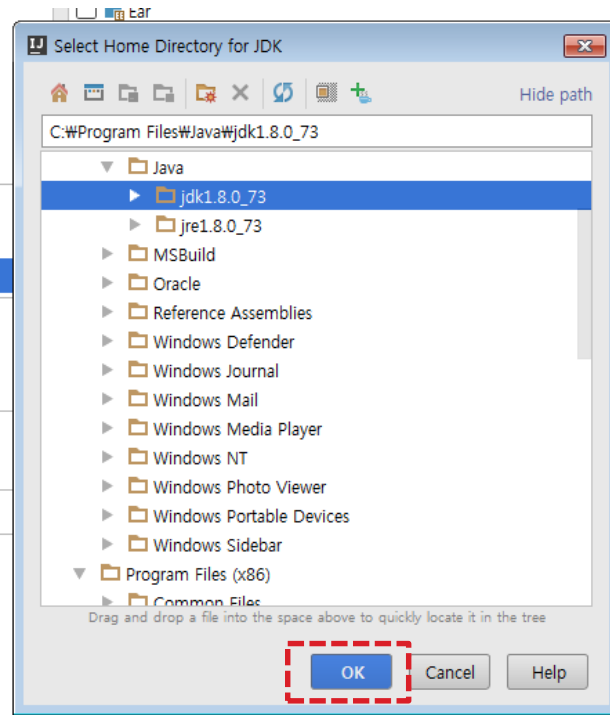
Create New Project 클릭 > 좌측 메뉴에서 Gradle 클릭 > New 클릭 > JDK 클릭



# New Project

## 신규 프로젝트 생성

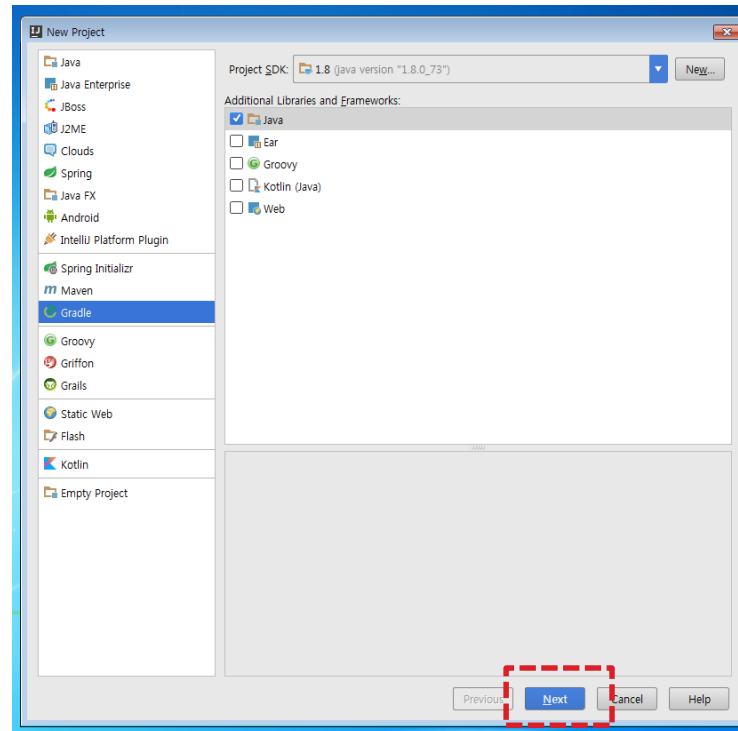
Create New Project 클릭 > 좌측 메뉴에서 Gradle 클릭 > New 클릭 > JDK 클릭 > JDK 경로 설정 후 OK 클릭



# New Project

신규 프로젝트 생성

Project SDK 확인 후 **Next** 클릭

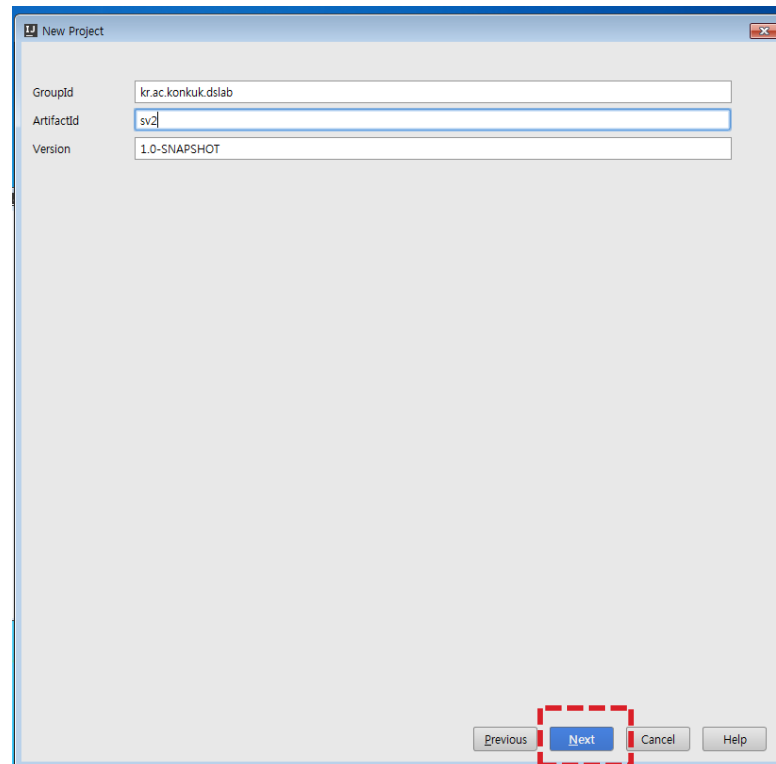




# New Project

## 신규 프로젝트 생성

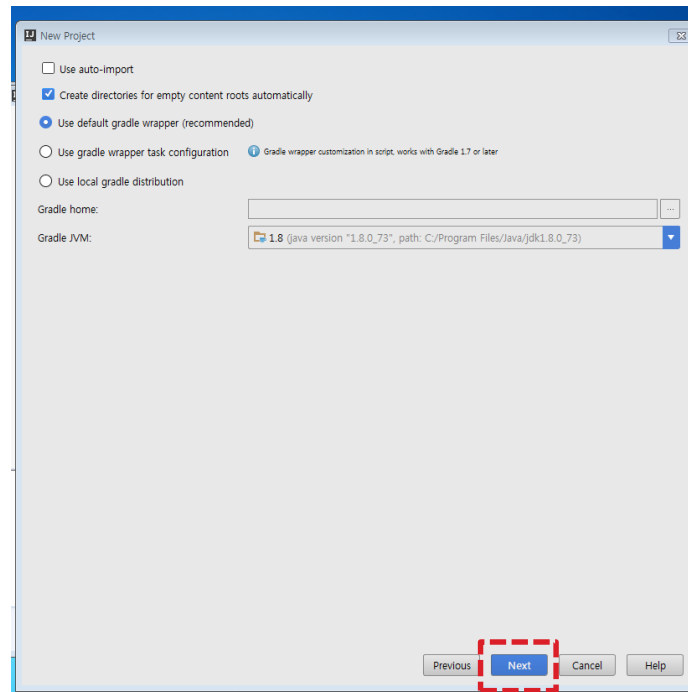
Project SDK 확인 후 **Next** 클릭 > GroupId, ArtifactId, Version 입력 후 **Next** 클릭



# New Project

## 신규 프로젝트 생성

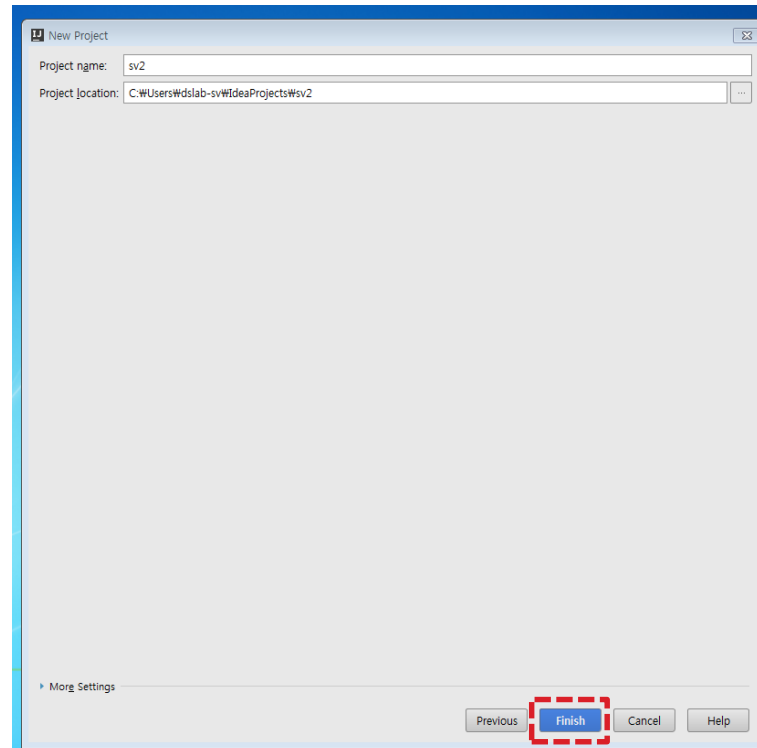
Project SDK 확인 후 **Next** 클릭 > GroupId, ArtifactId, Version 입력 후 **Next** 클릭 > **Create** ~~ 체크 후 **Next** 클릭



# New Project

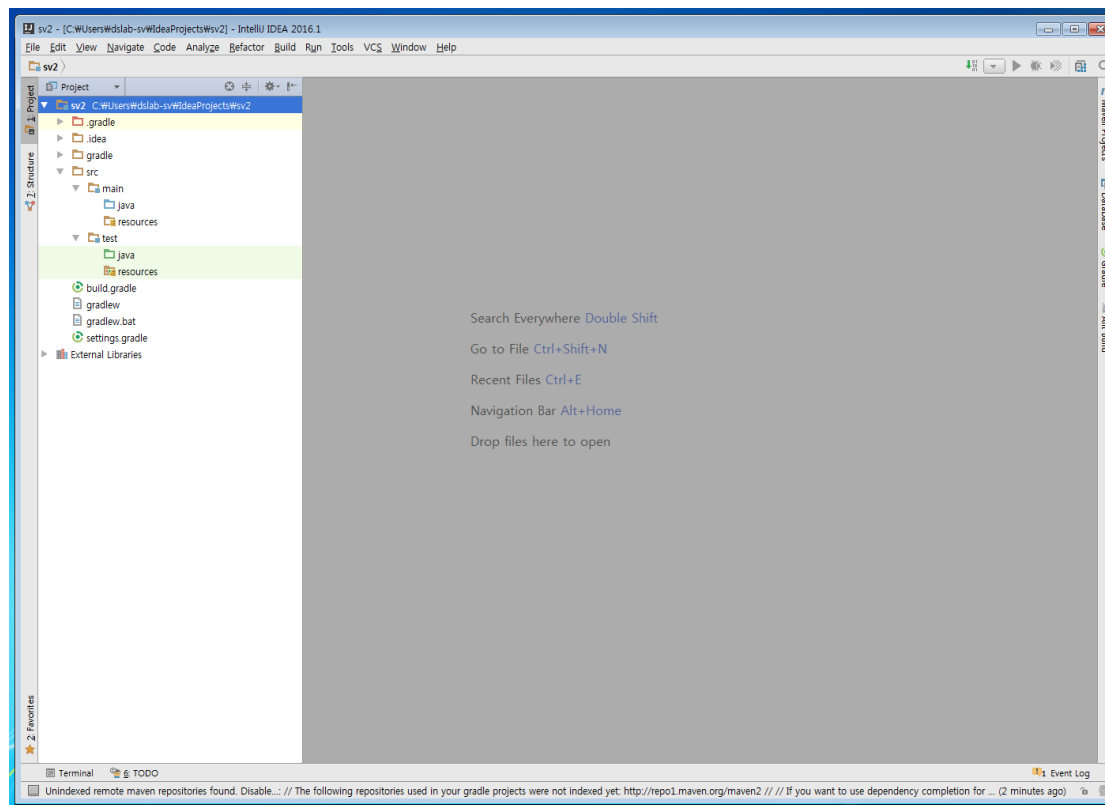
신규 프로젝트 생성

Finish 클릭



# New Project

## 신규 프로젝트 생성



# JUnit

## JUnit란?

Java 진영에서 널리 사용하는 Unit Test Framework

## 주요 API

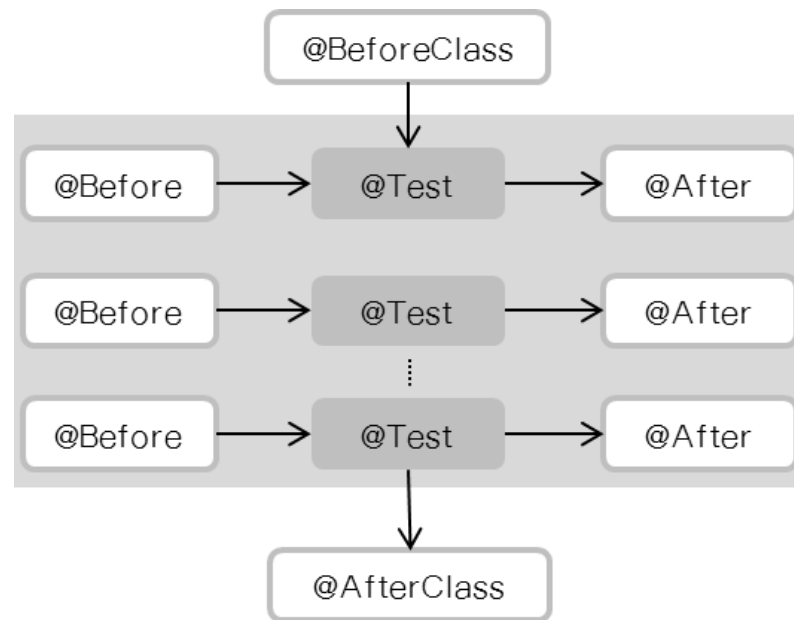
`assertArrayEquals(a,b)` : 배열 a와b가 일치함을 확인

`assertEquals(a,b)` : 객체 a와b의 값이 같은지 확인

`assertSame(a,b)` : 객체 a와b가 같은 객체임을 확인

`assertTrue(a)` : a가 참인지 확인

`assertNotNull(a)` : a객체가 null이 아님을 확인



```

@Before
public void setUp() throws Exception {
    this.echo = new Echo();
}

@After
public void tearDown() throws Exception {
    this.echo = null;
}

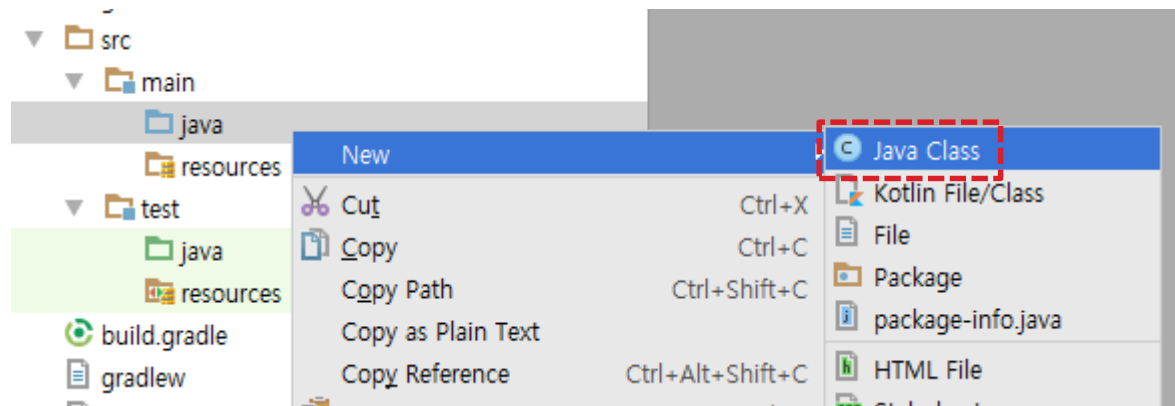
@Test
public void echoInt() throws Exception {
    assertEquals(this.echo.echoInt(3), 3);
}

```

# JUnit

## 간단한 테스트를 위한 더미 코드 작성

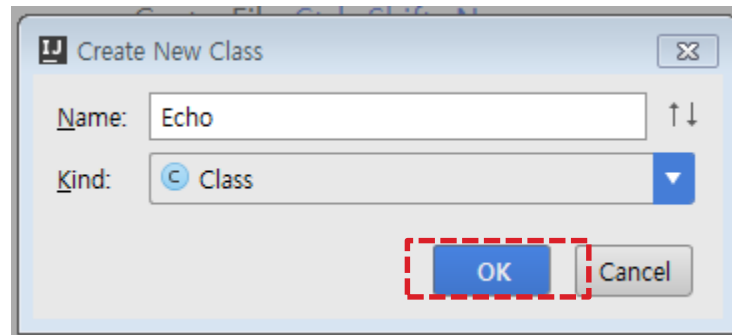
src-main-java 에서 오른쪽 마우스를 클릭하여 **New > Java Class** 클릭



# JUnit

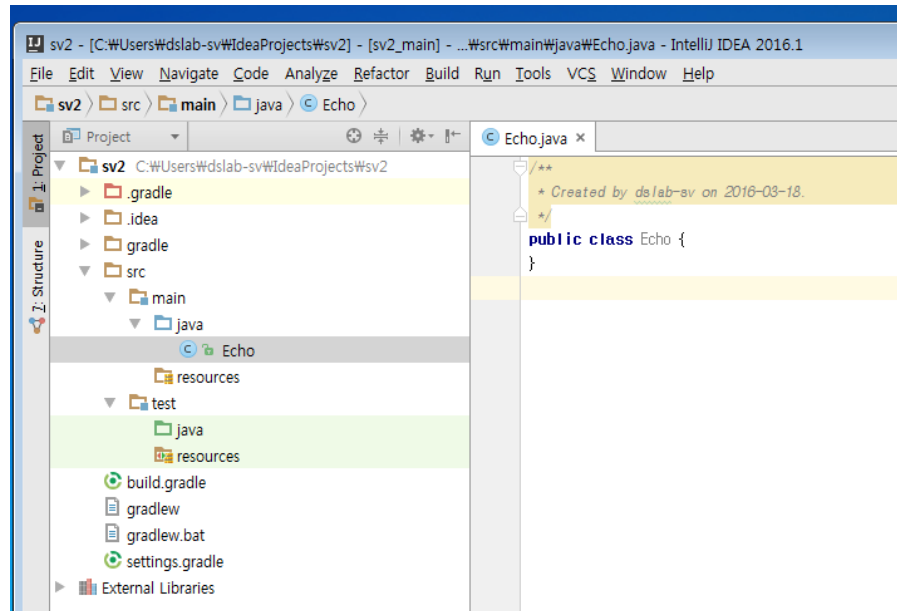
간단한 테스트를 위한 더미 코드 작성

클래스 이름을 입력한 뒤 OK 클릭



# JUnit

간단한 테스트를 위한 더미 코드 작성





# JUnit

간단한 테스트를 위한 더미 코드 작성

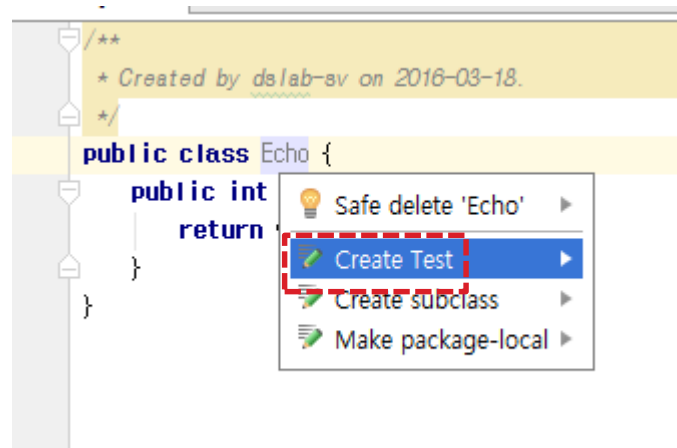
아래와 같이 더미 코드를 작성

```
/**  
 * Created by ds1ab-av on 2016-03-18.  
 */  
public class Echo {  
    public int echoInt(int value) {  
        return value;  
    }  
}
```

# JUnit

## 유닛테스트 코드 작성

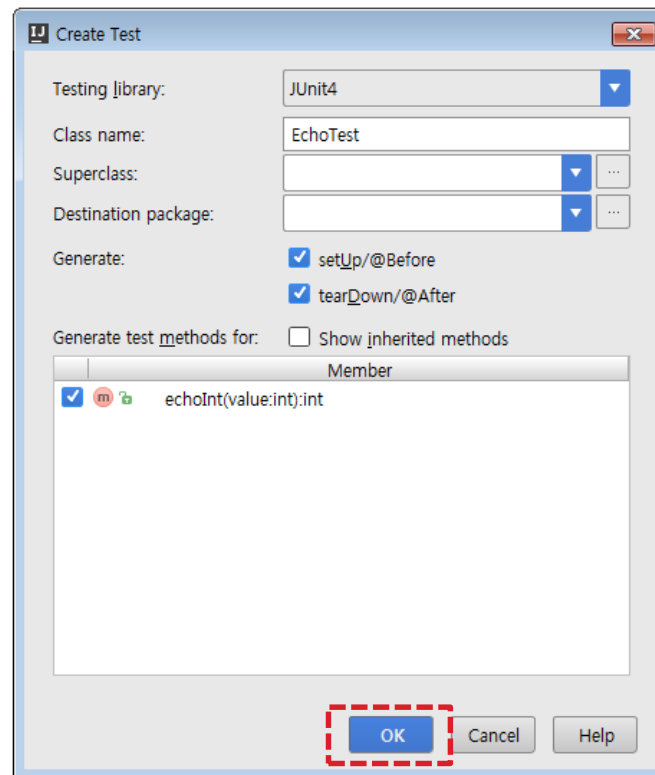
class 이름 위에서 **Alt + Enter** > Create Test 클릭



# JUnit

## 유닛테스트 코드 작성

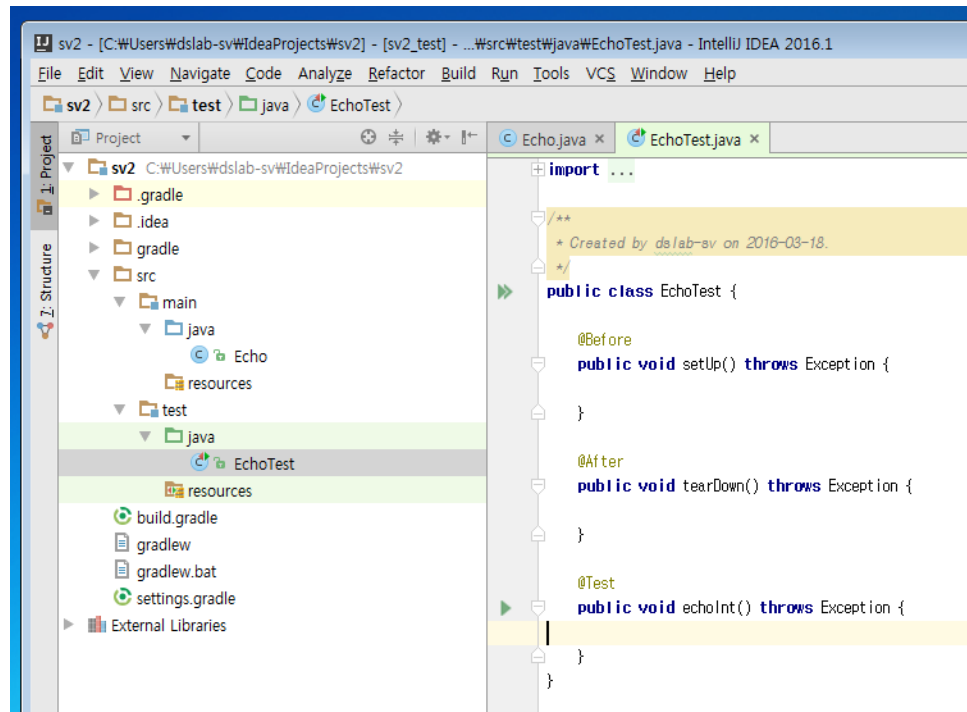
class 이름 위에서 **Alt + Enter** > **Create Test** 클릭 > 생성할 것들을 체크한 이후 **OK** 클릭



# JUnit

유닛테스트 코드 작성

테스트 클래스가 생성됨



The screenshot shows the IntelliJ IDEA 2016.1 interface. The top toolbar includes menus for File, Edit, View, Navigate, Code, Analyze, Refactor, Build, Run, Tools, VCS, Window, and Help. The breadcrumb path is sv2 > src > test > java > EchoTest. The Project Structure view on the left shows a project named 'sv2' with a 'test' directory containing a 'java' subdirectory with the 'EchoTest' class. The main editor displays the code for 'EchoTest.java' with the following content:

```
import ...  
  
/**  
 * Created by dslab-sv on 2016-03-18.  
 */  
public class EchoTest {  
  
    @Before  
    public void setUp() throws Exception {  
    }  
  
    @After  
    public void tearDown() throws Exception {  
    }  
  
    @Test  
    public void echoInt() throws Exception {  
    }  
}
```

# JUnit

## 유닛테스트 코드 작성

테스트 클래스가 생성됨 > 아래의 내용과 같이 테스트 코드를 작성

```
public class EchoTest {
    private Echo echo;

    @Before
    public void setUp() throws Exception {
        |   this.echo = new Echo();
    }

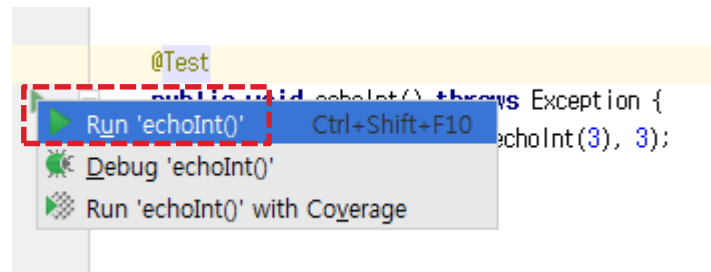
    @After
    public void tearDown() throws Exception {
        |   this.echo = null;
    }

    @Test
    public void echoInt() throws Exception {
        |   assertEquals(this.echo.echoInt(3), 3);
    }
}
```

# JUnit

## 유닛테스트 코드 작성

테스트 클래스가 생성됨 > 아래의 내용과 같이 테스트 코드를 작성 > 테스트 실행 (해당 함수만 테스트)



# JUnit

## 유닛테스트 코드 작성

테스트 클래스가 생성됨 > 아래의 내용과 같이 테스트 코드를 작성 > 테스트 실행 (해당 함수만 테스트) > 테스트 결과 확인



# Gradle?

빌드 자동화 툴로 Maven과 경쟁 구도를 이루고 있음

- Maven의 경우 단순한 빌드 코드 작성도 XML 때문에 너무나 장황한 일이 됨
- Gradle도 Maven 레포를 끌어다 쓸 수 있음
- Ant의 모든 테스트 사용 가능



# Gradle

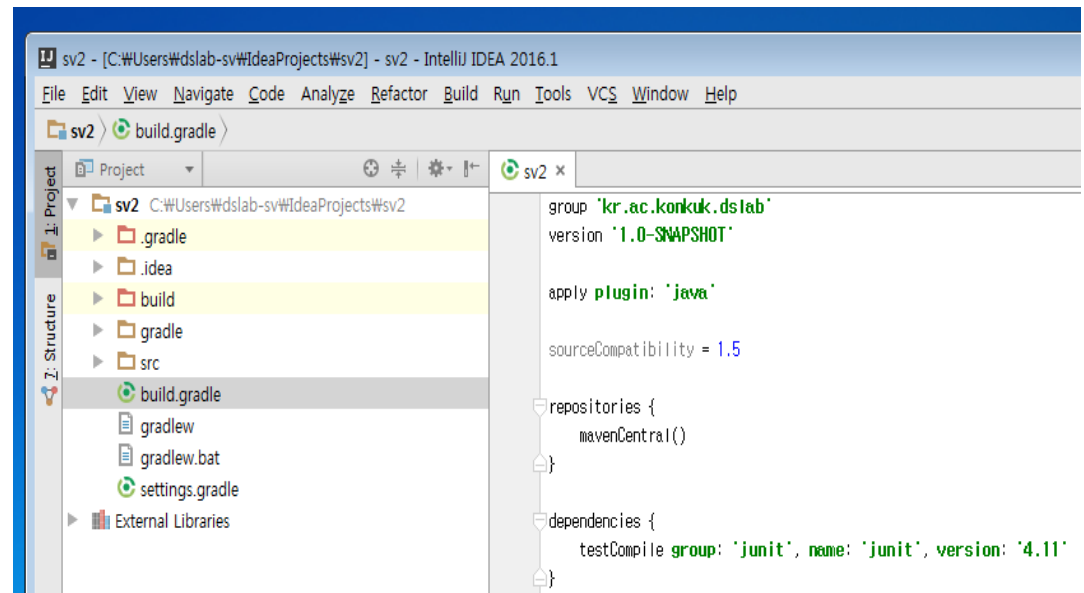
## build.gradle

## repositories

의존성 파일 등을 받아올 저장소 리스트

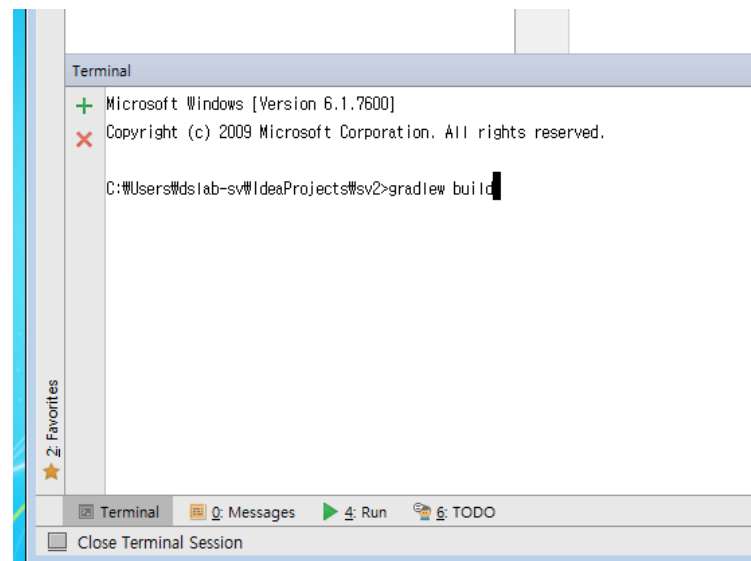
## dependencies

본 프로젝트에 필요한 의존성 리스트



# Gradle

IntelliJ 하단의 Terminal > `gradlew build` 입력, 엔터



# Gradle

IntelliJ 하단의 Terminal > gradlew build 입력, 엔터

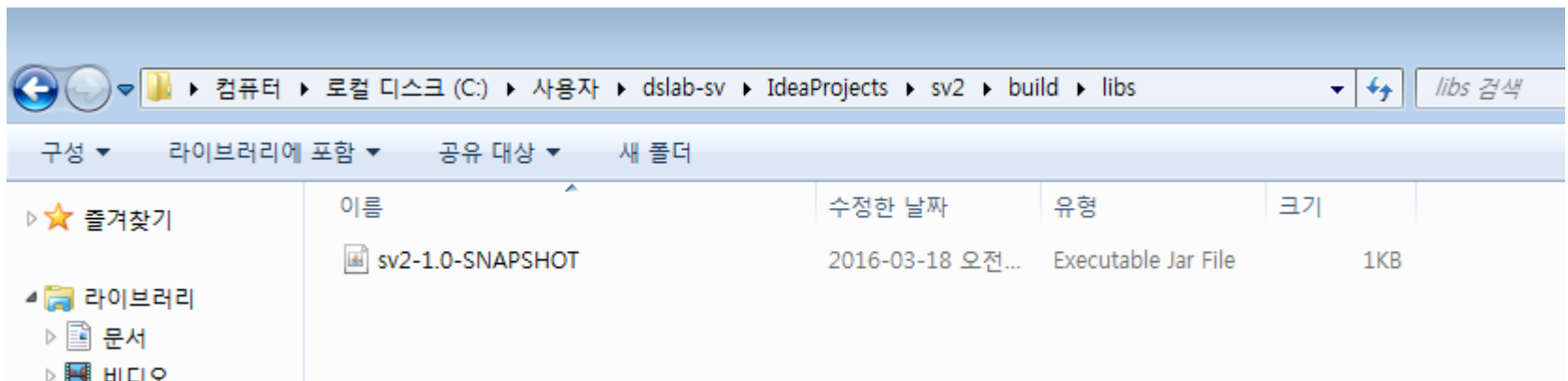
```
:compileJava UP-TO-DATE
:processResources UP-TO-DATE
:classes UP-TO-DATE
:jar UP-TO-DATE
:assemble UP-TO-DATE
:compileTestJava
warning: [options] bootstrap class path not set in conjunction with -source 1.5
warning: [options] source value 1.5 is obsolete and will be removed in a future release
warning: [options] target value 1.5 is obsolete and will be removed in a future release
warning: [options] To suppress warnings about obsolete options, use -Xlint:-options.
4 warnings
:processTestResources UP-TO-DATE
:testClasses
:test
:check
:build

BUILD SUCCESSFUL

Total time: 12.041 secs
C:\Users\#ds\lab-sv\IdeaProjects\sv2>
```

# Gradle

IntelliJ 하단의 Terminal > `gradlew build` 입력, 엔터



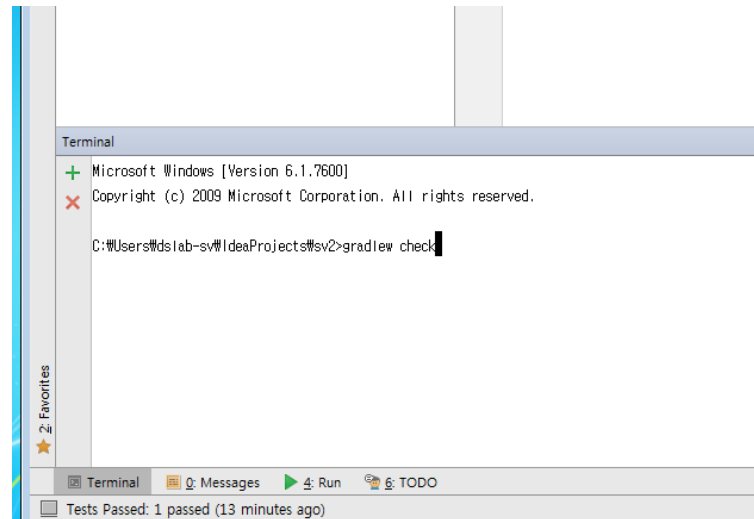
# Gradle

작동 테스트를 위해 아까 작성한 테스트 코드를 아래와 같이 수정

```
@Test
public void echoInt() throws Exception {
    |   assertEquals(this.echo.echoInt(3), 2);
}
```

# Gradle

IntelliJ 하단의 Terminal > gradlew check 입력, 엔터



The screenshot shows the IntelliJ IDEA interface with the Terminal window open. The terminal displays the following text:

```
Terminal  
+ Microsoft Windows [Version 6.1.7600]  
X Copyright (c) 2009 Microsoft Corporation. All rights reserved.  
  
C:\Users\wds\lab-sv\IdeaProjects\sv2>gradlew check
```

The terminal window is part of a larger IDE interface. On the left side, there is a vertical toolbar with a star icon and the word "Favorites". At the bottom of the IDE, there is a status bar with the text "Tests Passed: 1 passed (13 minutes ago)".

# Gradle

IntelliJ 하단의 Terminal > `gradlew check` 입력, 엔터

```
EchoTest > echoInt FAILED
    java.lang.AssertionError at EchoTest.java:25

1 test completed, 1 failed
:test FAILED

FAILURE: Build failed with an exception.

* What went wrong:
Execution failed for task ':test'.
> There were failing tests. See the report at: file:///C:/Users/dslab-sv/IdeaProjects/sv2/build/reports/tests/index.html

* Try:
Run with --stacktrace option to get the stack trace. Run with --info or --debug option to get more log output.

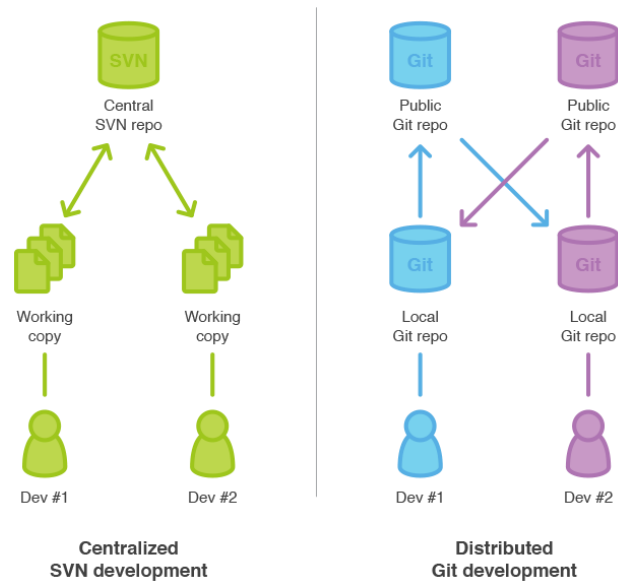
BUILD FAILED

Total time: 10.482 secs

C:\Users\ds\IdeaProjects\sv2>
```

# Git?

## Git - 분산 버전 관리 시스템

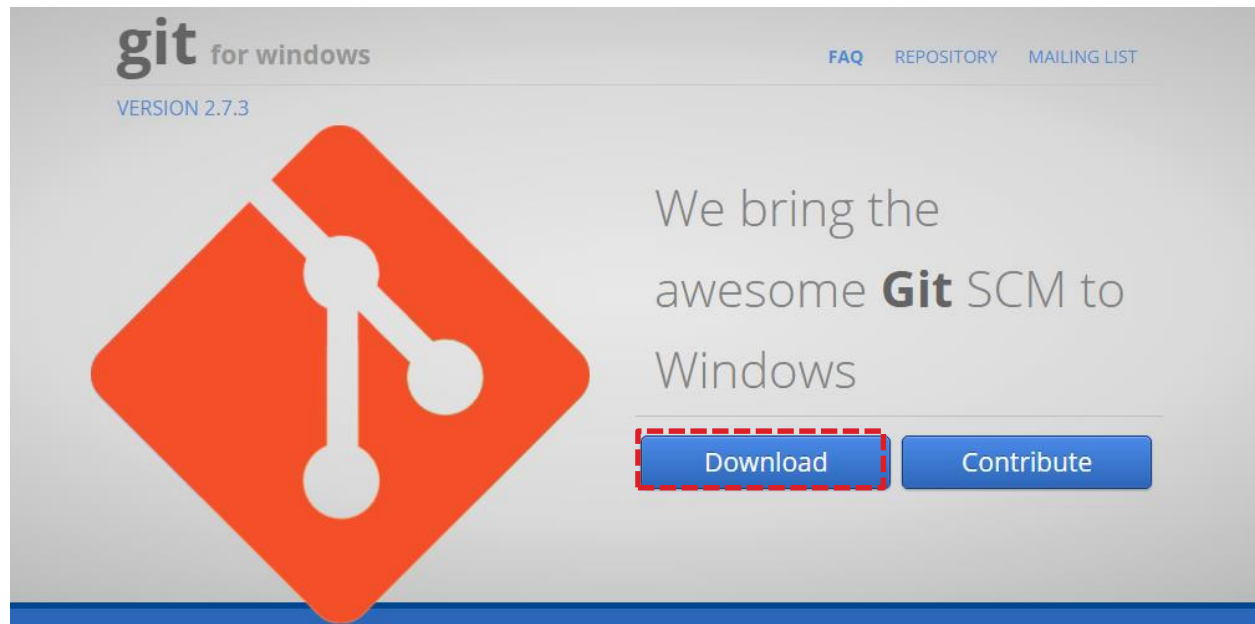




# Git for windows 설치

Git for windows는 윈도우용 git cli 클라이언트입니다.

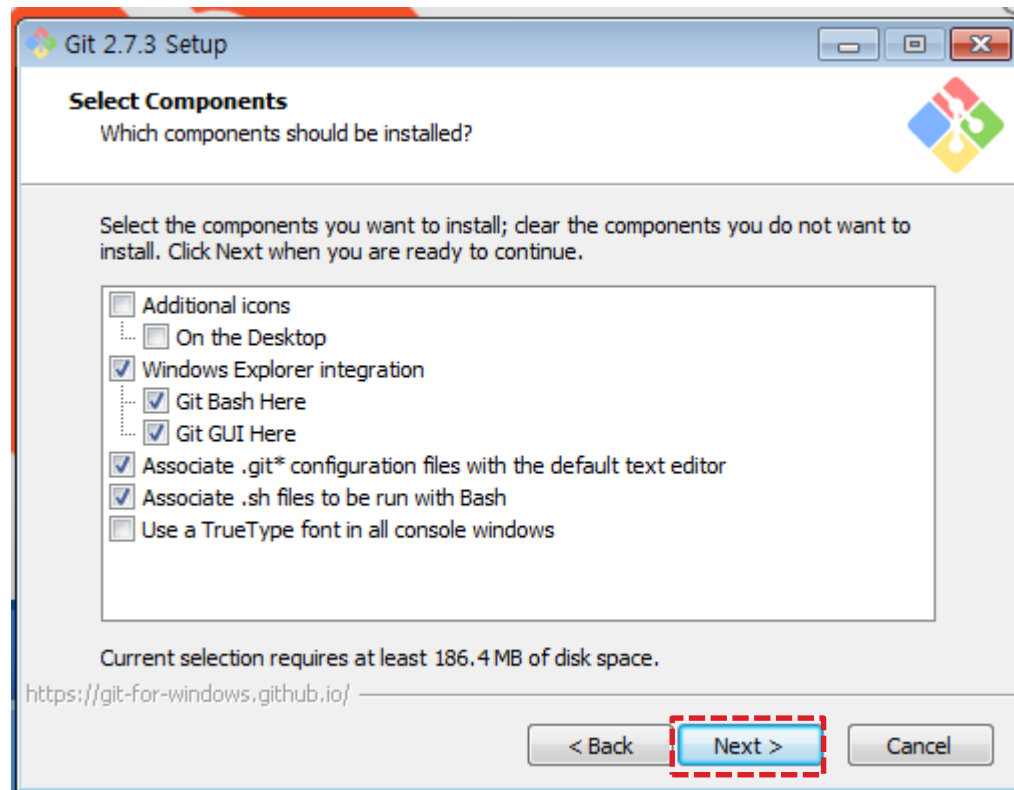
홈페이지([여기](#))에서 **Download** 클릭



# Git for windows 설치

Git for windows는 윈도우용 git cli 클라이언트입니다.

홈페이지(여기)에서 Download 클릭 > Next 클릭



# Git for windows 설치

Git for windows는 윈도우용 git cli 클라이언트입니다.

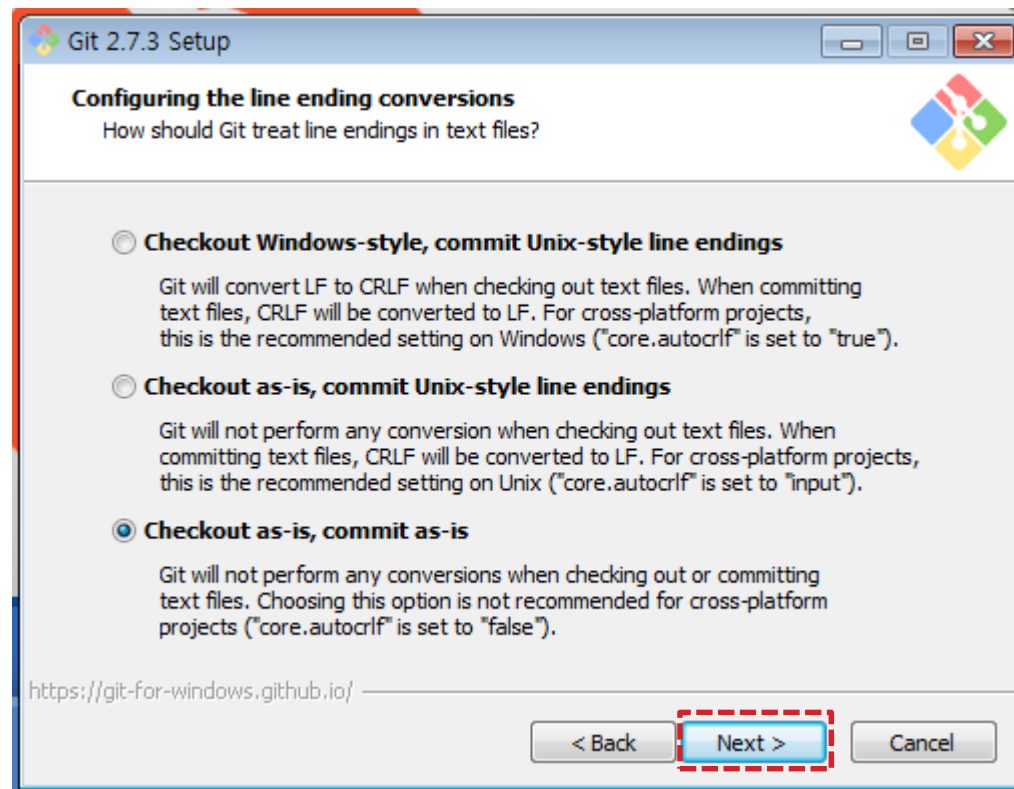
홈페이지(여기)에서 Download 클릭 > Next 클릭 > PATH env 선택 후 Next 클릭



# Git for windows 설치

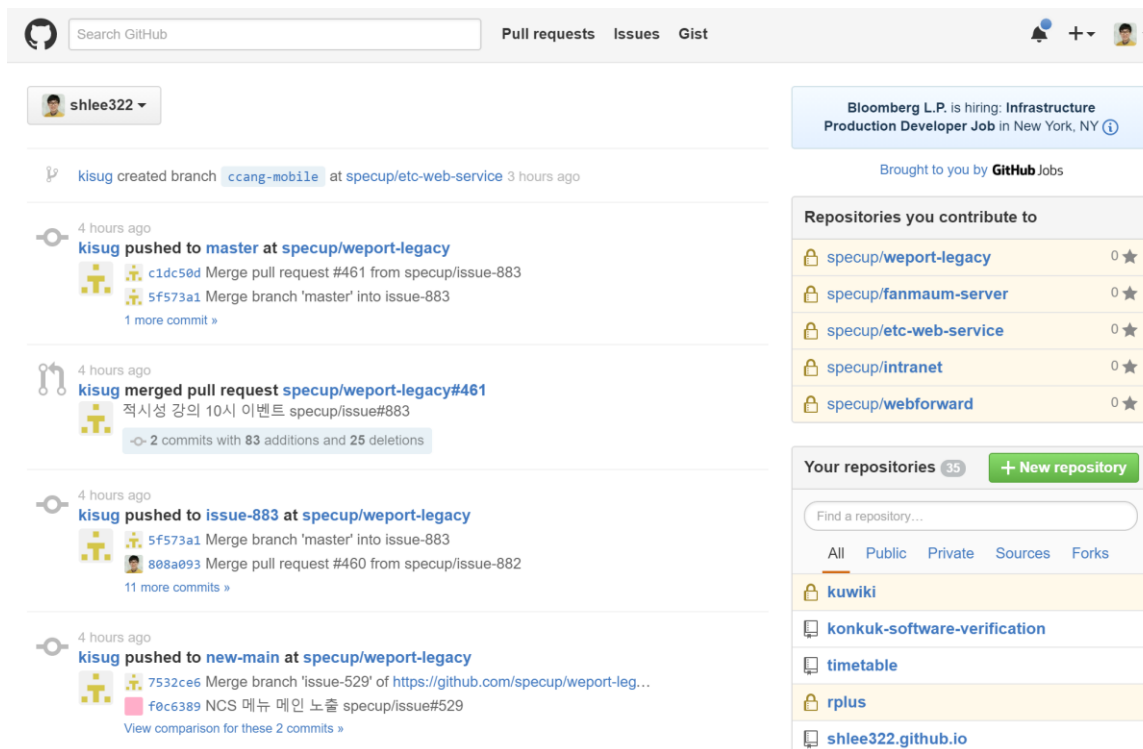
Git for windows는 윈도우용 git cli 클라이언트입니다.

홈페이지(여기)에서 Download 클릭 > Next 클릭 > PATH env 선택 후 Next 클릭 > 뉴라인 결정 후 Next 클릭



# Github?

Git을 호스팅 해주는 서비스로 수 많은 기업들과 오픈소스 개발자들에게 사랑을 받고 있음



Search GitHub Pull requests Issues Gist

shlee322

Bloomberg L.P. is hiring: Infrastructure Production Developer Job in New York, NY

Brought to you by GitHub Jobs

Repositories you contribute to

- specup/weport-legacy 0 ★
- specup/fanmaum-server 0 ★
- specup/etc-web-service 0 ★
- specup/intranet 0 ★
- specup/webforward 0 ★

Your repositories 35 + New repository

Find a repository...

All Public Private Sources Forks

- kuwiki
- konkuk-software-verification
- timetable
- rplus
- shlee322.github.io

kisug created branch `ccang-mobile` at `specup/etc-web-service` 3 hours ago

4 hours ago  
**kisug pushed to master at specup/weport-legacy**  
 c1dc50d Merge pull request #461 from specup/issue-883  
 5f573a1 Merge branch 'master' into issue-883  
 1 more commit »

4 hours ago  
**kisug merged pull request specup/weport-legacy#461**  
 적시성 강의 10시 이벤트 specup/issue#883  
 2 commits with 83 additions and 25 deletions

4 hours ago  
**kisug pushed to issue-883 at specup/weport-legacy**  
 5f573a1 Merge branch 'master' into issue-883  
 808a093 Merge pull request #460 from specup/issue-882  
 11 more commits »

4 hours ago  
**kisug pushed to new-main at specup/weport-legacy**  
 7532ce6 Merge branch 'issue-529' of https://github.com/specup/weport-leg...  
 f0c6389 NCS 메뉴 메인 노출 specup/issue#529  
 View comparison for these 2 commits »

# Github 회원가입

username(아이디)와 메일주소, 비밀번호 만으로 간단하게 가입할 수 있음



Personal Open source Business Explore Pricing Blog Support Sign in Sign up

## How people build software

Millions of developers use GitHub to build personal projects, support their businesses, and work together on open source technologies.

Pick a username

Your email address

Create a password

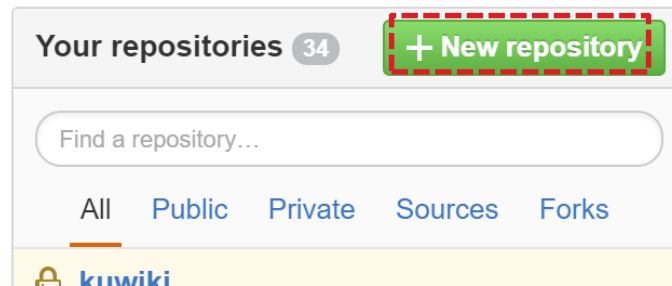
Use at least one letter, one numeral, and seven characters.

**Sign up for GitHub**

By clicking "Sign up for GitHub", you agree to our [terms of service](#) and [privacy policy](#). We'll occasionally send you account related emails.

# Create Repository

로그인 후 메인 페이지에서 New repository 클릭




# Create Repository

로그인 후 메인 페이지에서 **New repository** 클릭 > 간단한 정보 기입 후 **Create repository** 클릭

## Create a new repository

A repository contains all the files for your project, including the revision history.

<b>Owner</b>	<b>Repository name</b>
 shlee322 ▾	konkuk-dslab ✓

Great repository names are short and memorable. Need inspiration? How about **probable-octo-couscous**.

### Description (optional)

- Public**  
Anyone can see this repository. You choose who can commit.
- Private**  
You choose who can see and commit to this repository.

- Initialize this repository with a README**  
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None** ▾

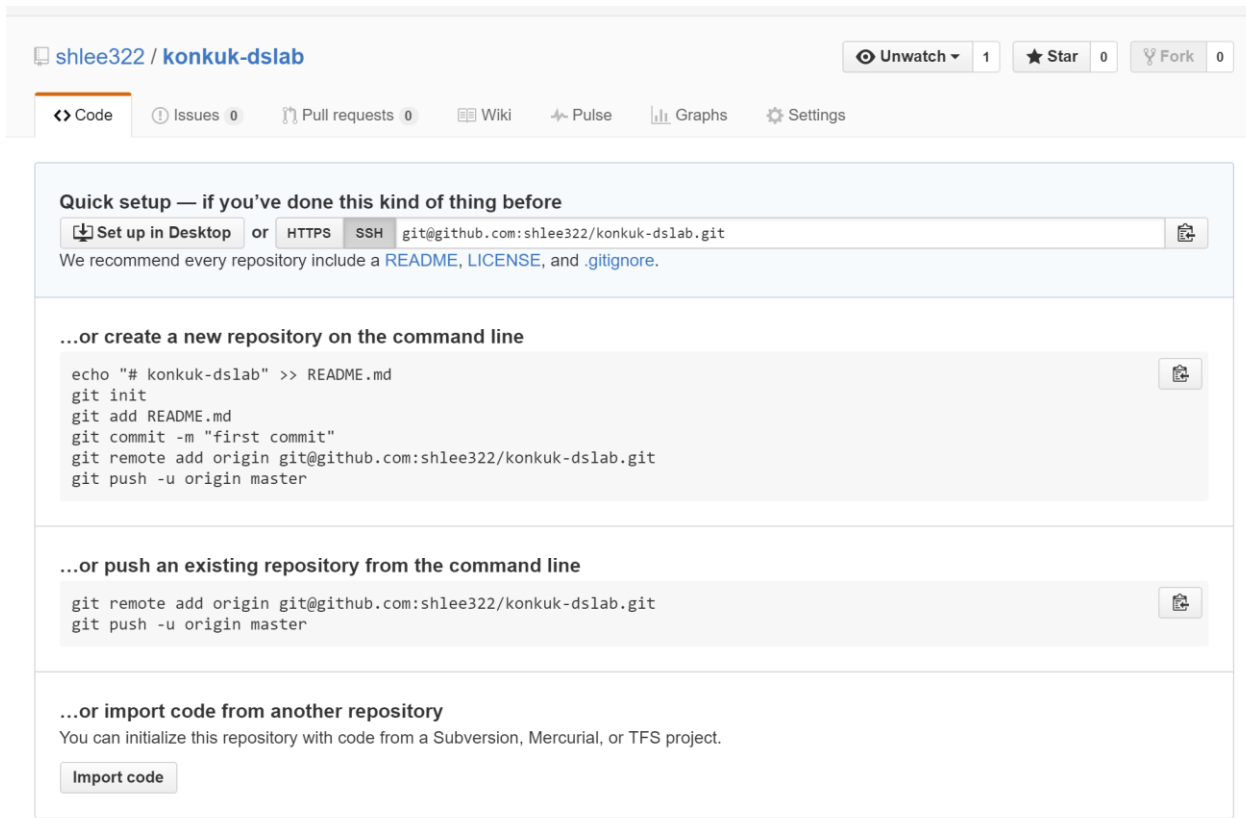
Add a license: **None** ▾ ⓘ

**Create repository**



# Create Repository

로그인 후 메인 페이지에서 **New repository** 클릭 > 간단한 정보 기입 후 **Create repository** 클릭 > 생성 완료



The screenshot shows the GitHub interface for creating a new repository. At the top, the repository name is 'shlee322 / konkuk-dslab'. Below this, there are buttons for 'Unwatch', 'Star', and 'Fork'. The main content area is titled 'Quick setup — if you've done this kind of thing before' and provides three options for setting up the repository:

- Set up in Desktop** or **HTTPS** **SSH** `git@github.com:shlee322/konkuk-dslab.git`
- ...or create a new repository on the command line**

```
echo "# konkuk-dslab" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin git@github.com:shlee322/konkuk-dslab.git
git push -u origin master
```
- ...or push an existing repository from the command line**

```
git remote add origin git@github.com:shlee322/konkuk-dslab.git
git push -u origin master
```

At the bottom, there is an option for **...or import code from another repository** with a note: 'You can initialize this repository with code from a Subversion, Mercurial, or TFS project.' and an **Import code** button.

# Travis CI?

Travis CI는 GitHub과 연동해 지속적 통합(Continuous Integration)을 호스팅해주는 서비스입니다.

<https://travis-ci.org> 에서 Github 아이디로 로그인

The screenshot displays the Travis CI dashboard. On the left, under 'My Repositories', three repositories are listed: 'shlee322/timetable' (failed), 'shlee322/opencampus' (passed), and 'shlee322/saram-core' (passed). The main area shows the details for the failed build of 'shlee322 / timetable' on the 'master' branch. The build status is 'build error' and '#28 errored'. The commit is 'c5110cf' and it was authored and committed by Sanghyuck Lee. The build log shows 'Worker information' and 'Build system information'.

Travis CI | Blog | Status | Help | Sanghyuck Lee (SL)

Search all repositories

My Repositories +

- ! shlee322/timetable #28  
Duration: 6 min 35 sec  
Finished: 16 days ago
- ✓ shlee322/opencampus #14  
Duration: 1 min 10 sec  
Finished: 8 months ago
- ✓ shlee322/saram-core #16  
Duration: 1 min 27 sec  
Finished: 2 years ago

shlee322 / timetable build error

Current | Branches | Build History | Pull Requests | More options

! master 건국대학교 서울캠퍼스 2016년 1학기 적용 #28 errored

- Commit c5110cf
- Compare a5202d6..c5110cf
- Sanghyuck Lee authored and committed

Elapsed time 6 min 35 sec  
16 days ago

This job ran on our new platform for Precise builds. Please read our [blog post for more information](#).

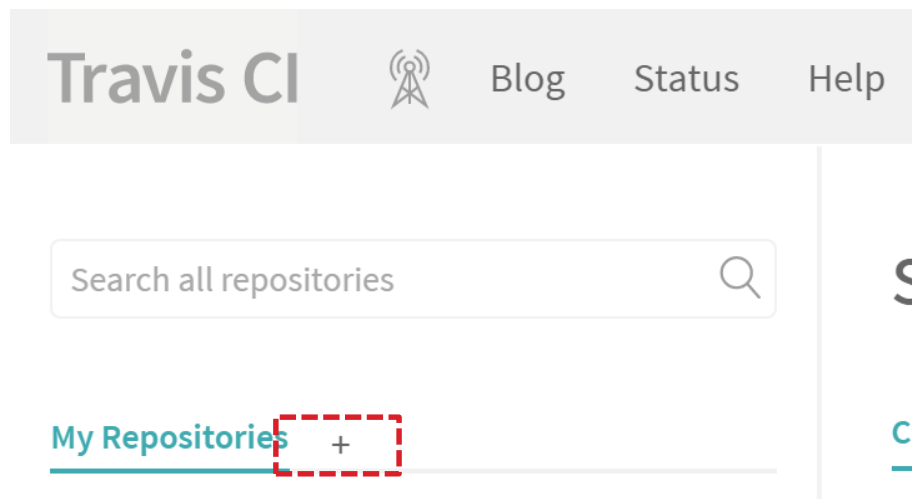
Remove log | Raw log

```
1 Worker information
6 Build system information
86
```

# Travis CI

Travis CI는 GitHub과 연동해 지속적 통합(Continuous Integration)을 호스팅해주는 서비스입니다.

<https://travis-ci.org> 에서 Github 아이디로 로그인 > + 버튼 클릭



# Travis CI

Travis CI는 GitHub과 연동해 지속적 통합(Continuous Integration)을 호스팅해주는 서비스입니다.

<https://travis-ci.org> 에서 Github 아이디로 로그인 > + 버튼 클릭 > Sync account 클릭

Sanghyuck Lee

Sync account



1  
Flick the repository  
switch on



2  
Add .travis.yml file  
to your repository



3  
Trigger your first  
build with a git push

# Travis CI

Travis CI는 GitHub과 연동해 지속적 통합(Continuous Integration)을 호스팅해주는 서비스입니다.

<https://travis-ci.org> 에서 Github 아이디로 로그인 > + 버튼 클릭 > Sync account 클릭 > 해당 레포의 X 버튼 클릭



shlee322/konkuk-dslab



shlee322/konkuk-dslab

# Travis CI

Travis CI는 GitHub과 연동해 지속적 통합(Continuous Integration)을 호스팅해주는 서비스입니다.

Travis CI 메인에 해당 레포가 추가됨을 확인

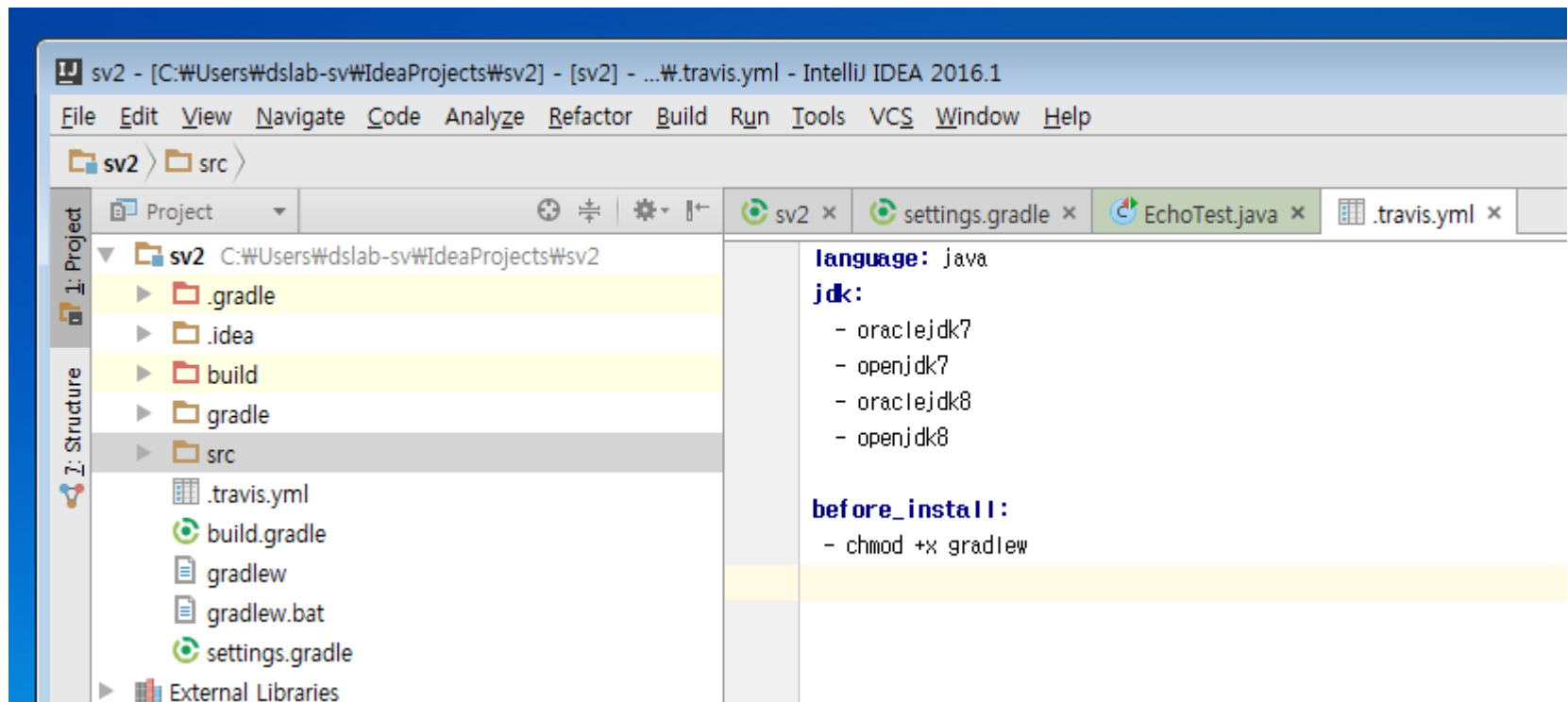
○ shlee322/konkuk-dslab

🕒 Duration: -

📅 27 Finished: -

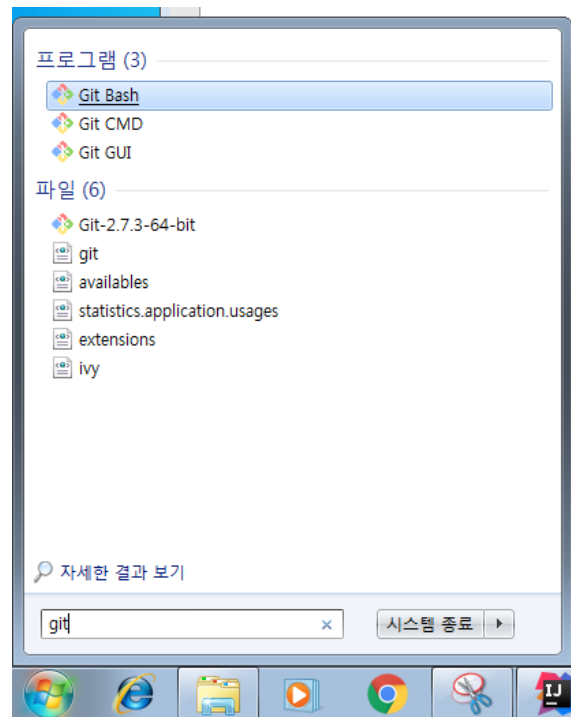
# Travis CI

프로젝트 루트 디렉토리에 `.travis.yml` 파일을 추가



# Commit

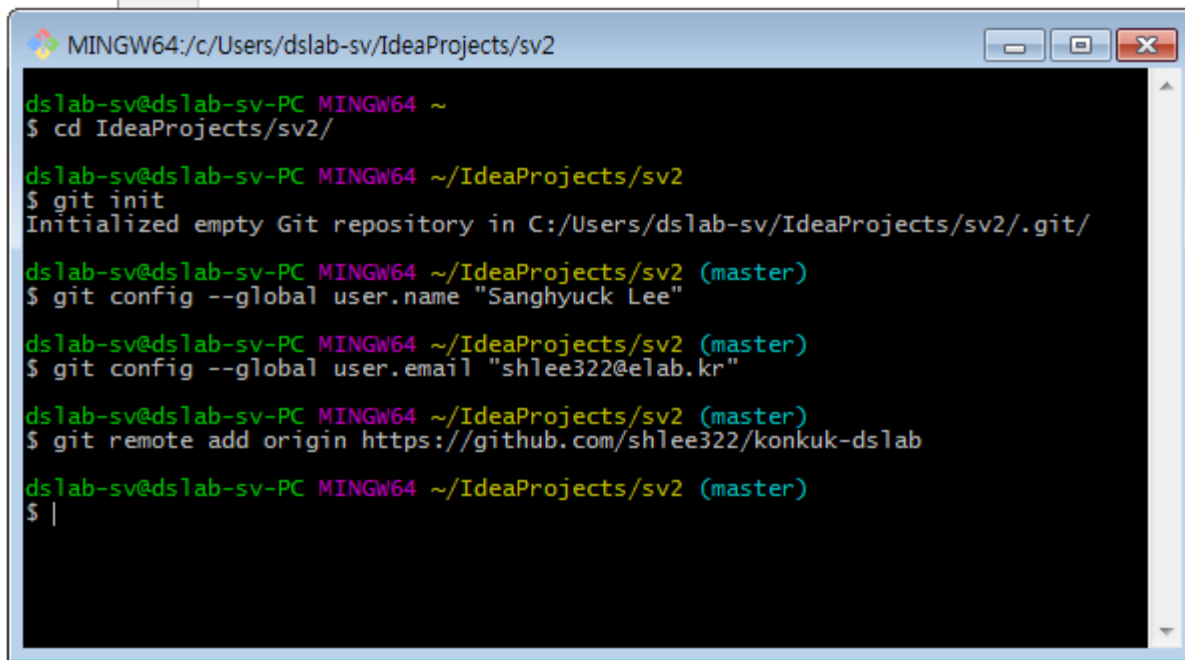
## Git Bash 실행





# Commit

Git Bash 실행 > 레포 초기화, 커미터 정보 입력



```
MINGW64:/c:/Users/dslab-sv/IdeaProjects/sv2
dslab-sv@dslab-sv-PC MINGW64 ~
$ cd IdeaProjects/sv2/

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2
$ git init
Initialized empty Git repository in C:/Users/dslab-sv/IdeaProjects/sv2/.git/

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git config --global user.name "Sanghyuck Lee"

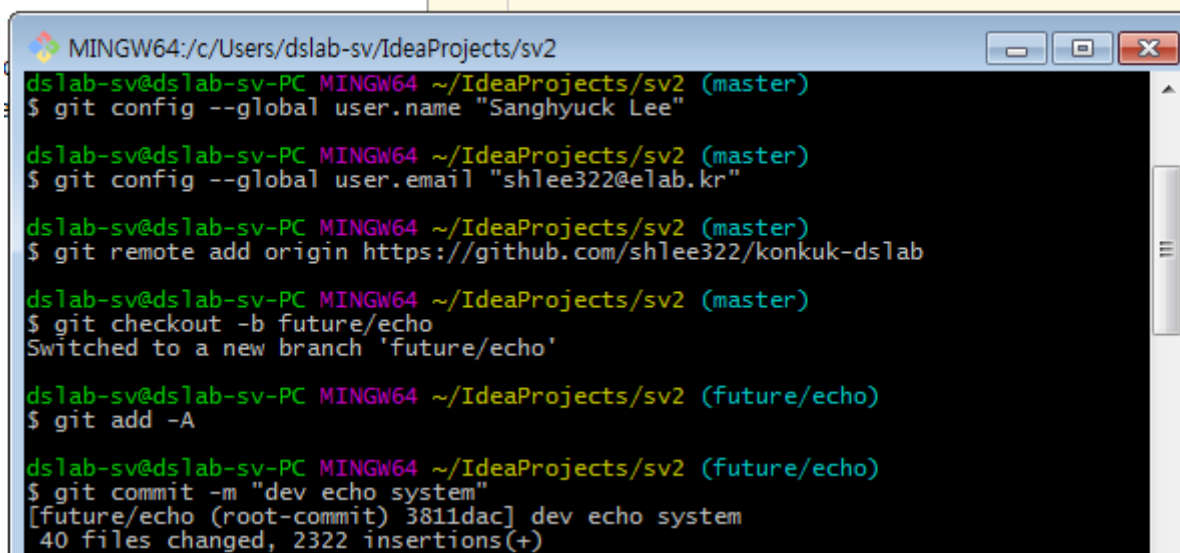
dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git config --global user.email "shlee322@elab.kr"

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git remote add origin https://github.com/shlee322/konkuk-dslab

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ |
```

# Commit

Git Bash 실행 > 레포 초기화, 커미터 정보 입력 > branch 생성 > commit 대상 지정 > commit



```
MINGW64:/c/Users/dslab-sv/IdeaProjects/sv2
dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git config --global user.name "Sanghyuck Lee"

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git config --global user.email "shlee322@elab.kr"

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git remote add origin https://github.com/shlee322/konkuk-dslab

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (master)
$ git checkout -b future/echo
Switched to a new branch 'future/echo'

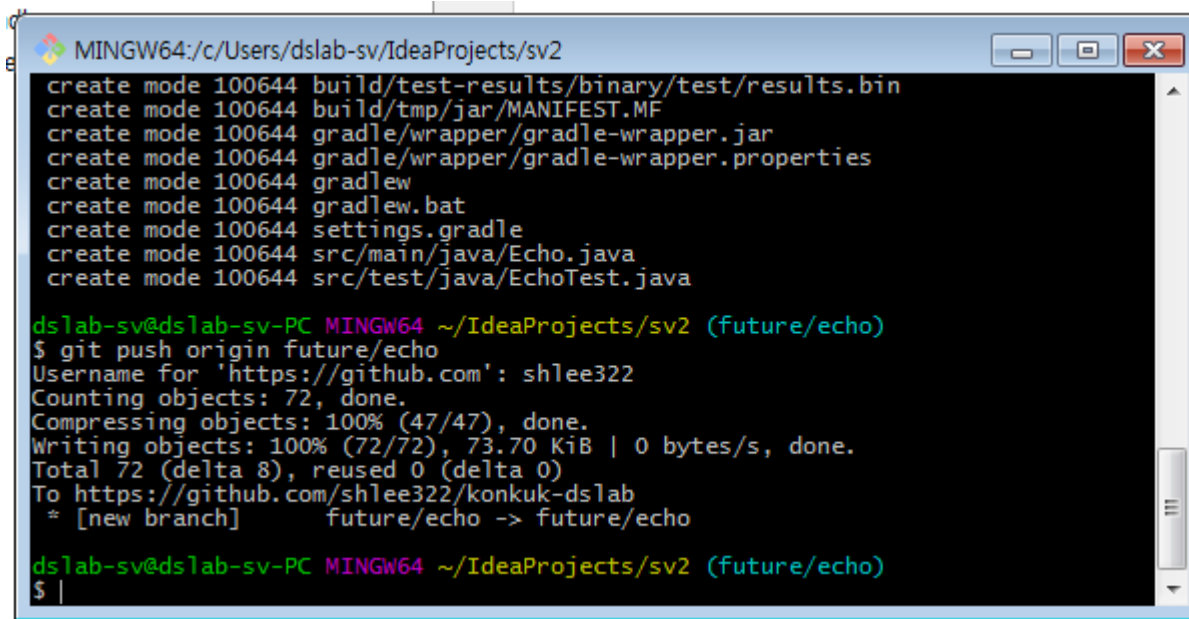
dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (future/echo)
$ git add -A

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (future/echo)
$ git commit -m "dev echo system"
[future/echo (root-commit) 3811dac] dev echo system
40 files changed, 2322 insertions(+)
```

-.gitignore를 만들어 제외 리스트를 관리하면 효율적으로 관리 가능

# Commit

Git Bash 실행 > 레포 초기화, 커미터 정보 입력 > branch 생성 > commit 대상 지정 > commit > push



```
MINGW64:/c/Users/dslab-sv/IdeaProjects/sv2
create mode 100644 build/test-results/binary/test/results.bin
create mode 100644 build/tmp/jar/MANIFEST.MF
create mode 100644 gradle/wrapper/gradle-wrapper.jar
create mode 100644 gradle/wrapper/gradle-wrapper.properties
create mode 100644 gradlew
create mode 100644 gradlew.bat
create mode 100644 settings.gradle
create mode 100644 src/main/java/Echo.java
create mode 100644 src/test/java/EchoTest.java

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (future/echo)
$ git push origin future/echo
Username for 'https://github.com': shlee322
Counting objects: 72, done.
Compressing objects: 100% (47/47), done.
Writing objects: 100% (72/72), 73.70 KiB | 0 bytes/s, done.
Total 72 (delta 8), reused 0 (delta 0)
To https://github.com/shlee322/konkuk-dslab
 * [new branch]      future/echo -> future/echo

dslab-sv@dslab-sv-PC MINGW64 ~/IdeaProjects/sv2 (future/echo)
$
```

# Commit

shlee322 / **konkuk-dslab** Unwatch 1 Star 0 Fork 0

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No description or website provided. — Edit

1 commit 1 branch 0 releases 1 contributor

Branch: future/... [New pull request](#) [New file](#) [Upload files](#) [Find file](#) [HTTPS](#) <https://github.com/shlee3> [Download ZIP](#)


shlee322 dev echo system	Latest commit 3811dac 3 minutes ago
.gradle/2.9/taskArtifacts	dev echo system 3 minutes ago
.idea	dev echo system 3 minutes ago
build	dev echo system 3 minutes ago
gradle/wrapper	dev echo system 3 minutes ago
src	dev echo system 3 minutes ago
.travis.yml	dev echo system 3 minutes ago
build.gradle	dev echo system 3 minutes ago
gradlew	dev echo system 3 minutes ago
gradlew.bat	dev echo system 3 minutes ago
settings.gradle	dev echo system 3 minutes ago


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# Commit


shlee322 / konkuk-dslab  build unknown


Current Branches Build History Pull Requests > Build #1


More options 


**! future/echo dev echo system** - #1 errored 


 Commit 3811dac

 Compare 3811dac3f688













 Sanghyuck Lee authored and committed

 Elapsed time 52 sec

 Total time 2 min 24 sec

 less than a minute ago

## Build Jobs

✓ # 1.1	 </> JDK: oraclejdk7	 no environment variables set	 33 sec
✓ # 1.2	 </> JDK: openjdk7	 no environment variables set	 37 sec
✓ # 1.3	 </> JDK: oraclejdk8	 no environment variables set	 52 sec
! # 1.4	 </> JDK: openjdk8	 no environment variables set	 22 sec

# Commit

✓ **future/echo** dev echo system #1.1 passed

Commit 3811dac Elapsed time 33 sec

Compare 3811dac3f688 5 minutes ago

Sanghyuck Lee authored and committed

```
1 Using worker: worker-linux-docker-924c0a16.prod.travis-ci.org:travis-linux-3
2
3 Build system information
67
68 $ export DEBIAN_FRONTEND=noninteractive
107 $ git clone --depth=50 --branch=future/echo https://github.com/shlee322/konkuk-dslab.git shlee322/konkuk-dslab
117
118 This job is running on container-based infrastructure, which does not allow use of 'sudo', setuid and setgid executables.
119 If you require sudo, add 'sudo: required' to your .travis.yml
120 See https://docs.travis-ci.com/user/workers/container-based-infrastructure/ for details.
121 $ jdk_switcher use oraclejdk7
122 Switching to Oracle JDK7 (java-7-oracle). JAVA_HOME will be set to /usr/lib/jvm/java-7-oracle
123 $ export TERM=dumb
124 $ java -Xmx32m -version
125 java version "1.7.0_76"
126 Java(TM) SE Runtime Environment (build 1.7.0_76-b13)
127 Java HotSpot(TM) 64-Bit Server VM (build 24.76-b04, mixed mode)
128 $ javac -J-Xmx32m -version
129 javac 1.7.0_76
130 $ chmod +x gradlew
132 $ ./gradlew assemble
149 $ ./gradlew check
150 :compileJava UP-TO-DATE
151 :processResources UP-TO-DATE
152 :classes UP-TO-DATE
153 :compileTestJava
```

# 감사합니다

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