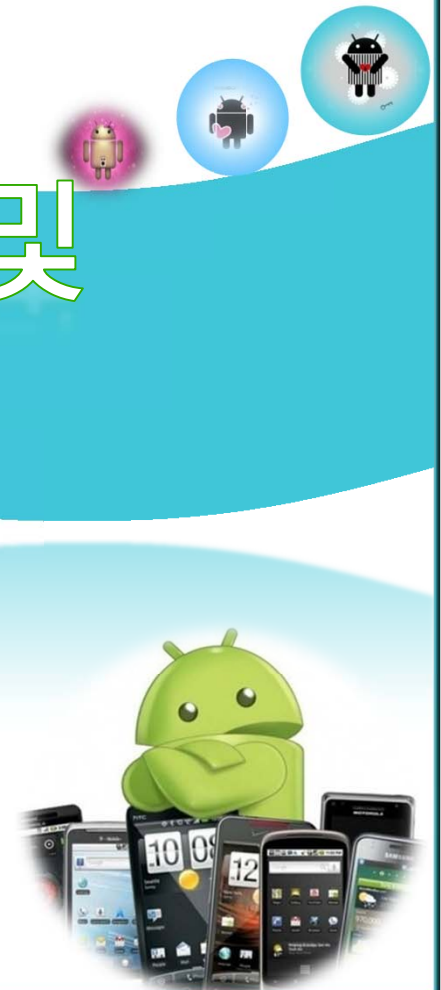




안드로이드 개요 및 개발 환경 구축



구성 내용

- 안드로이드 개요
- 개발 환경 구축
 - ◎ JDK 설치
 - ◎ Android studio 설치
 - ◎ 환경 구축

안드로이드 개요(1) - 스마트폰 개요

○ 통화 기능을 넘어선 컴퓨터의 역할 + 휴대기기
장점과 특징

○ 스마트폰 역사

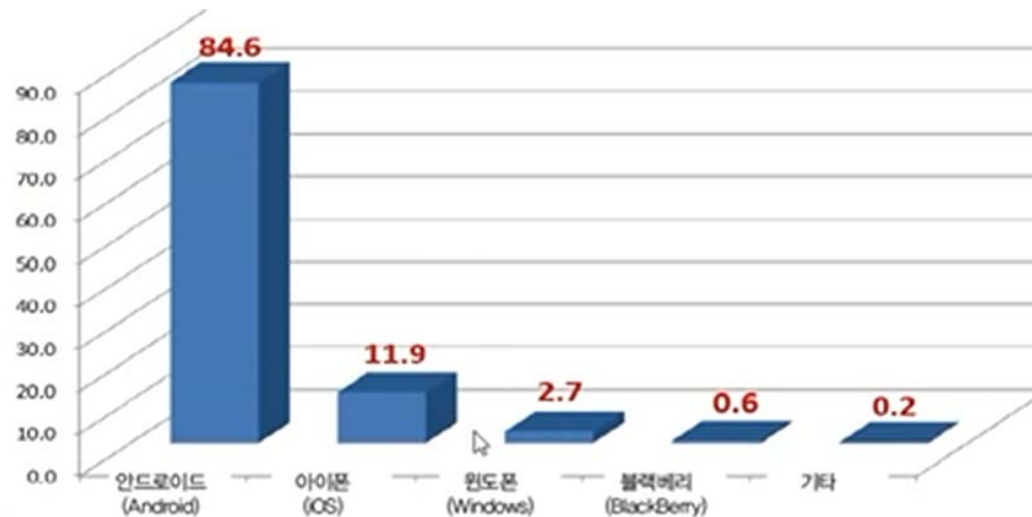
- ✓ 1992년 IBM사의 사이먼 (최초)
- ✓ 1996년 노키아 9000
- ✓ 2002년 마이크로소프트 포켓PC
- ✓ 2007년 아이폰
- ✓ 2008년 안드로이드 폰
- ✓ 2009년 Bada 폰
- ✓ 2010년 윈도우폰7



안드로이드 개요(2) - 스마트폰 운영체제

○ 세계시장 점유율

⊙ 안드로이드폰 84%, 아이폰 11%, 윈도우폰 2%



안드로이드 개요(3) - 의미

○ 안드로이드

◎ 인조인간을 의미

- 사용자를 위해 여러 가지 심부름을 대신해 준다는 뜻
- 모바일 환경에 적합한 운영체제

2007년 11월 5일 구글의 주도하에 OHA(Open Handset Alliance) 결성
: 개방된 모바일 환경을 위한 하드웨어, 소프트웨어 업체의 공동 연합
으로써 약 30여개의 쟁쟁한 업체가 가입

OHA에서 비독점 플랫폼을 지향하며 그 결과로 만들어진 것이 안드로이드

안드로이드 개요(4) - 역사



2005.07

개발 시작

2007.11

안드로이드 첫 버전 릴리즈

2008.10

최초의 상용 안드로이드폰인 HTC의 G1발표

2010.02

국내에 모토로라의 모토로이 발매 시작으로
본격적인 상용화



안드로이드 개요(5) - 버전



2014 ~ 2015 → 롤리팝 OS 업그레이드, 안드로이드 스튜디오 공식 개발도구로 전환



안드로이드 개요(6) - 주요기능

주요 기능

- ❖ 애플리케이션 프레임워크를 통해서 제공되는 API를 사용함으로써 코드를 재사용하여 효율적이고 빠른 애플리케이션의 개발이 가능
- ❖ 2D 그래픽 및 3차원 그래픽을 최적화하여 표현
- ❖ 모바일용 데이터베이스인 SQLite를 제공
- ❖ 각종 오디오, 비디오 및 이미지 형식을 지원
- ❖ 모바일 기기에 내장된 각종 하드웨어를 잘 지원
- ❖ 이클립스 IDE를 통해서 강력하고 빠른 개발 환경을 제공

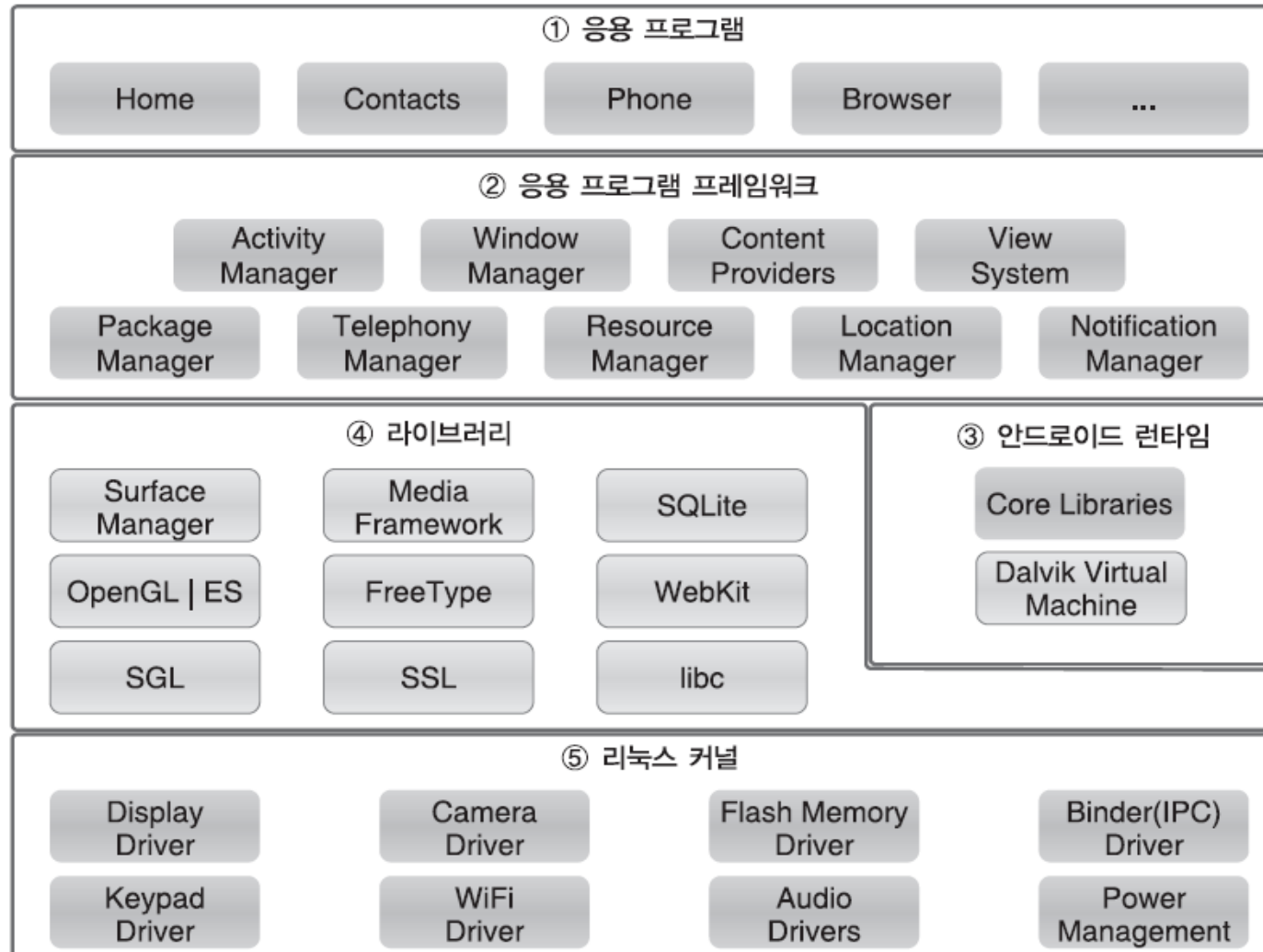
안드로이드 개요(8) - 특징

특징

- ❖ 이 안드로이드의 **핵심 커널은 리눅스(Linux)**로 구성되어 있다.
 - ❖ 리눅스 사용법을 전혀 몰라도 안드로이드 애플리케이션을 작성에 문제가 없다.
- ❖ 안드로이드 애플리케이션 **개발 언어는 Java 언어**를 사용한다. 높은 수준의 애플리케이션을 제작하기 위한 NDK는 C, C++ 기반으로 개발한다.
- ❖ 안드로이드 SDK에서 **많은 라이브러리**를 포함하고 있어 개발을 용이하게 할 수 있다.
- ❖ 오픈 소스를 지향하기 때문에 운영체제부터 관련 문서, 개발 도구 등 거의 모든 것을 무료로 사용할 수 있다.
- ❖ 지속적인 업그레이드를 제공한다.

안드로이드 개요(9) - 구조

안드로이드 운영체제 구조



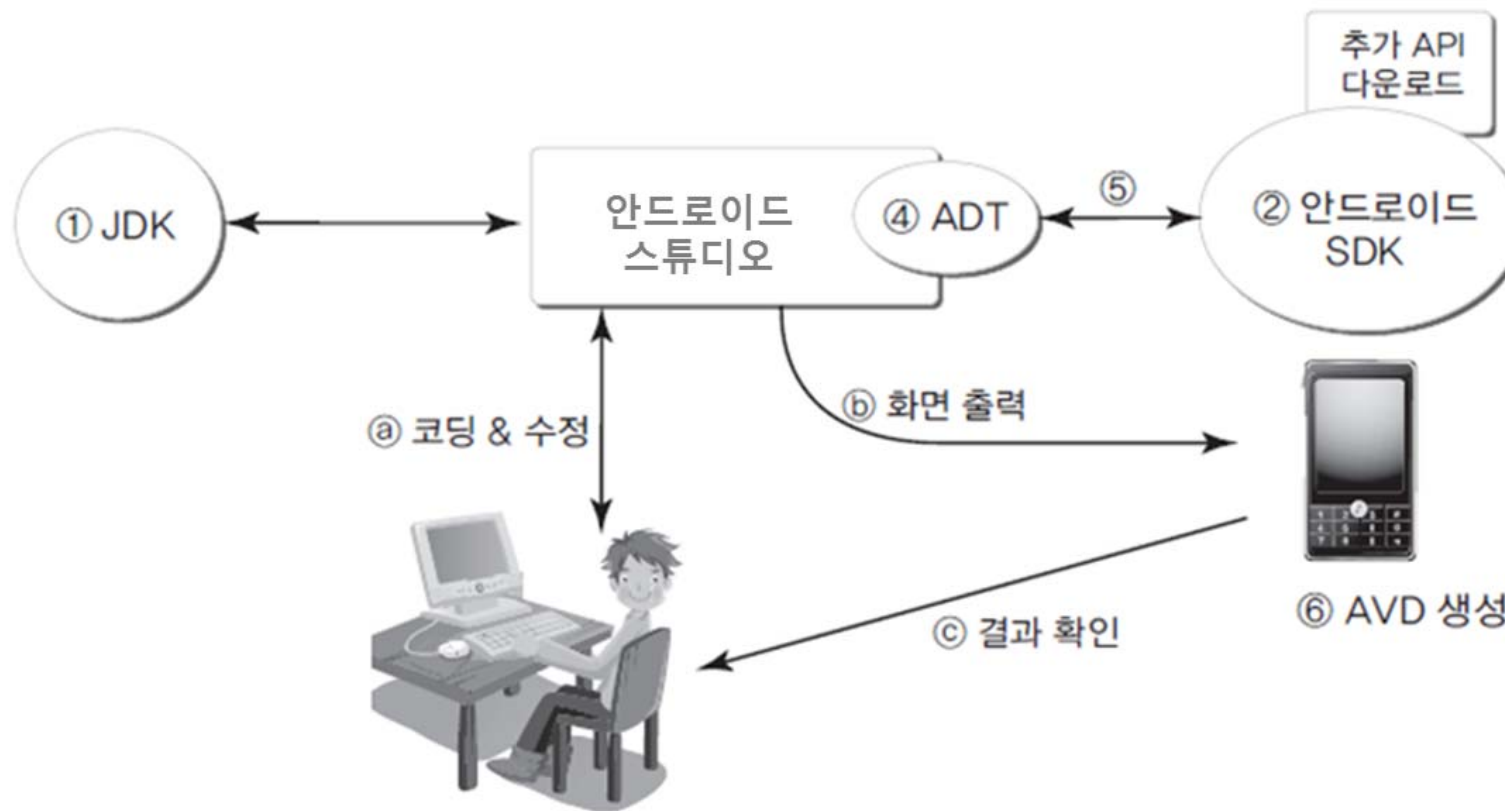
개발 환경 구축(1) - 개발 운영체제

개발 운영체제

- ❖ Windows, Linux, Mac 모두를 지원함
- ❖ Windows는 32bit, 64bit 관계없이 개발할 수 있음
- ❖ 안드로이드 개발을 위한 Windows 운영체제
 - PC용
 - ✓ Windows XP, Windows Vista, Windows 7, Windows 8
 - 서버용
 - ✓ Windows Server 2003, Windows Server 2008, Windows Server 2008 R2, Windows Server 2012

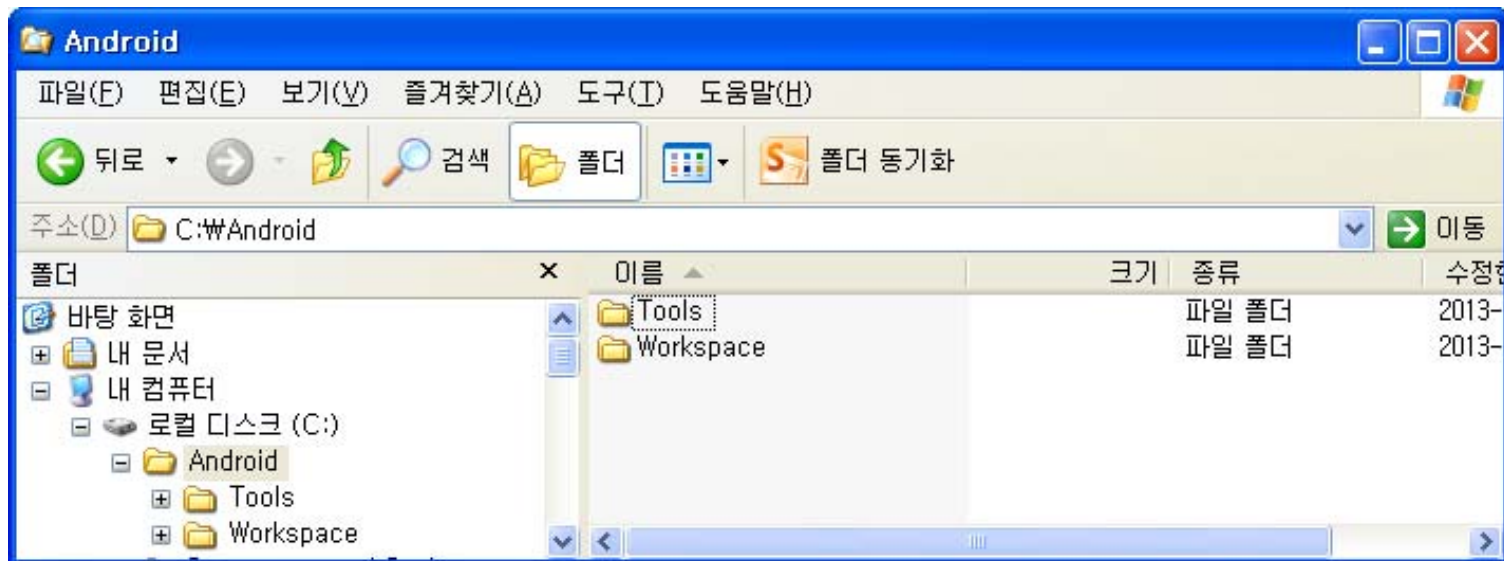
개발 환경 구축(2) - 개발 환경 구성

개발 환경 구성



개발 환경 구축(4) - 환경 구축

○ JDK, Android Studio 설치를 위한 사전 작업



1. C:\W 하위에 Android 폴더 생성
2. 생성한 Android 폴더 하위에 Tools 폴더 생성
 - Tools – 설치 파일 저장 위치

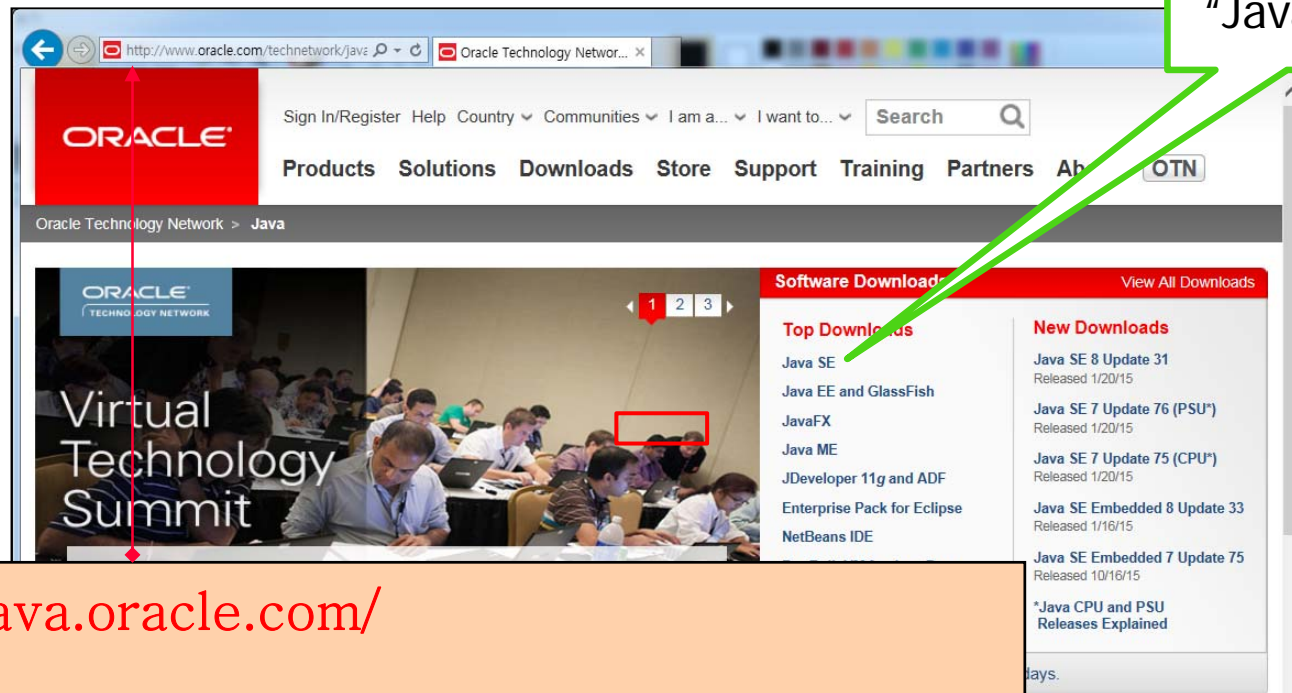
개발 환경 구축(5) - Jdk 설치

1. JDK 설치

- ❖ JDK 다운로드(<http://java.oracle.com>) 및 설치
(<http://www.oracle.com/technetwork/java/index.html>)
- ❖ JRE도 설치

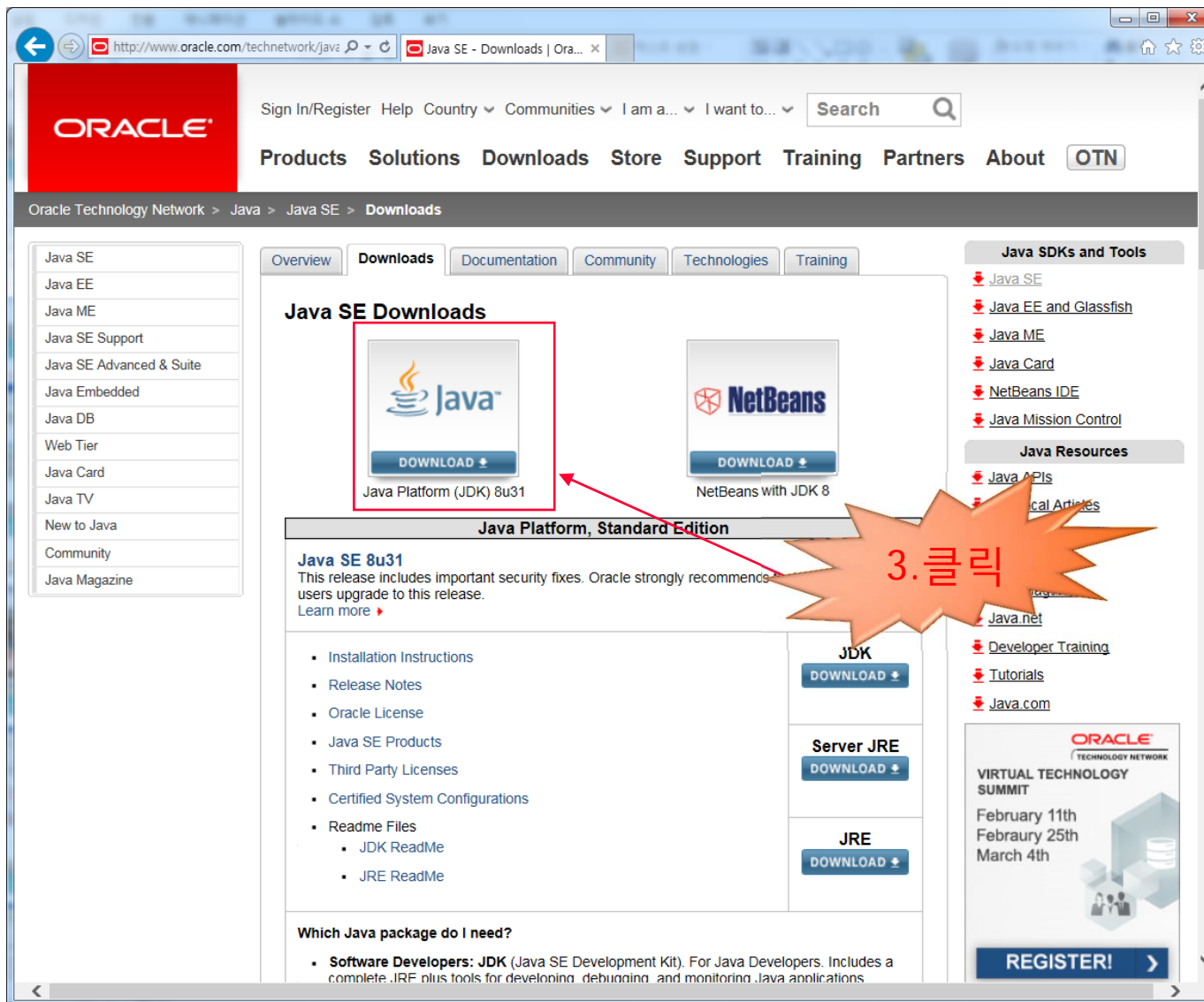
2. 클릭

"Java SE "



1. <http://java.oracle.com/>
또는
(<http://www.oracle.com/technetwork/java/index.html>)

개발 환경 구축(6) - JDK 설치



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Java Platform (JDK) 8u31

 **DOWNLOAD**

NetBeans with JDK 8

Java Platform, Standard Edition

Java SE 8u31
This release includes important security fixes. Oracle strongly recommends users upgrade to this release.
[Learn more](#)

- Installation Instructions
- Release Notes
- Oracle License
- Java SE Products
- Third Party Licenses
- Certified System Configurations
- Readme Files
 - JDK ReadMe
 - JRE ReadMe

Which Java package do I need?

- Software Developers: JDK** (Java SE Development Kit). For Java Developers. Includes a complete JRE plus tools for developing, debugging, and monitoring Java applications.

Java SDKs and Tools

- Java SE
- Java EE and Glassfish
- Java ME
- Java Card
- NetBeans IDE
- Java Mission Control

Java Resources

- Java APIs
- Technical Articles
- Java.net
- Developer Training
- Tutorials
- Java.com

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개발 환경 구축(7) - JDK 설치

4. 클릭

Oracle Technology Network > Java > Java SE > Downloads

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 (tick the checkbox under Subscription Center > Oracle Technology News)
- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

JDK MD5 Checksum

Looking for JDK 8 on ARM?
JDK 8 for ARM downloads have moved to the JDK 8 for ARM download page.

Java SE Development Kit 8u31
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 x86 | 135.24 MB | jdk-8u31-linux-i586.rpm |
| Linux x86 | 154.91 MB | jdk-8u31-linux-i586.tar.gz |
| Linux x64 | 135.62 MB | jdk-8u31-linux-x64.rpm |

Java SDKs and Tools

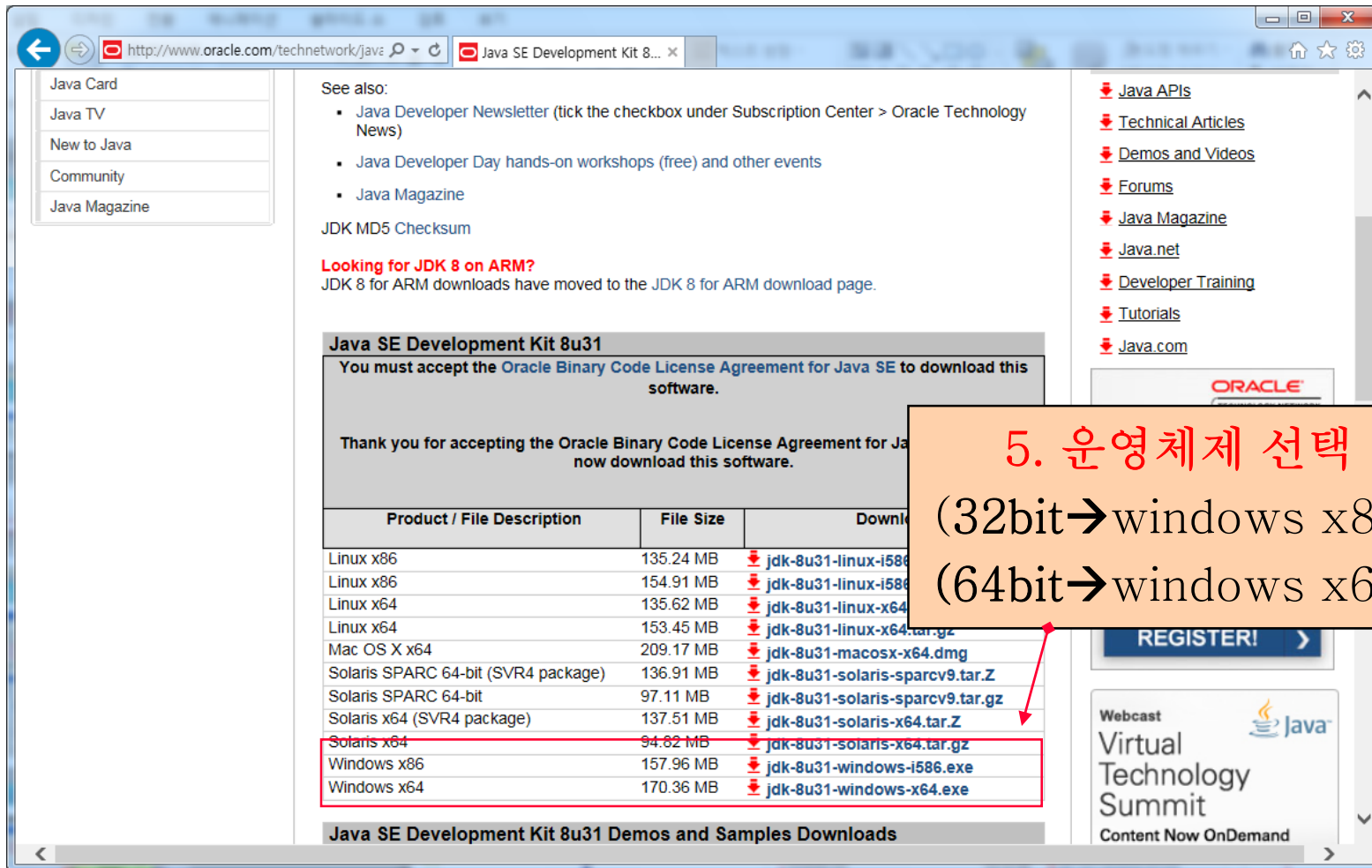
- Java SE
- Java EE and Glassfish
- Java ME
- Java Card
- NetBeans IDE
- Java Mission Control

Java Resources

- Java APIs
- Technical Articles
- Demos and Videos
- Forums
- Java Magazine
- Java.net
- Developer Training
- Tutorials
- Java.com

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VIRTUAL TECHNOLOGY SUMMIT
February 11th
February 25th
March 4th

개발 환경 구축(8) - JDK 설치



See also:

- Java Developer Newsletter (tick the checkbox under Subscription Center > Oracle Technology News)
- Java Developer Day hands-on workshops (free) and other events
- Java Magazine

JDK MD5 Checksum

Looking for JDK 8 on ARM?
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Java SE Development Kit 8u31

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

Thank you for accepting the Oracle Binary Code License Agreement for Java SE. You can now download this software.

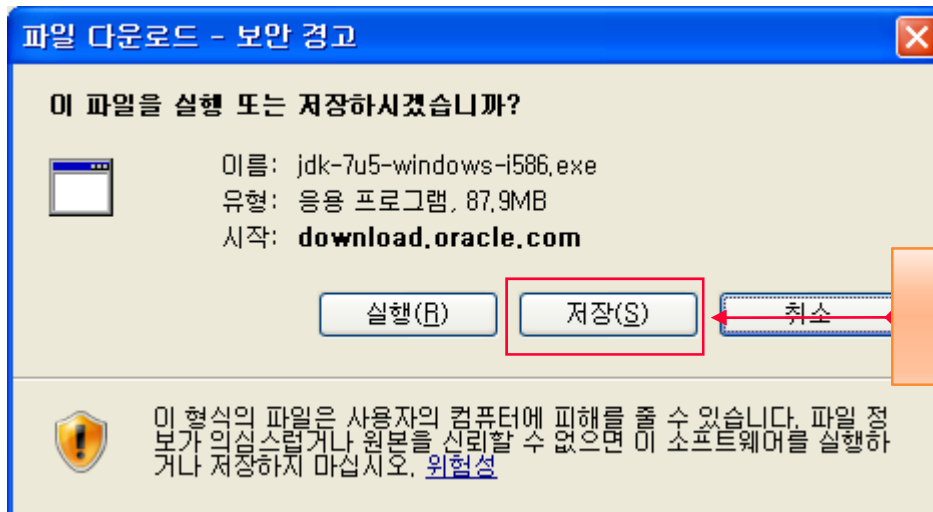
| Product / File Description | File Size | Download |
|-------------------------------------|-----------|---|
| Linux x86 | 135.24 MB | jdk-8u31-linux-i586.tar.gz |
| Linux x86 | 154.91 MB | jdk-8u31-linux-i586.bin |
| Linux x64 | 135.62 MB | jdk-8u31-linux-x64.tar.gz |
| Linux x64 | 153.45 MB | jdk-8u31-linux-x64.bin |
| Mac OS X x64 | 209.17 MB | jdk-8u31-macosx-x64.dmg |
| Solaris SPARC 64-bit (SVR4 package) | 136.91 MB | jdk-8u31-solaris-sparcv9.tar.Z |
| Solaris SPARC 64-bit | 97.11 MB | jdk-8u31-solaris-sparcv9.tar.gz |
| Solaris x64 (SVR4 package) | 137.51 MB | jdk-8u31-solaris-x64.tar.Z |
| Solaris x64 | 94.82 MB | jdk-8u31-solaris-x64.tar.gz |
| Windows x86 | 157.96 MB | jdk-8u31-windows-i586.exe |
| Windows x64 | 170.36 MB | jdk-8u31-windows-x64.exe |

5. 운영체제 선택
(32bit→windows x86)
(64bit→windows x64)

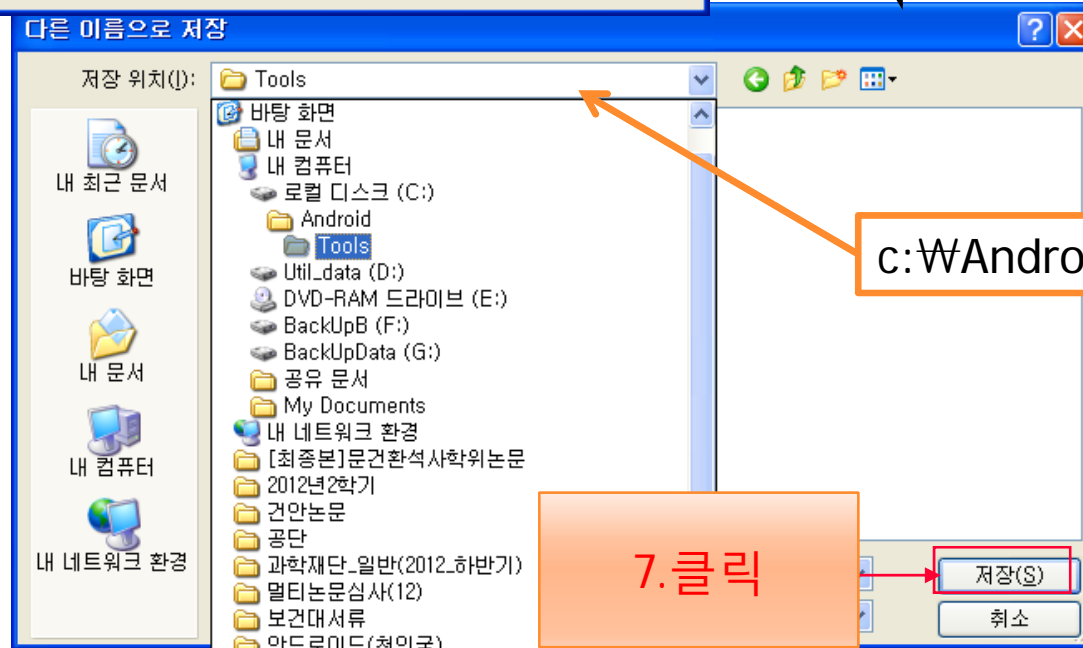
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개발 환경 구축(9) - JDK 설치



6.클릭



c:\WAndroid\Tools\W

7.클릭

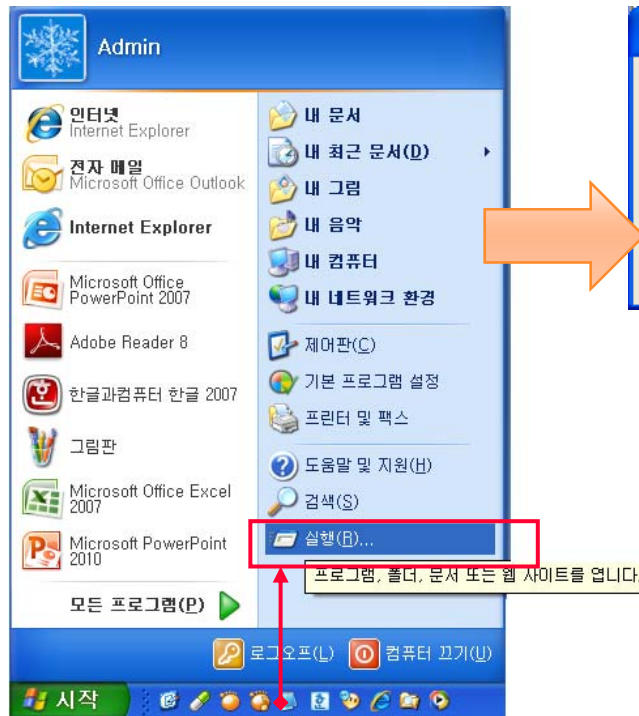
Tip(PC 종류 알아내기) 1

◎ 자신의 운영체제 비트처리 확인

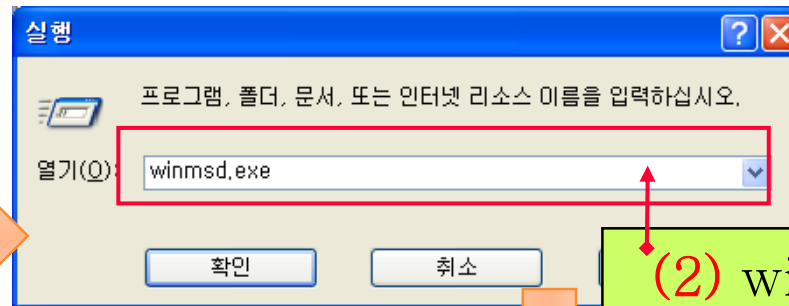


Tip(PC 종류 알아내기) 2

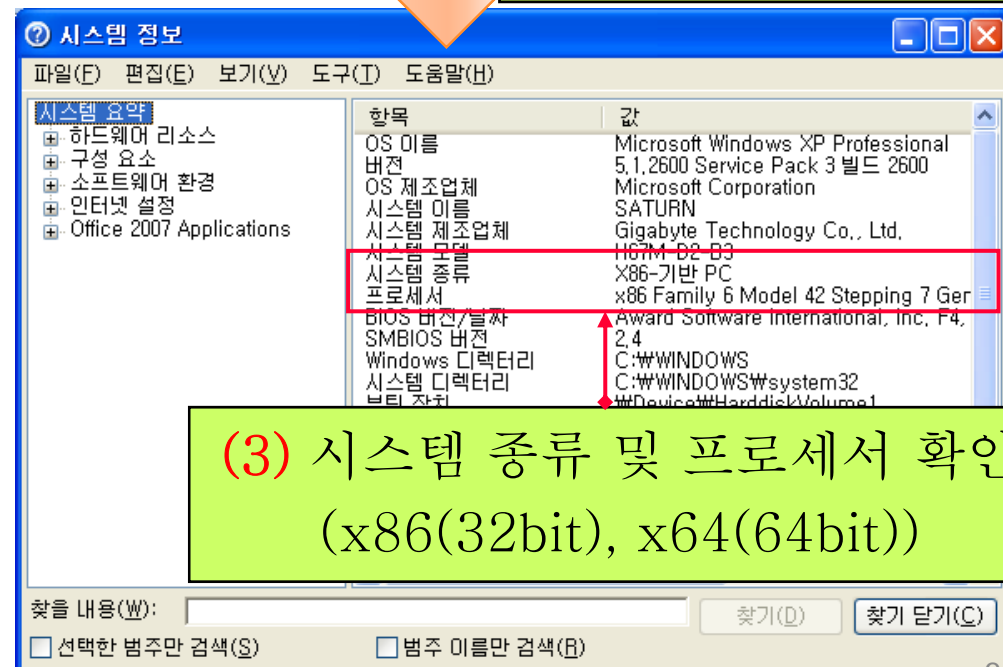
Windows 에서 64bit와 32bit 구분



(1) 시작-> 실행

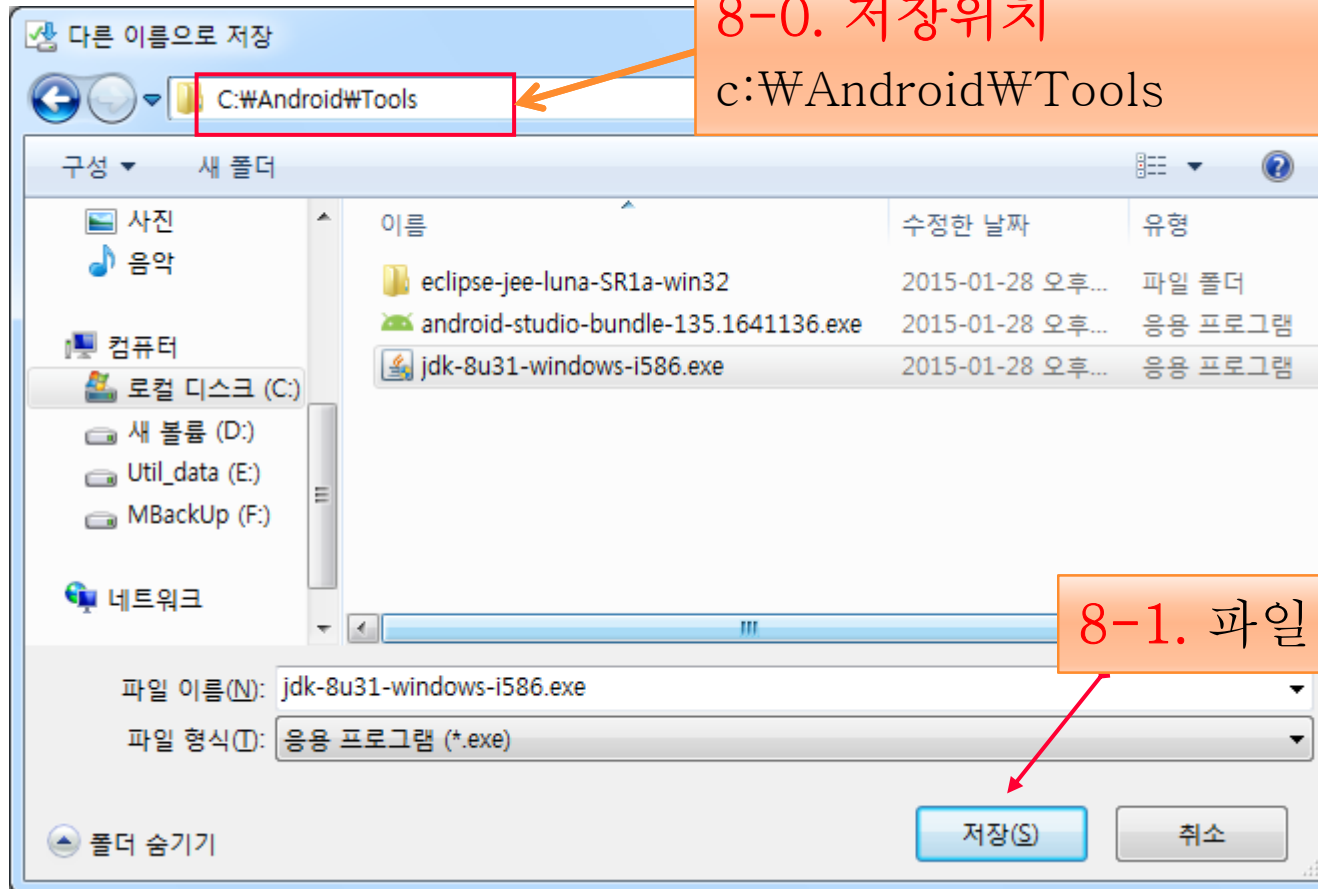


(2) winmsd.exe 입력 후 확인



(3) 시스템 종류 및 프로세서 확인
(x86(32bit), x64(64bit))

개발 환경 구축(10) - JDK 설치

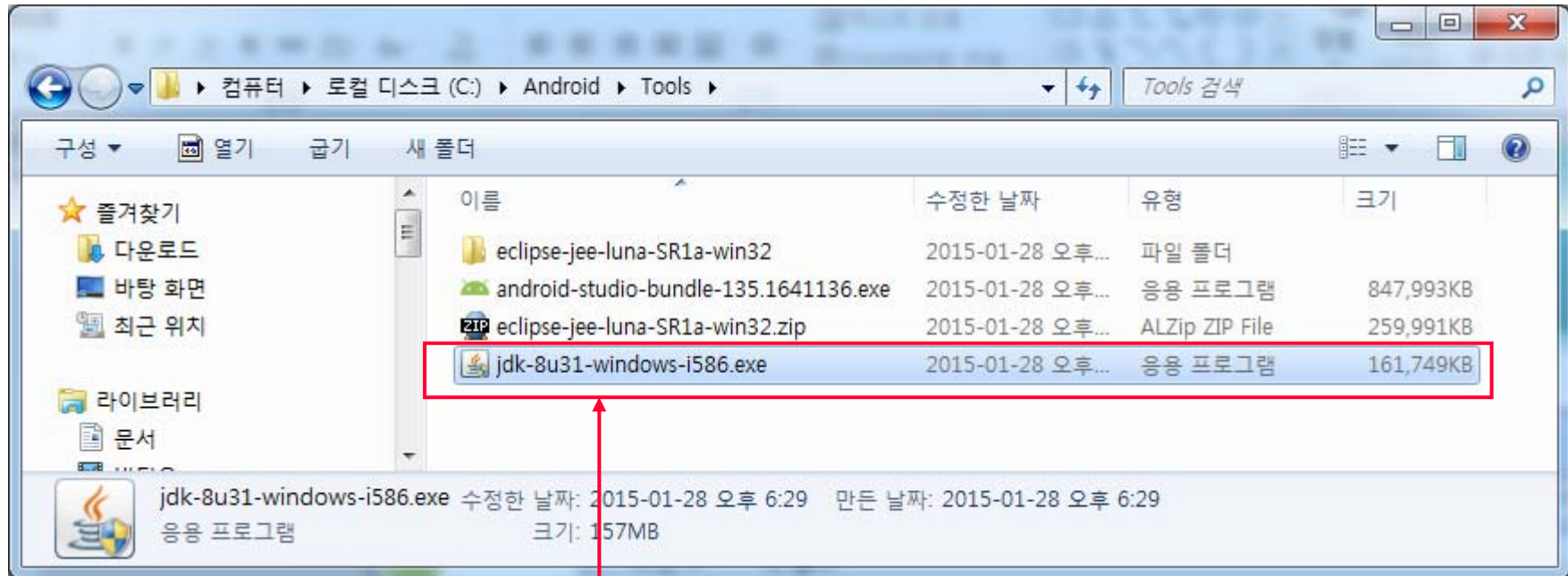


8-0. 저장위치

c:\Android\Tools

8-1. 파일 저장

개발 환경 구축(10) - JDK 설치



8-2. 파일 실행(더블클릭)

개발 환경 구축(11) - JDK 설치

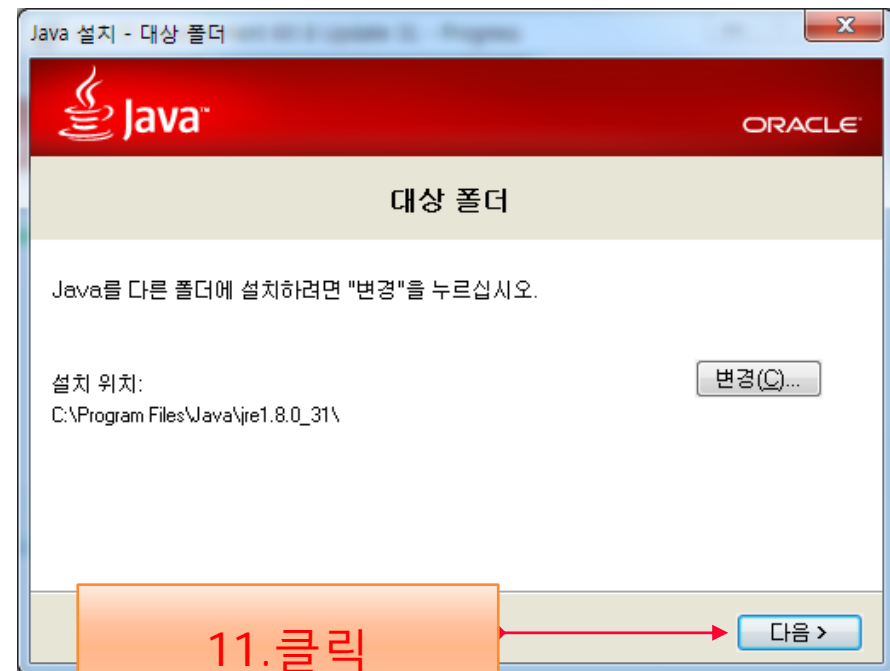
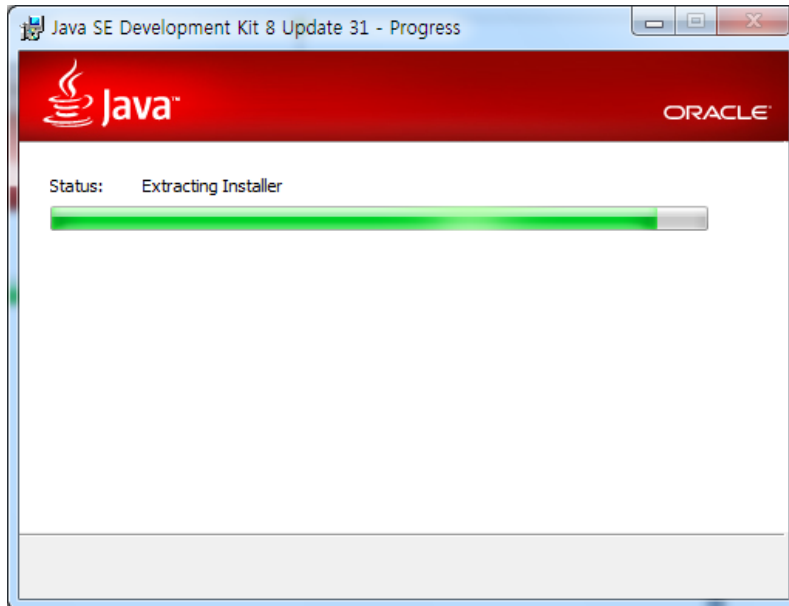


9. 클릭



10. 클릭

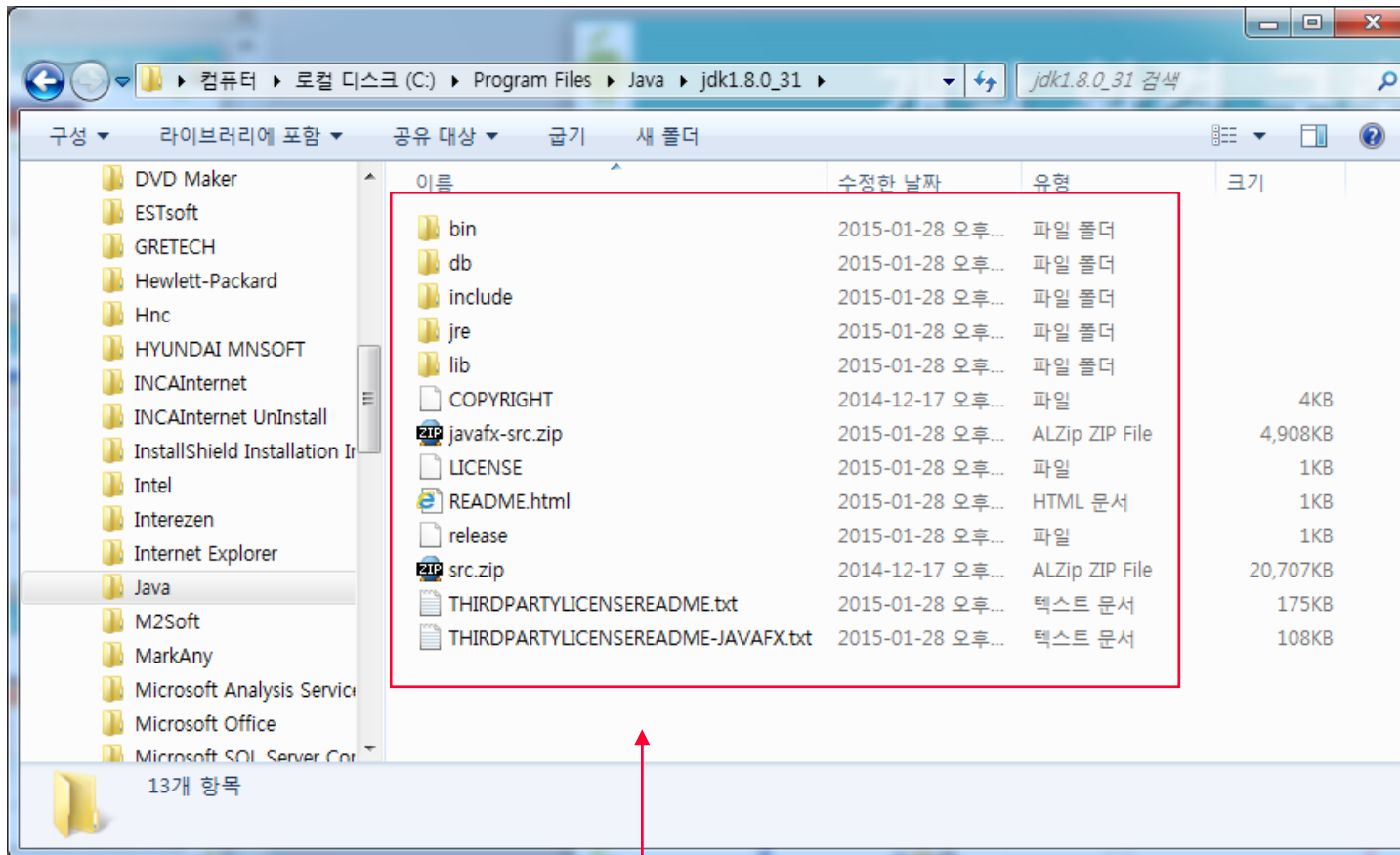
개발 환경 구축(12) - JDK 설치



개발 환경 구축(13) - JDK 설치



개발 환경 구축(14) - JDK 설치



12. JDK 구조 확인

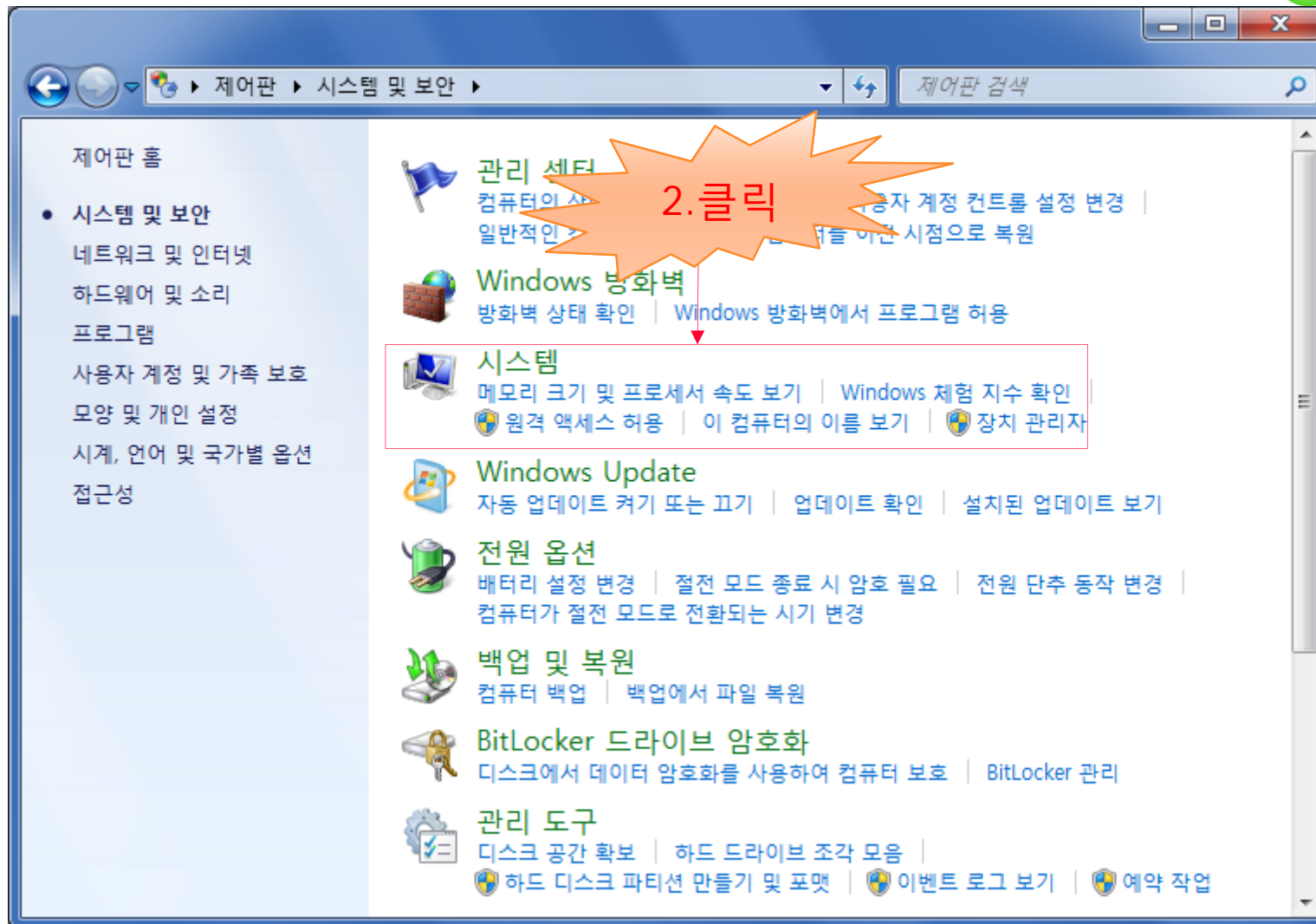
C:\Program Files\Java\jdk1.8.0_31

개발 환경 구축(15) - JDK 설치

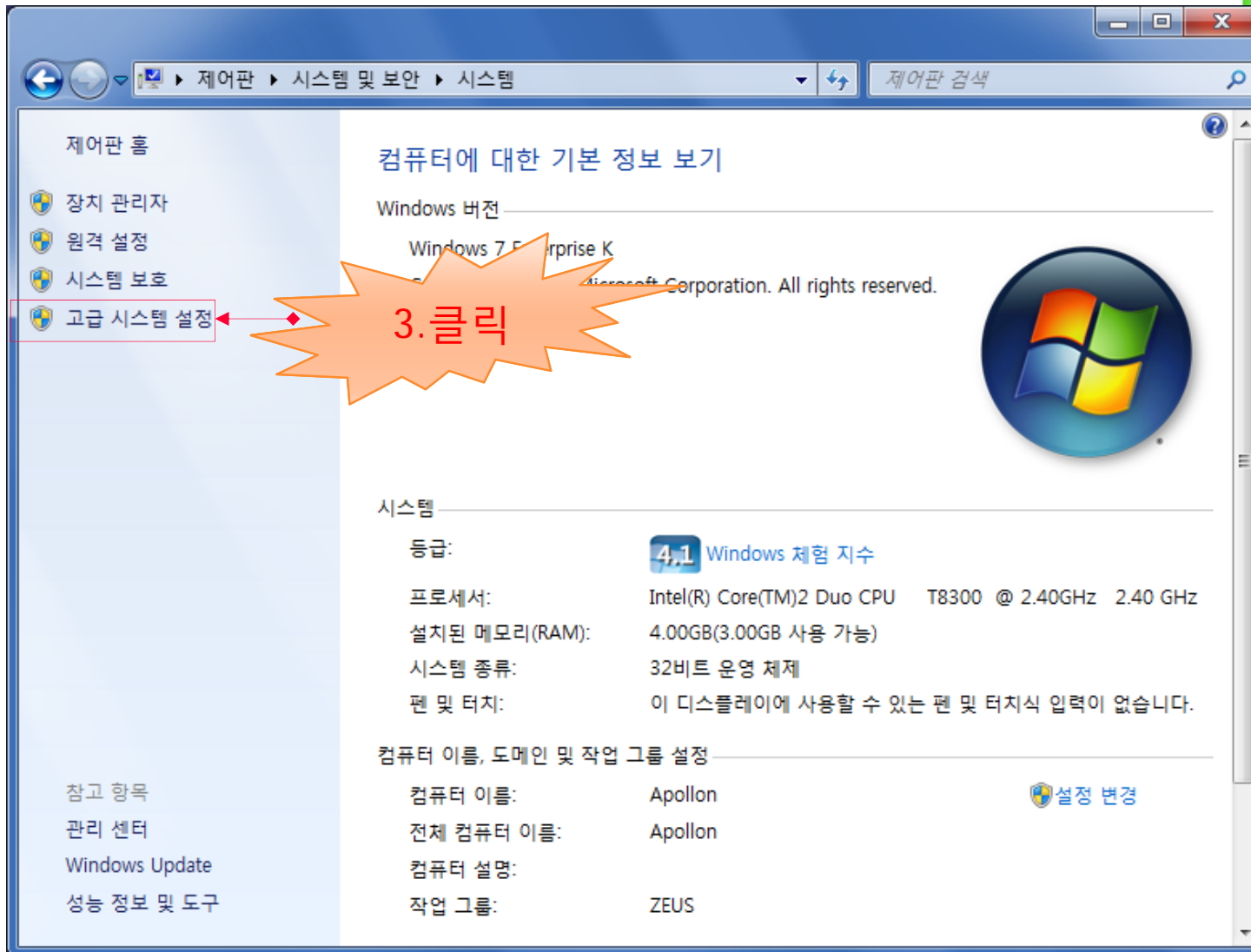
1-1. JDK 환경 설정



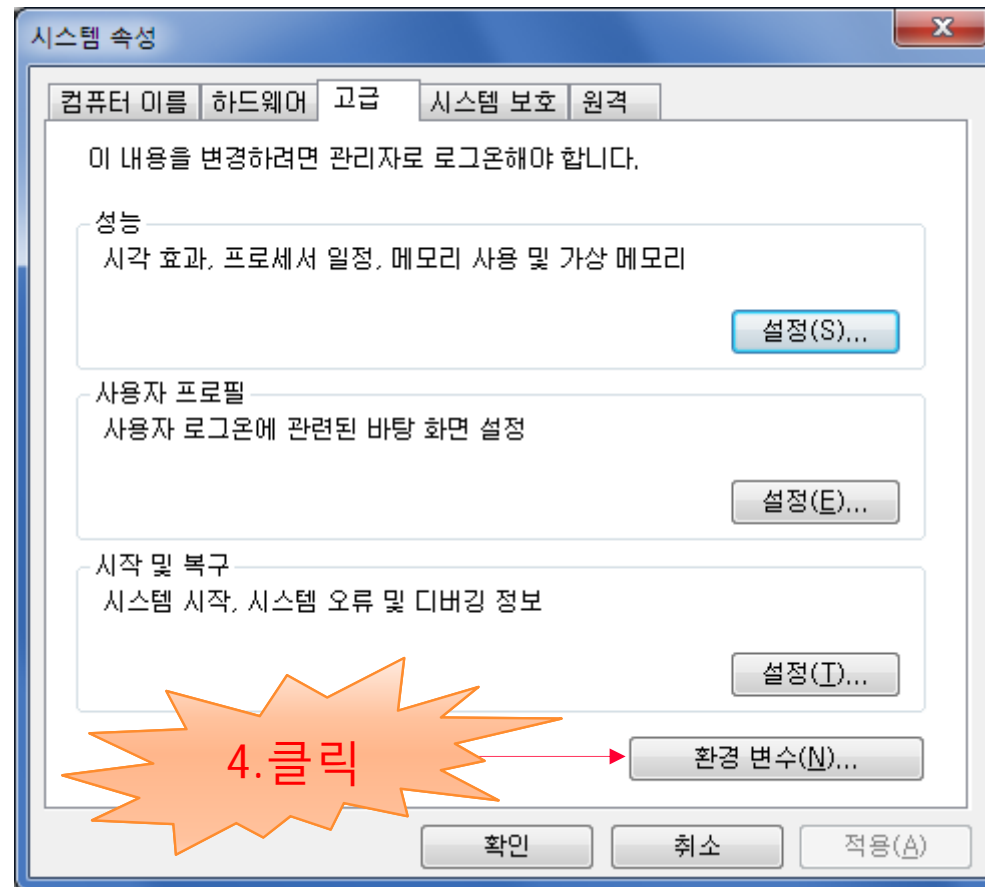
개발 환경 구축(16) - JDK 설치



개발 환경 구축(17) - JDK 설치

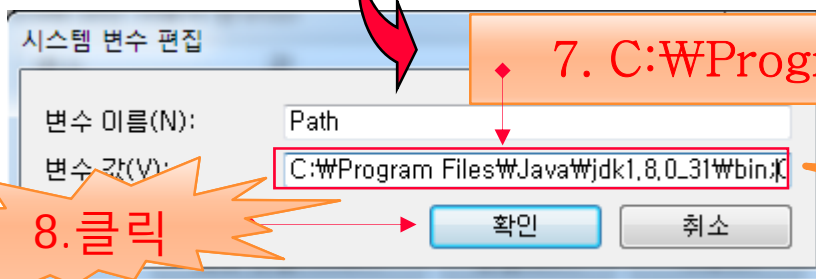
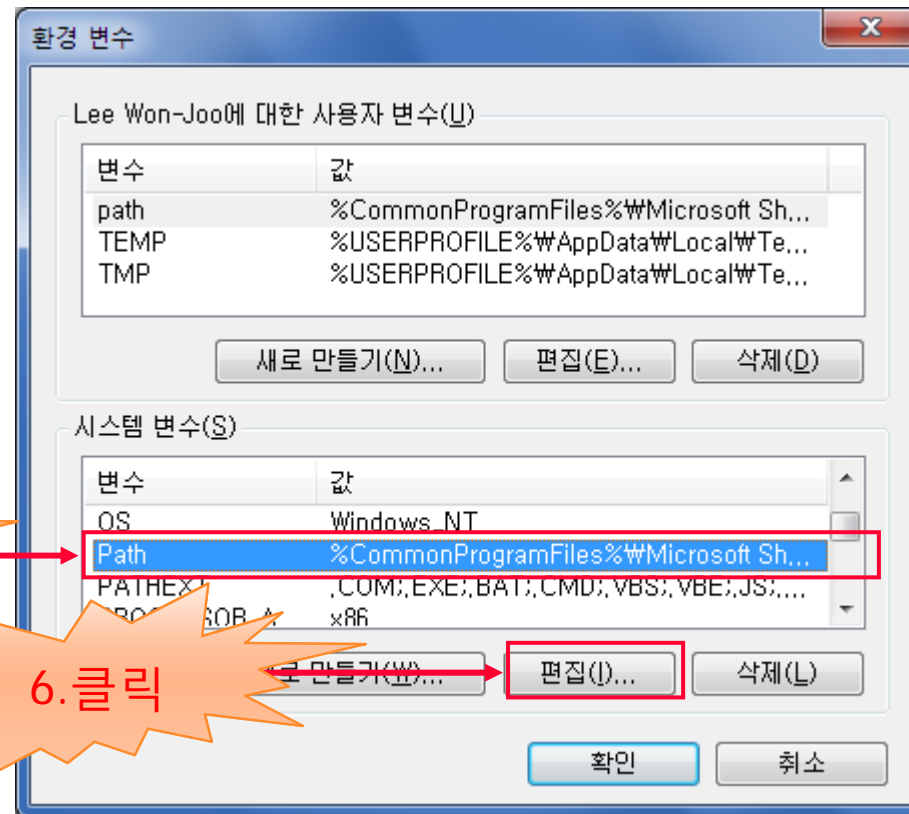


개발 환경 구축(18) - JDK 설치



개발 환경 구축(19) - JDK 설치

Path 지정



7. C:\Program Files\Java\jdk1.8.0_31\bin;

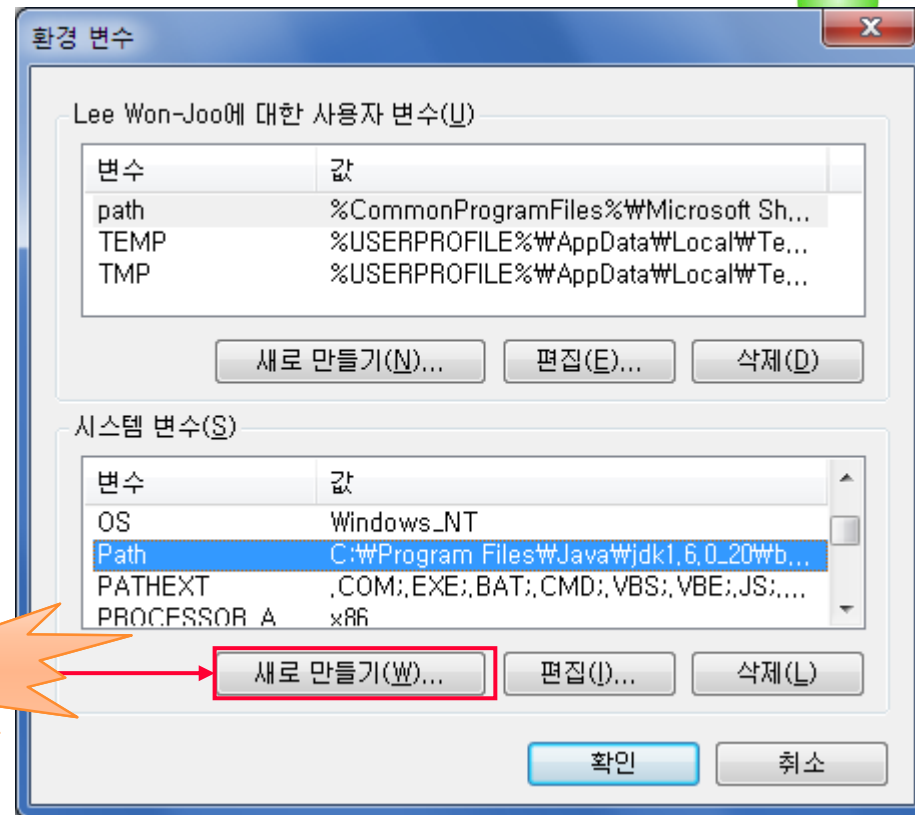
주의: java path 입력시
맨 앞에 추가

개발 환경 구축(20) - JDK 설치

CLASSPATH 지정

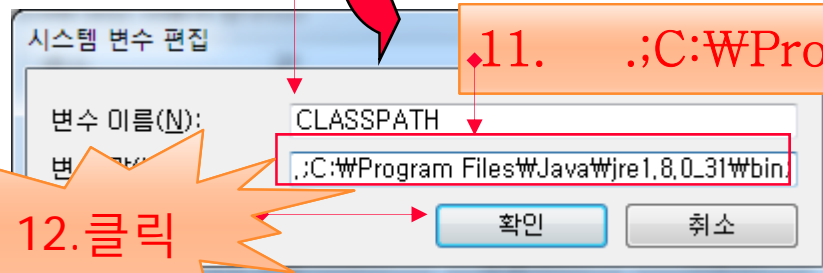
10. CLASSPATH 입력

9. 클릭



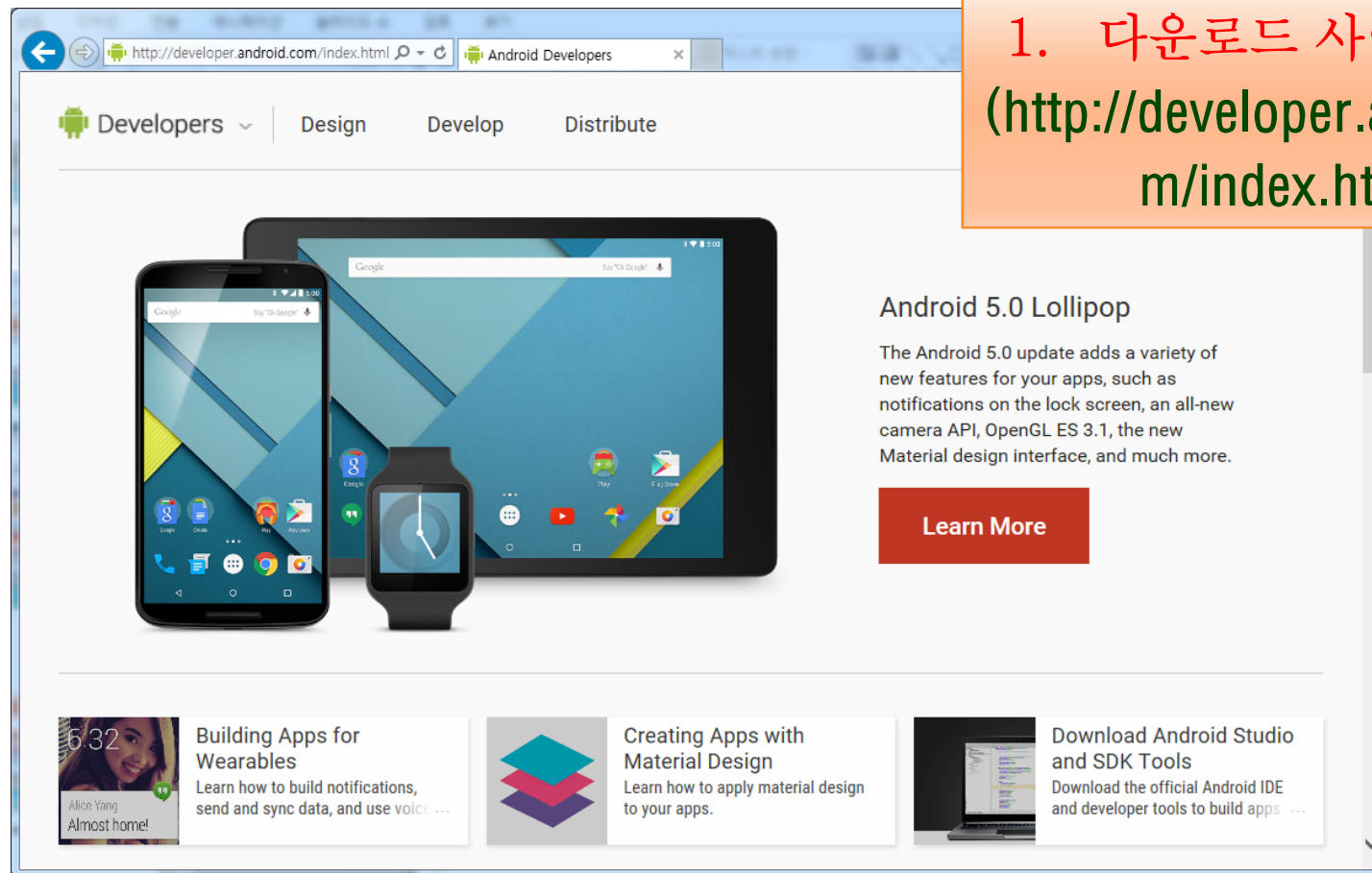
11. .;C:\Program Files\Java\jre1.8.0_31\bin;

12. 클릭



개발 환경 구축(21) - Android Studio 설치

○ <http://developer.android.com/index.html>



1. 다운로드 사이트 접속
(<http://developer.android.com/index.html>)

Android Studio 설치

The image shows a screenshot of the Android Developer website with two overlapping windows. The top window is the main developer page, and the bottom window is the SDK index page. Red boxes and arrows indicate the steps to find the download link.

2. [Develop] 클릭

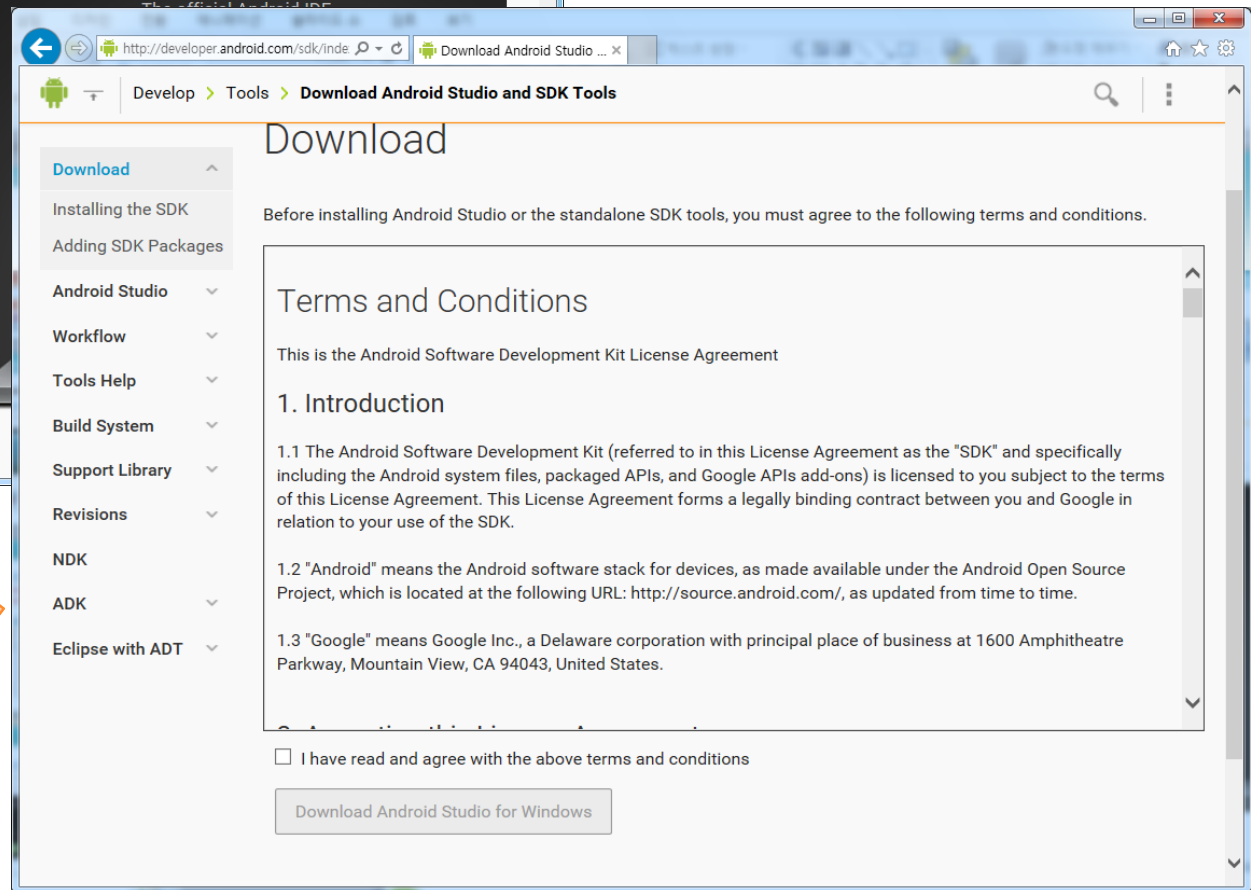
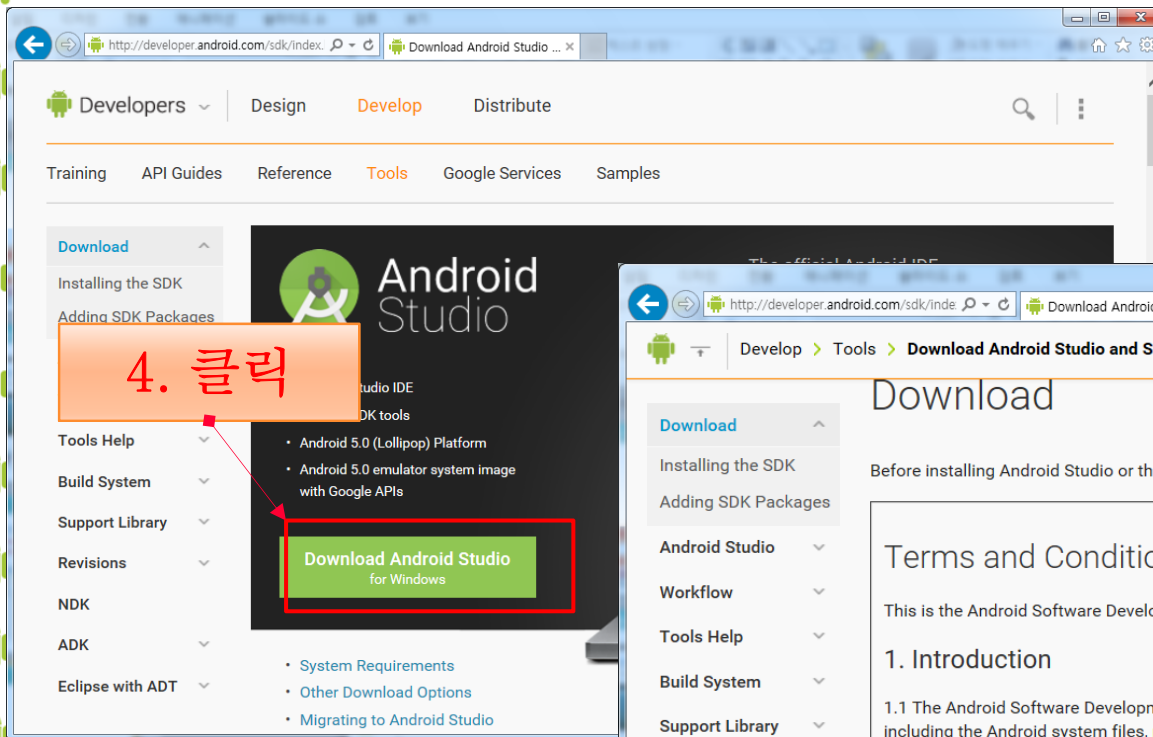
3. [Tool] 클릭

Download Android Studio for Windows

- Android Studio IDE
- Android SDK tools
- Android 5.0 (Lollipop) Platform
- Android 5.0 emulator system image with Google APIs

Download Android Studio for Windows

- System Requirements
- Other Download Options
- Migrating to Android Studio





http://developer.android.com/sdk/index.html

Develop > Tools > Download Android Studio and SDK Tools

Download

Before installing Android Studio or the standalone SDK tools, you must agree to the following terms and conditions.

Terms and Conditions

This is the Android Software Development Kit License Agreement

1. Introduction

1.1 The Android Software Development Kit (referred to in this License Agreement as the "SDK" and specifically including the Android system files, packaged APIs, and Google APIs add-ons) is licensed to you subject to the terms of this License Agreement. This License Agreement forms a legally binding contract between you and Google in relation to your use of the SDK.

NDK means the Android software stack for devices, as made available under the Android Open Source Project, which is located at the following URL: <http://source.android.com/>, as updated from time to time.

ADK means Google Inc., a Delaware corporation with principal place of business at 1600 Amphitheatre Parkway, Mountain View, CA 94043, United States.

☒ I agree with the above terms and conditions

Download Android Studio for Windows

5. 체크

6. 클릭



http://developer.android.com/sdk/inst Installing the Android SDK...

Developers Design Develop Distribute

Training API Guides Reference Tools Google Services Samples

Download
Installing the SDK
Adding SDK Packages

Installing Android Studio

Android Studio provides everything you need to start developing apps for Android, including the Android Studio IDE and the Android SDK tools.

If you didn't download Android Studio, go [download Android Studio now](#), or switch to the [stand-alone SDK Tools install](#) instructions.

Before you set up Android Studio, be sure you have installed JDK 6 or higher (the JRE alone is not sufficient)—JDK 7 is required when developing for Android 5.0 and higher. To check if you have JDK installed, open a command terminal and type `javac -version`. If the JDK is not available or the version is not 6 or higher, you need to install it.

To set up Android Studio on Windows:

1. Launch the `.exe` file you just downloaded.
2. Follow the setup wizard to install Android Studio and any necessary SDK tools.

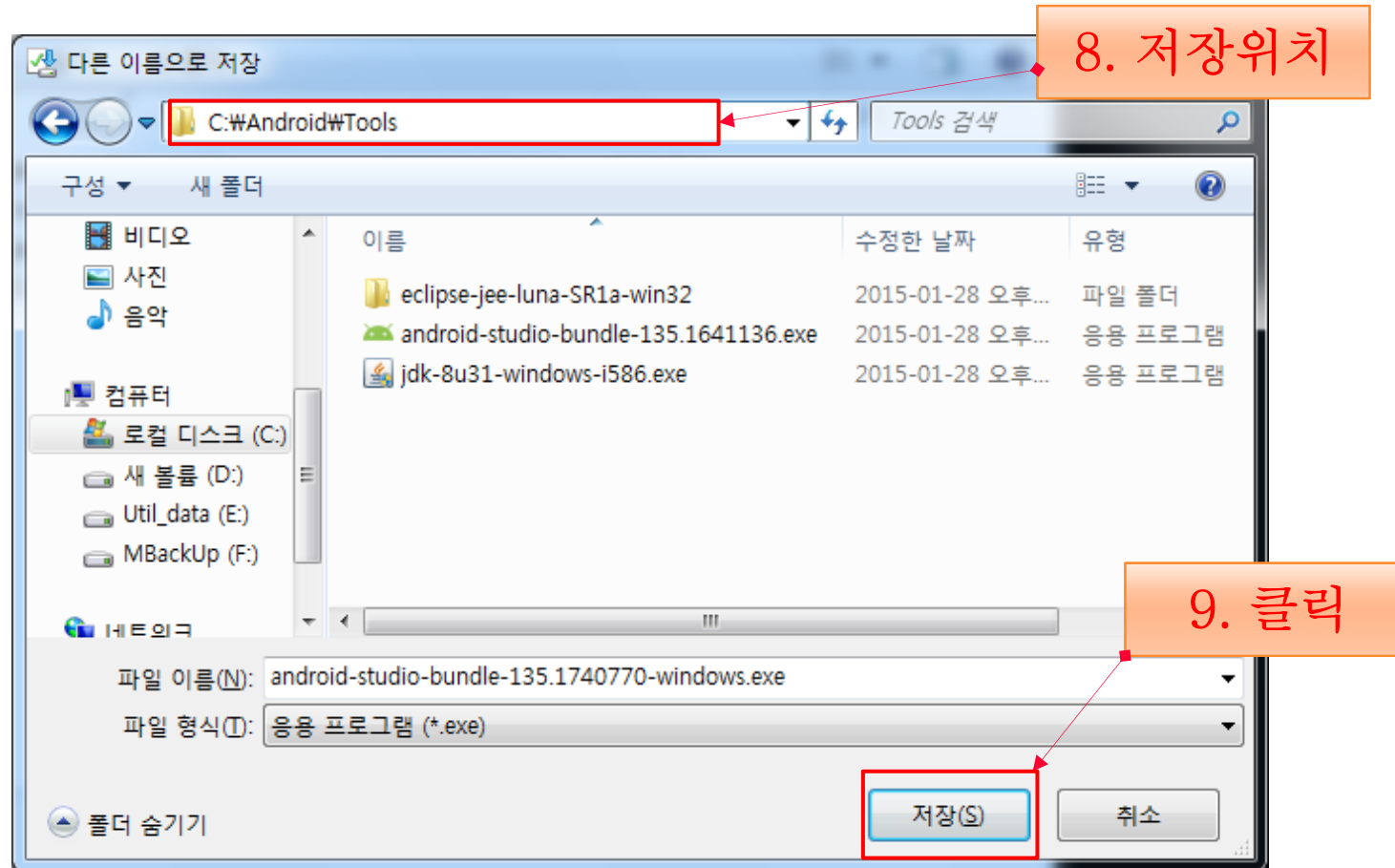
dl.google.com의 android-studio-bundle-135.1740770-windows.exe(816MB)를(를) 실행하거나 저장하시겠습니까?
이 형식의 파일은 사용자의 컴퓨터에 피해를 줄 수 있습니다.

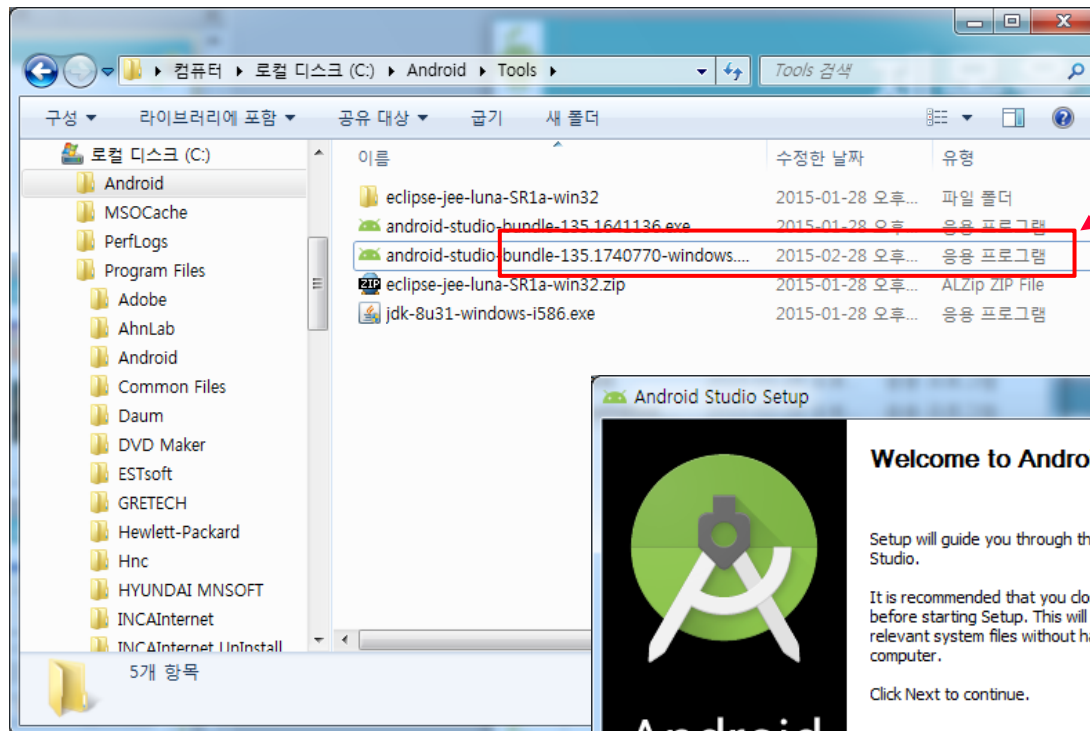
실행(R) 저장(S) 취소(C)

저장(S)
다른 이름으로 저장(A)
저장 후 실행(R)

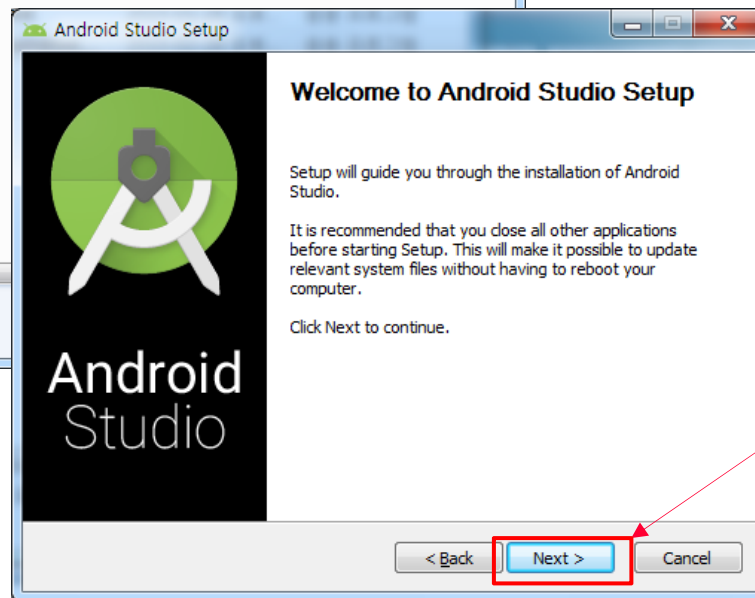
7. [다른 이름으로 저장(A)]
클릭

○ [C:\Android\Tools]에 저장

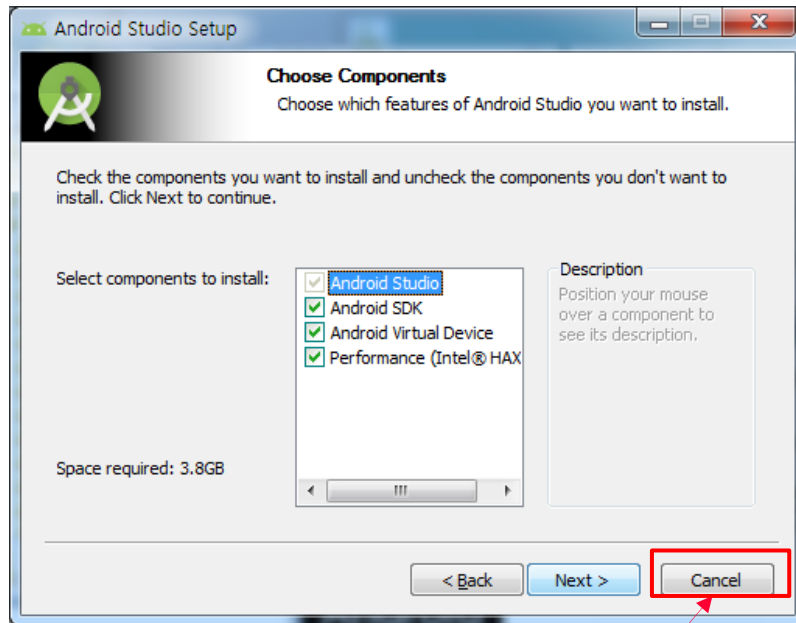




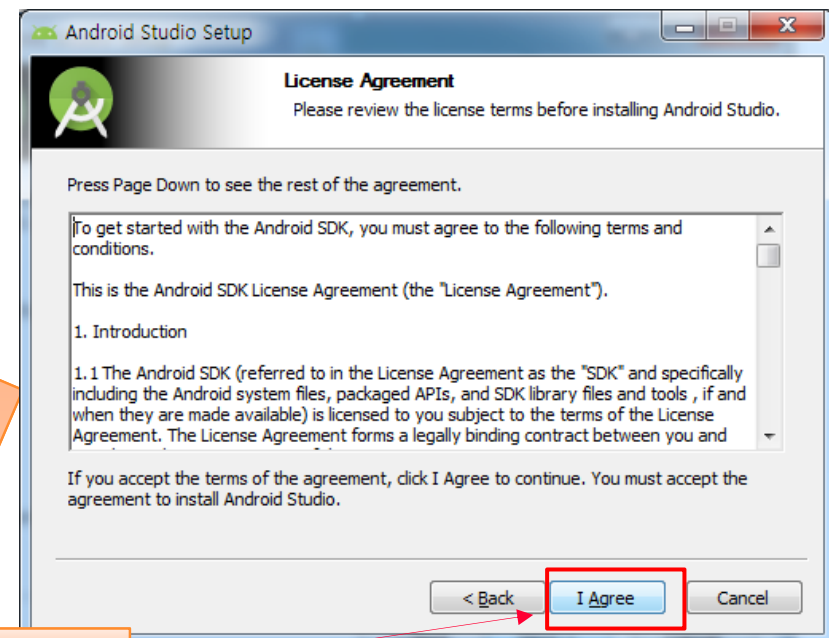
10. 설치
(더블클릭)



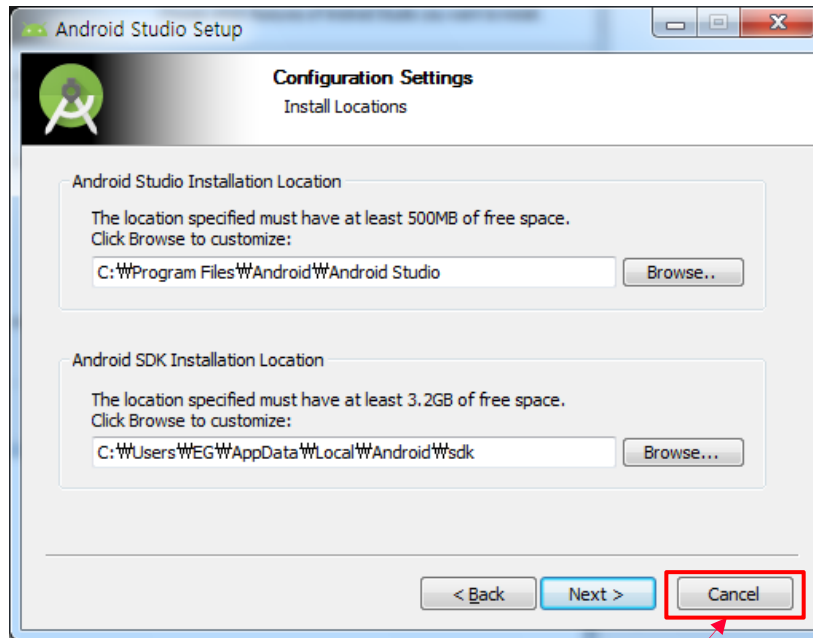
11. 클릭



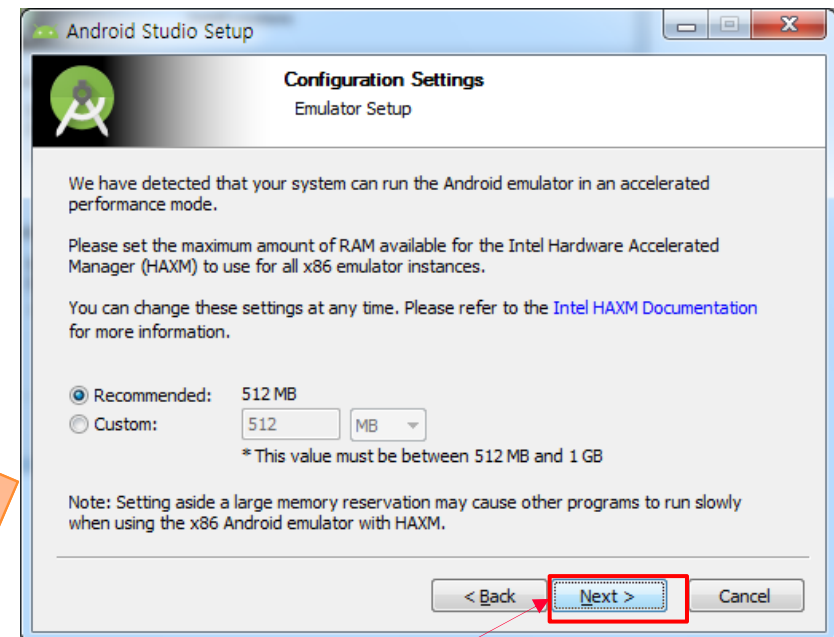
12. 클릭



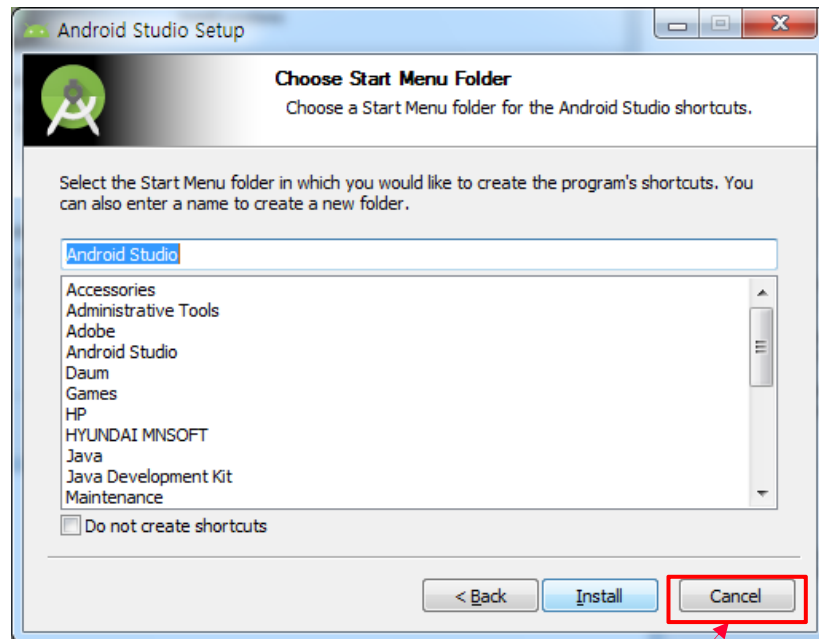
13. 클릭



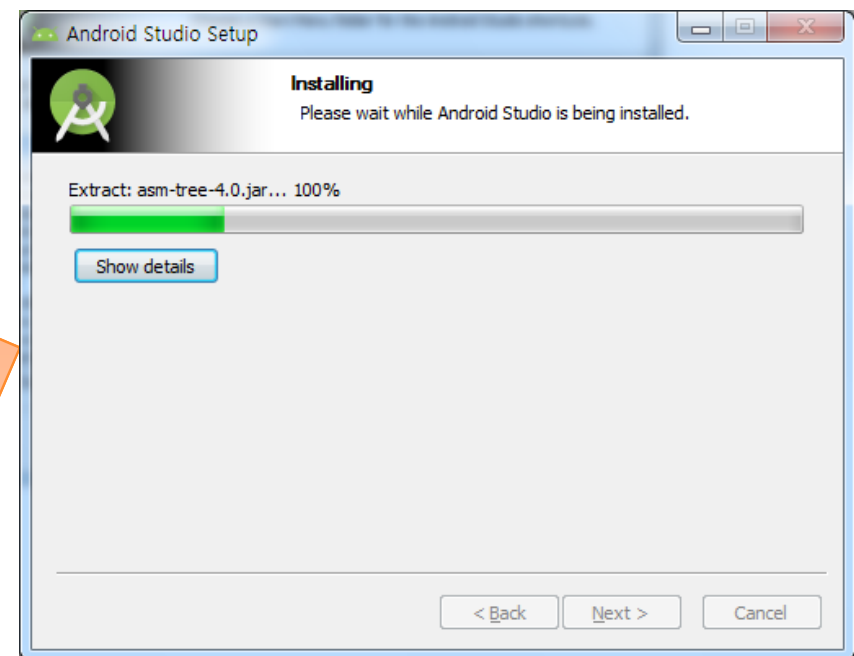
14. 클릭

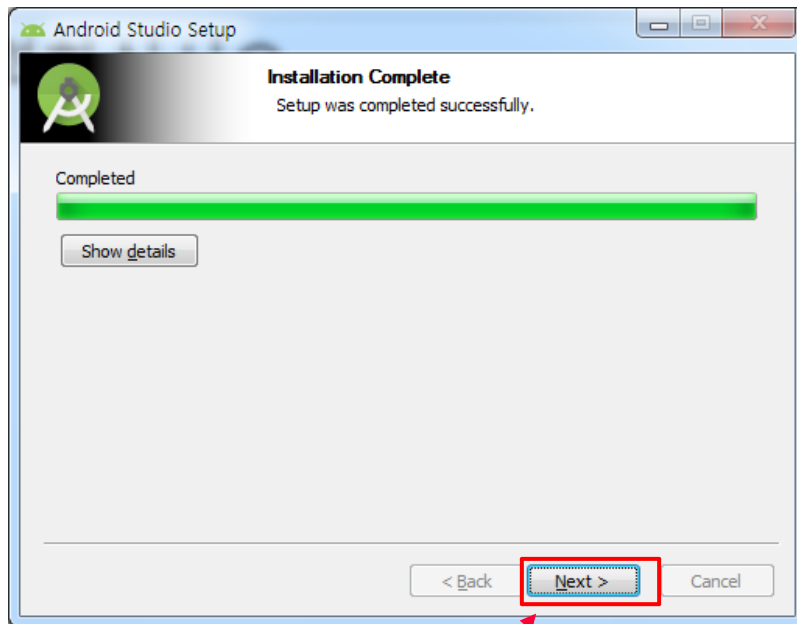


15. 클릭

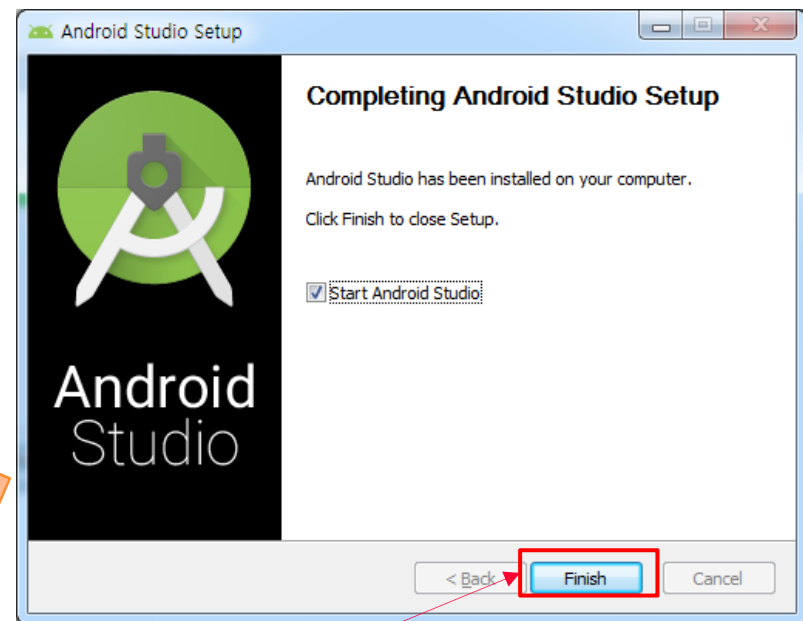


16. 클릭

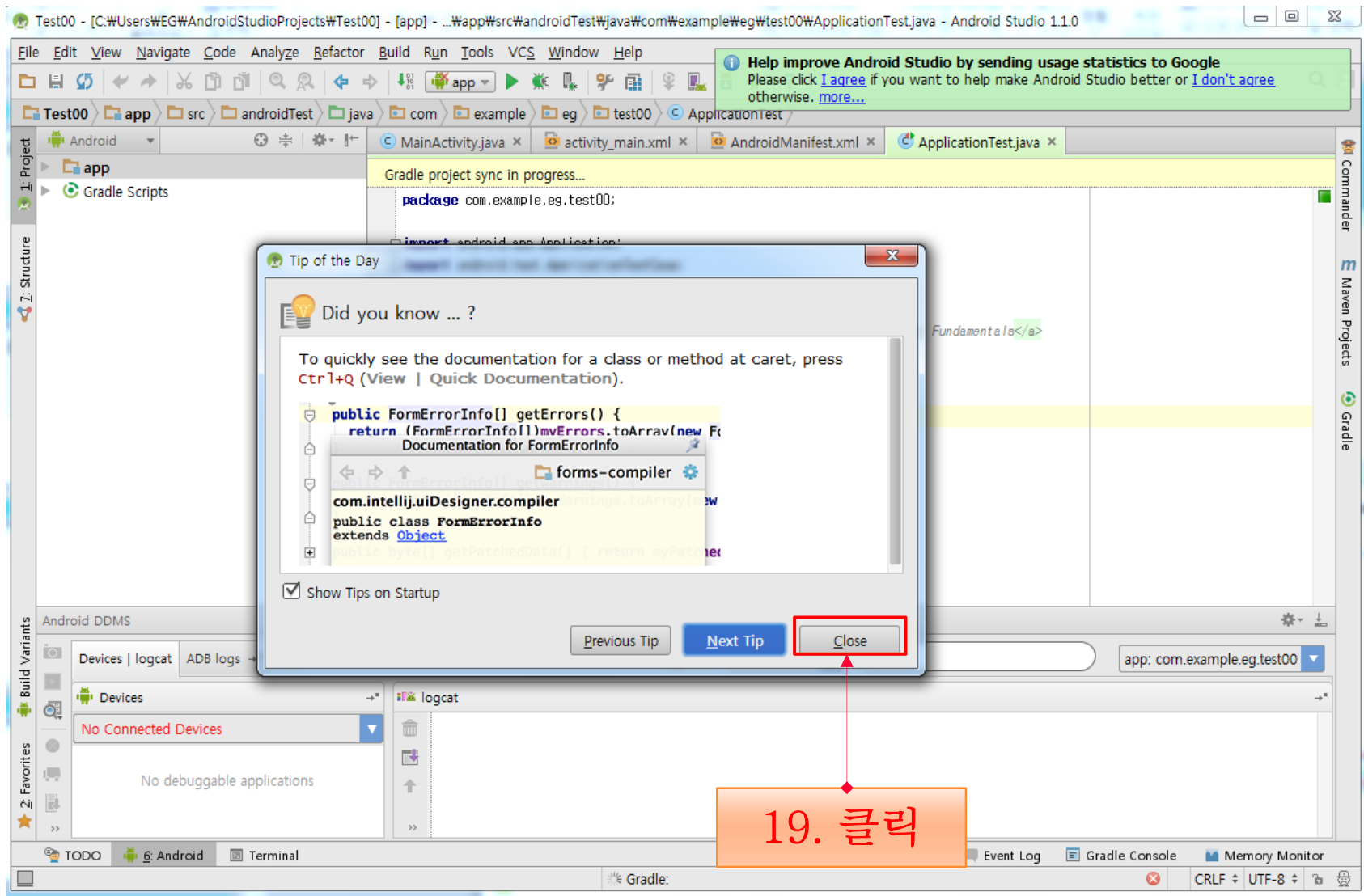




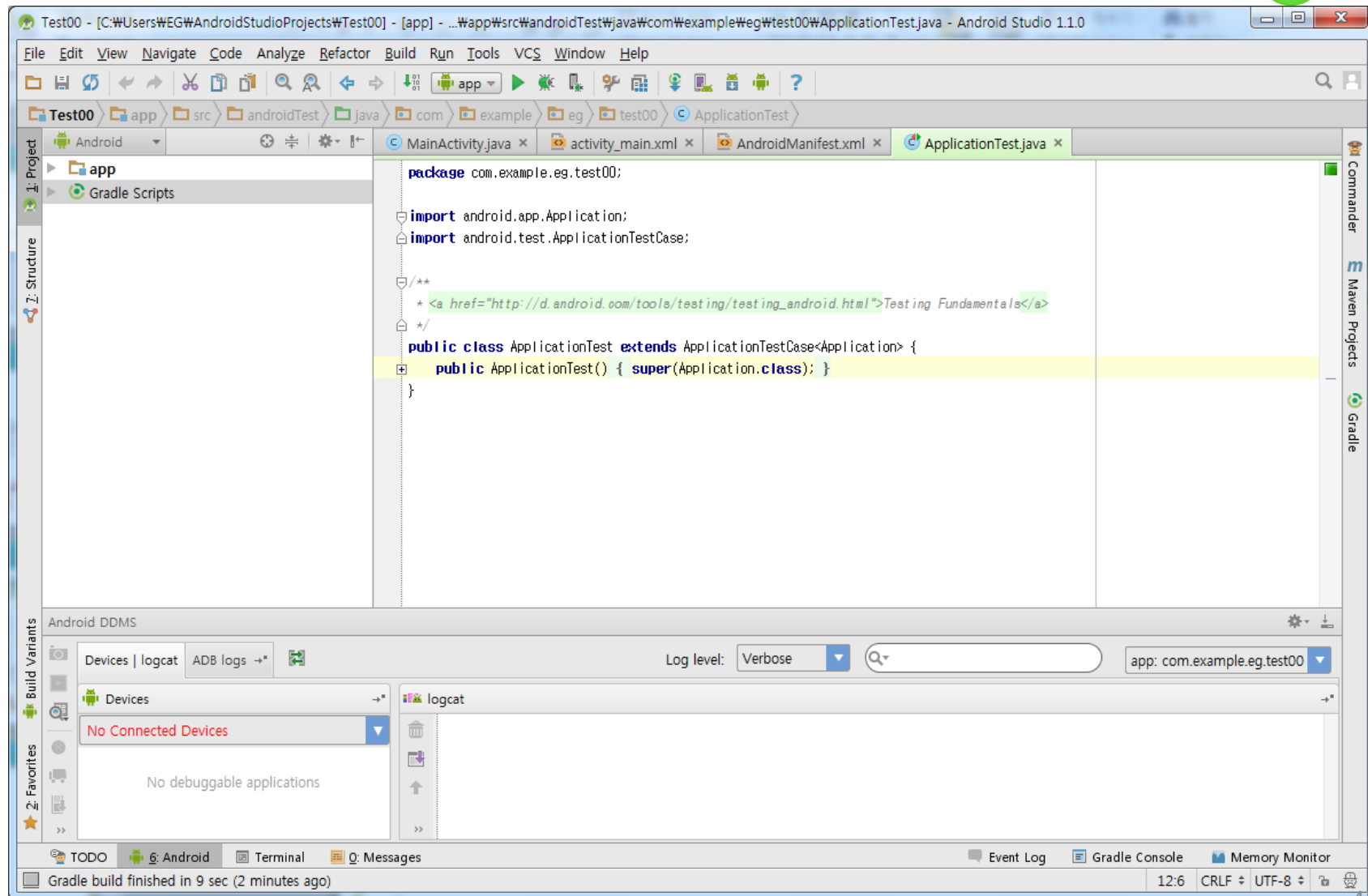
17. 클릭



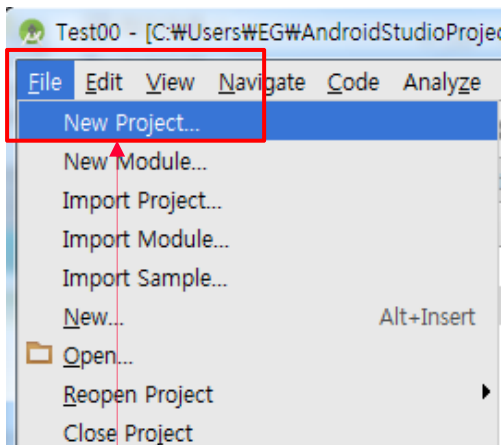
18. 클릭



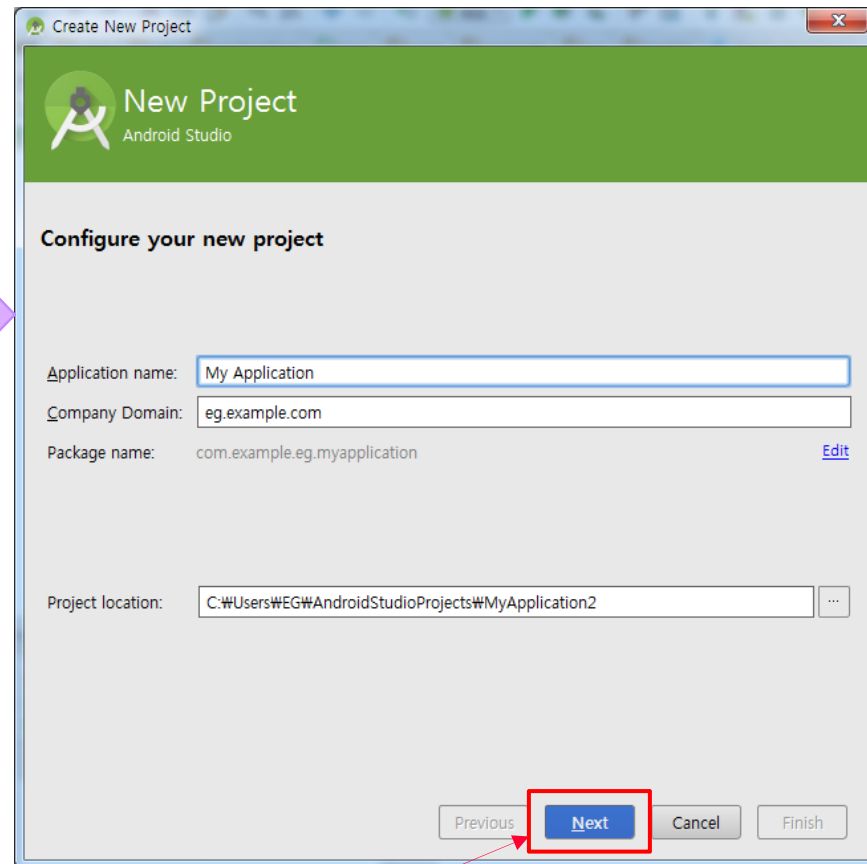
실행 화면



프로젝트 생성 및 테스트



20. [File]→[New Project] 클릭



21. 클릭



Create New Project

Target Android Devices

Select the form factors your app will run on

Different platforms require separate SDKs

☒ Phone and Tablet

Minimum SDK: API 16: Android 4.1 (Jelly Bean)

Lower API levels target more devices, but have fewer features available. By targeting API 16 and later, your app will run on approximately 82.6% of the devices that are active on the Google Play Store. [Help me choose.](#)

☐ TV

Minimum SDK: API 21: Android 5.0 (Lollipop)

☐ Wear

Minimum SDK: API 21: Android 5.0 (Lollipop)

☐ Glass (Not Installed)

Minimum SDK:

Previous Next Cancel Finish

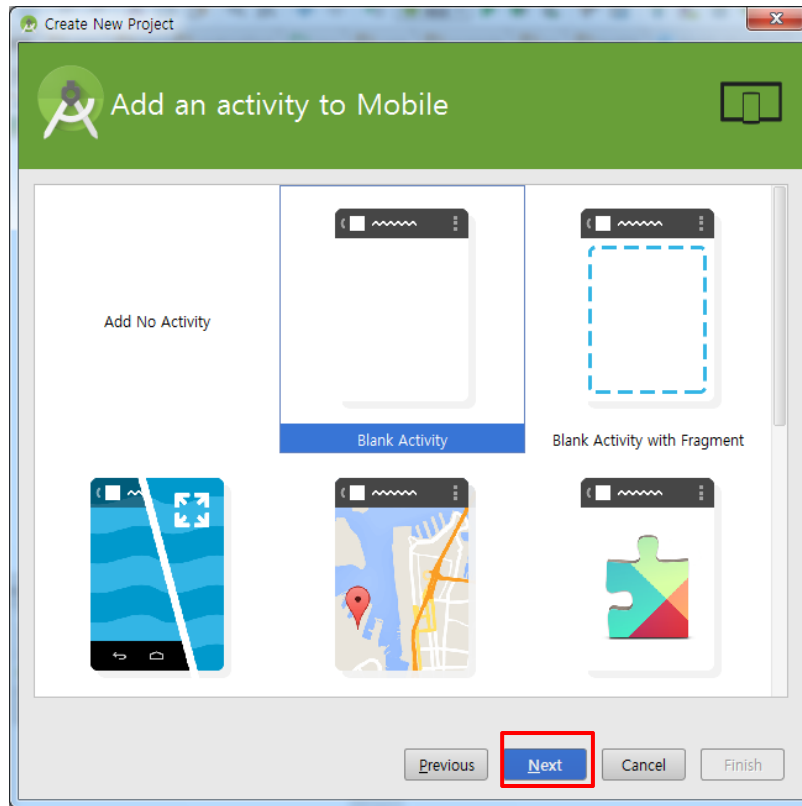
21. 클릭

☒ Phone and Tablet

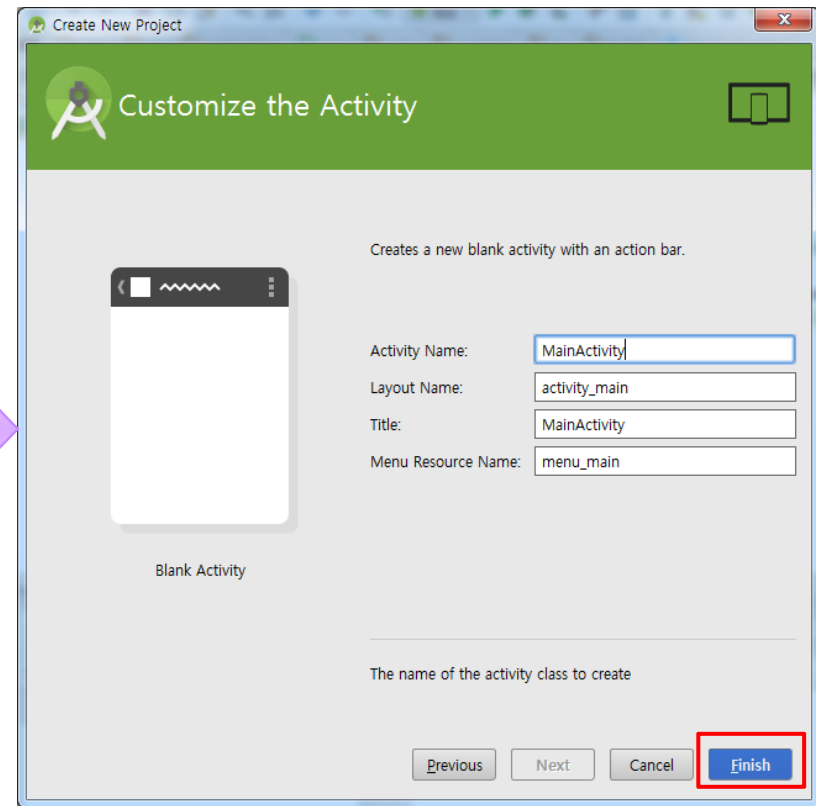
Minimum SDK

- API 13: Android 3.2 (Honeycomb)
- API 14: Android 4.0 (IceCreamSandwich)
- API 15: Android 4.0.3 (IceCreamSandwich)
- API 16: Android 4.1 (Jelly Bean)
- API 17: Android 4.2 (Jelly Bean)
- API 18: Android 4.3 (Jelly Bean)
- API 19: Android 4.4 (KitKat)
- API 21: Android 5.0 (Lollipop)

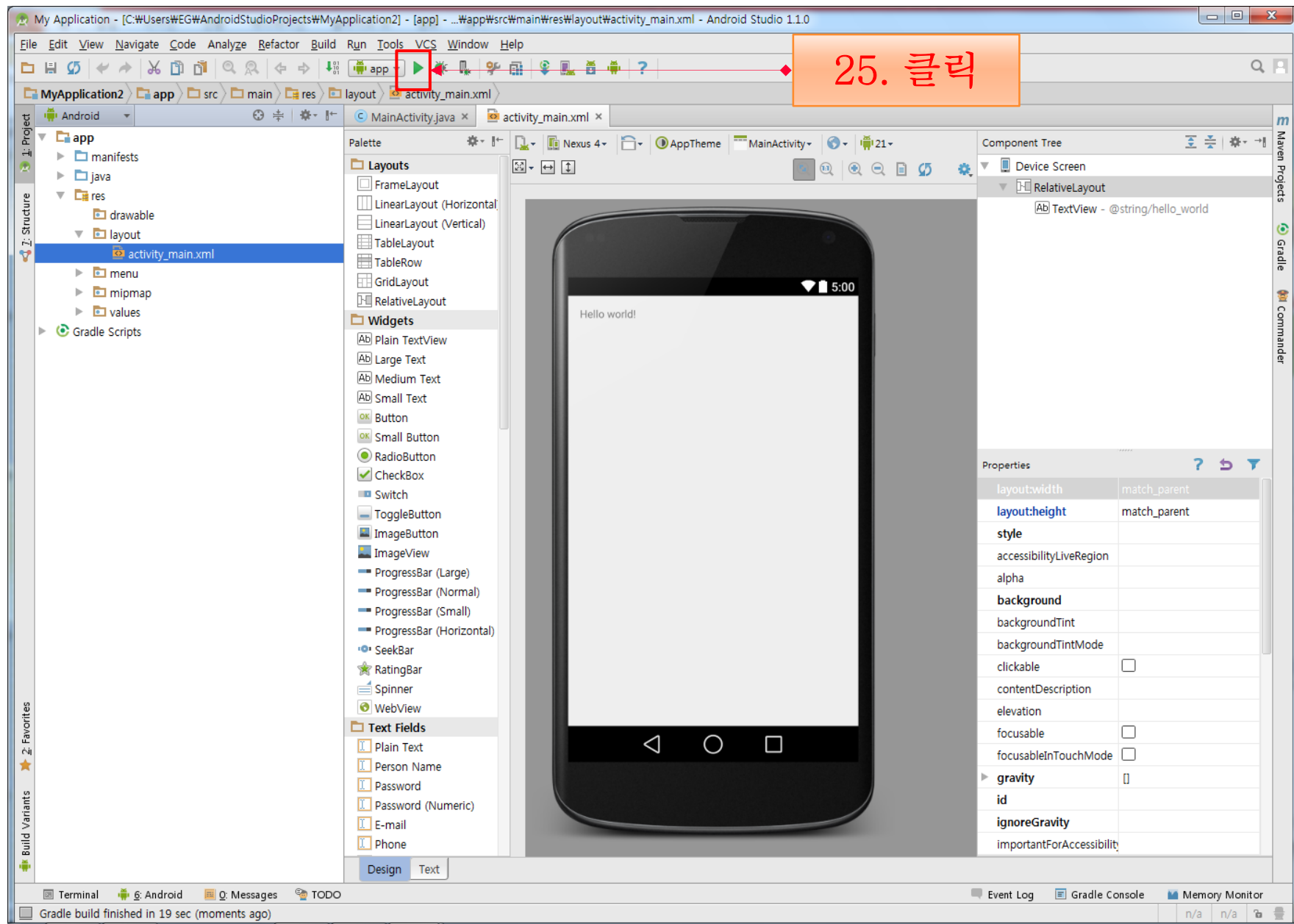
22. 클릭



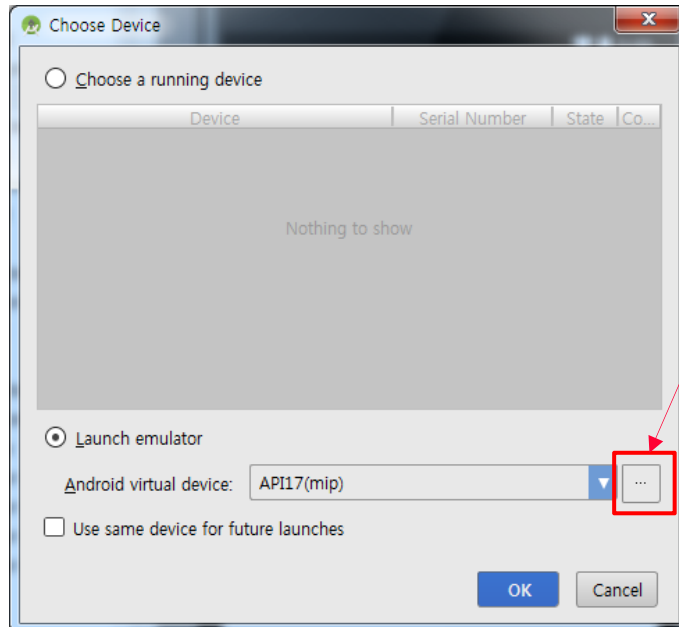
23. 클릭



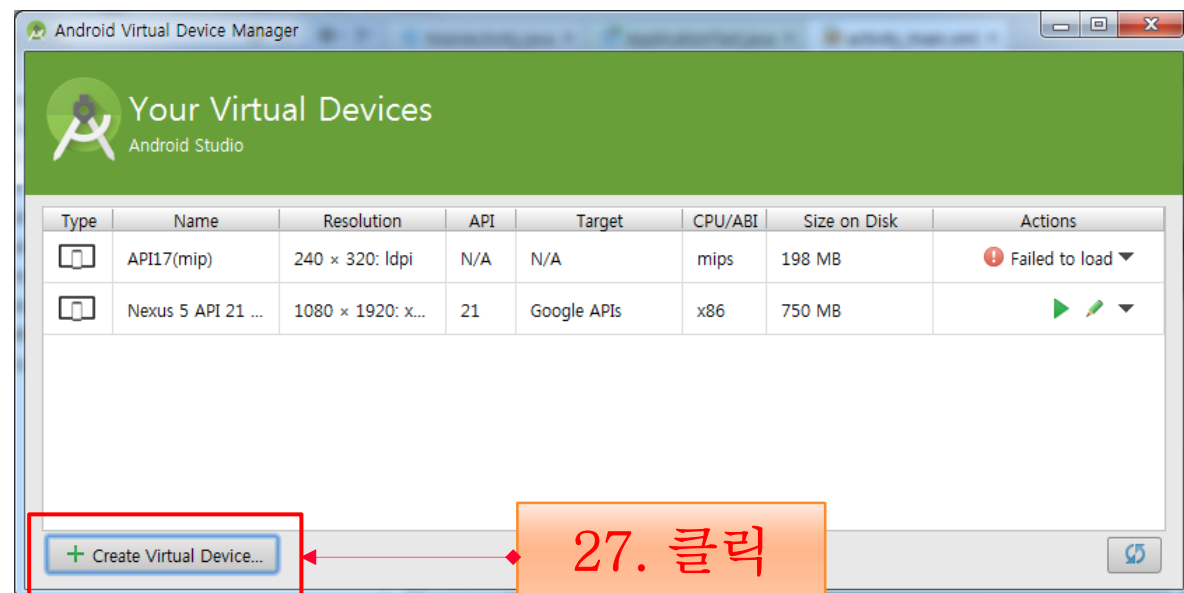
24. 클릭



AVD 추가 세팅

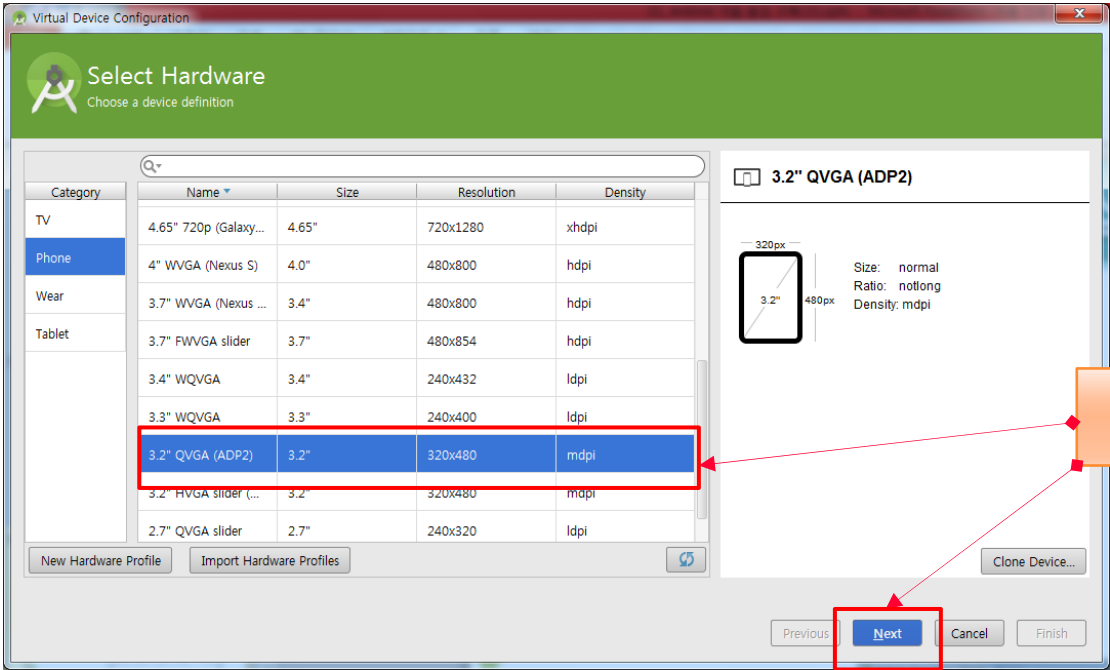


26. 클릭



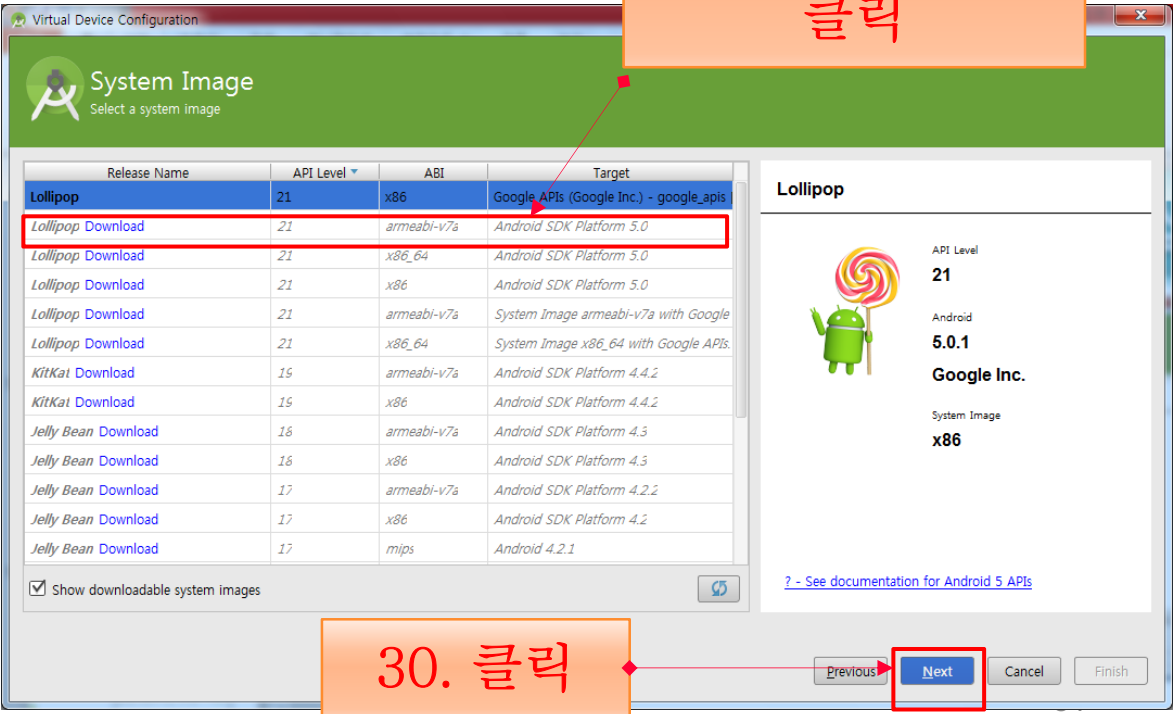
27. 클릭

AVD 추가 세팅



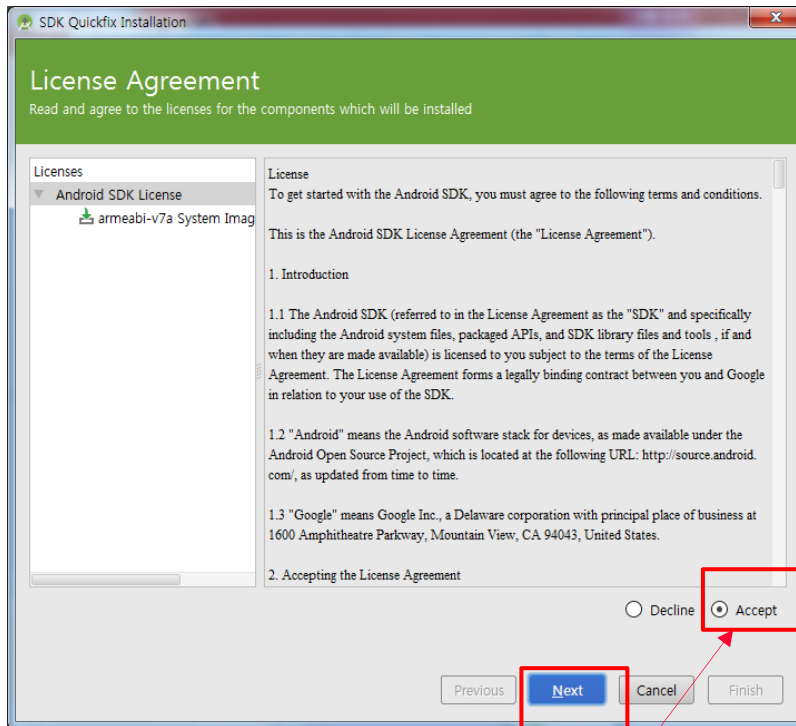
28. 클릭

29. [Download]
클릭

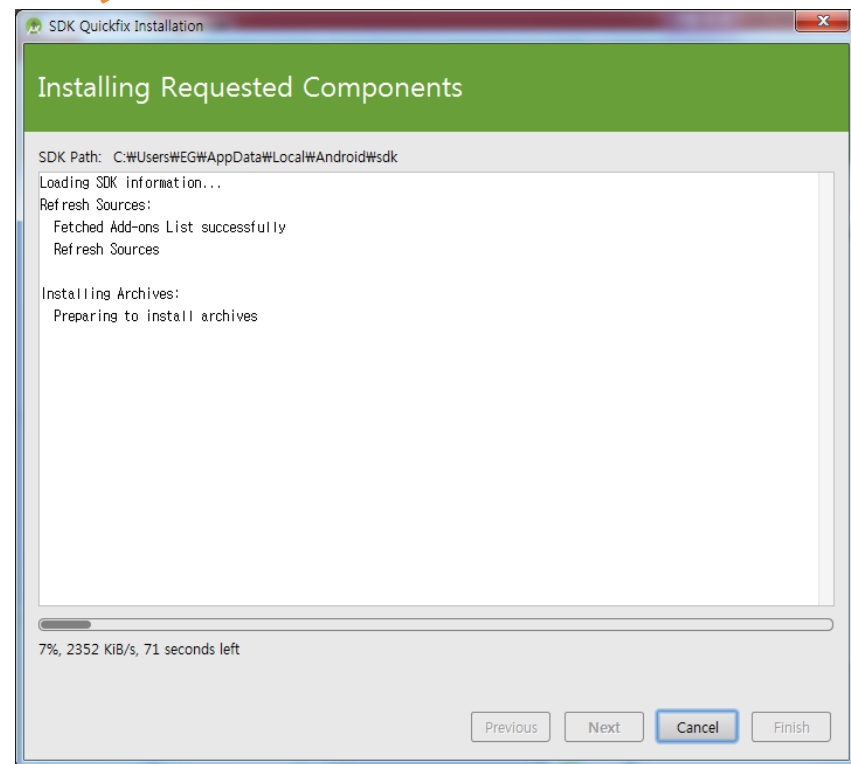


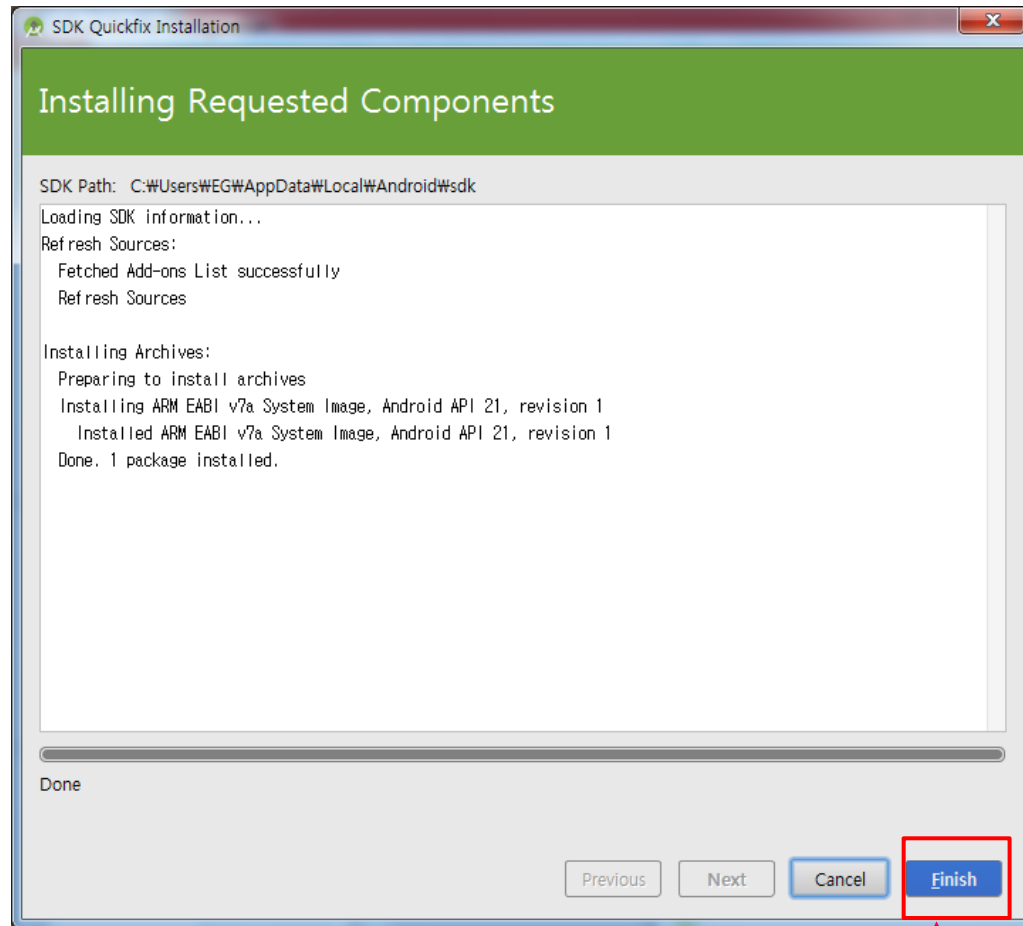
30. 클릭

AVD 추가 세팅



31. 클릭

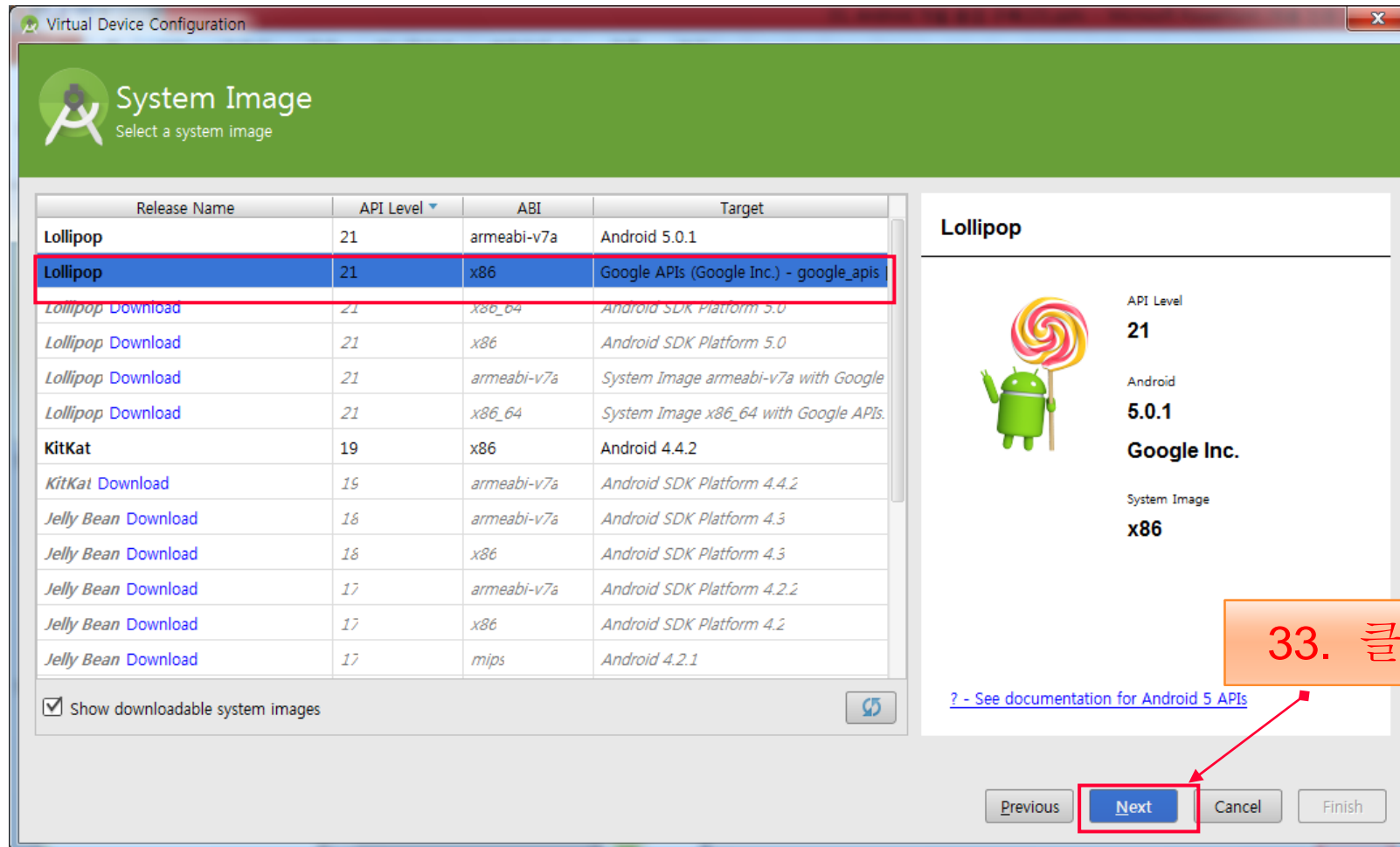




AVD 추가 세팅

32. 클릭

AVD 실행



AVD 이름 및 환경 설정

Virtual Device Configuration

Android Virtual Device (AVD)
Verify Configuration

AVD Name:

2.7" QVGA slider 2.7" 240x320 ldpi [Change...](#)

Lollipop Google APIs (Google Inc.) x86 [Change...](#)

Startup size and orientation

Scale:

Orientation: ☒ Portrait ☐ Landscape

Emulated Performance

☒ Use Host GPU

☐ Store a snapshot for faster startup

You can either use Host GPU or Snapshots

[Show Advanced Settings](#)

AVD Name

The name of this AVD.

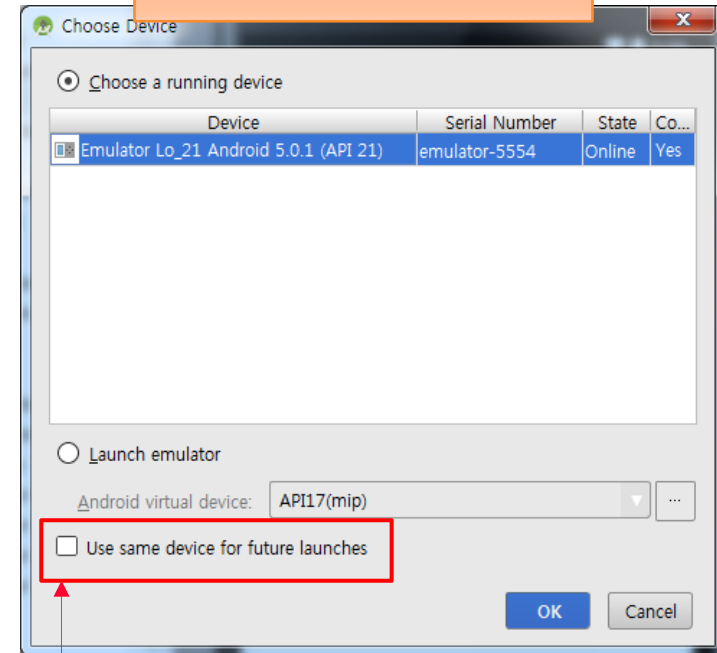
[Previous](#) [Next](#) [Cancel](#) [Finish](#)



생성된 AVD

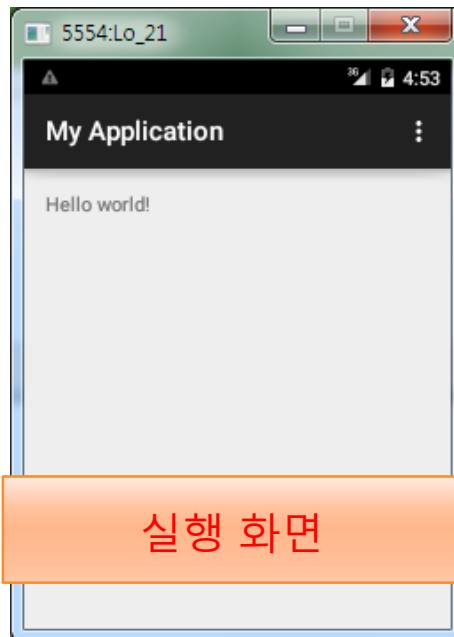


실행시킬 타겟 지정



앞으로 선택한 이 장치를 계속
사용하고자 할 때 체크

실행 화면



AVD 정리



- AVD는 가상 안드로이드 앱 가상 장치 환경
- 개발한 앱이 실행할 장치를 세팅
- 휴대폰 및 테블릿 등의 장치의 환경에 맞도록 세팅
- 세팅시 주의 점
 - ◎ 개발한 앱이 어느 장치 및 환경에서 작동할지를 앱 개발시에 미리 지정하고 앱을 만드는 것이 중요



세팅 및 저장 위치



- 프로젝트 저장 위치

C:\Users\WEG(사용자계정)\AndroidStudioProjects

- Android SDK 위치

C:\Users\WEG(사용자계정)\AppData\Local





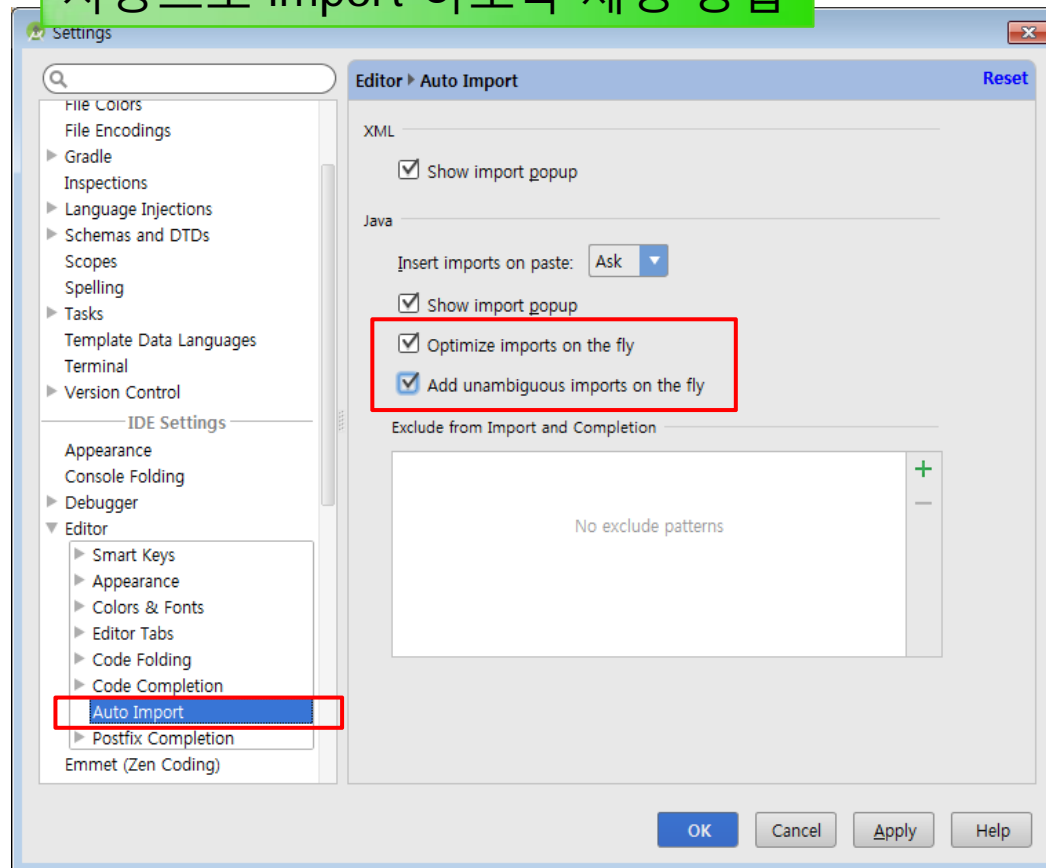
Import 방법

Alt

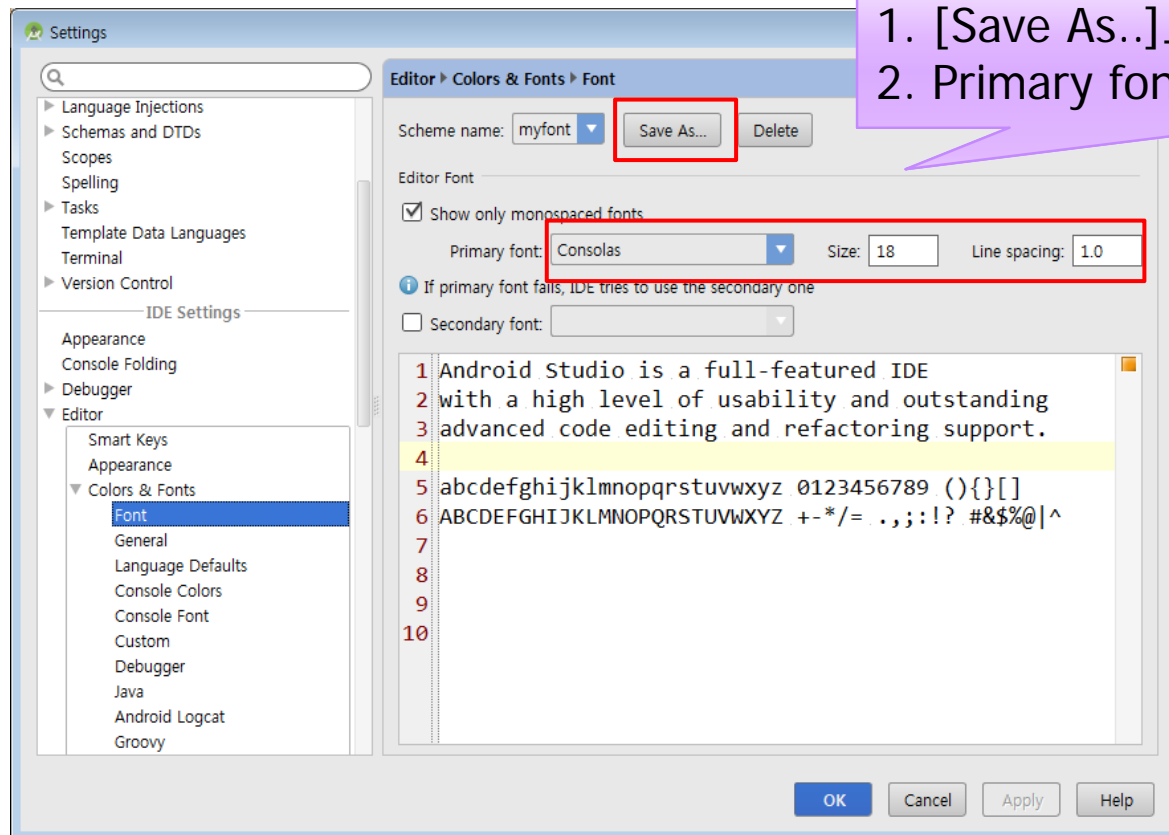
+

Enter

자동으로 import 하도록 세팅 방법

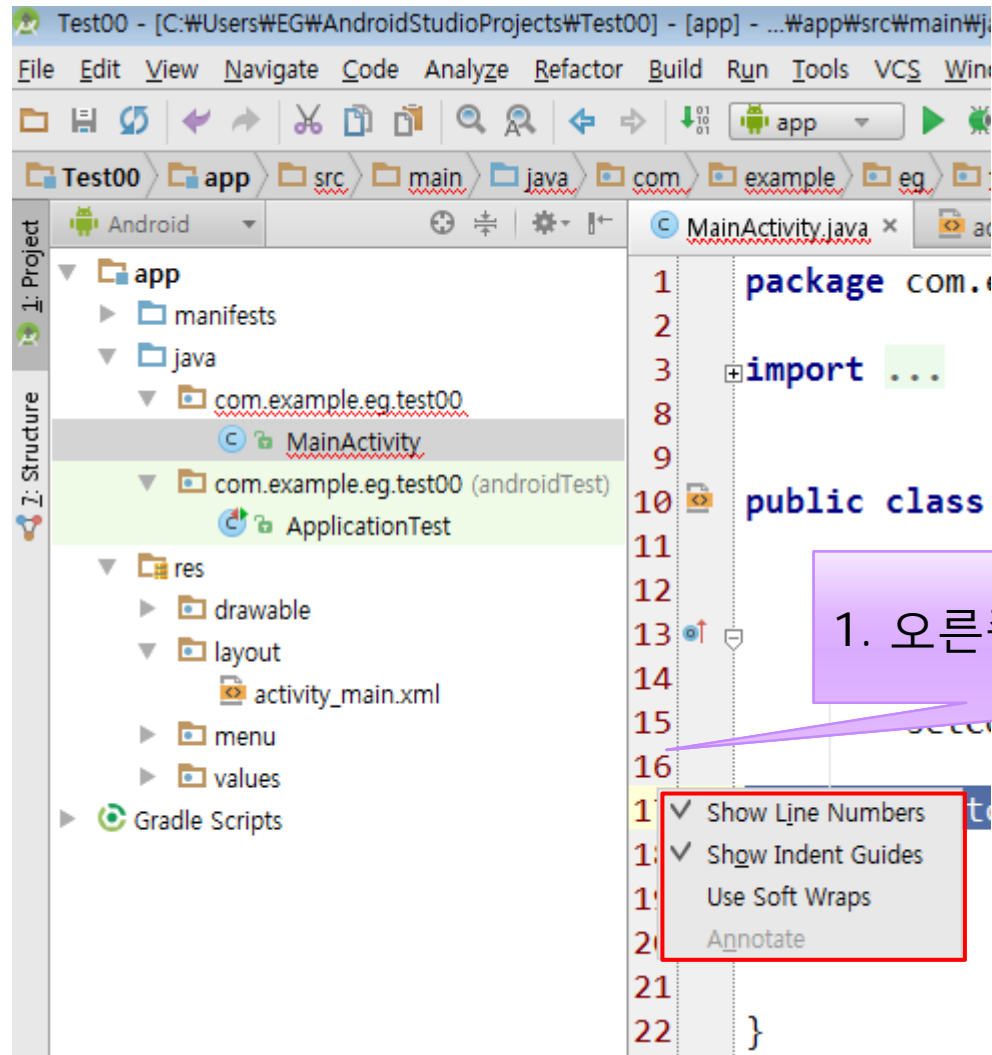


Editor 글씨 크기 변경



1. [Save As..]로 새로운 이름을 만든다.
2. Primary font : Consolas 지정

Editor 줄 번호 넣기



1. 오른쪽 마우스 클릭하여 선택