

강사 FTP 주소: 192.168.30.105

< 안드로이드 프로그래밍 >

1. 플랫폼(PDK)
2. NDK
3. SDK

< 개발 환경 >

JDK 1.8 + Eclipse

언어: **Java** --> Kotlin

통합 개발 환경(IDE): Eclipse --> **Android Studio(OpenJDK 1.8 포함됨)**

< 안드로이드 스튜디오 다운로드 >

d.android.com에서 다운로드 가능합니다.



Android
Studio

Welcome to Android Studio Setup

Setup will guide you through the installation of Android Studio.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

< Back

Next >

Cancel



Choose Components

Choose which features of Android Studio you want to install.

Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.

Select components to install:

- ☒ Android Studio
- ☒ Android Virtual Device

Space required: 2.6GB

Description

Position your mouse over a component to see its description.

< Back

Next >

Cancel



Configuration Settings

Install Locations

Android Studio Installation Location

The location specified must have at least 500MB of free space.
Click Browse to customize:

C:\Program Files\Android\Android Studio

Browse..

< Back

Next >

Cancel



Choose Start Menu Folder

Choose a Start Menu folder for the Android Studio shortcuts.

Select the Start Menu folder in which you would like to create the program's shortcuts. You can also enter a name to create a new folder.

- Accessibility
- Accessories
- Administrative Tools
- FileZilla FTP Client
- FileZilla Server
- Maintenance
- Microsoft Office 2016 Tools
- MySQL
- Netwide Assembler 2.14.02
- Oracle VM VirtualBox
- PuTTY (64-bit)

☐ Do not create shortcuts

< Back

Install

Cancel

 Android Studio Setup



Installation Complete

Setup was completed successfully.

Completed



Show details

< Back

Next >

Cancel



Android
Studio

Completing Android Studio Setup

Android Studio has been installed on your computer.

Click Finish to close Setup.

☒ Start Android Studio

< Back

Finish

Cancel



Import Android Studio Settings From...



☐ Config or installation folder:



☒ Do not import settings

OK



Welcome

Android Studio

Welcome! This wizard will set up your development environment for Android Studio.
Additionally, the wizard will help port existing Android apps into Android Studio
or create a new Android application project.



Previ...

Next

Cancel

Finish



Install Type

Choose the type of setup you want for Android Studio:

☒ Standard

Android Studio will be installed with the most common settings and options.
Recommended for most users.

☐ Custom

You can customize installation settings and components installed.

Previ...

Next

Cancel

Finish



Select UI Theme

☐ Darcula

```
module > src > HelloWorld
HelloWorld.java
import javax.swing.*;
import javax.swing.*;

public class HelloWorld {
    public HelloWorld() {
        JFrame frame = new JFrame ("Hello w
        JLabel label = new JLabel();
        label.setFont(new Font("Serif", Font
        label
        frame
        frame
        frame
        frame
        frame
        frame
```

☒ Light

```
module > src > HelloWorld
HelloWorld.java
import javax.swing.*;
import javax.swing.*;

public class HelloWorld {
    public HelloWorld() {
        JFrame frame = new JFrame ("Hello w
        JLabel label = new JLabel();
        label.setFont(new Font("Serif", Font
        label
        frame
        frame
        frame
        frame
        frame
        frame
```

Previ...

Next

Cancel

Finish



Verify Settings

If you want to review or change any of your installation settings, click Previous.

Current Settings:

Setup Type:

Standard

SDK Folder:

C:\Users\cospro\AppData\Local\Android\Sdk

JDK Location:

C:\Program Files\Android\Android Studio\jre

Total Download Size:

497 MB

SDK Components to Download:

Android Emulator

235 MB

Previ...

Next

Cancel

Finish



Downloading Components

```
Installing Android SDK Platform 30 in  
C:\Users\cospro\AppData\Local\Android\Sdk\platforms\android-30  
"Install Android SDK Platform 30 (revision: 2)" complete.  
"Install Android SDK Platform 30 (revision: 2)" finished.  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\build-tools\30.0.1\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\emulator\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\extras\intel  
  \Hardware_Accelerated_Execution_Manager\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\patcher\v4\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\platform-tools\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\platforms\android-30\package.xml  
Parsing C:\Users\cospro\AppData\Local\Android\Sdk\tools\package.xml  
Android SDK is up to date.  
Running Intel® HAXM installer  
Intel HAXM installed successfully!
```

Previ...

Next

Cancel

Finish



Android Studio

Version 4.0

+ Start a new Android Studio project

Open an existing Android Studio project

Get from Version Control

Profile or debug APK

Import project (Gradle, Eclipse ADT, etc.)

Import an Android code sample



Select a Project Template

Phone and Tablet

Wear OS

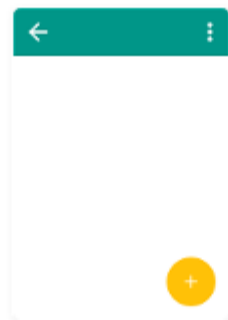
TV

Automotive

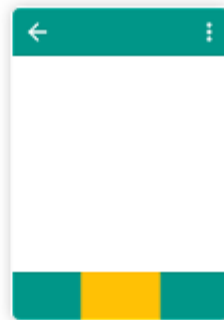
Android Things



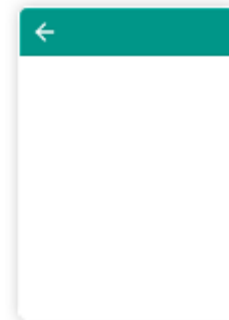
No Activity



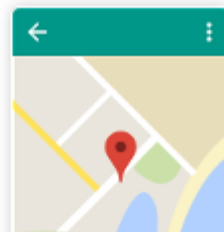
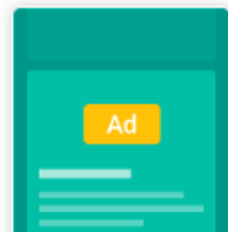
Basic Activity



Bottom Navigation Activity



Empty Activity

**Empty Activity**

Creates a new empty activity.

Previous

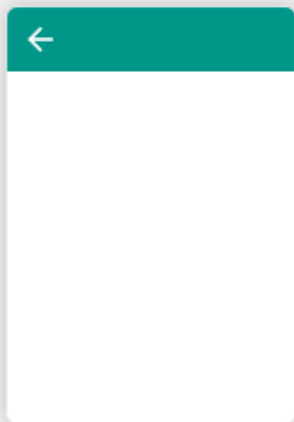
Next

Cancel

Finish



Configure Your Project



Empty Activity

Creates a new empty activity.

Name

My Application

프로젝트 이름

Package name

com.example.myapplication

유일한 URI를 사용

Save location

C:\Users\cospro\AndroidStudioProjects\MyApplication

Language

Kotlin

Java

Minimum SDK

API 16: Android 4.1 (Jelly Bean)

Lollipop

i Your app will run on approximately 99.8% of devices.

[Help me choose](#)☐ Use legacy android.support libraries ?

Previous

Next

Cancel

Finish



Your Virtual Devices

Android Studio



Virtual devices allow you to test your application without having to own the physical devices.

+ Create Virtual Device...

To prioritize which devices to test your application on, visit the [Android Dashboards](#), where you can get up-to-date information on which devices are active in the Android and Google Play ecosystem.



Select Hardware

Choose a device definition

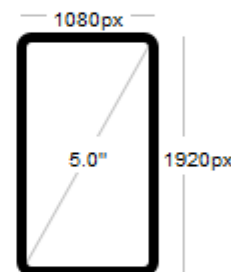
Category	Name ▾	Play Store	Size	Resolution	Density
TV					
Phone	Pixel 3	▶	5.46"	1080x2160	440dpi
	Pixel 2 XL		5.99"	1440x2880	560dpi
	Pixel 2	▶	5.0"	1080x1920	420dpi
Wear OS					
Tablet					
Automotive					
	Pixel	▶	5.0"	1080x1920	420dpi
	Nexus S		4.0"	480x800	hdpi
	Nexus One		3.7"	480x800	hdpi
	Nexus 6P		5.7"	1440x2560	560dpi

New Hardware Profile

Import Hardware Profiles



Pixel 2



Size: large
Ratio: long
Density: 420dpi

Clone Device...

Previous

Next

Cancel

Finish

Help



System Image

Select a system image

Recommended **x86 Images** Other Images

Release Name	API Level ▾	ABI	Target
<i>R</i> Download	30	x86	Android 10.0+ (Google Play)
<i>Q</i> Download	29	x86	Android 10.0 (Google Play)
<i>Pie</i> Download	28	x86	Android 9.0 (Google Play)
<i>Oreo</i> Download	27	x86	Android 8.1 (Google Play)
<i>Oreo</i> Download	26	x86	Android 8.0 (Google Play)
<i>Nougat</i> Download	25	x86	Android 7.1.1 (Google Play)
<i>Nougat</i> Download	24	x86	Android 7.0 (Google Play)

R



API Level

30

Android

10.0+**Google Inc.**

System Image

x86

We recommend these Google Play images because this device is compatible with Google Play.

Questions on API level?

See the [API level distribution chart](#)

! A system image must be selected to continue.

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



System Image

Select a system image

Recommended x86 Images Other Images

Release Name	API Level ▾	ABI	Target
R Download	30	x86_64	Android 10.0+ (Google Play)
R Download	30	x86	Android 10.0+ (Google APIs)
R Download	30	x86_64	Android 10.0+ (Google APIs)
Q	29	x86_64	Android 10.0 (Google Play)
Q Download	29	x86	Android 10.0 (Google APIs)
Q Download	29	x86_64	Android 10.0 (Google APIs)
Q Download	29	x86_64	Android 10.0
Q Download	29	x86	Android 10.0
Pie Download	28	x86	Android 9.0 (Google X86_ARM)
Pie Download	28	x86_64	Android 9.0 (Google Play)



Q



API Level

29

Android

10.0**Google Inc.**

System Image

x86_64

Questions on API level?

See the [API level distribution chart](#)

Previous

Next

Cancel

Finish

Help



Android Virtual Device (AVD)

Verify Configuration

AVD Name Pixel 2 API 29



Pixel 2

5.0 1080x1920 xxhdpi

Change...



Q

Android 10.0 x86_64

Change...

Startup orientation



Portrait



Landscape

Emulated
Performance

Graphics:

Automatic

Show Advanced Settings

AVD Name

The name of this AVD.

Previous

Next

Cancel




Finish

Help



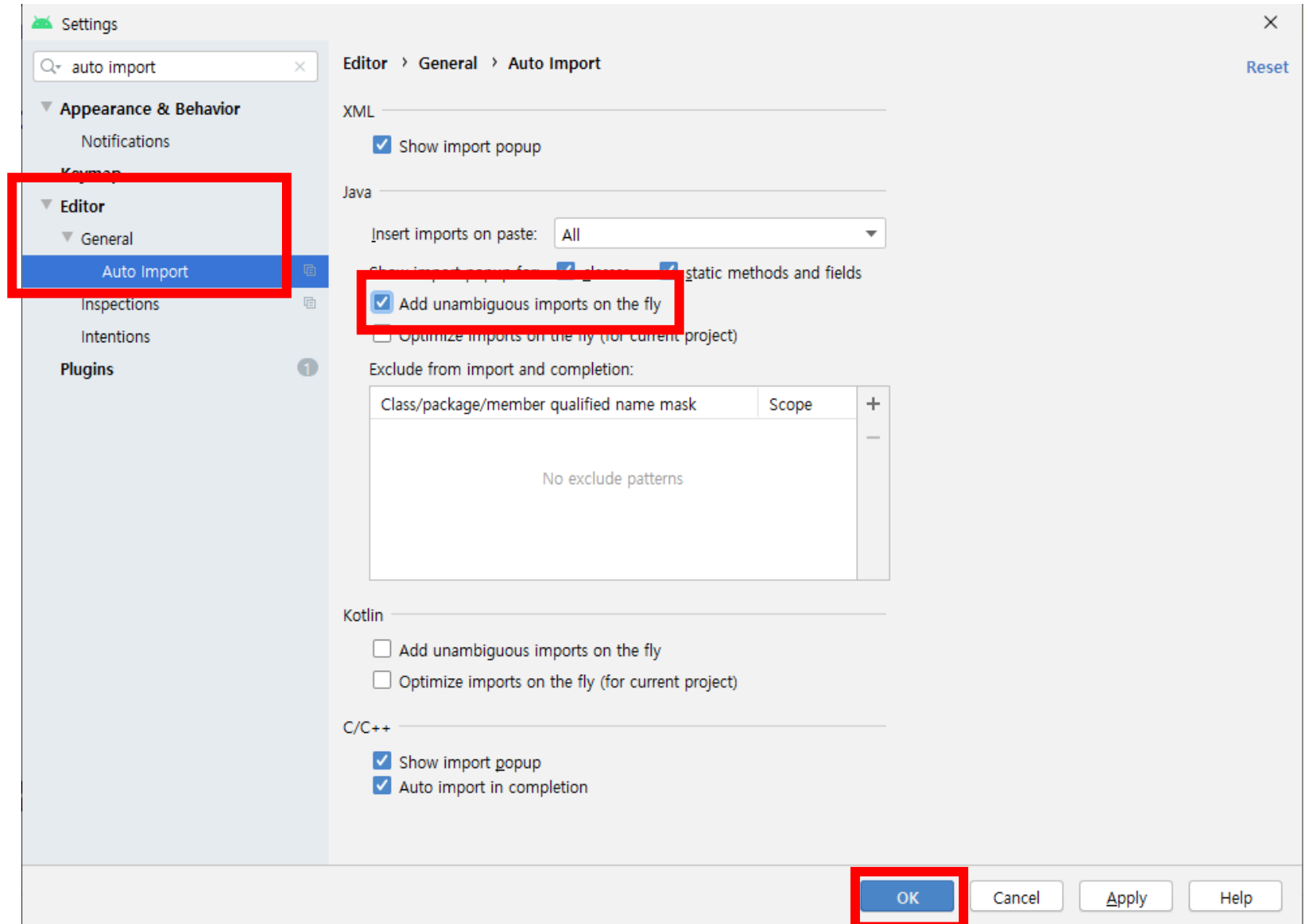
Your Virtual Devices

Android Studio

Type	Name	Play Store	Resolution	API	Target	CPU/ABI	Size on Disk	Actions
	Pixel 2 API...		1080 × 19...	29	Android 1...	x86_64	513 MB	  

[+ Create Virtual Device...](#)

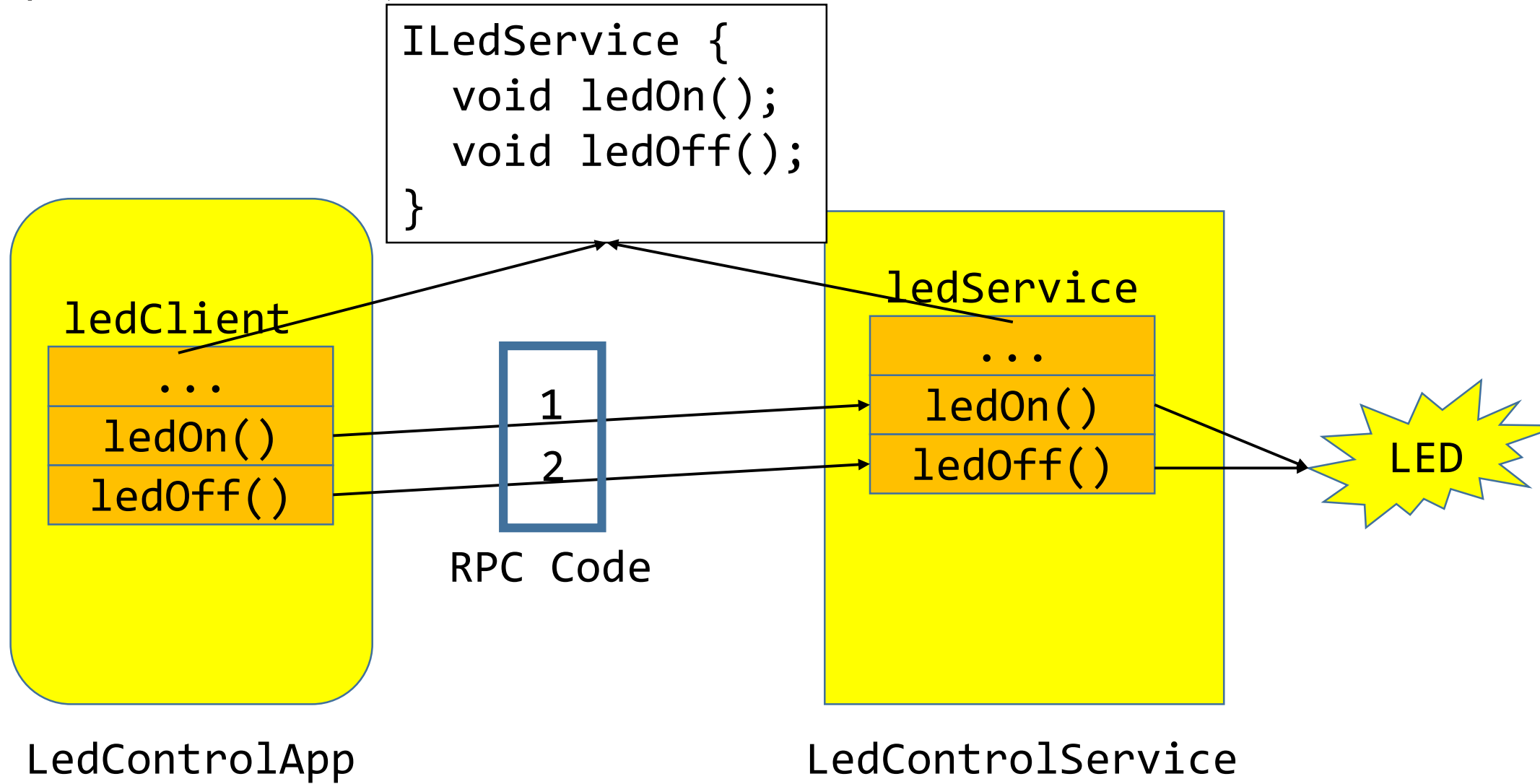
< auto import >
File 탭 -> Setting



5/20

hello

RPC(remote procedure call): 다른 프로세스 또는 원격에 있는 메서드를 호출하는 메커니즘



바인드 서비스: 원격 서비스

프록시(proxy): 원격에 존재하는 서비스 객체의 함수 또는 메서드를 대신하여 호출하는 객체 -> 대리자

스텝(stub): 프록시에 의해 요청된 메서드 또는 함수 호출을 실제 구현된 객체에게 전송을 하는 역할을 함

서비스를 객체를 구현하는 사람은 스텝이라는 클래스를 상속하면 됩니다.

서비스 객체를 구현하는 개발자는 반드시 IBinder 인터페이스를 구현해야 합니다. 바인더 드라이버에는 IBinder 타입만 등록될 수 있기 때문입니다.

하지만 자바 개발자가 이 인터페이스를 구현하기는 매우 까다롭습니다. 그래서 안드로이드 SDK는 서비스 객체의 구현을 쉽게 하기 위해 Binder라는 클래스를 제공합니다. 따라서 개발자는 IBinder를 구현하는 것이 아닌 Binder 클래스를 상속하면 됩니다.

