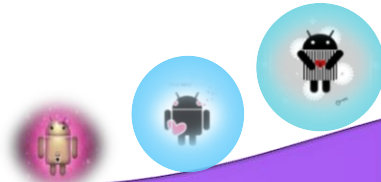




오디오



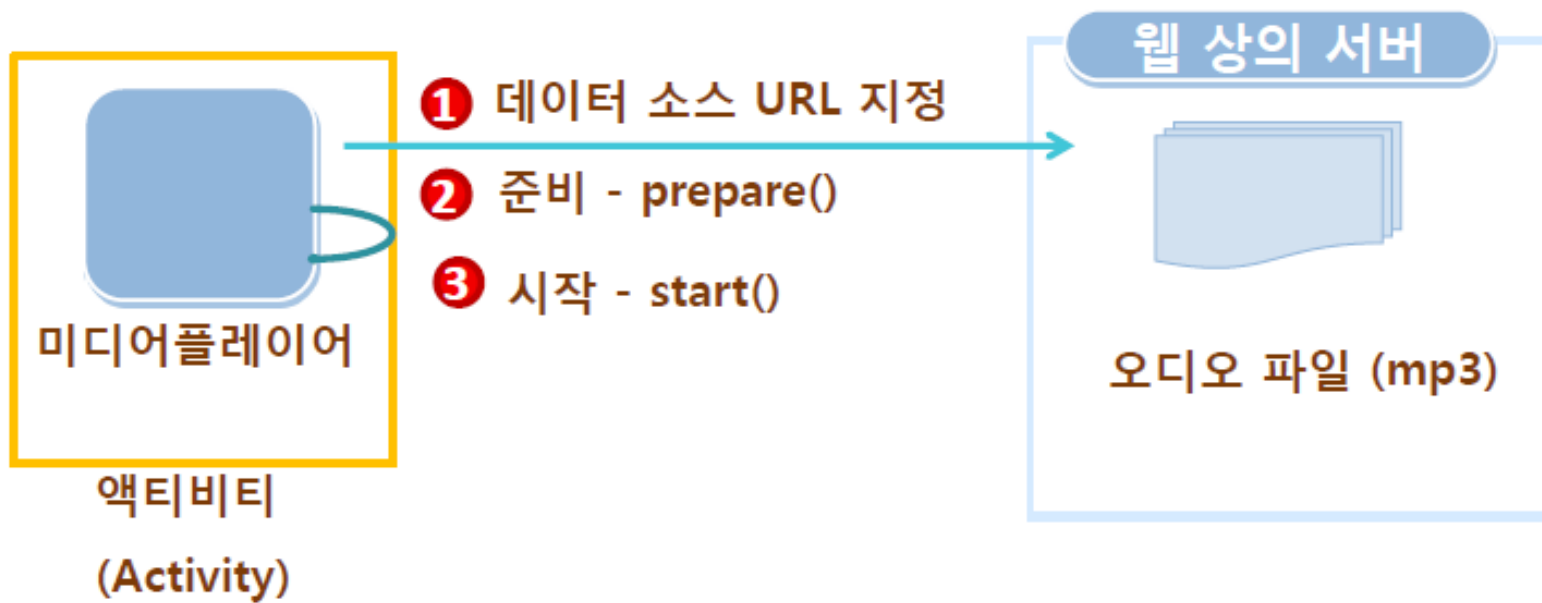


- 오디오 재생을 위해 **MediaPlayer** 클래스 사용
  - ◎ **MediaPlayer**의 데이터 소스 지정 방법
    - 웹 상의 위치 지정
      - 미디어가 있는 웹 상의 위치를 **URL**로 지정
    - 단말 **SD**카드에 넣은 후 위치 지정
      - 단말에 넣어 둔 **SD**카드에 파일을 넣은 후 그 위치를 지정



# 음악파일 재생 과정

3



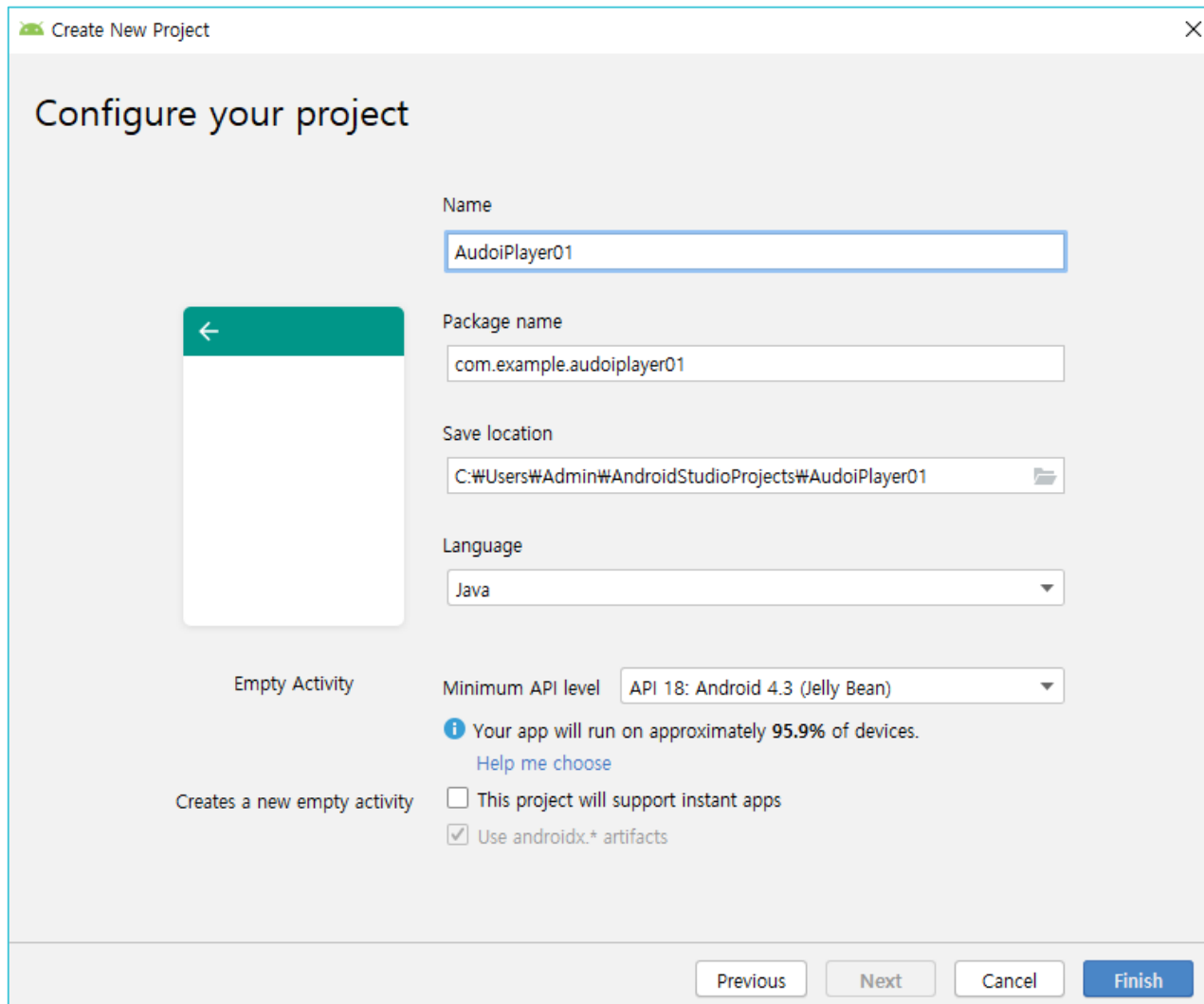
미디어플레이어를 이용한 음악파일 재생 과정



# 프로젝트 생성

4

## ○ 프로젝트 생성



The image shows the 'Create New Project' dialog box in Android Studio. The title bar says 'Create New Project' with a close button. The main heading is 'Configure your project'. On the left, there is a sidebar with a back arrow and a list of project configurations. The main area contains several input fields and checkboxes. The 'Name' field is 'AudioPlayer01'. The 'Package name' field is 'com.example.audioiplayer01'. The 'Save location' field is 'C:\Users\Admin\AndroidStudioProjects\AudioPlayer01'. The 'Language' dropdown is set to 'Java'. The 'Minimum API level' dropdown is set to 'API 18: Android 4.3 (Jelly Bean)'. Below this, there is an information icon and text: 'Your app will run on approximately 95.9% of devices.' with a link 'Help me choose'. There are two checkboxes: 'This project will support instant apps' (unchecked) and 'Use androidx.\* artifacts' (checked). At the bottom, there are four buttons: 'Previous', 'Next', 'Cancel', and 'Finish'.

Create New Project

### Configure your project


Name: AudioPlayer01

Package name: com.example.audioiplayer01

Save location: C:\Users\Admin\AndroidStudioProjects\AudioPlayer01

Language: Java

Minimum API level: API 18: Android 4.3 (Jelly Bean)

 Your app will run on approximately 95.9% of devices.  
[Help me choose](#)

☐ This project will support instant apps

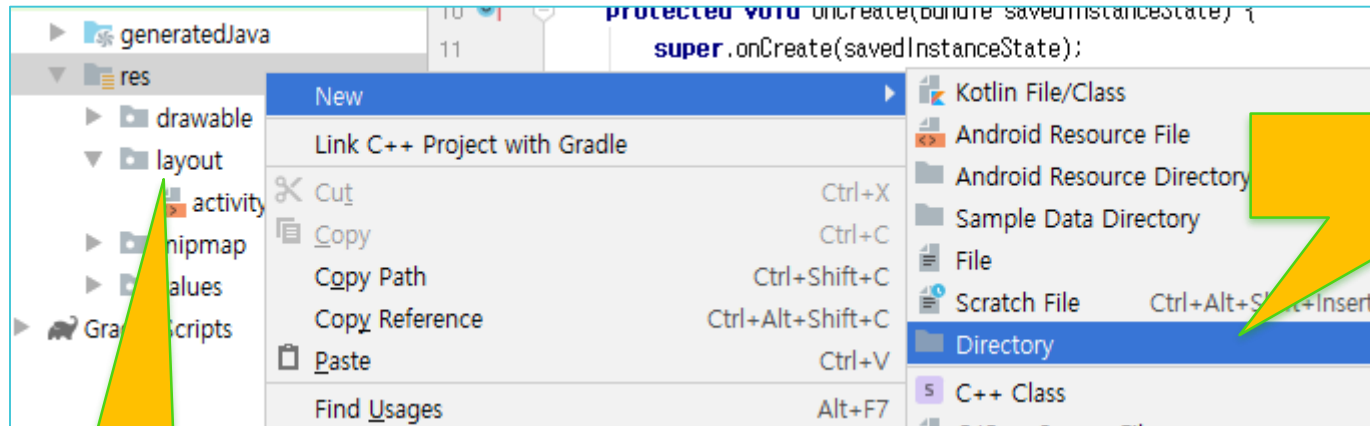
☒ Use androidx.\* artifacts

Empty Activity

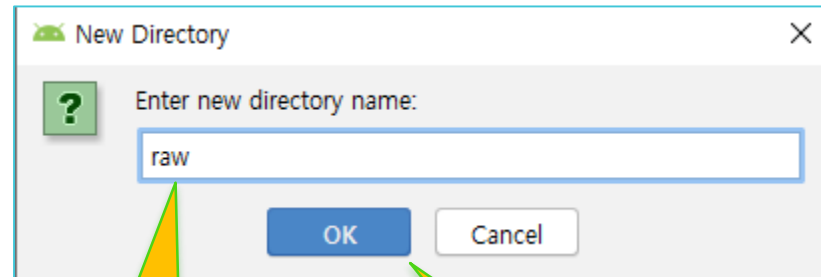
Creates a new empty activity

Previous Next Cancel Finish

```
activity_main.xml x
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:tools="http://schemas.android.com/tools"
4      android:layout_width="match_parent"
5      android:layout_height="match_parent"
6      android:orientation="vertical">
7
8      <Button
9          android:id="@+id/btn"
10         android:layout_width="wrap_content"
11         android:layout_height="wrap_content"
12         android:layout_gravity="center"
13         android:text="Play!"
14         android:textSize="30dp"
15     />
16
17 </LinearLayout>
```

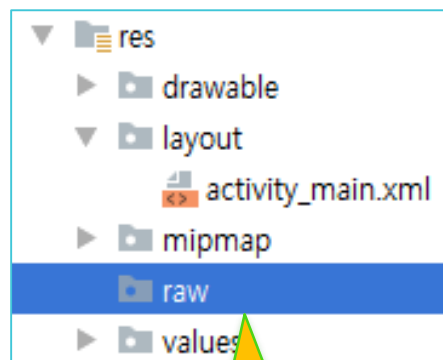


1. 오른쪽 마우스 클릭

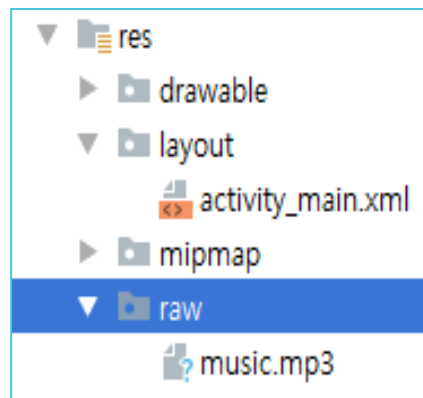


3. "raw"

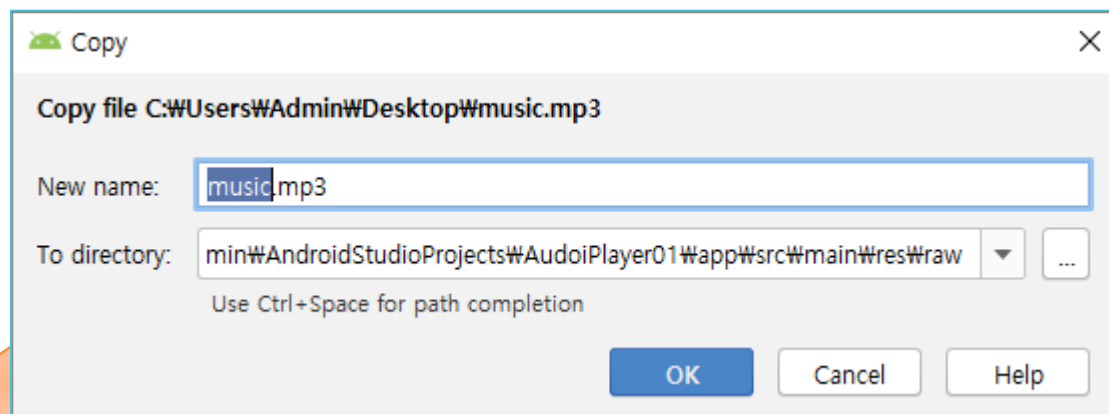
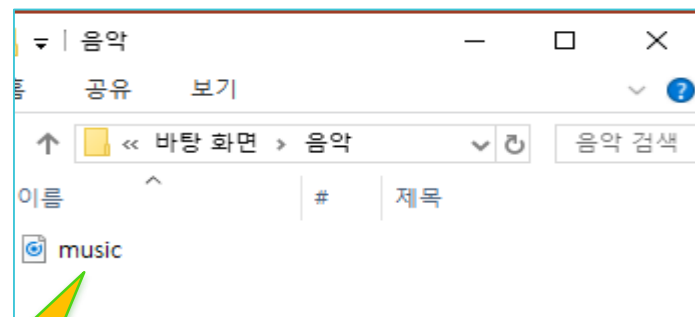
4. 클릭



6. "raw" 클릭 후 CTRL + V(붙여넣기)



5. 다운로드 받은 "music" 파일 클릭 후 CTRL + C(복사)



```

1  package com.example.audooplayer01;
2
3  + import ...
7
8  public class MainActivity extends AppCompatActivity {
9
10     MediaPlayer mp = new MediaPlayer();
11
12     @Override
13     protected void onCreate(Bundle savedInstanceState) {
14         super.onCreate(savedInstanceState);
15         setContentView(R.layout.activity_main);
16
17         mp = MediaPlayer.create(context: this, R.raw.music);
18         mp.setLooping(false);
19         mp.start();
20     }
21
22
23     }

```

7.코딩



MainActivity.java

```
1 package com.example.audiooplayer01;
2
3 import ...
4
5
6
7
8 public class MainActivity extends AppCompatActivity
9
10     Media
11
12     @Override
13     protected void onCreate(Bundle savedInstanceState)
14     {
15         super.onCreate(savedInstanceState);
16         setContentView(R.layout.activity_main);
17
18         mp = MediaPlayer.create(context, this, R.raw.
19         mp.setLooping(false);
20         mp.start();
21     }
22
23 }
```

9. "onDestroy()" 추가

8. 22 line 클릭 후 오른쪽 마우스 클릭

Select Methods to Override/Implement

- setContentView(view:View, params:LayoutParams):void
- addContentView(view:View, params:LayoutParams):void
- onConfigurationChanged(newConfig:Configuration):void
- onPostResume():void
- onStart():void
- onStop():void
- findViewById(id:int):T
- onDestroy():void**
- onTitleChanged(title:CharSequence, color:int):void
- supportRequestWindowFeature(featureId:int):boolean
- supportInvalidateOptionsMenu():void
- invalidateOptionsMenu():void

☐ Copy Javadoc  
☒ Insert @Override

OK Cancel

Generate

- Constructor
- Getter
- Setter
- Getter and Setter
- equals() and hashCode()
- toString()
- Override Methods... Ctrl+O**
- Implement Methods... Ctrl+I**
- Delegate Methods...
- Test...
- Copyright

```
MainActivity.java x
21
22      @Override
23      protected void onDestroy() {
24          mp.stop();
25          mp.release();
26          super.onDestroy();
27      }
28  }
```

7.코딩

release() : MediaPlayer 객체에 할당된 자원을 해제함

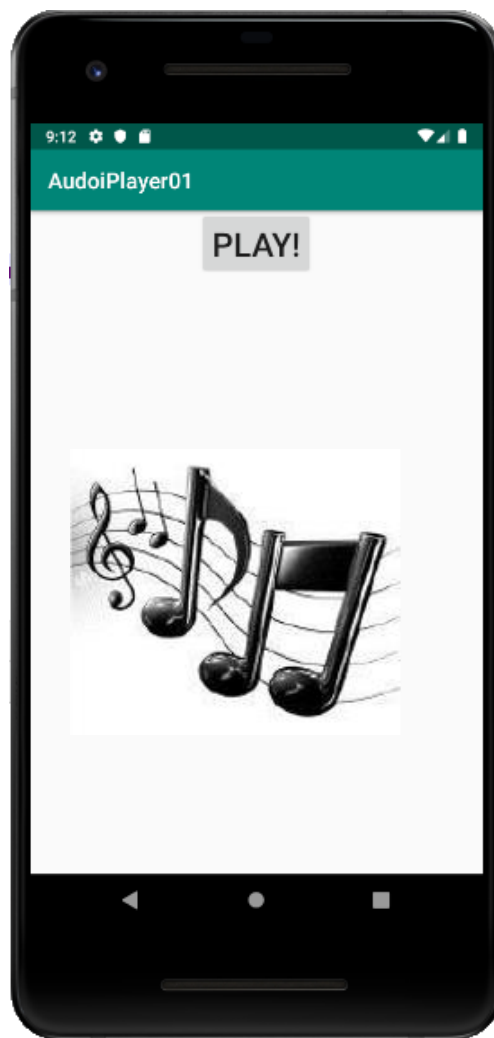
stop() : 미디어 재생을 중지함

start() : 미디어를 재생함

setLooping() : 미디어 재생을 반복(true) 또는 비반복(false)

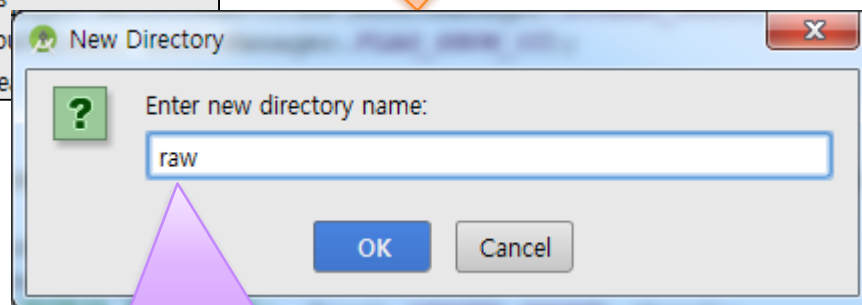
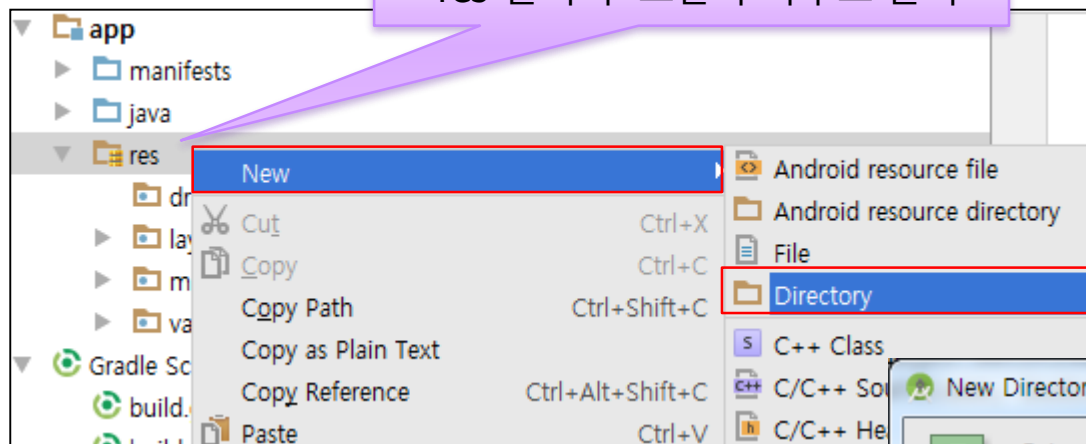
# 실행

11

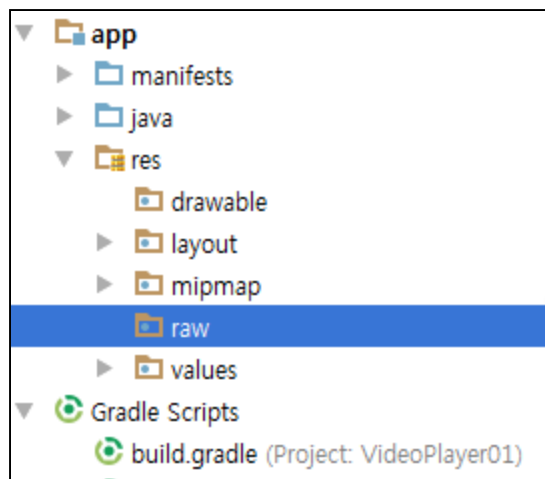


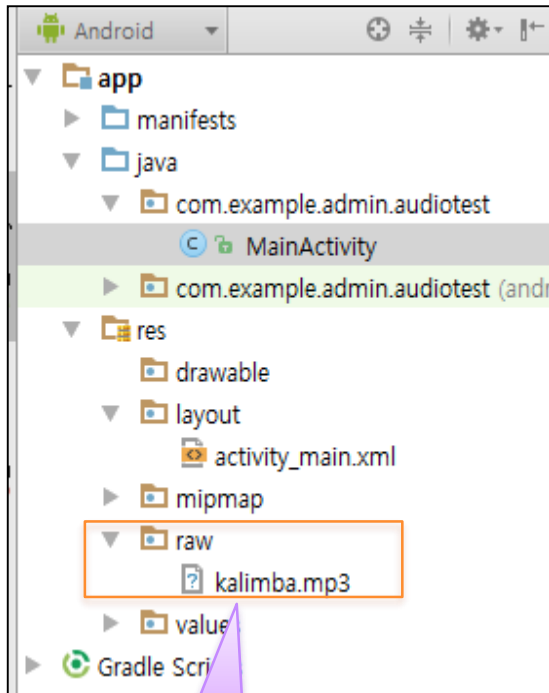
# 로컬 음악 재생 예제

"res"클릭 후 오른쪽 마우스 클릭

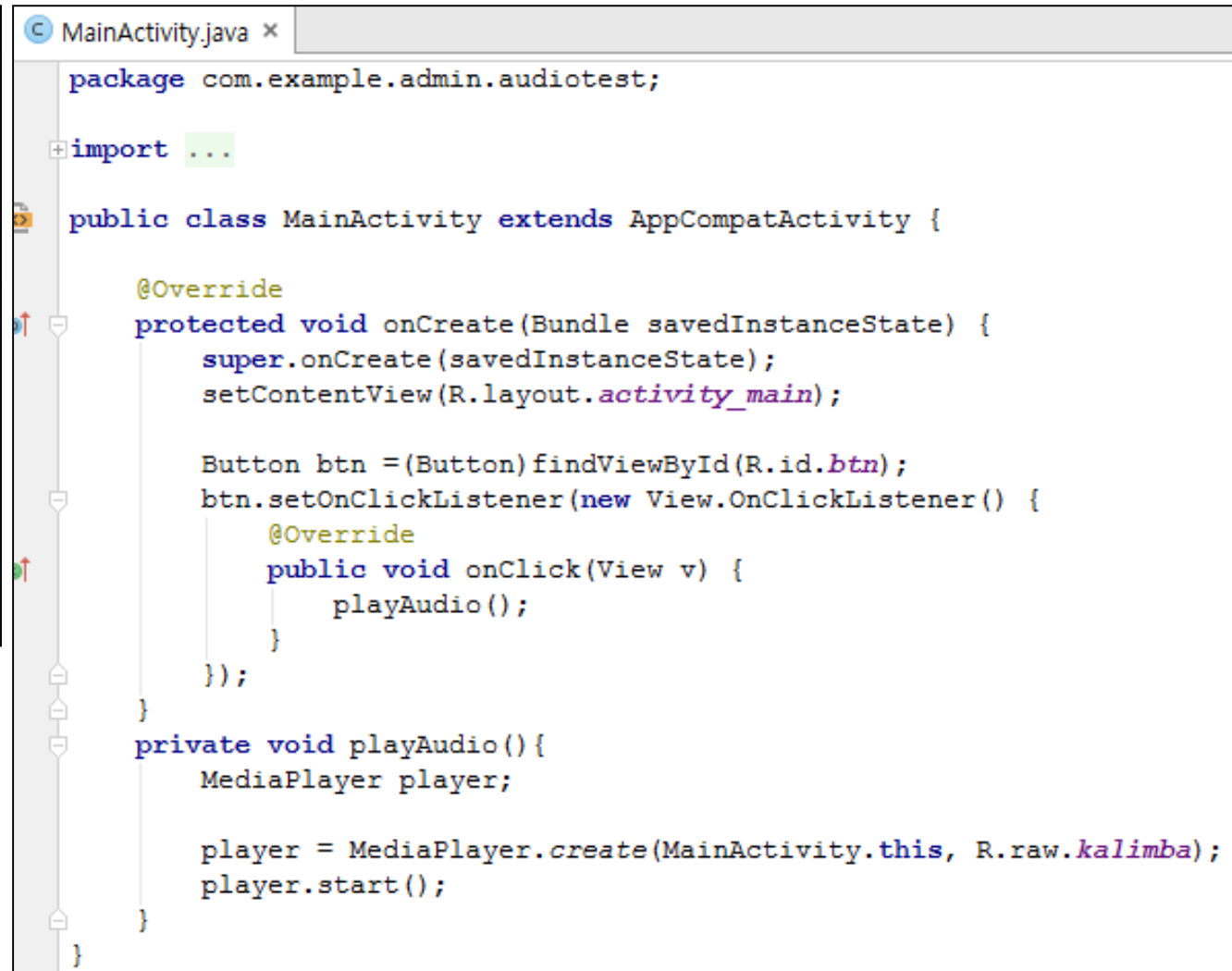


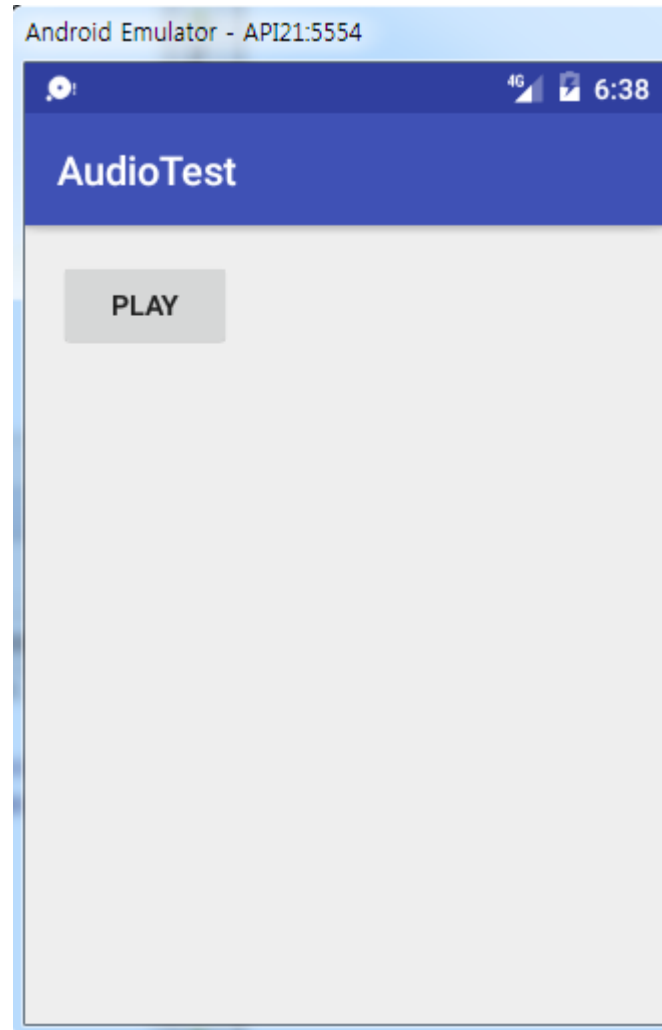
"raw"입력 후 "OK"





음악파일 복사  
(kalimba.mp3)





# 메소드 설명



메소드	설명
onCreate()	액티비티가 생성될 때 호출
onRestart()	액티비티가 중지되었다가 다시 시작하기 전에 호출
onStart()	액티비티가 사용자에게 보여질 때 호출
onResume()	액티비티가 사용자와 상호적용할 때 호출
onPause()	이전의 액티비티를 다시 시작할 때 불러짐
onStop()	액티비티가 사용자에게 더 이상 보여지지 않을 때 호출
onDestroy()	액티비티가 소멸될 때 호출



# 오디오 녹음/재생



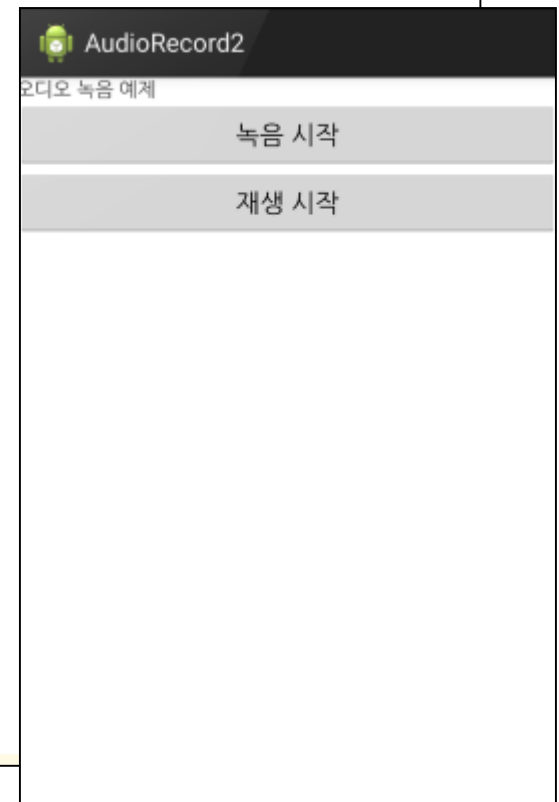
## 프로젝트 정보

- ◉ Application Name: AudioRecorder02
- ◉ Minimum SDK : API 18
- ◉ Add an activity to Mobile: Blank Activity
- ◉ Activity Name: MainActivity
- ◉ Layout Name: activity\_main
- ◉ Title: MainActivity





```
main.xml x
1  <?xml version="1.0" encoding="utf-8"?>
2  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      android:layout_width="match_parent"
4      android:layout_height="match_parent"
5      android:orientation="vertical">
6
7      <TextView
8          android:layout_width="match_parent"
9          android:layout_height="wrap_content"
10         android:text="오디오 녹음 예제" />
11
12     <Button
13         android:id="@+id/record"
14         android:layout_width="match_parent"
15         android:layout_height="wrap_content"
16         android:text="녹음 시작">
17     </Button>
18
19     <Button
20         android:id="@+id/play"
21         android:layout_width="match_parent"
22         android:layout_height="wrap_content"
23         android:text="재생 시작">
24     </Button>
25 </LinearLayout>
```



```
1 package com.example.audiorecorder02;
2
3 import androidx.appcompat.app.AppCompatActivity;
4
5 import android.media.MediaPlayer;
6 import android.media.MediaRecorder;
7 import android.os.Bundle;
8 import android.os.Environment;
9 import android.util.Log;
10 import android.view.View;
11 import android.widget.Button;
12
13 import java.io.IOException;
14
15 public class MainActivity extends AppCompatActivity {
16     private static final String LOG_TAG = "AudioRecorderTest";
17     private static String filename = null;
18
19     Button play, record;
20     private MediaRecorder recorder = null;
21     private MediaPlayer player = null;
```

recorder, player  
객체생성














MainActivity.java ×

저장위치

```
22
23  @Override
24  protected void onCreate(Bundle savedInstanceState) {
25      super.onCreate(savedInstanceState);
26      setContentView(R.layout.activity_main);
27
28      filename = Environment.getExternalStorageDirectory().getAbsolutePath();
29      filename += "/Download/test.3gp";
30      play = (Button)findViewById(R.id.play);
31      record = (Button)findViewById(R.id.record);
32
33      play.setOnClickListener(new Button.OnClickListener(){
34          public void onClick(View v){
35              if(player == null){
36                  player = new MediaPlayer();
37                  try{
38                      player.setDataSource(filename);
39                      player.prepare();
40                      player.start();
41                  }catch(IOException e){
42                      Log.e(LOG_TAG, msg: "prepare() failed");
43                  }
44                  play.setText("재생 중기");
45              }else {
46                  player.release();
47                  player = null;
48                  play.setText("재생시작");
49              }
50          }
51      });
```

MainActivity.java x

```
52
53
54 record.setOnClickListener(new Button.OnClickListener(){
55     public void onClick(View v){
56         if(recorder == null){
57             recorder = new MediaRecorder();
58             ((MediaRecorder) recorder).setAudioSource(MediaRecorder.AudioSource.MIC);
59             ((MediaRecorder) recorder).setOutputFormat(MediaRecorder.OutputFormat.THREE_GPP);
60             ((MediaRecorder) recorder).setOutputFile(filename);
61             ((MediaRecorder) recorder).setAudioEncoder(MediaRecorder.AudioEncoder.AMR_NB);
62             try{
63                 recorder.prepare();
64             }catch (IOException e){
65                 Log.e(LOG_TAG, msg: "prepare() failed");
66             }
67
68             recorder.start();
69             record.setText("녹음 중지");
70         }else {
71             recorder.stop();
72             recorder.release();
73             recorder = null;
74             record.setText("녹음 시작");
75         }
76     }
77 });
78 }
```

```
78  
79  
80     
81   
82   
83   
84   
85   
86   
87   
88   
89   
90   
91 }
```

```
@Override  
protected void onPause() {  
    super.onPause();  
    if(recorder != null){  
        recorder.release();  
        recorder = null;  
    }  
    if(player != null){  
        player.release();  
        player = null;  
    }  
}
```

```
AndroidManifest.xml x
1  <?xml version="1.0" encoding="utf-8"?>
2  <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3      package="kr.co.company.audiorecord2"
4      android:versionCode="1"
5      android:versionName="1.0" >
6      <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
7      <uses-permission android:name="android.permission.RECORD_AUDIO"/>
8
9      <uses-sdk
10         android:minSdkVersion="8"
11         android:targetSdkVersion="18" />
12
13     <application
14         android:allowBackup="true"
15         android:icon="@drawable/ic_launcher"
16         android:label="AudioRecord2"
17         android:theme="@style/AppTheme" >
18         <activity
19             android:name="kr.co.company.audiorecord2.AudioRecord2Activity"
20             android:label="AudioRecord2" >
21             <intent-filter>
22                 <action android:name="android.intent.action.MAIN" />
23
24                 <category android:name="android.intent.category.LAUNCHER" />
25             </intent-filter>
26         </activity>
27     </application>
28 </manifest>
29
```

