

오디오

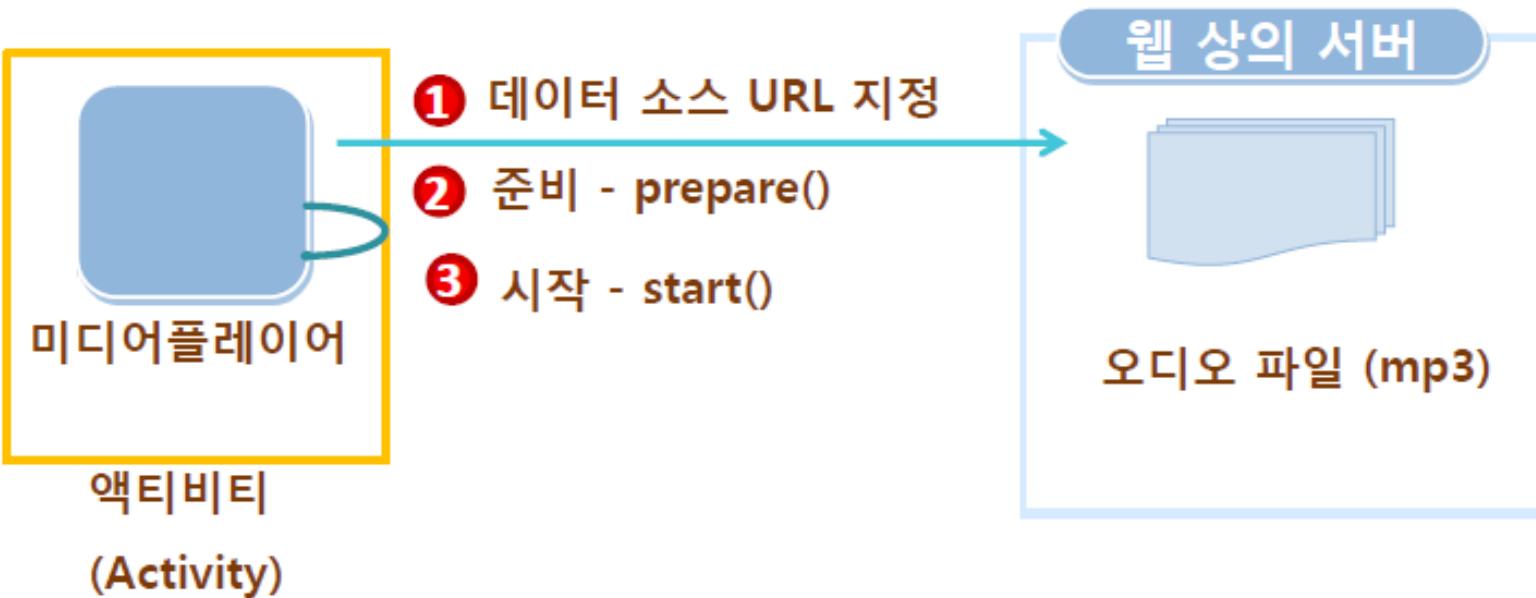
○ 오디오 재생을 위해 **MediaPlayer** 클래스 사용

◎ **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



미디어플레이어를 이용한 음악파일 재생 과정

프로젝트 생성

○ 프로젝트 생성

Create New Project

Configure your project

Name
AudioPlayer01

Package name
com.example.audioplayer01

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

Language
Java

Empty Activity

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

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

Creates a new empty activity

This project will support instant apps

Use androidx.+ artifacts

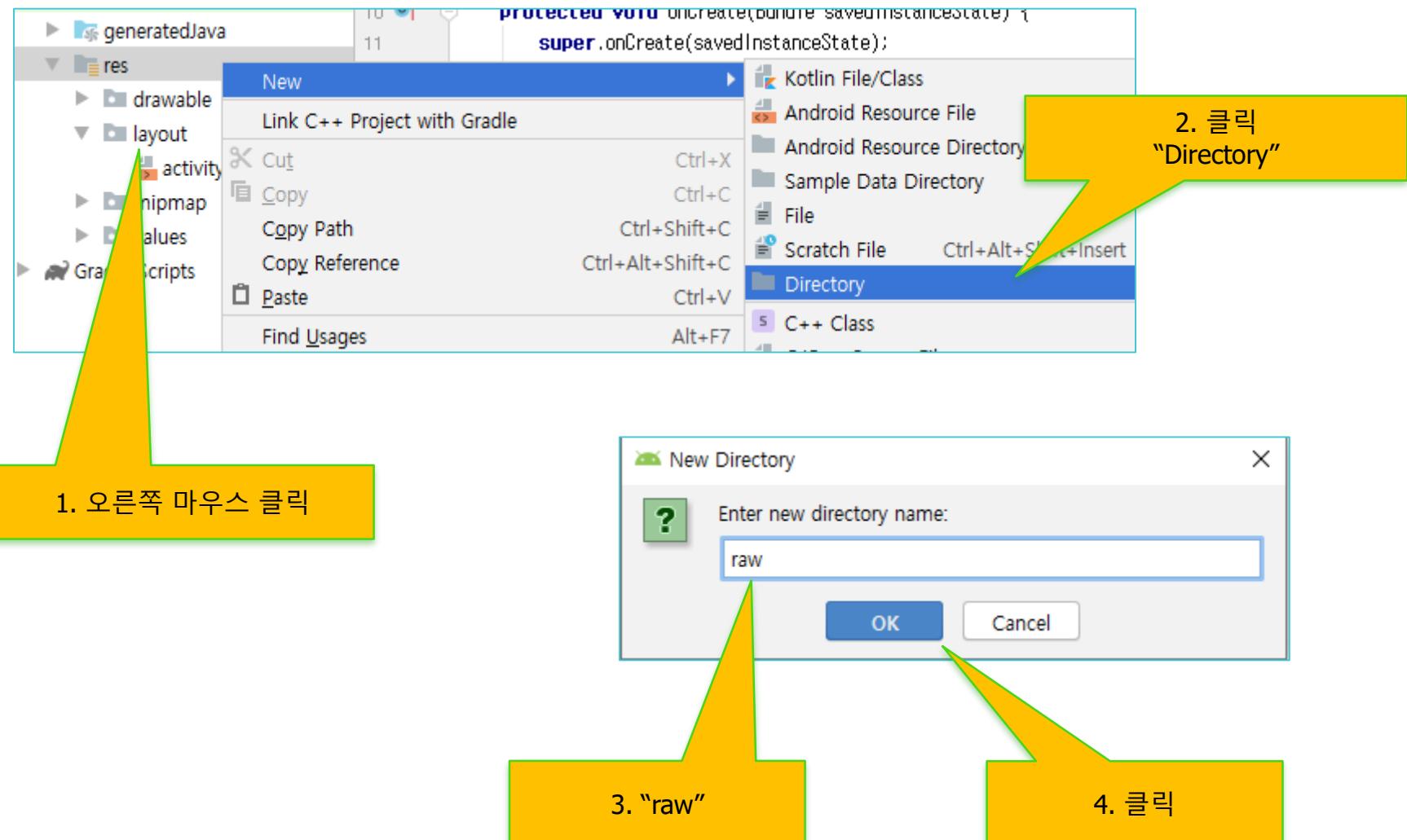
Previous Next Cancel Finish

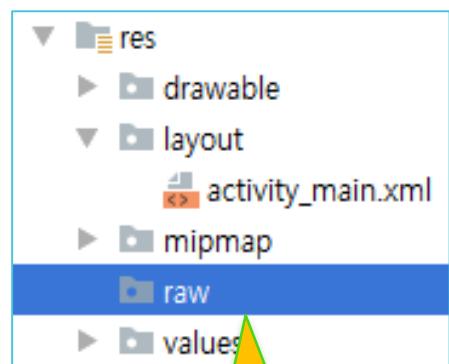
```
activity_main.xml x

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>
```

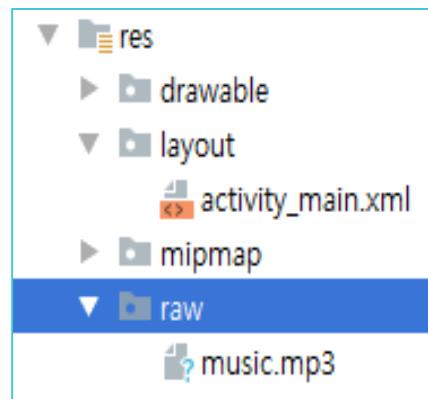
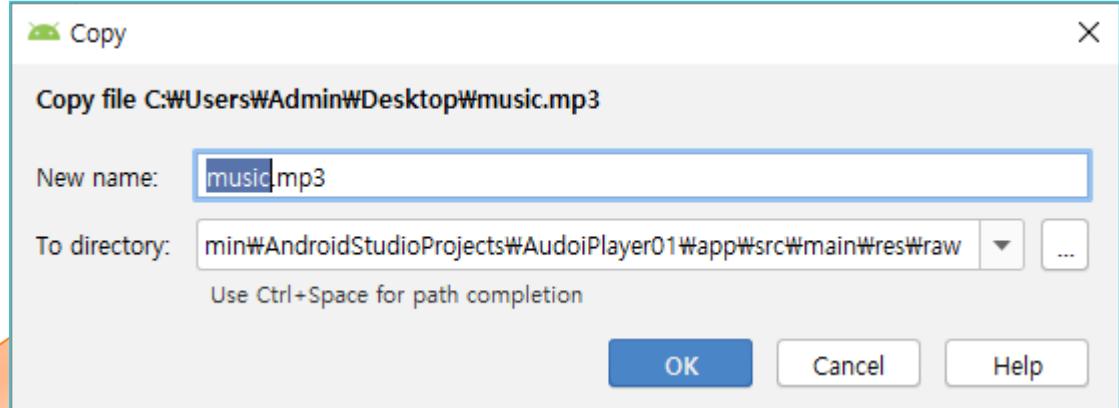
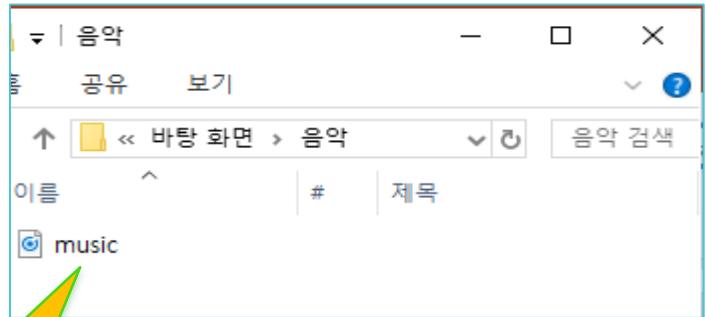
리소스 디렉토리 생성

6





6. "raw" 클릭 후 CTRL + V(붙여넣기)



MainActivity.java

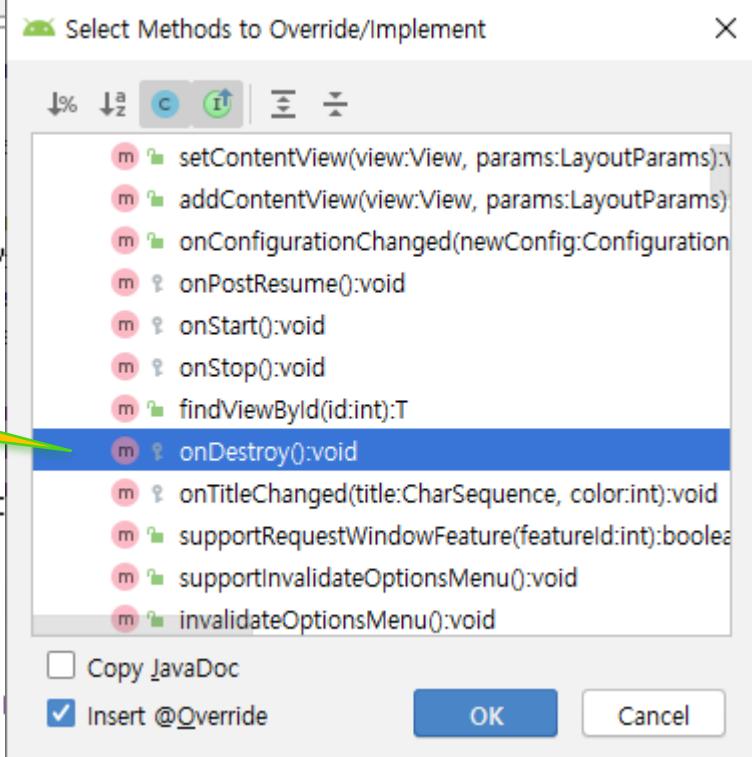
```
1 package com.example.audioiplayer01;  
2  
3 import ...  
4  
5  
6  
7  
8 public class MainActivity extends AppCompatActivity {  
9  
10    MediaPlayer mp = new MediaPlayer();  
11  
12    @Override  
13    protected void onCreate(Bundle savedInstanceState) {  
14        super.onCreate(savedInstanceState);  
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

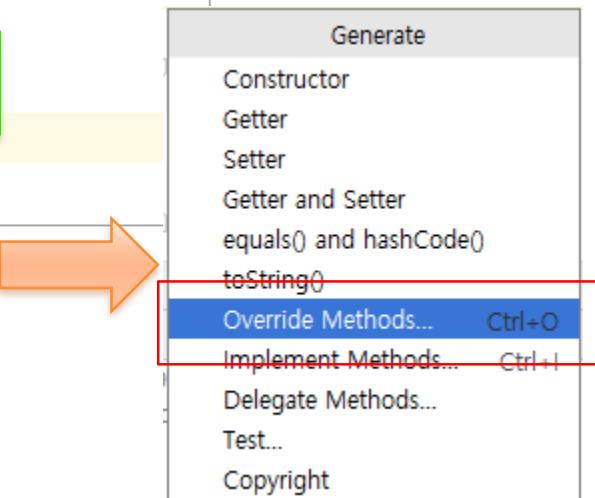
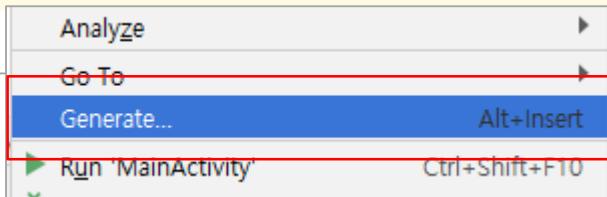
c MainActivity.java

```

1 package com.example.audioiplayer01;
2
3 import ...
4
5
6 public class MainActivity extends AppCompatActivity {
7
8     MediaPlayer mPlayer;
9
10    @Override
11    protected void onCreate(Bundle savedInstanceState) {
12        super.onCreate(savedInstanceState);
13        setContentView(R.layout.activity_main);
14
15        mPlayer = MediaPlayer.create(this, R.raw.bell);
16        mPlayer.setLooping(false);
17        mPlayer.start();
18    }
19
20 }
21
22 }
23 }
```



8. 22 line 클릭 후 오른쪽 마우스 클릭



```
21  
22  
23 @Override  
24     protected void onDestroy() {  
25         mp.stop();  
26         mp.release();  
27         super.onDestroy();  
28     }  
29 }
```

7.코딩

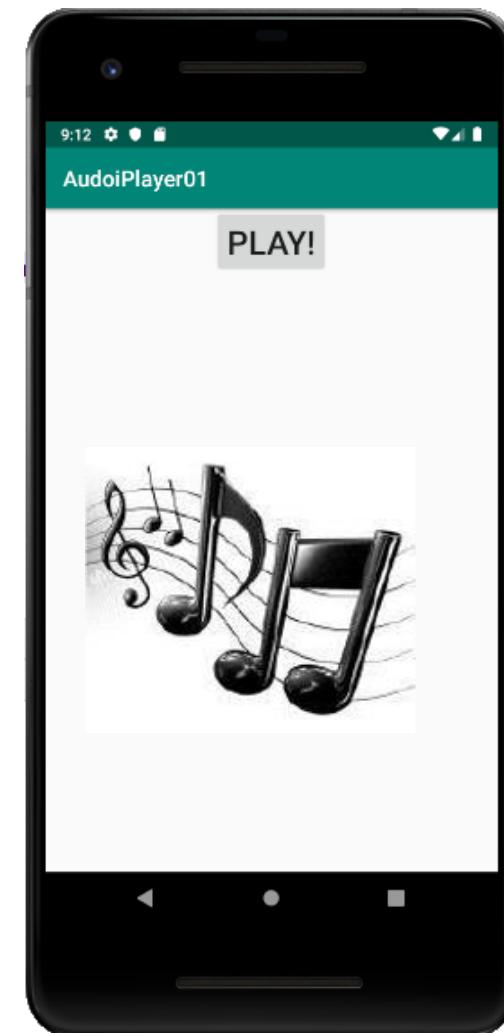
release() : MediaPlayer 객체에 할당된 자원을 해제함

stop() : 미디어 재생을 중지함

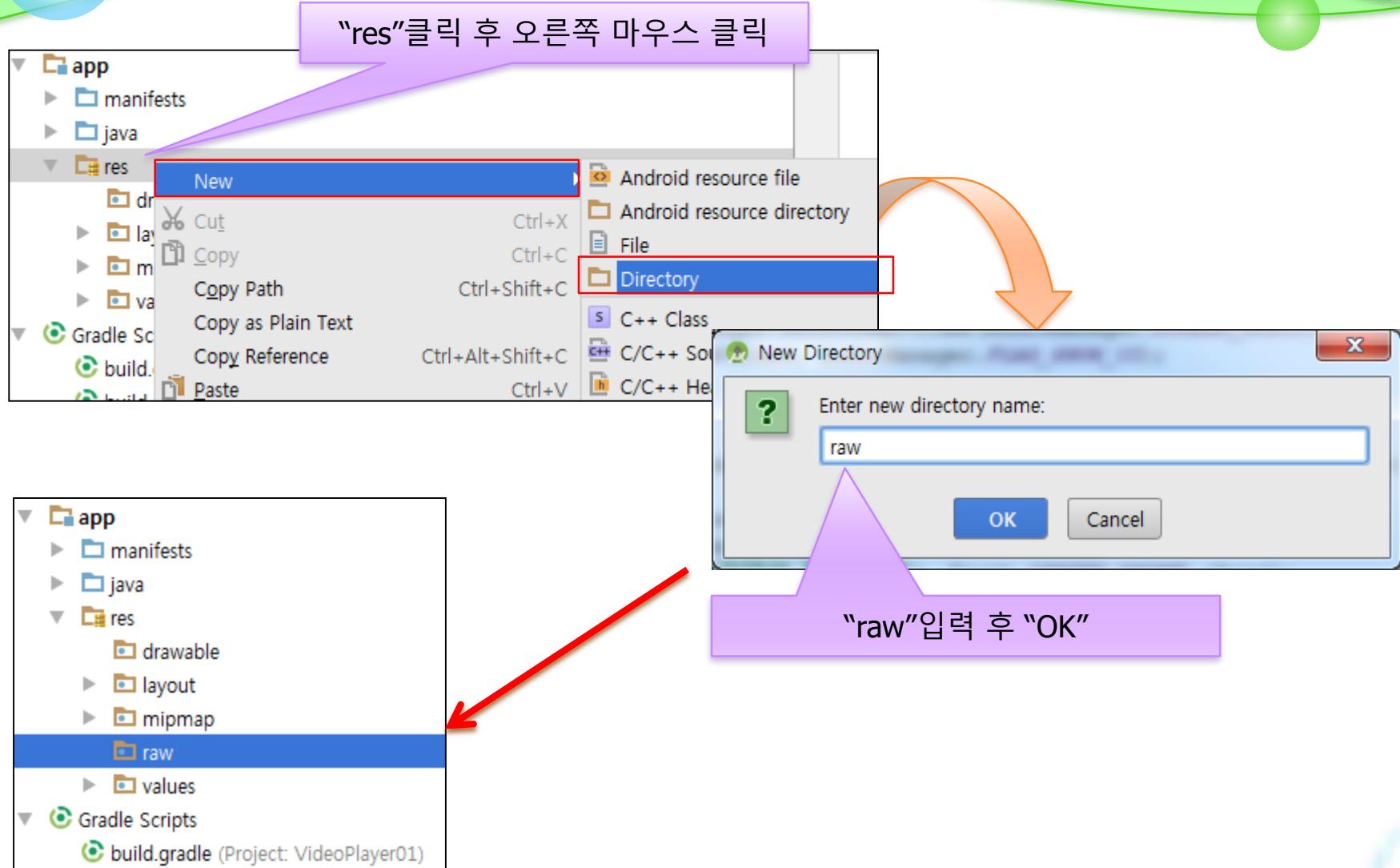
start() : 미디어를 재생함

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

실행



로컬 음악 재생 예제



The screenshot shows the Android Studio interface. On the left, the Project Structure view displays the app directory with its subfolders: manifests, java, and res. The res folder contains drawable, layout (with activity_main.xml), mipmap, raw (containing kalimba.mp3), and value. A purple callout box points to the raw folder with the text "음악파일 복사 (kalimba.mp3)". On the right, the code editor shows MainActivity.java:

```
package com.example.admin.audiotest;

import ...

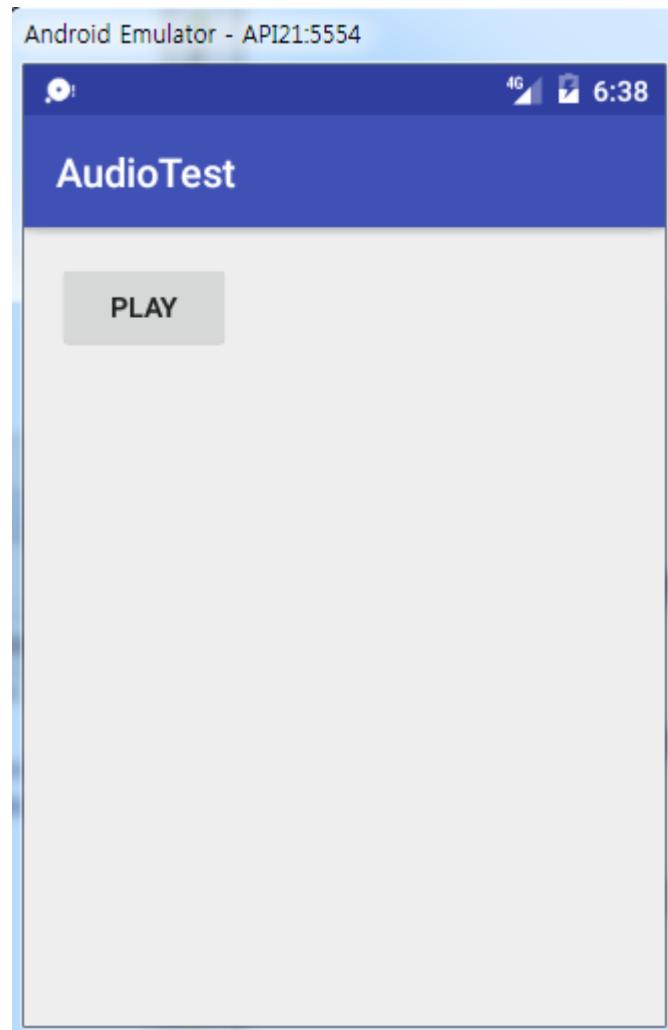
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button btn = (Button) findViewById(R.id.btn);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                playAudio();
            }
        });
    }

    private void playAudio() {
        MediaPlayer player;

        player = MediaPlayer.create(MainActivity.this, R.raw.kalimba);
        player.start();
    }
}
```



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 상호작용할 때 호출
onPause()	이전의 액티비티를 다시 시작할 때 불려짐
onStop()	액티비티가 사용자에게 더 이상 보여지지 않을 때 호출
onDestroy()	액티비티가 소멸될 때 호출



오디오 녹음/재생

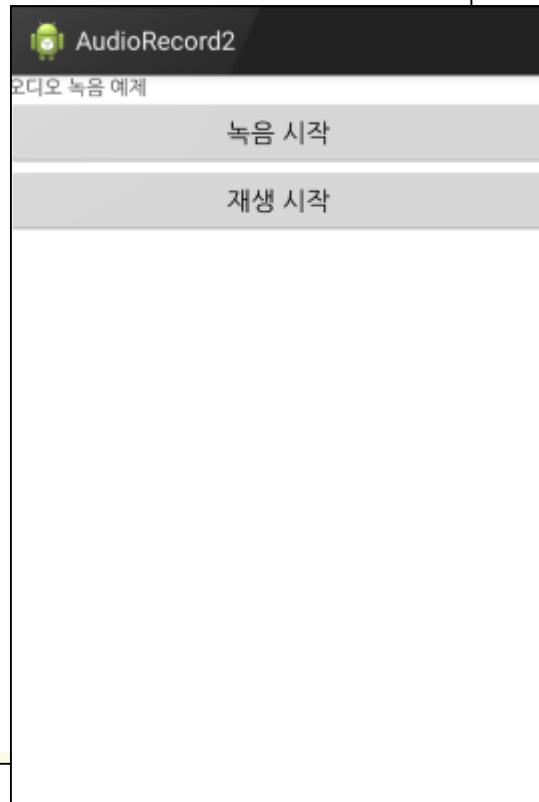
프로젝트 정보

- ◎ 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>
```



```
c MainActivity.java ×  
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

c MainActivity.java x

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

저장위치

```
c 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 @Override  
81     protected void onPause() {  
82         super.onPause();  
83         if(recorder != null){  
84             recorder.release();  
85             recorder = null;  
86         }  
87         if(player != null){  
88             player.release();  
89             player = null;  
90         }  
91     }
```

```
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
```

