

Java and Kotlin Tutorial: Importing Libraries Using a Video Streaming Library

Introduction

When developing applications in **Java** or **Kotlin**, you don't have to write every feature yourself. Developers commonly use **libraries**, which are collections of pre-written code that add new functionality to your project.

For example:

- Display videos
- Connect to the Internet
- Read PDF files
- Display maps
- Play music

In this tutorial, you'll learn how to import a library into both Java and Kotlin projects using **ExoPlayer (AndroidX Media3)** as an example.

Important: In this tutorial, the **video player is not written by you**. It comes from the **AndroidX Media3 library**, which Google provides. Your application simply imports and uses the library.

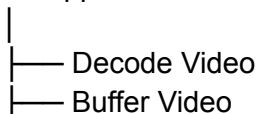
What is a Library?

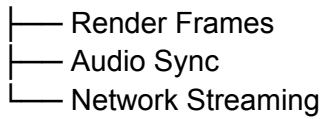
A library is reusable code created by other developers.

Instead of writing thousands of lines of code to play a video, you simply import a video streaming library.

Without a Library

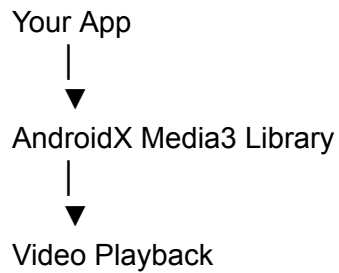
Your App





Thousands of lines of code.

With a Library



Only a few lines of code.

Step 1 – Add the Library

Every Android project has a Gradle dependency file.

Open:

app
└─ build.gradle

or

build.gradle.kts

Add the dependency:

Kotlin DSL

```
dependencies {
```

```
implementation("androidx.media3:media3-exoplayer:1.5.1")
implementation("androidx.media3:media3-ui:1.5.1")

}
```

Groovy

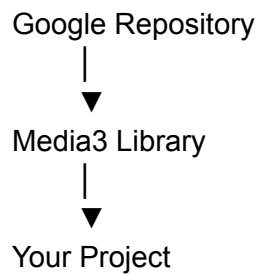
```
dependencies {

    implementation 'androidx.media3:media3-exoplayer:1.5.1'
    implementation 'androidx.media3:media3-ui:1.5.1'

}
```

What Happens?

Android Studio downloads the library.



Now your application knows what ExoPlayer is.

Step 2 – Import the Library

Adding a dependency does **not** automatically make every class available.

You must import the classes you need.

Java Imports

```
import androidx.media3.common.MediaItem;  
import androidx.media3.exoplayer.ExoPlayer;  
import androidx.media3.ui.PlayerView;
```

Each import tells Java where to find a class.

Kotlin Imports

```
import androidx.media3.common.MediaItem  
import androidx.media3.exoplayer.ExoPlayer  
import androidx.media3.ui.PlayerView
```

Kotlin imports work almost exactly the same as Java.

What Does Import Mean?

Think of it like borrowing a book from a library.

Real Library

Books



Borrow Book



Read It

Java/Kotlin Library

Media3



Import Class



Use It

Step 3 – Create the Video Player

Java

```
ExoPlayer player = new ExoPlayer.Builder(this).build();
```

Kotlin

```
val player = ExoPlayer.Builder(this).build()
```

Notice that **ExoPlayer** comes entirely from the imported library.

You did **not** write the ExoPlayer class.

Step 4 – Load a Video

Java

```
MediaItem mediaItem =  
    MediaItem.fromUri(  
        "https://storage.googleapis.com/exoplayer-test-media-0/play.mp3");
```

```
player.setMediaItem(mediaItem);  
player.prepare();  
player.play();
```

Kotlin

```
val mediaItem =
```

```
MediaItem.fromUri(  
    "https://storage.googleapis.com/exoplayer-test-media-0/play.mp3")
```

```
player.setMediaItem(mediaItem)  
player.prepare()  
player.play()
```

Again,

- **MediaItem** comes from the Media3 library.
 - **play()** is a function provided by the library.
-

Step 5 – Display the Video

Java

```
PlayerView playerView = findViewById(R.id.playerView);  
  
playerView.setPlayer(player);
```

Kotlin

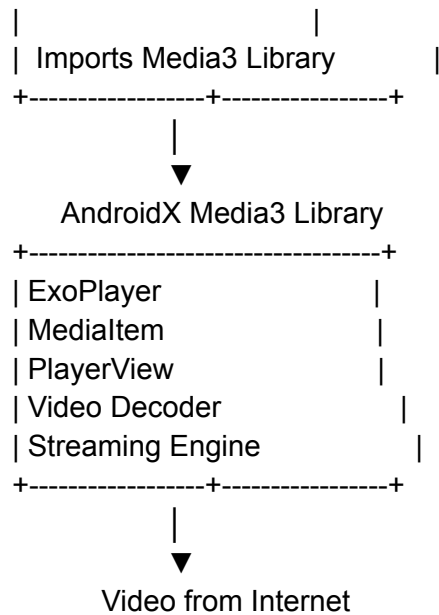
```
val playerView =  
    findViewById<PlayerView>(R.id.playerView)  
  
playerView.player = player
```

The PlayerView widget also comes from the Media3 library.

How the Library Works

YOUR APP

```
+-----+  
| MainActivity |
```



Java Import Example

```
import androidx.media3.common.Medialtem;  
import androidx.media3.exoplayer.ExoPlayer;  
import androidx.media3.ui.PlayerView;
```

```
public class MainActivity {  
  
    ExoPlayer player;  
  
}
```

Everything highlighted after the word **import** belongs to the Media3 library.

Kotlin Import Example

```
import androidx.media3.common.Medialtem  
import androidx.media3.exoplayer.ExoPlayer  
import androidx.media3.ui.PlayerView
```

```
class MainActivity {  
  
    lateinit var player: ExoPlayer  
  
}
```

Again,

The classes come directly from the imported library.

Common Libraries

Library	Purpose
Media3	Video Streaming
Retrofit	Internet API
Glide	Image Loading
Room	Local Database
Gson	JSON Parsing
PDFBox	Read PDF Files

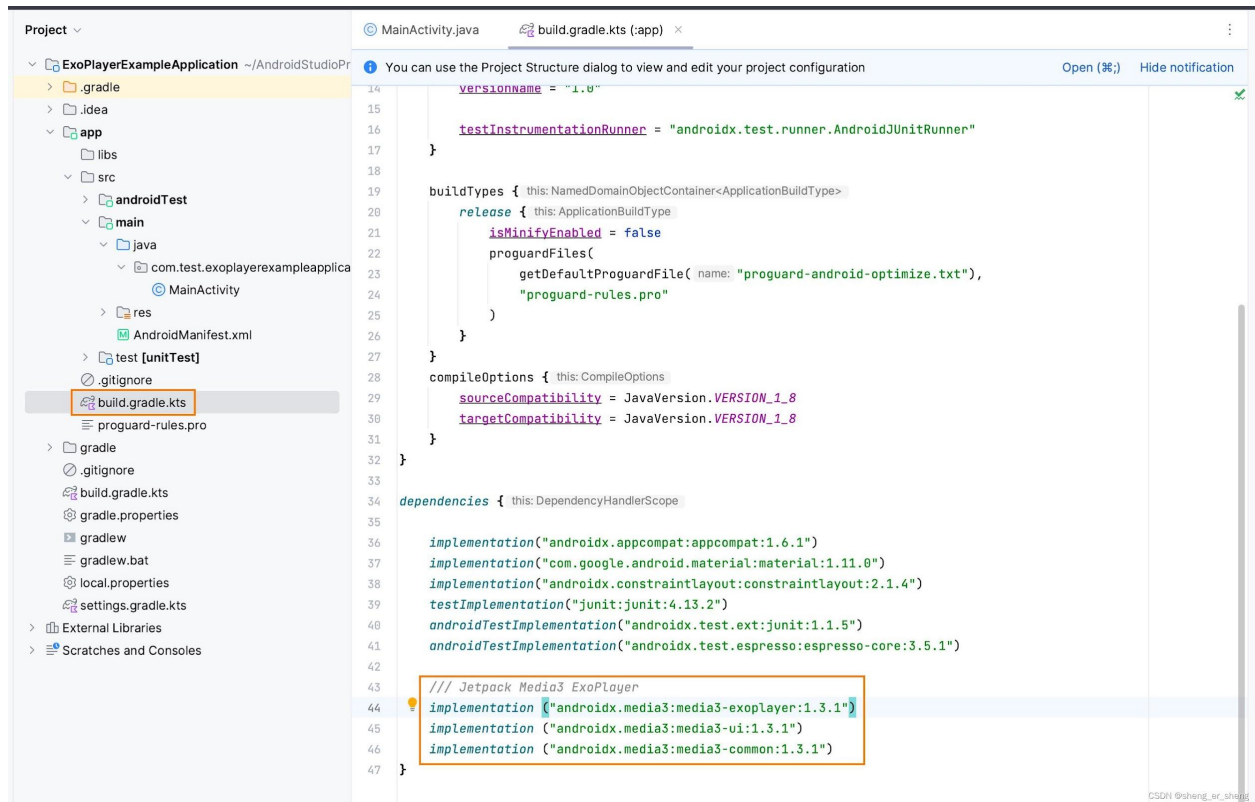
All of these libraries are imported the same way.

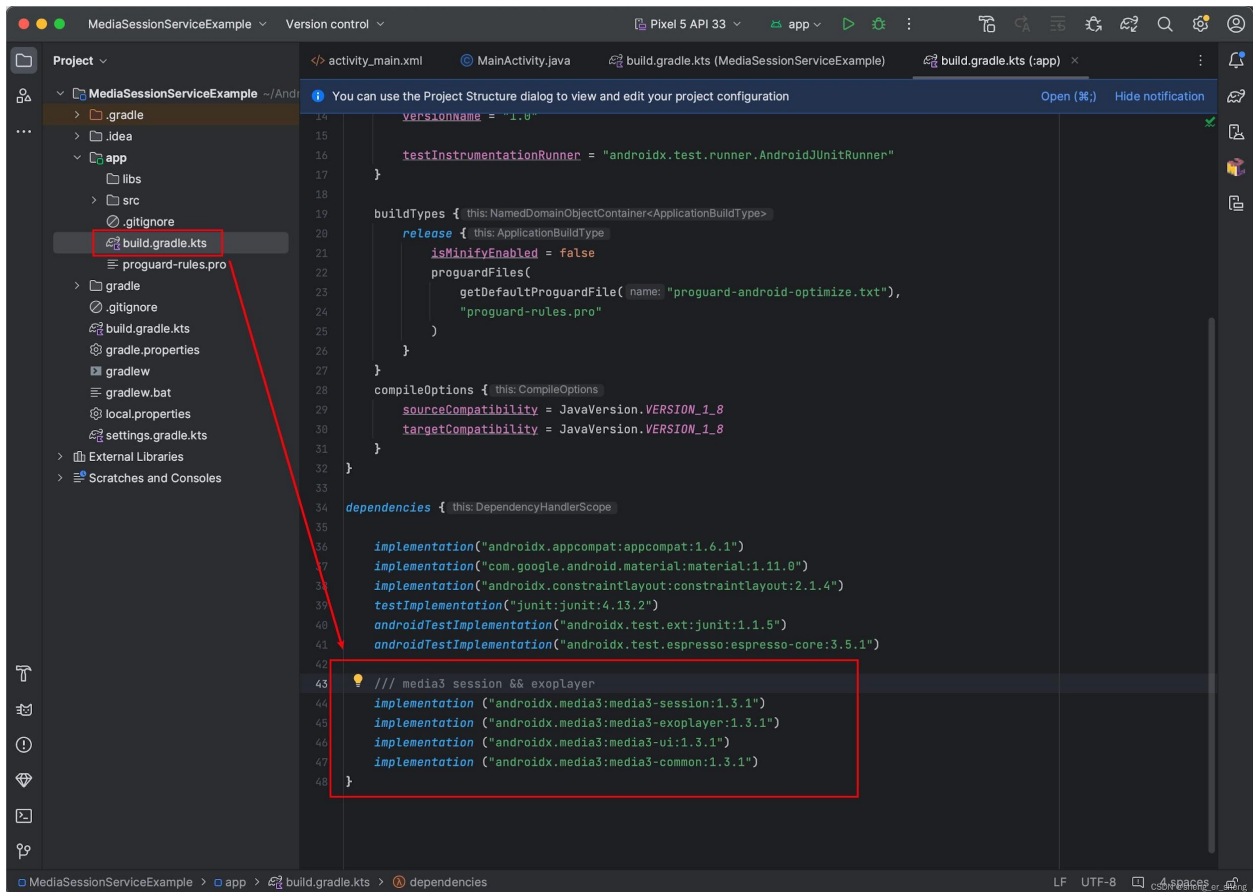
Key Points

- A **library** is pre-written code that adds functionality to your project.
- You add a library through your project's **Gradle** dependencies.
- The `import` statement tells Java or Kotlin which library classes you want to use.
- In this example, **ExoPlayer**, **MediaItem**, and **PlayerView** all come from the **AndroidX Media3 library**—they are **not** classes you create yourself.
- The library performs the complex work of decoding, buffering, and playing streamed media, allowing your application to focus on the user interface and app logic.

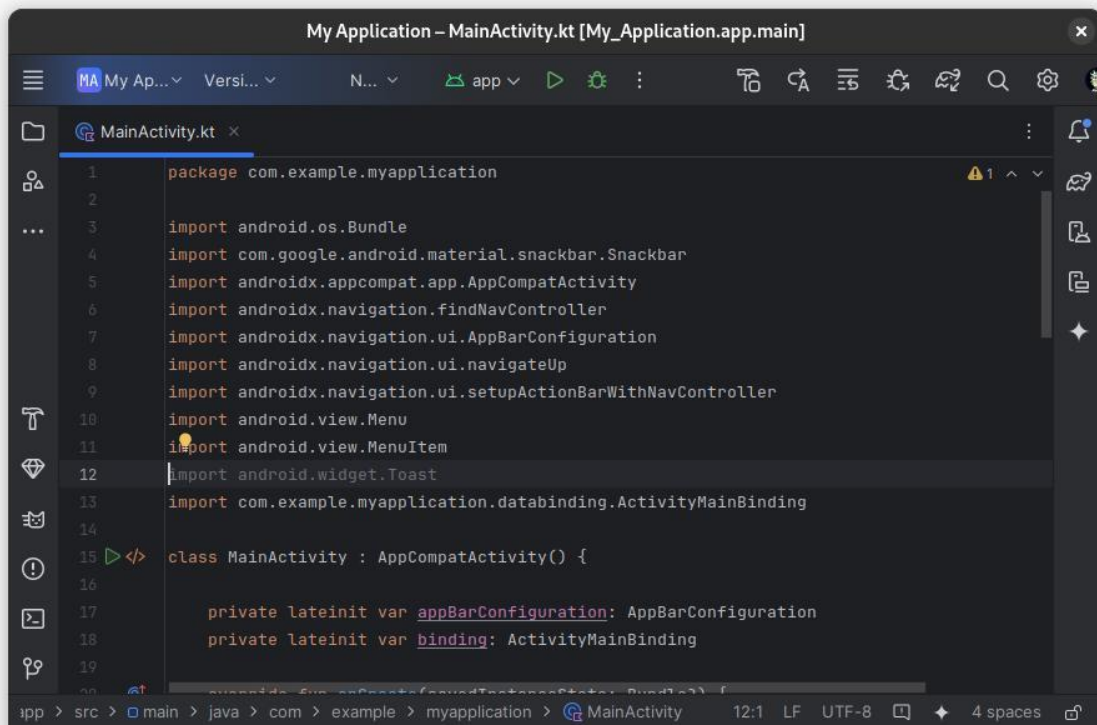
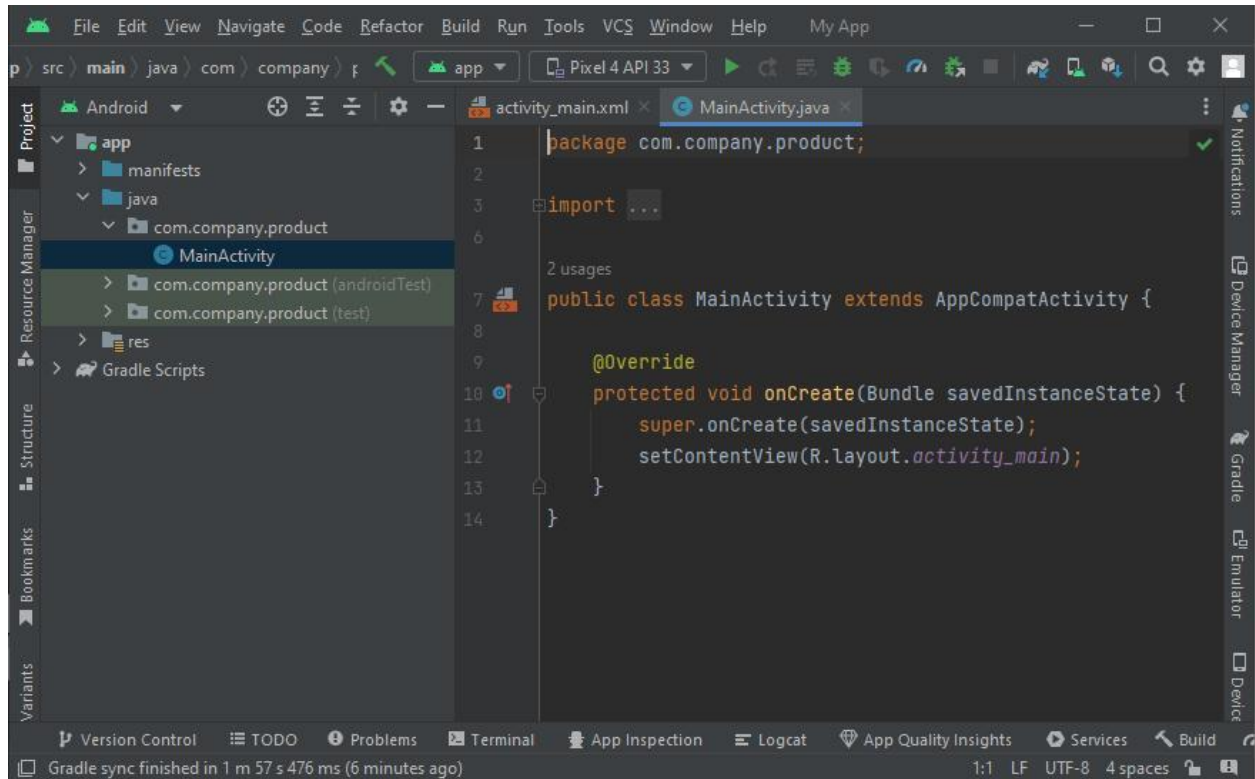
Visual Examples

Android Studio with Gradle dependency





Import statements in Java and Kotlin



```
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.activity.
```

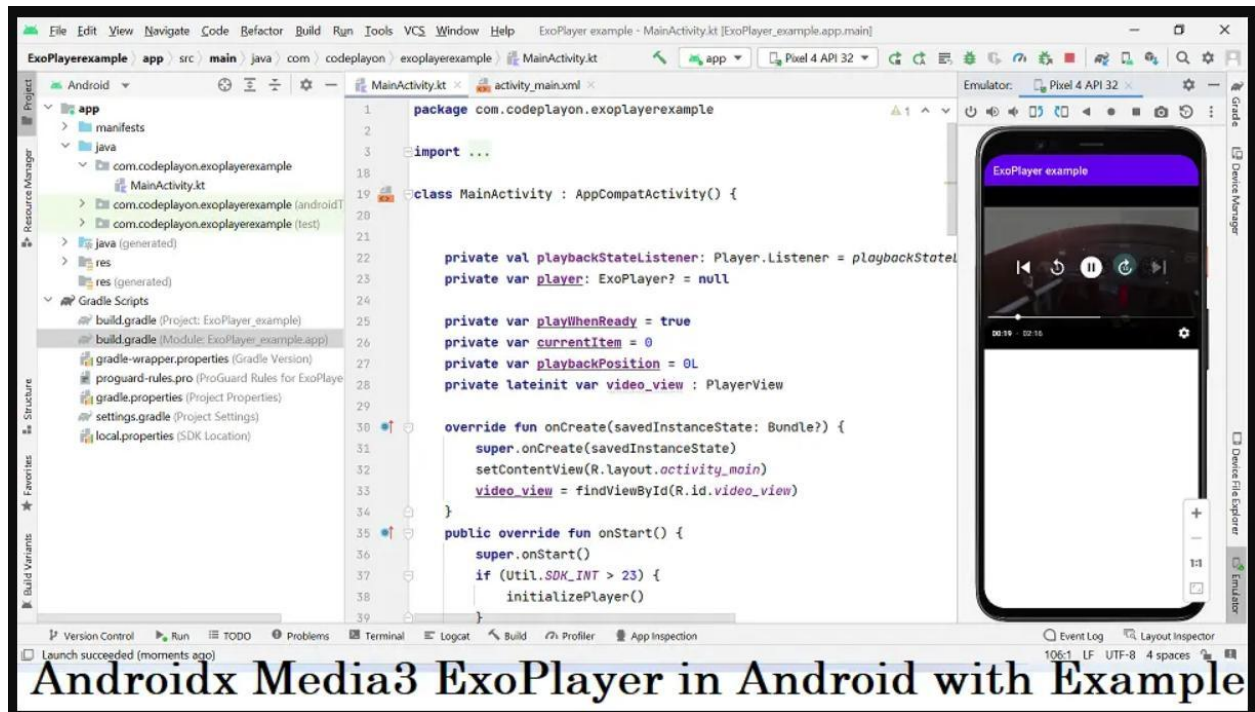
```
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.os.Bundle;
import androidx.drawerlayout.widget.DrawerLayout;
import androidx.fragment.app.Fragment;
import androidx.fragment.app.FragmentManager;
```

```
@EActivity
```

```
*
ComponentActivity (androidx.activity)
OnBackPressedCallback (androidx.activity)
OnBackPressedDispatcher (androidx.activity)
OnBackPressedDispatcherOwner (androidx.activit...
R (androidx.activity)
^↓ and ^↑ will move caret down and up in the editor
```

```
activity_main.xml x MainActivity.kt x
1 package com.example.hubbybell
2
3 import androidx.appcompat.app.AppCompatActivity
4 import android.os.Bundle
5 import android.widget.Button
6 import android.widget.TextView
7 import android.widget.Toast
8
9 class MainActivity : AppCompatActivity() {
10
11     override fun onCreate(savedInstanceState: Bundle?) {
12         super.onCreate(savedInstanceState)
13         setContentView(R.layout.activity_main)
14
15         // get reference to button
16         //val btnClickMe = findViewById(R.id.button) as Button
17         //val textView = findViewById(R.id.textView) as TextView
18         var timesClicked = 0
19         // set on-click listener
20         button.setOnClickListener {
21             timesClicked = timesClicked + 1
22             textView.text = timesClicked.toString()
23             Toast.makeText(context: this@MainActivity, text: "I need a favour!.", Toast.LENGTH_SHORT).show()
24         }
25     }
26 }
27 }
```

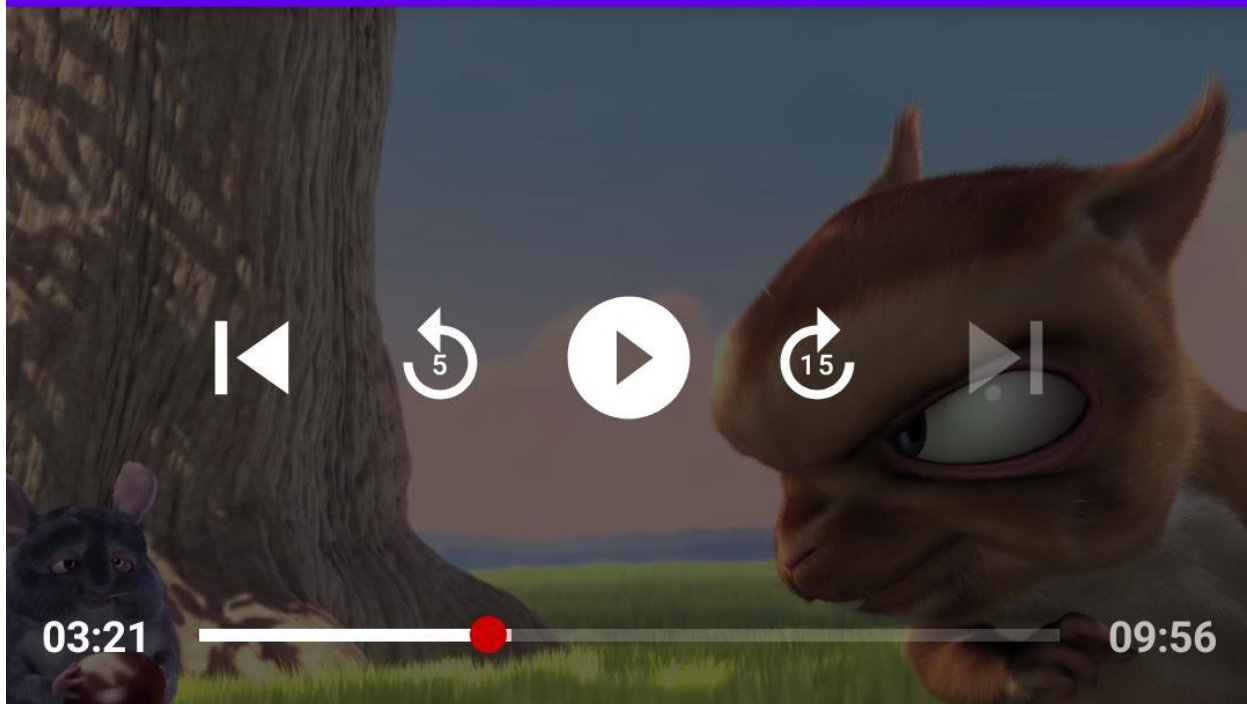
ExoPlayer (Media3) video player

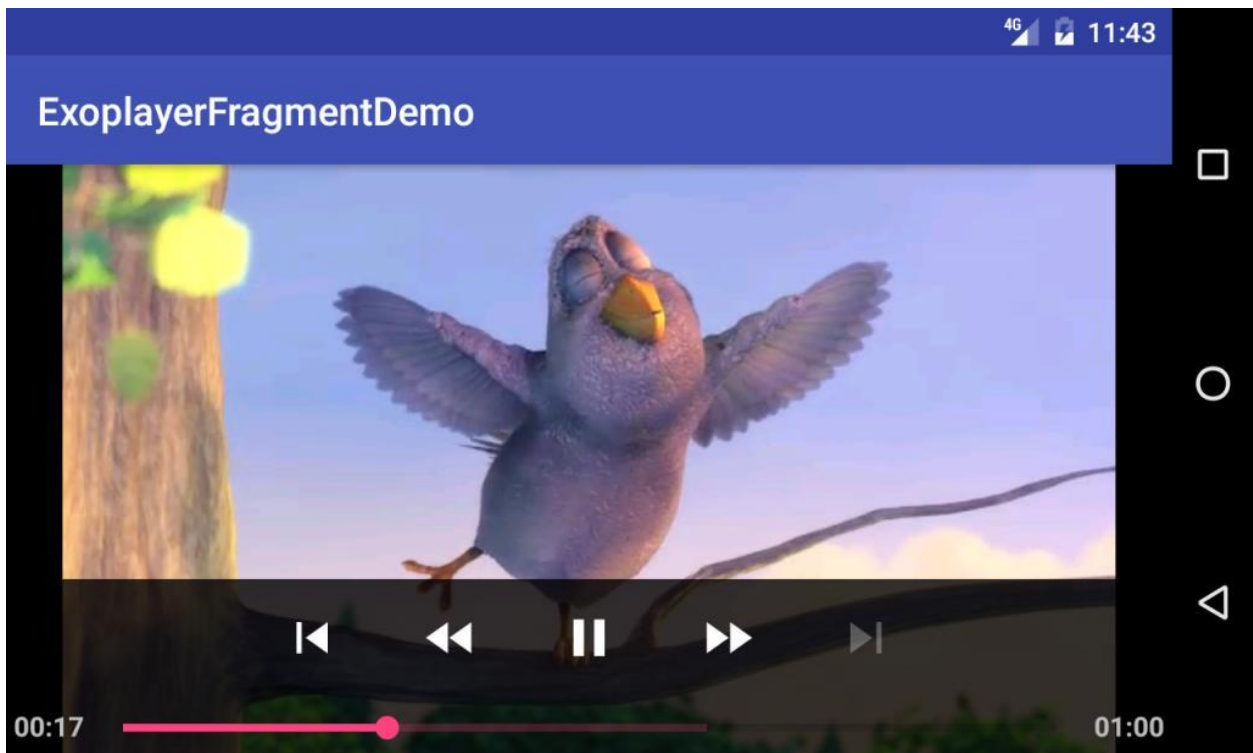
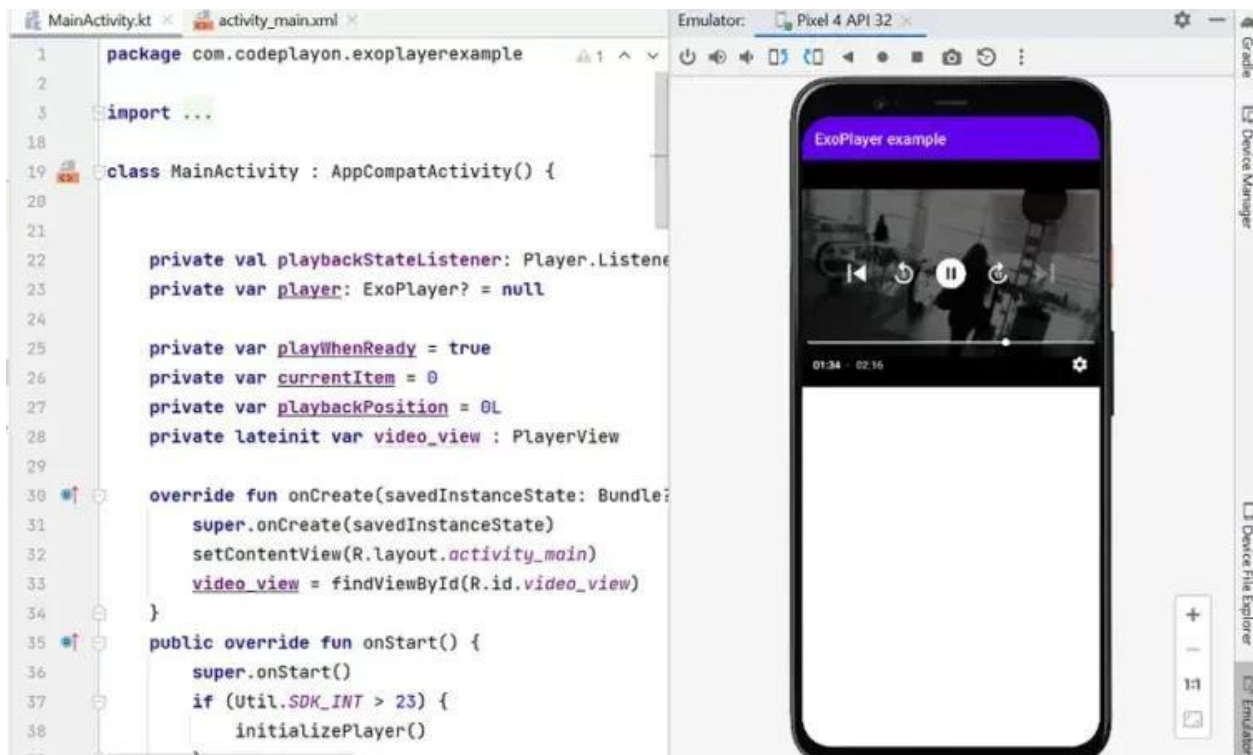


2:19



MyPlayer





4:15 PM

4G 466.5 K/s 44

Media3 by Pro



1500k 1680x750 avc1 cfhd 535

Unified Streaming



These screenshots illustrate where the dependency is added, what the `import` statements look like in Android Studio, and an example of a video player created using the **AndroidX Media3 library**.