

# HarmonyOS 组件库使用实践

喻波

鸿蒙资深开源专家

# 目录

1. HarmonyOS组件库介绍
2. 组件库规划
3. Lottie组件库实战
4. glide组件库实战
5. eventbus组件实战
6. HarmonyOS组件库如何下载 & 参与贡献

## 引导视频



# HarmonyOS发布16000+系统级接口

HarmonyOS Developer

设计开发分发文档支持

ark.annotation

Overview

Annotation

ark.system

ohos.aafwk.ability

ohos.aafwk.ability.continuation

ohos.aafwk.ability.delegation

ohos.aafwk.ability.fraction

ohos.aafwk.ability.startsetting

ohos.aafwk.abilityjet.activatedata

ohos.aafwk.abilityjet.databinding

ohos.aafwk.content

ohos.accessibility

ohos.accessibility.ability

ohos.account

ohos.account.app

ohos.ace.ability

ohos.agp.animation

ohos.agp.animation.styledsolutions

ohos.agp.animation.timelinecurves

ohos.agp.colors

ohos.agp.components

ohos.agp.components.element

Since:

1

Annotation Types Summary

Annotation Type	Description
Permanent	Annotates persistent memory objects.
Unowned	Annotates an object without ownership to eliminate circular reference.
UnownedLocal	Annotates a method or a single local variable.
UnownedOuter	Annotates a class to eliminate circular reference.
Weak	Annotates weak reference objects.

下一篇

Permanent

# HarmonyOS应用开发难点



Java生态：百万级开源库

Android生态：十万级开源库

# HarmonyOS开源组件库生态

分类	子类	开源库个数
UI	基础控件	800
	自定义view	
动画图形类	动画	73
框架类	框架类	139
安全类	权限请求	18
	加解密	
工具类	注入注解	172
	公共库	
	传感器	
	事件总线	
	插件化	
	手势类	
	二维码	
	日志	
	其他	

多设备形态可用

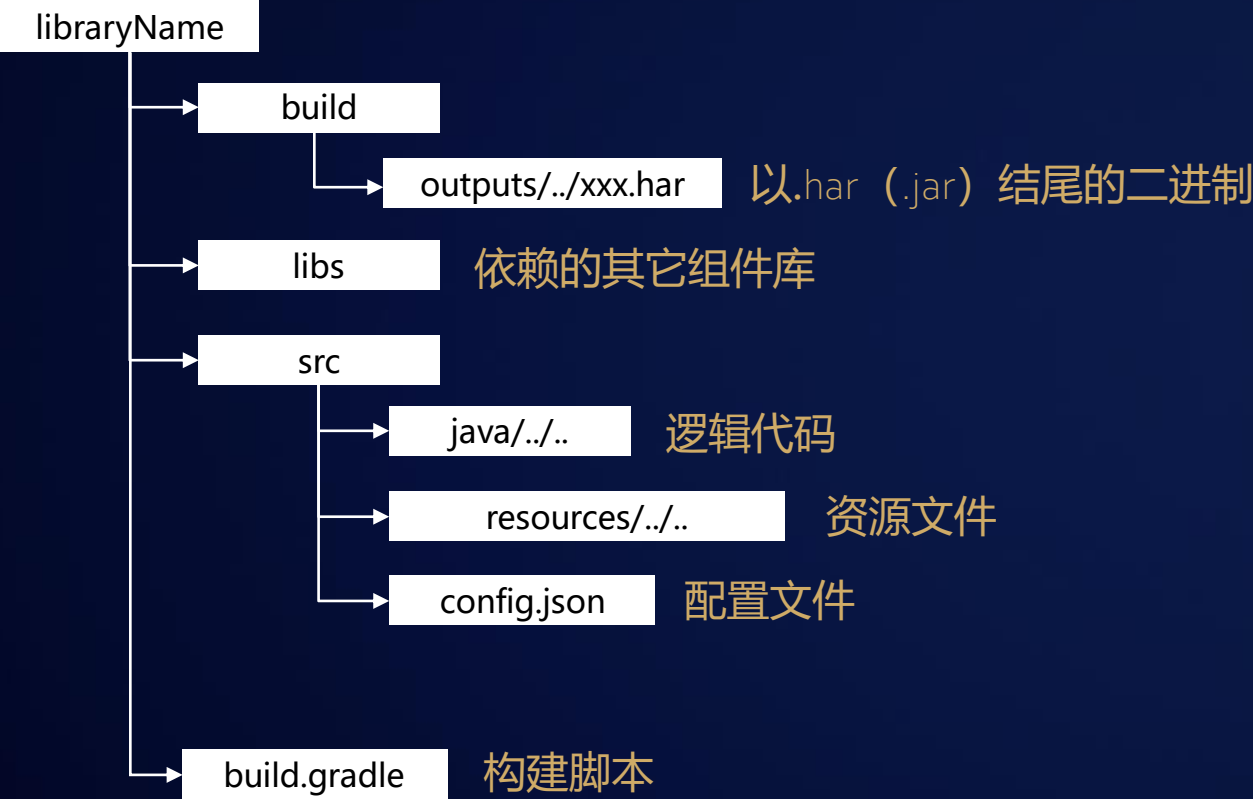
分类	子类	开源库个数
网络类	网络请求	55
	json	
	上传下载	
	异步通信	
文件数据类	后台处理	15
	数据库	
	序列化	
多媒体	映射	23
	音频	
图片缓存	视频	9
	图片选择	
	图片加载	
	图片压缩	
基础功能	图片处理	27
	基础功能	

多端部署

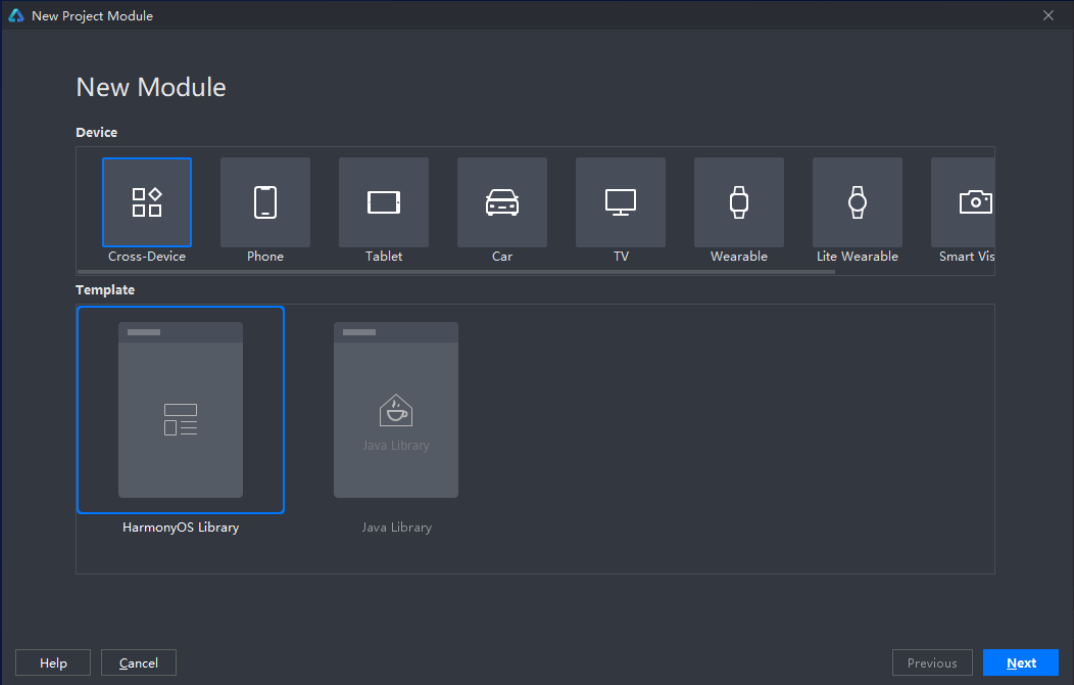
性能优化

# HarmonyOS开源组件库格式介绍

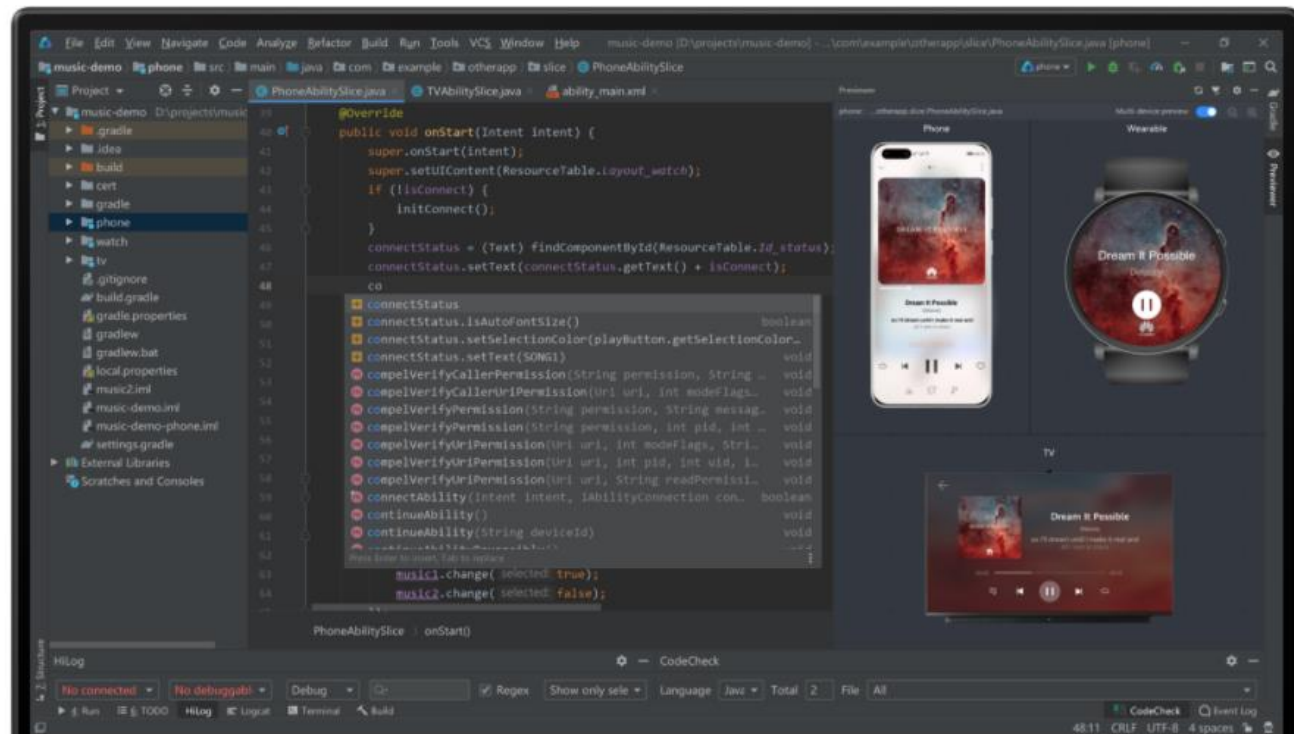
## 组件库目录结构



## Deveco IDE中的组件库开发模板



# HarmonyOS应用开发



<https://developer.harmonyos.com/cn/develop/deveco-studio>



# HarmonyOS组件库使用

## 1. Har包引用(build.gradle)

```
dependencies {  
    implementation fileTree(dir: 'libs', include: ['*.jar', '*.har'])  
}
```

## 2. 源文件引用(build.gradle)

```
dependencies {  
    implementation project(":library")  
}
```

## 3. Maven仓引用(build.gradle)

方式一:

```
dependencies {  
    implementation 'com.huawei.har:mylibrary:1.0.1'  
}
```

方式二:

```
allprojects {  
    repositories {  
        maven {  
            url 'file:///D:/o1.localMaven/' //本地或远程Maven仓  
        }  
    }  
}
```

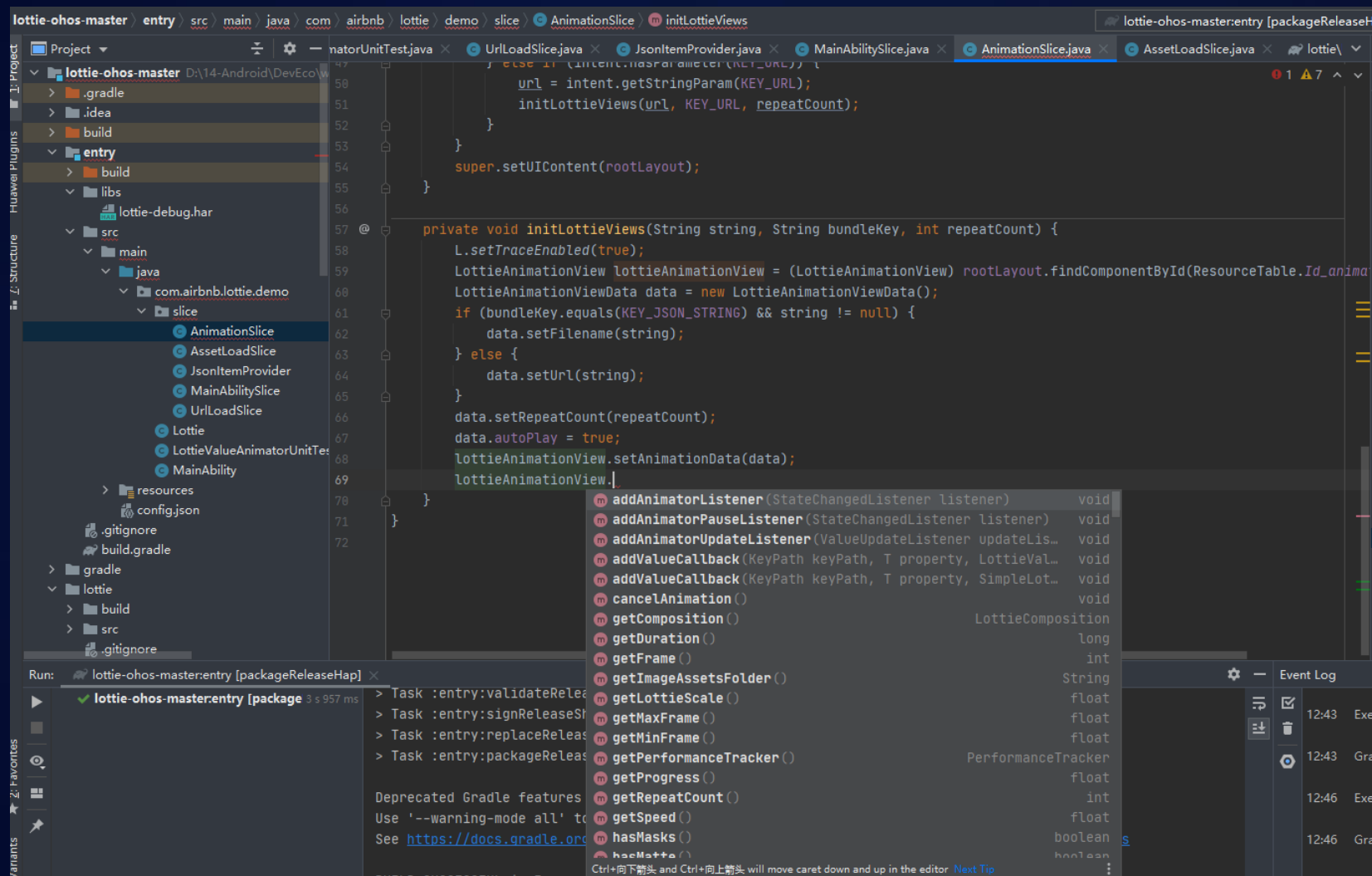
# Lottie开源组件库的引用 – har包引用

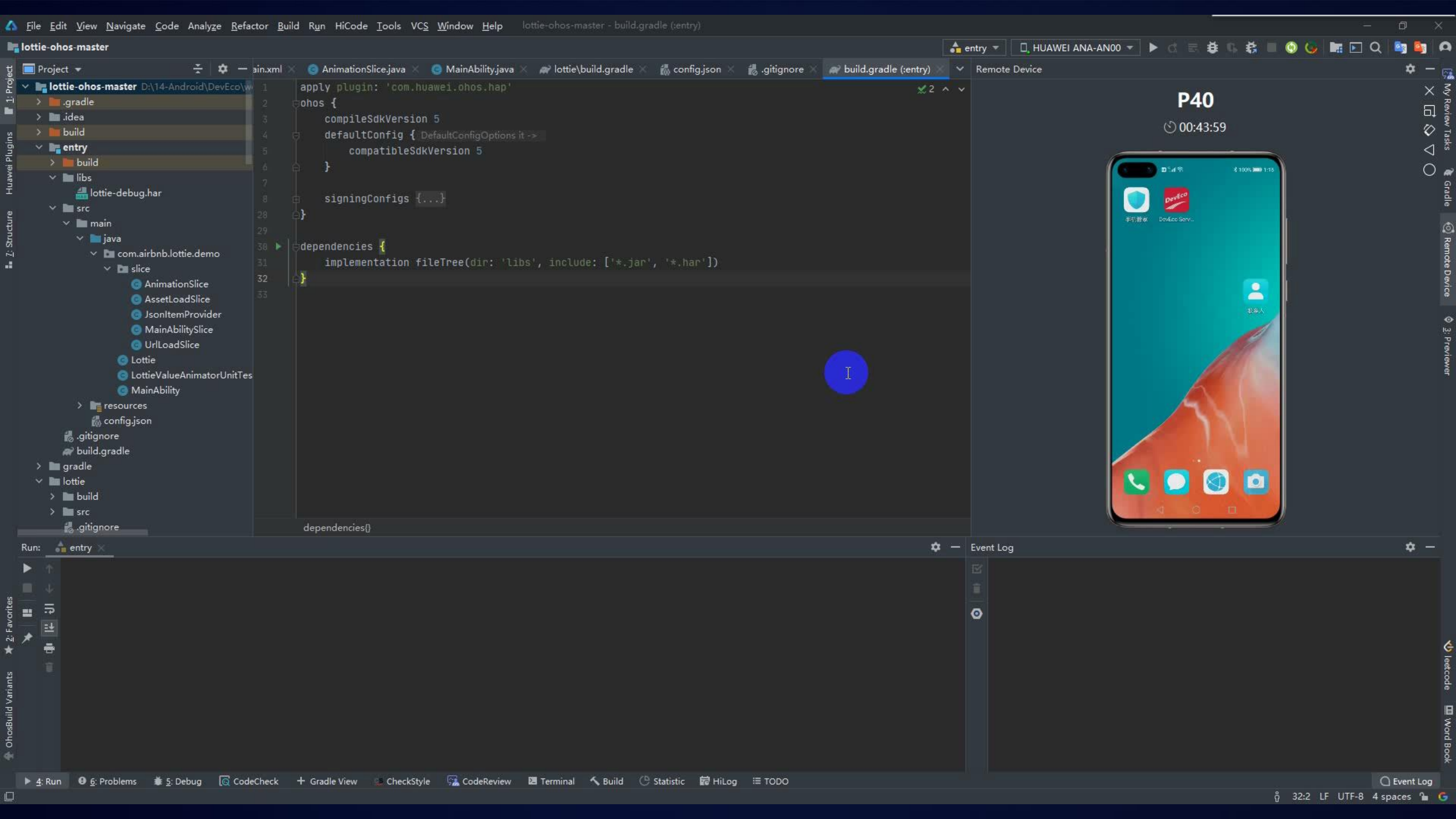
The screenshot displays the IDE interface for the `lottie-ohos-master` project. The left sidebar shows the project structure with the `libs` directory under `entry` highlighted, containing the `lottie-debug.har` file. The main editor shows the `build.gradle` file for the `entry` module. The file contains the following code:

```
1  apply plugin: 'com.huawei.ohos.hap'
2
3  ohos {
4      compileSdkVersion 5
5      defaultConfig {
6          DefaultConfigOptions it ->
7              compatibleSdkVersion 5
8      }
9      signingConfigs { ... }
10 }
11
12 dependencies {
13     implementation fileTree(dir: 'libs', include: ['*.jar', '*.har'])
14 }
```

A message at the top of the editor states: "Gradle files have changed since last project sync. A project sync may be necessary for the IDE to work properly."

# 在代码中导入Lottie相关功能类后，直接调用对应的功能接口





# glide开源组件库的引用 - 源文件引用

The screenshot shows the IDE interface with the following components:

- Project View (Left):** Displays the project structure. The 'entry' module is selected, and its 'build.gradle' file is highlighted.
- Editor (Right):** Shows the content of the 'entry/build.gradle' file. The file contains the following code:

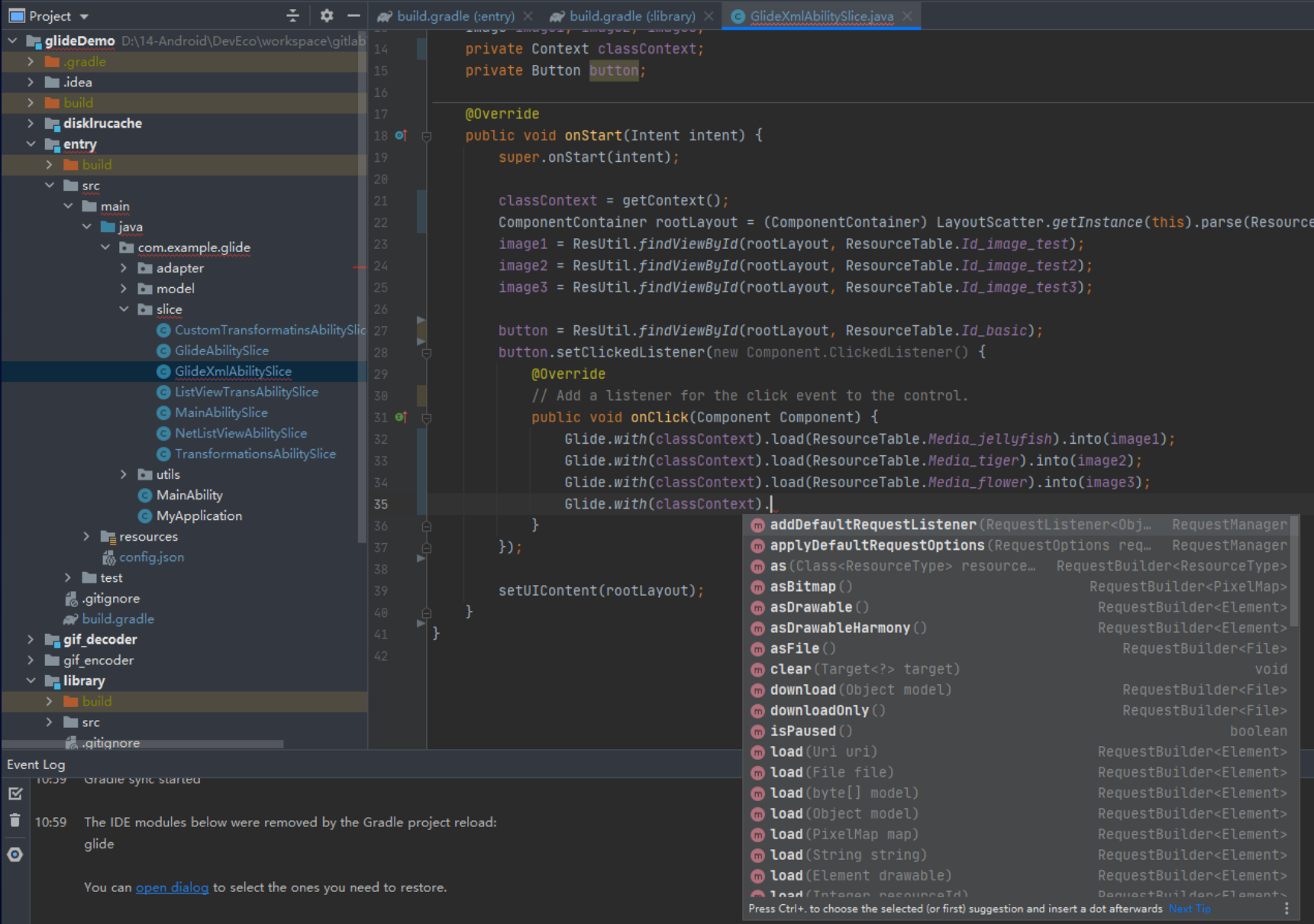
```
1  apply plugin: 'com.huawei.ohos.hap'
2  ohos {...}
9
10 dependencies {
11     implementation fileTree(dir: 'libs', include: ['*.jar', '*.har'])
12     implementation 'org.jetbrains:annotations:20.1.0'
13     testCompile 'junit:junit:4.12'
14     // 依赖glide核心库
15     implementation project(":library")
16 }
17
```

The line `implementation project(":library")` is highlighted with a red box.
- Background Editor:** Shows the content of the 'library/build.gradle' file. The file contains the following code:

```
dependencies {
    // 依赖gif解码库
    implementation project(':gif_decoder')
    // 依赖缓存核心算法库
    implementation project(':disklrucache')
    implementation 'org.jetbrains:annotations:20.1.0'
    testCompile 'junit:junit:4.12'
}
```

The lines `implementation project(':gif_decoder')` and `implementation project(':disklrucache')` are highlighted with a red box.

# 在代码中导入glide类后，直接调用对应的功能接口





FileEditViewNavigateCodeAnalyzeRefactorBuildRunHiCodeToolsVCSWindowHelp

glideDemo - build.gradle (entry)

entryHUAWEI ANA-AN00

entrybuild.gradle (entry)build.gradle (library)GlideXmlAbilitySlice.java

ProjectglideDemoD:\14-Android\DevEco\workspace\gitlab\...>.gradle>.idea>.build>.disklruCache>entry>.build>src>main>java>com.example.glide>adapter>model>slice>CustomTransformatinsAbilitySlice>GlideAbilitySlice>GlideXmlAbilitySlice>ListViewTransAbilitySlice>MainAbilitySlice>NetListViewAbilitySlice>TransformationsAbilitySlice>utils>MainAbility>MyApplication>resources>config.json>test>.gitignore>build.gradle>gif\_decoder>gif\_encoder>library>.build>src

1apply plugin: 'com.huawei.ohos.hap'2ohos {...}910dependencies {11implementation fileTree(dir: 'libs', include: ['\*.jar', '\*.har'])12implementation 'org.jetbrains:annotations:20.1.0'13testCompile 'junit:junit:4.12'14// 依赖glide核心库15implementation project(":library")1617

dependencies()

Remote Device

P40

00:56:34

手机管家DevEco Servi...

联系人

Build: SyncBuild OutputBuild Analyzer

Build: finished at 2021/4/16 12:3557 s 532 ms

Deprecated Gradle features were used in this build, making it incompatible with Gradle 7.0.  
Use '--warning-mode all' to show the individual deprecation warnings.  
See [https://docs.gradle.org/6.3/userguide/command\\_line\\_interface.html#sec:command\\_line\\_warnings](https://docs.gradle.org/6.3/userguide/command_line_interface.html#sec:command_line_warnings)

BUILD SUCCESSFUL in 57s  
60 actionable tasks: 60 executed

Build Analyzer results available

Event Log

12:33 Login Success!

12:33 P40 connected successfully.

12:34 Executing tasks: [:entry:assembleDebug] in project D:\14-Android\DevEc

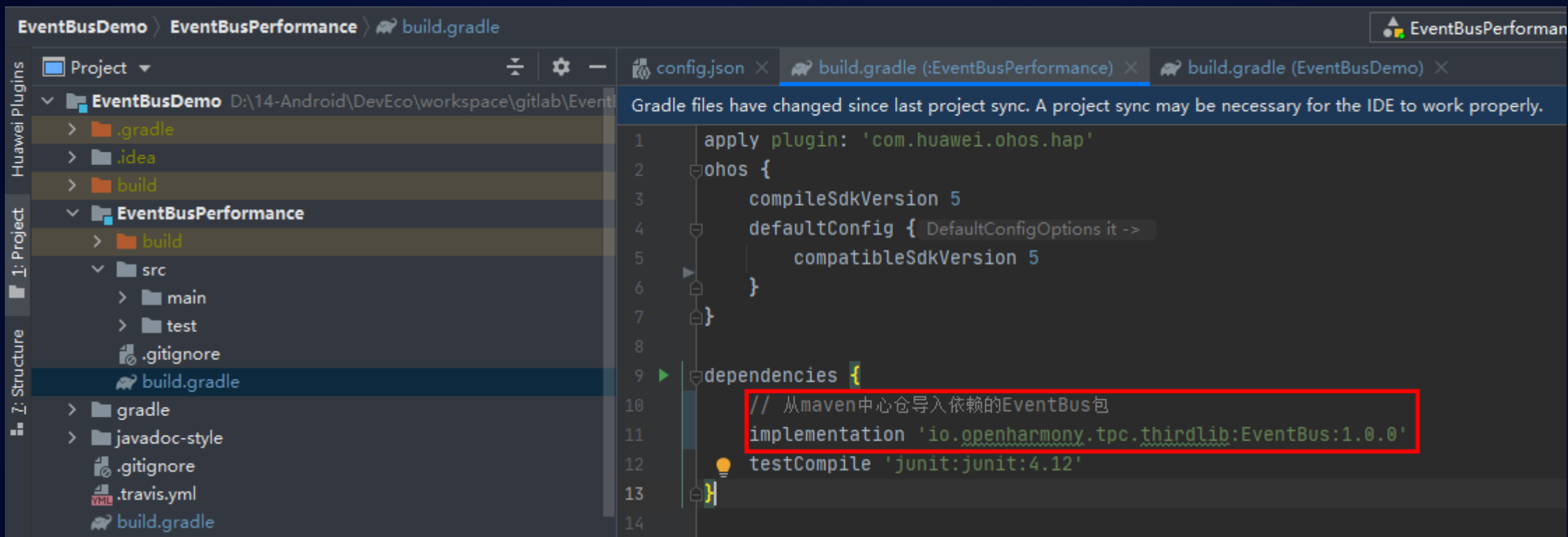
12:35 Gradle build finished in 57 s 704 ms

4 Run6 ProblemsCodeCheck+ Gradle ViewCheckStyleCodeReview9: GitTerminalBuildHiLogStatisticTODO

Gradle build finished in 57 s 704 ms (a minute ago)

15:39CRLFUTF-84 spacesmaster

# eventbus开源组件库的引用 - maven引用



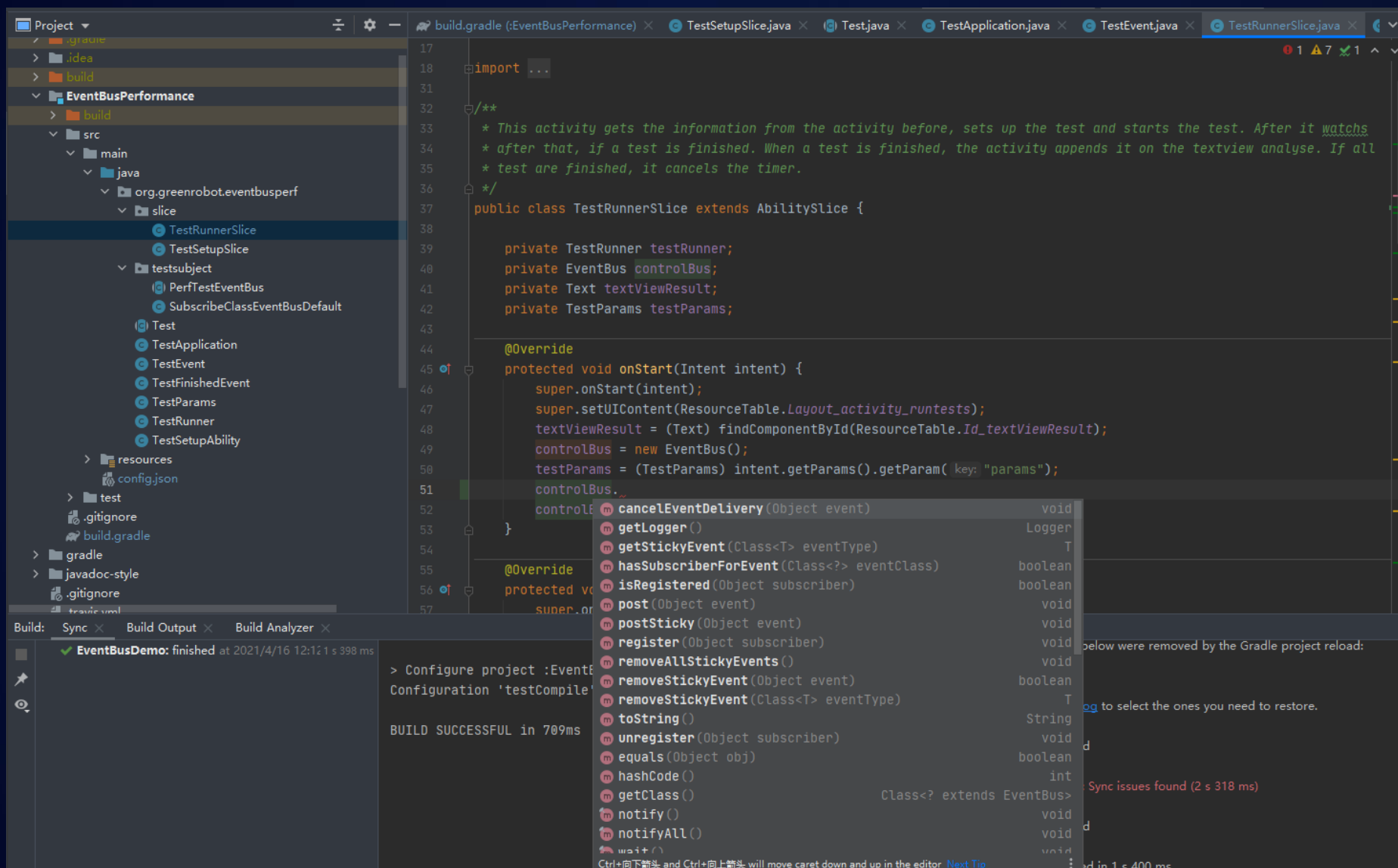
The screenshot shows an IDE interface with the following components:

- Project Structure:** The left sidebar shows the project hierarchy. The 'EventBusPerformance' project is expanded, showing the 'build' folder and the 'src' directory containing 'main' and 'test' folders. The 'build.gradle' file is selected.
- Build File:** The main editor displays the 'build.gradle' file for the 'EventBusPerformance' project. The file contains the following code:

```
1  apply plugin: 'com.huawei.ohos.hap'
2  ohos {
3      compileSdkVersion 5
4      defaultConfig { DefaultConfigOptions it ->
5          compatibleSdkVersion 5
6      }
7  }
8
9  dependencies {
10     // 从maven中心仓导入依赖的EventBus包
11     implementation 'io.openharmony.tpc.thirdlib:EventBus:1.0.0'
12     testCompile 'junit:junit:4.12'
13 }
```
- Dependencies:** The 'dependencies' block is highlighted with a red box. It contains two entries:
  - `implementation 'io.openharmony.tpc.thirdlib:EventBus:1.0.0'`
  - `testCompile 'junit:junit:4.12'`



在代码中导入eventbus相关功能类后，直接调用对应的功能接口



FileEditViewNavigateCodeAnalyzeRefactorBuildRunHiCodeToolsVCSWindowHelp

EventBusDemo - build.gradle (EventBusPerformance)

EventBusDemo

Project

EventBusDemo

EventBusPerformance

src

main

java

org.greenrobot.eventbusperf

slice

testsubject

Test

TestApplication

TestEvent

TestFinishedEvent

TestParams

TestRunner

TestSetupAbility

resources

config.json

test

.gitignore

build.gradle

gradle

javadoc-style

.gitignore

.travis.yml

build.gradle

build.sh

build.gradle (EventBusPerformance)

TestSetupSlice.java

Test.java

TestApplication.java


TestEvent.java

TestRunnerSlice.j

Remote Device

P40

00:24:40



Build: SyncBuild OutputBuild Analyzer

Event Log

EventBusDemo: finished at 2021/4/16 12:12:1 s 398 ms

> Configure project :EventBusPerformance  
Configuration 'testCompile' is obsolete and has been replaced with 'testImplementation'  
  
BUILD SUCCESSFUL in 709ms

12:04 The IDE modules below were removed by the Gradle project reload:  
EventBusTestJava  
  
You can [open dialog](#) to select the ones you need to restore.

12:08 Gradle sync started

12:08 Gradle sync failed: Sync issues found (2 s 318 ms)

12:12 Gradle sync started

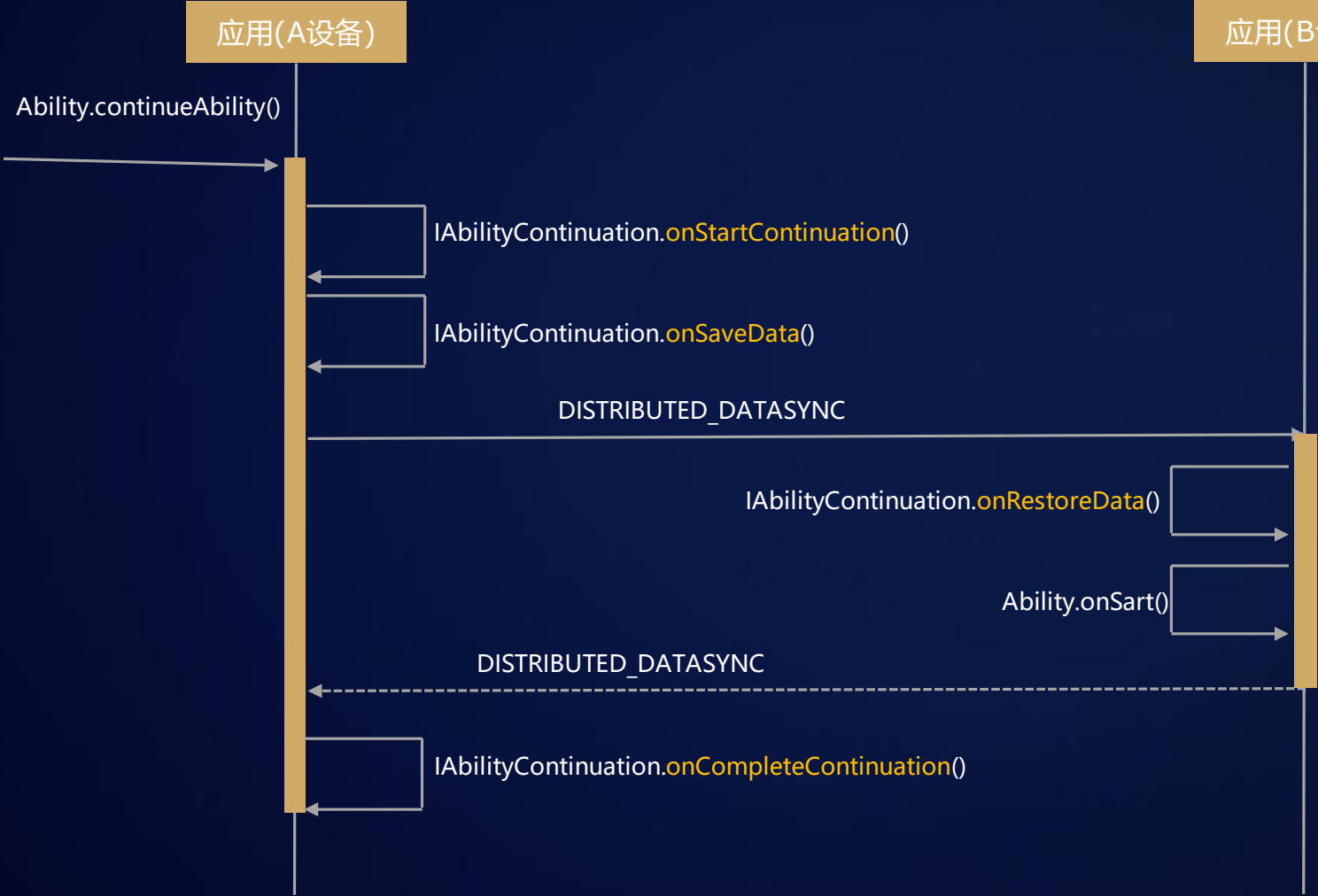
12:12 Gradle sync finished in 1 s 400 ms

4: Run6: Problems9: Git+ Gradle ViewCheckStyleTerminalCodeCheckCodeReviewHiLogBuildStatisticTODO

Gradle sync finished in 1 s 400 ms (13 minutes ago)

10:20 CRLF UTF-8 4 spaces master

# HarmonyOS多设备的流转



Ability: 是 HarmonyOS 应用程序可以提供的功能的抽象

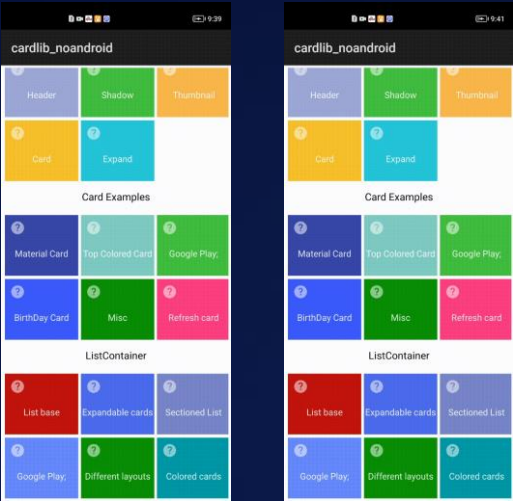
IAbilityContinuation: 启用在分布式系统中实施迁移的 Ability

# 其它开源组件库Demo效果展示

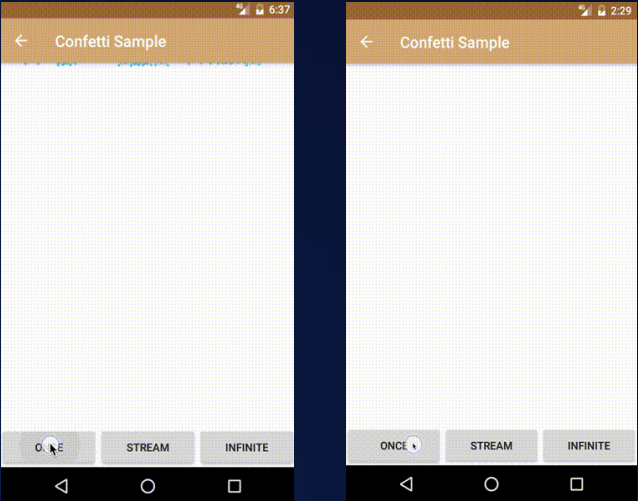
## BezierMaker 简单的贝赛尔曲线绘制方法



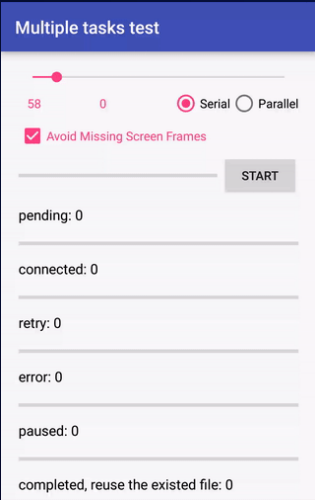
## cardslib 卡片式布局库



## confetti 模仿雪花飘落的动画



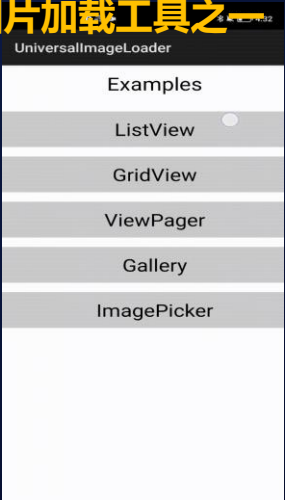
## FileDownloader 文件下载库



## FlycoTabLayout 自定义TabLayout组件



## ohos-Universal-Image-Loader 常用图片加载工具之一



# 开源组件库获取路径

Gitee 开源链接:

<https://gitee.com/openharmony-tpc>



开发者联盟开源组件库详情




# HarmonyOS包管理平台供开发者统一获取HarmonyOS开源组件二进制

## HarmonyOS Package Manager

搜索

热门

最近3个月下载次数最多的TOP10组件




<b>glide</b> 一个快速高效的图片加载库	<b>retrofit</b> 一个 RESTful 的 HTTP 网络请求框架	<b>ExoPlayer</b> 一个应用层媒体播放器
<b>lottieHarmony</b> 一个利用json文件快速实现动画效果的库	<b>zxing</b> 一个支持在图像中解码和生成条形码的库	<b>react</b> 一个用于构建用户界面的 JAVASCRIPT 库
<b>flexbox-layout</b> 一个可伸缩性布局控件	<b>fresco</b> 一个强大的图片加载组件	<b>RxHarmony</b> 一个封装异步UI 事件的公共库
<b>ijkplayer</b> B站开源的超级好用的视频播放器	<a href="#">显示更多...</a>	

分类

涵盖主要的应用组件


多媒体

视频、音频播放、剪辑




图形

图片处理、滤镜、美颜...




UI

UI框架、界面组件、样式、布局




数据绑定

ORM 框架




通信


移动通信、短信、聊天



云服务

云存储、计算、分发、AI







<https://hpm.harmonyos.com/hapm/>

# 扫码在线体验HarmonyOS应用开发

\* "To-Do List" Demo仅为示意，完整工程代码请点击[下载](#)，更多HarmonyOS特性体验请访问[Codalabs](#)、[下载IDE](#)。

JS

CSS

HML

Reset

Run

预览

全部

```
1  const BUTTON_STATE_IMAGE = ['/common/checkbutton.png', '/common/done.png'];
2  const TAG_STATE = ['show', 'hide'];
3  const TEXT_COLOR = ['text-default', 'text-gray'];
4  const EVENT_LEVEL = ['urgent', 'senior', 'middle', 'low'];
5  export default {
6    title: "任务列表",
7    taskList: [
8      {
9        id: 'id-1',
10       event: '购买礼物',
11       time: '10:30',
12       checkBtn: BUTTON_STATE_IMAGE[1],
13       color: TEXT_COLOR[1],
14       showTag: TAG_STATE[1],
15       tag: EVENT_LEVEL[1],
16     },
17     {
18       id: 'id-2',
19       event: '健身锻炼',
20       time: '15:30',
21       checkBtn: BUTTON_STATE_IMAGE[0],
22       color: TEXT_COLOR[0],
23       showTag: TAG_STATE[0],
24       tag: EVENT_LEVEL[0],
25     },
26     {
27       id: 'id-3',
28       event: '生日约会',
29       time: '19:30',
30       checkBtn: BUTTON_STATE_IMAGE[0],
31       color: TEXT_COLOR[0],
32       showTag: TAG_STATE[0],
33       tag: EVENT_LEVEL[2],
34     },
35   ],
36 };
```

任务列表

购买礼物

10:30

健身锻炼

15:30

生日约会

19:30

任务列表

购买礼物

10:30

健身锻炼

15:30

生日约会

19:30

任务列表

购买礼物

10:30

健身锻炼

15:30

生日约会

19:30



HarmonyOS应用开发在线体验



HarmonyOS开发者微信公众号



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29       time: '19:30',
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任务列表

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HarmonyOS应用开发在线体验



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HarmonyOS开发者微信公众号

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11       time: '10:30',
12       checkBtn: BUTTON_STATE_IMAGE[1],
13       color: TEXT_COLOR[1],
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购买礼物  
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任务列表

购买礼物  
10:30

健身锻炼  
15:30

生日约会  
19:30

任务列表

购买礼物  
10:30

健身锻炼  
15:30

生日约会  
19:30



HarmonyOS应用开发在线体验



HarmonyOS开发者微信公众号