TP N° 1

Prise en main d'Android

2025 - 2026

Dr. Abdelkader Ouared

www. .univ-tiaret.dz

Les étapes

Installer Android Studio

Créer/Configurer un projet Android

Créer et gérer des appareils virtuels

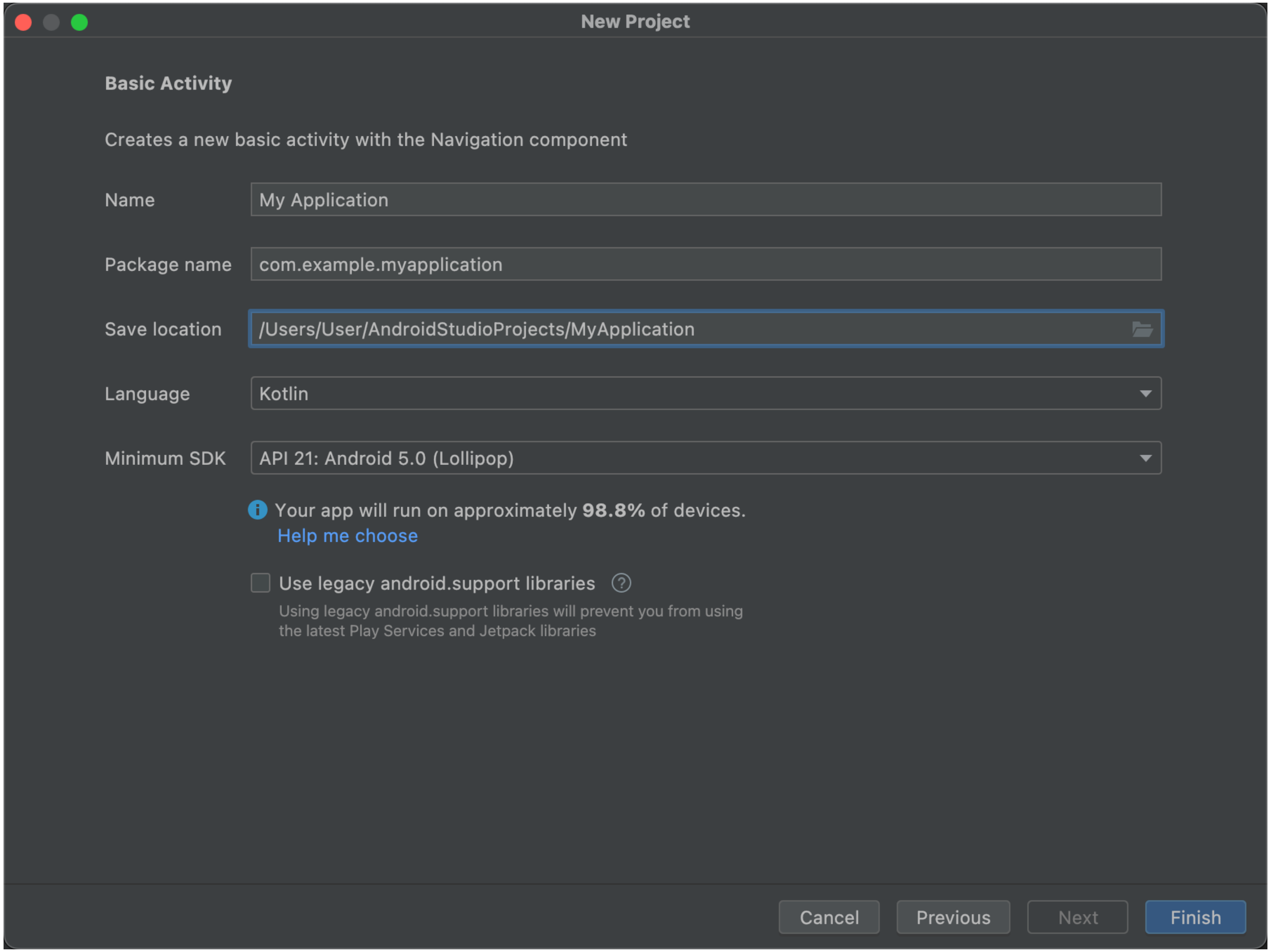
Générer l'APK

Utiliser les Pratiques CI/CD

Installation Android Studio

https://developer.android.com/studio

Configurer votre projet



Basic Activity

Creates a new basic activity with the Navigation component

Name: My Application

Package name: com.example.myapplication

Save location: /Users/User/AndroidStudioProjects/MyApplication

Language: Kotlin

Minimum SDK: API 21: Android 5.0 (Lollipop)

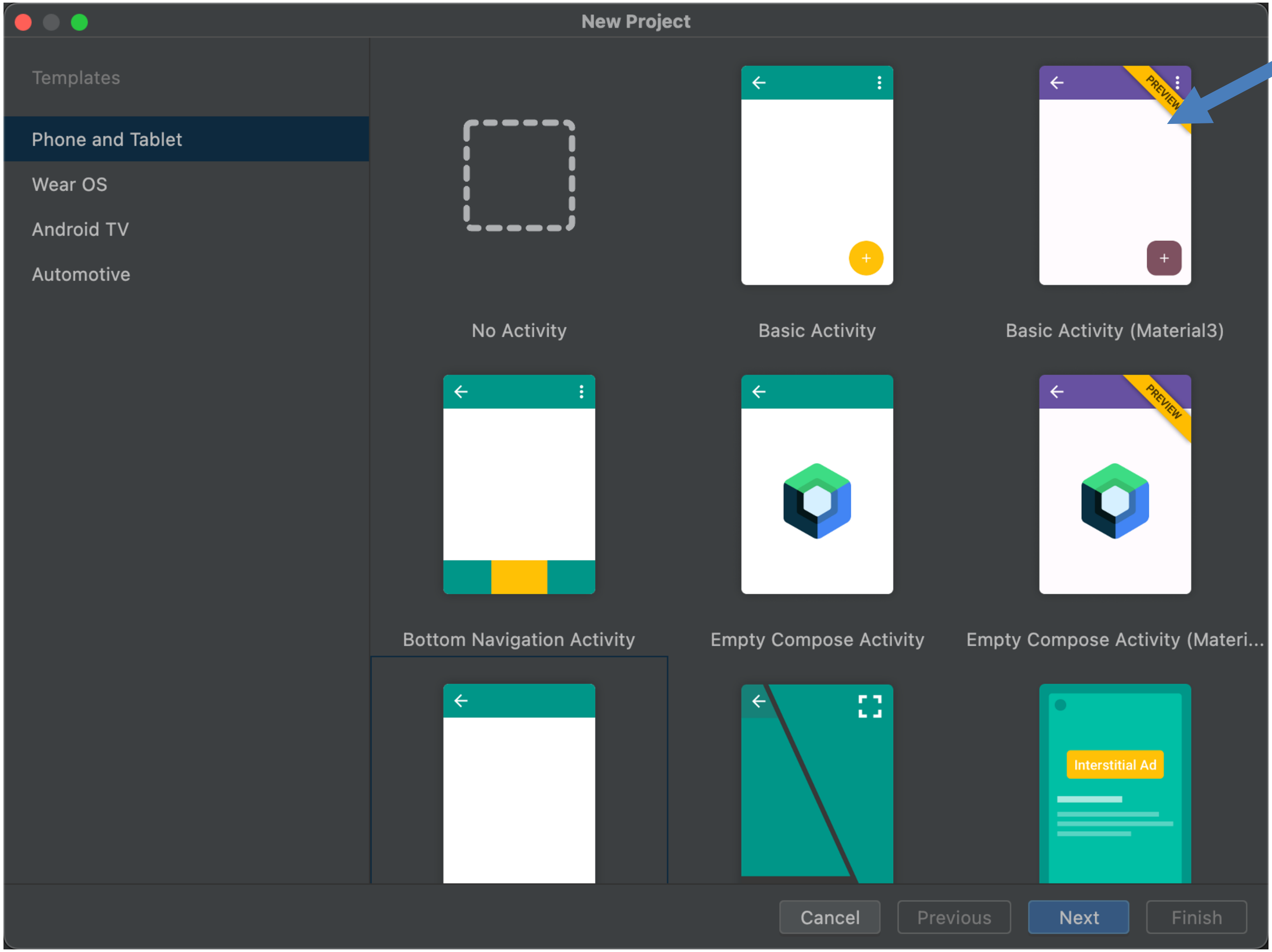
Your app will run on approximately **98.8%** of devices.
Help me choose

□ Use legacy android.support libraries

Using legacy android.support libraries will prevent you from using the latest Play Services and Jetpack libraries

Créer un projet

JETPACK COMPOSE



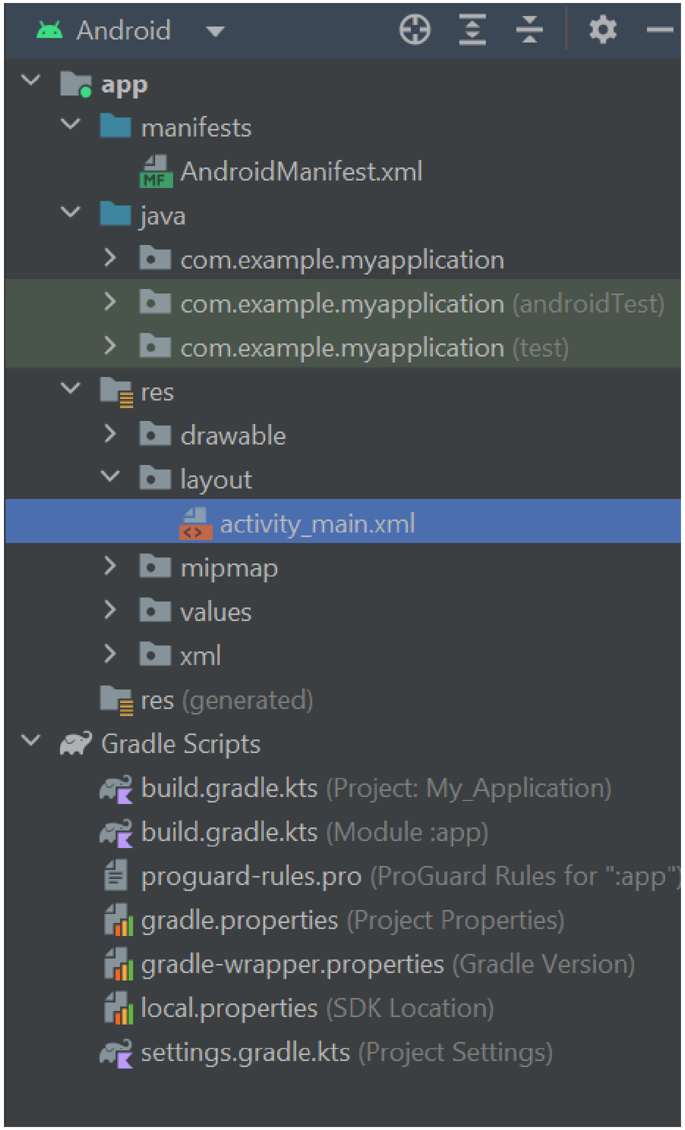
Mon app

Manifest

Java

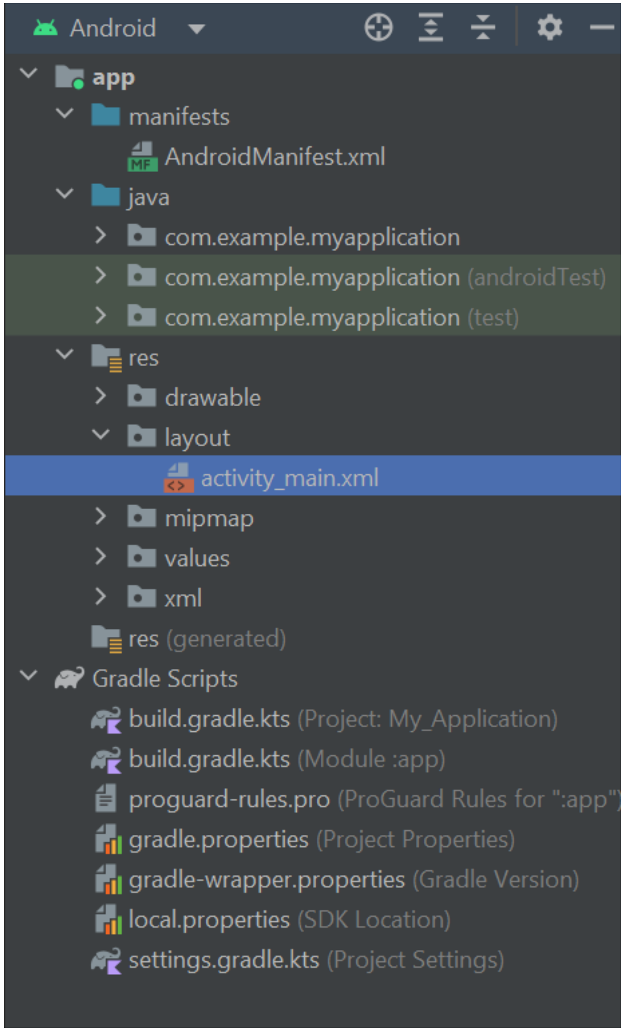
Res

Structure de projet



```
Android
app
  manifests
    AndroidManifest.xml
  java
    com.example.myapplication
    com.example.myapplication (androidTest)
    com.example.myapplication (test)
  res
    drawable
    layout
      activity_main.xml
    mipmap
    values
    xml
  res (generated)
Gradle Scripts
  build.gradle.kts (Project: My_Application)
  build.gradle.kts (Module :app)
  proguard-rules.pro (ProGuard Rules for ":app")
  gradle.properties (Project Properties)
  gradle-wrapper.properties (Gradle Version)
  local.properties (SDK Location)
  settings.gradle.kts (Project Settings)
```

Structure de projet



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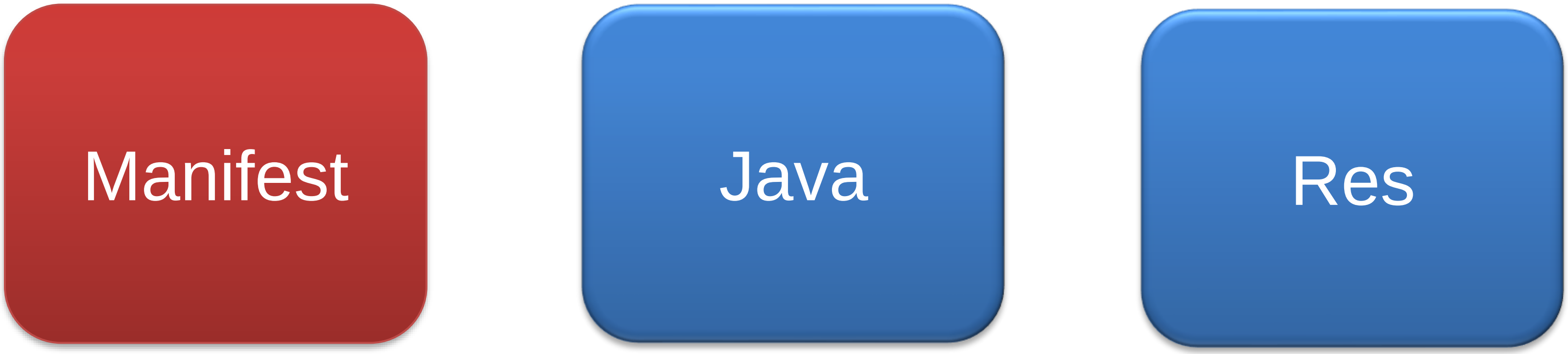
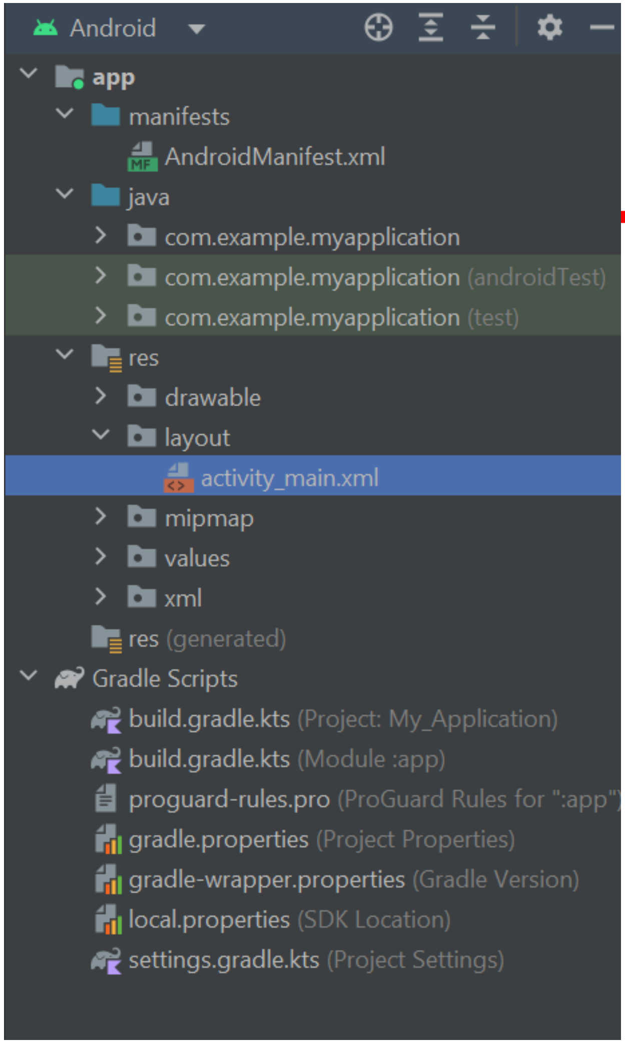
Mon app



Manifest

Java

Res



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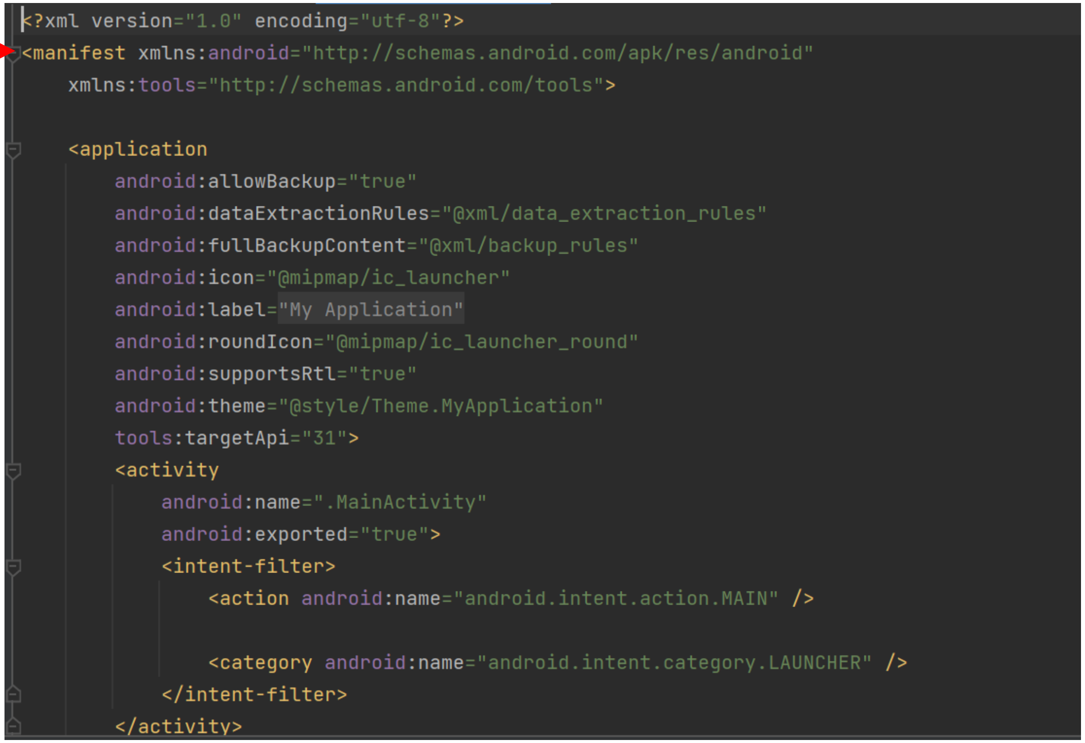


```xml
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="My Application"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MyApplication"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
```

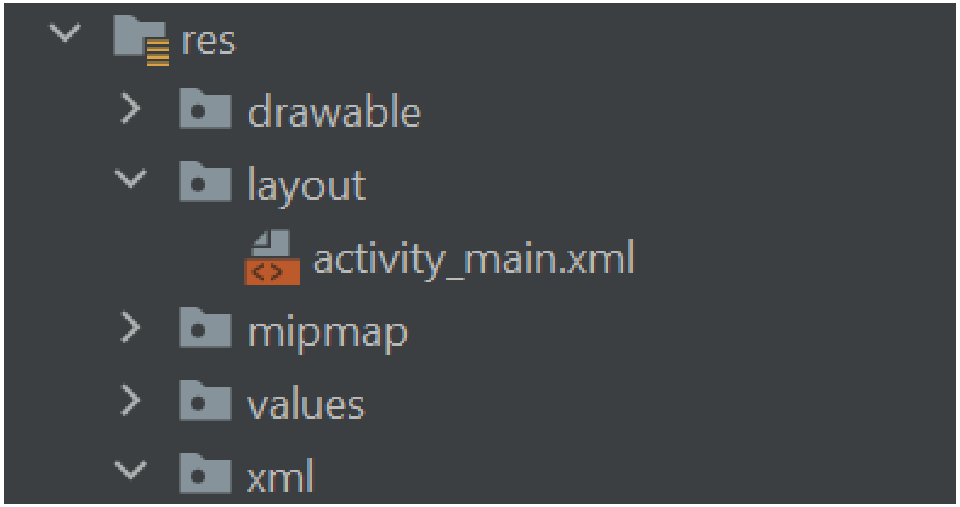
Mon app

Manifest

Java

Res

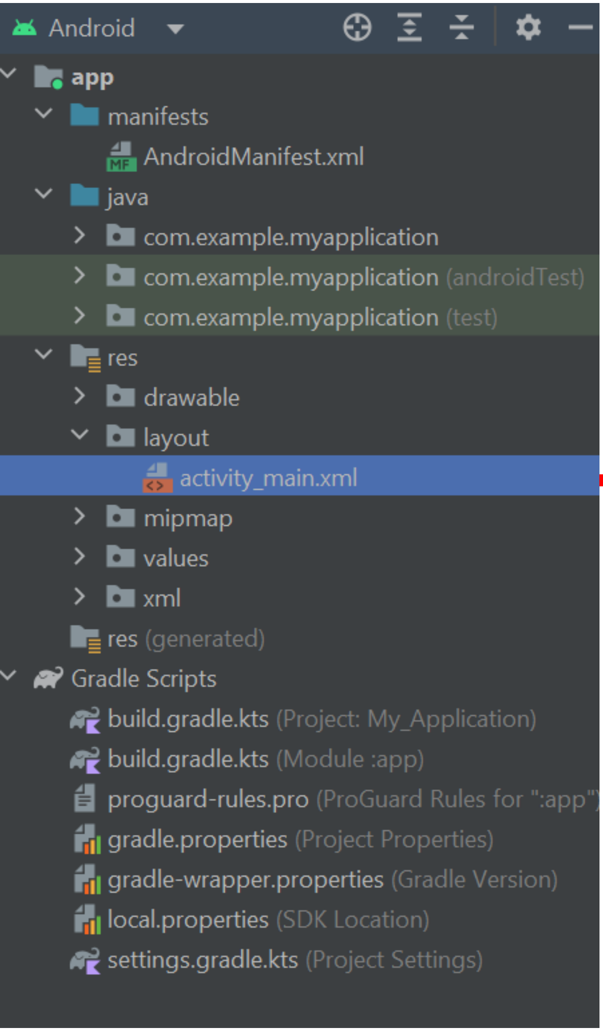
Mon app



res
drawable
layout
activity_main.xml
mipmap
values
xml

Drawable: images
Layout: xml file (activity)
Mipmap: icone
Values: String, Colors, Themes
Xml: menu, autre options..

Mon app



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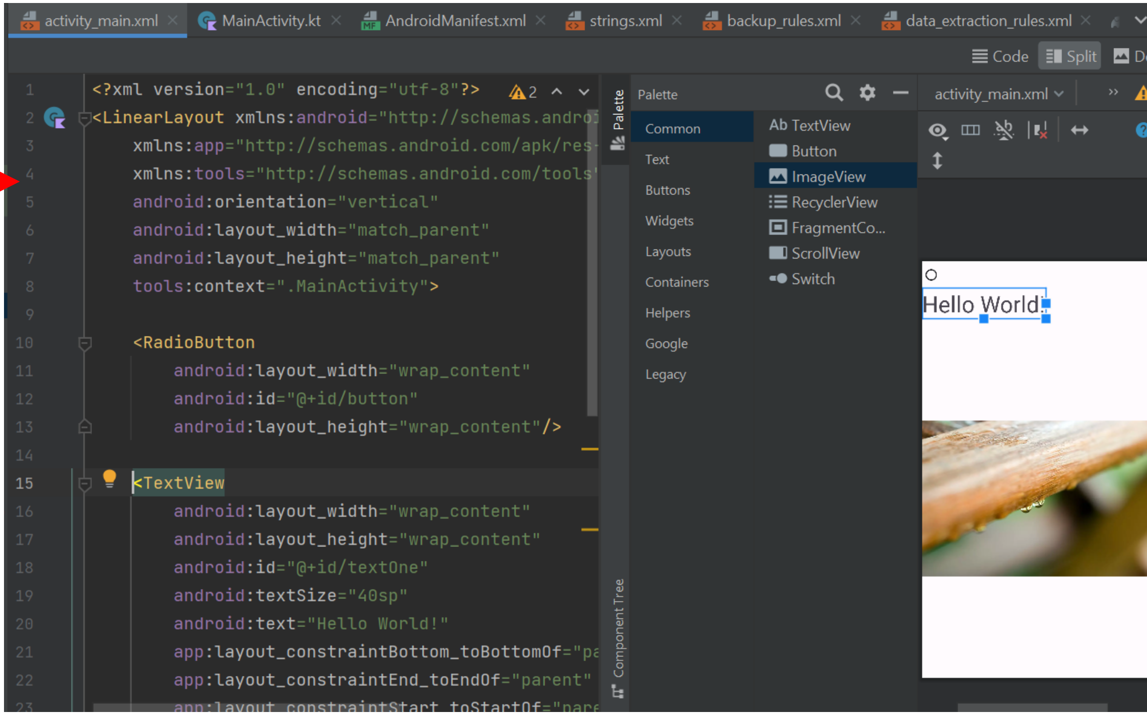


```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.androi
    xmlns:app="http://schemas.android.com/apk/res-
    xmlns:tools="http://schemas.android.com/tools"
    android:orientation="vertical"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <RadioButton
        android:layout_width="wrap_content"
        android:id="@+id/button"
        android:layout_height="wrap_content"/>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textOne"
        android:textSize="40sp"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="pa
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="pare
```

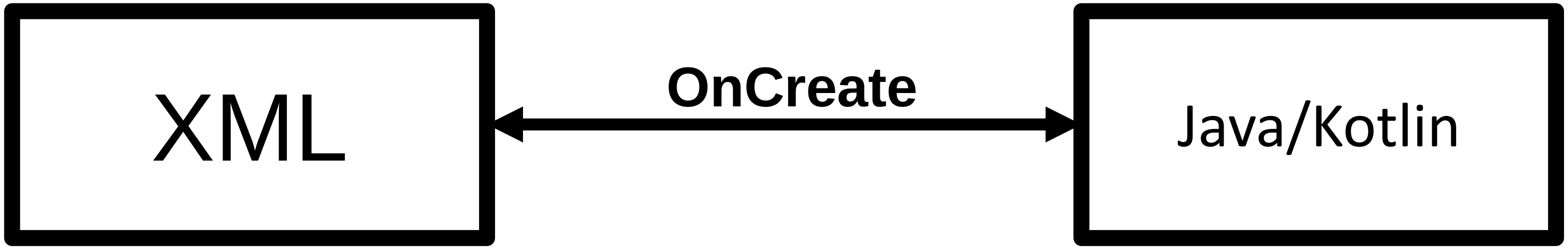
Mon app

Manifest

Java

Res

Mon app

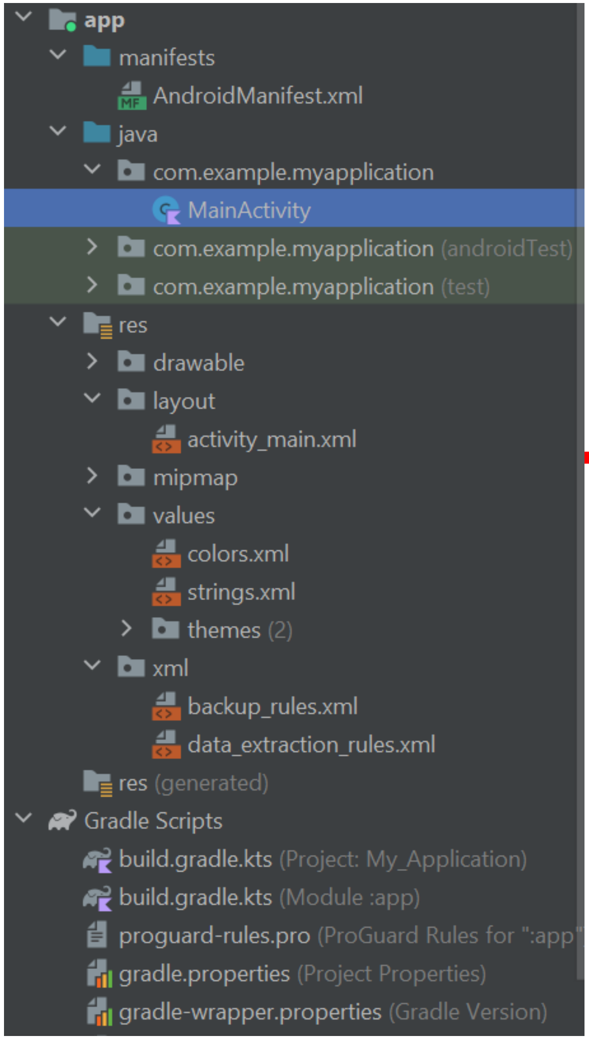


XML

OnCreate

Java/Kotlin

Mon app



```
app
    manifests
        AndroidManifest.xml
    java
        com.example.myapplication
            MainActivity
        com.example.myapplication (androidTest)
        com.example.myapplication (test)
    res
        drawable
        layout
            activity_main.xml
        mipmap
        values
            colors.xml
            strings.xml
            themes (2)
        xml
            backup_rules.xml
            data_extraction_rules.xml
    res (generated)
Gradle Scripts
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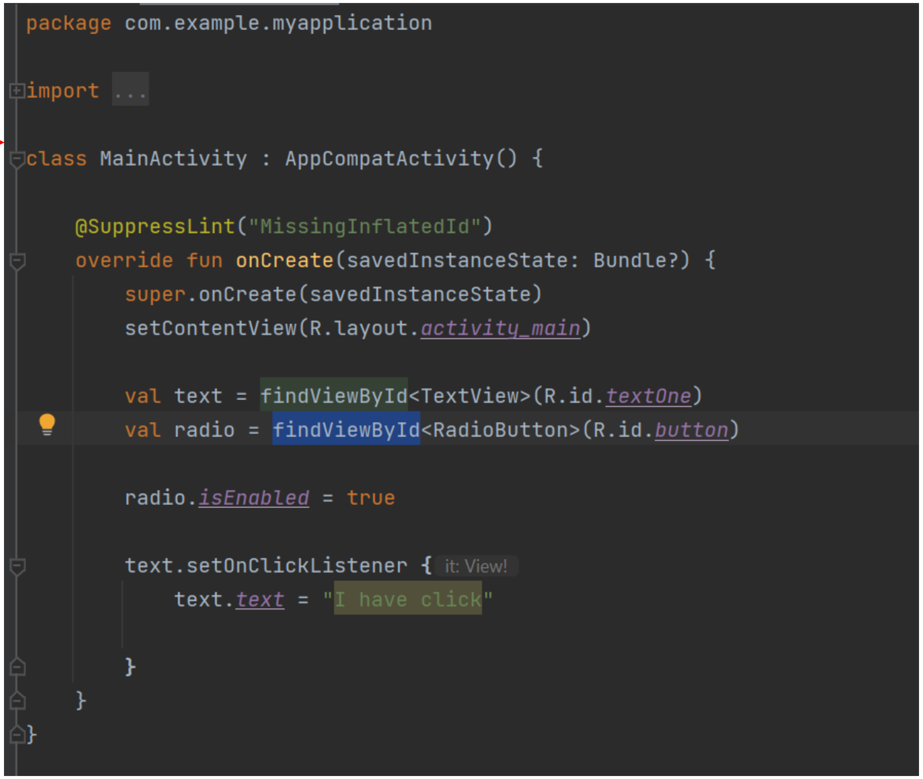


```
package com.example.myapplication

import ...

class MainActivity : AppCompatActivity() {

    @SuppressLint("MissingInflatedId")
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

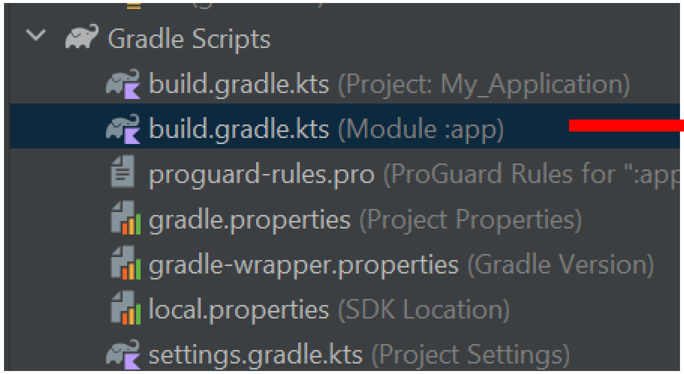
        val text = findViewById<TextView>(R.id.textOne)
        val radio = findViewById<RadioButton>(R.id.button)

        radio.isEnabled = true

        text.setOnClickListener { it: View!
            text.text = "I have click"

        }
    }
}
```

Gradle Script



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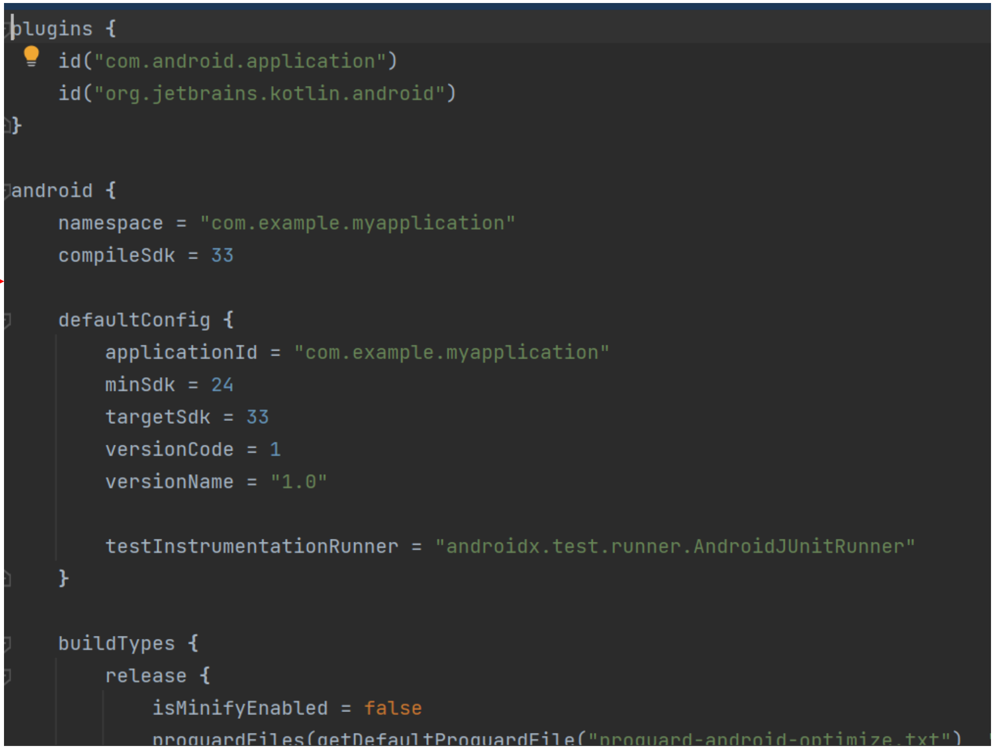


```
plugins {
    id("com.android.application")
    id("org.jetbrains.kotlin.android")
}

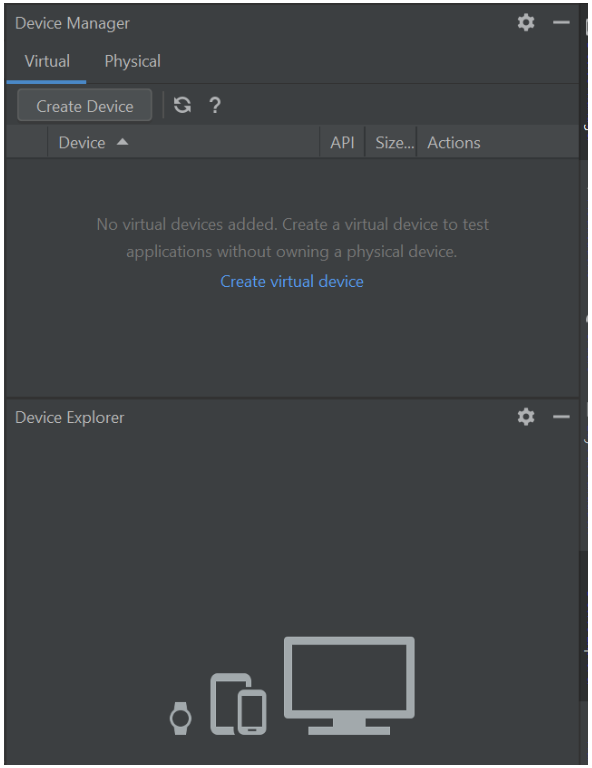
android {
    namespace = "com.example.myapplication"
    compileSdk = 33

    defaultConfig {
        applicationId = "com.example.myapplication"
        minSdk = 24
        targetSdk = 33
        versionCode = 1
        versionName = "1.0"

        testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"
    }

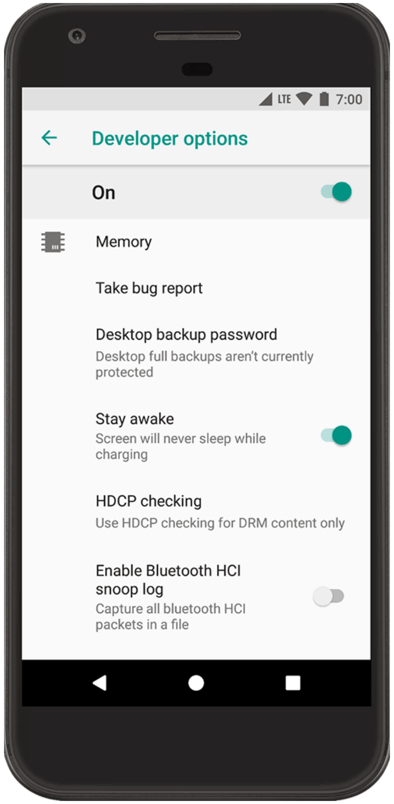
    buildTypes {
        release {
            isMinifyEnabled = false
            proguardFiles(getDefaultProguardFile("proguard-android-optimize.txt")
```

Créer et gérer des appareils virtuels



No virtual devices added. Create a virtual device to test applications without owning a physical device.

Configurer les options pour les développeurs sur l'appareil



7:00

Developer options

On ●

Memory

Take bug report

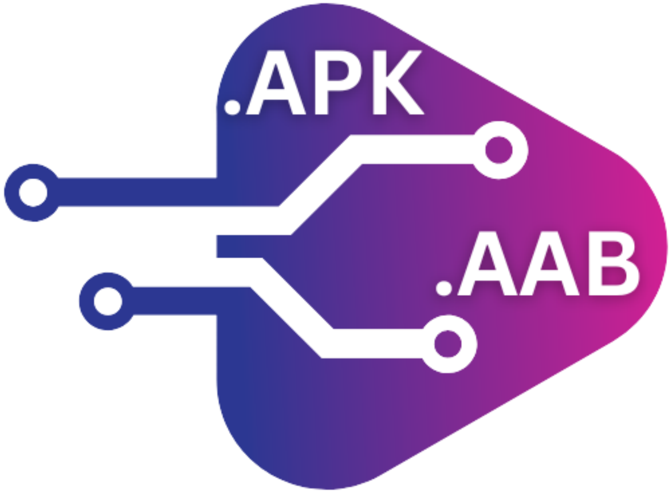
Desktop backup password
Desktop full backups aren't currently protected

Stay awake ●
Screen will never sleep while charging

HDCP checking
Use HDCP checking for DRM content only

Enable Bluetooth HCI snoop log ○
Capture all bluetooth HCI packets in a file

Génération de l'APK (Android application package)



Android App Bundle (AAB)

Utiliser Github: Pratiques CI/CD

Thank you !

Questions ? *abdelkader.ouared@univ-tiaret.dz*

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