

# TASK GUIDE (B2X.01)

## A. Objectives.

Student will start the project to create simple game Android application. First with project configuration and resource configuration.

## B. Requirements.

Hardware:

- 2 GB RAM minimum, 8 GB RAM recommended
- 2 GB of available disk space minimum, 4 GB Recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
- 1280 x 800 minimum screen resolution
- Intel processor with support for Intel VT-x, Intel EM64T (Intel 64), and Execute Disable (XD) Bit functionality

Software:

- Microsoft Windows 7/8/10 (32-bit or 64-bit)
- JDK 8
- Android Studio IDE (Minimum 3.2)

## C. Resources.

Documents:

- Guide

Supplement files:

- ResourceTest.java
- ElementTest.java
- ViewTest.java

Test code:

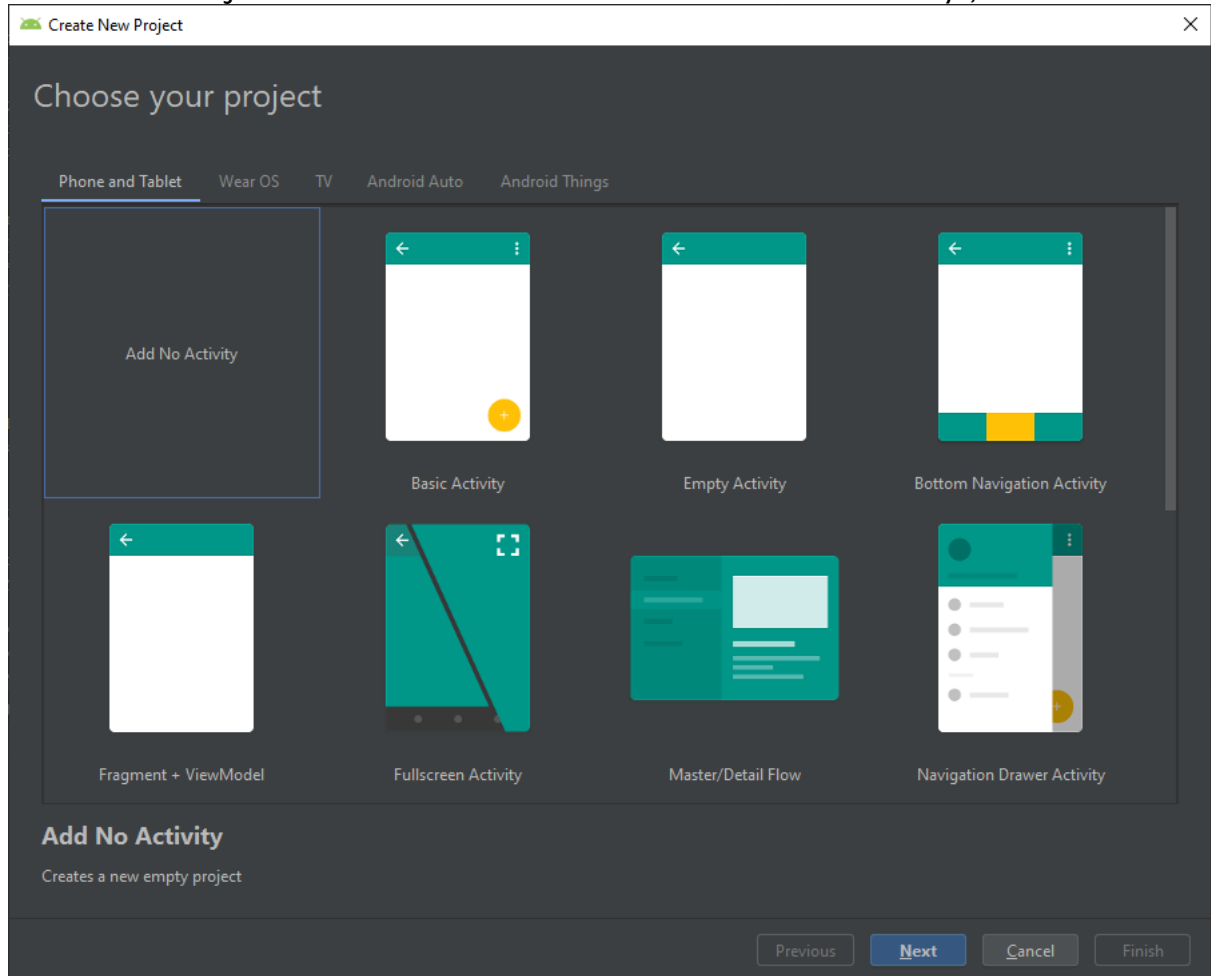
- TestB2AdvancedWidgetsX011.java
- TestB2AdvancedWidgetsX012.java

## D. Task Description.

Student start to create a project configuration and resource configuration.

## E. Specification.

1. Create New Project on Android Studio and choose “Add No Activity”, then Next.

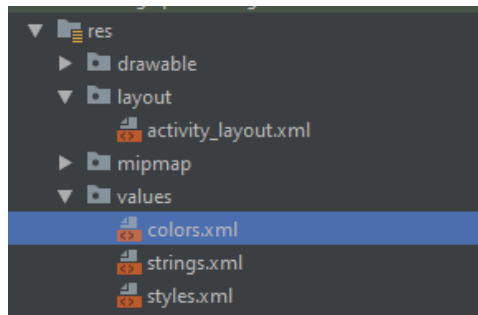


2. Project Configuration.

- Project Name: ColorGameX
- Package Name: org.aplas.colorgamex
- Project Location: any
- Language: Java
- Target API Level: Android 5.0 (Lollipop)
- Support instant apps: uncheck
- AndroidX: check

### RESOURCE CONFIGURATION

3. Open colors.xml.



Add some colors like this table

name	value
greenLight	#96FD0A
textColor	#1B1B1B
titleBackground	#feffa7
textBackground	#E2E2E2
clrRed	#ff0000
clrYellow	#fff700
clrBlue	#001eff
clrGreen	#00ff15
clrOrange	#ff6f00
clrPurple	#9500ff

4. Open strings.xml. Add some strings and integers like this table

type	name	value
<string name="name">value</string>	app_name	APLAS COLOR GAME
	keyword	quiz@123
<integer name="name">value</integer>	minScore	0
	maxScore	100
	counter	10
	mintimer	0
	maxtimer	5

5. Still in strings.xml, add array string

Template:

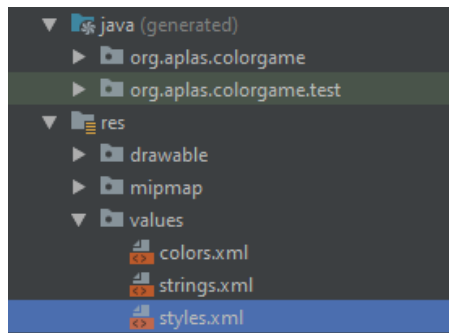
```
<string-array name="string-name">
    <item>value1</item>
    .
    .
</string-array>
```

Name	value
colorList	Red
	Yellow
	Blue
	Green
	Orange

	Purple
--	--------

Name	value
charList	A
	B
	C
	D
	E
	F

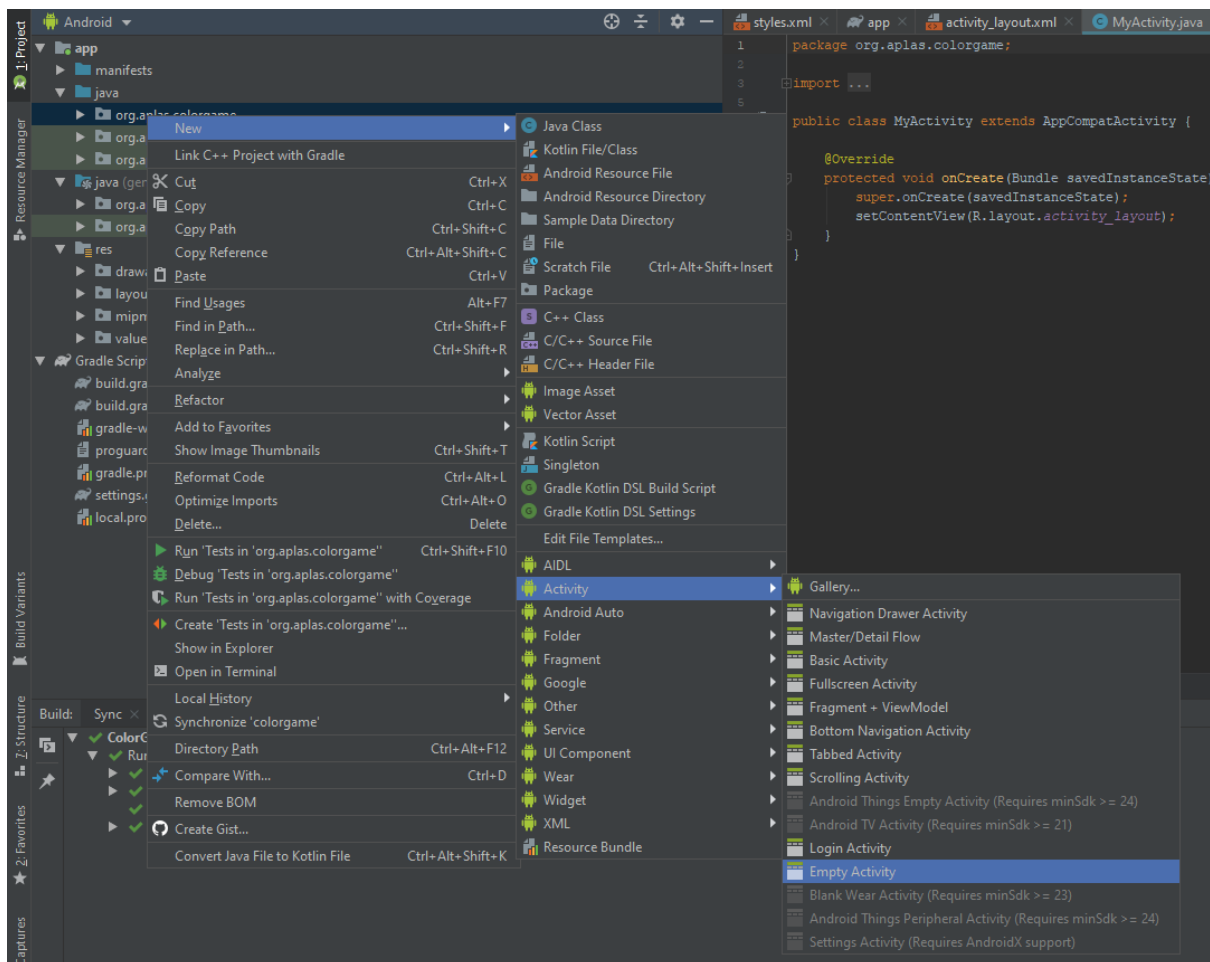
## 6. Open styles.xml.



Change the “AppTheme” configuration be like this:

```
<style name="AppTheme" parent="Theme.AppCompat.Light.NoActionBar">
    <item name="android:background">#alc8ce</item>
    <item name="android:paddingLeft">1pt</item>
    <item name="android:paddingRight">1pt</item>
    <item name="android:paddingTop">1pt</item>
    <item name="android:paddingBottom">1pt</item>
    <item name="android:textColor">@color/textColor</item>
</style>
```

## 7. Create new Empty Activity with this menu.

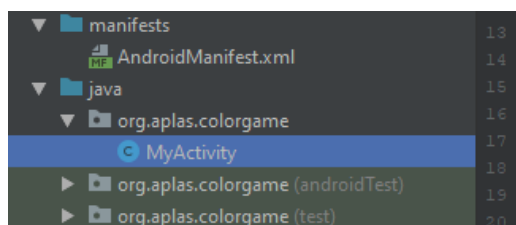


**In the dialog, use this configuration (must be correct) :**

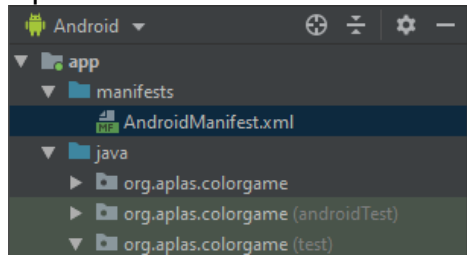
- Activity name: MyActivity
- Generate Layout File: Checked
- Layout name: activity\_layout
- Launcher activity: Checked
- Backwards Compatibility: Unchecked (if appears)
- Package: org.aplas.colorgame
- Language: Java

Then click **Finish**

8. Open MyActivity.java.



## 9. Open AndroidManifest.xml.



Change the value of project configuration be like this:

- label: APLAS COLOR GAME
- theme: @style/AppTheme
- activity name: MyActivity
- Launcher activity: Checked
- Backwards Compatibility: Unchecked (if appears)
- Package: org.aplas.colorgame
- Language: Java

## 10. Change the content of “build.gradle (Module: app)” file like below, then **Sync** it.

```
apply plugin: 'com.android.application'

android {
    compileSdkVersion 28
    testOptions.unitTests.includeAndroidResources = true
    defaultConfig {
        applicationId "org.aplas.colorgame"
        minSdkVersion 24
        targetSdkVersion 28
        versionCode 1
        versionName "1.0"
        buildConfigField "int", "MIN_SDK_VERSION", "$minSdkVersion.apiLevel"
        buildConfigField "int", "TARGET_SDK_VERSION", "$targetSdkVersion.apiLevel"
        testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"
    }
    buildTypes {
        release {
            minifyEnabled false
            proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'),
            'proguard-rules.pro'
        }
    }
    compileOptions {
        sourceCompatibility JavaVersion.VERSION_1_8
        targetCompatibility JavaVersion.VERSION_1_8
    }
}

dependencies {
    implementation fileTree(dir: 'libs', include: ['*.jar'])
    implementation 'androidx.appcompat:appcompat:1.1.0'
    implementation 'androidx.constraintlayout:constraintlayout:1.1.3'
    testImplementation 'junit:junit:4.12'
    testImplementation 'org.robolectric:robolectric:4.2.1'
}
```

## F. Testing.

1. Copy "ElementTest.java, ResourceTest.java, ViewTest.java, TestB2AdvancedWidgetsX011.java and TestB2AdvancedWidgetsX011.java" file to "org.aplas.colorgameX (test)" folder.
2. Right click on the "TestB2AdvancedWidgetsX011.java" file then choose Run 'TestB2AdvancedWidgetsX011' and click it. It may take long time to execute.
3. Get the result of your task. If passed you will get green check like below. If the test failed, you will get orange check get the messages and you must check your work again.

The screenshot shows the Android Studio interface with the 'TestB2AdvancedWidgets011' test suite expanded. It displays a list of seven tests, all of which have passed, indicated by green checkmarks. The tests and their durations are: checkActivityName (8 s 850 ms), checkAppName (142 ms), checkLayoutName (131 ms), checkMinimumSDK (112 ms), checkMyActivityParentClass (103 ms), checkPackageName (104 ms), and checkTargetDevice (97 ms). To the right, the log output shows the Robolectric framework loading the test class and its dependencies. At the bottom, it states 'Process finished with exit code 0'.

Test Name	Duration	Status
checkActivityName	8 s 850 ms	Passed
checkAppName	142 ms	Passed
checkLayoutName	131 ms	Passed
checkMinimumSDK	112 ms	Passed
checkMyActivityParentClass	103 ms	Passed
checkPackageName	104 ms	Passed
checkTargetDevice	97 ms	Passed

4. Right click on the "TestB2AdvancedWidgetsX012.java" file then choose Run 'TestB2AdvancedWidgetsX012' and click it. It may take long time to execute.
5. Get the result of your task. If passed you will get green check like below. If the test failed, you will get orange check get the messages and you must check your work again.

The screenshot shows the Android Studio interface with the 'TestB2AdvancedWidgets012' test suite expanded. It displays a list of four tests, all of which have passed, indicated by green checkmarks. The tests and their durations are: checkAppTheme (7 s 785 ms), checkColorResources (144 ms), checkStringArrayResources (119 ms), and checkStringResources (110 ms). To the right, the log output shows the Robolectric framework loading the test class and its dependencies. At the bottom, it states 'Process finished with exit code 0'.

Test Name	Duration	Status
checkAppTheme	7 s 785 ms	Passed
checkColorResources	144 ms	Passed
checkStringArrayResources	119 ms	Passed
checkStringResources	110 ms	Passed

**You have to try until get all green checks and continue to the next task.**