



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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## Experiment 1.3

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**Semester:** 6<sup>th</sup>

**Date of Performance:** 01-02-2024

**Subject Name:** Mobile Application Development

**Subject Code:** 21CSP-355

### **1. Aim:**

Create Application by Using Widgets.

### **2. Objective:**

To understand the concept of widgets and to implement the Widgets in Android Studio.

### **3. Procedure:**

#### **Step 1: Create a New Project**

To create a new project in Android Studio please refer to How to Create/Start a New Project in Android Studio. We are implementing it for both Java and Kotlin languages.

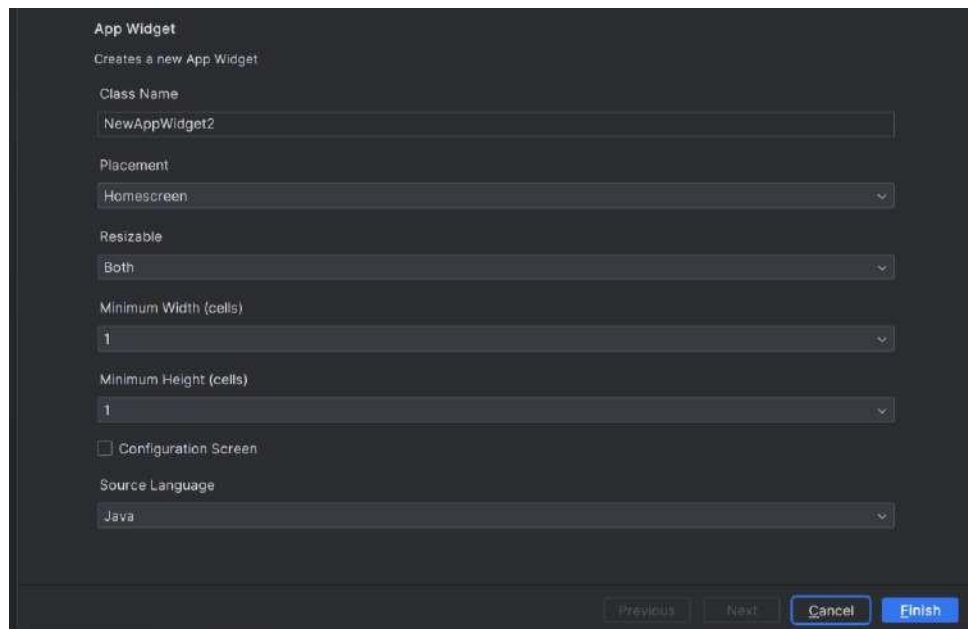
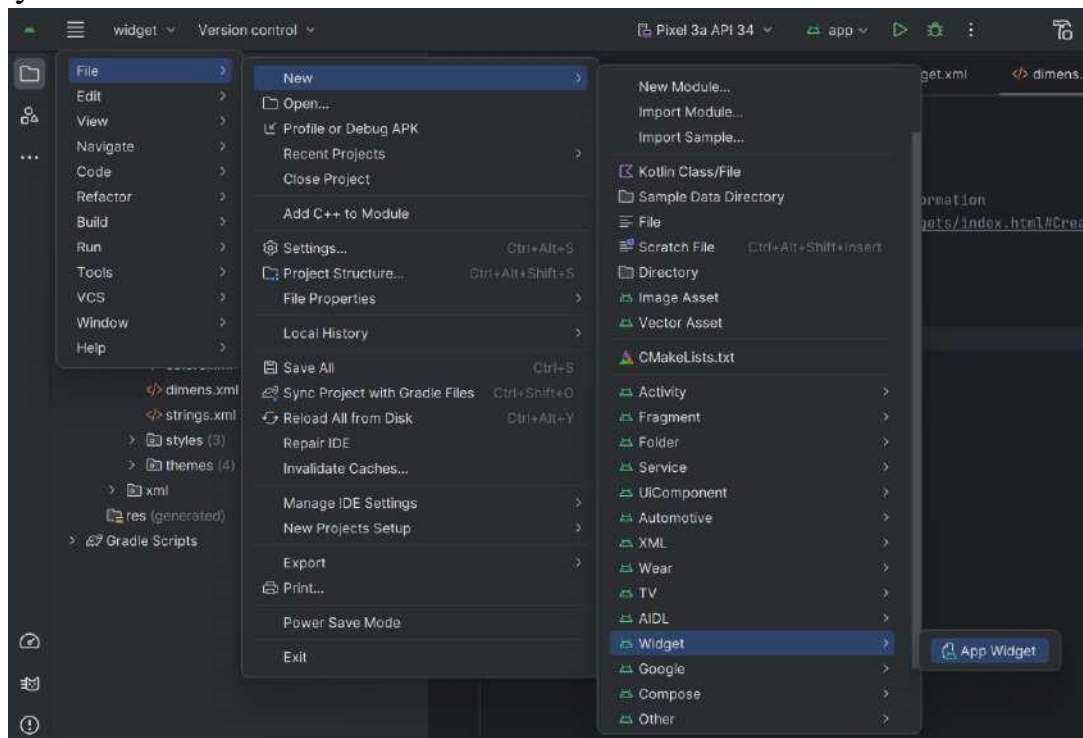
#### **Step 2: Add the App Widget to the Project**

Right-Click on the app, move the cursor to new, find the “Widget” option at the end, select it.

#### **Step 3: Install and Run the Code**

Install and run the code on Android Virtual Device (AVD) or a personal device. Open the widget section of the phone, lookup for a widget with the Application name, select it, bring it to the home screen. Try changing the dimensions and we are done! During this selecting and deploying process, a few extra files are generated and minor changes are made to existing files as well. No programming

is required for generating a basic widget and is only required if an application is to be embedded inside the widget, as discussed in the later parts of the article. Let us now explain the newly generated files the changes make to the existing ones, one by one.



The 'App Widget' configuration dialog is shown. It contains the following fields and options:

- Class Name:** NewAppWidget2
- Placement:** Homescreen
- Resizable:** Both
- Minimum Width (cells):** 1
- Minimum Height (cells):** 1
- ☐ Configuration Screen
- Source Language:** Java

At the bottom, there are buttons for 'Previous', 'Next', 'Cancel', and 'Finish'.

## Step 4: Write code in file

Make changes in newappwidget.java, new\_app\_widget.xml, dims.xml and new\_app\_widget\_info.xml.

```
activity_main.xml  NewAppWidget.java  new_app_widget.xml  dims.xml  MainActivity.java

2
3  > import ...
4
5  // Implementation of App Widget functionality.
6
7  <> class NewAppWidget extends AppWidgetProvider {
8
9      5 usages
10
11      @Override
12      public void onUpdate(Context context, AppWidgetManager appWidgetManager, int[] appWidgetIds)
13      {
14          // There may be multiple
15          // widgets active, so update
16          // all of them
17          for (int appWidgetId : appWidgetIds) {updateAppWidget(context, appWidgetManager, appWidgetId);
18          }
19      }
20
21      // Enter relevant functionality for
22      // when the first widget is created
23
24      5 usages
25      @Override public void onEnabled(Context context) { super.onEnabled(context); }
```

```
activity_main.xml  NewAppWidget.java  new_app_widget.xml  dims.xml  MainActivity.java

1  <RelativeLayout
2
3      xmlns:android="http://schemas.android.com/apk/res/android"
4
5      android:layout_width="match_parent"
6
7      android:layout_height="match_parent"
8
9      android:background="#09C"
10
11      android:padding="8dp">
12
13      <TextView
14
15          android:id="@+id/appwidget_text"
16
17          android:layout_width="wrap_content"
18
19          android:layout_height="wrap_content"
20
21          android:layout_centerHorizontal="true"
22
23          android:layout_centerVertical="true"
24
25          android:layout_margin="8dp"
26
27          android:background="#09C"
28
29          android:contentDescription="EXAMPLE"
30
31          android:text="EXAMPLE"
32
33          android:textColor="#ffffff"
34
35          android:textSize="24sp"
36
37          android:textStyle="bold|italic" />
38
39  </RelativeLayout>
```


```
</> activity_main.xml  NewAppWidget.java  </> new_app_widget.xml  </> dimens.xml  MainActivity.java

1  <?xml version="1.0" encoding="utf-8"?>
2  <resources>
3
4      <!--
5      Refer to App Widget Documentation for margin information
6      http://developer.android.com/guide/topics/appwidgets/index.html#CreatingLayout
7      -->
8      <dimen name="widget_margin">8dp</dimen>
9
10 </resources>
11
```

## 4. Output:

```
</> activity_main.xml  NewAppWidget.java  </> new_app_w  Running Devices  Pixel 3a API 34  +

22  // when the first widget is created
23  5 usages
24  >  @Override public void onEnabled(Context context) {
25
26
27
28  // Enter relevant functionality for
29  // when the last widget is disabled
30  4 usages
31  >  @Override public void onDisabled(Context context) {
32
33
34
35  1 usage
36  private void
37  @ updateAppWidget(Context context, AppWidgetManager ap
38  {
39      String widgetText = "EXAMPLE";
40
41
42  // Construct the RemoteViews object
43  RemoteViews views = new RemoteViews(context.getF
44  views.setTextViewText(R.id.appwidget_text, widge
45
46  // Instruct the widget manager to update the wid
47  appWidgetManager.updateAppWidget(appWidgetId, v
48  }
49  }
50
```





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