



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 1.3

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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.

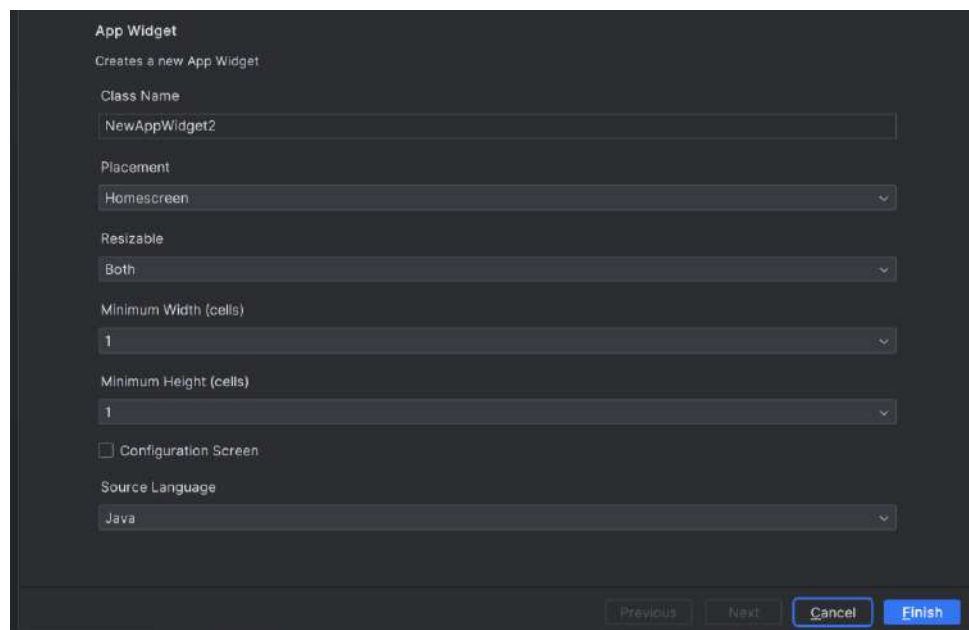
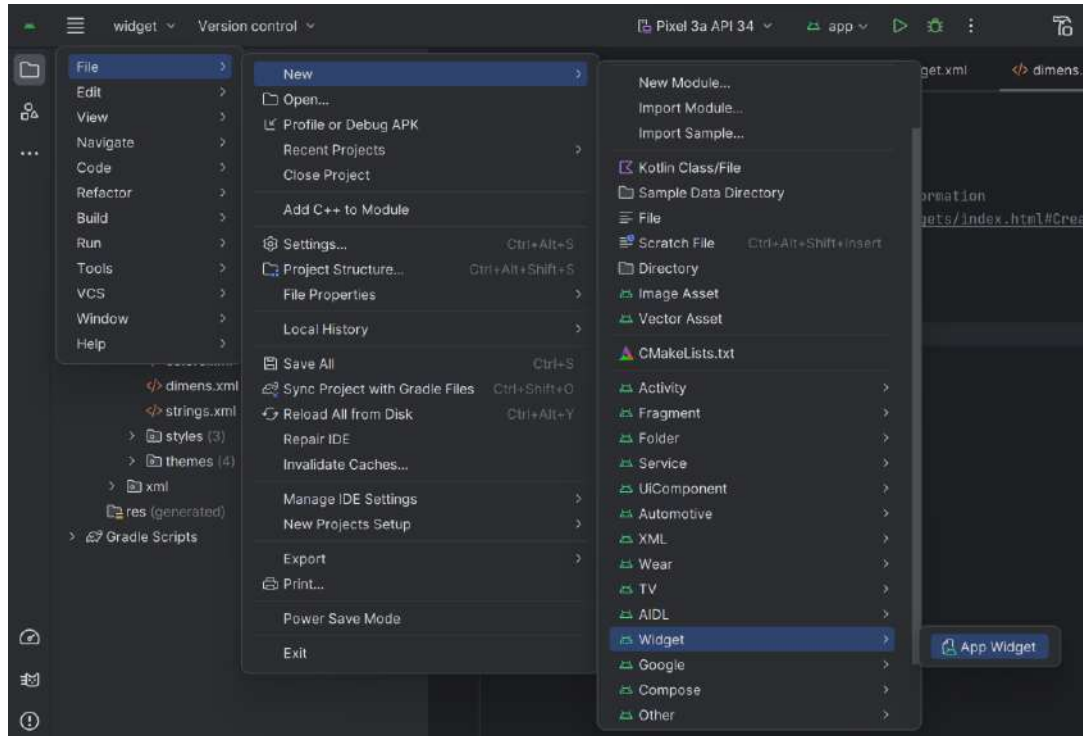
Step 2: Add the App Widget to the Project

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.



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 ...
7
8  // Implementation of App Widget functionality.
9  <> class NewAppWidget extends AppWidgetProvider {
10      5 usages
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      5 usages
24      > @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      xmlns:android="http://schemas.android.com/apk/res/android"
3      android:layout_width="match_parent"
4      android:layout_height="match_parent"
5      android:background="#89C"
6      android:padding="8dp">
7
8      <TextView
9          android:id="@+id/appwidget_text"
10         android:layout_width="wrap_content"
11         android:layout_height="wrap_content"
12         android:layout_centerHorizontal="true"
13         android:layout_centerVertical="true"
14         android:layout_margin="8dp"
15         android:background="#89C"
16         android:contentDescription="EXAMPLE"
17         android:text="EXAMPLE"
18         android:textColor="#ffffff"
19         android:textSize="24sp"
20         android:textStyle="bold|italic" />
21
22 </RelativeLayout>
23

```


```
</> activity_main.xml  © NewAppWidget.java  </> new_app_widget.xml  </> dimens.xml x  © 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 x  </> new_app_w  v  :  Running Devices  Pixel 3a API 34  x  +

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      // Construct the RemoteViews object
42      RemoteViews views = new RemoteViews(context.getF
43      views.setTextViewText(R.id.appwidget_text, widge
44
45      // Instruct the widget manager to update the wid
46      appWidgetManager.updateAppWidget(appWidgetId, vi
47  }
48
```





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