

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

اللَّهُمَّ إِنِّي
أَسْأَلُكَ عِلْمًا نَافِعًا
وَرِزْقًا طَيِّبًا وَعَمَلًا
مُتَقَبَّلًا

قَالُوا سُبْحَانَكَ
لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

قَالَ رَبِّ اجْعَلْ لِي
إِلَهًا مِثْلَكَ

قَالَ رَبِّ اجْعَلْ لِي
إِلَهًا مِثْلَكَ



Activities and Intents

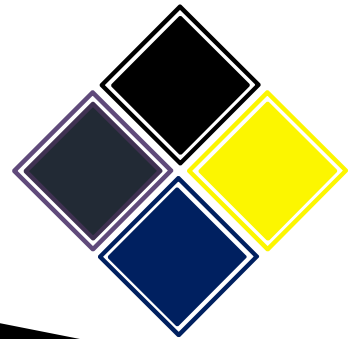
Mobile Computing

LECTURE 07

Activities and Intents

Instructor:

Maulana Haq Nawaz



دعا

«اللَّهُمَّ إِنِّي أَسْأَلُكَ

المُعَافَاةَ

فِي الدُّنْيَا وَالْآخِرَةِ»

عن أبي هريرة رضي الله عنه أن النبي ﷺ قال : ((ما من دعوة يدعو بها العبد
أفضل من : اللهم اني أسألك المعافاة ...)) صحيح الجامع (5703)

مجالس الذكر

تصحیح نیت

حضرت محمد صلی اللہ علیہ وسلم

نے فرمایا

إِنَّمَا الْأَعْمَالُ بِالنِّيَّاتِ

ترج

اعمال کا دار و مدار نیتوں پر

Little Efforts Daily Will Make You the Greatest

To **systematically learn** and get **excellence** in any **concept / subject**

● روز کا کام روز کریں

● اک مہینے کا کھانا ایک دن میں نہیں کھایا جا سکتا،
ایسے ہی ایک مہینے کا کام ایک دن میں نہیں ہو سکتا

Little Efforts Daily Will Make You the Greatest

Importance of completing tasks on daily basis

» Main Reason of Failure in Life

- یہ کام کل کریں گے
- جو کام کبھی بھی ہو سکتا ہے وہ کبھی نہیں ہوتا
- زندگی ایک دن ہے اور وہ ہے آج۔ زندگی میں کل نام کی کوئی چیز نہیں ہے
- جو دن آپ کی زندگی سے چلا گیا اب واپس نہیں آئے گا
- آج کا کام آج ہی ہو سکتا ہے
- جو گز گیا وہ آنا نہیں ، آنے والے دن کا پتہ نہیں ، آج میدان جما ہے تو اپنے جوہر دکھاؤ

How to Achieve BIG Goals in Life

 **Balanced Life is Ideal Life** 😊

 **To achieve BIG Goals in Life**

❑ **Make a Schedule of 24 Hours with a focus on Five main components of Human Life**

- **Health**
 - **Physical Health**
 - **Mental Health**
 - **Social Health**
- **Spirituality**
- **Work**
- **Family**
- **Friends**

جو کام کریں دل سے کریں

کام کرنا۔



خوشی خوشی کام کرنا۔



اللہ کو ساتھ لے کر خوشی خوشی کام



آیت: **يَا أَيُّهَا النَّاسُ اعْبُدُوا اللَّهَ مَا لَكُمْ مِنْ إِلَهِ إِلَّا اللَّهُ خَالِقُ كُلِّ شَيْءٍ عَزِيزٌ لَّهُ عِلْمُ الْغُيُوبِ**

ترجمہ: یا اللہ ہم تیری ہی عبادت کرتے ہیں۔

اور تجھ ہی سے مدد مانگتے ہیں

Lecture Outline

- ① Revision**
- ② Activity**
- ③ Function of Activity**
- ④ Addition of New Activity**
- ⑤ Manifest file**
- ⑥ Intents**
- ⑦ Explicit and implicit intents**
- ⑧ Working of Activities**
- ⑨ Activity Lifecycle**
- ⑩ Stop Complaining! Stop Criticizing! Let's Start Contributing**
- ⑪ Lecture Summary**



Issue we Find previously



Answer

GET LETTER

SKY

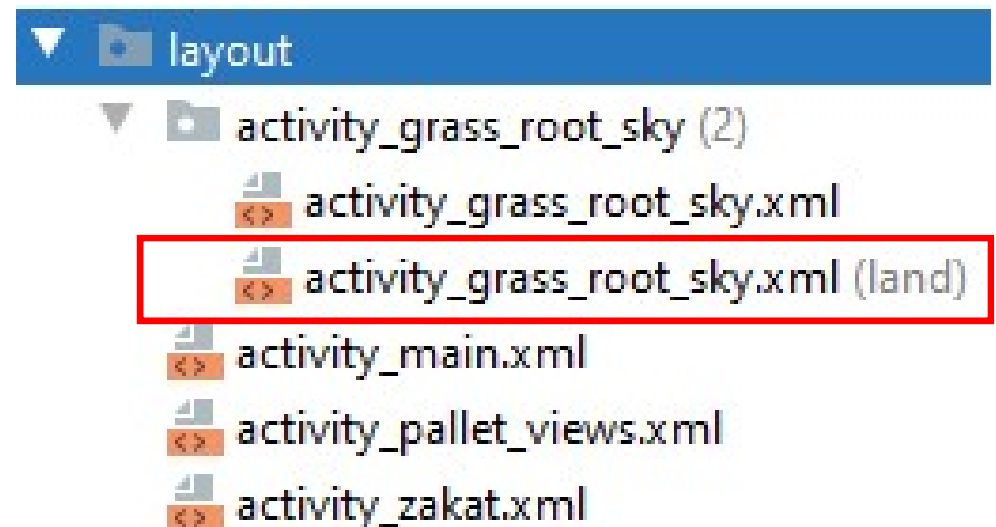
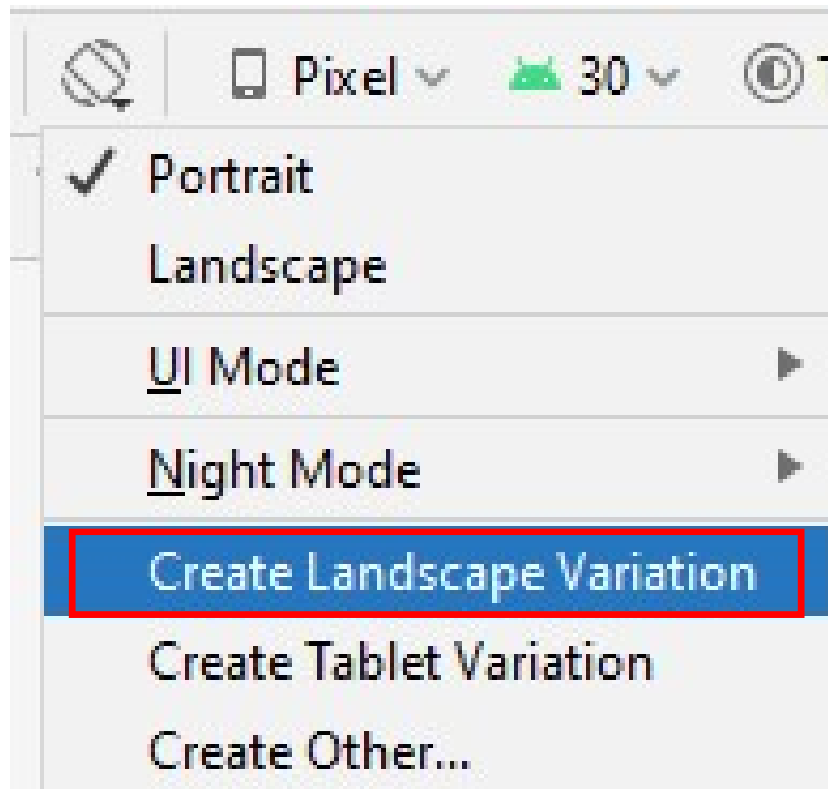
ROOT

GRASS

Tast Two



Create Landscape View





Create Landscape View

a

GET LETTER

SKY

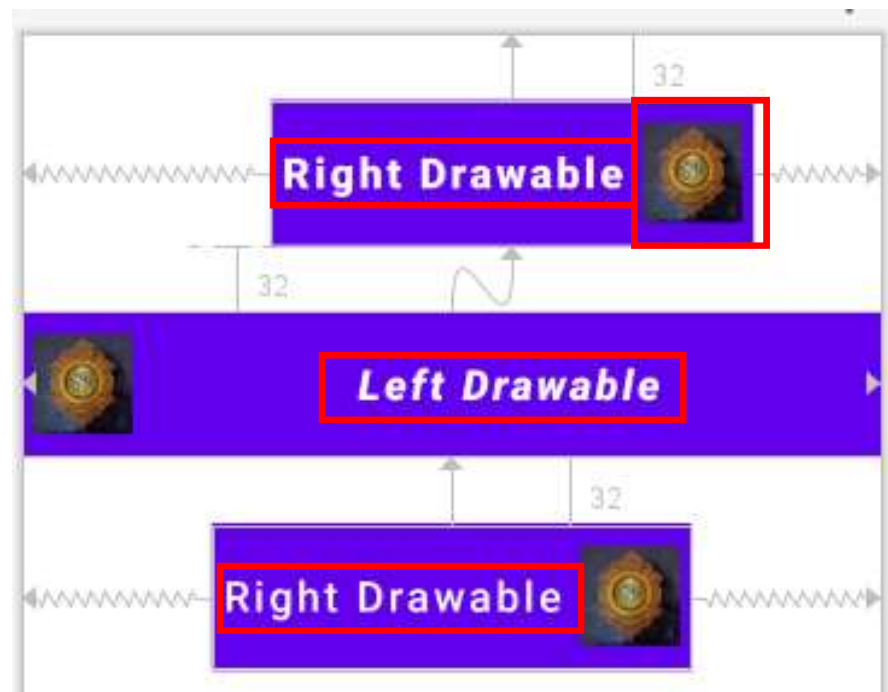
ROOT

GRASS

Answer



Button





Button Code

<Button

```
    android:id="@+id/simpleButton1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    android:background="@color/purple_200"
    android:drawableRight="@drawable/quran_fourtyeight"
    android:hint="Right Drawable"
    android:padding="5dp"
    android:textColorHint="#fff"
    android:textSize="20sp"
    android:textStyle="bold"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.66"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
```

<Button

```
    android:id="@+id/simpleButton2"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_centerInParent="true"
    android:layout_marginTop="32dp"
    android:background="@color/white"
    android:drawableLeft="@drawable/quran_fourtyeight"
    android:hint="Left Drawable"
    android:padding="5dp"
    android:textColorHint="#fff"
    android:textSize="20sp"
    android:textStyle="bold|italic"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="1.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/simpleButton1" />
```



Button Code

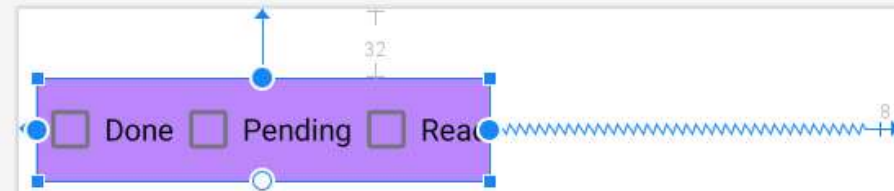
```
<Button
    android:id="@+id/simpleButton3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    android:background="@color/purple_200"
    android:drawableRight="@drawable/quran_fourtyeight"
    android:hint="Right Drawable"
    android:padding="5dp"
    android:textColorHint="#fff"
    android:textSize="20sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/simpleButton2" />
```




LinearLayout CheckBox

<LinearLayout

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="8dp"
android:layout_marginTop="32dp"
android:layout_marginEnd="8dp"
android:background="@color/purple_200"
android:orientation="horizontal"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toStartOf="parent"
```



<LinearLayout

```
android:layout_width="match_parent"
android:layout_height="wrap_content"
android:layout_marginStart="8dp"
android:layout_marginTop="32dp"
android:layout_marginEnd="8dp"
android:background="@color/purple_200"
android:orientation="horizontal"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.0"
app:layout_constraintStart_toStartOf="parent"
```





LinearLayout CheckBox

<CheckBox

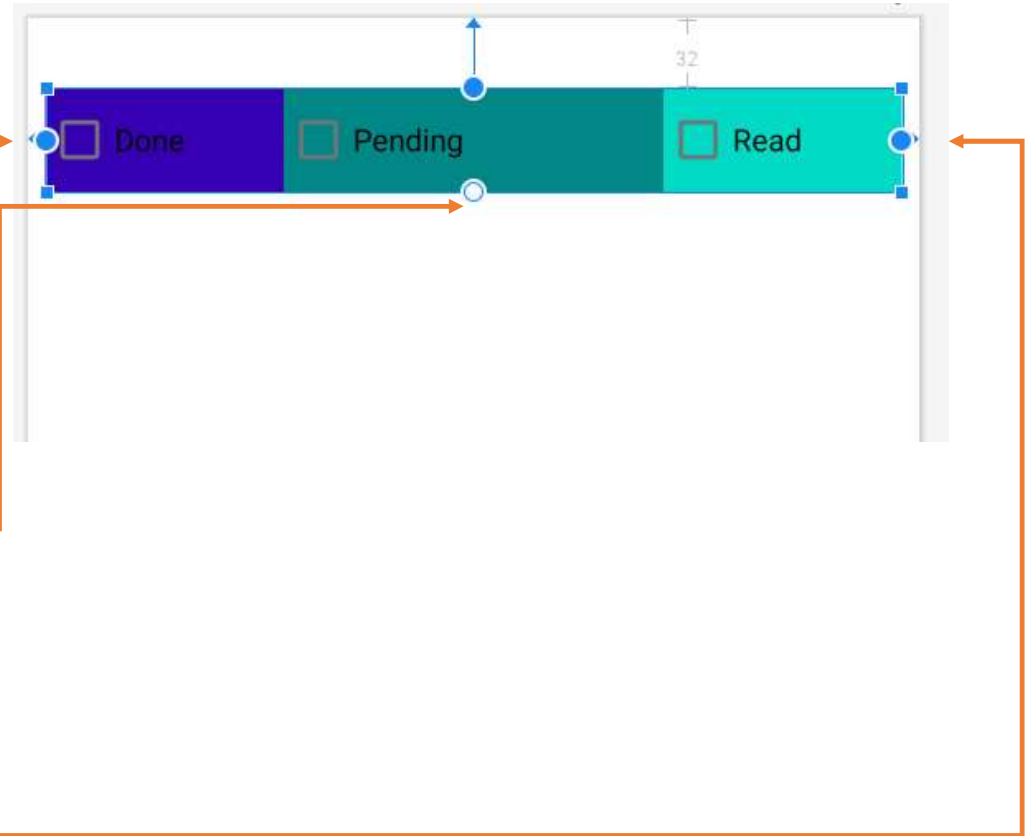
```
android:id="@+id/checkboxDone"
android:background="@color/purple_700"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:text="Done" />
```

<CheckBox

```
android:id="@+id/checkboxPending"
android:background="@color/teal_700"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="2"
android:text="Pending" />
```

<CheckBox

```
android:id="@+id/checkboxRead"
android:background="@color/teal_200"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_weight="1"
android:text="Read" />
```





LinearLayout CheckBox

<CheckBox

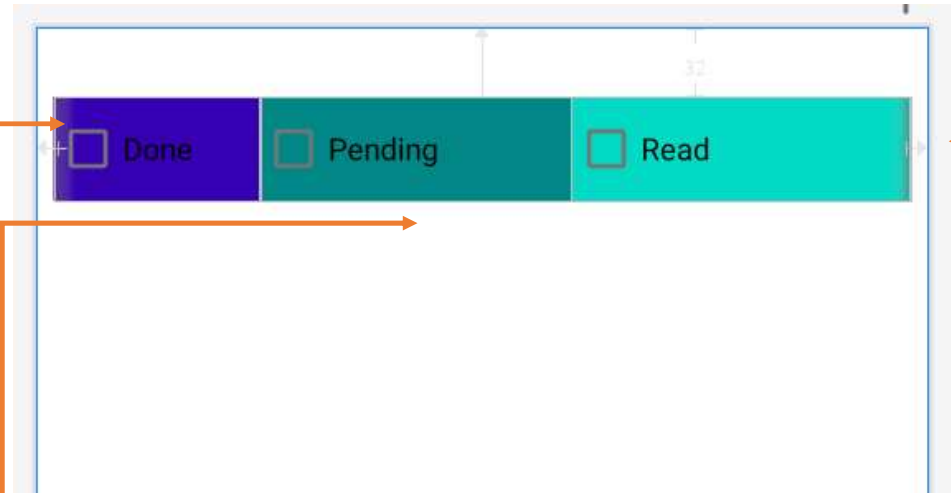
```
android:id="@+id/checkboxDone"  
android:background="@color/purple_700"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_weight="1"  
android:text="Done" />
```

<CheckBox

```
android:id="@+id/checkboxPending"  
android:background="@color/teal_700"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_weight="2"  
android:text="Pending" />
```

<CheckBox

```
android:id="@+id/checkboxRead"  
android:background="@color/teal_200"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_weight="3"  
android:text="Read" />
```





LinearLayout CheckBox Code

```
<LinearLayout
```

```
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    android:background="@color/purple_200"
    android:orientation="horizontal"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/simpleButton3">
```

```
<CheckBox
```

```
    android:id="@+id/checkBox4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="Done" />
```

```
<CheckBox
```

```
    android:id="@+id/checkBox5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="Pending" />
```

```
<CheckBox
```

```
    android:id="@+id/checkBox3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    android:text="Read" />
```

```
</LinearLayout>
```

implements **OnClickListenerView**

```
public class PalletViews extends AppCompatActivity implements View.OnClickListener {
```

```
    CheckBox checkBoxDone, checkBoxPending, checkBoxRead;
```

```
@Override
```

```
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_pallet_views);
```

```
        checkBoxDone = findViewById(R.id.checkBoxDone);  
        checkBoxDone.setOnClickListener(this);
```

```
    }
```

```
@Override
```

```
    public void onClick(View v) {  
    }
```



implements OnClickListenerView.

```
public class PalletViews extends AppCompatActivity implements
OnClickListenerView {
    CheckBox checkBoxDone, checkBoxPending, checkBoxRead;
    Button simpleButton2;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_pallet_views);

        checkBoxDone = findViewById(R.id.checkBoxDone);
        checkBoxDone.setOnClickListener(this);

        checkBoxPending = findViewById(R.id.checkBoxPending);
        checkBoxPending.setOnClickListener(this);

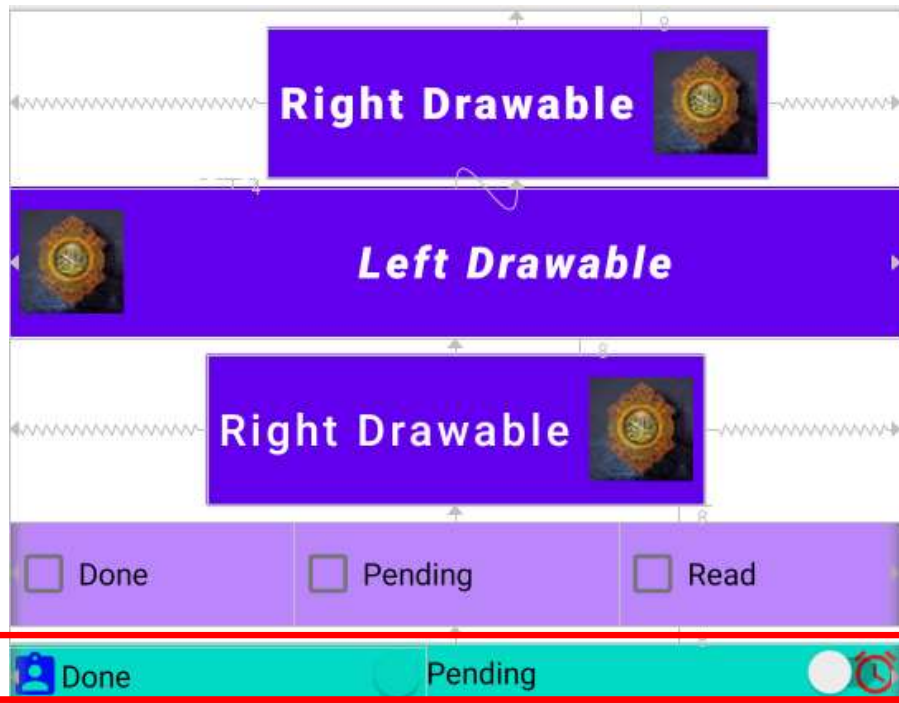
        checkBoxRead = findViewById(R.id.checkBoxRead);
        checkBoxRead.setOnClickListener(this);

        simpleButton2 = findViewById(R.id.simpleButton2);
    }
}

@Override
public void onClick(View v) {
    switch (v.getId()) {
        case R.id.checkBoxDone:
            if (checkBoxDone.isChecked())
                simpleButton2.setText("Check Box Done");
            break;
        case R.id.checkBoxPending:
            if (checkBoxPending.isChecked())
                simpleButton2.setText("Check Box Pending");
            break;
        case R.id.checkBoxRead:
            if (checkBoxRead.isChecked())
                simpleButton2.setText("Check Box Read");
            break;
    }
}
```



LinearLayout Switch



:Switch

```
android:id="@+id/switchDone"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_gravity="center"  
android:layout_weight="1"  
android:checked="true"
```



```
android:drawableStart="@drawable/ic_baseline_assignment_ind_24"  
android:text="Done" />
```

<Switch

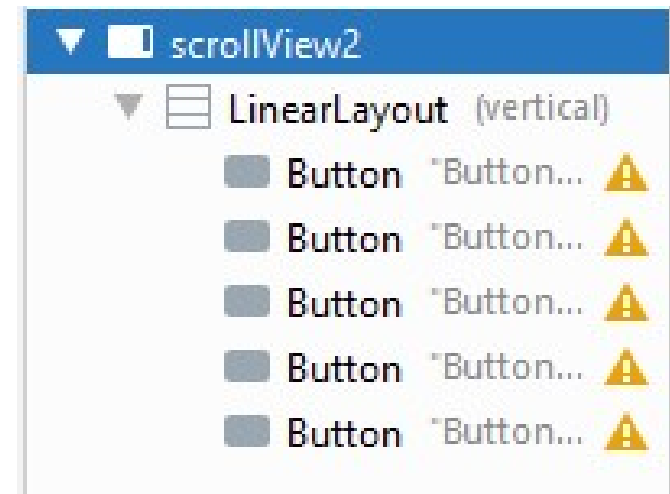
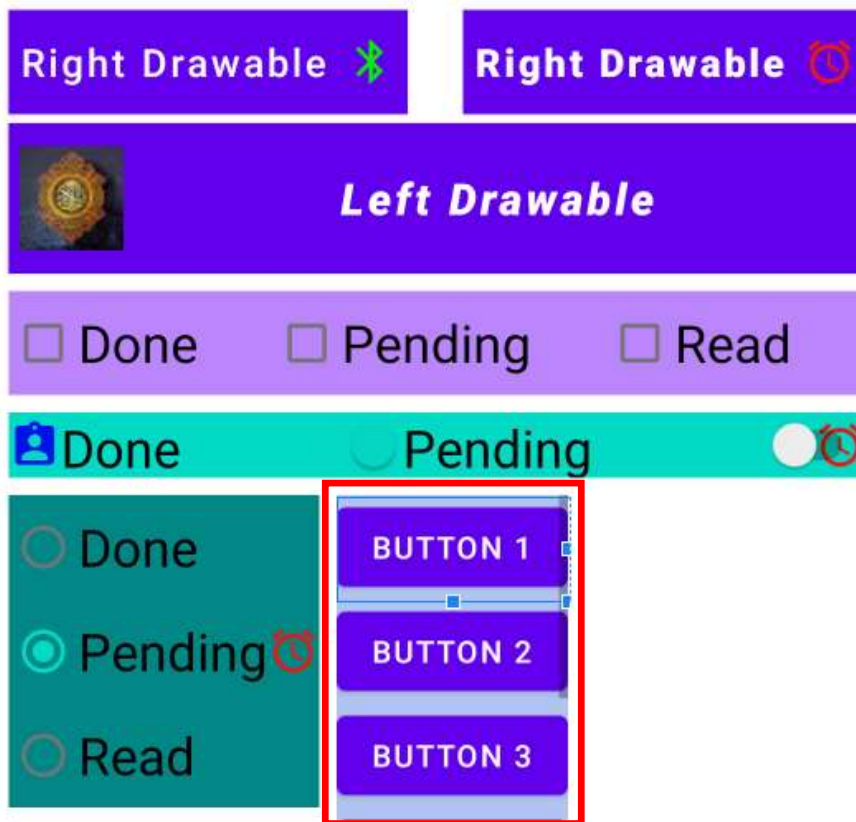
```
android:id="@+id/switchPending"  
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:layout_weight="1"
```



```
android:drawableRight="@drawable/ic_baseline_alarm_24"  
android:text="Pending" />
```



ScrollView





ScrollView Code

```
<ScrollView
    android:id="@+id/scrollView2"
    android:layout_width="wrap_content"
    android:layout_height="150dp"
    android:layout_marginStart="8dp"
    android:layout_marginTop="8dp"
    android:scrollbars="vertical"
    app:layout_constraintStart_toEndOf="@+id/linearLayout3"

    app:layout_constraintTop_toBottomOf="@+id/linearLayout2">

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="150dp"
        android:background="#B1C3F1"
        android:orientation="vertical"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toEndOf="@+id/linearLayout3"
        app:layout_constraintTop_toBottomOf="@+id/linearLayout2">
```

```
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button 1" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button 2" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button 3" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button 4" />
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button 5" />
</LinearLayout>
</ScrollView>
```



Activity

- **Desktop paradigm vs Android**
- **One App invokes another**
- **Splash Activity**
- **Main Activity / Entry Point**



Activity

- **An Activity is an application component**
- **Represents one window, one hierarchy of views**
- **Typically fills the screen, but can be embedded in other Activity or appear as floating window**
- **Java class, typically one Activity in one file**



Activity

An activity is a single, focused thing that the user can do. Almost all activities interact with the user, so the **Activity class takes care of creating a window for you in which you can place your UI with setContentView(View)**. While activities are often presented to the user as full-screen windows, they can also be used in other ways: as floating windows (via a theme with `R.attr.windowIsFloating` set), Multi-Window mode or embedded into other windows. There are two methods almost all subclasses of Activity will implement:



Configuring the manifest

- **For your app to be able to use activities, you must declare the activities, and certain of their attributes, in the manifest.**



Configuring the manifest

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="Test"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Test">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>
```

- intent-filter to start from launcher



Configuring the manifest

Declare activities

To declare your activity, open your manifest file and add an `<activity>` element as a child of the `<application>` element. For example:

```
<manifest ... >
  <application ... >
    <activity android:name=".ExampleActivity" />
    ...
  </application ... >
  ...
</manifest >
```

The only required attribute for this element is `android:name`, which specifies the class name of the activity. You can also add attributes that define activity characteristics such as label, icon, or UI theme. For more information about these and other attributes, see the `<activity>` element reference documentation.



Declare intent filters

- They provide the ability to launch an activity
 - Explicit
 - Implicit
- **<intent-filter>** attribute in the **<activity>** element



Start a task

Start a task

You can set up an activity as the entry point for a task by giving it an intent filter with `"android.intent.action.MAIN"` as the specified action and `"android.intent.category.LAUNCHER"` as the specified category. For example:

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



Functions of Activity

- **Represents an activity, reciting “surah”, sending email, dialing number**
- **Handles user interactions, such as button clicks, text entry, or login verification**
- **Can start other activities in the same or other apps**
- **Has a life cycle—is created, started, runs, is paused, resumed, stopped, and destroyed**

Examples of Activities

مضارع منسوب	امر	مضارع مجھول	ماضی مجھول	مضارع منکر
واحد مذکر غائب	يَذْهَبُ			
متثنیہ مذکر غائب	يَذْهَبَانِ			
جمع مذکر غائب	يَذْهَبُونَ			
واحد مؤنث غائب	تَذْهَبُ			
متثنیہ مؤنث غائب	تَذْهَبَانِ			
جمع مؤنث غائب	يَذْهَبْنَ			
واحد مذکر حاضر	يَذْهَبُ			
متثنیہ مذکر حاضر	يَذْهَبَانِ			
جمع مذکر حاضر	يَذْهَبُونَ			
واحد مؤنث حاضر	يَذْهَبِينَ			
متثنیہ مؤنث حاضر	يَذْهَبَانِ			
جمع مؤنث حاضر	يَذْهَبْنَ			
واحد مذکر/مؤنث متکلم	أَذْهَبُ			
متثنیہ/جمع مذکر/مؤنث متکلم	نَذْهَبُ			

تلاش

انفت

تلاش

63- ۸۰ آئید نمبر

وَأَلَّفَ بَيْنَ قُلُوبِهِمْ لَوْ أَنفَقَ مَا فِي الْأَرْضِ جَمِيعًا مَا أَلَّفْتَ بَيْنَ قُلُوبِهِمْ
لَوْ أَنَّهُ أَلَّفَ بَيْنَهُمْ إِنَّهُ عَزِيزٌ عَلِيمٌ ﴿٦٣﴾

اور ان کے دلوں میں ایک دوسرے کی الفت پیدا کردی۔ اگر تم
زمین بھر کی ساری دولتیں بھی خرچ کر لیتے تو ان کے دلوں میں یہ
الفت پیدا نہ کر سکتے، لیکن اللہ نے ان کے دلوں کو جوڑ دیا، وہ یقیناً
اتحاد کرنا بھی مایک ہے، کشت کا بھی مایک۔

34- ۱۰۰ آئید نمبر

قُلْ إِنِّي نَذَرْتُ لِلرَّحْمَنِ نَذَارًا ۖ مَا أَكْفَيْتُكُمْ شَيْئًا
وَلَمْ أَكُنْ بِكُمْ بِخَالِفًا ۚ ﴿٣٤﴾

کہہ دو کہ: میرا پروردگار اپنے بندوں میں سے جس کے لیے چاہتا ہے
رزق کی فراہمی کر دیتا ہے، اور (جس کے لیے چاہتا ہے) کچھ کر دیتا
ہے۔ اور تم جو چیز بھی خرچ کرتے ہو وہ اس کی جگہ اور چیز دے دیتا

پاره منتخب کویں	
۱	۱-الم
2	۲-سیقول
3	۳-تلك الرسل
4	۴-لن تتناولوا بهر
5	۵-والبحصنت
6	۶-لا يحب الله
7	۷-واذا سمعوا
8	۸-ولواننا
9	۹-قال الملاء

Add New Activity

The screenshot illustrates the process of adding a new activity in an Android Studio environment. The 'New' menu is open, showing options like 'Java Class', 'Kotlin File/Class', 'Android Resource File', etc. The 'Activity' option is selected, opening a sub-menu with various activity templates. The 'Empty Activity' option is highlighted.

Main Menu Options:

- New
 - Link C++ Project with Gradle
 - Cut
 - Copy
 - Copy Path
 - Copy Reference
 - Paste
 - Find Usages
 - Find in Path...
 - Replace in Path...
 - Analyze
 - Refactor
 - Add to Favorites
 - Show Image Thumbnails
 - Reformat Code
 - Optimize Imports
 - Delete...
 - Run 'Tests in 'org.haqnawaz.mc20201005''
 - Debug 'Tests in 'org.haqnawaz.mc20201005''
 - Run 'Tests in 'org.haqnawaz.mc20201005'' with Coverage
 - Create 'Tests in 'org.haqnawaz.mc20201005''...
 - Reveal in Finder
 - Open in Terminal
 - Local History


Activity Sub-menu Options:


- Gallery...
 - Android TV Activity
 - Android Things Empty Activity (Requires minSdk >= 24)
 - Android Things Peripheral Activity (Requires minSdk >= 24)
 - Basic Activity
 - Blank Wear Activity (Requires minSdk >= 23)
 - Bottom Navigation Activity
 - Empty Activity**
 - Fragment + ViewModel
 - Fullscreen Activity
 - Login Activity
 - Master/Detail Flow
 - Navigation Drawer Activity
 - Scrolling Activity
 - Settings Activity
 - Tabbed Activity



Add New Activity

New Android Activity

 **Configure Activity**
Android Studio



Creates a new empty activity

Activity Name:

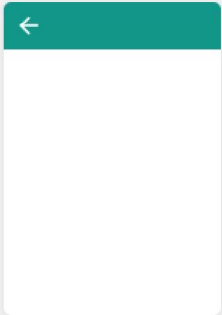
☒ Generate Layout File

Layout Name:

☐ Launcher Activity

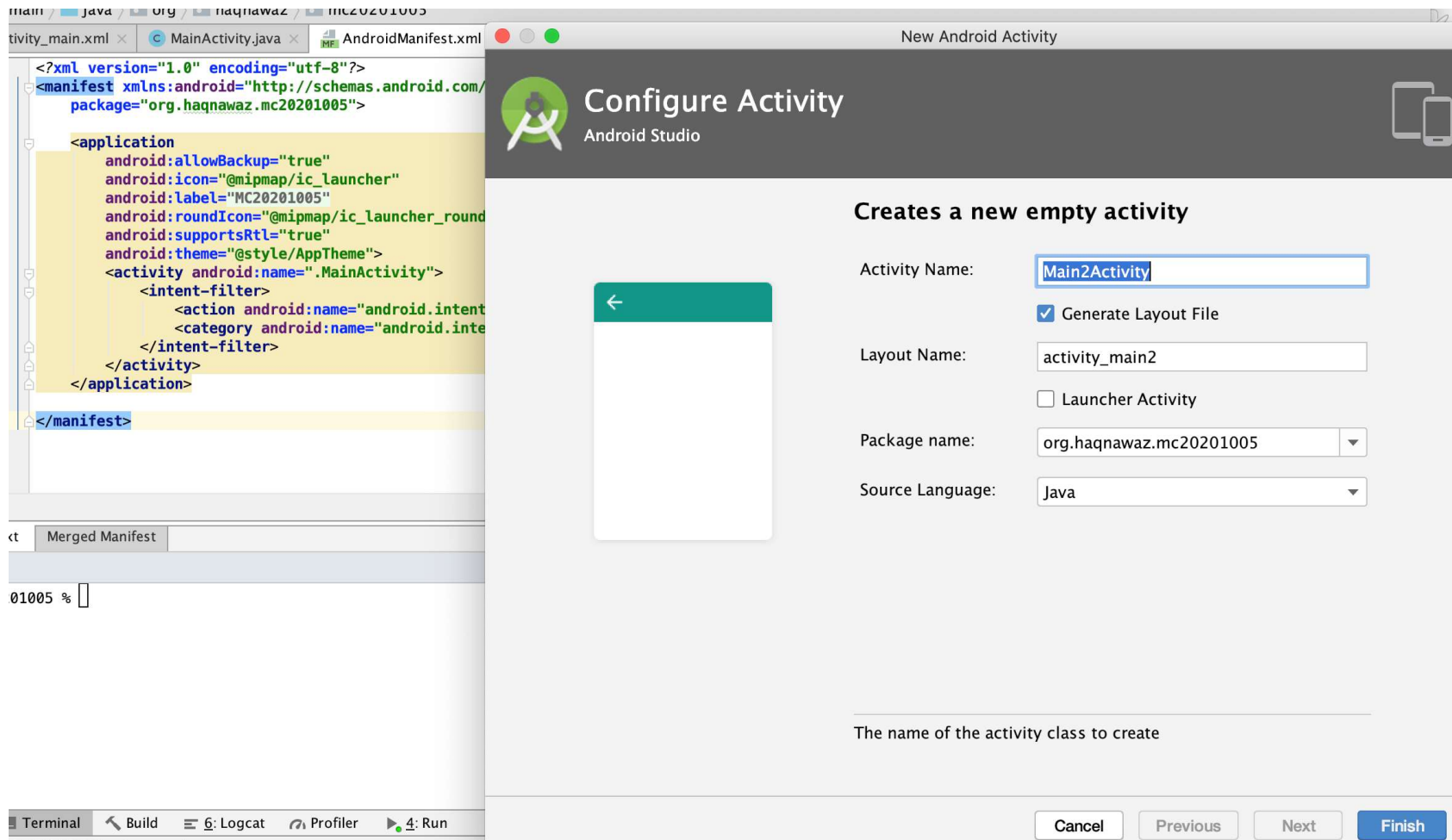
Package name:

Source Language:



The name of the activity class to create

Add New Activity



The screenshot shows the Android Studio interface with the 'New Android Activity' dialog open. The dialog is titled 'Configure Activity' and 'Android Studio'. It features a preview of a mobile app interface on the left and configuration options on the right.

Configure Activity
Android Studio

Creates a new empty activity

Activity Name:

☒ Generate Layout File

Layout Name:

☐ Launcher Activity

Package name:

Source Language:

The name of the activity class to create

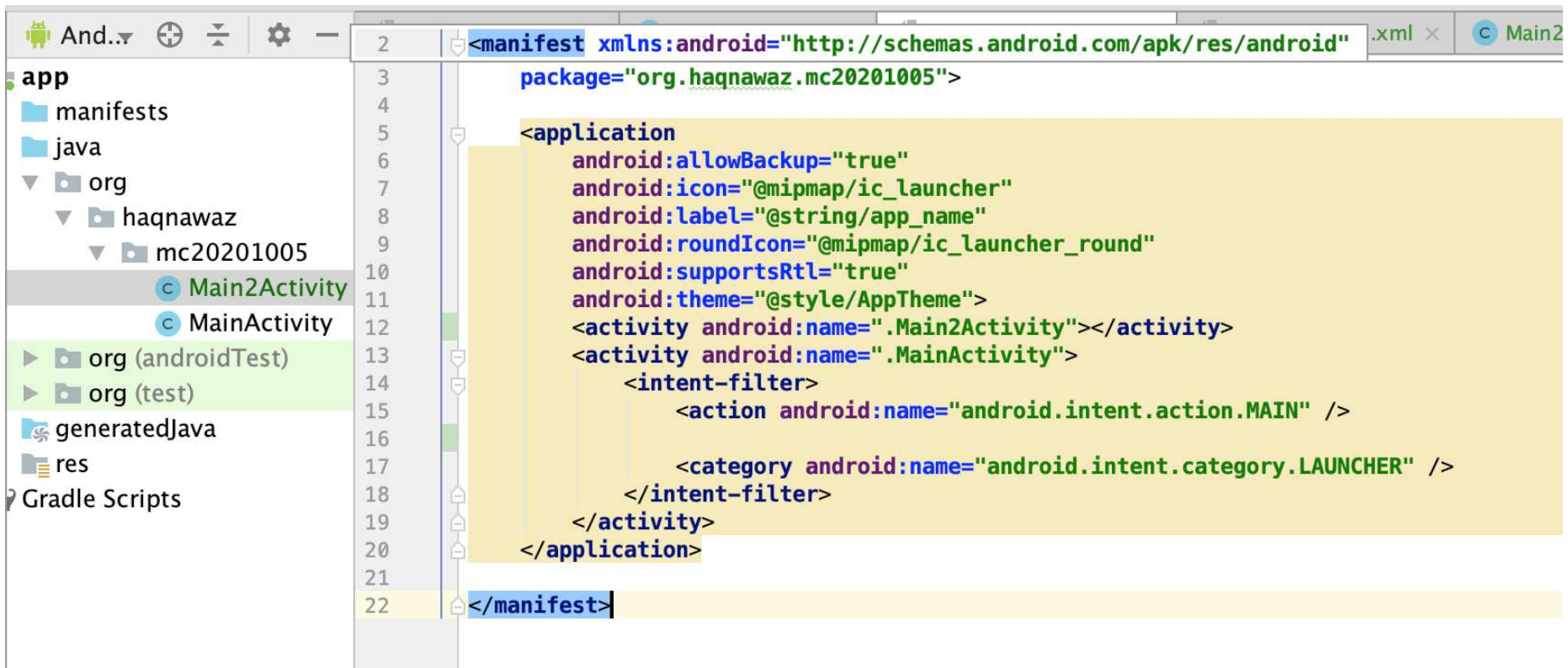
Buttons: Cancel, Previous, Next, Finish

AndroidManifest.xml

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="org.haqnawaz.mc20201005">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="MC20201005"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN">
                <category android:name="android.intent.category.LAUNCHER">
            </intent-filter>
        </activity>
    </application>
</manifest>
```

Add New Activity



```
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3 package="org.haqnawaz.mc20201005"
4
5 <application
6     android:allowBackup="true"
7     android:icon="@mipmap/ic_launcher"
8     android:label="@string/app_name"
9     android:roundIcon="@mipmap/ic_launcher_round"
10    android:supportRtl="true"
11    android:theme="@style/AppTheme">
12    <activity android:name=".Main2Activity"></activity>
13    <activity android:name=".MainActivity">
14        <intent-filter>
15            <action android:name="android.intent.action.MAIN" />
16
17            <category android:name="android.intent.category.LAUNCHER" />
18        </intent-filter>
19    </activity>
20 </application>
21
22 </manifest>
```

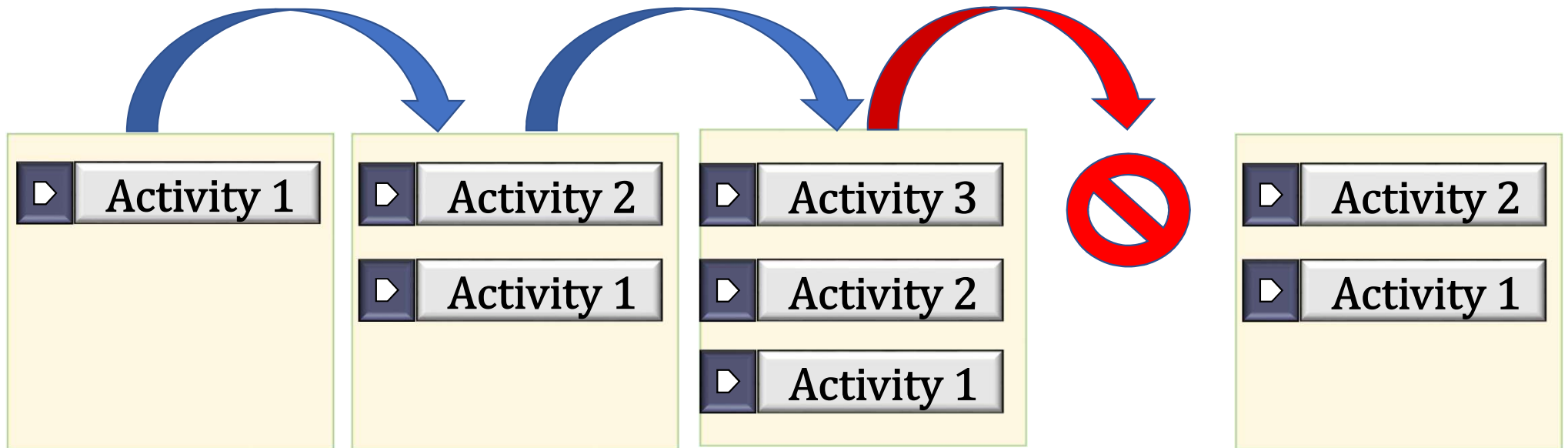



Tasks and the back stack

- A task is a collection of activities that users interact with when trying to do something in your app. These activities are arranged in a stack—the back stack—in the order in which each activity is opened. For example, an email app might have one activity to show a list of new messages. When the user selects a message, a new activity opens to view that message. This new activity is added to the back stack. Then, if the user presses or gestures Back, that new activity is finished and popped off the stack.



Tasks and the back stack





Tasks and the back stack

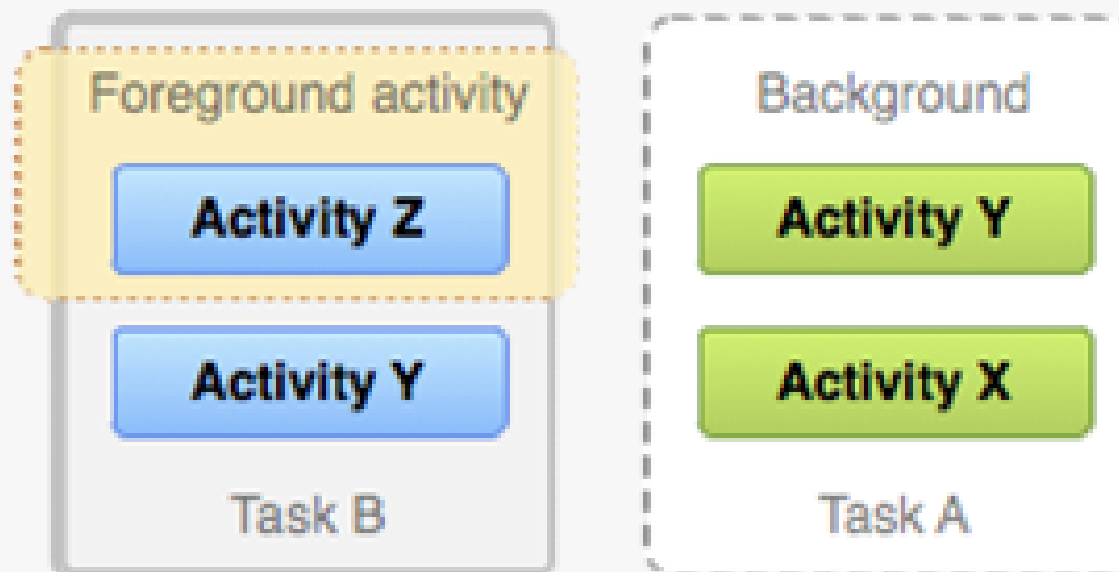
- Root launcher activities are activities that declare an Intent filter with both **ACTION_MAIN** and **CATEGORY_LAUNCHER**. These activities are unique because they act as entry points into your app from the app launcher and are used to start a task.
- When a user presses or gestures Back from a root launcher activity, the system handles the event differently depending on the version of Android that the device is running.

```
<activity android:name=".PalletViews">
  <intent-filter>
    <action android:name="android.intent.action.MAIN" />
    <category android:name="android.intent.category.LAUNCHER" />
  </intent-filter>
</activity>
<activity android:name=".GrassRootSky"></activity>
<activity android:name=".ZakatActivity"></activity>
<activity android:name=".MainActivity"></activity>
```



Background and foreground tasks

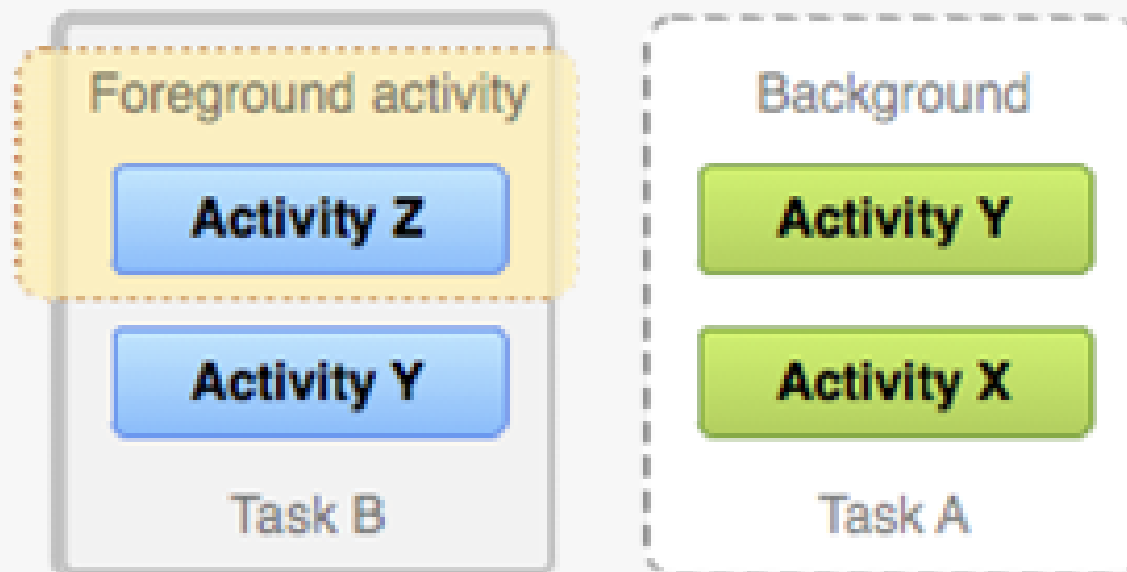
- The user uses the **Home button or gesture**, then starts a **new app** from the app launcher. When the Home screen appears, **Task A goes into the background**. When the new app starts, the system starts a task for that app (Task B) with its own stack of activities.





Background and foreground tasks

- After interacting with that app, the user **returns Home again** and selects the app that originally started Task A. Now, Task A comes to the foreground





Extract Resources

<https://developer.android.com/guide/components/activities/intro-activities>

<https://medium.com/androiddevelopers/tasks-and-the-back-stack-dbb7c3b0f6d4#.g6dck3mde>

<https://developer.android.com/guide/components/activities/tasks-and-back-stack>