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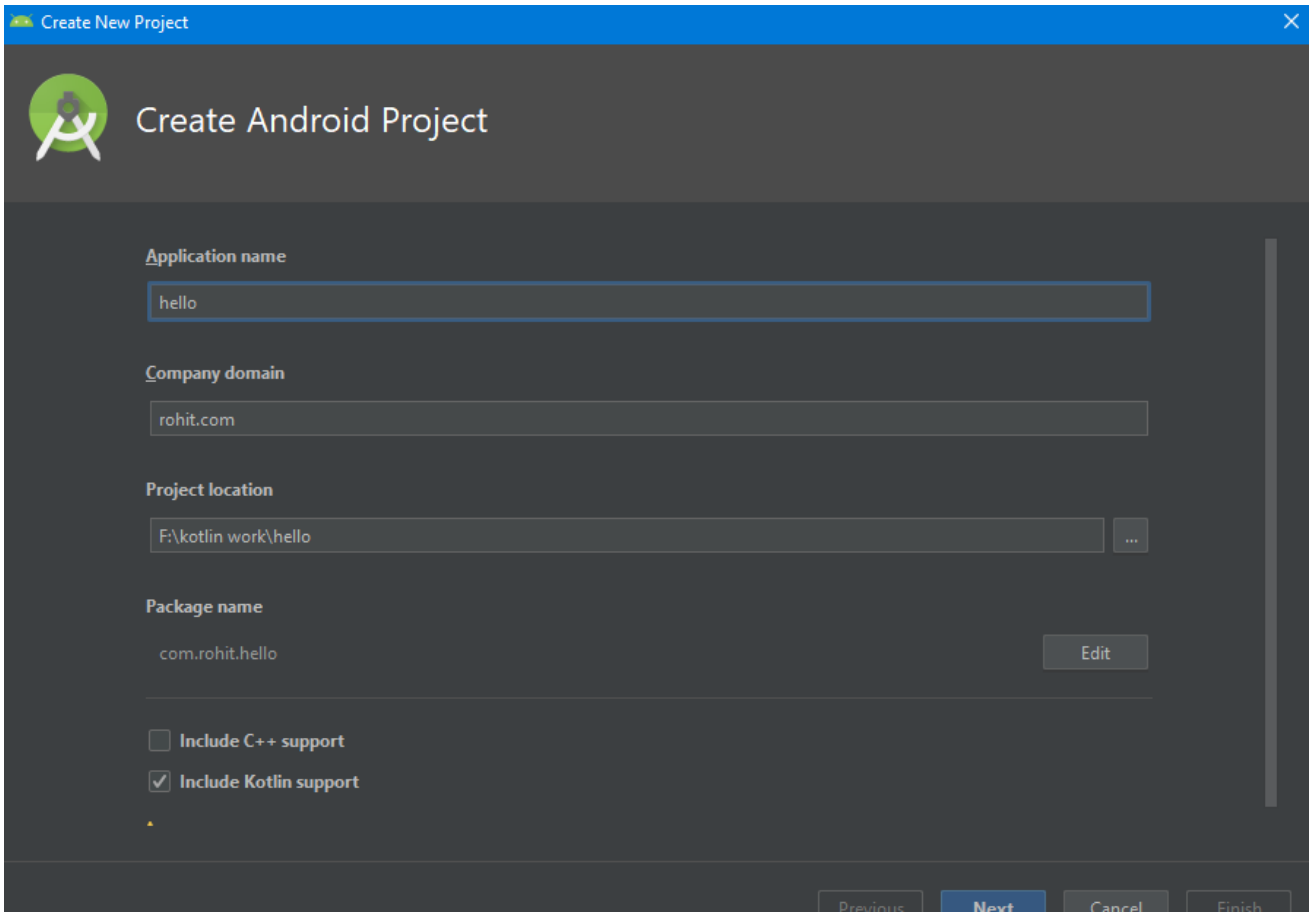
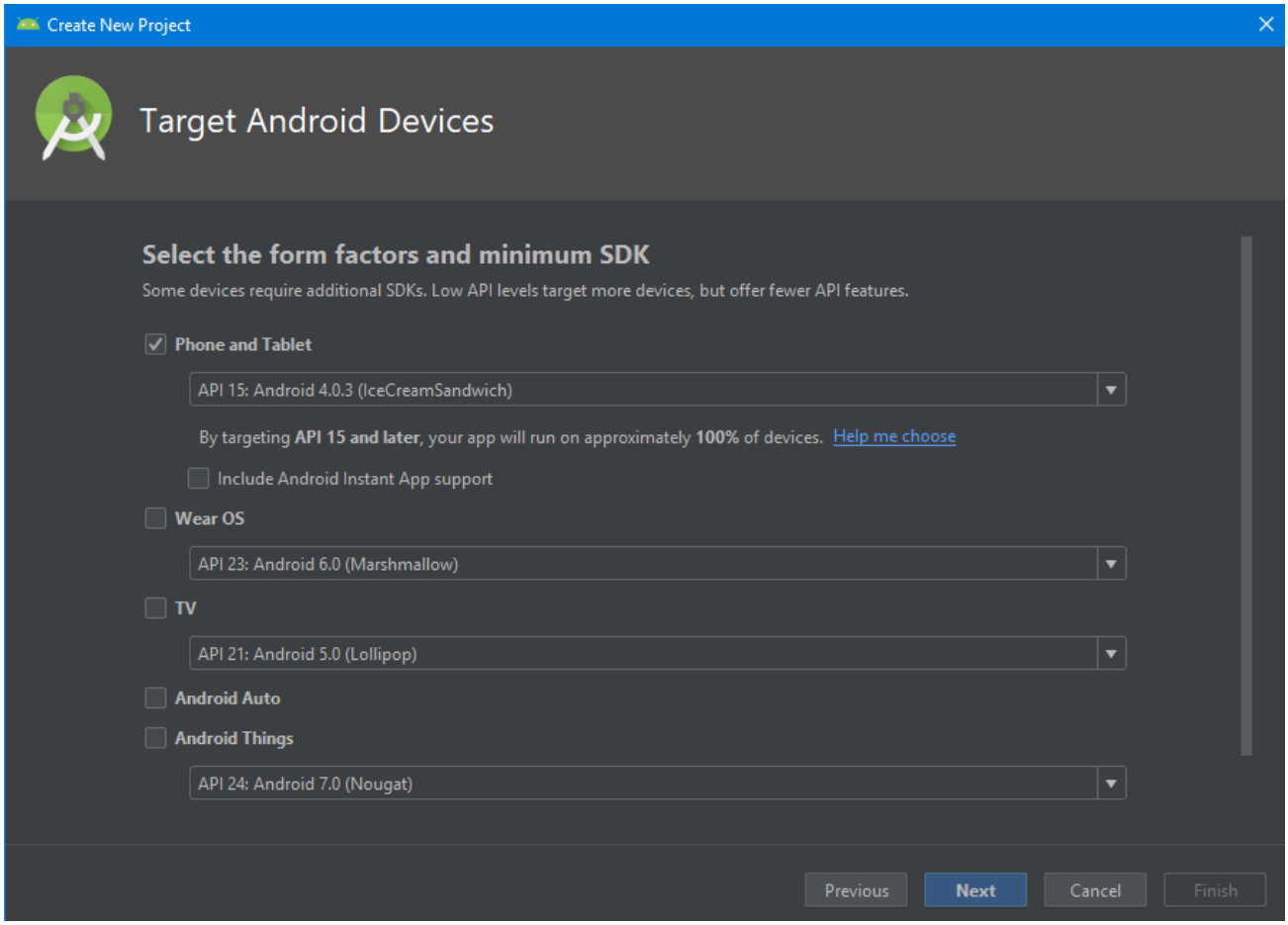
PRACTICAL 1

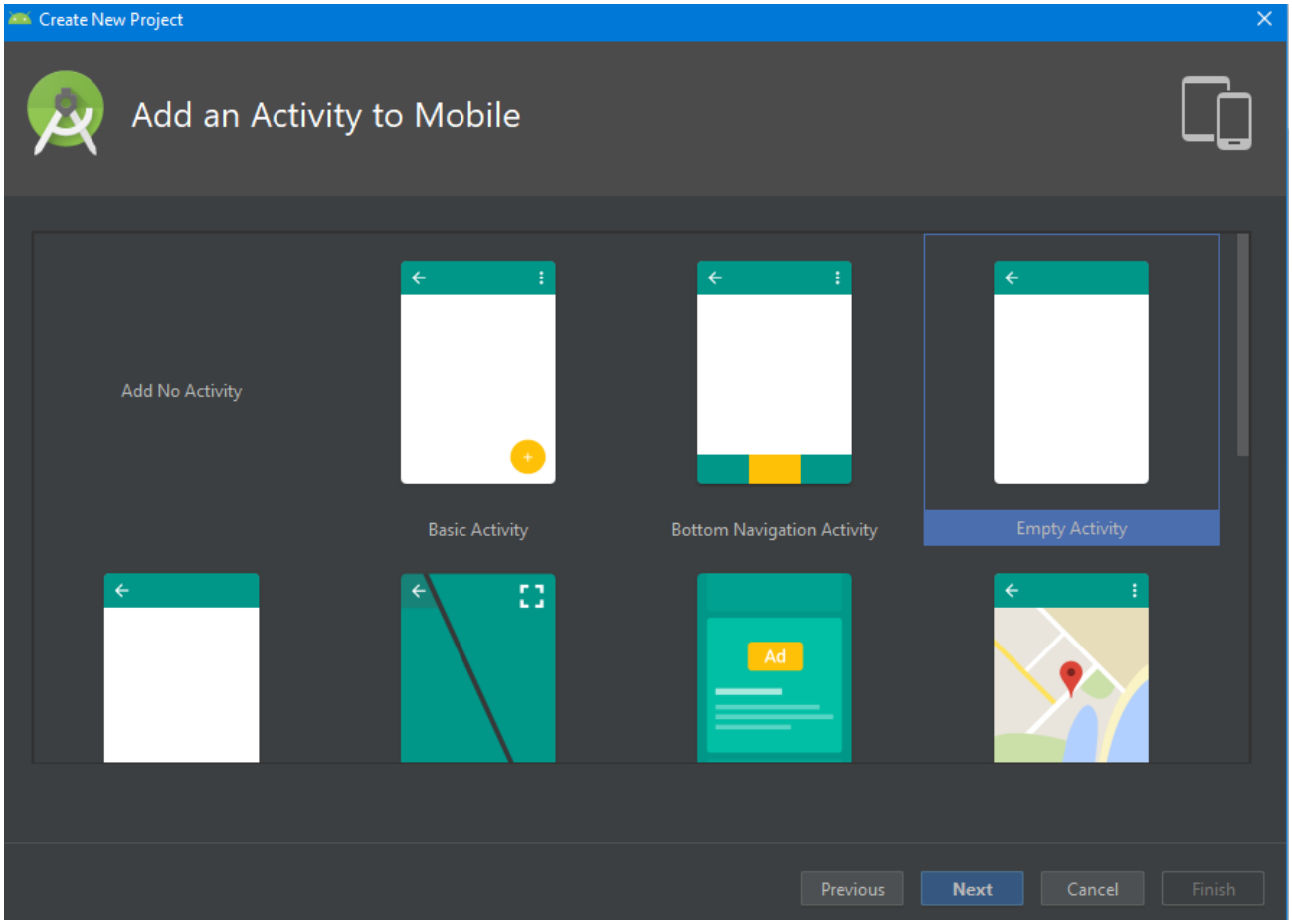
1. Introduction to Android, Introduction to Android Studio IDE, Application Fundamentals: Creating a Project, Android Components, Activities, Services, Content Providers, Broadcast Receivers, Interface overview, Creating Android Virtual device, USB debugging mode, Android Application Overview. Simple “Hello World” program.

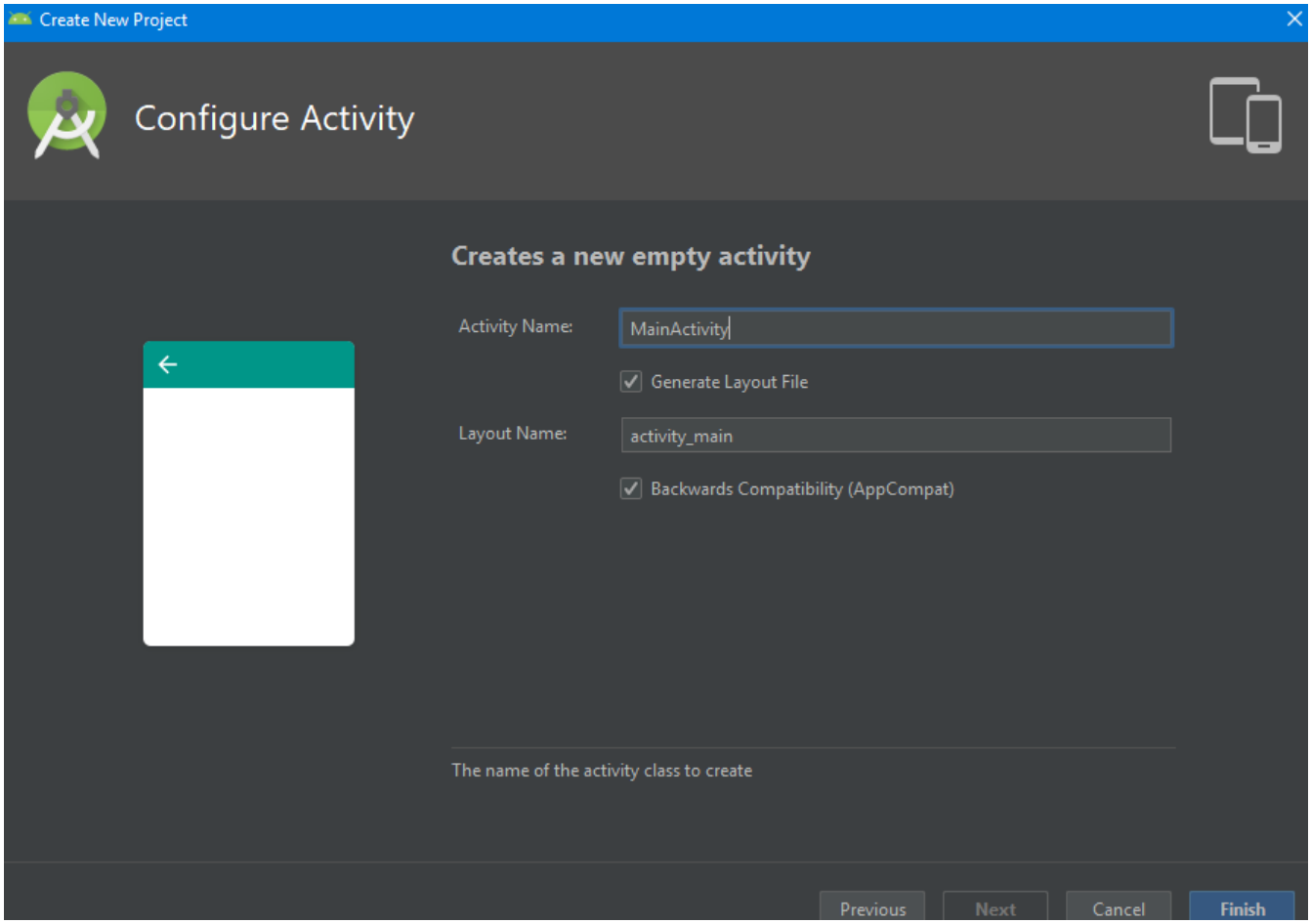
Solution:

Creating a project:




Create New Project
Target Android Devices
Select the form factors and minimum SDK
Some devices require additional SDKs. Low API levels target more devices, but offer fewer API features.
Phone and Tablet
API 15: Android 4.0.3 (IceCreamSandwich)
By targeting API 15 and later, your app will run on approximately 100% of devices. Help me choose
Include Android Instant App support
Wear OS
API 23: Android 6.0 (Marshmallow)
TV
API 21: Android 5.0 (Lollipop)
Android Auto
Android Things
API 24: Android 7.0 (Nougat)
Previous
Next
Cancel
Finish


Create New Project
Add an Activity to Mobile
Add No Activity
Basic Activity
Bottom Navigation Activity
Empty Activity
Ad
Previous
Next
Cancel
Finish



Activity_Main.Kt

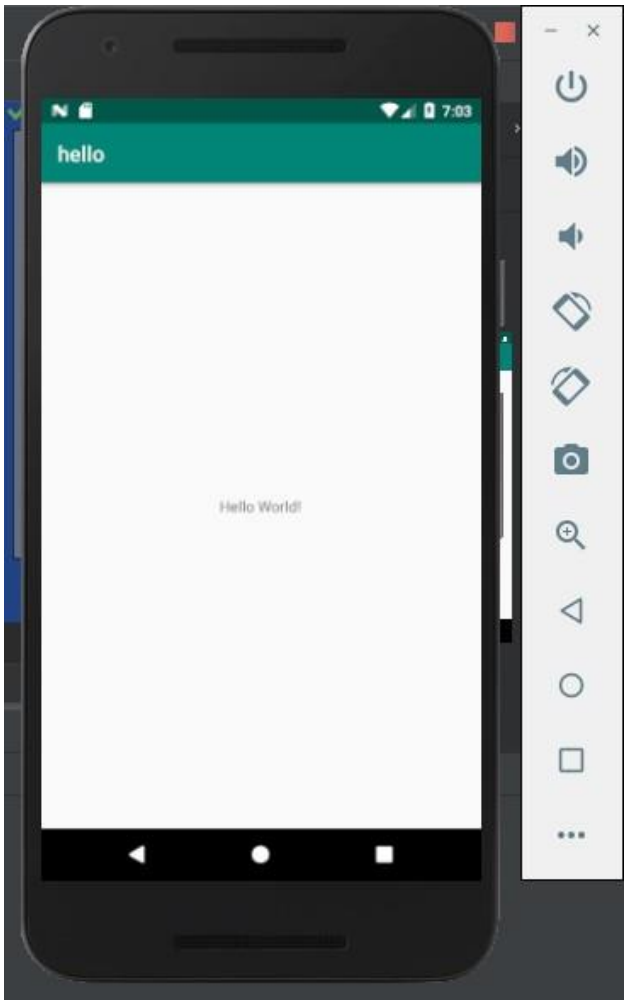
```
package com.rohit.hello

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
}
```

Activity_Main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
        xmlns:android="http://schemas.android.com/apk/res/android"
        xmlns:tools="http://schemas.android.com/tools"
        xmlns:app="http://schemas.android.com/apk/res-auto"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MainActivity">

    <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Hello World!"
```

```
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"
            app:layout_constraintTop_toTopOf="parent"/>

</android.support.constraint.ConstraintLayout>
```

Apk in avd:



BroadcastActivity:

How to receiving Broadcast

Apps can receive and android BroadcastReceiver in two ways: through manifest-declared receivers and context-registered receivers. In this example, we are approaching manifest-declared Receiver. Learn step by step to the kotlin broadcast receiver example works.

Step 1. Create an android app, For creating an Android app with kotlin read this tutorial.

Step 2. Creating Broadcast Receiver

Create and extend Subclass and BroadcastReceiver implement. onReceive(Context, Intent) where onReceive method each message is received as an Intent object parameter.

MyReceiver.kt:

```
import android.content.BroadcastReceiver

import android.content.Context

import android.content.Intent

import android.widget.Toast


class MyReceiver : BroadcastReceiver() {


    override fun onReceive(context: Context, intent: Intent) {

        // TODO: This method is called when the BroadcastReceiver is receiving

        // an Intent broadcast.

        Toast.makeText(context, "Broadcast : Flight mode changed.",

                Toast.LENGTH_LONG).show()

    }
```

}

3. Declare a broadcast receiver in the manifest file

add the element<receiver> in your app's manifest. Here is code snap

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

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"

        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="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>


        <receiver
            android:name=".MyReceiver"
            android:enabled="true"
            android:exported="true">
```

```
<intent-filter>
    <action android:name="android.intent.action.AIRPLANE_MODE"/>
</intent-filter>
```

```
        </receiver>
    </application>


</manifest>
```

Note: If the app is not running and broadcast receiver declared in AndroidManifest.xml, then the system will launch your app.

Step 4. MainActivity code, no needs to do anything

MainActivity.kt:

```
import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

    }
}
```

Step 5. Add following code in main_activity.xml

add <ImageView> and <TextView>widget layout file.

main_activity.xml:

```
<?xml version="1.0" encoding="utf-8"?>

<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"
```

```
android:layout_height="match_parent"
android:background="@color/colorPrimary"
tools:context="in.eyehunt.androidbroadcasts.MainActivity">


<ImageView
   android:id="@+id/imageView"
   android:layout_width="40dp"
   android:layout_height="40dp"
   android:layout_margin="8dp"
   android:layout_marginTop="16dp"

   app:layout_constraintStart_toStartOf="parent"
   app:layout_constraintTop_toTopOf="parent"
   app:srcCompat="@mipmap/baseline_airplanemode_active_white_24" />


<TextView
   android:id="@+id/textView"
   android:layout_width="300dp"
   android:layout_height="36dp"
   android:layout_marginEnd="8dp"
   android:layout_marginStart="8dp"
   android:gravity="center_vertical"
   android:text="Flight Mode"

   android:textColor="@color/colorWhite"
   android:textSize="24dp"
   app:layout_constraintEnd_toEndOf="parent"
```

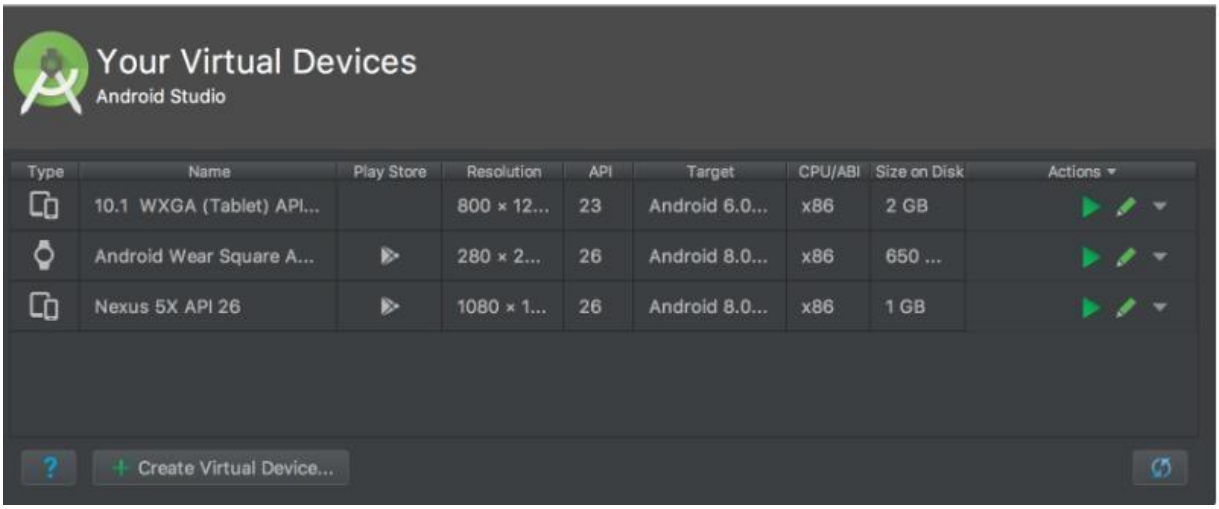
```
app:layout_constraintStart_toEndOf="@+id/imageView"
app:layout_constraintTop_toTopOf="@+id/imageView" />
```

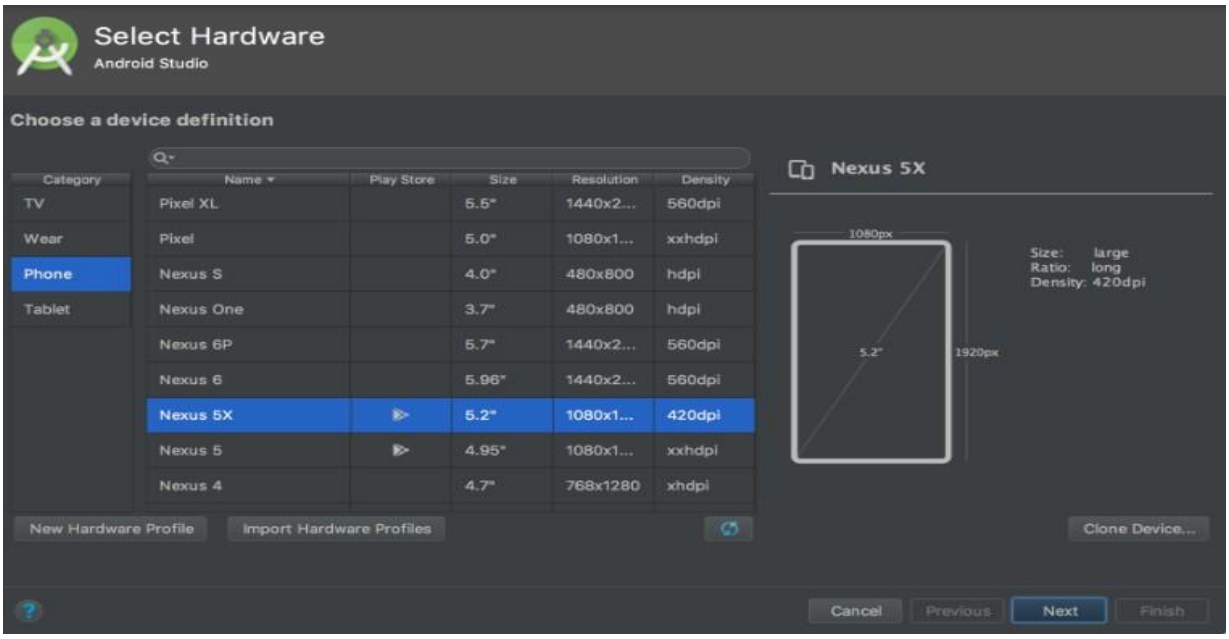
</android.support.constraint.ConstraintLayout>

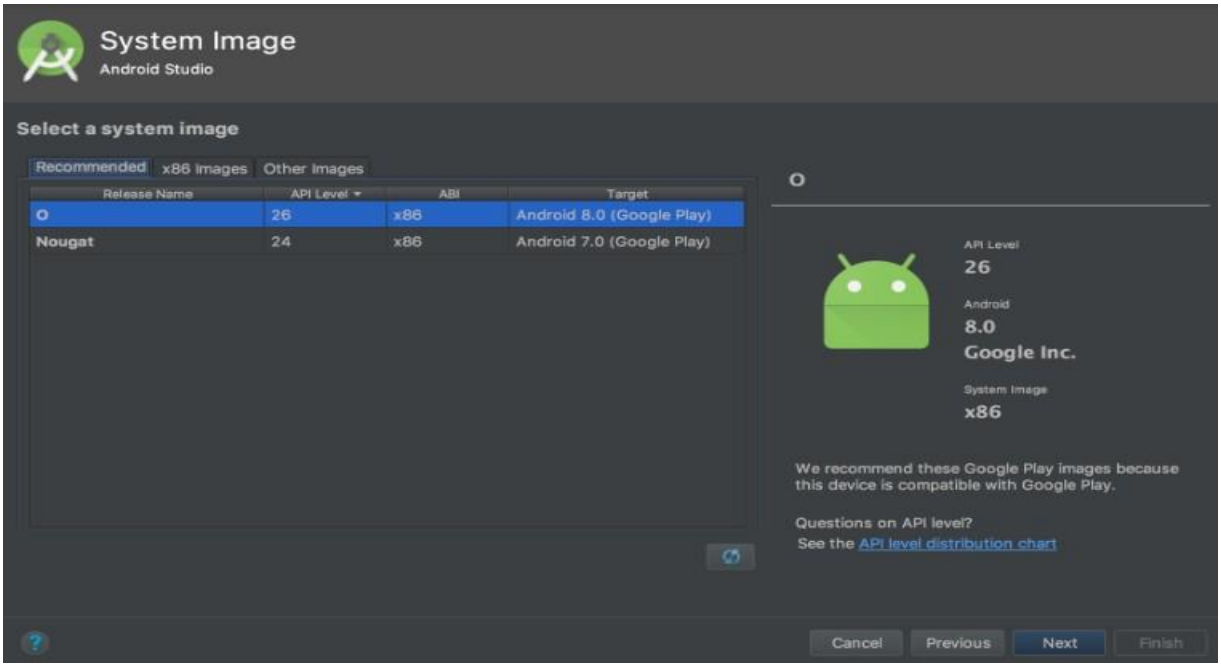
Create and manage virtual devices:

To open the AVD Manager, do one of the following:

- Select Tools > AVD Manager.
- Click AVD Manager AVD Manager icon in the toolbar.


Your Virtual Devices
Android Studio
Type
Name
Play Store
Resolution
API
Target
CPU/ABI
Size on Disk
Actions
10.1 WXGA (Tablet) API...
800 × 12...
23
Android 6.0...
x86
2 GB
Android Wear Square A...
280 × 2...
26
Android 8.0...
x86
650 ...
Nexus 5X API 26
1080 × 1...
26
Android 8.0...
x86
1 GB
Create Virtual Device...


Select Hardware
Android Studio
Choose a device definition
Category
TV
Wear
Phone
Tablet
Name
Play Store
Size
Resolution
Density
Pixel XL
5.5"
1440x2...
560dpi
Pixel
5.0"
1080x1...
xxhdpi
Nexus S
4.0"
480x800
hdpi
Nexus One
3.7"
480x800
hdpi
Nexus 6P
5.7"
1440x2...
560dpi
Nexus 6
5.96"
1440x2...
560dpi
Nexus 5X
5.2"
1080x1...
420dpi
Nexus 5
4.95"
1080x1...
xxhdpi
Nexus 4
4.7"
768x1280
xhdpi
Nexus 5X
1080px
1920px
5.2"
Size: large
Ratio: long
Density: 420dpi
New Hardware Profile
Import Hardware Profiles
Clone Device...
Cancel
Previous
Next
Finish


System Image
Android Studio
Select a system image
Recommended
x86 Images
Other Images
Release Name
API Level
ABI
Target
O
26
x86
Android 8.0 (Google Play)
Nougat
24
x86
Android 7.0 (Google Play)
O
API Level
26
Android
8.0
Google Inc.
System Image
x86
We recommend these Google Play images because this device is compatible with Google Play.
Questions on API level?
See the API level distribution chart
Cancel
Previous
Next
Finish

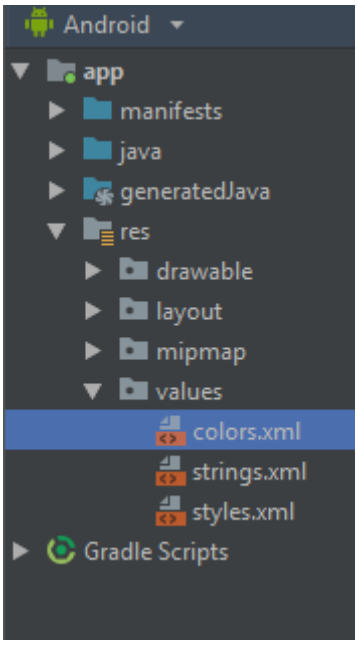
Android Virtual Device (AVD)
Android Studio
Verify Configuration
AVD Name
Nexus 5X API 26 2
Nexus 5X
5.2 1080x1920 xxhdpi
Change...
O
Android 8.0 x86
Change...
Startup orientation
Portrait
Landscape
Emulated Performance
Graphics:
Automatic
Device Frame
Enable Device Frame
Show Advanced Settings
AVD Name
The name of this AVD.
Cancel
Previous
Next
Finish

PRACTICAL 2

Programming Resources

Android Resources: (Color, Theme, String, Drawable, Dimension, Image).

Color:



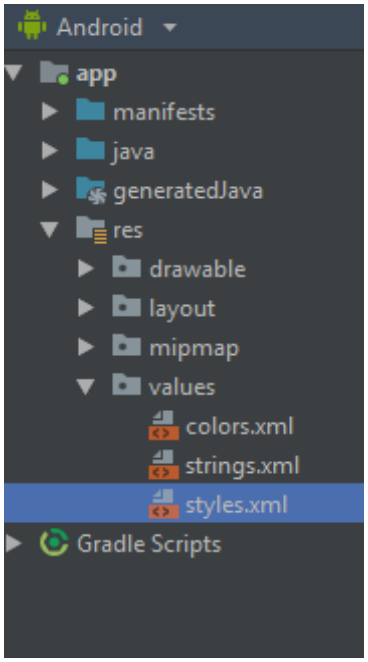
Color.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="colorPrimary">#008577</color>
    <color name="colorPrimaryDark">#00574B</color>
    <color name="colorAccent">#D81B60</color>
</resources>
```

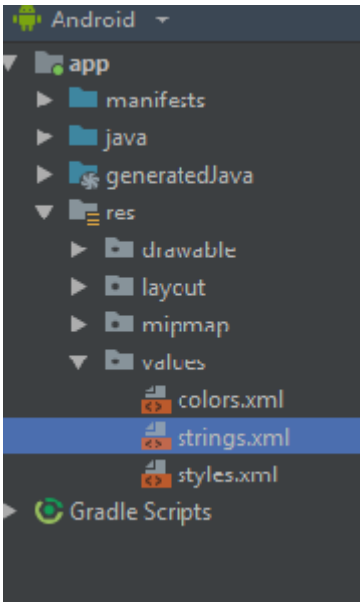
Theme:

Style.xml

```
<resources>

    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>

</resources>
```



String:

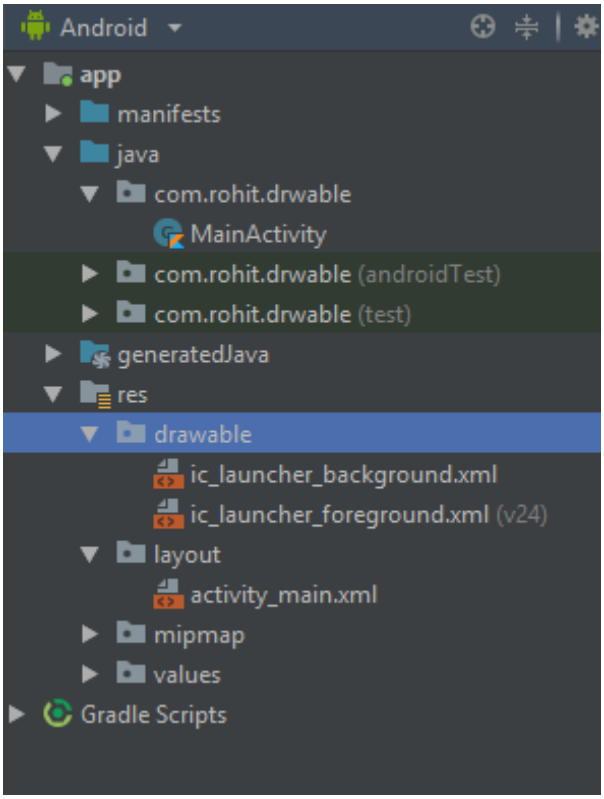


String.xml:

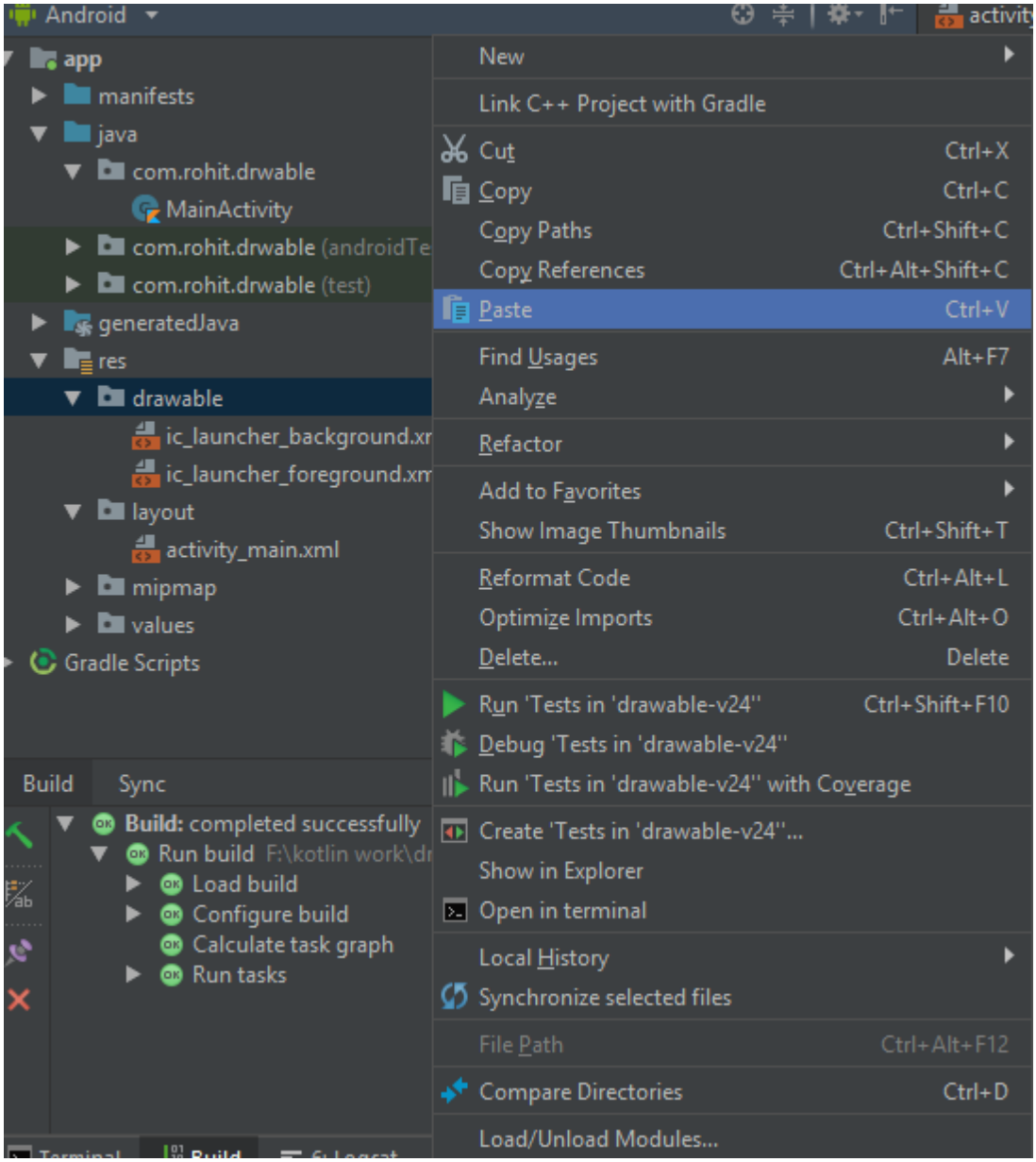
```
<resources>
    <string name="app_name">hello</string>
    <string name="numbers">
        <item>1</item>
        <item>2</item>
        <item>3</item>
        </item>
    </string>
</resources>
```

Drawable:

1. Right click on drawable folder



2. Copy the image if you want to create image drawable
3. Paste that image file inside the drawable folder



Note: to create drawable resource, right click on drawable folder and select drawable resource file.

Dimension, Image:

Main_Activity.kt:

```
package com.rohit.drwable

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
```

```
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
        xmlns:android="http://schemas.android.com/apk/res/android"
        xmlns:tools="http://schemas.android.com/tools"
        xmlns:app="http://schemas.android.com/apk/res-auto"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MainActivity"
        android:background="@drawable/one">

    <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Hello World!"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintLeft_toLeftOf="parent"
            app:layout_constraintRight_toRightOf="parent"
            app:layout_constraintTop_toTopOf="parent"/>

</LinearLayout>
```

Output:

PRACTICAL:3

activity_main.xml

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

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/about_us"
        android:text="About us"
        android:textSize="24sp"/>
</RelativeLayout>
```

MainActivity.kt

```
package com.example.dell.prcs3

import android.content.Intent
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import kotlinx.android.synthetic.main.activity_main.*

class MainActivity : AppCompatActivity()
{
    val TAG="Main Activity"

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        Log.d(TAG,"In onCreate")
        about_us.setOnClickListener{
            val i = Intent(this, Aboutus::class.java)
            startActivity(i)
        }
    }
    override fun onStart()
    {
        super.onStart()
        Log.d(TAG,"In onStart")
    }
    override fun onStop()
    {
        super.onStop()
        Log.d(TAG,"In onStop")
    }
```

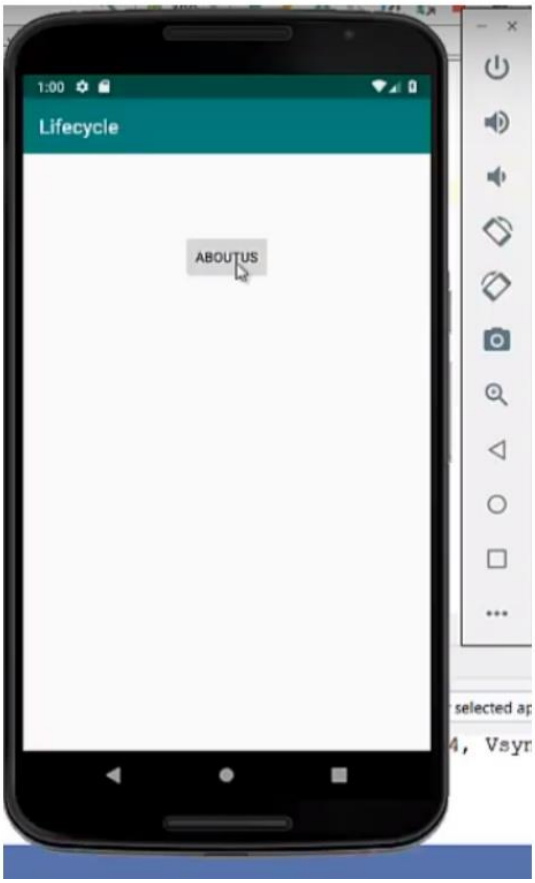
```
    override fun onPause()
    {
        super.onPause()
        Log.d(TAG,"In onPause")
    }
    override fun onDestroy()
    {
        super.onDestroy()
        Log.d(TAG,"In onDestroy")
    }
    override fun onRestart()
    {
        super.onRestart()
        Log.d(TAG,"In onRestart")
    }
    override fun onResume()
    {
        super.onResume()
        Log.d(TAG,"In onResume")
    }

}
```

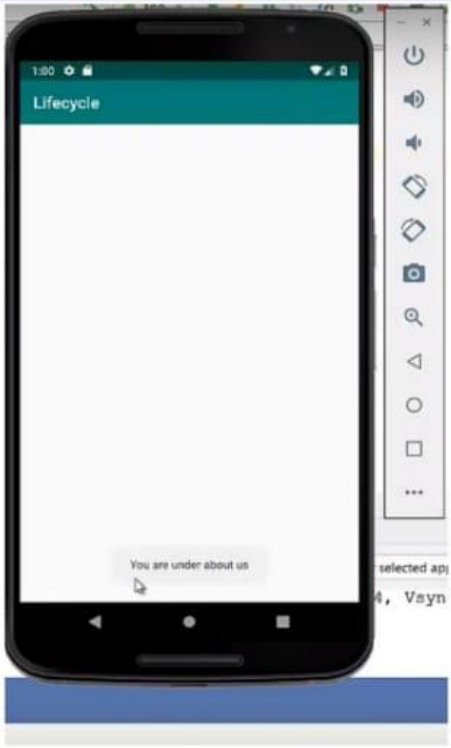
About US.kt

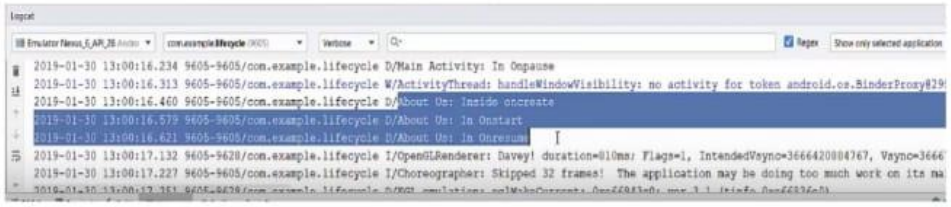
```
package com.example.dell.prcs3

import android.os.Bundle
import android.support.v7.app.AppCompatActivity
import android.util.Log
import android.widget.Toast

class Aboutus : AppCompatActivity()
{
    val TAG="Main Activity"
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        Log.d(TAG, "inside onCreate")
        Toast.makeText(this,"you are under about
us",Toast.LENGTH_LONG).show()
    }
    override fun onStart()
    {
        super.onStart()
        Log.d(TAG,"In onStart")
    }
    override fun onStop()
    {
        super.onStop()
        Log.d(TAG,"In onStop")
    }
    override fun onPause()
    {
        super.onPause()
```

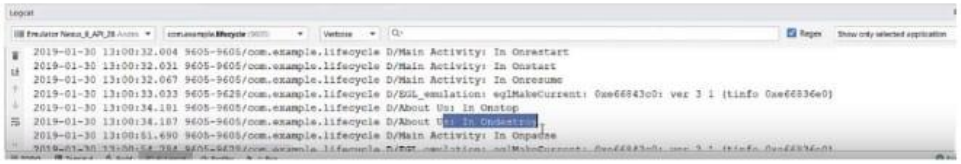
```
        Log.d(TAG,"In onPause")
    }
    override fun onDestroy()
    {
        super.onDestroy()
        Log.d(TAG,"In onDestroy")
    }
    override fun onRestart()
    {
        super.onRestart()
        Log.d(TAG,"In onRestart")
    }
    override fun onResume()
    {
        super.onResume()
        Log.d(TAG,"In onResume")
    }

}
```

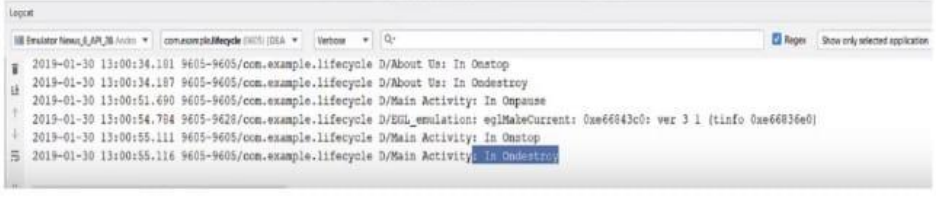
output:-




Lifecycle
You are under about us


Logcat
2019-01-30 13:00:16.234 9605-9605/com.example.lifecycle D/Main Activity: In Onpause
2019-01-30 13:00:16.313 9605-9605/com.example.lifecycle W/ActivityThread: handleWindowVisibility: no activity for token android.os.BinderProxy@29
2019-01-30 13:00:16.460 9605-9605/com.example.lifecycle D/About Us: Inside oncreate
2019-01-30 13:00:16.579 9605-9605/com.example.lifecycle D/About Us: In Onstart
2019-01-30 13:00:16.621 9605-9605/com.example.lifecycle D/About Us: In Onresume
2019-01-30 13:00:17.132 9605-9628/com.example.lifecycle I/OpenGLRenderer: Davey! duration=810ms; Flags=1, IntendedVsync=3666420804767, Vsync=3666
2019-01-30 13:00:17.227 9605-9605/com.example.lifecycle I/Choreographer: Skipped 32 frames! The application may be doing too much work on its ma


Logcat
2019-01-30 13:00:32.004 9605-9605/com.example.lifecycle D/Main Activity: In Onrestart
2019-01-30 13:00:32.031 9605-9605/com.example.lifecycle D/Main Activity: In Onstart
2019-01-30 13:00:32.067 9605-9605/com.example.lifecycle D/Main Activity: In Onresume
2019-01-30 13:00:33.033 9605-9628/com.example.lifecycle D/EGL_emulation: eglMakeCurrent: 0xe66843c0: ver 3 1 (tinfo 0xe66836e0)
2019-01-30 13:00:34.101 9605-9605/com.example.lifecycle D/About Us: In Onstop
2019-01-30 13:00:34.187 9605-9605/com.example.lifecycle D/About Us: In Ondestroy
2019-01-30 13:00:51.690 9605-9605/com.example.lifecycle D/Main Activity: In Onpause


Logcat
2019-01-30 13:00:34.101 9605-9605/com.example.lifecycle D/About Us: In Onstop
2019-01-30 13:00:34.187 9605-9605/com.example.lifecycle D/About Us: In Ondestroy
2019-01-30 13:00:51.690 9605-9605/com.example.lifecycle D/Main Activity: In Onpause
2019-01-30 13:00:54.784 9605-9628/com.example.lifecycle D/EGL_emulation: eglMakeCurrent: 0xe66843c0: ver 3 1 (tinfo 0xe66836e0)
2019-01-30 13:00:55.111 9605-9605/com.example.lifecycle D/Main Activity: In Onstop
2019-01-30 13:00:55.116 9605-9605/com.example.lifecycle D/Main Activity: In Ondestroy

PRACTICAL 4

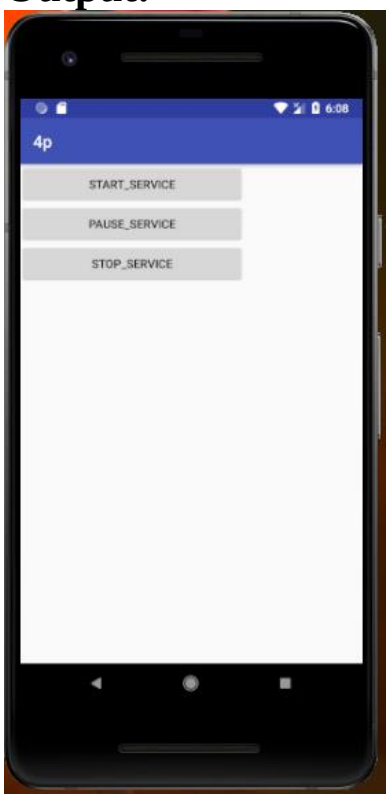
Programs related to different Layouts

Coordinate, Linear, Relative, Table, Absolute, Frame, List View, Grid View.

1. linear layout:

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

<Button android:id="@+id/btnStartService"
android:layout_width="270dp"
android:layout_height="wrap_content"
android:text="start_service"/>

<Button android:id="@+id/btnPauseService"
android:layout_width="270dp"
android:layout_height="wrap_content"
android:text="pause_service"/>

<Button android:id="@+id/btnStopService"
android:layout_width="270dp"
android:layout_height="wrap_content"
android:text="stop_service"/>

</LinearLayout>
```

Output:

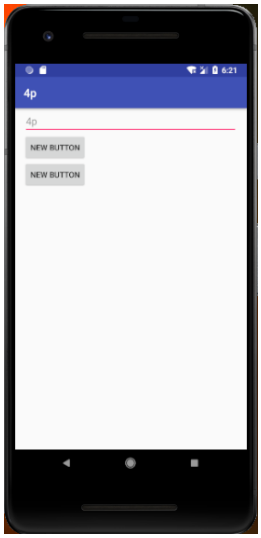


2. Relative:

```
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="fill_parent"
android:layout_height="fill_p
arent"
android:paddingLeft="16dp"
android:paddingRight="16dp" >

<EditText
android:id="@+id
/name"
android:layout_width="fill_par
ent"
android:layout_height="wrap_co
ntent"
android:hint="@string/reminder
" />

<LinearLayout
android:orientation="vertical"
android:layout_width="fill_paren
t"
android:layout_height="fill_pare
nt"
android:layout_alignParentStart=
```

```
<Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="New Button"
android:id="@+id/button2" />

</LinearLayout>

</RelativeLayout>
```

Output:



3. Table:
   Activity_main.xml

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

        <TableLayout android:layout_width="wrap_content"
                     android:layout_height="wrap_content"
        android:layout_marginLeft="50dp"
        android:layout_marginTop="150dp">
            <TableRow>
                <Button
                android:id="@+id/btn1"
                android:text="1"
                android:layout_gravity="center"
                />
                <Button
                        android:id="@+id/btn2"
                        android:text="2"
                        android:layout_gravity="center"
                />
                <Button
                    android:id="@+id/btn3"
                    android:text="3"
                    android:layout_gravity="center"
                />
            </TableRow>                  <Button
            <TableRow>
```

```
    />
    <Button android:id="@+id/btn4"
            android:text="4"
            android:layout_gravity="center"


            android:id="@+id/btn5"
            android:text="5"
            android:layout_gravity="center"
    /><Button
        android:id="@+id/btn6"
        android:text="6"
        android:layout_gravity="center"
/>
</TableRow>
<TableRow>
    <Button
            android:id="@+id/btn7"
            android:text="7"
            android:layout_gravity="center"
    />
```

```
                <Button
                        android:id="@+id/btn8"
                        android:text="8"
                        android:layout_gravity="center"
                /><Button
                    android:id="@+id/btn9"
                    android:text="9"
                    android:layout_gravity="center"
            />
            </TableRow>
        </TableLayout>

</LinearLayout>
```

Activity_main.kt

```
package com.r.table_view

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import kotlinx.android.synthetic.main.activity_main.*
import org.jetbrains.anko.toast

class MainActivity : AppCompatActivity() {

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

        btn1.setOnClickListener {
            toast("1")

        }

        btn2.setOnClickListener {
            toast("2")

        }

        btn3.setOnClickListener {
            toast("3")

        }

        btn4.setOnClickListener {
            toast("4")

        }

        btn5.setOnClickListener {
            toast("5")

        }

        btn6.setOnClickListener {
            toast("6")

        }
```

Output:

4. Frame:

Activity_main.xml

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

    <ImageView android:layout_width="match_parent"
               android:layout_height="match_parent"
               android:src="@drawable/red"
               android:scaleType="centerCrop"/>
    <TextView
            android:textSize="100dp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Hello World!"
            android:gravity="center"
            android:textColor="@color/rohit"
            android:layout_marginTop="220dp"
            />

</FrameLayout>
```

Activity_main.kt

```
package com.rohit.frame_layout

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
}
```

Output:

5. List View:

Activity_main.xml

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

   <Button android:layout_width="wrap_content"
           android:layout_height="wrap_content"
            android:id="@+id/btn"
="="
```

```
            android:text="Click me to view list"
            android:layout_marginTop="200dp"
            android:layout_marginLeft="90dp"/>
</LinearLayout>
```

String.xml

```
<resources>
    <string name="app_name">list</string>

    <array name="insert_list">
        <item>one</item>
        <item>two</item>
        <item>three</item>
        <item>four</item>
        <item>five</item>
        <item>six</item>
        <item>seven</item>
        <item>eight</item>
        <item>nine</item>
        <item>ten</item>
    </array>
</resources>
```

Activity_list_view.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<ListView
        xmlns:android="http://schemas.android.com/apk/res/android"
        xmlns:tools="http://schemas.android.com/tools"
        xmlns:app="http://schemas.android.com/apk/res-auto"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".list_view" android:entries="@array/insert_list">

</ListView>
```

List_view.kt:

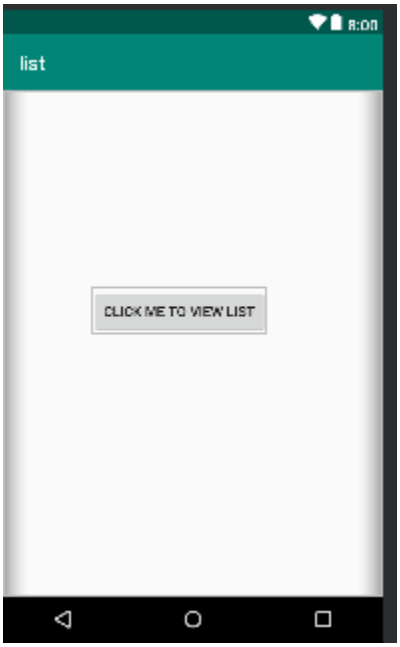
```
package com.rohit.list

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class list_view : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_list_view)
    }
}
```

main_Activity.kt

```
package com.rohit.list

import android.content.Intent
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import kotlinx.android.synthetic.main.activity_main.*

class MainActivity : AppCompatActivity() {
```

```
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        btn.setOnClickListener {
            val intent =Intent(this, list_view::class.java)
            startActivity(intent)
        }


    }
```

Output



6. Grid layout:

```
7. <?xml version="1.0" encoding="utf-8"?>
   <GridLayout
           xmlns:android="http://schemas.android.com/apk/res/android"
           xmlns:tools="http://schemas.android.com/tools"
           xmlns:app="http://schemas.android.com/apk/res-auto"
           android:layout_width="match_parent"
           android:layout_height="match_parent"
           tools:context=".MainActivity"
           android:rowCount="3"
           android:columnCount="3"
           android:padding="20dp">

       <Button
               android:layout_width="110dp"
               android:layout_height="100dp"
               android:text="1"/>

       <Button
               android:layout_width="110dp"
               android:layout_height="100dp"
               android:text="2"/>
       <Button
               android:layout_width="110dp"
               android:layout_height="100dp"
```

```
                android:text="3"/>
        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="4"/>

        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="5"/>
        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="6"/>
        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="7"/>

        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="8"/>
        <Button
                android:layout_width="110dp"
                android:layout_height="100dp"
                android:text="9"/>

    </GridLayout>
```

mainActvity.kt:

```
package com.rohit.grid_layout

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
}
```

Output:

PRACTICAL:5(A)
Programming UI elements:
AppBar

Activity_Maain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

menu.xml

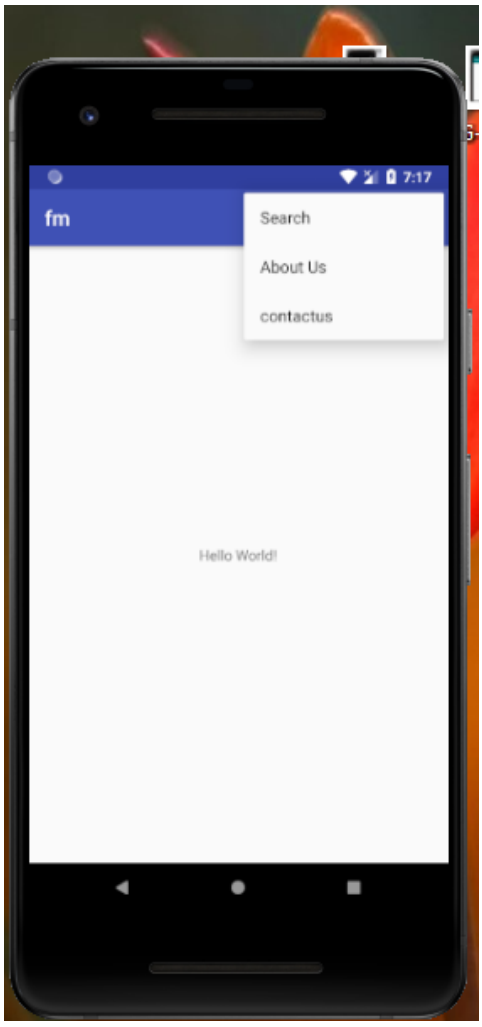
```
<?xml version="1.0" encoding="utf-8"?>
<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/search"
        android:icon="@drawable/search"
        android:title="Search">
    </item>
    <item
        android:id="@+id/aboutus"
        android:title="About Us">

    </item>
    <item
        android:id="@+id/contactus"
```

```
        android:title="contactus">
    </item>
</menu>
```

MainsActivity.kt

```
package com.example.dell.finalmenu

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.view.Menu
import android.view.MenuItem
import android.widget.Toast

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu,menu)
        return super.onCreateOptionsMenu(menu)
    }

    override fun onOptionsItemSelected(item: MenuItem): Boolean {
        val id = item.itemId
        if (id== R.id.search)
        {
            Toast.makeText(this, "Search" ,Toast.LENGTH_LONG).show()
        }
        if (id==R.id.aboutus)
        {
            Toast.makeText(this, "Aboutus" ,Toast.LENGTH_LONG).show()
        }
        if (id==R.id.contactus)
        {
            Toast.makeText(this, "contactus" ,Toast.LENGTH_LONG).show()
        }
        return super.onOptionsItemSelected(item)
    }
}
```

output:-



PRACTICAL:5(B)

Programming UI elements:

Fragment

activit_ymain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <android.support.design.widget.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"

android:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">


    <android.support.design.widget.TabLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/tabs"
        app:tabTextColor="#000"
        app:tabSelectedTextColor="#fff"
        app:tabGravity="fill"
        app:tabMode="fixed">

    </android.support.design.widget.TabLayout>

    </android.support.design.widget.AppBarLayout>


    <android.support.v4.view.ViewPager
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/viewpager"

app:layout_behavior="@string/appbar_scrolling_view_behavior">
    </android.support.v4.view.ViewPager>
```

```
</android.support.design.widget.CoordinatorLayout>
```

fargment_one.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="first"
        android:id="@+id/textView"/>


</FrameLayout>
```

fargment_two.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Second"
        android:id="@+id/textView2"/>


</FrameLayout>
```

fargment_third.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Third"
```

```
        android:id="@+id/textView3"/>

</FrameLayout>
```

MainActivity.kt

```
package com.example.dell.prcs5b

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import kotlinx.android.synthetic.main.activity_main.*

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        var viewpageradapter:ViewPageAdapter

viewpageradapter=ViewPageAdapter(this.supportFragmentManager)
        this.viewpager.adapter=viewpageradapter
        this.tabs.setupWithViewPager(this.viewpager)
    }
}
```

onefargment.kt

```
package com.example.dell.prcs5b

import android.os.Bundle
import android.support.v4.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class onefragment: Fragment() {
    override fun onCreate(savedInstanceState: Bundle?) {


        super.onCreate(savedInstanceState)

    }
    override  fun onCreateView(
            inflenter: LayoutInflater,
            container: ViewGroup?,
```

```
            savedInstanceState: Bundle?

    ): View? {
        return
inflenter!!.inflate(R.layout.fragment_one,container,false)
    }
}
```

secondfargment.kt

```
package com.example.dell.prcs5b

import android.os.Bundle
import android.support.v4.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class secondfragment: Fragment() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
    }

    override fun onCreateView(
            inflenter: LayoutInflater,
            container: ViewGroup?,
            savedInstanceState: Bundle?

    ): View? {
        return inflenter!!.inflate(R.layout.fragment_two,
container, false)
    }
}
```

thirdfargment.kt

```
package com.example.dell.prcs5b

import android.os.Bundle
import android.support.v4.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class thirdfragment: Fragment() {
```

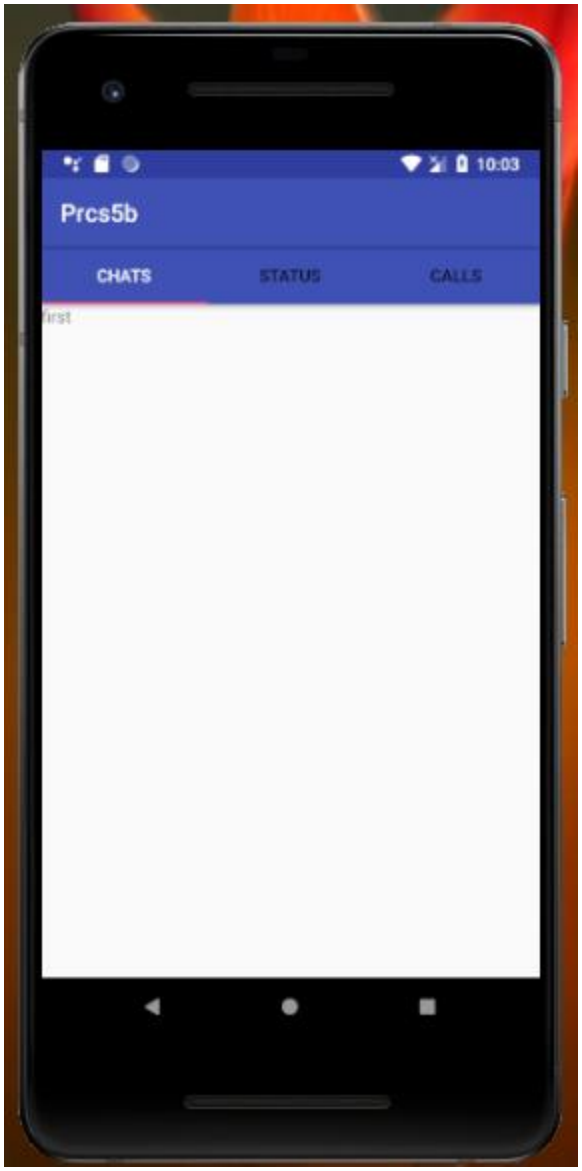
```
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
    }
    override  fun onCreateView(
            inflenter: LayoutInflater,
            container: ViewGroup?,
            savedInstanceState: Bundle?

    ): View? {
        return
inflenter!!.inflate(R.layout.fragment_third,container,false)
    }
}
```

ViewPageAdapter.kt

```
package com.example.dell.prcs5b

import android.support.v4.app.Fragment
import android.support.v4.app.FragmentManager
import android.support.v4.app.FragmentPagerAdapter

class ViewPageAdapter(fm: FragmentManager):
FragmentPagerAdapter(fm) {
    override fun  getItem(position: Int):Fragment?{
        var fragment: Fragment?=null
        if(position==0)
        {
            fragment = onefragment()
        }
        else if (position==1)
        {
            fragment=secondfragment()
        }
        else if(position==2)
        {
            fragment=thirdfragment()
        }
        return fragment
    }

    override fun getCount(): Int {
        return 3
    }

    override fun getPageTitle(position: Int): CharSequence? {

        var title:String?=null
```

```
        if(position==0)
        {
            title="chats"
        }
        else if (position==1)
        {
            title="status"
        }
        else if (position==2)
        {
            title="calls"
        }
        return title
    }
}
```

Output:-


10:03
Prcs5b
CHATS
STATUS
CALLS
irst

PRACTICAL:5(C)

Programming UI elements:

UI Components.

activity_main.xml

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

   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="@string/login"

      />
   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/btn1"
      android:text="Login"

      />
   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/btn2"
      android:text="Register"

      />

</LinearLayout>
```

activity_sejal.xml

```
 <?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Sejal">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Sejal"

        />



</LinearLayout>
```

activity_chetan.xml

```
 <?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".Chetan">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Chetan"/>

</LinearLayout>
```

MainActivity.kt

```
 package com.example.dell.final5c

import android.content.Intent
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import kotlinx.android.synthetic.main.activity_main.*
import com.example.dell.final5c.R.id.btn1
import com.example.dell.final5c.R.id.btn2


class MainActivity : AppCompatActivity() {
```

```
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)

        btn1.setOnClickListener{
            val intent = Intent(this, Sejal::class.java)
            // start your next activity
            startActivity(intent)
        }
        btn2.setOnClickListener{
            val intent = Intent(this, Chetan::class.java)
            // start your next activity
            startActivity(intent)
        }


    }
}
```

Sejal.kt

```
 package com.example.dell.final5c

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class Sejal : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_sejal)
    }
}
```

Chetan.kt

```
 package com.example.dell.final5c

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class Chetan : AppCompatActivity() {
```

```
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_chetan)
    }
}
```

Output:-

PRACTICAL:6(A)
Programming menus.

Activity_Maain.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

menu.xml

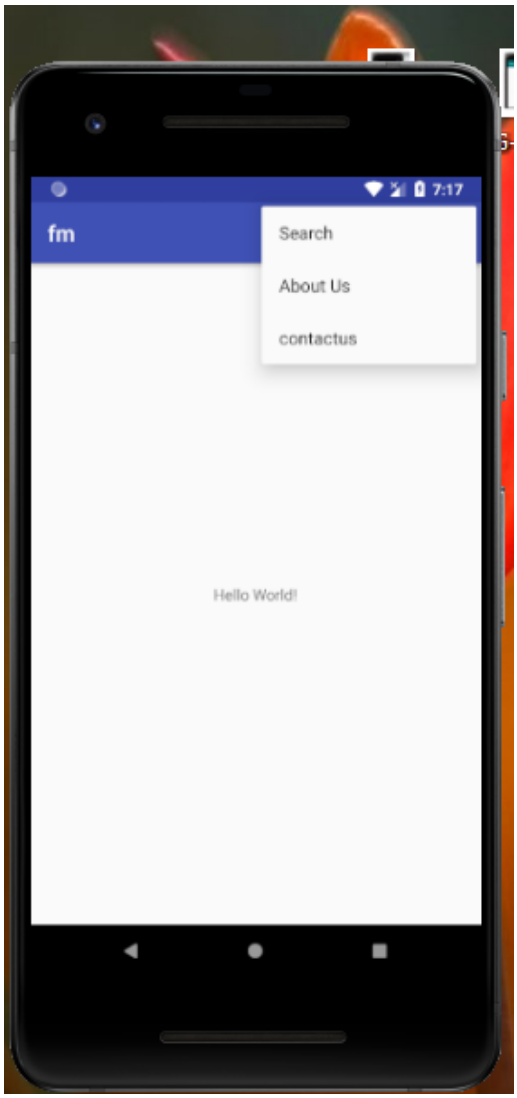
```
<?xml version="1.0" encoding="utf-8"?>
<menu
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/search"
        android:icon="@drawable/search"
        android:title="Search">
    </item>
    <item
        android:id="@+id/aboutus"
        android:title="About Us">

    </item>
    <item
        android:id="@+id/contactus"
        android:title="contactus">
    </item>
```

</menu>

MainsActivity.kt

```
package com.example.dell.finalmenu

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.view.Menu
import android.view.MenuItem
import android.widget.Toast

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
    }
    override fun onCreateOptionsMenu(menu: Menu): Boolean {
        menuInflater.inflate(R.menu.menu,menu)
        return super.onCreateOptionsMenu(menu)
    }

    override fun onOptionsItemSelected(item: MenuItem): Boolean {
        val id = item.itemId
        if (id== R.id.search)
        {
            Toast.makeText(this, "Search" ,Toast.LENGTH_LONG).show()
        }
        if (id==R.id.aboutus)
        {
            Toast.makeText(this, "Aboutus" ,Toast.LENGTH_LONG).show()
        }
        if (id==R.id.contactus)
        {
            Toast.makeText(this, "contactus" ,Toast.LENGTH_LONG).show()
        }
        return super.onOptionsItemSelected(item)
    }
}
```

Output:-



PRACTICAL:6(B)
Programming dialog.

activity_main.xml

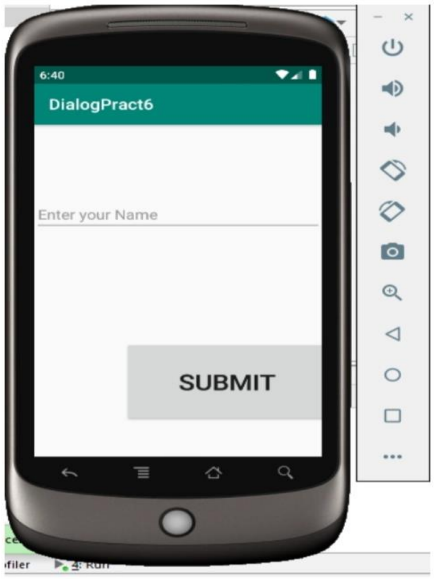
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"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

    <EditText
        android:id="@+id/editText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:oms="10"
        android:inputType="textPersonName"
        android:text=""
        android:hint="Enter your Name"
        android:layout_marginTop="100dp"
        />
    <Button
        android:id="@+id/alert"
        android:layout_width="229dp"
        android:layout_height="111dp"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="150dp"
        android:gravity="center"
        android:text="Submit"
        android:textSize="30sp"/>

</LinearLayout>
```

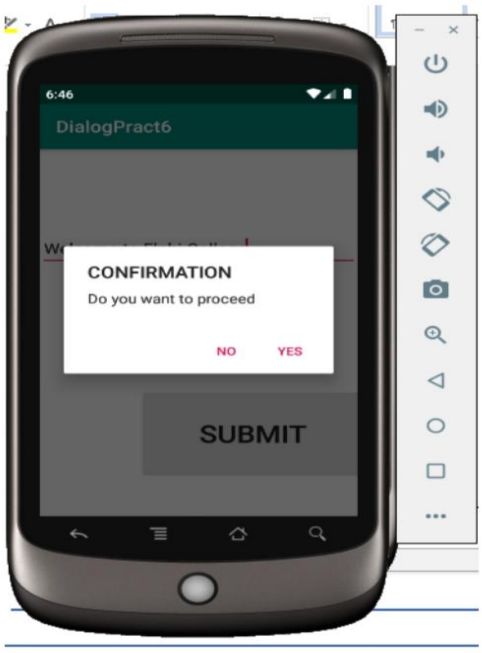
MainActivity.kt

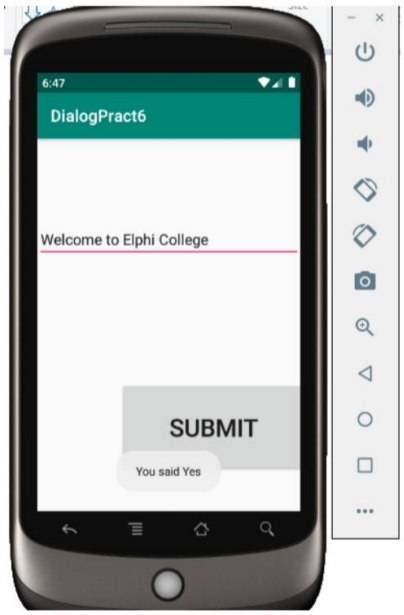
```
package com.example.dell.a6b

import android.content.DialogInterface
```

```
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.support.v7.app.AlertDialog
import android.widget.Button
import android.widget.Toast

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val submit = findViewById<Button>(R.id.alert)
        submit.setOnClickListener {
            val simplealert = AlertDialog.Builder(this).create()
            simplealert.setTitle("CONFIRMATION")
            simplealert.setMessage("DO YOU WANT TO PROCEED")

simplealert.setButton(AlertDialog.BUTTON_POSITIVE,"yes")
            {
                dialog: DialogInterface?, which: Int ->
                Toast.makeText(this,"you said
yes",Toast.LENGTH_LONG).show()

            }

simplealert.setButton(AlertDialog.BUTTON_NEGATIVE,"no")
            {
                dialog: DialogInterface?, which: Int ->
                Toast.makeText(this,"you said
no",Toast.LENGTH_LONG).show()
            }
            simplealert.show()
        }
    }
}
```

Output:-


6:40
DialogPract6
Enter your Name
SUBMIT


6:46
DialogPract6
CONFIRMATION
Do you want to proceed
NO
YES
SUBMIT


6:47
DialogPract6
Welcome to Elphi College
SUBMIT
You said Yes

PRACTICAL:6(C)
Programming dialog fragments.

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
       android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Bingo"
        android:textSize="36sp"
        android:layout_marginLeft="150sp"
        android:layout_marginTop="300sp">

    </TextView>
</android.support.constraint.ConstraintLayout>
```

dialog_fragment.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:tools="http://schemas.android.com/tools">
    <RelativeLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        tools:context=".MainActivity">

        <RadioGroup
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:id="@+id/myradiogroup"
```

```
android:padding="10dp">
<RadioButton
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/radioButton1"
    android:checked="false"
    android:text="excellent"/>
<RadioButton
android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/radioButton2"

    android:text="very good"/>
<RadioButton
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/radioButton3"

    android:text="good"/>
<RadioButton
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/radioButton4"

    android:text="average"/>
<RadioButton
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/radioButton5"

    android:text="bad"/>
<Button
    android:id="@+id/submitButton"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:checked="false"
    android:text="submit"/>
<Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/cancelButton"
    android:checked="false"
    android:text="cancel"/>
```

MainActivity.kt

```
        </RadioGroup>
    </RelativeLayout>

</RelativeLayout>
```

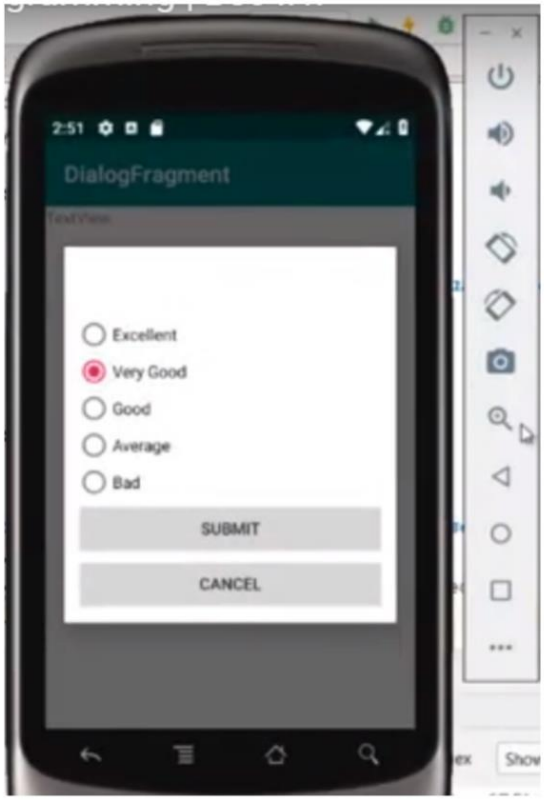
```
package com.example.dell.a6c

import android.support.v7.app.AppCompatActivity
import android.os.Bundle

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val fm=supportFragmentManager
        val myFragment= MyFragment()
        myFragment.show(fm,"simple fragment")
    }
}
```

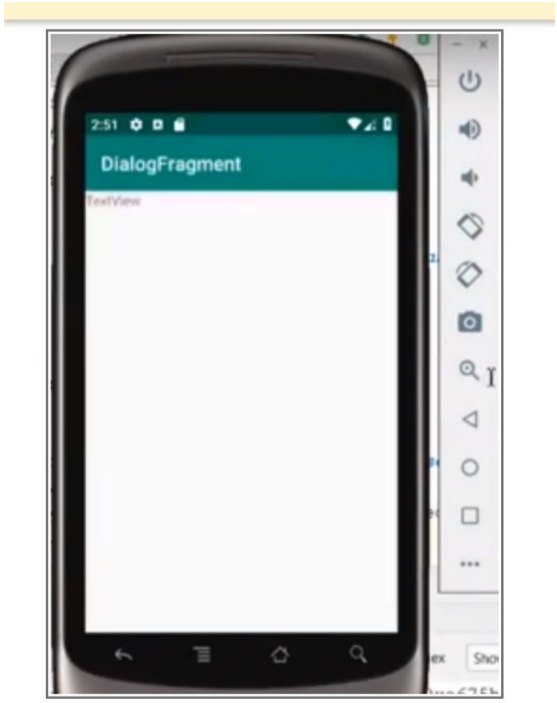
MyFragment.kt

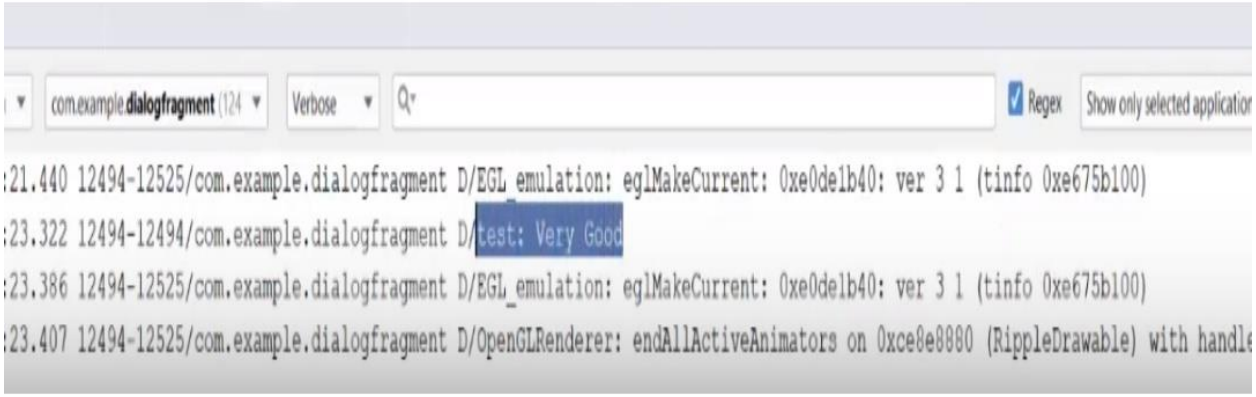
```
package com.example.dell.a6c

import android.os.Bundle
import android.support.v4.app.DialogFragment
import android.util.Log
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.Button
import android.widget.RadioGroup

class MyFragment:DialogFragment() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
    }
```

```
    override fun onCreateView(inflater: LayoutInflater,
container: ViewGroup?, savedInstanceState: Bundle?): View? {
        var
rootView:View=inflater.inflate(R.layout.dialog_fragment,containe
r,false)
        val
cancelButton=rootView.findViewById<Button>(R.id.submitButton)
        val
submitButton=rootView.findViewById<Button>(R.id.submitButton)
        var
surveyRadioGroup=rootView.findViewById<RadioGroup>(R.id.myradiog
roup)
        cancelButton.setOnClickListener(object
:View.OnClickListener{
            override fun onClick(v: View?){
                dismiss()

            }
        })
        submitButton.setOnClickListener(object
:View.OnClickListener
        {
            override fun onClick(v: View?) {
                val
selectedId=surveyRadioGroup.checkedRadioButtonId
                val
selectedRadioButton=rootView.findViewById<Button>(selectedId)

Log.d("test",selectedRadioButton.text.toString())
                dismiss()
            }
        })
        return rootView

    }
}
```

Output:-


2:51
DialogFragment
Excellent
Very Good
Good
Average
Bad
SUBMIT
CANCEL


2:51
DialogFragment
TextView


com.example.dialogfragment (124
Verbose
Regex
Show only selected application
21.440 12494-12525/com.example.dialogfragment D/EGL_emulation: eglMakeCurrent: 0xe0de1b40: ver 3 1 (tinfo 0xe675b100)
23.322 12494-12494/com.example.dialogfragment D/test: Very Good
23.386 12494-12525/com.example.dialogfragment D/EGL_emulation: eglMakeCurrent: 0xe0de1b40: ver 3 1 (tinfo 0xe675b100)
23.407 12494-12525/com.example.dialogfragment D/OpenGLRenderer: endAllActiveAnimators on 0xce8e8880 (RippleDrawable) with handle

PRACTICAL :7
Programs on Intents, Events Listeners and Adapters:

The Android Intent Class, Using Event and Event Listeners

activity_main.xml

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

    <TableLayout android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="50dp"
        android:layout_marginTop="150dp">
    <TableRow>
        <Button
            android:id="@+id/btn1"
            android:text="1"
            android:layout_gravity="center"
            />
        <Button
            android:id="@+id/btn2"
            android:text="2"
            android:layout_gravity="center"
            />
        <Button
            android:id="@+id/btn3"
            android:text="3"
            android:layout_gravity="center"
            />
    </TableRow>
    <TableRow>
        <Button
            android:id="@+id/btn4"
            android:text="4"
            android:layout_gravity="center"
            />
        <Button
```

```
            android:id="@+id/btn5"
            android:text="5"
            android:layout_gravity="center"
            /><Button
        android:id="@+id/btn6"
        android:text="6"
        android:layout_gravity="center"
        />
    </TableRow>

    <TableRow>
    <Button
        android:id="@+id/btn7"
        android:text="7"
        android:layout_gravity="center"
        />
        <Button
            android:id="@+id/btn8"
            android:text="8"
            android:layout_gravity="center"
            /><Button
        android:id="@+id/btn9"
        android:text="9"
        android:layout_gravity="center"
        />
    </TableRow>
    </TableLayout>
</LinearLayout>
```

MainActivity.kt

```
package com.example.dell.tablelayout

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.Toast

class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val btn1=findViewById<Button>(R.id.btn1)
        val btn2=findViewById<Button>(R.id.btn2)
        val btn3 =findViewById<Button>(R.id.btn3)
```

```
        val btn4 =findViewById<Button>(R.id.btn4)
        val btn5=findViewById<Button>(R.id.btn5)
        val btn6 =findViewById<Button>(R.id.btn6)
        val btn7=findViewById<Button>(R.id.btn7)
        val btn8 = findViewById<Button>(R.id.btn8)
        val btn9 =findViewById<Button>(R.id.btn9)

        btn1.setOnClickListener {
            Toast.makeText(this,"1",Toast.LENGTH_LONG).show()
        }
        btn2.setOnClickListener {
            Toast.makeText(this,"2",Toast.LENGTH_LONG).show()
        }
        btn3.setOnClickListener {
            Toast.makeText(this,"3",Toast.LENGTH_LONG).show()
        }
        btn4.setOnClickListener {
            Toast.makeText(this,"4",Toast.LENGTH_LONG).show()
        }
        btn5.setOnClickListener {
            Toast.makeText(this,"5",Toast.LENGTH_LONG).show()
        }
        btn6.setOnClickListener {
            Toast.makeText(this,"6",Toast.LENGTH_LONG).show()
        }
        btn7.setOnClickListener {
            Toast.makeText(this,"7",Toast.LENGTH_LONG).show()
        }
        btn8.setOnClickListener {
            Toast.makeText(this,"8",Toast.LENGTH_LONG).show()
        }
        btn9.setOnClickListener {
            Toast.makeText(this,"9",Toast.LENGTH_LONG).show()
        }
    }
}
```

output:-

6:29
tablelayout
1
2
3
4
5
6
7
8
9

PRACTICAL:8(A)

Programs on Services, notification and broadcast receivers

Activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity">
   <Button
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:id="@+id/btn_show"
      android:layout_marginTop="200dp"
      android:layout_marginLeft="120dp"
      android:text="Show Notification"/>



</RelativeLayout>
```

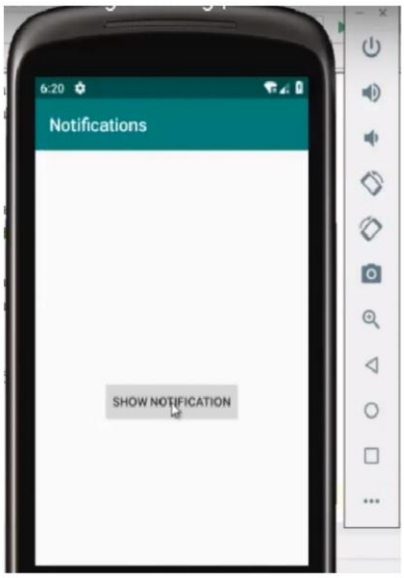
Notification MainActivity.kt

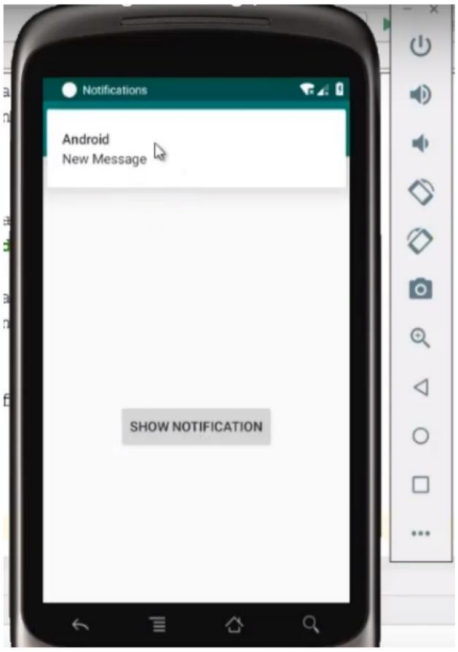
```
package com.example.dell.a8a

import android.app.Notification
import android.app.NotificationChannel
import android.app.NotificationManager
import android.app.PendingIntent
import android.content.Context
import android.content.Intent
import android.graphics.Color
import android.os.Build
import android.support.v7.app.AppCompatActivity
```

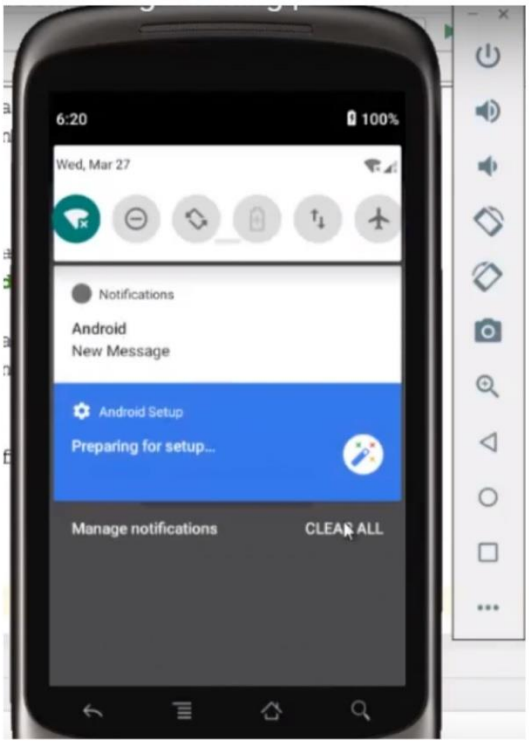
```
import android.os.Bundle
import android.widget.Button

class MainActivity : AppCompatActivity() {
    lateinit var notificationManager: NotificationManager
    lateinit var notificationChannel: NotificationChannel
    lateinit var builder: Notification.Builder
    val channelId="com.example.dell.a8a"
    val description="My Notification"

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val show = findViewById<Button>(R.id.btn_show)

notificationManager=getSystemService(Context.NOTIFICATION_SERVIC
E) as NotificationManager
        show.setOnClickListener{
            val intent=
Intent(applicationContext,MainActivity::class.java)
            val
pendingIntent=PendingIntent.getActivity(this,0,intent,PendingInt
ent.FLAG_UPDATE_CURRENT)
            if (Build.VERSION.SDK_INT>= Build.VERSION_CODES.O)
            {
                notificationChannel=
NotificationChannel(channelId,description,NotificationManager.IM
PORTANCE_HIGH)
                notificationChannel.enableLights(true)
                notificationChannel.lightColor= Color.RED
                notificationChannel.enableVibration(true)

notificationManager.createNotificationChannel(notificationChanne
l)
                builder=Notification.Builder(this,channelId)
                        .setContentTitle("Android")
                        .setContentText("Welcome 2020")
                        .setSmallIcon(R.mipmap.ic_launcher)
                        .setContentIntent(pendingIntent)
            }
            else{
                builder=Notification.Builder(this)
                        .setContentTitle("Android")
                        .setContentText("bye bye 2019")
                        .setSmallIcon(R.mipmap.ic_launcher)
                        .setContentIntent(pendingIntent)
                if
```

```
(Build.VERSION.SDK_INT>=Build.VERSION_CODES.JELLY_BEAN){

notificationManager.notify(0,builder.build())
                    }
                }
            }
        }
}
```

output:-




Notifications
Android
New Message
SHOW NOTIFICATION


6:20
100%
Wed, Mar 27
Notifications
Android
New Message
Android Setup
Preparing for setup...
Manage notifications
CLEAR ALL

PRACRICAL:8(B)

Programs on Services, notification and broadcast receivers:

activity_main.xml

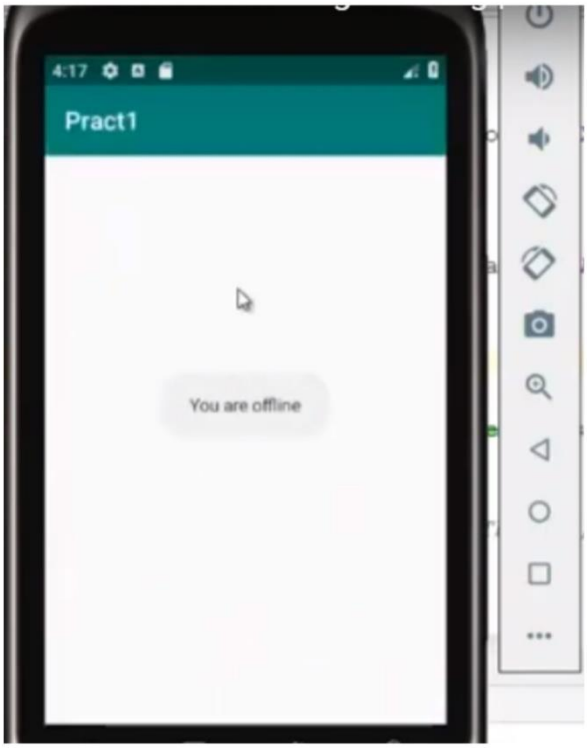
```
<?xml version="1.0" encoding="utf-8"?>
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</android.support.constraint.ConstraintLayout>
```

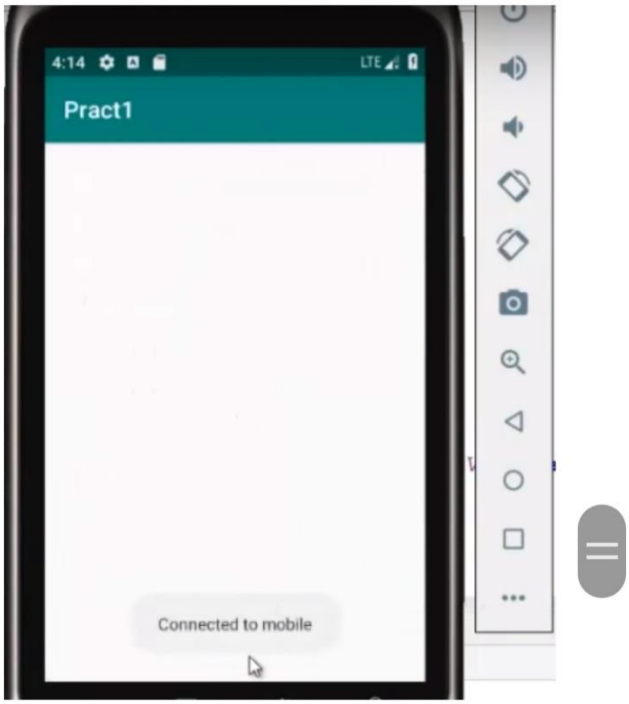
MainActivity.kt

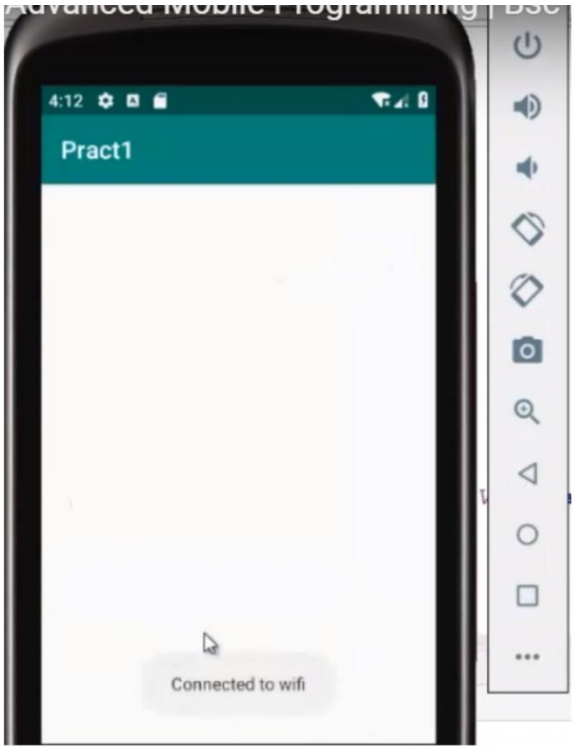
```
package com.example.dell.a8b
import android.Manifest
import android.Manifest.permission.ACCESS_NETWORK_STATE
import android.content.Context
import android.net.ConnectivityManager
import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import android.view.Gravity
import android.widget.Toast

@suppress("DEPRECATION")
class MainActivity : AppCompatActivity() {

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_main)
        val c =
```

```
applicationContext.getSystemService(Context.CONNECTIVITY_SERVICE
) as ConnectivityManager
        val networkInfo= c.activeNetworkInfo
        if(networkInfo!=null && networkInfo.isConnected())
        {
            if(networkInfo.type==
ConnectivityManager.TYPE_MOBILE)
            {
                Toast.makeText(applicationContext,"Connected to
Mobile",Toast.LENGTH_LONG).show()
            }
            if (networkInfo.type==ConnectivityManager.TYPE_WIFI)
            {
                Toast.makeText(applicationContext,"Connected to
wifi",Toast.LENGTH_LONG).show()
            }
        }
        else
        {
            val toast=Toast.makeText(applicationContext,"you are
offline",Toast.LENGTH_LONG)
            toast.setGravity(Gravity.CENTER,0,0)
            toast.show()
        }
    }
}
```

Output:-




4:14
LTE
Pract1
Connected to mobile


4:12
Pract1
Connected to wifi