Q.1 Linear Layout(Vertical ,Horizontal, Container)

a).XML

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical">

<LinearLayout

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:orientation="vertical">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Welcome"

android:id="@+id/txt1"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Click me"

android:id="@+id/btn1"/>

</LinearLayout>

<LinearLayout

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:orientation="horizontal">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Welcome"

android:id="@+id/txt2"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Click me"

android:id="@+id/btn2"/>

</LinearLayout>

</LinearLayout>

==================================================================================

**Intent explicit and implicit with back**

package com.example.explicit\_intent;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.net.Uri;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
  
public class MainActivity extends AppCompatActivity {  
 Button explicit\_btn, implicit\_btn;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 explicit\_btn = findViewById(R.id.*button1*);  
 implicit\_btn = findViewById(R.id.*button2*);  
  
 *// write onclicklistener* explicit\_btn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
  
 *//create intent* Intent intent=new Intent(getBaseContext(),Activity2.class);  
 startActivity(intent);  
 }  
 });  
 *//end* implicit\_btn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 Intent intent=new Intent(Intent.*ACTION\_VIEW*, Uri.*parse*("https://www.abhiandroid.com"));  
 startActivity(intent);  
 }  
 });  
  
 }  
}

enddddd

**manifest**

<activity  
 android:name=".Activity2"  
 android:exported="false"  
 android:parentActivityName=".MainActivity"  
 />

**Activity2**

package com.example.explicit\_intent;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.widget.Toast;  
  
public class Activity2 extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_2*);  
 Toast.*makeText*(getApplicationContext(), "Second activity", Toast.*LENGTH\_SHORT*).show();  
 }  
}

**Appbar with menu**

**Main.java**

package com.example.appactionbar;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 getMenuInflater().inflate(R.menu.*main*, menu);  
 return true;  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(MenuItem item) {  
 int id = item.getItemId();  
 if (id == R.id.*item1*) {  
 Toast.*makeText*(getApplicationContext(), "Item 1 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else if (id == R.id.*item2*) {  
 Toast.*makeText*(getApplicationContext(), "Item 2 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else if (id == R.id.*item3*) {  
 Toast.*makeText*(getApplicationContext(), "Item 3 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else {  
 return super.onOptionsItemSelected(item);  
 }  
 }  
}

**themes.xml**

<style name="Base.Theme.Appactionbar" parent="Theme.MaterialComponents.DayNight.DarkActionBar">

Q.2 Explicit intent

a)main.XML

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"

android:layout\_height="wrap\_content"

android:layout\_width="wrap\_content"

android:orientation="vertical">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Welcome"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/btn1"

android:text="click me"/>

</Linear Layout>

b)main.java

package com.example.a2impint;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

Button btn1;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

btn1=(Button)findViewById(R.id.btn1);

btn1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View view) {

Intent intent=new Intent(MainActivity.this,MainActivity2.class);

startActivity(intent);

}

});

}

}

c)main2.xml

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

<androidx.constraintlayout.widget.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=".MainActivity2">

</androidx.constraintlayout.widget.ConstraintLayout>

d)main2.java

package com.example.a2impint;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity2 extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main2);

}

}

Q.3 Implicit intent

a)main.xml

*<?***xml version="1.0" encoding="utf-8"***?>*<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"**>  
  
 <**Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/btnOpenActivity"  
 android:text="@string/open\_activity"  
 android:layout\_marginTop="60dp"** />  
</**LinearLayout**>

b)main.java

**package** com.example.a3expint;  
  
  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**import** android.annotation.SuppressLint;  
**import** android.content.Intent;  
**import** android.net.Uri;  
**import** android.os.Bundle;  
**import** android.view.View;  
  
**public class** MainActivity **extends** AppCompatActivity {  
  
 @SuppressLint(**"MissingInflatedId"**)  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
  
 findViewById(R.id.*btnOpenActivity*).setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View view) {  
 Intent intent = **new** Intent(Intent.***ACTION\_VIEW***, Uri.*parse*(**"https://www.google.com"**));  
 startActivity(intent);  
  
 }  
 });  
 }  
  
  
}

c)main2.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=".MainActivity2"**>  
  
 <**TextView  
 android:id="@+id/tvMessage"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerInParent="true"  
 android:text="@string/hello\_second\_activity"**/>  
  
</**RelativeLayout**>

d)main2.java

**package** com.example.a3expint;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**import** android.os.Bundle;  
**import** android.widget.TextView;  
  
**public class** MainActivity2 **extends** AppCompatActivity {  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main2*);  
  
}  
}

e)string.xml

<**resources**>  
 <**string name="app\_name"**>MyApp</**string**>  
 <**string name="open\_activity"**>Open Second Activity</**string**>  
 <**string name="hello\_second\_activity"**>Hello from Second Activity!</**string**>  
</**resources**>

====================================================================================================

4.Appbar

Main.java

package com.example.appactionbar;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.widget.Toast;  
  
public class MainActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 getMenuInflater().inflate(R.menu.*main*, menu);  
 return true;  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(MenuItem item) {  
 int id = item.getItemId();  
 if (id == R.id.*item1*) {  
 Toast.*makeText*(getApplicationContext(), "Item 1 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else if (id == R.id.*item2*) {  
 Toast.*makeText*(getApplicationContext(), "Item 2 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else if (id == R.id.*item3*) {  
 Toast.*makeText*(getApplicationContext(), "Item 3 Selected", Toast.*LENGTH\_LONG*).show();  
 return true;  
 } else {  
 return super.onOptionsItemSelected(item);  
 }  
 }  
}

Right click res->new android dir->menu

a)Menu.xml

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

<menu xmlns:android="http://schemas.android.com/apk/res/android"

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

<item

android:title="Search"

android:id="@+id/search"

app:showAsAction="ifRoom"

android:icon="@drawable/img\_1"

/>

<item

android:title="Refresh"

android:id="@+id/refresh"

app:showAsAction="ifRoom"

android:icon="@drawable/img\_1"

/>

<item

android:title="Setting"

android:id="@+id/option1"

app:showAsAction="never"

/>

<item

android:title="Privacy"

android:id="@+id/option2"

app:showAsAction="never"

android:icon="@drawable/img\_1"

/>

</menu

Q.5 Change the color theme of App

a)String.xml

<resources>

<string name="app\_name">Color Theme App</string>

<string name="theme\_1">Theme 1</string>

<string name="theme\_2">Theme 2</string>

</resources>

b)activity\_main.xml

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

<LinearLayout

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:gravity="center"

android:orientation="vertical">

<TextView

android:id="@+id/textView"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Change the Color Theme"

android:textSize="20sp" />

<Button

android:id="@+id/btnTheme1"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/theme\_1" />

<Button

android:id="@+id/btnTheme2"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="@string/theme\_2" />

</LinearLayout>

c)main.java

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

Button btnTheme1 = findViewById(R.id.btnTheme1);

Button btnTheme2 = findViewById(R.id.btnTheme2);

btnTheme1.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

setTheme(R.style.Theme1);

recreate();

}

});

btnTheme2.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

setTheme(R.style.Theme2);

recreate();

}

});

}

}

d)Styles.xml

<resources>

<!-- Base application theme -->

<style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">

<!-- Customize your theme here -->

</style>

<!-- Theme 1 -->

<style name="Theme1" parent="AppTheme">

<item name="colorPrimary">@color/colorPrimaryTheme1</item>

<item name="colorPrimaryDark">@color/colorPrimaryDarkTheme1</item>

<item name="colorAccent">@color/colorAccentTheme1</item>

</style>

<!-- Theme 2 -->

<style name="Theme2" parent="AppTheme">

<item name="colorPrimary">@color/colorPrimaryTheme2</item>

<item name="colorPrimaryDark">@color/colorPrimaryDarkTheme2</item>

<item name="colorAccent">@color/colorAccentTheme2</item>

</style>

</resources>

e) **res/values/colors.xml**

<resources>

<color name="colorPrimaryTheme1">#FF5722</color>

<color name="colorPrimaryDarkTheme1">#E64A19</color>

<color name="colorAccentTheme1">#FF4081</color>

<color name="colorPrimaryTheme2">#2196F3</color>

<color name="colorPrimaryDarkTheme2">#1976D2</color>

<color name="colorAccentTheme2">#FFEB3B</color>

</resources>

6)Background Task using Async task

xml

<RelativeLayout xmlns:android="https://schemas.android.com/apk/res/android"

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

tools:context=".MainActivity" >

<TextView

android:id="@+id/tv\_time"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textSize="10pt"

android:textColor="#444444"

android:layout\_alignParentLeft="true"

android:layout\_marginRight="9dip"

android:layout\_marginTop="20dip"

android:layout\_marginLeft="10dip"

android:text="Sleep time in Seconds:"/>

<EditText

android:id="@+id/in\_time"

android:layout\_width="150dip"

android:layout\_height="wrap\_content"

android:background="@android:drawable/editbox\_background"

android:layout\_toRightOf="@id/tv\_time"

android:layout\_alignTop="@id/tv\_time"

android:inputType="number"

/>

<Button

android:id="@+id/btn\_run"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Run Async task"

android:layout\_below="@+id/in\_time"

android:layout\_centerHorizontal="true"

android:layout\_marginTop="64dp" />

<TextView

android:id="@+id/tv\_result"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textSize="7pt"

android:layout\_below="@+id/btn\_run"

android:layout\_centerHorizontal="true" />

</RelativeLayout>

**Main**

package com.journaldev.asynctask;

import android.app.ProgressDialog;

import android.os.AsyncTask;

import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

private Button button;

private EditText time;

private TextView finalResult;

@Override

protected void onCreate(Bundle savedInstanceState) {

super.onCreate(savedInstanceState);

setContentView(R.layout.activity\_main);

time = (EditText) findViewById(R.id.in\_time);

button = (Button) findViewById(R.id.btn\_run);

finalResult = (TextView) findViewById(R.id.tv\_result);

button.setOnClickListener(new View.OnClickListener() {

@Override

public void onClick(View v) {

AsyncTaskRunner runner = new AsyncTaskRunner();

String sleepTime = time.getText().toString();

runner.execute(sleepTime);

}

});

}

private class AsyncTaskRunner extends AsyncTask<String, String, String> {

private String resp;

ProgressDialog progressDialog;

@Override

protected String doInBackground(String... params) {

publishProgress("Sleeping..."); // Calls onProgressUpdate()

try {

int time = Integer.parseInt(params[0])\*1000;

Thread.sleep(time);

resp = "Slept for " + params[0] + " seconds";

} catch (InterruptedException e) {

e.printStackTrace();

resp = e.getMessage();

} catch (Exception e) {

e.printStackTrace();

resp = e.getMessage();

}

return resp;

}

@Override

protected void onPostExecute(String result) {

// execution of result of Long time consuming operation

progressDialog.dismiss();

finalResult.setText(result);

}

@Override

protected void onPreExecute() {

progressDialog = ProgressDialog.show(MainActivity.this,

"ProgressDialog",

"Wait for "+time.getText().toString()+ " seconds");

}

@Override

protected void onProgressUpdate(String... text) {

finalResult.setText(text[0]);

}

}

}

==========================================================================================

7)System Broadcast

A)main.xml:

*<?***xml version="1.0" encoding="utf-8"***?>*<**androidx.constraintlayout.widget.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"**>  
  
  
</**androidx.constraintlayout.widget.ConstraintLayout**>

B)main.java:

**package** com.example.a6asynch;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**import** android.content.Intent;  
**import** android.content.IntentFilter;  
**import** android.os.Bundle;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 AirplaneModeChangeReceiver **airplaneModeChangeReceiver** = **new** AirplaneModeChangeReceiver();  
  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 }  
 **protected void** onStart()  
 {  
 **super**.onStart();  
 IntentFilter filter = **new** IntentFilter(Intent.***ACTION\_AIRPLANE\_MODE\_CHANGED***);  
 registerReceiver(**airplaneModeChangeReceiver**, filter);  
  
  
 }  
 **protected void** onStop()  
 {  
 **super**.onStop();  
 unregisterReceiver(**airplaneModeChangeReceiver**);  
 }  
  
}

C)AirplaneModeChangeReceiver.java:

**package** com.example.a6asynch;  
  
**import** android.content.BroadcastReceiver;  
**import** android.content.Context;  
**import** android.content.Intent;  
**import** android.provider.Settings;  
**import** android.widget.Toast;  
  
**public class** AirplaneModeChangeReceiver **extends** BroadcastReceiver {  
  
 @Override  
 **public void** onReceive(Context context, Intent intent) {  
  
 **if** (*isAirplaneModeOn*(context.getApplicationContext())) {  
 Toast.*makeText*(context, **"AirPlane mode is on"**, Toast.***LENGTH\_SHORT***).show();  
 } **else** {  
 Toast.*makeText*(context, **"AirPlane mode is off"**, Toast.***LENGTH\_SHORT***).show();  
 }  
 }  
  
 **private static boolean** isAirplaneModeOn(Context context) {  
 **return** Settings.System.*getInt*(context.getContentResolver(), Settings.Global.***AIRPLANE\_MODE\_ON***, 0) != 0;  
 }  
}

==========================================================================

8)Notification

a)main.xml:

*<?***xml version="1.0" encoding="utf-8"***?>*<**RelativeLayout  
 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"**>  
  
 <**Button  
 android:id="@+id/btn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerInParent="true"  
 android:text="Send Notification"** />  
  
</**RelativeLayout**>

B)main.java:

**package** com.example.notification;  
  
  
  
**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.BitmapFactory;  
**import** android.graphics.Color;  
**import** android.os.Build;  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.Button;  
**import** android.widget.RemoteViews;  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**public class** MainActivity **extends** AppCompatActivity {  
  
 *// declaring variables* **private** NotificationManager **notificationManager**;  
 **private** NotificationChannel **notificationChannel**;  
 **private** Notification.Builder **builder**;  
 **private final** String **channelId** = **"i.apps.notifications"**;  
 **private final** String **description** = **"Test notification"**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 *// accessing button* Button btn = findViewById(R.id.*btn*);  
  
 *// it is a class to notify the user of events that happen.  
 // This is how you tell the user that something has happened in the  
 // background.* **notificationManager** = (NotificationManager) getSystemService(Context.***NOTIFICATION\_SERVICE***);  
  
 *// onClick listener for the button* btn.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
  
 *// pendingIntent is an intent for future use i.e after  
 // the notification is clicked, this intent will come into action* Intent intent = **new** Intent(MainActivity.**this**, NotificationView.**class**);  
  
 *// FLAG\_UPDATE\_CURRENT specifies that if a previous  
 // PendingIntent already exists, then the current one  
 // will update it with the latest intent  
 // 0 is the request code, using it later with the  
 // same method again will get back the same pending  
 // intent for future reference  
 // intent passed here is to our AfterNotification class* PendingIntent pendingIntent = PendingIntent.*getActivity*(MainActivity.**this**, 0, intent, PendingIntent.***FLAG\_UPDATE\_CURRENT***);  
  
 *// RemoteViews are used to use the content of  
 // some different layout apart from the current activity layout* RemoteViews contentView = **new** RemoteViews(getPackageName(), R.layout.*activity\_notification\_view*);  
  
 *// checking if android version is greater than oreo(API 26) or not* **if** (Build.VERSION.***SDK\_INT*** >= Build.VERSION\_CODES.***O***) {  
 **notificationChannel** = **new** NotificationChannel(**channelId**, **description**, NotificationManager.***IMPORTANCE\_HIGH***);  
 **notificationChannel**.enableLights(**true**);  
 **notificationChannel**.setLightColor(Color.***GREEN***);  
 **notificationChannel**.enableVibration(**false**);  
 **notificationManager**.createNotificationChannel(**notificationChannel**);  
  
 **builder** = **new** Notification.Builder(MainActivity.**this**, **channelId**)  
 .setContent(contentView)  
 .setSmallIcon(R.drawable.*ic\_launcher\_background*)  
 .setLargeIcon(BitmapFactory.*decodeResource*(getResources(), R.drawable.*ic\_launcher\_background*))  
 .setContentIntent(pendingIntent);  
 } **else** {  
  
 **builder** = **new** Notification.Builder(MainActivity.**this**)  
 .setContent(contentView)  
 .setSmallIcon(R.drawable.*ic\_launcher\_background*)  
 .setLargeIcon(BitmapFactory.*decodeResource*(getResources(), R.drawable.*ic\_launcher\_background*))  
 .setContentIntent(pendingIntent);  
 }  
 **notificationManager**.notify(1234, **builder**.build());  
 }  
 });  
}  
}

C)activity\_notification\_view.xml:

*<?***xml version="1.0" encoding="utf-8"***?>*<**RelativeLayout  
 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=".NotificationView"**>  
  
 <**TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerInParent="true"  
 android:text="Welcome To LAB"  
 android:textSize="15sp"  
 android:textStyle="bold"** />  
  
</**RelativeLayout**>

D)NotificationView.java:

**package** com.example.notification;  
  
  
**import** android.os.Bundle;  
**import** android.widget.TextView;  
**import** android.widget.Toast;  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**public class** NotificationView **extends** AppCompatActivity {  
 TextView **textView**;  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_notification\_view*);  
 **textView** = findViewById(R.id.*textView*);  
 *//getting the notification message* String message=getIntent().getStringExtra(**"message"**);  
 **textView**.setText(message);  
}  
}

9)Shared Preference

A)main.xml:

*<?***xml version="1.0" encoding="utf-8"***?>*<**RelativeLayout 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"  
 tools:ignore="HardcodedText"**>  
  
 <**TextView  
 android:id="@+id/textview"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_centerHorizontal="true"  
 android:layout\_marginTop="32dp"  
 android:text="Shared Preferences Demo"  
 android:textColor="@android:color/black"  
 android:textSize="24sp"** />  
  
 *<!--EditText to take the data from the user and save the data in SharedPreferences-->* <**EditText  
 android:id="@+id/edit1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/textview"  
 android:layout\_marginStart="16dp"  
 android:layout\_marginTop="8dp"  
 android:layout\_marginEnd="16dp"  
 android:hint="Enter your Name"  
 android:padding="10dp"** />  
  
 *<!--EditText to take the data from the user and save the data in SharedPreferences-->* <**EditText  
 android:id="@+id/edit2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/edit1"  
 android:layout\_marginStart="16dp"  
 android:layout\_marginTop="8dp"  
 android:layout\_marginEnd="16dp"  
 android:hint="Enter your Age"  
 android:inputType="number"  
 android:padding="10dp"** />  
</**RelativeLayout**>

B)main.java:

**package** com.example.a9shared;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
**import** android.content.SharedPreferences;  
**import** android.os.Bundle;  
**import** android.widget.EditText;  
  
**public class** MainActivity **extends** AppCompatActivity {  
 **private** EditText **name**, **age**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 **name** = findViewById(R.id.*edit1*);  
 **age** = findViewById(R.id.*edit2*);  
 }  
  
 *// Fetch the stored data in onResume() Because this is what will be called when the app opens again* @Override  
 **protected void** onResume() {  
 **super**.onResume();  
 *// Fetching the stored data from the SharedPreference* SharedPreferences sh = getSharedPreferences(**"MySharedPref"**, ***MODE\_PRIVATE***);  
 String s1 = sh.getString(**"name"**, **""**);  
 **int** a = sh.getInt(**"age"**, 0);  
  
 *// Setting the fetched data in the EditTexts* **name**.setText(s1);  
 **age**.setText(String.*valueOf*(a));  
 }  
  
 *// Store the data in the SharedPreference in the onPause() method  
 // When the user closes the application onPause() will be called and data will be stored* @Override  
 **protected void** onPause() {  
 **super**.onPause();  
 *// Creating a shared pref object with a file name "MySharedPref" in private mode* SharedPreferences sharedPreferences = getSharedPreferences(**"MySharedPref"**, ***MODE\_PRIVATE***);  
 SharedPreferences.Editor myEdit = sharedPreferences.edit();  
  
 *// write all the data entered by the user in SharedPreference and apply* myEdit.putString(**"name"**, **name**.getText().toString());  
 myEdit.putInt(**"age"**, Integer.*parseInt*(**age**.getText().toString()));  
 myEdit.apply();  
 }  
}

==========================================================================

10)SQlLite database

A)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"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity"**>  
  
 *<!--Edit text to enter course name-->* <**EditText  
 android:id="@+id/idEdtCourseName"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="Enter course Name"** />  
  
 *<!--edit text to enter course duration-->* <**EditText  
 android:id="@+id/idEdtCourseDuration"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="Enter Course Duration"** />  
  
 *<!--edit text to display course tracks-->* <**EditText  
 android:id="@+id/idEdtCourseTracks"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="Enter Course Tracks"** />  
  
 *<!--edit text for course description-->* <**EditText  
 android:id="@+id/idEdtCourseDescription"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:hint="Enter Course Description"** />  
  
 *<!--button for adding new course-->* <**Button  
 android:id="@+id/idBtnAddCourse"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_margin="10dp"  
 android:text="Add Course"  
 android:textAllCaps="false"** />  
  
</**LinearLayout**>

B)main.java:

**package** com.example.sqlite;  
  
**import** android.os.Bundle;  
**import** android.view.View;  
**import** android.widget.Button;  
**import** android.widget.EditText;  
**import** android.widget.Toast;  
  
**import** androidx.appcompat.app.AppCompatActivity;  
  
**public class** MainActivity **extends** AppCompatActivity {  
  
 *// creating variables for our edittext, button and dbhandler* **private** EditText **courseNameEdt**, **courseTracksEdt**, **courseDurationEdt**, **courseDescriptionEdt**;  
 **private** Button **addCourseBtn**;  
 **private** DBHandler **dbHandler**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 *// initializing all our variables.* **courseNameEdt** = findViewById(R.id.*idEdtCourseName*);  
 **courseTracksEdt** = findViewById(R.id.*idEdtCourseTracks*);  
 **courseDurationEdt** = findViewById(R.id.*idEdtCourseDuration*);  
 **courseDescriptionEdt** = findViewById(R.id.*idEdtCourseDescription*);  
 **addCourseBtn** = findViewById(R.id.*idBtnAddCourse*);  
  
 *// creating a new dbhandler class  
 // and passing our context to it.* **dbHandler** = **new** DBHandler(MainActivity.**this**);  
  
 *// below line is to add on click listener for our add course button.* **addCourseBtn**.setOnClickListener(**new** View.OnClickListener() {  
 @Override  
 **public void** onClick(View v) {  
  
 *// below line is to get data from all edit text fields.* String courseName = **courseNameEdt**.getText().toString();  
 String courseTracks = **courseTracksEdt**.getText().toString();  
 String courseDuration = **courseDurationEdt**.getText().toString();  
 String courseDescription = **courseDescriptionEdt**.getText().toString();  
  
 *// validating if the text fields are empty or not.* **if** (courseName.isEmpty() && courseTracks.isEmpty() && courseDuration.isEmpty() && courseDescription.isEmpty()) {  
 Toast.*makeText*(MainActivity.**this**, **"Please enter all the data.."**, Toast.***LENGTH\_SHORT***).show();  
 **return**;  
 }  
  
 *// on below line we are calling a method to add new  
 // course to sqlite data and pass all our values to it.* **dbHandler**.addNewCourse(courseName, courseDuration, courseDescription, courseTracks);  
  
 *// after adding the data we are displaying a toast message.* Toast.*makeText*(MainActivity.**this**, **"Course has been added."**, Toast.***LENGTH\_SHORT***).show();  
 **courseNameEdt**.setText(**""**);  
 **courseDurationEdt**.setText(**""**);  
 **courseTracksEdt**.setText(**""**);  
 **courseDescriptionEdt**.setText(**""**);  
 }  
 });  
 }  
}

C)DBHandler.java:

**package** com.example.sqlite;  
  
**import** android.content.ContentValues;  
**import** android.content.Context;  
**import** android.database.sqlite.SQLiteDatabase;  
**import** android.database.sqlite.SQLiteOpenHelper;  
  
**public class** DBHandler **extends** SQLiteOpenHelper {  
  
 *// creating a constant variables for our database.  
 // below variable is for our database name.* **private static final** String ***DB\_NAME*** = **"coursedb"**;  
  
 *// below int is our database version* **private static final int *DB\_VERSION*** = 1;  
  
 *// below variable is for our table name.* **private static final** String ***TABLE\_NAME*** = **"mycourses"**;  
  
 *// below variable is for our id column.* **private static final** String ***ID\_COL*** = **"id"**;  
  
 *// below variable is for our course name column* **private static final** String ***NAME\_COL*** = **"name"**;  
  
 *// below variable id for our course duration column.* **private static final** String ***DURATION\_COL*** = **"duration"**;  
  
 *// below variable for our course description column.* **private static final** String ***DESCRIPTION\_COL*** = **"description"**;  
  
 *// below variable is for our course tracks column.* **private static final** String ***TRACKS\_COL*** = **"tracks"**;  
  
 *// creating a constructor for our database handler.* **public** DBHandler(Context context) {  
 **super**(context, ***DB\_NAME***, **null**, ***DB\_VERSION***);  
 }  
  
 *// below method is for creating a database by running a sqlite query* @Override  
 **public void** onCreate(SQLiteDatabase db) {  
 *// on below line we are creating  
 // an sqlite query and we are  
 // setting our column names  
 // along with their data types.* String query = **"CREATE TABLE "** + ***TABLE\_NAME*** + **" ("** + ***ID\_COL*** + **" INTEGER PRIMARY KEY AUTOINCREMENT, "** + ***NAME\_COL*** + **" TEXT,"** + ***DURATION\_COL*** + **" TEXT,"** + ***DESCRIPTION\_COL*** + **" TEXT,"** + ***TRACKS\_COL*** + **" TEXT)"**;  
  
 *// at last we are calling a exec sql  
 // method to execute above sql query* db.execSQL(query);  
 }  
  
 *// this method is use to add new course to our sqlite database.* **public void** addNewCourse(String courseName, String courseDuration, String courseDescription, String courseTracks) {  
  
 *// on below line we are creating a variable for  
 // our sqlite database and calling writable method  
 // as we are writing data in our database.* SQLiteDatabase db = **this**.getWritableDatabase();  
  
 *// on below line we are creating a  
 // variable for content values.* ContentValues values = **new** ContentValues();  
  
 *// on below line we are passing all values  
 // along with its key and value pair.* values.put(***NAME\_COL***, courseName);  
 values.put(***DURATION\_COL***, courseDuration);  
 values.put(***DESCRIPTION\_COL***, courseDescription);  
 values.put(***TRACKS\_COL***, courseTracks);  
  
 *// after adding all values we are passing  
 // content values to our table.* db.insert(***TABLE\_NAME***, **null**, values);  
  
 *// at last we are closing our  
 // database after adding database.* db.close();  
 }  
  
 @Override  
 **public void** onUpgrade(SQLiteDatabase db, **int** oldVersion, **int** newVersion) {  
 *// this method is called to check if the table exists already.* db.execSQL(**"DROP TABLE IF EXISTS "** + ***TABLE\_NAME***);  
 onCreate(db);  
 }  
}

D)AndroidManifest.xml:

*<?***xml version="1.0" encoding="utf-8"***?>*<**manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"**>  
 <**uses-permission android:name="android.permission.READ\_EXTERNAL\_STORAGE"** />  
  
 <**application  
 android:allowBackup="true"  
 android:dataExtractionRules="@xml/data\_extraction\_rules"  
 android:fullBackupContent="@xml/backup\_rules"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.Sqlite"  
 tools:targetApi="31"**>  
 <**activity  
 android:name=".MainActivity"  
 android:exported="true"**>  
 <**intent-filter**>  
 <**action android:name="android.intent.action.MAIN"** />  
  
 <**category android:name="android.intent.category.LAUNCHER"** />  
 </**intent-filter**>  
 </**activity**>  
 </**application**>  
  
</**manifest**>

Context menu

package com.example.myapplication\_context\_menu;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.graphics.Color;  
import android.os.Bundle;  
import android.view.ContextMenu;  
import android.view.MenuItem;  
import android.view.View;  
import android.widget.Button;  
import android.widget.RelativeLayout;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
TextView tv;  
*//Button btn;*RelativeLayout rl;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
*//btn=(Button)findViewById(R.id.button1);* tv=(TextView) findViewById(R.id.*textView*);  
 rl=(RelativeLayout) findViewById(R.id.*relLayout*) ;  
*// registerForContextMenu(btn);* registerForContextMenu(tv);  
  
 }  
  
 @Override  
 public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo) {  
 super.onCreateContextMenu(menu, v, menuInfo);  
 menu.setHeaderTitle("Choose color");  
  
 menu.add(0,v.getId(),0,"Yellow");  
 menu.add(0,v.getId(),0,"Gray");  
 menu.add(0,v.getId(),0,"Cyan");  
  
  
  
  
 }  
  
 @Override  
 public boolean onContextItemSelected(@NonNull MenuItem item) {  
*// View relativeLayout = null;* if(item.getTitle()=="Yellow"){  
 rl.setBackgroundColor(Color.*YELLOW*);  
 } else if (item.getTitle() == "Gray") {  
 rl.setBackgroundColor(Color.*GRAY*);  
 } else if (item.getTitle() == "Cyan") {  
 rl.setBackgroundColor(Color.*CYAN*);  
 }  
  
 return true;  
 }  
  
  
  
}