|  |  |
| --- | --- |
| 2 | Programming Resources  Android Resources: (Color, Theme, String, Drawable, Dimension, Image) |
| 3 | Programming Activities and fragments  Activity Life Cycle, Activity methods, Multiple Activities, Life Cycle of fragments and multiple fragments. |
| 4 | Programs related to different Layouts  Coordinate, Linear, Relative, Table, Absolute, Frame, List View, Grid View |
| 5 | Programming UI elements  AppBar, Fragments, UI Components |
| 6 | Programming menus, dialog, dialog fragment |
| 7 | Programs on Intents, Events, Listeners and Adapters  The Android Intent Class, Using Events and Event Listeners |
| 8 | Programs on Services, notification and broadcast receivers |
| 9 | Database Programming with SQLite |
| 10 | Programming threads, handles and asynchronized programs |
| 11 | Programming Media API and Telephone API |
| 12 | Programming Security and permissions |
| 13 | Programming Network Communications and Services (JSON) |

**Pract2**

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

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"  
 android:background="@color/black"  
 android:theme="@style/Theme.Trying"  
 android:orientation="vertical"**>  
  
 <**TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Welcome to my program"  
 android:id="@+id/test1"  
 android:textSize="25sp"  
 android:textColor="@color/grey"**/>  
 <**ImageView  
 android:layout\_width="match\_parent"  
 android:layout\_height="400dp"  
 android:id="@+id/image1"  
 android:src="@drawable/goku"**/>  
 <**Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/button1"  
 android:textColor="@color/purple\_200"  
 android:text="Hit Me"**/>  
  
</**LinearLayout**>

**kt**

**package** com.example.myapplicationresources  
  
**import** androidx.appcompat.app.AppCompatActivity  
**import** android.os.Bundle  
**import** android.widget.Button  
**import** android.widget.ImageView  
  
  
**class** MainActivity : AppCompatActivity() {  
 **override fun** onCreate(savedInstanceState: Bundle?) {  
 **super**.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 **val** image1 = findViewById<ImageView>(R.id.*image1*)  
 **val** button1 = findViewById<Button>(R.id.*button1*)  
  
 button1.setOnClickListener **{** image1.setImageResource(R.drawable.*gokus*) **}** }  
 }

**colors.xml**

*<?***xml version="1.0" encoding="utf-8"***?>*<**resources**>  
 <**color name="purple\_200"**>#FFBB86FC</**color**>  
 <**color name="purple\_500"**>#FF6200EE</**color**>  
 <**color name="purple\_700"**>#FF3700B3</**color**>  
 <**color name="teal\_200"**>#FF03DAC5</**color**>  
 <**color name="teal\_700"**>#FF018786</**color**>  
 <**color name="black"**>#FF000000</**color**>  
 <**color name="white"**>#FFFFFFFF</**color**>  
 <**color name="grey"**>#808080</**color**>  
</**resources**>

**Thems.xml**

<**resources xmlns:tools="http://schemas.android.com/tools"**>  
 *<!-- Base application theme. -->* <**style name="Theme.MyApplicationResources" parent="Theme.MaterialComponents.DayNight.DarkActionBar"**>  
 *<!-- Primary brand color. -->* <**item name="colorPrimary"**>@color/purple\_500</**item**>  
 <**item name="colorPrimaryVariant"**>@color/purple\_700</**item**>  
 <**item name="colorOnPrimary"**>@color/white</**item**>  
 *<!-- Secondary brand color. -->* <**item name="colorSecondary"**>@color/teal\_200</**item**>  
 <**item name="colorSecondaryVariant"**>@color/teal\_700</**item**>  
 <**item name="colorOnSecondary"**>@color/black</**item**>  
 *<!-- Status bar color. -->* <**item name="android:statusBarColor"**>?attr/colorPrimaryVariant</**item**>  
 *<!-- Customize your theme here. -->* </**style**>  
 <**style name="Theme.Trying" parent="Theme.MaterialComponents.DayNight.NoActionBar"**>  
 <**item name="colorPrimary"**>@color/black</**item**>  
 <**item name="colorPrimaryVariant"**>@color/white</**item**>  
 <**item name="colorOnPrimary"**>@color/white</**item**>  
 <**item name="colorSecondary"**>@color/teal\_200</**item**>  
 <**item name="colorSecondaryVariant"**>@color/teal\_700</**item**>  
 <**item name="colorOnSecondary"**>@color/black</**item**>  
 <**item name="android:statusBarColor" tools:targetApi="l"**>?attr/colorPrimaryVariant</**item**>  
 </**style**>  
</**resources**>

**Pract 3**

Programming Activities and fragments Activity Life Cycle, Activity methods, Multiple Activities, Life Cycle of fragments and multiple fragments.

**activityMain.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">  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Hello World!"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**mainActivity.kt**

package com.example.pract\_3  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.util.Log  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
 print("onCreate") }  
 override fun onStart(){ super.onStart()  
 print("onStart") }  
 override fun onResume(){ super.onResume()  
 print("onResume") }  
 override fun onStop(){ super.onStop()  
 print("onStop") }  
 override fun onDestroy(){ super.onDestroy()  
 print("onDestroy") }  
 override fun onRestart(){ super.onRestart()  
 print("onRestart") }  
 fun print(msg:String){  
 Log.d("Activity State : ", msg)  
 }  
}

**Pract4**

Programs related to different Layouts

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

**LinearLayout**

**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:gravity="center"  
 tools:context=".MainActivity"**>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/qwerty"  
 android:text="Click Me"**/>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/turf"  
 android:text="Kick Me"**/>  
  
 <**LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:gravity="center"**>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/qwerty1"  
 android:text="Click Me 2"  
 android:layout\_marginRight="20dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/turf1"  
 android:text="Kick Me 2"**/>  
 </**LinearLayout**>  
</**LinearLayout**>

**Kt**

**package** com.example.mylinearlayout  
  
**import** androidx.appcompat.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** button1 = findViewById<Button>(R.id.*qwerty*)  
 **val** button2 = findViewById<Button>(R.id.*turf*)  
 **val** button3 = findViewById<Button>(R.id.*qwerty1*)  
 **val** button4 = findViewById<Button>(R.id.*turf1*)  
  
 button1.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You Clicked Me"** , Toast.*LENGTH\_SHORT*).show() **}** button2.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You Kicked Me"** , Toast.*LENGTH\_SHORT*).show() **}** button3.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You clicked me again"** ,  
 Toast.*LENGTH\_SHORT*).show() **}** button4.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You kicked me again"** ,  
 Toast.*LENGTH\_SHORT*).show() **}** }  
}

**RelativeLayout**

**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/qwerty"  
 android:text="Click Me"  
 android:layout\_alignParentLeft="true"**/>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/turf"  
 android:text="Kick me"  
 android:layout\_alignParentRight="true"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/qwerty1"  
 android:text="Click Me 1"  
 android:layout\_alignParentBottom="true"**/>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/turf1"  
 android:text="Click Me 2"  
 android:layout\_centerHorizontal="true"**/>  
  
  
</**RelativeLayout**>

**Kt**

**package** com.example.myrelativelayout  
  
**import** androidx.appcompat.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** button1 = findViewById<Button>(R.id.*qwerty*)  
 **val** button2 = findViewById<Button>(R.id.*turf*)  
 **val** button3 = findViewById<Button>(R.id.*qwerty1*)  
 **val** button4 = findViewById<Button>(R.id.*turf1*)  
 button1.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You clicked me"**, Toast.*LENGTH\_SHORT*).show() **}** button2.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You kicked me"**, Toast.*LENGTH\_SHORT*).show() **}** button3.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You clicked me again"**, Toast.*LENGTH\_SHORT*).show() **}** button4.setOnClickListener **{** Toast.makeText(**this**@MainActivity, **"You kicked me again"**, Toast.*LENGTH\_SHORT*).show() **}** }  
}

**Calculator using Table Layout**

**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="wrap\_content"  
 android:background="@color/black"  
 android:orientation="vertical"  
 tools:context=".MainActivity"**>  
  
 <**EditText  
 android:id="@+id/editText"  
 android:layout\_width="match\_parent"  
 android:layout\_height="600dp"  
 android:layout\_marginRight="20dp"  
 android:layout\_marginTop="10dp"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginBottom="2dp"  
 android:layout\_weight="1"  
 android:textColor="@color/white"  
 android:ems="10"  
 android:layout\_gravity="right|center"  
 android:inputType="textPersonName"  
 android:text="0"  
 android:textSize="100dp"**/>  
 <**TableLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:layout\_marginRight="20dp"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginBottom="10dp"**>  
 <**TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
 <**Button  
 android:id="@+id/b1"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="cEvent"  
 android:text="C"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b2"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="0"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b3"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="operatorEvent"  
 android:text="\*"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b4"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="8dp"  
 android:layout\_weight="1"  
 android:onClick="operatorEvent"  
 android:text="-"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 </**TableRow**>  
 <**TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
 <**Button  
 android:id="@+id/b5"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="7"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b6"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="8"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b7"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="9"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b8"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="8dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="+"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 </**TableRow**>  
 <**TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
 <**Button  
 android:id="@+id/b9"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="4"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b10"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="5"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b11"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="6"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b12"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="8dp"  
 android:layout\_weight="1"  
 android:onClick="operatorEvent"  
 android:text="/"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 </**TableRow**>  
 <**TableRow  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"**>  
 <**Button  
 android:id="@+id/b13"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="1"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b14"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="2"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b15"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="10dp"  
 android:layout\_weight="1"  
 android:onClick="numberEvent"  
 android:text="3"  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 <**Button  
 android:id="@+id/b16"  
 android:layout\_width="30pt"  
 android:layout\_height="30pt"  
 android:layout\_marginRight="8dp"  
 android:layout\_weight="1"  
 android:onClick="equalEvent"  
 android:text="="  
 android:textColor="@color/teal\_200"  
 android:textSize="40dp"**></**Button**>  
 </**TableRow**>  
 </**TableLayout**>  
</**LinearLayout**>

**kt**

**package** com.example.mycalculator  
  
**import** androidx.appcompat.app.AppCompatActivity  
**import** android.os.Bundle  
**import** android.view.View  
**import** android.widget.Button  
**import** android.widget.EditText  
  
  
**class** MainActivity : AppCompatActivity() {  
 **var isNewOp** = **true  
 var oldNumber** = **""  
 var oper** = **"+"  
 override fun** onCreate(savedInstanceState: Bundle?) {  
 **super**.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
 }  
 **fun** numberEvent(view: View){  
 **var** editText = findViewById<EditText>(R.id.*editText*)  
 **if** (**isNewOp**)  
 editText.setText(**""**)  
 **isNewOp**=**false  
 var** bclick : String = editText.*text*.toString()  
 **var** bselect : Button = view **as** Button  
 **var** b2 = findViewById<Button>(R.id.*b2*)  
 **var** b5 = findViewById<Button>(R.id.*b5*)  
 **var** b6 = findViewById<Button>(R.id.*b6*)  
 **var** b7 = findViewById<Button>(R.id.*b7*)  
 **var** b9 = findViewById<Button>(R.id.*b9*)  
 **var** b10 = findViewById<Button>(R.id.*b10*)  
 **var** b11 = findViewById<Button>(R.id.*b11*)  
 **var** b13 = findViewById<Button>(R.id.*b13*)  
 **var** b14 = findViewById<Button>(R.id.*b14*)  
 **var** b15 = findViewById<Button>(R.id.*b15*)  
 **when**(bselect.*id*){  
 b2.*id*->bclick += **"0"** b5.*id*->bclick +=**"7"** b6.*id*->bclick +=**"8"** b7.*id*->bclick +=**"9"** b9.*id*->bclick +=**"4"** b10.*id*->bclick +=**"5"** b11.*id*->bclick +=**"6"** b13.*id*->bclick +=**"1"** b14.*id*->bclick +=**"2"** b15.*id*->bclick +=**"3"** }  
 editText.setText(bclick)  
  
 }  
 **fun** operatorEvent(view: View){  
 **var** b12 = findViewById<Button>(R.id.*b12*)  
 **var** b8 = findViewById<Button>(R.id.*b8*)  
 **var** b3 = findViewById<Button>(R.id.*b3*)  
 **var** b4 = findViewById<Button>(R.id.*b4*)  
 **isNewOp**=**true  
 var** editText = findViewById<EditText>(R.id.*editText*)  
 **oldNumber** = editText.*text*.toString()  
 **var** bselect = view **as** Button  
 **when** (bselect.*id*){  
 b12.*id*->**oper**=**"/"** b8.*id*->**oper**=**"+"** b3.*id*->**oper**=**"\*"** b4.*id*->**oper**=**"-"** }  
 }  
 **fun** equalEvent(view: View){  
 **var** editText = findViewById<EditText>(R.id.*editText*)  
 **var** newnum = editText.*text*.toString()  
 **var** result=0.0  
 **when**(**oper**){  
 **"+"**->result = **oldNumber**.*toDouble*()+ newnum.*toDouble*()  
 **"\*"**->result = **oldNumber**.*toDouble*()\* newnum.*toDouble*()  
 **"-"**->result = **oldNumber**.*toDouble*()- newnum.*toDouble*()  
 **"/"**->result = **oldNumber**.*toDouble*()/ newnum.*toDouble*()  
 }  
 editText.setText(result.toString())  
 }  
 **fun** cEvent(view: View){  
 **var** editText = findViewById<EditText>(R.id.*editText*)  
 editText.setText(**"0"**)  
 }  
}

**GridLayout**

**Xml**

*<?***xml version="1.0" encoding="utf-8"***?>*<**GridLayout 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:rowCount="3"  
 android:columnCount="2"  
 android:layout\_marginTop="20dp"  
 android:layout\_marginLeft="20dp"  
 tools:context=".MainActivity"**>  
  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/qwerty"  
 android:text="CLICK ME"  
 android:layout\_marginRight="10dp"  
 android:layout\_marginBottom="20dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/asdf"  
 android:text="KICK ME"  
 android:layout\_marginRight="10dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/kiol"  
 android:text="SMILE"  
 android:layout\_marginRight="10dp"  
 android:layout\_marginBottom="20dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/zxcv"  
 android:text="CLICK ME 2"  
 android:layout\_marginRight="10dp"  
 android:layout\_marginBottom="20dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/mnop"  
 android:text="KICK ME 2"  
 android:layout\_marginRight="10dp"**/>  
 <**Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:id="@+id/buit"  
 android:text="SMILE 2"  
 android:layout\_marginRight="10dp"  
 android:layout\_marginBottom="20dp"**/>  
  
</**GridLayout**>

**Kt**

**package** com.example.mygridlayout  
  
**import** androidx.appcompat.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** btn=findViewById<Button>(R.id.*qwerty*)  
 **val** btn2=findViewById<Button>(R.id.*asdf*)  
 **val** btn3=findViewById<Button>(R.id.*zxcv*)  
 **val** btn4=findViewById<Button>(R.id.*mnop*)  
 **val** btn5=findViewById<Button>(R.id.*kiol*)  
 **val** btn6=findViewById<Button>(R.id.*buit*)  
  
 btn.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you clicked me"**,Toast.*LENGTH\_SHORT*).show() **}** btn2.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you kicked me"**,Toast.*LENGTH\_SHORT*).show() **}** btn3.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you clicked me again"**,Toast.*LENGTH\_SHORT*).show() **}** btn4.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you kicked me again"**,Toast.*LENGTH\_SHORT*).show() **}** btn5.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you smiled me"**,Toast.*LENGTH\_SHORT*).show() **}** btn6.setOnClickListener**{** Toast.makeText( **this**@MainActivity,**"you smiled me again"**,Toast.*LENGTH\_SHORT*).show() **}** }  
}

**Practical 5**

Programming UI elements

AppBar, Fragments, UI Components

**activityMain.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"  
 android:background="@color/black"  
 tools:context=".MainActivity">  
  
 <ImageView  
 android:id="@+id/imageView"  
 android:layout\_width="50dp"  
 android:layout\_height="50dp"  
 android:layout\_marginStart="60dp"  
 android:layout\_marginTop="50dp"  
 android:src="@drawable/insta"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"/>  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="20dp"  
 android:layout\_marginTop="50dp"  
 android:layout\_marginEnd="70dp"  
 android:fontFamily="sans-serif-medium"  
 android:text="Instagram"  
 android:textColor="@color/white"  
 android:textSize="40dp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toEndOf="@id/imageView"  
 app:layout\_constraintTop\_toTopOf="parent" />  
 <androidx.cardview.widget.CardView  
 android:id="@+id/cardView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="450dp"  
 android:layout\_marginStart="20dp"  
 android:layout\_marginTop="70dp"  
 android:layout\_marginEnd="20dp"  
 app:cardCornerRadius="30dp"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView">  
 <LinearLayout  
 android:id="@+id/user"  
 android:layout\_width="match\_parent"  
 android:layout\_height="450dp"  
 android:background="@drawable/gradient"  
 android:orientation="vertical"  
 tools:ignore="MissingConstraints">  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:gravity="center"  
 android:text="Login"  
 android:textColor="@color/purple\_500"  
 android:textSize="30dp"/>  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:orientation="horizontal">  
 <ImageView  
 android:layout\_width="60dp"  
 android:layout\_height="60dp"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginTop="10dp"  
 android:src="@drawable/user"/>  
  
 <EditText  
 android:id="@+id/username"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginTop="20dp"  
 android:layout\_marginRight="20dp"  
 android:minHeight="48dp"  
 tools:ignore="SpeakableTextPresentCheck" />  
 </LinearLayout>  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:orientation="horizontal">  
  
 <ImageView  
 android:layout\_width="60dp"  
 android:layout\_height="50dp"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginTop="10dp"  
 android:src="@drawable/passkey"/>  
  
 <EditText  
 android:id="@+id/password"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginTop="20dp"  
 android:layout\_marginRight="20dp"  
 android:minHeight="48dp"  
 tools:ignore="SpeakableTextPresentCheck" />  
 </LinearLayout>  
 <Button  
 android:id="@+id/loginbtn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="50dp"  
 android:layout\_marginTop="40dp"  
 android:layout\_marginRight="50dp"  
 android:background="@drawable/gradient2"  
 android:text="Login"  
 android:textSize="25dp"/>  
 <TextView  
 android:id="@+id/signup"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="20dp"  
 android:layout\_marginTop="30dp"  
 android:layout\_marginRight="20dp"  
 android:gravity="center"  
 android:text="Not an account ? Sign up"  
 android:textColor="@color/purple\_200"  
 android:textSize="20dp"/>  
  
 </LinearLayout>  
 </androidx.cardview.widget.CardView>  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity.kt**

package com.example.pract5  
import android.content.Intent  
import android.widget.Button  
import android.widget.EditText  
import android.widget.ImageView  
import android.widget.LinearLayout  
import android.widget.TextView  
import android.widget.Toast  
import androidx.appcompat.app.AppCompatActivity  
import androidx.cardview.widget.CardView  
import android.os.Bundle as Bundle  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val logo = findViewById<ImageView>(R.id.*imageView*)  
 val logotext = findViewById<TextView>(R.id.*textView*)  
 val card = findViewById<CardView>(R.id.*cardView*)  
 val user = findViewById<LinearLayout>(R.id.*user*)  
 val username = findViewById<EditText>(R.id.*username*)  
 val password = findViewById<EditText>(R.id.*password*)  
 val loginbtn = findViewById<Button>(R.id.*loginbtn*)  
 val signup = findViewById<TextView>(R.id.*signup*)  
  
 loginbtn.setOnClickListener **{** if (username.*text*.toString()=="admin"&& password.*text*.toString()=="123456")  
 {  
 val Intent=Intent(this,MainActivity2::class.*java*)  
 startActivity(*intent*)  
 }  
 else{Toast.makeText(this@MainActivity,"Invalid Credentials",Toast.*LENGTH\_SHORT*).show()}  
 **}** signup.setOnClickListener **{** Toast.makeText(this@MainActivity,"Sign Up",Toast.*LENGTH\_SHORT*).show() **}** }  
}

**MainACtivity2.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.appcompat.widget.Toolbar  
 android:id="@+id/mtool"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:background="@color/purple\_500"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="@+id/textView2"  
 app:navigationIcon="@drawable/baseline\_menu\_24"  
 app:title="Menu"  
 app:titleMarginStart="10dp"/>  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_width="0dp"  
 android:layout\_height="0dp"  
 android:gravity="center"  
 android:text="Successful"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 tools:ignore="TextSizeCheck" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity2.kt**

package com.example.pract5  
  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.view.Menu  
import android.view.MenuItem  
import android.widget.Toast  
import androidx.appcompat.widget.Toolbar  
  
class MainActivity2 : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main2*)  
 setSupportActionBar(findViewById(R.id.*mtool*))  
 }  
  
 override fun onCreateOptionsMenu(menu: Menu?): Boolean {  
 *menuInflater*.inflate(R.menu.*mainmenu*,menu)  
 return super.onCreateOptionsMenu(menu)  
 }  
  
 override fun onOptionsItemSelected(item: MenuItem): Boolean {  
 return when(item.*itemId*){  
 R.id.*qwerty*->{  
 Toast.makeText(this@MainActivity2,"You clicked on add image",Toast.*LENGTH\_SHORT*).show()  
 return true  
 }  
 R.id.*asdf*->{  
 Toast.makeText(this@MainActivity2,"You clicjed on notification",Toast.*LENGTH\_SHORT*).show()  
 return true  
 }  
 else->super.onOptionsItemSelected(item)  
 }  
 }  
}

**mainmenu.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:id="@+id/qwerty"  
 android:icon="@drawable/baseline\_add\_photo\_alternate\_24"  
 app:showAsAction="always"  
 android:title="TODO" />  
 <item  
 android:id="@+id/asdf"  
 android:title="Notification"  
 app:showAsAction="never"  
 />  
</menu>

**Gradient.xml**

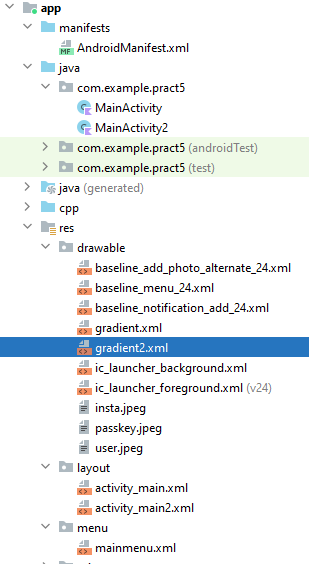
*<?*xml version="1.0" encoding="utf-8"*?>*<shape xmlns:android="http://schemas.android.com/apk/res/android">  
  
 <gradient  
 android:startColor="@color/teal\_200"  
 android:centerColor="@color/white"  
 android:endColor="@color/teal\_200"  
 />  
</shape>

**Gradient2.xml**

*<?*xml version="1.0" encoding="utf-8"*?>*<shape xmlns:android="http://schemas.android.com/apk/res/android">  
  
 <gradient  
 android:startColor="@color/purple\_500"  
 android:centerColor="@color/white"  
 android:endColor="@color/purple\_200"/>  
 <corners android:radius="20dp"/>  
</shape>

**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">  
  
 <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.AppCompat.DayNight.NoActionBar"  
 tools:targetApi="31">  
 <activity  
 android:name=".MainActivity2"  
 android:exported="false">  
 <meta-data  
 android:name="android.app.lib\_name"  
 android:value="" />  
 </activity>  
 <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>  
  
 <meta-data  
 android:name="android.app.lib\_name"  
 android:value="" />  
 </activity>  
 </application>  
  
</manifest>



**Practical 6**

Programming menus, dialog, dialog fragments

**activityMain.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.appcompat.widget.Toolbar  
 android:id="@+id/toolbar"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:background="@color/purple\_500"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:navigationIcon="@drawable/menu"  
 app:title="Menu"/>  
 <Button  
 android:layout\_width="wrap\_content"  
 android:id="@+id/btn1"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="50dp"  
 android:layout\_marginTop="20dp"  
 android:layout\_marginEnd="50dp"  
 android:layout\_marginBottom="50dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/toolbar"  
 android:text="@string/click\_me"  
 android:textSize="30sp"/>  
</androidx.constraintlayout.widget.ConstraintLayout>

**mainActivity.kt**

package com.example.pract6  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.os.PersistableBundle  
import android.view.Menu  
import android.view.MenuItem  
import android.widget.Button  
import android.widget.Toast  
import androidx.appcompat.app.AlertDialog  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) { super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
 setSupportActionBar(findViewById(R.id.*toolbar*)) }  
 override fun onCreateOptionsMenu(menu: Menu?): Boolean { *menuInflater*.inflate(R.menu.*mainmenu*,menu)  
 return super.onCreateOptionsMenu(menu) }  
  
 override fun onPrepareOptionsMenu(menu: Menu?): Boolean {  
 menu?.getItem(2)?.*isEnabled* = false  
 menu?.getItem(4)?.*isVisible*=false  
 return super.onPrepareOptionsMenu(menu)  
 }  
 override fun onOptionsItemSelected(item: MenuItem): Boolean { return when(item.*itemId*){  
 R.id.*notificationmenu*->{  
 Toast.makeText(this@MainActivity,"Notification",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*adding*->{ Toast.makeText(this@MainActivity,"Add",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*like*->{ Toast.makeText(this@MainActivity,"Like",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*share*->{ Toast.makeText(this@MainActivity,"Subscribe",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*about*->{ Toast.makeText(this@MainActivity,"Made With Love",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 else->super.onOptionsItemSelected(item) }  
 }  
 override fun onBackPressed() {  
 val builder=AlertDialog.Builder(this)  
 builder.setTitle("Are you sure")  
 builder.setMessage("Are you sure you want to exit the app ?")  
 builder.setPositiveButton("Yes",**{**dialogInterface,i**->**finish()**}**)  
 builder.setNegativeButton("No",**{**dialogInterface,i**->}**)  
 builder.show()  
 }  
}

**mainmenu.xml**

package com.example.pract6  
import androidx.appcompat.app.AppCompatActivity  
import android.os.Bundle  
import android.os.PersistableBundle  
import android.view.Menu  
import android.view.MenuItem  
import android.widget.Button  
import android.widget.Toast  
import androidx.appcompat.app.AlertDialog  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) { super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
 setSupportActionBar(findViewById(R.id.*toolbar*)) }  
 override fun onCreateOptionsMenu(menu: Menu?): Boolean { *menuInflater*.inflate(R.menu.*mainmenu*,menu)  
 return super.onCreateOptionsMenu(menu) }  
  
 override fun onPrepareOptionsMenu(menu: Menu?): Boolean {  
 menu?.getItem(2)?.*isEnabled* = false  
 menu?.getItem(4)?.*isVisible*=false  
 return super.onPrepareOptionsMenu(menu)  
 }  
 override fun onOptionsItemSelected(item: MenuItem): Boolean { return when(item.*itemId*){  
 R.id.*notificationmenu*->{  
 Toast.makeText(this@MainActivity,"Notification",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*adding*->{ Toast.makeText(this@MainActivity,"Add",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*like*->{ Toast.makeText(this@MainActivity,"Like",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*share*->{ Toast.makeText(this@MainActivity,"Subscribe",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 R.id.*about*->{ Toast.makeText(this@MainActivity,"Made With Love",Toast.*LENGTH\_SHORT*).show()  
 return true }  
 else->super.onOptionsItemSelected(item) }  
 }  
 override fun onBackPressed() {  
 val builder=AlertDialog.Builder(this)  
 builder.setTitle("Are you sure")  
 builder.setMessage("Are you sure you want to exit the app ?")  
 builder.setPositiveButton("Yes",**{**dialogInterface,i**->**finish()**}**)  
 builder.setNegativeButton("No",**{**dialogInterface,i**->}**)  
 builder.show()  
 }  
}

**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">  
  
 <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.AppCompat.DayNight.NoActionBar"  
 tools:targetApi="31">  
 <activity  
 android:name=".MainActivity2"  
 android:exported="false">  
 <meta-data  
 android:name="android.app.lib\_name"  
 android:value="" />  
 </activity>  
 <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>  
  
 <meta-data  
 android:name="android.app.lib\_name"  
 android:value="" />  
 </activity>  
 </application>  
  
</manifest>

**Practical 7**

Programs on Intents, Events, Listeners and Adapters

The Android Intent Class, Using Events and Event Listeners

**mainActivity.xml**

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android" xmlns:app="http://schemas.android.com/apk/resauto" xmlns:tools="http://schemas.android.com/tools" android:layout\_width="match\_parent" android:layout\_height="match\_parent" tools:context=".MainActivity2">

<ListView android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:id="@+id/list"

app:layout\_constraintBottom\_toTopOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**activityMain.kt**

package com.example.myapplication

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.ArrayAdapter

import android.widget.ListView

class MainActivity2 : AppCompatActivity() {

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main2)

val list=findViewById<ListView>(R.id.list)

var items= arrayOf("One","Two","Three","Four","Five")

var arrayAdapter=ArrayAdapter(this,R.layout.list\_row,R.id.item\_text,items)

list.adapter=arrayAdapter

}

}

**Practical 8**

Programs on Services, notification and broadcast receivers

**Pract 8th A**

**Main Activity.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:gravity="center"

android:padding="16dp"

android:orientation="vertical"

tools:context=".MainActivity">

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/btn\_start\_service"

android:text="Start Music"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:layout\_marginTop="20dp"

android:id="@+id/btn\_stop\_service"

android:text="Stop Music"/>

</LinearLayout>

**Music Service.kt**

package com.example.pract8

import android.content.Intent

import android.media.MediaPlayer

import android.os.IBinder

import android.provider.Settings

import android.app.Service

class MusicService: Service(){

private lateinit var player: MediaPlayer

override fun onStartCommand(intent: Intent,flags:Int,StartId:Int):Int{

player=MediaPlayer.create(this,Settings.System.DEFAULT\_RINGTONE\_URI)

player.setLooping(true)

player.start()

return START\_STICKY

}

override fun onDestroy(){

super.onDestroy()

player.stop()

}

override fun onBind(intent: Intent):IBinder?{

return null

}

}

**Android Manifest.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">

<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:supportsRtl="true"

android:theme="@style/Theme.Pract8"

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>

<service android:name=".MusicService" android:enabled="true"/>

</application>

</manifest>

**Main Activity.Kt**

package com.example.pract8

import android.content.Intent

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

class MainActivity : AppCompatActivity() {

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

val btn\_start = findViewById<Button>(R.id.btn\_start\_service)

val btn\_stop= findViewById<Button>(R.id.btn\_stop\_service)

btn\_start.setOnClickListener{

startService(Intent(this,MusicService::class.java))

}

btn\_stop.setOnClickListener{

stopService(Intent(this,MusicService::class.java))

}

}

}

**Pract 8th B:**

**Main Manifest.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.ACCESS\_NOTIFICATION\_POLICY"/>

<uses-permission android:name="android.permission.POST\_NOTIFICATIONS" />

<uses-permission android:name="android.permission.POST\_NOTIFICATIONS" />

<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:supportsRtl="true"

android:theme="@style/Theme.Prac8b"

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>

**Main Activity.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"

android:padding="16dp"

tools:context=".MainActivity">

<Button

android:id="@+id/btn\_non\_clickable"

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="non clickable notification"

android:layout\_marginBottom="16dp"/>

<Button

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:text="Clickable notification"

android:layout\_below="@+id/btn\_non\_clickable"/>

</RelativeLayout>

**Main Activity.kt**

package com.example.prac8b

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 androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import androidx.core.app.NotificationCompat

class MainActivity : AppCompatActivity() {

private lateinit var nonClickableNotificationManager: NotificationManager

private lateinit var clickableNotificationManager: NotificationManager

private var CHANNEL\_ID="my\_channel\_01"

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

val btnnonclick = findViewById<Button>(R.id.btn\_non\_clickable)

val btnclick = findViewById<Button>(R.id.btn\_clickable)

nonClickableNotificationManager=getSystemService(Context.NOTIFICATION\_SERVICE)as NotificationManager

clickableNotificationManager=getSystemService(Context.NOTIFICATION\_SERVICE)as NotificationManager

if(Build.VERSION.SDK\_INT>=Build.VERSION\_CODES.O){

val channel=NotificationChannel(CHANNEL\_ID,"My Channel",NotificationManager.IMPORTANCE\_HIGH)

channel.description="My channel Description"

channel.lightColor=Color.RED

nonClickableNotificationManager.createNotificationChannel(channel)

clickableNotificationManager.createNotificationChannel(channel)

}

btnnonclick.setOnClickListener {

val notification=createNonClickableNotification()

nonClickableNotificationManager.notify(0,notification.build())

}

btnclick.setOnClickListener {

val notification=createClickableNotification()

clickableNotificationManager.notify(1,notification.build())

}

}

private fun createNonClickableNotification():NotificationCompat.Builder{

return NotificationCompat.Builder(this,CHANNEL\_ID)

.setSmallIcon(R.drawable.ic\_launcher\_foreground)

.setContentTitle("Non Clickable Notification")

.setContentText("This is non-clickable notification")

.setAutoCancel(true)

}

private fun createClickableNotification():NotificationCompat.Builder{

val intent= Intent(this,MainActivity::class.java)

intent.addFlags(Intent.FLAG\_ACTIVITY\_CLEAR\_TOP or Intent.FLAG\_ACTIVITY\_SINGLE\_TOP)

val pendingIntent=PendingIntent.getActivity(this,1,intent,PendingIntent.FLAG\_IMMUTABLE

or PendingIntent.FLAG\_UPDATE\_CURRENT)

return NotificationCompat.Builder(this,CHANNEL\_ID)

.setSmallIcon(R.drawable.ic\_launcher\_foreground)

.setContentTitle("Clickable Notification")

.setContentText("This is clickable notification")

.setAutoCancel(true)

.setContentIntent(pendingIntent)

}

}

**Pract 8th C:**

**Main Activity.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">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="Hello World!"

app:layout\_constraintBottom\_toBottomOf="parent"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

**Manifest.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">

<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:supportsRtl="true"

android:theme="@style/Theme.Prac8c"

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>

<receiver android:name=".Myreceiver" android:exported="true">

<intent-filter>

<action android:name="android.intent.action.AIRPLANE\_MODE"></action>

</intent-filter>

</receiver>

</application>

</manifest>

**Receiver.kt**

package com.example.prac8c

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?) {

Toast.makeText(context,"Broadcast is called",Toast.LENGTH\_LONG).show()

}

}

**Main Activity.kt**

package com.example.prac8c

import android.content.Intent

import android.content.IntentFilter

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

class MainActivity : AppCompatActivity() {

var myReceiver=Myreceiver()

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

register()

}

private fun register(){

var filter=IntentFilter()

filter.addAction(Intent.ACTION\_AIRPLANE\_MODE\_CHANGED)

registerReceiver(myReceiver,filter)

}

override fun onDestroy() {

super.onDestroy()

unregisterReceiver(myReceiver)

}

}

**Pract 9th:**

**Database Programming with SQLite**

**Main Activity.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:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/studentId"

android:ems="10"

android:inputType="number"

android:hint="Student ID"/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/studentName"

android:ems="10"

android:inputType="textPersonName"

android:hint="Student Name"/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/studentAge"

android:ems="10"

android:inputType="number"

android:hint="Student Age"/>

<LinearLayout

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:gravity="center"

android:orientation="horizontal">

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/addStudent"

android:onClick="addStudent"

android:text="ADD"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/updateStudent"

android:onClick="updateStudent"

android:text="UPDATE"

android:layout\_marginLeft="20dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/deleteStudent"

android:onClick="deleteStudent"

android:text="DELETE"

android:layout\_marginLeft="20dp"/>

</LinearLayout>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:gravity="center"

android:layout\_marginLeft="130dp"

android:text="Load Details"

android:onClick="loadStudent"/>

<ListView

android:layout\_width="match\_parent"

android:layout\_height="0dp"

android:id="@+id/studentListView"

android:layout\_weight="1"

android:divider="@android:color/transparent"

android:dividerHeight="5.0sp"/>

</LinearLayout>

**Main Activity.kt**

package com.example.prac9

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.os.Handler

import android.view.View

import android.widget.AdapterView

import android.widget.ArrayAdapter

import android.widget.EditText

import android.widget.ListView

import android.widget.Toast

class MainActivity : AppCompatActivity() {

private lateinit var listView: ListView

private lateinit var studentId: EditText

private lateinit var studentName: EditText

private lateinit var studentAge: EditText

private lateinit var dbHandler: MyDBHandler

private lateinit var adapter: ArrayAdapter<Student>

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

listView= findViewById(R.id.studentListView)

studentId= findViewById(R.id.studentId)

studentAge = findViewById(R.id.studentAge)

studentName =findViewById(R.id.studentName)

dbHandler = MyDBHandler(this)

adapter= ArrayAdapter(this,android.R.layout.simple\_list\_item\_1,dbHandler.loadHandler())

listView.adapter=adapter

listView.onItemClickListener = AdapterView.OnItemClickListener{

\_, \_, position,\_ ->

val student =adapter.getItem(position)

studentId.setText(student?.id.toString())

studentName.setText(student?.name)

studentAge.setText(student?.age.toString())

}

}

fun addStudent(view: View) {

if (studentId.text.toString().isNotEmpty() &&

studentName.text.toString().isNotEmpty() &&

studentAge.text.toString().isNotEmpty()

) {

val id = studentId.text.toString().toInt()

val name = studentName.text.toString()

val age = studentAge.text.toString().toInt()

val student = Student(id, name, age)

val insertId = dbHandler.addHandler(student)

if (insertId == -1L) {

Toast.makeText(this, "Record Already Exists", Toast.LENGTH\_SHORT).show()

} else {

studentId.setText("")

studentAge.setText("")

studentName.setText("")

adapter.add(student)

adapter.notifyDataSetChanged()

Toast.makeText(this, "record added", Toast.LENGTH\_SHORT)

.show()

}

}else{

Toast.makeText(this, "Please fill correct id, name and address", Toast.LENGTH\_SHORT)

.show()

}

}

fun loadStudent(view: View){

adapter.clear()

adapter.addAll(dbHandler.loadHandler())

}

fun updateStudent(view: View) {

if (studentId.text.toString().isNotEmpty() &&

studentName.text.toString().isNotEmpty() &&

studentAge.text.toString().isNotEmpty()

) {

val id = studentId.text.toString().toInt()

val name = studentName.text.toString()

val age = studentAge.text.toString().toInt()

val student = Student(id, name, age)

val rowsAffected = dbHandler.updateHandler(student)

if (rowsAffected > 0) {

adapter.clear()

adapter.addAll(dbHandler.loadHandler())

Toast.makeText(this, "Record Updated", Toast.LENGTH\_SHORT).show()

} else {

Toast.makeText(this, "please fill the correct ID, Name and Age", Toast.LENGTH\_SHORT)

.show()

}

}

}

fun deleteStudent(view: View) {

if (studentId.text.toString().isNotEmpty()) {

val id = studentId.text.toString().toInt()

val rowsAffected = dbHandler.deleteHandler(id)

if (rowsAffected > 0) {

adapter.clear()

adapter.addAll(dbHandler.loadHandler())

studentId.setText("")

studentAge.setText("")

studentName.setText("")

Toast.makeText(this, "Record Deleted", Toast.LENGTH\_SHORT).show()

} else {

Toast.makeText(this, "please fill the correct ID, Name and Age", Toast.LENGTH\_SHORT)

.show()

}

}

}

}

**My DB handler.kt**

package com.example.prac9

import android.content.ContentValues

import android.content.Context

import android.database.sqlite.SQLiteDatabase

import android.database.sqlite.SQLiteOpenHelper

import android.security.identity.AccessControlProfileId

private const val DATABASE\_VERSION=1

private const val DATABASE\_NAME="myDatabase"

private const val TABLE\_NAME="students"

private const val COLUMN\_ID="id"

private const val COLUMN\_NAME="name"

private const val COLUMN\_AGE="age"

class MyDBHandler (context: Context):SQLiteOpenHelper(context, DATABASE\_NAME,null, DATABASE\_VERSION) {

override fun onCreate(db: SQLiteDatabase?) {

val CREATE\_TABLE="CREATE TABLE $TABLE\_NAME($COLUMN\_ID INTEGER PRIMARY KEY,$COLUMN\_NAME TEXT,$COLUMN\_AGE INTEGER)"

db?.execSQL(CREATE\_TABLE)

}

override fun onUpgrade(db: SQLiteDatabase?, oldVersion: Int, newVersion: Int) {

db?.execSQL("DROP TABLE IF EXISTS $TABLE\_NAME")

onCreate(db)

}

fun loadHandler():List<Student>{

val query = "SELECT \* FROM $TABLE\_NAME"

val db=this.readableDatabase

val cursor = db.rawQuery(query,null)

val students = mutableListOf<Student>()

if (cursor.moveToFirst()){

do{

val id = cursor.getInt(0)

val name = cursor.getString(1)

val age = cursor.getInt(2)

students.add(Student(id,name,age))

}while (cursor.moveToNext())

}

cursor.close()

db.close()

return students

}

fun addHandler(student: Student):Long{

val values = ContentValues()

values.put(COLUMN\_ID,student.id)

values.put(COLUMN\_NAME,student.name)

values.put(COLUMN\_AGE,student.age)

val db = this.writableDatabase

val result = db.insert(TABLE\_NAME,null,values)

db.close()

return result

}

fun updateHandler(student: Student):Int{

val values = ContentValues()

values.put(COLUMN\_NAME,student.name)

values.put(COLUMN\_AGE,student.age)

val db = this.writableDatabase

val result = db.update(TABLE\_NAME,values,"$COLUMN\_ID=?", arrayOf(student.id.toString())

)

db.close()

return result

}

fun deleteHandler(id: Int):Int{

val db = this.writableDatabase

val result= db.delete(TABLE\_NAME,"$COLUMN\_ID=?", arrayOf(id.toString())

)

db.close()

return result

}

}

**Student.kt**

package com.example.prac9

import android.security.identity.AccessControlProfileId

class Student(val id: Int,val name: String,val age: Int) {

override fun toString(): String {

return "ID: $id \nName: $name \nAge: $age"

}

}

**Practical 10**

**Programming threads, handles and asynchronized programs**

**Pract 10th A**

**Main Activity.kt**

package com.example.prac10

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.os.Handler

import android.os.Looper

import android.widget.Button

import android.widget.TextView

import kotlin.random.Random

class MainActivity : AppCompatActivity() {

private lateinit var handler: Handler

private lateinit var runnable: Runnable

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

handler= Handler(Looper.getMainLooper())

val numberTextView = findViewById<TextView>(R.id.numberTextView)

val generateNumber= findViewById<Button>(R.id.generateButton)

generateNumber.setOnClickListener {

val thread =Thread{

Thread.sleep(3000)

val random = Random

val number = random.nextInt(1000)

handler.post{

numberTextView.text=number.toString()

}

}

thread.start()

}

}

}

**Main Activity.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">

<Button

android:id="@+id/generateButton"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:onClick="generateNumber"

android:text="Generate Number" />

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/numberTextView"

android:text="0"/>

</LinearLayout>

**Practical 10th B:**

**Main Activity.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:gravity="center"

tools:context=".MainActivity">

<ImageView

android:layout\_width="500dp"

android:layout\_height="500dp"

android:id="@+id/image\_view"

/>

</LinearLayout>

**Main Activity.kt**

package com.example.prac10b

import android.graphics.Bitmap

import android.graphics.BitmapFactory

import android.os.AsyncTask

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.util.Log

import android.widget.ImageView

import java.net.URL

class MainActivity : AppCompatActivity() {

private lateinit var imageView: ImageView

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

imageView =findViewById(R.id.image\_view)

DownloadImageTask().execute("https://scx2.b-cdn.net/gfx/news/hires/2015/whatsimporta.jpg")

}

inner class DownloadImageTask:AsyncTask<String, Void, Bitmap>(){

override fun doInBackground(vararg urls: String?): Bitmap? {

val url= urls[0]

var bitmap: Bitmap?=null

try {

val inputStream=URL(url).openStream()

bitmap=BitmapFactory.decodeStream(inputStream)

}catch (e: Exception){

Log.e("Error",e.message?:"Unknown error")

e.printStackTrace()

}

return bitmap

}

override fun onPostExecute(result: Bitmap?) {

if (result!=null){

imageView.setImageBitmap(result)

}

}

}

}

**Manifest.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.INTERNET"/>

<uses-permission android:name="android.permission.WRITE\_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:supportsRtl="true"

android:theme="@style/Theme.Prac10b"

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>

**Practical 11**

**Programming Media API and Telephone API**

**MainActivity.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"

android:background="@color/black"

android:layout\_gravity="center">

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/audio"

android:text="Audio"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"

android:layout\_marginTop="200dp"

android:layout\_marginLeft="150dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/video"

android:text="Video"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="@+id/audio"

android:layout\_marginTop="200dp"

android:layout\_marginLeft="150dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**MainActivity.kt:**

package com.example.abc

import android.content.Intent

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

class MainActivity : AppCompatActivity() {

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

var audio = findViewById<Button>(R.id.audio)

var video = findViewById<Button>(R.id.video)

audio.setOnClickListener {

var intent = Intent(this@MainActivity,Audio::class.java)

startActivity(intent)

}

video.setOnClickListener {

var intent = Intent(this@MainActivity,Video::class.java)

startActivity(intent)

}

}

}

**main\_video.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"

android:background="@color/black"

tools:context=".Video">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/textView"

android:layout\_marginTop="20dp"

android:gravity="center"

android:text="Duaa"

android:textColor="@color/white"

android:layout\_marginBottom="383dp"

android:textSize="50dp"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"/>

<VideoView

android:layout\_width="match\_parent"

android:layout\_height="400dp"

android:id="@+id/videoView1"

app:layout\_constraintTop\_toBottomOf="@+id/textView"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="20dp"

android:layout\_marginRight="20dp"/>

<Button

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/playButton"

app:layout\_constraintTop\_toBottomOf="@+id/videoView1"

android:text="Play"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="20dp"

android:layout\_marginRight="20dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**video.kt:**

package com.example.abc

import android.net.Uri

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import android.widget.MediaController

import android.widget.VideoView

class Video : AppCompatActivity() {

private lateinit var videoView: VideoView

private lateinit var mediaController: MediaController

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_video)

var playButton = findViewById<Button>(R.id.playButton)

videoView = findViewById(R.id.videoView1)

mediaController= MediaController(this)

videoView.setMediaController(mediaController)

videoView.setVideoURI(Uri.parse("android.resource://com.example.abc/${R.raw.sample}"))

playButton.setOnClickListener {

if (videoView.isPlaying){

videoView.pause()

playButton.text="Play"

}else{

videoView.start()

playButton.text="Pause"

}

}

}

override fun onDestroy() {

super.onDestroy()

videoView.stopPlayback()

}

}

**main\_audio.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"

android:background="@color/black"

tools:context=".Audio">

<TextView

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/textView"

android:layout\_marginTop="20dp"

android:gravity="center"

android:text="Humnava mere"

android:textColor="@color/white"

android:layout\_marginBottom="383dp"

android:textSize="50dp"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toTopOf="parent"/>

<ImageView

android:layout\_width="match\_parent"

android:layout\_height="300dp"

android:id="@+id/logo"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="20dp"

android:layout\_marginRight="20dp"

app:layout\_constraintEnd\_toEndOf="parent"

app:layout\_constraintStart\_toStartOf="parent"

app:layout\_constraintTop\_toBottomOf="@+id/textView"/>

<SeekBar

android:layout\_width="match\_parent"

android:layout\_height="70dp"

android:id="@+id/seekBar"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="20dp"

android:layout\_marginRight="20dp"

app:layout\_constraintTop\_toBottomOf="@+id/logo"/>

<Button

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/playButton"

app:layout\_constraintTop\_toBottomOf="@+id/seekBar"

android:text="Play"

android:layout\_marginTop="20dp"

android:layout\_marginLeft="20dp"

android:layout\_marginRight="20dp"/>

</androidx.constraintlayout.widget.ConstraintLayout>

**Audio.kt**

package com.example.abc

import android.media.MediaPlayer

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import android.widget.SeekBar

import kotlinx.coroutines.\*

class Audio : AppCompatActivity() {

private lateinit var mediaPlayer: MediaPlayer

private lateinit var seekBar: SeekBar

private var seekBarUpdateJob: Job? = null

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_audio)

var playButton = findViewById<Button>(R.id.playButton)

seekBar = findViewById(R.id.seekBar)

mediaPlayer = MediaPlayer.create(this, R.raw.humnava\_mere)

seekBar.max = mediaPlayer.duration

seekBar.setOnSeekBarChangeListener(object : SeekBar.OnSeekBarChangeListener {

override fun onProgressChanged(p0: SeekBar?, p1: Int, p2: Boolean) {

if (p2) {

mediaPlayer.seekTo(p1)

}

}

override fun onStartTrackingTouch(p0: SeekBar?) {

}

override fun onStopTrackingTouch(p0: SeekBar?) {

}

})

playButton.setOnClickListener {

if (mediaPlayer.isPlaying) {

mediaPlayer.pause()

playButton.text = "Play"

seekBarUpdateJob?.cancel()

} else {

mediaPlayer.start()

playButton.text = "pause"

seekBarUpdateJob = GlobalScope.launch(Dispatchers.Main) {

while (mediaPlayer.isPlaying) {

seekBar.progress = mediaPlayer.currentPosition

delay(100)

}

}

}

}

}

override fun onDestroy() {

super.onDestroy()

seekBarUpdateJob?.cancel()

mediaPlayer.release()

}

}

**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"

package="com.example.abc">

<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:usesCleartextTraffic="true"

android:roundIcon="@mipmap/ic\_launcher\_round"

android:supportsRtl="true"

android:theme="@style/Theme.Abc"

tools:targetApi="31">

<activity

android:name=".Audio"

android:exported="true">

</activity>

<activity

android:name=".Video"

android:exported="true">

</activity>

<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>

**Pract 12th :**

**Programming Security and permissions**

**Main Activity.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="@color/black"

android:gravity="center"

tools:context=".MainActivity">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="permissions"

android:textSize="30dp"

android:textColor="@color/white" />

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/Contacts"

android:text="Access Contacts"

android:layout\_marginTop="20dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/Calendar"

android:text="Access Calendar"

android:layout\_marginTop="20dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/Camera"

android:text="Access Camera"

android:layout\_marginTop="20dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/Gallery"

android:text="Access Gallery"

android:layout\_marginTop="20dp"/>

</LinearLayout>

**Main Activity.kt**

package com.example.prac12

import android.content.pm.PackageManager

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Button

import android.widget.Toast

import androidx.core.app.ActivityCompat

import androidx.core.content.ContextCompat

class MainActivity : AppCompatActivity() {

private val CONTACTS\_REQUEST\_CODE = 1

private val CALENDAR\_REQUEST\_CODE = 2

private val CAMERA\_REQUEST\_CODE = 3

private val MEDIA\_REQUEST\_CODE = 4

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

val btn\_contact=findViewById<Button>(R.id.Contacts)

val btn\_calender=findViewById<Button>(R.id.Calendar)

val btn\_camera=findViewById<Button>(R.id.Camera)

val btn\_gallery=findViewById<Button>(R.id.Gallery)

btn\_contact.setOnClickListener {

requestedPermissions(android.Manifest.permission.READ\_CONTACTS,CONTACTS\_REQUEST\_CODE)

}

btn\_calender.setOnClickListener {

requestedPermissions(android.Manifest.permission.READ\_CALENDAR,CALENDAR\_REQUEST\_CODE)

}

btn\_camera.setOnClickListener {

requestedPermissions(android.Manifest.permission.CAMERA,CAMERA\_REQUEST\_CODE)

}

btn\_gallery.setOnClickListener {

requestedPermissions(android.Manifest.permission.ACCESS\_MEDIA\_LOCATION,MEDIA\_REQUEST\_CODE)

}

}

private fun requestedPermissions(permission: String,requestCode: Int){

if (ContextCompat.checkSelfPermission(this,permission)!=PackageManager.PERMISSION\_GRANTED){

ActivityCompat.requestPermissions(this, arrayOf(permission),requestCode)

}else{

Toast.makeText(this,"Permission granted",Toast.LENGTH\_SHORT).show()

}

}

}

**Manifest.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\_CONTACTS"/>

<uses-permission android:name="android.permission.READ\_CALENDAR"/>

<uses-permission android:name="android.permission.CAMERA"/>

<uses-permission android:name="android.permission.ACCESS\_MEDIA\_LOCATION"/>

<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:supportsRtl="true"

android:theme="@style/Theme.Prac12"

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>

**Pract 13th :**

**Programming Network Communications and Services (JSON)**

**Main Activity.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:gravity="center"

android:background="@color/black"

tools:context=".MainActivity">

<TextView

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:text="SENDING DATA"

android:textColor="@color/white"

android:textSize="30dp"

/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/name"

android:textSize="20dp"

android:textColor="@color/white"

android:hint="ENTER YOUR NAME"

android:textColorHint="@color/black"

android:background="@color/grey"

android:layout\_marginTop="25dp"

android:layout\_marginLeft="25dp"

android:layout\_marginRight="25dp"/>

<EditText

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:id="@+id/age"

android:textSize="20dp"

android:textColor="@color/white"

android:hint="ENTER YOUR AGE"

android:textColorHint="@color/black"

android:background="@color/grey"

android:layout\_marginTop="25dp"

android:layout\_marginLeft="25dp"

android:layout\_marginRight="25dp"/>

<Button

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:id="@+id/submit"

android:text="SUBMIT !"

android:backgroundTint="@color/grey"

android:layout\_marginTop="25dp"

android:layout\_marginLeft="25dp"

android:layout\_marginRight="25dp"/>

</LinearLayout>

**Main Activity.kt**

package com.example.prac13

import androidx.appcompat.app.AppCompatActivity

import android.os.Bundle

import android.widget.Toast

import com.example.prac13.databinding.ActivityMainBinding

import com.google.firebase.database.DatabaseReference

import com.google.firebase.database.FirebaseDatabase

class MainActivity : AppCompatActivity() {

private lateinit var binding: ActivityMainBinding

private lateinit var database: DatabaseReference

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

binding=ActivityMainBinding.inflate(layoutInflater)

setContentView(binding.root)

binding.submit.setOnClickListener {

val name = binding.name.text.toString()

val age = binding.age.text.toString()

database=FirebaseDatabase.getInstance().getReference("Users")

val User = User(name, age)

database.child(name).setValue(User).addOnSuccessListener {

binding.name.text.clear()

binding.age.text.clear()

Toast.makeText(this,"Successfully registered",Toast.LENGTH\_SHORT).show()

}.addOnFailureListener {

Toast.makeText(this,"Failed",Toast.LENGTH\_SHORT).show()

}

}

}

}

**User.kt**

package com.example.prac13

data class User(val name:String?=null,val age:String?=null)

buildgradle:

plugins {

id 'com.android.application'

id 'org.jetbrains.kotlin.android'

id 'com.google.gms.google-services'

}

android {

namespace 'com.example.prac13'

compileSdk 33

defaultConfig {

applicationId "com.example.prac13"

minSdk 24

targetSdk 33

versionCode 1

versionName "1.0"

testInstrumentationRunner "androidx.test.runner.AndroidJUnitRunner"

}

buildTypes {

release {

minifyEnabled false

proguardFiles getDefaultProguardFile('proguard-android-optimize.txt'), 'proguard-rules.pro'

}

}

buildFeatures{

viewBinding true

}

compileOptions {

sourceCompatibility JavaVersion.VERSION\_1\_8

targetCompatibility JavaVersion.VERSION\_1\_8

}

kotlinOptions {

jvmTarget = '1.8'

}

}

dependencies {

implementation 'androidx.core:core-ktx:1.7.0'

implementation 'androidx.appcompat:appcompat:1.6.1'

implementation 'com.google.android.material:material:1.8.0'

implementation 'androidx.constraintlayout:constraintlayout:2.1.4'

implementation 'com.google.firebase:firebase-database-ktx:20.2.0'

testImplementation 'junit:junit:4.13.2'

androidTestImplementation 'androidx.test.ext:junit:1.1.5'

androidTestImplementation 'androidx.test.espresso:espresso-core:3.5.1'

}