1. a) Write a program to implement addition of two numbers

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <EditText  
 android:id="@+id/number1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter First Number"/>  
  
 <EditText  
 android:id="@+id/number2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter Second Number"/>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Addition"/>  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Result : "  
 android:textSize="22sp"/>  
  
</LinearLayout>

package com.example.addbysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val number1=findViewById<EditText>(R.id.*number1*)  
 val number2=findViewById<EditText>(R.id.*number2*)  
 val btn=findViewById<Button>(R.id.*btn*)  
 val result=findViewById<TextView>(R.id.*result*)  
  
 btn.setOnClickListener {  
 val num1 = number1.*text*.toString().*toIntOrNull*()  
 val num2 = number2.*text*.toString().*toIntOrNull*()  
  
 if (num1 != null && num2 != null) {  
 val res = num1 + num2  
 result.*text* = "Result : $res"  
 } else {  
 result.*text* = "Enter a valid number"  
 }  
 }  
 }  
}

b) Develop an activity to generate random numbers

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Generate Random Numbers"  
 android:textSize="16sp"/>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Generate"/>  
  
</LinearLayout>

package com.example.randombysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
import kotlin.random.Random  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val result=findViewById<TextView>(R.id.*result*)  
 val btn=findViewById<Button>(R.id.*btn*)  
  
 btn.setOnClickListener {  
 val res=Random.nextInt(1,1000)  
 result.*text*="Random Number : $res"  
 }  
  
 }  
}

1. a) Develop a simple list view to select an item from list

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity">  
  
 <ListView  
 android:id="@+id/list"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent" />  
  
</LinearLayout>

package com.example.listbysudu  
  
import android.os.Bundle  
import android.widget.ArrayAdapter  
import android.widget.ListView  
import android.widget.Toast  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val list=findViewById<ListView>(R.id.*list*)  
  
 val data= *arrayOf*("Item 1","Item 2","Item 3",  
 "Item 4","Item 5","Item 6",  
 "Item 7","Item 8","Item 9")  
  
 val adapter= ArrayAdapter

(this,android.R.layout.*simple\_list\_item\_1*,data)  
  
 list.*adapter*=adapter  
  
 list.setOnItemClickListener{parent,view,position,id->  
 val selected=data[position]  
 Toast.makeText(this,"You Selected : $selected",

Toast.*LENGTH\_SHORT*).show()  
 }  
 }  
}

b) Develop an activity to edit and save text to display

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <EditText  
 android:id="@+id/edit"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter text"/>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Save"/>  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Result : "  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.editandsavebysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val edit=findViewById<EditText>(R.id.*edit*)  
 val btn=findViewById<Button>(R.id.*btn*)  
 val result=findViewById<TextView>(R.id.*result*)  
  
 btn.setOnClickListener {  
 val res=edit.*text*.toString()  
 result.*text*=res  
 }  
 }  
}

1. a) Develop an activity using radio button to display selected option

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <RadioGroup  
 android:id="@+id/radioGroup"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">

<RadioButton  
 android:id="@+id/btn1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Option 1"/>  
  
 <RadioButton  
 android:id="@+id/btn2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Option 2"/>  
  
 <RadioButton  
 android:id="@+id/btn3"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Option 3"/>  
  
 </RadioGroup>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="View"/>  
  
</LinearLayout>

package com.example.radiobysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.RadioButton  
import android.widget.RadioGroup  
import android.widget.Toast  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val group=findViewById<RadioGroup>(R.id.*radioGroup*)  
 val btn=findViewById<Button>(R.id.*btn*)  
  
 btn.setOnClickListener {  
 val selectedID=group.*checkedRadioButtonId* if(selectedID!=-1)  
 {  
 val selectedRadioButton=findViewById

<RadioButton>(selectedID)  
 Toast.makeText(this,"You Selected :

${selectedRadioButton.*text*}",

Toast.*LENGTH\_SHORT*).show()  
 }  
 else{  
 Toast.makeText(this,"Please select an option",

Toast.*LENGTH\_SHORT*).show()  
 }  
 }  
 }  
}

b) Develop an activity using Toggle switch to display on/off status

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <Switch  
 android:id="@+id/toggleSwitch"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content" />  
  
 <TextView  
 android:id="@+id/text"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Status : OFF"  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.switchbysudu  
  
import android.os.Bundle  
import android.widget.Switch  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val toggleSwitch=findViewById<Switch>(R.id.*toggleSwitch*)  
 val result=findViewById<TextView>(R.id.*text*)  
  
 toggleSwitch.setOnCheckedChangeListener{\_,isChecked->

if(isChecked)  
 {  
 result.*text*="Status : ON"  
 }  
 else{  
 result.*text*="Status : OFF"  
 }  
 }  
 }  
}

1. a) Develop an activity to display dialog window

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Show Dialog"  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.dailogbysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.Toast  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AlertDialog  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val btn=findViewById<Button>(R.id.*btn*)  
  
 btn.setOnClickListener {  
 showAlertDialog()  
 }  
 }  
 fun showAlertDialog()  
 {  
 val builder=AlertDialog.Builder(this)  
  
 builder.setTitle("Confirmation")  
 builder.setMessage("Are you sure you want to proceed?")  
  
 builder.setPositiveButton("Yes"){dialog,which->  
 Toast.makeText(this,"You clicked Yes",

Toast.*LENGTH\_SHORT*).show()  
 }  
  
 builder.setNegativeButton("No"){dialog,which->  
 Toast.makeText(this,"You clicked No",

Toast.*LENGTH\_SHORT*).show()  
 }  
 val dialog=builder.create()  
 dialog.show()  
 }  
}

b) Write a program to check network connection of the device

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Checking Network"  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.networkbysudu  
  
import android.content.Context  
import android.net.ConnectivityManager  
import android.net.NetworkCapabilities  
import android.os.Bundle  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val result=findViewById<TextView>(R.id.*result*)  
 if(isNetworkAvailable())  
 {  
 result.*text*="Network is Available"  
 }  
 else{  
 result.*text*="No Network Available"  
 }  
 }  
 fun isNetworkAvailable():Boolean{  
 val connectivityManager=getSystemService

(Context.*CONNECTIVITY\_SERVICE*) as ConnectivityManager  
 val network=connectivityManager.*activeNetwork* val networkCapabilities=

connectivityManager.getNetworkCapabilities(network)  
  
 return networkCapabilities!=null &&

networkCapabilities.hasCapability

(NetworkCapabilities.*NET\_CAPABILITY\_INTERNET*)  
 }  
}

1. Develop an activity using timepicker to select and display time

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical">  
  
 <TimePicker  
 android:id="@+id/timePicker"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Show Time"  
 android:textSize="20sp"/>  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Time : "  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.timepickerbysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.TextView  
import android.widget.TimePicker  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val time=findViewById<TimePicker>(R.id.*timePicker*)  
 val btn=findViewById<Button>(R.id.*btn*)  
 val result=findViewById<TextView>(R.id.*result*)  
  
 btn.setOnClickListener {  
 val hour=time.*hour* val minute=time.*minute* val formattedTime=String.*format*("%02d : %02d",

hour,minute)  
  
 result.*text*="Selected Time : $formattedTime"  
 }  
 }  
}

1. Develop an activity to display current time in digital clock format

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="00 : 00 : 00"  
 android:textSize="30sp"/>  
  
</LinearLayout>

package com.example.digitalclockbysudu  
  
import android.os.Bundle  
import android.os.Handler  
import android.os.Looper  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
import java.text.SimpleDateFormat  
import java.util.Calendar  
import java.util.Locale  
  
class MainActivity : AppCompatActivity() {  
 private lateinit var result:TextView  
 private val handler= Handler(Looper.getMainLooper())  
  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 result=findViewById<TextView>(R.id.*result*)  
 updateClock()  
 }  
 private fun updateClock()  
 {  
 handler.post(object:Runnable{  
 override fun run() {  
 val curTime=Calendar.getInstance().*time* val formatter=SimpleDateFormat("hh:mm:ss a",

Locale.getDefault())  
 val formattedTime=formatter.format(curTime)  
  
 result.*text*=formattedTime  
 handler.postDelayed(this,1000)  
 }  
 })  
 }  
 override fun onDestroy() {  
 super.onDestroy()  
 handler.removeCallbacksAndMessages(null)  
 }  
}

1. Develop an activity to validate user using username and password

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <EditText  
 android:id="@+id/username"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter username"/>  
  
 <EditText  
 android:id="@+id/password"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter password"/>  
  
 <Button  
 android:id="@+id/btn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Log In "/>  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text=" "  
 android:textSize="25sp"/>

</LinearLayout>

package com.example.userandpassbysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val editText1=findViewById<EditText>(R.id.*username*)  
 val editText2=findViewById<EditText>(R.id.*password*)  
 val btn=findViewById<Button>(R.id.*btn*)  
 val result=findViewById<TextView>(R.id.*result*)  
  
 val user="admin"  
 val pass="12345"  
  
 btn.setOnClickListener {  
 val username=editText1.*text*.toString()  
 val password=editText2.*text*.toString()  
  
 if(username==user && password==pass)  
 {  
 result.*text*="Login Successfull"  
 }  
 else{  
 result.*text*="Invalid username and password"  
 }  
 }  
 }  
}

1. Develop an activity to display counter using increment, decrement and reset button

<?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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="0"  
 android:textSize="25sp"/>  
  
 <Button  
 android:id="@+id/increBtn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Increment"/>  
  
 <Button  
 android:id="@+id/decreBtn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Decrement"/>  
  
 <Button  
 android:id="@+id/resetBtn"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Reset"/>  
  
</LinearLayout>

package com.example.increanddecrebysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 private var counter=0  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.activity\_main)  
  
 val incre=findViewById<Button>(R.id.increBtn)  
 val decre=findViewById<Button>(R.id.decreBtn)  
 val reset=findViewById<Button>(R.id.resetBtn)  
 val result=findViewById<TextView>(R.id.result)  
  
 fun updateCounter(){  
 result.text=counter.toString()  
 }  
  
 incre.setOnClickListener {  
 counter++  
 updateCounter()  
 }  
  
 decre.setOnClickListener {  
 if(counter>0) counter--  
 updateCounter()  
 }  
 reset.setOnClickListener {  
 counter=0  
 updateCounter()  
 }  
 updateCounter()  
 }  
}

1. Develop an application to implement simple calculator

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <EditText  
 android:id="@+id/num1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter First Number"/>  
  
 <EditText  
 android:id="@+id/num2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter Second Number"/>  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:gravity="center">  
  
 <Button  
 android:id="@+id/add"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="ADD"/>  
  
 <Button  
 android:id="@+id/sub"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="SUB"/>  
  
 <Button  
 android:id="@+id/mul"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="MUL"/>  
  
 <Button  
 android:id="@+id/div"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="DIV"/>  
 </LinearLayout>  
  
 <Button  
 android:id="@+id/reset"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Reset"  
 android:textSize="20sp"/>  
  
 <TextView  
 android:id="@+id/result"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Result : "  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.calcbysudu  
  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.TextView  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
import org.w3c.dom.Text  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val num1=findViewById<EditText>(R.id.*num1*)  
 val num2=findViewById<EditText>(R.id.*num2*)  
  
 val add=findViewById<Button>(R.id.*add*)  
 val sub=findViewById<Button>(R.id.*sub*)  
 val mul=findViewById<Button>(R.id.*mul*)  
 val div=findViewById<Button>(R.id.*div*)  
  
 val reset=findViewById<Button>(R.id.*reset*)  
 val result=findViewById<TextView>(R.id.*result*)  
  
 reset.setOnClickListener {  
 num1.*text*.clear()  
 num2.*text*.clear()  
 result.*text*="Result : "  
 }  
  
 add.setOnClickListener {  
 calculate(num1,num2,result){a,b->a+b}  
 }  
 sub.setOnClickListener {  
 calculate(num1,num2,result){a,b->a-b}  
 }  
 mul.setOnClickListener {  
 calculate(num1,num2,result){a,b->a\*b}  
 }  
 div.setOnClickListener {  
 calculate(num1,num2,result){a,b->if(b!=0.0)a/b else

null}  
 }  
 }  
 fun calculate(num1Field:EditText,  
 num2Field: EditText,  
 result:TextView,  
 operation:(Double,Double)->Double?)  
 {  
 val num1=num1Field.*text*.toString().*toDoubleOrNull*()  
 val num2=num2Field.*text*.toString().*toDoubleOrNull*()  
  
 if(num1!=null && num2!=null)  
 {  
 val res=operation(num1,num2)  
 result.*text*=if(res !=null)"Result : $res" else

"Error : Division By Zero"  
 }  
 else  
 {  
 result.*text*="Enter valid number"  
 }  
 }  
}

1. Develop a phone dialer activity with call and save options.

*<?*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:id="@+id/main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".MainActivity"  
 android:orientation="vertical"  
 android:gravity="center">  
  
 <EditText  
 android:id="@+id/text"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Enter phone number" />  
  
 <Button  
 android:id="@+id/call"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Call"  
 android:textSize="20sp"/>  
  
 <Button  
 android:id="@+id/save"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Save"  
 android:textSize="20sp"/>  
  
</LinearLayout>

package com.example.phonebysudu  
  
import android.content.Intent  
import android.net.Uri  
import android.os.Bundle  
import android.widget.Button  
import android.widget.EditText  
import android.widget.Toast  
import androidx.activity.enableEdgeToEdge  
import androidx.appcompat.app.AppCompatActivity  
import androidx.core.view.ViewCompat  
import androidx.core.view.WindowInsetsCompat  
  
class MainActivity : AppCompatActivity() {  
 override fun onCreate(savedInstanceState: Bundle?) {  
 super.onCreate(savedInstanceState)  
 setContentView(R.layout.*activity\_main*)  
  
 val phone=findViewById<EditText>(R.id.*text*)  
 val call=findViewById<Button>(R.id.*call*)  
 val save=findViewById<Button>(R.id.*save*)  
  
 call.setOnClickListener {  
 val phoneNum=phone.*text*.toString().*trim*()  
 if(phoneNum.*isNotEmpty*())  
 {  
 val dialIntent=Intent(Intent.*ACTION\_DIAL*,

Uri.parse("tel:$phoneNum"))  
 startActivity(dialIntent)  
 }  
 else{  
 Toast.makeText(this,"Please enter a phone number",

Toast.*LENGTH\_SHORT*).show()  
 }  
 }  
  
 save.setOnClickListener {  
 val phoneNum=phone.*text*.toString().*trim*()  
 if(phoneNum.*isNotEmpty*())  
 {  
 Toast.makeText(this,"Phone number saved :

$phoneNum",Toast.*LENGTH\_SHORT*).show()  
 phone.*text*.clear()  
 }  
 else{  
 Toast.makeText(this,"Please enter a phone number",

Toast.*LENGTH\_SHORT*).show()  
 }  
 }  
 }  
}