

# Android With Kotlin

## Intent

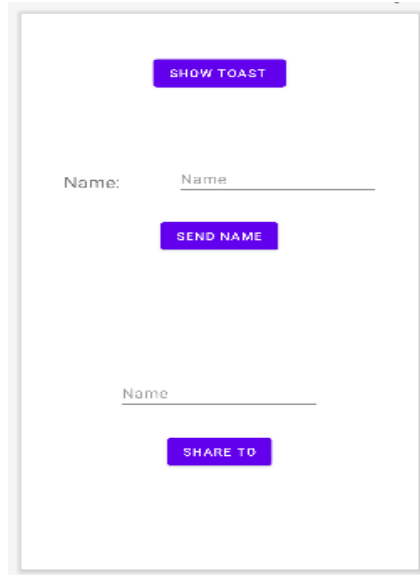
### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Toast "
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.079" />
    <TextView
        android:id="@+id/textview"
        android:layout_width="72dp"
        android:layout_height="24dp"
        android:text="Name: "
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.129"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.294" />
    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginEnd="16dp"
        android:layout_marginRight="16dp"
        android:ems="10"
```

```

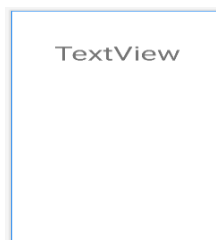
        android:hint="Name"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.864"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.284" />
<Button
    android:id="@+id/sendName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Send Name"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.393" />
<EditText
    android:id="@+id/name2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:ems="10"
    android:hint="Name"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.497"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.695" />
<Button
    android:id="@+id/shareBtn"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Share to"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.808" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **activity\_get\_name.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=".getName">
    <TextView
        android:id="@+id/Name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TextView"
        android:textSize="60sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.138" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.activityandlayouts
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import android.widget.Button
import android.widget.EditText
import android.widget.Toast

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

        // setOnClickListener, Log and Toast :-
        val button: Button = findViewById(R.id.button)
        button.setOnClickListener {
            // Log :-
            Log.i("click", "Button is Clicked!")
            // Toast :-
            Toast.makeText(this, "Button clicked!", Toast.LENGTH_LONG).show() }

        // Explicit Intent :-
        val name: EditText = findViewById(R.id.name)
        val sendName: Button = findViewById(R.id.sendName)
        sendName.setOnClickListener {
            val nameTxt = name.text.toString()
            val intent = Intent(this, getName::class.java)
            intent.putExtra("user_name", nameTxt)
            startActivity(intent) }

        // Implicit Intent :-
        val name2: EditText = findViewById(R.id.name2)
        val shareBtn: Button = findViewById(R.id.shareBtn)
        shareBtn.setOnClickListener {
            val Name2 = name2.text.toString()
            val intent2 = Intent()
            intent2.action = Intent.ACTION_SEND
            intent2.putExtra(Intent.EXTRA_TEXT, Name2)
            intent2.type = "text/plain"
            startActivity(Intent.createChooser(intent2, "Share to:")) }
    }
}
```

### **getName.kt**

```
package com.example.activityandlayouts

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.TextView

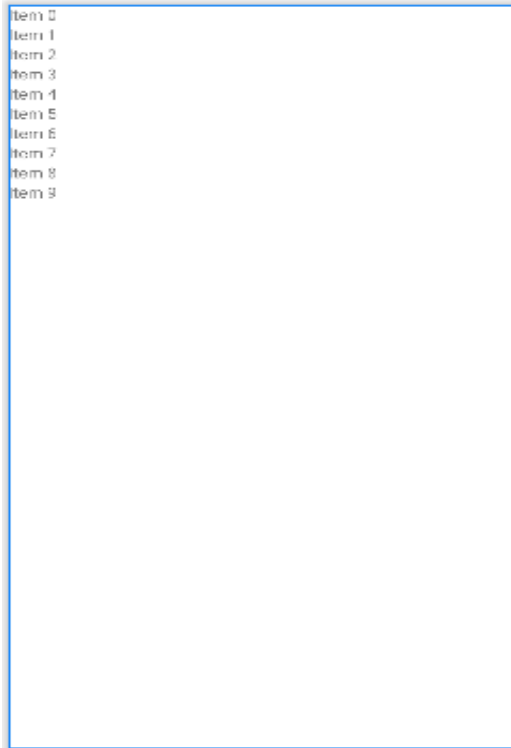
class getName : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_get_name)

        val bundle: Bundle? = intent.extras
        val name = bundle?.getString("user_name")
        val Name: TextView = findViewById(R.id.Name)
        Name.text = name }
    }
```

## **RecyclerView**

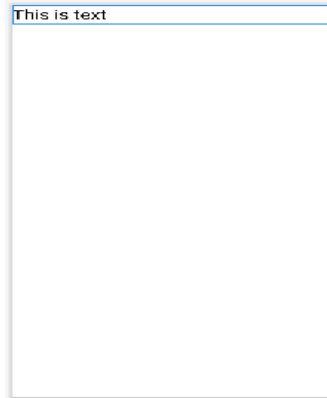
### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <androidx.recyclerview.widget.RecyclerView
        android:id="@+id/recyclerview"
        android:layout_width="0dp"
        android:layout_height="0dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **data.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="wrap_content">
    <TextView
        android:id="@+id/data"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="This is text"
        android:textColor="#020000"
        android:textSize="25dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="1.0" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.recyclerviewandcardview
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import androidx.recyclerview.widget.LinearLayoutManager
import androidx.recyclerview.widget.RecyclerView

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

        val names: List<String> = listOf("Robert", "Stark", "Tony", "Steve", "Jhon", "Mark", "Elon")
        var recyclerView: RecyclerView = findViewById(R.id.recyclerview)
        recyclerView.adapter = MyAdapter(names)
        recyclerView.layoutManager = LinearLayoutManager(this) }
}
```

### **MyAdapter.kt**

```
package com.example.recyclerviewandcardview
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import androidx.recyclerview.widget.RecyclerView

class MyAdapter(val names: List<String>): RecyclerView.Adapter<MyAdapter.MyViewHolder>() {

    override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): MyViewHolder {
        val inflater: LayoutInflater = LayoutInflater.from(parent.context)
        val view: View = inflater.inflate(R.layout.data, parent, false)
        return MyViewHolder(view) }
    override fun onBindViewHolder(holder: MyViewHolder, position: Int) {
```

```

        holder.txt.text = names[position] }

override fun getItemCount(): Int {
    return names.size }

inner class MyViewHolder(itemView: View): RecyclerView.ViewHolder(itemView){
    val txt:TextView = itemView.findViewById(R.id.data) }
    }

```

## **Media Player**

### **activity\_main.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="147dp"
        android:layout_height="101dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.071"
        app:srcCompat="@drawable/audioimg" />
    <ImageView
        android:id="@+id/playPause"
        android:layout_width="51dp"
        android:layout_height="49dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.341"
        app:srcCompat="@drawable/ic_baseline_play_circle_filled_24" />

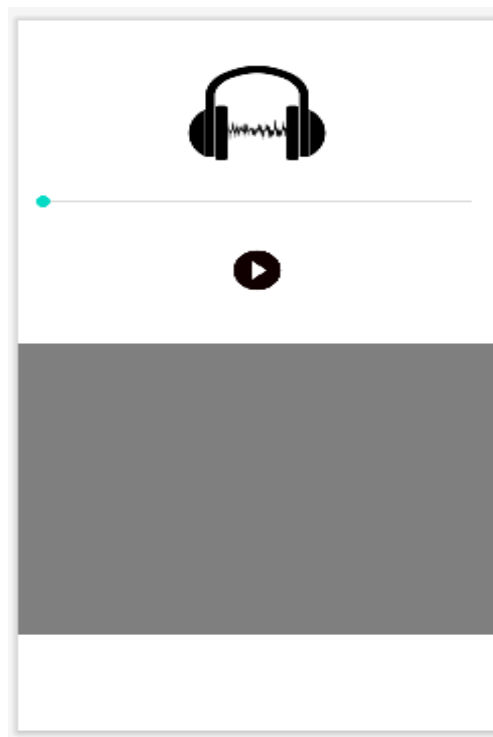
```



```

<SeekBar
    android:id="@+id/seekBar"
    android:layout_width="401dp"
    android:layout_height="30dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.245" />
<VideoView
    android:id="@+id/videoView"
    android:layout_width="409dp"
    android:layout_height="300dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.77" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```
package com.example.mediaplayer

import android.annotation.SuppressLint
import android.media.MediaPlayer
import android.net.Uri
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.*

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

        // MediaPlayer :-
        val playPause: ImageView = findViewById(R.id.playPause)
        val mediaPlayer = MediaPlayer.create(this, R.raw.islamic_music)
        playPause.setOnClickListener{
            if( mediaPlayer.isPlaying){
                playPause.setImageResource(R.drawable.ic_baseline_play_circle_filled_24)
                mediaPlayer.pause() }
            else{
                playPause.setImageResource(R.drawable.ic_baseline_pause_24)
                mediaPlayer.start() }
        }

        // SeekBar :-
        val seekBar: SeekBar = findViewById(R.id.seekBar)
        val mpDuration = mediaPlayer.duration / 1000
        seekBar.min = 0
        seekBar.max = mpDuration
        seekBar.setOnSeekBarChangeListener(object : SeekBar.OnSeekBarChangeListener{
            override fun onProgressChanged(seekBar: SeekBar?, progress: Int, fromUser: Boolean) {
                mediaPlayer.seekTo(progress * 1000) }
            override fun onStartTrackingTouch(seekBar: SeekBar?) {
            }
            override fun onStopTrackingTouch(seekBar: SeekBar?) {
                Toast.makeText(this@MainActivity, "${seekBar?.progress}
                Seconds", Toast.LENGTH_LONG).show() }
        })
    }
}
```

```
// VideoView and MediaController :-
val videoView: VideoView = findViewById(R.id.videoView)
val mediaController = MediaController(this)
mediaController.setAnchorView(videoView)
val vid: Uri = Uri.parse("android.resource://" + packageName + "/" + R.raw.intro)
videoView.setVideoURI(vid)
videoView.requestFocus()
videoView.setMediaController(mediaController)
videoView.start()
    }
}
```

## Scroll View

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <androidx.core.widget.NestedScrollView
        android:layout_width="409dp"
        android:layout_height="729dp"
        android:fillViewport="true"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical" >
            <HorizontalScrollView
                android:layout_width="381dp"
                android:layout_height="66dp"
                android:layout_marginLeft="15dp"
                android:layout_marginTop="70dp">
                <LinearLayout
                    android:layout_width="wrap_content"
                    android:layout_height="match_parent"
                    android:orientation="horizontal" >
```

```

<ImageView
    android:id="@+id/imageView"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView2"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView3"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView4"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView5"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView6"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
<ImageView
    android:id="@+id/imageView7"
    android:layout_width="78dp"
    android:layout_height="wrap_content"
    android:layout_weight="1"
    app:srcCompat="@drawable/ig_story" />
</LinearLayout>
</HorizontalScrollView>

```

```

<ImageView
    android:layout_width="match_parent"
    android:layout_height="500dp"
    android:layout_marginBottom="10dp"
    android:src="@drawable/iron_man1" />
<ImageView
    android:layout_width="match_parent"
    android:layout_height="500dp"
    android:layout_marginBottom="10dp"
    android:src="@drawable/iron_man1" />
<ImageView
    android:layout_width="match_parent"
    android:layout_height="500dp"
    android:layout_marginBottom="10dp"
    android:src="@drawable/iron_man1"/>
<ImageView
    android:layout_width="match_parent"
    android:layout_height="500dp"
    android:layout_marginBottom="10dp"
    android:src="@drawable/iron_man1"/>
<ImageView
    android:layout_width="match_parent"
    android:layout_height="500dp"
    android:src="@drawable/iron_man1" />
</LinearLayout>
</androidx.core.widget.NestedScrollView>
</androidx.constraintlayout.widget.ConstraintLayout>

```



### MainActivity.kt

```
package com.example.scrollviewandlinearLayout

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle

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

### Text Views

#### activity\_main.xml

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

    <EditText
        android:id="@+id/editTextTextPersonName"
        android:layout_width="178dp"
        android:layout_height="36dp"
        android:ems="10"
        android:inputType="textPersonName"
        android:text="I am PlainText"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.92"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.051" />

    /* android:inputType="textPersonName" // textPassword, numberPassword, textEmailAddress,
    phone, textPostalAddress, textMultiLine, time, date, number, numberSigned, numberDecimal*/

    <com.google.android.material.textfield.TextInputLayout
        android:layout_width="409dp"
        android:layout_height="wrap_content"
```

```
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="1.0"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.957">
```

```
<com.google.android.material.textfield.TextInputEditText
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="I am Hint"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.791" />
</com.google.android.material.textfield.TextInputLayout>
```

```
<TextView
    android:id="@+id/textView"
    android:layout_width="178dp"
    android:layout_height="36dp"
    android:text="I am TextView"
    android:textColor="#000000"
    android:textSize="20sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.068"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.051" />
```

```
<AutoCompleteTextView
    android:id="@+id/autoCompleteTextView"
    android:layout_width="185dp"
    android:layout_height="36dp"
    android:hint="AutoCompleteTextView"
    android:textSize="15sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.969"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.657" />
```

```

<MultiAutoCompleteTextView
    android:id="@+id/multiAutoCompleteTextView"
    android:layout_width="185dp"
    android:layout_height="40dp"
    android:hint="MultiAutoCompleteTextView"
    android:textSize="15sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.07"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.655" />

```

```

<CheckedTextView
    android:id="@+id/checkedTextView"
    android:layout_width="171dp"
    android:layout_height="41dp"
    android:text="CheckedTextView"
    android:textSize="15sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.797" />

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```





## **MainActivity.kt**

```
package com.example.textviews
```

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.AdapterView
import android.widget.AutoCompleteTextView
import android.widget.CheckedTextView
import android.widget.MultiAutoCompleteTextView
```

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

        // AutoCompleteTextView :-
        val autoCompleteTextView: AutoCompleteTextView =
            findViewById(R.id.autoCompleteTextView)
        val suggestions = arrayOf("Apple", "Antivirous", "Bob", "C++", "Django")
        val arrayAdapter = ArrayAdapter(this,
            androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, suggestions)
        autoCompleteTextView.threshold = 1 //threshold means number of character that user
        type before suggestion
        autoCompleteTextView.setAdapter(arrayAdapter)

        // MultiAutoCompleteTextView :-
        val multiAutoCompleteTextView: MultiAutoCompleteTextView =
            findViewById(R.id.multiAutoCompleteTextView)
        val suggestions2 = arrayOf("Apple", "Antivirous", "Bob", "Bombay", "C++", "Coding", "Django")
        val arrayAdapter2 = ArrayAdapter(this,
            androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, suggestions2)
        multiAutoCompleteTextView.threshold = 1

        multiAutoCompleteTextView.setTokenizer(MultiAutoCompleteTextView.CommaTokenizer())
        multiAutoCompleteTextView.setAdapter(arrayAdapter2)

        // CheckedTextView :-
        val CTV: CheckedTextView = findViewById(R.id.checkedTextView)
        CTV.isChecked = !CTV.isChecked
        CTV.setCheckMarkDrawable(android.R.drawable.checkbox_off_background)
        CTV.setOnClickListener{
            CTV.isChecked = !CTV.isChecked
            CTV.setCheckMarkDrawable(
                if (CTV.isChecked){
```

```

        android.R.drawable.checkbox_off_background }
    else {
        android.R.drawable.checkbox_on_background })
    }
}
}

```

## Buttons

### activity\_main.xml

```

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

    <Switch
        android:id="@+id/switch2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Switch"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.083"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.109" />

    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button"
        android:textColor="#FFFFFF"
        app:backgroundTint="#FF0000"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.085"
        app:layout_constraintStart_toStartOf="parent"

```

```
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.193" />
```

```
<ImageButton
    android:id="@+id/imageButton"
    android:layout_width="214dp"
    android:layout_height="116dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.081"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.315"
    app:srcCompat="@drawable/buttonimg" />
```

```
<com.google.android.material.chip.Chip
    android:id="@+id/chip5"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="I am chip"
    app:closeIconVisible="true"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.101"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.515" />
```

```
<com.google.android.material.chip.ChipGroup
    android:id="@+id/chipGroup"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.131"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.612">
</com.google.android.material.chip.ChipGroup>
```

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

```
android:text="Add Chip"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.137"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.73" />
```

<CheckBox

```
android:id="@+id/checkBox"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="CheckBox"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.132"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.893" />
```

<ToggleButton

```
android:id="@+id/toggleButton2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.823"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.213" />
```

<RadioButton

```
android:id="@+id/radioButton"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="16dp"
android:layout_marginLeft="16dp"
android:text="RadioButton"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.874"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.345" />
```

```

<RadioGroup
    android:id="@+id/radioGroup"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.862"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.553">

    <RadioButton
        android:id="@+id/radioButton1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:text="Kotlin" />

    <RadioButton
        android:id="@+id/radioButton2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:text="Java" />

    <RadioButton
        android:id="@+id/radioButton3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="16dp"
        android:layout_marginLeft="16dp"
        android:text="Python" />
</RadioGroup>

<com.google.android.material.floatingactionbutton.FloatingActionButton
    android:id="@+id/add"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="36dp"
    android:layout_marginRight="36dp"
    android:layout_marginBottom="48dp"

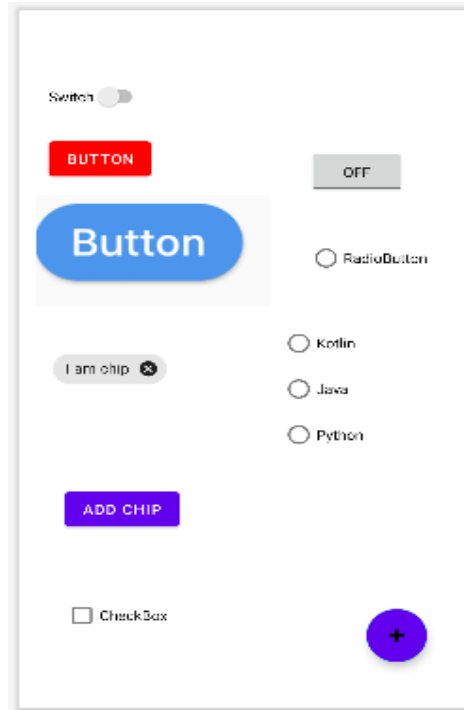
```

```
android:clickable="true"
android:focusable="true"
android:tint="@color/white"
android:backgroundTint="@color/purple_500"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:srcCompat="@android:drawable/ic_input_add" />
```

```
<com.google.android.material.floatingactionbutton.FloatingActionButton
    android:id="@+id/clock"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="36dp"
    android:layout_marginRight="36dp"
    android:layout_marginBottom="176dp"
    android:clickable="true"
    android:focusable="true"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:srcCompat="@android:drawable/ic_lock_idle_alarm" />
```

```
<com.google.android.material.floatingactionbutton.FloatingActionButton
    android:id="@+id/message"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="36dp"
    android:layout_marginRight="36dp"
    android:layout_marginBottom="112dp"
    android:clickable="true"
    android:focusable="true"
    android:tint="@color/white"
    android:visibility="invisible"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:srcCompat="@android:drawable/ic_dialog_email" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.buttons
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.View
import android.widget.*
import androidx.core.view.isVisible
import com.google.android.material.chip.Chip
import com.google.android.material.chip.ChipGroup
import com.google.android.material.floatingactionbutton.FloatingActionButton

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

        // Button :-
        val button: Button = findViewById(R.id.button)
        button.setOnClickListener{
            Toast.makeText(this,"Button Clicked!", Toast.LENGTH_LONG).show() }

        // ImageButton :-
        val imageButton:ImageButton = findViewById(R.id.imageButton)
        imageButton.setOnClickListener{
            Toast.makeText(this,"Image Button Clicked!", Toast.LENGTH_LONG).show() }
```

```

// Chip Group :-
val chipGroup: ChipGroup = findViewById(R.id.chipGroup)
val addChip: Button = findViewById(R.id.addChip)
addChip.setOnClickListener{
    val chip = Chip(this)
    chip.text = "Stark"
    chip.isCloseIconVisible = true
    chipGroup.addView(chip)
    chip.setOnCloseIconClickListener{
        chipGroup.removeView(chip) }
    }

// CheckBox :-
val checkBox: CheckBox = findViewById(R.id.checkBox)
checkBox.setOnClickListener{
    if (checkBox.isChecked){
        Toast.makeText(this,"Box is Checked!",Toast.LENGTH_LONG).show() }
    else{
        Toast.makeText(this,"Box is Not Checked!",Toast.LENGTH_LONG).show() }
    }

// Radio Group :-
val radioGroup: RadioGroup = findViewById(R.id.radioGroup)
radioGroup.setOnCheckedChangeListener{group, checkedId ->
    val radio: RadioButton = findViewById(checkedId)
    Toast.makeText(this,"${radio.text}",Toast.LENGTH_LONG).show() }

// Floating Action Button :-
val add: FloatingActionButton = findViewById(R.id.add)
val message: FloatingActionButton = findViewById(R.id.message)
val clock: FloatingActionButton = findViewById(R.id.clock)
add.setOnClickListener{
    if (message.isVisible && clock.isVisible){
        message.visibility = View.INVISIBLE
        clock.visibility = View.INVISIBLE }
    else {
        message.visibility = View.VISIBLE
        clock.visibility = View.VISIBLE }
    }
}

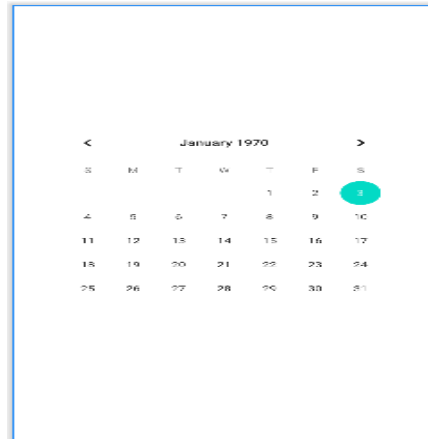
```



## CalendarView

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <CalendarView
        android:id="@+id/calendarView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### MainActivity.kt

```
package com.example.calendarview
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.CalendarView
import android.widget.Toast

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
```

```

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

val calendarView: CalendarView = findViewById(R.id.calendarView)
calendarView.setOnDateChangeListener{view, year, month, dayOfMonth ->
    val msg = "Selected Date: " + dayOfMonth + "/" + (month+1) + "/" + year
    Toast.makeText(this, msg, Toast.LENGTH_LONG).show() }
    }
}

```

## ProgressBar

### activity\_main.xml

```

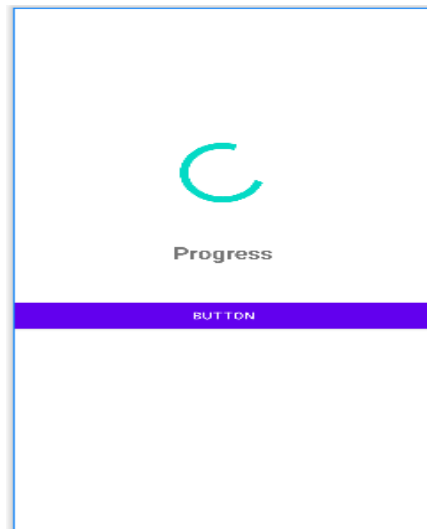
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/progress"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Progress"
        android:textSize="24sp"
        android:textStyle="bold"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.467" />
    <ProgressBar
        android:id="@+id/progressBar"
        style="?android:attr/progressBarStyle"
        android:layout_width="100dp"
        android:layout_height="100dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"

```

```

        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.286" />
<Button
    android:id="@+id/button"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:text="Button"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.488"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.595" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```

package com.example.progressbar
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.os.Handler
import android.os.Looper
import android.view.View
import android.widget.Button
import android.widget.ProgressBar
import android.widget.TextView

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
    }
}

```

```

setContentView(R.layout.activity_main)
val progressBar: ProgressBar = findViewById(R.id.progressBar)
val progress: TextView = findViewById(R.id.progress)
val progressBarBtn: Button = findViewById(R.id.button)
val handler = Handler(Looper.myLooper()!!)

progressBar.progress = 0
progressBar.max = 100
progressBar.visibility = View.INVISIBLE

progressBarBtn.setOnClickListener{
    progressBar.visibility = View.VISIBLE
    var i = progressBar.progress
    Thread(Runnable {
        while (i < progressBar.max){
            i++
            handler.post(Runnable {
                progressBar.progress = i
                progress.text = "$i/$${progressBar.max}"
            })
            Thread.sleep(100)
        }
        progressBar.visibility = View.INVISIBLE
    }).start()
}

}
}

```

## Rating Bar

### activity\_main.xml

```

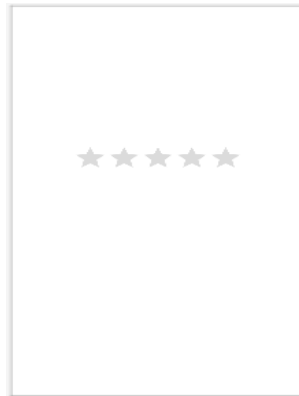
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

```

```

<RatingBar
    android:id="@+id/ratingBar"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.386" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```

package com.example.ratingbar
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.RatingBar
import android.widget.Toast

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

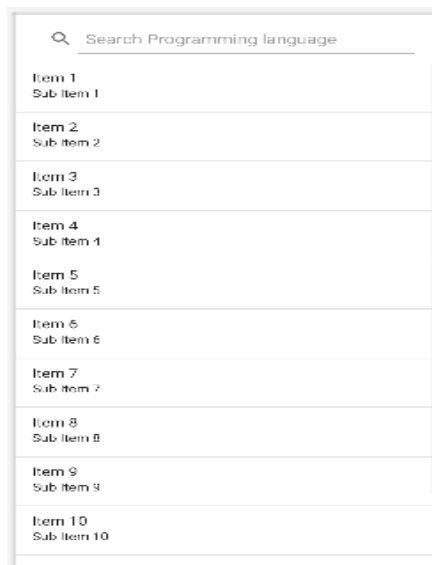
        val ratingBar: RatingBar = findViewById(R.id.ratingBar)
        ratingBar.numStars = 5
        ratingBar.rating = 3.0f
        ratingBar.stepSize = 1f
        ratingBar.setOnRatingBarChangeListener{ratingBar, rating, fromUser ->
            Toast.makeText(this, "Stars: ${ratingBar.rating}", Toast.LENGTH_LONG).show()
        }
    }
}

```

## Search View

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <SearchView
        android:id="@+id/searchView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginStart="8dp"
        android:layout_marginLeft="8dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="8dp"
        android:layout_marginRight="8dp"
        android:layout_marginBottom="8dp"
        android:iconifiedByDefault="false"
        android:padding="4dp"
        android:queryHint="Search Programming language" />
    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="fill_parent"
        android:layout_below="@id/searchView" />
</RelativeLayout>
```



## MainActivity.kt

```
package com.example.searchview
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.AdapterView
import android.widget.AdapterView.OnItemClickListener
import android.widget.ListView
import android.widget.SearchView

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

        val searchView: SearchView = findViewById(R.id.searchView)
        val listView: ListView = findViewById(R.id.listView)
        searchView.queryHint = "Search here..."
        val queries: ArrayList<String> = ArrayList()
        queries.add("C")
        queries.add("C++")
        queries.add("PHP")
        queries.add("Kotlin")
        queries.add("Python")
        queries.add("Java")

        val adapter = ArrayAdapter(this,
            androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, queries)

        listView.adapter = adapter

        searchView.setOnQueryTextListener(object : SearchView.OnQueryTextListener {
            override fun onQueryTextSubmit(query: String?): Boolean {
                adapter.filter.filter(query)
                return false
            }
            override fun onQueryTextChange(newText: String?): Boolean {
                adapter.filter.filter(newText)
                return false
            }
        })
    }
}
```

## WebView

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <WebView
        android:id="@+id/webView"
        android:layout_width="409dp"
        android:layout_height="729dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### MainActivity.kt

```
package com.example.webview
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.webkit.WebView
import android.webkit.WebViewClient

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

        val webView: WebView = findViewById(R.id.webView);
```



```

        webView.webViewClient = WebViewClient()
        webView.loadUrl("https://www.youtube.com")
        webView.settings.javaScriptEnabled = true
        webView.settings.setSupportZoom(true)
    }
}

```

## **Bottom App Bar**

### **activity\_main.xml**

```

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

    <FrameLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/fragmentContainer"/>

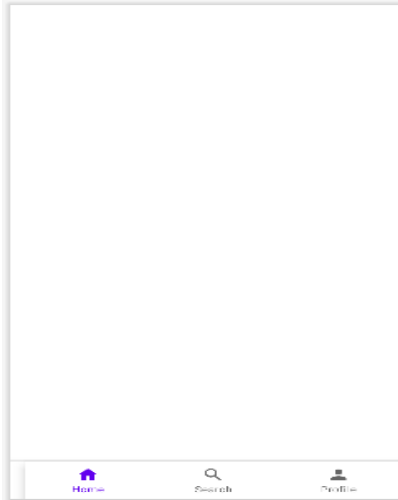
    <com.google.android.material.bottomappbar.BottomAppBar
        android:id="@+id/bottomAppBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        tools:layout_editor_absoluteX="1dp"
        tools:layout_editor_absoluteY="1dp"
        android:layout_gravity="bottom">

        <com.google.android.material.bottomnavigation.BottomNavigationView
            android:id="@+id/bottomNavigationView"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            style="@style/MaterialAlertDialog.Material3"
            app:menu="@menu/bottom_nav_view"/>

    </com.google.android.material.bottomappbar.BottomAppBar>

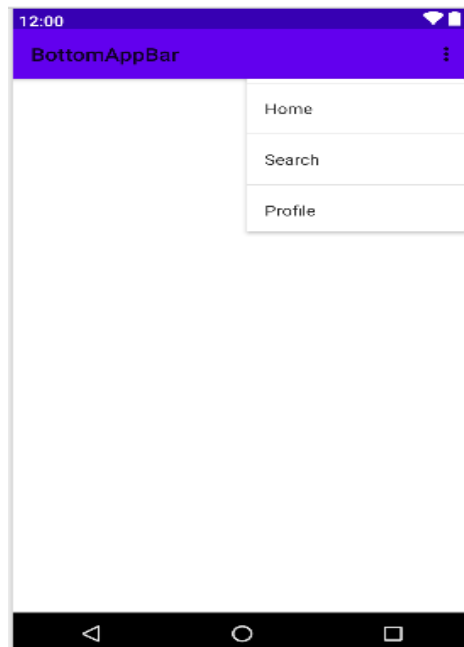
</androidx.coordinatorlayout.widget.CoordinatorLayout>

```



### **bottom\_nav\_view.xml**

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



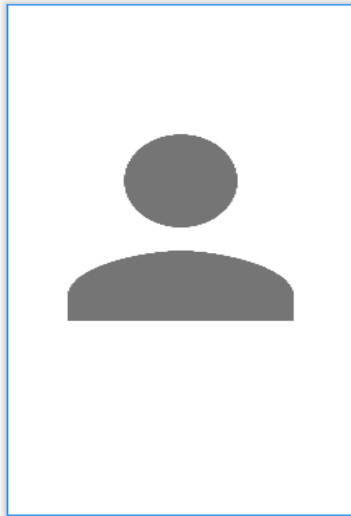
### **fragment\_home.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout 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=".HomeFragment">
    <ImageView
        android:id="@+id/homeImg"
        android:layout_width="400dp"
        android:layout_height="400dp"
        android:layout_marginTop="120dp"
        android:layout_marginLeft="5dp"
        android:src="@drawable/home" />
</FrameLayout>
```



### **fragment\_profile.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ProfileFragment">
    <ImageView
        android:id="@+id/searchImg"
        android:layout_width="400dp"
        android:layout_height="400dp"
        android:layout_marginTop="120dp"
        android:layout_marginLeft="5dp"
        android:src="@drawable/profile" />
</FrameLayout>
```



### **fragment\_search.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".SearchFragment">
    <ImageView
        android:id="@+id/searchImg"
        android:layout_width="400dp"
        android:layout_height="400dp"
        android:layout_marginTop="120dp"
        android:layout_marginLeft="5dp"
        android:src="@drawable/search" />
</FrameLayout>
```



### **MainActivity.kt**

```
package com.example.bottomappbar

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import androidx.fragment.app.Fragment
import com.google.android.material.bottomnavigation.BottomNavigationView

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

        val homeFragment: Fragment = HomeFragment()
        val searchFragment: Fragment = SearchFragment()
        val profileFragment: Fragment = ProfileFragment()

        val bottomNavigationView: BottomNavigationView =
            findViewById(R.id.bottomNavigationView)

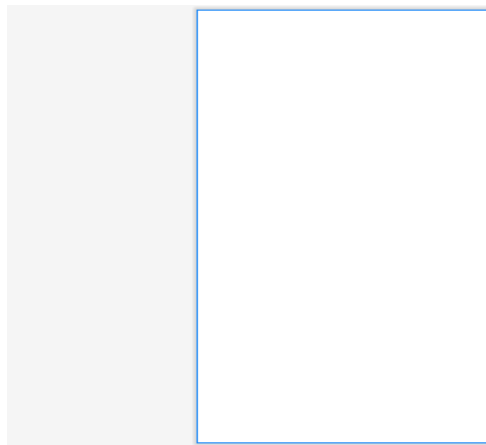
        bottomNavigationView.setOnNavigationItemSelectedListener{
            when(it.itemId){
                R.id.home -> replaceFragment(homeFragment)
                R.id.search -> replaceFragment(searchFragment)
                R.id.profile -> replaceFragment(profileFragment)
            }
            true
        }
    }

    fun replaceFragment(fragment: Fragment){
        if (fragment != null){
            val trans = supportFragmentManager.beginTransaction()
            trans.replace(R.id.fragmentContainer, fragment)
            trans.commit()
        }
    }
}
```

## Navigation View

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.drawerlayout.widget.DrawerLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    android:id="@+id/drawerLayout"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <com.google.android.material.navigation.NavigationView
        android:id="@+id/NavigationView"
        android:layout_width="wrap_content"
        android:layout_height="match_parent"
        android:layout_gravity="start"
        app:menu="@menu/nav_menu"
        android:fitsSystemWindows="true"/>
</androidx.drawerlayout.widget.DrawerLayout>
```



### nav\_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">

    <item android:id="@+id/home"
        android:title="Home"
        android:icon="@drawable/home"/>

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

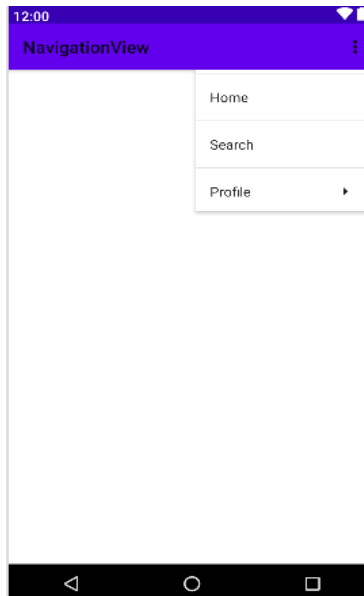
```

        android:icon="@drawable/search"/>

<item android:title="Profile">
    <menu>
        <item android:id="@+id/profile"
            android:title="Profile"
            android:icon="@drawable/person"/>
        <item android:id="@+id/settings"
            android:title="Settings"
            android:icon="@drawable/settings"/>
    </menu>
</item>

</menu>

```



### **home.xml**

```

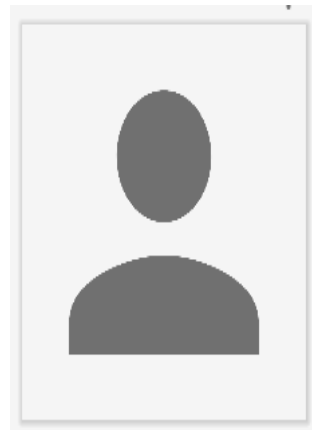
<vector xmlns:android="http://schemas.android.com/apk/res/android"
    android:width="24dp"
    android:height="24dp"
    android:viewportWidth="24"
    android:viewportHeight="24"
    android:tint="?attr/colorControlNormal">
    <path
        android:fillColor="@android:color/white"
        android:pathData="M10,20v-6h4v6h5v-8h3L12,3 2,12h3v8z"/>
</vector>

```



### **person.xml**

```
<vector xmlns:android="http://schemas.android.com/apk/res/android"
    android:width="24dp"
    android:height="24dp"
    android:viewportWidth="24"
    android:viewportHeight="24"
    android:tint="?attr/colorControlNormal">
    <path
        android:fillColor="@android:color/white"
        android:pathData="M12,12c2.21,0 4,-1.79 4,-4s-1.79,-4 -4,-4-4,1.79 -4,4 1.79,4
4,4zM12,14c-2.67,0 -8,1.34 -8,4v2h16v-2c0,-2.66 -5.33,-4 -8,-4z"/>
</vector>
```



### **search.xml**

```
<vector xmlns:android="http://schemas.android.com/apk/res/android"
    android:width="24dp"
    android:height="24dp"
    android:viewportWidth="24"
    android:viewportHeight="24"
    android:tint="?attr/colorControlNormal">
```



```

<path
  android:fillColor="@android:color/white"
  android:pathData="M15.5,14h-0.79l-0.28,-0.27C15.41,12.59 16,11.11 16,9.5 16,5.91 13.09,3
9.5,3S3,5.91 3,9.5 5.91,16 9.5,16c1.61,0 3.09,-0.59 4.23,-1.57l0.27,0.28v0.79l5,4.99L20.49,19l-
4.99,-5zM9.5,14C7.01,14 5,11.99 5,9.5S7.01,5 9.5,5 14,7.01 14,9.5 11.99,14 9.5,14z"/>
</vector>

```

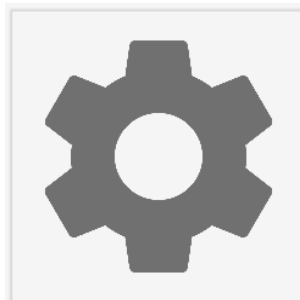


### **settings.xml**

```

<vector xmlns:android="http://schemas.android.com/apk/res/android"
  android:width="24dp"
  android:height="24dp"
  android:viewportWidth="24"
  android:viewportHeight="24"
  android:tint="?attr/colorControlNormal">
  <path
    android:fillColor="@android:color/white"
    android:pathData="M19.14,12.94c0.04,-0.3 0.06,-0.61 0.06,-0.94c0,-0.32 -0.02,-0.64 -0.07,-
0.94l2.03,-1.58c0.18,-0.14 0.23,-0.41 0.12,-0.61l-1.92,-3.32c-0.12,-0.22 -0.37,-0.29 -0.59,-0.22l-
2.39,0.96c-0.5,-0.38 -1.03,-0.7 -1.62,-0.94l14.4,2.81c-0.04,-0.24 -0.24,-0.41 -0.48,-0.41h-3.84c-
0.24,0 -0.43,0.17 -0.47,0.41l9.25,5.35C8.66,5.59 8.12,5.92 7.63,6.29L5.24,5.33c-0.22,-0.08 -
0.47,0 -0.59,0.22l2.74,8.87C2.62,9.08 2.66,9.34 2.86,9.48l2.03,1.58C4.84,11.36 4.8,11.69
4.8,12s0.02,0.64 0.07,0.94l-2.03,1.58c-0.18,0.14 -0.23,0.41 -0.12,0.61l1.92,3.32c0.12,0.22
0.37,0.29 0.59,0.22l2.39,-0.96c0.5,0.38 1.03,0.7 1.62,0.94l0.36,2.54c0.05,0.24 0.24,0.41
0.48,0.41h3.84c0.24,0 0.44,-0.17 0.47,-0.41l0.36,-2.54c0.59,-0.24 1.13,-0.56 1.62,-
0.94l2.39,0.96c0.22,0.08 0.47,0 0.59,-0.22l1.92,-3.32c0.12,-0.22 0.07,-0.47 -0.12,-
0.61l19.14,12.94zM12,15.6c-1.98,0 -3.6,-1.62 -3.6,-3.6s1.62,-3.6 3.6,-3.6s3.6,1.62
3.6,3.6S13.98,15.6 12,15.6z"/>
</vector>

```



### strings.xml

```
<resources>
    <string name="app_name">NavigationView</string>
    <string name="open">open</string>
    <string name="close">close</string>
</resources>
```

### MainActivity.kt

```
package com.example.navigationview
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.MenuItem
import android.widget.Toast
import androidx.appcompat.app.ActionBarDrawerToggle
import androidx.drawerlayout.widget.DrawerLayout
import com.google.android.material.navigation.NavigationView

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

        var navView: NavigationView = findViewById(R.id.NavigationView)
        var drawerLayout: DrawerLayout = findViewById(R.id.drawerLayout)

        var toggle = ActionBarDrawerToggle(this, drawerLayout, R.string.open, R.string.close)
        drawerLayout.addDrawerListener(toggle)
        toggle.syncState()

        supportActionBar?.setDisplayHomeAsUpEnabled(true)

        navView.setNavigationItemSelectedListener {
            when(it.itemId){
                R.id.home -> Toast.makeText(this, "Home", Toast.LENGTH_LONG).show()
                R.id.search -> Toast.makeText(this, "Search", Toast.LENGTH_LONG).show()
                R.id.profile -> Toast.makeText(this, "Profile", Toast.LENGTH_LONG).show()
                R.id.settings -> Toast.makeText(this, "Settings", Toast.LENGTH_LONG).show()
            }
            true
        }
    }
    override fun onOptionsItemSelected(item: MenuItem): Boolean {
        var drawerLayout: DrawerLayout = findViewById(R.id.drawerLayout)
        var toggle = ActionBarDrawerToggle(this, drawerLayout, R.string.open, R.string.close)
```

```

        if (toggle.onOptionsItemSelected(item)){
            return true
        }
        return super.onOptionsItemSelected(item)
    }
}

```

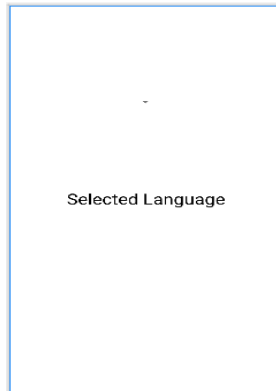
## Spinner

### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/selectedLang"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Selected Language"
        android:textColor="#000000"
        android:textSize="28sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.499" />
    <Spinner
        android:id="@+id/spinner"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.24" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```
package com.example.spinner
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.View
import android.widget.AdapterView
import android.widget.AdapterView.OnItemClickListener
import android.widget.ArrayAdapter
import android.widget.Spinner
import android.widget.TextView

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

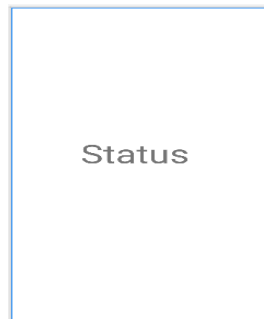
        val spinner: Spinner = findViewById(R.id.spinner)
        val selectedLang: TextView = findViewById(R.id.selectedLang)
        val langs = arrayOf("C", "C++", "Java", "Kotlin")
        val adapter = ArrayAdapter(this,
            androidx.appcompat.R.layout.support_simple_spinner_dropdown_item, langs)
        spinner.adapter = adapter

        spinner.onItemSelectedListener = object : AdapterView.OnItemSelectedListener {
            override fun onItemSelected(parent: AdapterView<*>?, view: View?, position: Int, id: Long) {
                selectedLang.text = langs[position]
            }
            override fun onNothingSelected(parent: AdapterView<*>?) {
            }
        }
    }
}
```

## TabLayout

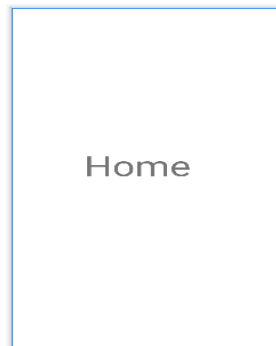
### fragment\_status.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".StatusFragment">
    <TextView
        android:id="@+id/status"
        android:layout_marginTop="300dp"
        android:layout_marginLeft="110dp"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Status"
        android:textSize="60sp" />
</FrameLayout>
```



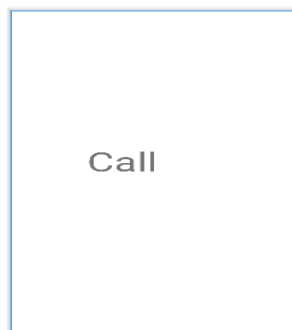
### fragment\_chat.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".ChatFragment">
    <TextView
        android:id="@+id/home"
        android:layout_marginTop="300dp"
        android:layout_marginLeft="110dp"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Home"
        android:textSize="60sp" />
</FrameLayout>
```



#### **fragment\_call.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".CallFragment">
    <TextView
        android:id="@+id/call"
        android:layout_marginTop="300dp"
        android:layout_marginLeft="110dp"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Call"
        android:textSize="60sp" />
</FrameLayout>
```



#### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
```

```
android:layout_height="match_parent"  
tools:context=".MainActivity">
```

```
<com.google.android.material.tabs.TabLayout  
    android:id="@+id/tabLayout"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.0"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.045"  
    app:tabBackground="@color/black"  
    app:tabGravity="fill"  
    app:tabInlineLabel="true"  
    app:tabMode="fixed"  
    app:tabTextColor="@color/white">  
</com.google.android.material.tabs.TabLayout>
```

```
<androidx.viewpager.widget.ViewPager  
    android:id="@+id/viewPager"  
    android:layout_width="match_parent"  
    android:layout_height="600dp"  
    app:layout_constraintBottom_toBottomOf="parent"  
    app:layout_constraintEnd_toEndOf="parent"  
    app:layout_constraintHorizontal_bias="0.0"  
    app:layout_constraintStart_toStartOf="parent"  
    app:layout_constraintTop_toTopOf="parent"  
    app:layout_constraintVertical_bias="0.877" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **ViewPagerAdapter.kt**

```
package com.example.tablayout
import androidx.fragment.app.Fragment
import androidx.fragment.app.FragmentManager
import androidx.fragment.app.FragmentPagerAdapter

class ViewPagerAdapter(supportFragmentManager: FragmentManager):
    FragmentPagerAdapter(supportFragmentManager,
        BEHAVIOR_RESUME_ONLY_CURRENT_FRAGMENT) {

    val fragments = ArrayList<Fragment>()
    val fragmentTitles = ArrayList<String>()

    override fun getCount(): Int {
        return fragments.size
    }
    override fun getItem(position: Int): Fragment {
        return fragments[position]
    }
    override fun getPageTitle(position: Int): CharSequence? {
        return fragmentTitles[position]
    }
    fun addFragment(fragment: Fragment, title: String){
        fragments.add(fragment)
        fragmentTitles.add(title)
    }
}
```

### **MainActivity.kt**

```
package com.example.tablayout
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import androidx.viewpager.widget.ViewPager
import com.google.android.material.tabs.TabLayout

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

        val adapter = ViewPagerAdapter(supportFragmentManager)
        var viewPager: ViewPager = findViewById(R.id.viewPager)
        var tabLayout: TabLayout = findViewById(R.id.tabLayout)
    }
}
```



```

val chats = ChatFragment()
val status = StatusFragment()
val call = CallFragment()

adapter.addFragment(chats, "Chats")
adapter.addFragment(status, "Status")
adapter.addFragment(call, "Call")

viewPager.adapter = adapter
tabLayout.setupWithViewPager(viewPager)
}
}

```

## Tool Bar

### comment.xml

```

<vector xmlns:android="http://schemas.android.com/apk/res/android"
    android:width="24dp"
    android:height="24dp"
    android:viewportWidth="24"
    android:viewportHeight="24"
    android:tint="?attr/colorControlNormal">
    <path
        android:fillColor="@android:color/white"
        android:pathData="M21.99,4c0,-1.1 -0.89,-2 -1.99,-2L4,2c-1.1,0 -2,0.9 -2,2v12c0,1.1 0.9,2
2,2h14l4,4 -0.01,-18z"
    </vector>

```



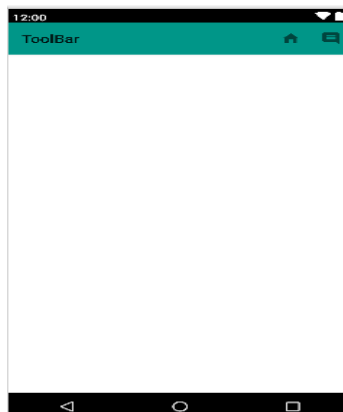
### home.xml

```
<vector xmlns:android="http://schemas.android.com/apk/res/android"
    android:width="24dp"
    android:height="24dp"
    android:viewportWidth="24"
    android:viewportHeight="24"
    android:tint="?attr/colorControlNormal">
    <path
        android:fillColor="@android:color/white"
        android:pathData="M10,20v-6h4v6h5v-8h3L12,3 2,12h3v8z"/>
</vector>
```



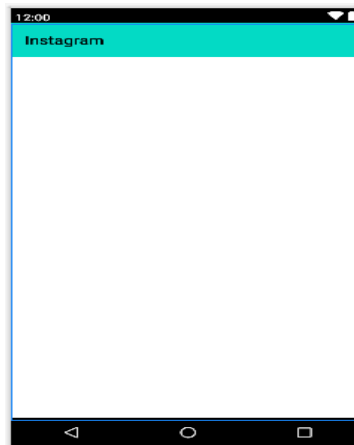
### toolbar\_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item android:id="@+id/home"
        android:title="Home"
        android:icon="@drawable/home"
        app:showAsAction="always"/>
    <item android:id="@+id/comment"
        android:title="Comment"
        android:icon="@drawable/comment"
        app:showAsAction="always"/>
</menu>
```



### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <androidx.appcompat.widget.Toolbar
        android:id="@+id/toolBar"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="@color/teal_200"
        android:theme="@style/Theme.AppCompat.DayNight.DarkActionBar"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0"
        app:title="Instagram"
        app:titleTextColor="@color/black" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.toolbar
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.Menu
import android.view.MenuItem
import android.widget.Toast
```

```

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

        var toolBar: androidx.appcompat.widget.Toolbar? = findViewById(R.id.toolBar)
        setSupportActionBar(toolBar)
    }
    override fun onCreateOptionsMenu(menu: Menu?): Boolean {
        menuInflater.inflate(R.menu.toolbar_menu, menu)
        return true
    }
    override fun onOptionsItemSelected(item: MenuItem): Boolean {
        when(item.itemId){
            R.id.home -> Toast.makeText(this, "Clicked on Home", Toast.LENGTH_LONG).show()
            R.id.comment -> Toast.makeText(this, "Comment on Home",
Toast.LENGTH_LONG).show()
        }
        return true
    }
}

```

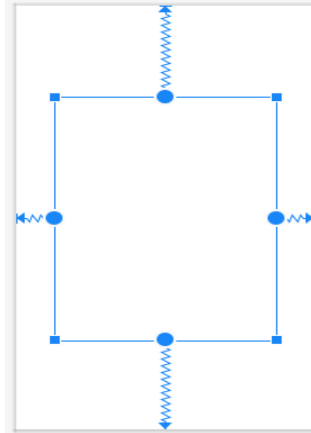
## **ViewPager2**

### **img\_view.xml**

```

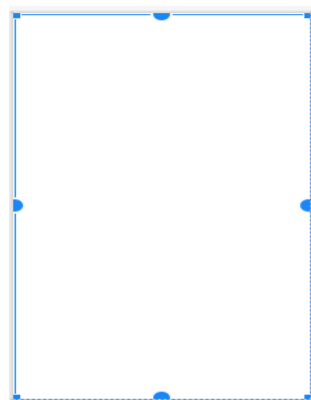
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="306dp"
        android:layout_height="420dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <androidx.viewpager2.widget.ViewPager2
        android:id="@+id/viewPager"
        android:layout_width="409dp"
        android:layout_height="729dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **ViewPagerAdapter.kt**

```
package com.example.viewpager2
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.ImageView
import androidx.recyclerview.widget.RecyclerView

class ViewPagerAdapter(var imgs: List<Int>):
    RecyclerView.Adapter<ViewPagerAdapter.Pager2ViewHolder>() {

    inner class Pager2ViewHolder(itemView: View): RecyclerView.ViewHolder(itemView){
        val imgView: ImageView = itemView.findViewById(R.id.imageView)
    }

    override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): Pager2ViewHolder {
        return Pager2ViewHolder(LayoutInflater.from(parent.context).inflate(R.layout.img_view,
            parent,false))
    }

    override fun onBindViewHolder(holder: Pager2ViewHolder, position: Int) {
        holder.imgView.setImageResource(imgs[position])
    }

    override fun getItemCount(): Int {
        return imgs.size
    }
}
```

### **MainActivity.kt**

```
package com.example.viewpager2
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import androidx.viewpager2.widget.ViewPager2

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

        val viewPager2: ViewPager2 = findViewById(R.id.viewPager)

        val imgList = listOf(R.drawable.boy_img, R.drawable.computer_img,
```

```

        R.drawable.saudi_man)

        viewPager2.adapter = ViewPagerAdapter(imgList)
    }
}

```

## **Animation**

### **beep.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:interpolator="@android:anim/linear_interpolator">
    <alpha
        android:duration="3000"
        android:fromAlpha="0.1"
        android:toAlpha="1.0"/>
</set>

```

### **rotate.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<rotate xmlns:android="http://schemas.android.com/apk/res/android"
    android:duration="2000"
    android:fromDegrees="0"
    android:interpolator="@android:anim/linear_interpolator"
    android:pivotX="50%"
    android:pivotY="50%"
    android:startOffset="0"
    android:toDegrees="720" />

```

### **jump.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:interpolator="@android:anim/linear_interpolator"
    android:fillAfter="true">
    <translate
        android:fromYDelta="-120%"
        android:toYDelta="110%"
        android:duration="2000"/>
</set>

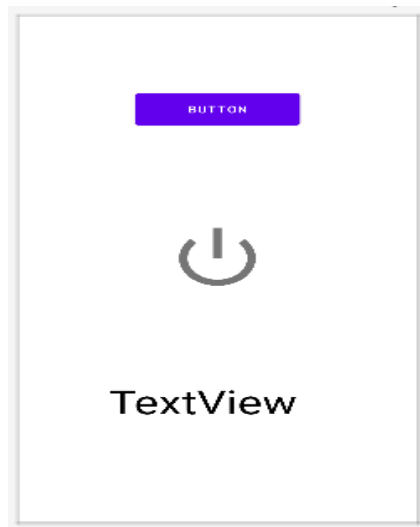
```

### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/button"
        android:layout_width="171dp"
        android:layout_height="58dp"
        android:text="Button"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.156" />
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="106dp"
        android:layout_height="128dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.474"
        app:srcCompat="@android:drawable/ic_lock_power_off" />
    <TextView
        android:id="@+id/textView"
        android:layout_width="245dp"
        android:layout_height="63dp"
        android:text="TextView"
        android:textColor="#000000"
        android:textSize="48sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.554"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
```



```
        app:layout_constraintVertical_bias="0.785" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.animations
```

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.view.animation.AnimationUtils
import android.widget.Button
import android.widget.ImageView
import android.widget.TextView
```

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

        var button: Button = findViewById(R.id.button)
        var image: ImageView = findViewById(R.id.imageView)
        var textView: TextView = findViewById(R.id.textView)

        /*    button.setOnClickListener{
                button.animate().apply {
                    duration = 3000
                    rotationX(360f)
                }
            }
            image.setOnClickListener{
                image.animate().apply {
```

```

        duration = 3000
        rotationY(360f)
    }
}
textView.setOnClickListener{
    textView.animate().apply {
        duration = 3000
        rotation(360f)
    }
}*/

button.setOnClickListener{
    val anim = AnimationUtils.loadAnimation(this, R.anim.jump)
    button.startAnimation(anim)
}
image.setOnClickListener{
    val anim = AnimationUtils.loadAnimation(this, R.anim.rotate)
    image.startAnimation(anim)
}
textView.setOnClickListener{
    val anim = AnimationUtils.loadAnimation(this, R.anim.beep)
    textView.startAnimation(anim)
}

}
}

```

## Card View

### activity\_main.xml

```

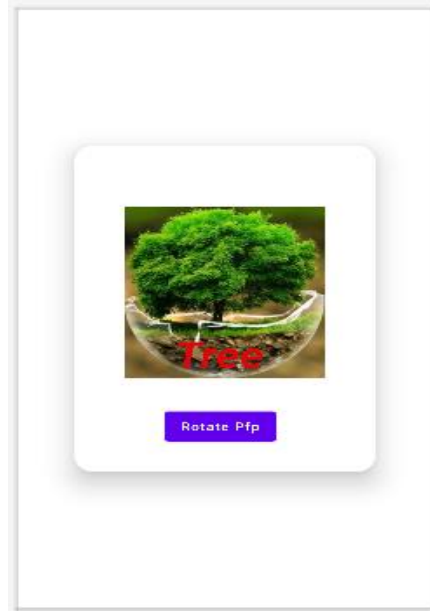
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <androidx.cardview.widget.CardView
        android:id="@+id/card"
        android:layout_width="300dp"

```

```

        android:layout_height="400dp"
        app:cardBackgroundColor="@color/white"
        app:cardCornerRadius="20dp"
        app:cardElevation="20dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent">
        <ImageView
            android:id="@+id/img"
            android:layout_width="200dp"
            android:layout_height="wrap_content"
            android:src="@drawable/tree"
            android:layout_marginLeft="50dp"
            android:layout_marginTop="10dp"/>
        <TextView
            android:id="@+id/pfp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginLeft="100dp"
            android:layout_marginTop="225dp"
            android:text="Tree"
            android:textColor="#E10707"
            android:textSize="45sp"
            android:textStyle="bold|italic" />
        <Button
            android:id="@+id/rotatePfp"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Rotate Pfp"
            android:textAllCaps="false"
            android:layout_marginTop="320dp"
            android:layout_marginLeft="90dp"/>
    </androidx.cardview.widget.CardView>
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```
package com.example.cardview
```

```
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)  
  
        var rotatePfp: Button = findViewById(R.id.rotatePfp)  
        var img: ImageView = findViewById(R.id.img)  
  
        rotatePfp.setOnClickListener{  
            img.animate().apply{  
                duration = 3000  
                rotationX(360f)  
            }  
        }  
    }  
}
```

## Fragments & Viewbinding

### fragment\_second.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#4CAF50"
    tools:context=".FirstFragment">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="SecondFragment"
        android:textColor="#FFFFFF"
        android:textSize="48sp"
        android:layout_marginTop="300dp"
        android:layout_marginLeft="20dp"/>
</FrameLayout>
```



### fragment\_first.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#D80000"
    tools:context=".FirstFragment">
    <TextView
        android:id="@+id/tv1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="60dp"
        android:layout_marginTop="300dp"
        android:text="First Fragment"
    />
</FrameLayout>
```

```

        android:textColor="#FFFFFF"
        android:textSize="48sp" />
</FrameLayout>

```



### **activity\_main.xml**

```

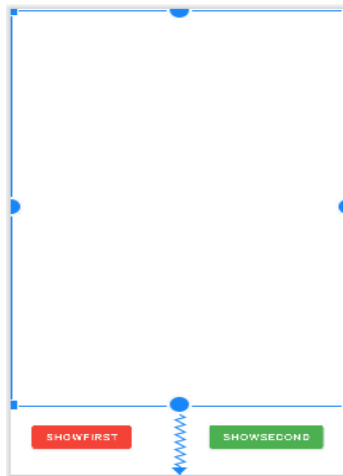
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <FrameLayout
        android:id="@+id/fcontainer"
        android:layout_width="match_parent"
        android:layout_height="620dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.009" />
    <Button
        android:id="@+id/showFirst"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="showFirst"
        android:backgroundTint="#F44336"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.089"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.948" />

```

```

<Button
    android:id="@+id/showSecond"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:backgroundTint="#4CAF50"
    android:text="showSecond"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.889"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.948" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **SecondFragment.kt**

```

package com.example.fragmentns
import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup

class SecondFragment : Fragment() {
    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        // Inflate the layout for this fragment
        return inflater.inflate(R.layout.fragment_second, container, false)
    }
}

```

### **FirstFragment.kt**

```
package com.example.fragmentns

import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import com.example.fragmentns.databinding.FragmentFirstBinding

class FirstFragment : Fragment() {

    lateinit var binding: FragmentFirstBinding

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        binding = FragmentFirstBinding.inflate(inflater, container, false)
        binding.tv1.text = "FirstFragment"
        return binding.root
    }
}
```

### **MainActivity.kt**

```
package com.example.fragmentns

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 firstFragment = FirstFragment()
        val secondFragment = SecondFragment()

        val showFirst: Button = findViewById(R.id.showFirst)
        val showSecond: Button = findViewById(R.id.showSecond)

        supportFragmentManager.beginTransaction().apply {
            replace(R.id.fcontainer, firstFragment)
        }
    }
}
```



```

        addToBackStack(null)
        commit()
    }

    showFirst.setOnClickListener {
        supportFragmentManager.beginTransaction().apply {
            replace(R.id.fcontainer, firstFragment)
            addToBackStack(null)
            commit()
        }
    }
    showSecond.setOnClickListener {
        supportFragmentManager.beginTransaction().apply {
            replace(R.id.fcontainer, secondFragment)
            addToBackStack(null)
            commit()
        }
    }
}
}

```

## Navigation Component

### my\_nav.xml

```

<?xml version="1.0" encoding="utf-8"?>
<navigation 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/my_nav"
    app:startDestination="@id/firstFragment">

    <fragment
        android:id="@+id/firstFragment"
        android:name="com.example.navigationcomponent.FirstFragment"
        android:label="fragment_first"
        tools:layout="@layout/fragment_first" >
        <action
            android:id="@+id/action_firstFragment_to_secondFragment"
            app:destination="@id/secondFragment" />
    </fragment>

```

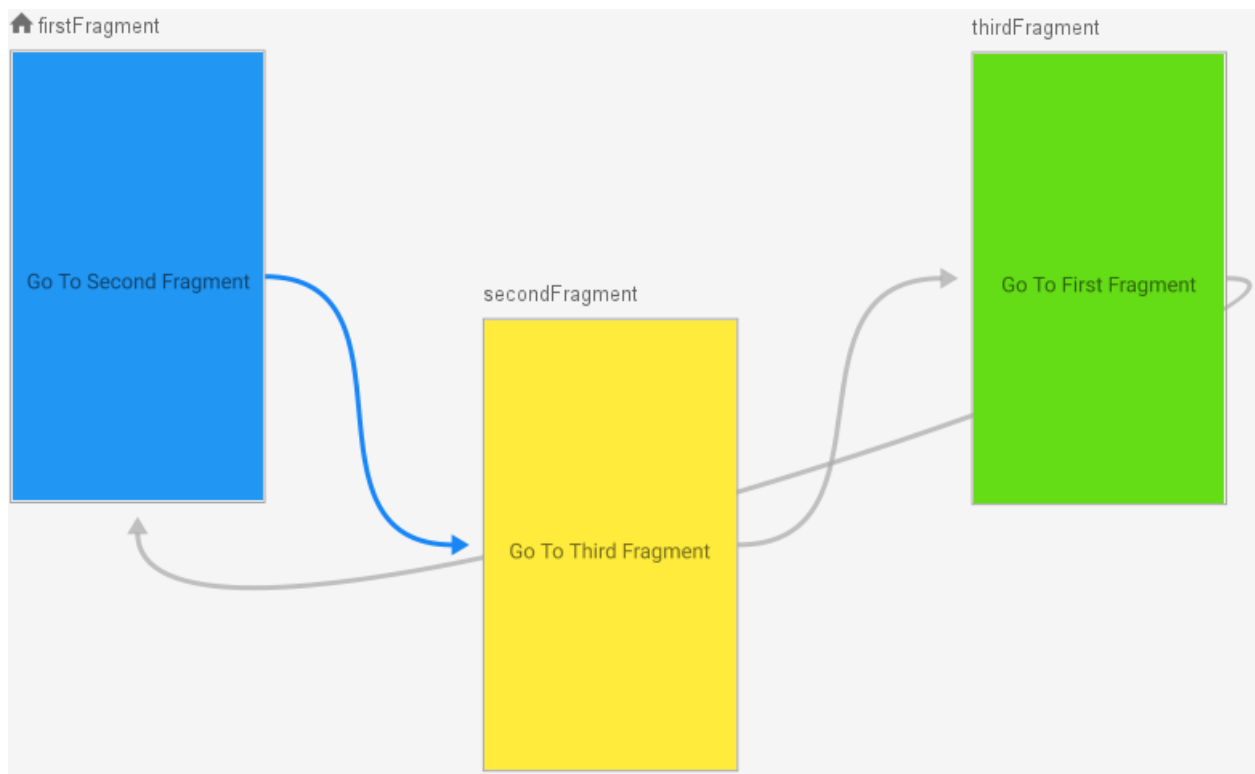
```

<fragment
    android:id="@+id/secondFragment"
    android:name="com.example.navigationcomponent.SecondFragment"
    android:label="fragment_second"
    tools:layout="@layout/fragment_second" >
    <action
        android:id="@+id/action_secondFragment_to_thirdFragment"
        app:destination="@id/thirdFragment" />
</fragment>

<fragment
    android:id="@+id/thirdFragment"
    android:name="com.example.navigationcomponent.ThirdFragment"
    android:label="fragment_third"
    tools:layout="@layout/fragment_third" >
    <action
        android:id="@+id/action_thirdFragment_to_firstFragment"
        app:destination="@id/firstFragment" />
</fragment>

</navigation>

```



### fragment\_first.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#2196F3"
    tools:context=".FirstFragment">
    <TextView
        android:id="@+id/firstText"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Go To Second Fragment"
        android:layout_marginLeft="25dp"
        android:layout_marginTop="350dp"
        android:textSize="34sp" />
</FrameLayout>
```



### fragment\_second.xml

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#FFEB3B"
    tools:context=".SecondFragment">
    <TextView
        android:id="@+id/secondText"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Go To Third Fragment"
        android:layout_marginLeft="40dp"
        android:layout_marginTop="350dp"
        android:textSize="34sp" />
</FrameLayout>
```



#### **fragment\_third.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#64DD17"
    tools:context=".ThirdFragment">
    <TextView
        android:id="@+id/thirdText"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:text="Go To First Fragment"
        android:layout_marginLeft="45dp"
        android:layout_marginTop="350dp"
        android:textSize="34sp" />
</FrameLayout>
```



#### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
```

```

        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:context=".MainActivity">
        <androidx.fragment.app.FragmentContainerView
            android:id="@+id/fragmentContainerView"
            android:name="androidx.navigation.fragment.NavHostFragment"
            android:layout_width="409dp"
            android:layout_height="729dp"
            app:defaultNavHost="true"
            app:layout_constraintBottom_toBottomOf="parent"
            app:layout_constraintEnd_toEndOf="parent"
            app:layout_constraintHorizontal_bias="0.5"
            app:layout_constraintStart_toStartOf="parent"
            app:layout_constraintTop_toTopOf="parent"
            app:navGraph="@navigation/my_nav" />
    </androidx.constraintlayout.widget.ConstraintLayout>

```



### **FirstFragment.kt**

```

package com.example.navigationcomponent
import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import androidx.navigation.fragment.findNavController

class FirstFragment : Fragment() {
    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        var view = inflater.inflate(R.layout.fragment_first, container, false)
        var firstText = view.findViewById<TextView>(R.id.firstText)
    }
}

```

```

        firstText.setOnClickListener {
            findNavController().navigate(R.id.action_firstFragment_to_secondFragment)
        }
        return view
    }
}

```

### **SecondFragment.kt**

```

package com.example.navigationcomponent
import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import androidx.navigation.fragment.findNavController

class SecondFragment : Fragment() {

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        var view = inflater.inflate(R.layout.fragment_second, container, false)
        var secondText = view.findViewById<TextView>(R.id.secondText)
        secondText.setOnClickListener {
            findNavController().navigate(R.id.action_secondFragment_to_thirdFragment)
        }
        return view
    }
}

```

### **ThirdFragment.kt**

```

package com.example.navigationcomponent
import android.os.Bundle
import androidx.fragment.app.Fragment
import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import androidx.navigation.fragment.findNavController

```

```

class ThirdFragment : Fragment() {

    override fun onCreateView(
        inflater: LayoutInflater, container: ViewGroup?,
        savedInstanceState: Bundle?
    ): View? {
        var view = inflater.inflate(R.layout.fragment_third, container, false)
        var thirdText = view.findViewById<TextView>(R.id.thirdText)
        thirdText.setOnClickListener {
            findNavController().navigate(R.id.action_thirdFragment_to_firstFragment)
        }
        return view
    }
}

```

### **MainActivity.kt**

```

package com.example.navigationcomponent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle

```

```

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

```

## **View Binding**

### **activity\_main.xml**

```

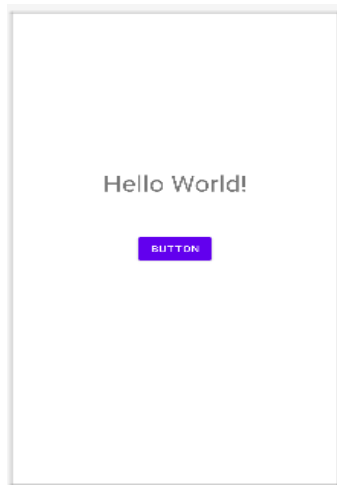
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:text="Hello World!"
        android:textSize="34sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.351" />
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```

package com.example.viewbinding

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import com.example.viewbinding.databinding.ActivityMainBinding

class MainActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {

```



```

var binding: ActivityMainBinding = ActivityMainBinding.inflate(layoutInflater)

super.onCreate(savedInstanceState)
setContentView(binding.root)

binding.button.setOnClickListener{
    binding.textview.setText("Hello Bangladesh")
}

}
}

```

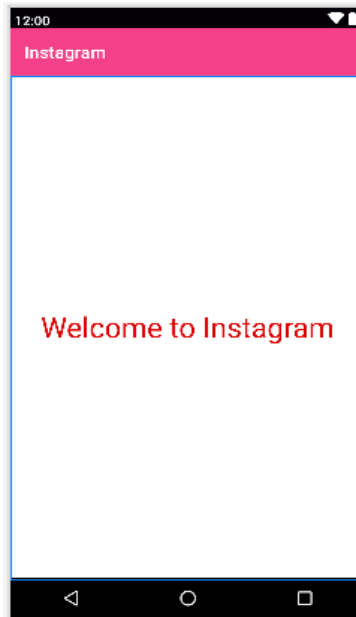
## Splash Screen

### activity\_app.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=".AppActivity">
    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to Instagram"
        android:textColor="#DC0101"
        android:textSize="34sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



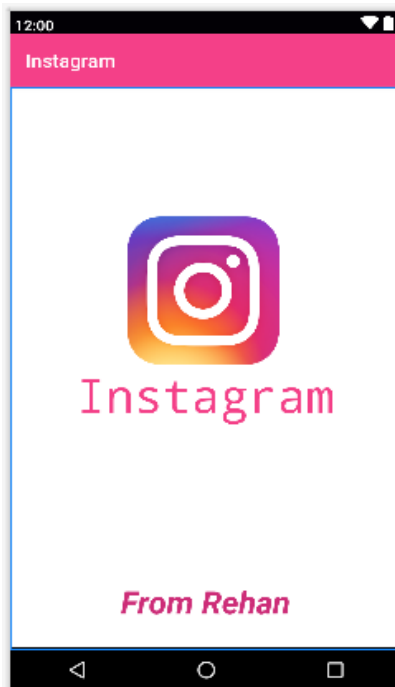
### **activity\_main.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="180dp"
        android:layout_height="180dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.308"
        app:srcCompat="@drawable/ig" />
    <TextView
        android:id="@+id/ig"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="monospace"
        android:text="Instagram"
        android:textColor="#F44088"
```

```

        android:textSize="50sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.556" />
<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="From Rehan"
    android:textColor="#CD2D78"
    android:textSize="34sp"
    android:textStyle="bold|italic"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.952" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **AppActivity.kt**

```
package com.example.splashscreen

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle

class AppActivity : AppCompatActivity() {
    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_app)
    }
}
```

### **MainActivity.kt**

```
package com.example.splashscreen

import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.os.Handler
import android.widget.TextView

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

        var ig: TextView = findViewById(R.id.ig)

        Handler().postDelayed({
            var intent = Intent(this, AppActivity::class.java)
            startActivity(intent)
            finish()
        }, 2000)

        ig.animate().apply {
            duration = 1000
            rotationX(360f)
        }
    }
}
```

## Shared Preferences

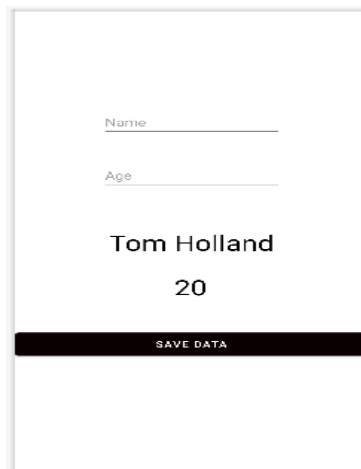
### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Name"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.223" />
    <EditText
        android:id="@+id/age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Age"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.502"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.346" />
    <TextView
        android:id="@+id/setName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Tom Holland"
        android:textColor="#020000"
        android:textSize="34sp"
```

```

        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
<TextView
    android:id="@+id/setAge"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="20"
    android:textColor="#000000"
    android:textSize="34sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.603" />
<Button
    android:id="@+id/save"
    android:layout_width="0dp"
    android:layout_height="wrap_content"
    android:text="Save Data"
    app:backgroundTint="#0B0000"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.736" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### MainActivity.kt

```
package com.example.sharedpreferences
```

```
import android.content.Context
import android.content.SharedPreferences
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import android.widget.Toast
```

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

        var name: EditText = findViewById(R.id.name)
        var age: EditText = findViewById(R.id.age)
        var setName: TextView = findViewById(R.id.setName)
        var setAge: TextView = findViewById(R.id.setAge)
        var save: Button = findViewById(R.id.save)

        val sP: SharedPreferences = getSharedPreferences("sP", Context.MODE_PRIVATE)

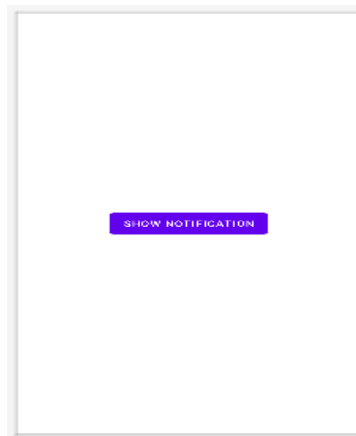
        save.setOnClickListener{
            setName.text = name.text.toString()
            setAge.text = age.text.toString()
            val editor: SharedPreferences.Editor = sP.edit()
            editor.apply{
                editor.putString("Name", name.text.toString())
                editor.putString("Age", age.text.toString())
            }.apply()
            Toast.makeText(this, "Data Saved!", Toast.LENGTH_LONG).show()
        }

        val Name = sP.getString("Name", "No Name")
        val Age = sP.getString("Age", "No Age")
        setName.text = Name
        setAge.text = Age
    }
}
```

## Notification Channel

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/showN"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Notification"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```



### MainActivity.kt

```
package com.example.notificationchannel
import android.app.*
import android.content.Context
import android.content.Intent
import android.os.Build
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
```



```

import androidx.core.app.NotificationManagerCompat

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

        var showN: Button = findViewById(R.id.showN)
        var channelId = "One"
        var channelName = "Chan"
        var notificationId = 1

        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.O){
            val channel = NotificationChannel(channelId, channelName,
                NotificationManager.IMPORTANCE_HIGH)
            val manager = getSystemService(Context.NOTIFICATION_SERVICE) as
                NotificationManager

            manager.createNotificationChannel(channel)
        }

        val intent = Intent(this, MainActivity::class.java)
        val pendingIntent = TaskStackBuilder.create(this).run {
            addNextIntentWithParentStack(intent)
            getPendingIntent(0, PendingIntent.FLAG_IMMUTABLE)
        }

        val notification = Notification.Builder(this, channelId)
            .setContentTitle("Notify")
            .setContentText("I am Notification")
            .setSmallIcon(androidx.core.R.drawable.notification_icon_background)
            .setPriority(Notification.PRIORITY_HIGH)
            .setContentIntent(pendingIntent)
            .build()

        val notificationManager = NotificationManagerCompat.from(this)

        showN.setOnClickListener{
            notificationManager.notify(notificationId, notification)
        }

    }
}

```

## Room Database

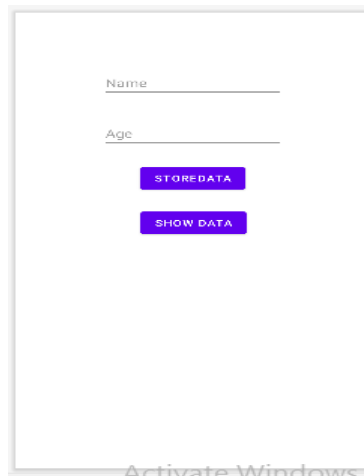
### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Name"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.132" />
    <EditText
        android:id="@+id/age"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
        android:hint="Age"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.497"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.25" />
    <Button
        android:id="@+id/storeData"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="StoreData"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```

        app:layout_constraintHorizontal_bias="0.498"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.354" />
<Button
    android:id="@+id/showData"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Show Data"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.459" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **ContactEntity.kt**

```

package com.example.roomdatabase
import androidx.room.Entity
import androidx.room.PrimaryKey

```

```

@Entity
data class ContactEntity(

    @PrimaryKey(autoGenerate = true)
    var id: Int,

    var name: String,
    var age: String
)

```

### **ContactDao.kt**

```
package com.example.roomdatabase
import androidx.lifecycle.LiveData
import androidx.room.*
@Dao
interface ContactDao{
    @Insert
    suspend fun insertContact(contacts: ContactEntity)
    @Update
    suspend fun updateContact(contacts: ContactEntity)
    @Delete
    suspend fun deleteContact(contacts: ContactEntity)
    @Query("SELECT * FROM ContactEntity")
    fun getContact(): LiveData<List<ContactEntity>>
}
```

### **ContactDatabase.kt**

```
package com.example.roomdatabase
import android.content.Context
import androidx.room.Database
import androidx.room.Room
import androidx.room.RoomDatabase

@Database(entities = [ContactEntity::class], version = 1)
abstract class ContactDatabase: RoomDatabase() {

    abstract fun contactDao(): ContactDao

    companion object{
        @Volatile
        var INSTANCE: ContactDatabase? = null

        fun getDatabase(context: Context): ContactDatabase{
            if (INSTANCE == null){
                synchronized(this){
                    INSTANCE = Room.databaseBuilder(context, ContactDatabase::class.java,
                        "contactDB").build()
                }
            }
            return INSTANCE!!
        }
    }
}
```

### **MainActivity.kt**

```
package com.example.roomdatabase
```

```
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.util.Log
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import androidx.lifecycle.Observer
import kotlinx.coroutines.GlobalScope
import kotlinx.coroutines.launch
```

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

        var name: EditText = findViewById(R.id.name)
        var age: EditText = findViewById(R.id.age)
        var storeData: Button = findViewById(R.id.storeData)
        var showData: Button = findViewById(R.id.showData)

        lateinit var database: ContactDatabase
        database = ContactDatabase.getDatabase(this)

        storeData.setOnClickListener{
            GlobalScope.launch {
                database.contactDao().insertContact(ContactEntity(0, "${name.text}", "${age.text}"))
            }
            Toast.makeText(this, "Data Stored!", Toast.LENGTH_LONG).show()
        }

        showData.setOnClickListener{
            database.contactDao().getContact().observe(this, Observer {
                Toast.makeText(this, it.toString(), Toast.LENGTH_LONG).show()
            })
        }
    }
}
```

## Login App

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/S_logo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="@font/kavoon"
        android:text="S"
        android:textColor="#F40000"
        android:textSize="130sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.501"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />
    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="12dp"
        android:fontFamily="@font/chango"
        android:text="SocialGram"
        android:textColor="#F40000"
        android:textSize="25sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.496"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/S_logo"
        app:layout_constraintVertical_bias="0.0" />
    <EditText
        android:id="@+id/email"
        android:layout_width="330dp"
        android:layout_height="45dp"
```

```

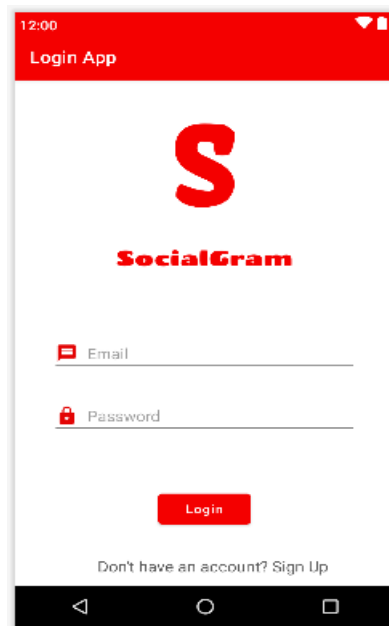
        android:drawableLeft="@drawable/email_img"
        android:drawablePadding="10dp"
        android:ems="10"
        android:hint="Email"
        android:inputType="textPersonName"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.493"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.544" />
<EditText
    android:id="@+id/password"
    android:layout_width="330dp"
    android:layout_height="45dp"
    android:drawableLeft="@drawable/password_img"
    android:drawablePadding="10dp"
    android:ems="10"
    android:hint="Password"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.493"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.677" />
<Button
    android:id="@+id/login"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:text="Login"
    android:textAllCaps="false"
    app:backgroundTint="#F40000"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.498"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.877" />
<TextView
    android:id="@+id/signUp"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="12dp"

```

```

        android:text="Don't have an account? Sign Up"
        android:textColor="#A8000000"
        android:textSize="18dp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.552"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/S_logo"
        app:layout_constraintVertical_bias="0.968" />
    </androidx.constraintlayout.widget.ConstraintLayout>

```



### activity\_sign\_up.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=".SignUp">
    <TextView
        android:id="@+id/S_logo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:fontFamily="@font/kavoon"
        android:text="S"

```



```

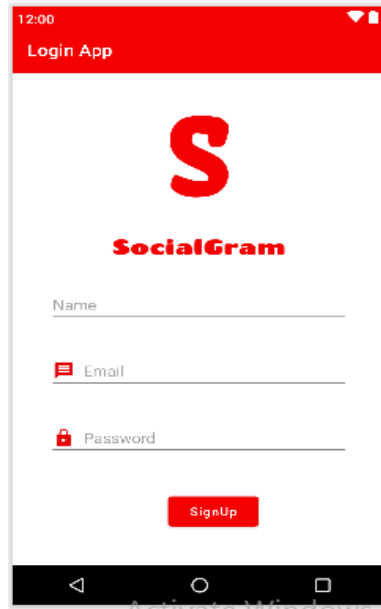
        android:textColor="#F40000"
        android:textSize="130sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.003" />
<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="12dp"
    android:fontFamily="@font/chango"
    android:text="SocialGram"
    android:textColor="#F40000"
    android:textSize="25sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.496"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/S_logo"
    app:layout_constraintVertical_bias="0.0" />
<EditText
    android:id="@+id/name"
    android:layout_width="330dp"
    android:layout_height="45dp"
    android:hint="Name"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.493"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.469" />
<EditText
    android:id="@+id/email"
    android:layout_width="330dp"
    android:layout_height="45dp"
    android:drawableLeft="@drawable/email_img"
    android:drawablePadding="10dp"
    android:ems="10"
    android:hint="Email"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"

```

```

        app:layout_constraintHorizontal_bias="0.493"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.614" />
<EditText
    android:id="@+id/password"
    android:layout_width="330dp"
    android:layout_height="45dp"
    android:drawableLeft="@drawable/password_img"
    android:drawablePadding="10dp"
    android:ems="10"
    android:hint="Password"
    android:inputType="textPersonName"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.493"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.761" />
<Button
    android:id="@+id/signUp"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:text="SignUp"
    android:textAllCaps="false"
    app:backgroundTint="#F40000"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.549"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.924" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



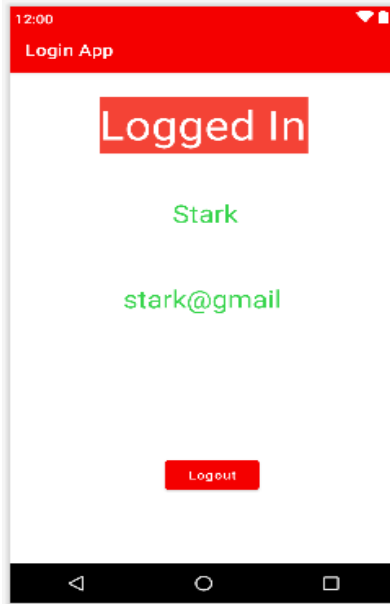
### activity\_logged\_in.xml

```
<?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=".LoggedIn">
    <TextView
        android:id="@+id/textView"
        android:layout_width="222dp"
        android:layout_height="70dp"
        android:layout_marginTop="30dp"
        android:background="#F44336"
        android:text="Logged In"
        android:textColor="#FFFFFF"
        android:textSize="50sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.0" />
    <TextView
        android:id="@+id/name"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Stark"
        android:textColor="#38D54D"
        android:textSize="30sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.506"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.271" />
<TextView
    android:id="@+id/email"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="stark@gmail"
    android:textColor="#38D54D"
    android:textSize="30sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.496"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.457" />
<Button
    android:id="@+id/logout"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:text="Logout"
    android:textAllCaps="false"
    app:backgroundTint="#F40000"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.53"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.847" />
</androidx.constraintlayout.widget.ConstraintLayout>

```



### **MainActivity.kt**

```
package com.example.loginapp
```

```
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import android.widget.Toast
import com.google.firebase.auth.FirebaseAuth

class MainActivity : AppCompatActivity() {

    private lateinit var auth: FirebaseAuth

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

        auth = FirebaseAuth.getInstance()
        var email: EditText = findViewById(R.id.email)
        var password: EditText = findViewById(R.id.password)
        var login: Button = findViewById(R.id.login)
        var signUp: TextView = findViewById(R.id.signUp)
```

```

login.setOnClickListener{
    auth.signInWithEmailAndPassword(email.text.toString(), password.text.toString())
        .addOnCompleteListener(this) { task ->
            if (task.isSuccessful) {
                Toast.makeText(this, "Logged In!", Toast.LENGTH_LONG).show()
                var intent = Intent(this, LoggedIn::class.java)
                intent.putExtra("Email",email.text.toString())
                startActivity(intent)
                finish()
            }
            else {
                Toast.makeText(this, "Email or Password in Incorrect!",
                    Toast.LENGTH_LONG).show()
            }
        }
    }

    signUp.setOnClickListener {
        var intent = Intent(this, SignUp::class.java)
        startActivity(intent)
    }
}
}

```

### **SignUp.kt**

```

package com.example.loginapp
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.Toast
import com.google.firebase.auth.FirebaseAuth
import com.google.firebase.firestore.FirebaseFirestore
class SignUp : AppCompatActivity() {

    lateinit var name: EditText
    lateinit var email: EditText
    lateinit var password: EditText
    lateinit var signUp: Button

    lateinit var auth: FirebaseAuth
    lateinit var db: FirebaseFirestore

```

```

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

    auth = FirebaseAuth.getInstance()
    db = FirebaseFirestore.getInstance()

    name = findViewById(R.id.name)
    email = findViewById(R.id.email)
    password = findViewById(R.id.password)
    signUp = findViewById(R.id.signUp)

    signUp.setOnClickListener{

        var user = hashMapOf(
            "Name" to name.text.toString(),
            "Email" to email.text.toString(),
        )

        val USERS = db.collection("USERS")

        val query = USERS.whereEqualTo("Email",
            email.text.toString()).get().addOnSuccessListener{ tasks->
            if(tasks.isEmpty){
                auth.createUserWithEmailAndPassword(email.text.toString(),
                    password.text.toString()).addOnCompleteListener(this) { task->
                    if (task.isSuccessful){
                        USERS.document(email.text.toString()).set(user)
                        Toast.makeText(this,"User Created Successfully!",
                            Toast.LENGTH_LONG).show()
                    }
                    else{
                        Toast.makeText(this,"Register Failed!",Toast.LENGTH_LONG).show()
                    }
                }
            }
            else{
                Toast.makeText(this,"User Already Registered!",Toast.LENGTH_LONG).show()
            }
        }
    }
}

```

### LoggedIn.kt

```
package com.example.loginapp

import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
import android.widget.TextView
import com.google.firebase.firestore.FirebaseFirestore

class LoggedIn : AppCompatActivity() {
    lateinit var db: FirebaseFirestore

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

        db = FirebaseFirestore.getInstance()
        var email = intent.getStringExtra("Email")
        var Name: TextView = findViewById(R.id.name)
        var Email: TextView = findViewById(R.id.email)
        var logout: Button = findViewById(R.id.logout)

        db.collection("USERS").document(email!!).get().addOnSuccessListener {
            task->
            Name.text = task.get("Name").toString()
            Email.text = task.get("Email").toString()
        }

        logout.setOnClickListener{
            var intent = Intent(this, MainActivity::class.java)
            startActivity(intent)
        }
    }
}
```



## Calculator App

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:orientation="vertical"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.0"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.27">
        <EditText
            android:id="@+id/expression"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@color/white"
            android:layout_gravity="end"
            android:clickable="false"
            android:focusable="false"
            android:fontFamily="sans-serif-medium"
            android:scrollHorizontally="true"
            android:singleLine="true"
            android:text="0"
            android:textAlignment="textEnd"
            android:textColor="#000000"
            android:textSize="60dp"
            android:textStyle="bold" />
        <EditText
            android:id="@+id/result"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="end"
            android:background="@color/white"
```

```

        android:clickable="false"
        android:focusable="false"
        android:fontFamily="sans-serif-medium"
        android:scrollHorizontally="true"
        android:singleLine="true"
        android:text=""
        android:textAlignment="textEnd"
        android:textColor="#75000000"
        android:textSize="35dp"
        android:textStyle="bold" />
<View
    android:id="@+id/divider"
    android:layout_width="match_parent"
    android:layout_height="2dp"
    android:background="#4F000000" />
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="320dp"
    android:orientation="horizontal"
    android:background="@color/black"
    android:layout_marginTop="250dp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.877">
    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:layout_weight="1">
        <android.widget.Button
            android:id="@+id/BtnC"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="C"
            android:layout_marginTop="10dp"
            android:gravity="center"
            android:background="@color/black"
            android:textColor="@color/dBlue"
            android:textSize="40dp"

```

```

        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="7"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="4"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="1"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn00"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="00"

```

```

        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/white"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
</LinearLayout>

```

```

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_weight="1">
    <ImageView
        android:id="@+id/BtnBack"
        android:layout_width="35dp"
        android:layout_height="35dp"
        android:layout_marginTop="25dp"
        android:gravity="center"
        android:layout_marginLeft="25dp"
        android:src="@drawable/backspace"
        android:background="@color/black"
        android:textColor="@color/dBlue"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
    <android.widget.Button
        android:id="@+id/Btn8"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="8"
        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/white"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
    <android.widget.Button
        android:id="@+id/Btn5"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="5"

```

```

        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/white"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="2"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn0"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="0"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
</LinearLayout>

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_weight="1">
    <android.widget.Button
        android:id="@+id/BtnPercentage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="%"
        android:layout_marginTop="15dp"
        android:gravity="center"

```

```

        android:background="@color/black"
        android:textColor="@color/dBlue"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="9"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="6"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/Btn3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:text="3"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/white"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/BtnDot"
    android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:text="."
        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/white"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
</LinearLayout>

```

```

<LinearLayout
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical"
    android:layout_weight="1">
    <android.widget.Button
        android:id="@+id/BtnDivide"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="÷"
        android:layout_marginTop="15dp"
        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/dBlue"
        android:textSize="40dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
    <android.widget.Button
        android:id="@+id/BtnMultiply"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="17dp"
        android:text="x"
        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/dBlue"
        android:textSize="30dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
    <android.widget.Button
        android:id="@+id/BtnMinus"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:text="-"
        android:gravity="center"
        android:background="@color/black"
        android:textColor="@color/dBlue"
        android:textSize="50dp"
        android:textStyle="bold"
        android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/BtnPlus"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="+"
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/dBlue"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
<android.widget.Button
    android:id="@+id/BtnEqual"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:layout_marginBottom="10dp"
    android:text="="
    android:gravity="center"
    android:background="@color/black"
    android:textColor="@color/dBlue"
    android:textSize="40dp"
    android:textStyle="bold"
    android:fontFamily="sans-serif"/>
</LinearLayout>
</LinearLayout>
</androidx.constraintlayout.widget.ConstraintLayout>

```





### **MainActivity.kt**

```
package com.example.calculatorapp
```

```
import android.graphics.Color
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.text.method.ScrollingMovementMethod
import android.widget.Button
import android.widget.EditText
import android.widget.ImageView
import android.widget.TextView
import javax.script.ScriptEngine
import javax.script.ScriptEngineManager
```

```
class MainActivity : AppCompatActivity() {
```

```
    lateinit var expression: TextView
    lateinit var result: TextView
```

```
    lateinit var BtnC: Button
    lateinit var Btn7: Button
    lateinit var Btn4: Button
    lateinit var Btn1: Button
    lateinit var Btn00: Button
```

```
lateinit var BtnBack: ImageView
lateinit var Btn8: Button
lateinit var Btn5: Button
lateinit var Btn2: Button
lateinit var Btn0: Button
```

```
lateinit var BtnPercentage: Button
lateinit var Btn9: Button
lateinit var Btn6: Button
lateinit var Btn3: Button
lateinit var BtnDot: Button
```

```
lateinit var BtnDivide: Button
lateinit var BtnMultiply: Button
lateinit var BtnPlus: Button
lateinit var BtnMinus: Button
lateinit var BtnEqual: Button
```

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

```
    expression = findViewById(R.id.expression)
    result = findViewById(R.id.result)
```

```
    BtnC = findViewById(R.id.BtnC)
    Btn7 = findViewById(R.id.Btn7)
    Btn4 = findViewById(R.id.Btn4)
    Btn1 = findViewById(R.id.Btn1)
    Btn00 = findViewById(R.id.Btn00)
```

```
    BtnBack = findViewById(R.id.BtnBack)
    Btn8 = findViewById(R.id.Btn8)
    Btn5 = findViewById(R.id.Btn5)
    Btn2 = findViewById(R.id.Btn2)
    Btn0 = findViewById(R.id.Btn0)
```

```
    BtnPercentage = findViewById(R.id.BtnPercentage)
    Btn9 = findViewById(R.id.Btn9)
    Btn6 = findViewById(R.id.Btn6)
    Btn3 = findViewById(R.id.Btn3)
    BtnDot = findViewById(R.id.BtnDot)
```

```

BtnDivide = findViewById(R.id.BtnDivide)
BtnMultiply = findViewById(R.id.BtnMultiply)
BtnPlus = findViewById(R.id.BtnPlus)
BtnMinus = findViewById(R.id.BtnMinus)
BtnEqual = findViewById(R.id.BtnEqual)

expression.movementMethod = ScrollingMovementMethod()
expression.isActivated = true
expression.isPressed = true

var str: String

Btn00.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "00"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "00"
        expressionText(str)
        resultText()
    }
}

Btn1.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "1"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "1"
        expressionText(str)
        resultText()
    }
}

Btn4.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "4"
        expressionText(str)
        resultText()
    }
}

```

```

else{
    str = expression.text.toString() + "4"
    expressionText(str)
    resultText()
}
}

Btn7.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "7"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "7"
        expressionText(str)
        resultText()
    }
}

Btn8.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "8"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "8"
        expressionText(str)
        resultText()
    }
}

Btn5.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "5"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "5"
        expressionText(str)
        resultText()
    }
}

```

```
}
```

```
Btn2.setOnClickListener{  
    if (expression.text.toString().startsWith("0")){  
        str = expression.text.toString().replace("0","") + "2"  
        expressionText(str)  
        resultText()  
    }  
    else{  
        str = expression.text.toString() + "2"  
        expressionText(str)  
        resultText()  
    }  
}
```

```
Btn0.setOnClickListener{  
    if (expression.text.toString().startsWith("0")){  
        str = expression.text.toString().replace("0","") + "0"  
        expressionText(str)  
        resultText()  
    }  
    else{  
        str = expression.text.toString() + "0"  
        expressionText(str)  
        resultText()  
    }  
}
```

```
Btn9.setOnClickListener{  
    if (expression.text.toString().startsWith("0")){  
        str = expression.text.toString().replace("0","") + "9"  
        expressionText(str)  
        resultText()  
    }  
    else{  
        str = expression.text.toString() + "9"  
        expressionText(str)  
        resultText()  
    }  
}
```

```
Btn6.setOnClickListener{  
    if (expression.text.toString().startsWith("0")){  
        str = expression.text.toString().replace("0","") + "6"
```

```

        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "6"
        expressionText(str)
        resultText()
    }
}

Btn3.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "3"
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "3"
        expressionText(str)
        resultText()
    }
}

BtnDot.setOnClickListener{
    if (expression.text.toString().startsWith("0")){
        str = expression.text.toString().replace("0","") + "."
        expressionText(str)
        resultText()
    }
    else{
        str = expression.text.toString() + "."
        expressionText(str)
        resultText()
    }
}

BtnC.setOnClickListener{

    expressionText("0")
    resultText()
}

BtnBack.setOnClickListener{
    if (expression.text.toString().length > 0){

```

```

        var lastIndex = expression.text.toString().lastIndex
        str = expression.text.toString().substring(0,lastIndex)
        expressionText(str)
        resultText()
    }
    else{
        expressionText("0")
        resultText()
    }
}

BtnPercentage.setOnClickListener{
    if (expression.text.toString().endsWith("*") || expression.text.toString().endsWith("%")
    || expression.text.toString().endsWith("/") || expression.text.toString().endsWith("+") ||
    expression.text.toString().endsWith("-")){
        str = expression.text.toString()
        expressionText(str)
    }
    else{
        str = expression.text.toString() + "%"
        expressionText(str)
    }
}

BtnDivide.setOnClickListener{
    if (expression.text.toString().endsWith("*") || expression.text.toString().endsWith("%")
    || expression.text.toString().endsWith("/") || expression.text.toString().endsWith("+") ||
    expression.text.toString().endsWith("-")){
        str = expression.text.toString()
        expressionText(str)
    }
    else{
        str = expression.text.toString() + "/"
        expressionText(str)
    }
}

BtnMultiply.setOnClickListener{
    if (expression.text.toString().endsWith("*") || expression.text.toString().endsWith("%")
    || expression.text.toString().endsWith("/") || expression.text.toString().endsWith("+") ||
    expression.text.toString().endsWith("-")){
        str = expression.text.toString()
        expressionText(str)
    }
}

```

```

        else{
            str = expression.text.toString() + "*"
            expressionText(str)
        }
    }

    BtnMinus.setOnClickListener{
        if (expression.text.toString().endsWith("*") || expression.text.toString().endsWith("%")
        || expression.text.toString().endsWith("/") || expression.text.toString().endsWith("+") ||
        expression.text.toString().endsWith("-")){
            str = expression.text.toString()
            expressionText(str)
        }
        else{
            str = expression.text.toString() + "-"
            expressionText(str)
        }
    }

    BtnPlus.setOnClickListener{
        if (expression.text.toString().endsWith("*") || expression.text.toString().endsWith("%")
        || expression.text.toString().endsWith("/") || expression.text.toString().endsWith("+") ||
        expression.text.toString().endsWith("-")){
            str = expression.text.toString()
            expressionText(str)
        }
        else{
            str = expression.text.toString() + "+"
            expressionText(str)
        }
    }

    BtnEqual.setOnClickListener{
        expression.textSize = 35F
        expression.setTextColor(Color.parseColor("#75000000"))
        str = result.text.toString().replace("=", "")
        expression.text = str

        result.textSize = 60F
        result.setTextColor(Color.parseColor("#FF000000"))
        result.text = result.text.toString()
    }
}

```



```

private fun expressionText(str:String){

    expression = findViewById(R.id.expression)
    expression.text = str

}

private fun resultText(){

    expression = findViewById(R.id.expression)
    var exp = expression.text.toString()

    result = findViewById(R.id.result)

    val engine:ScriptEngine = ScriptEngineManager().getEngineByName("rhino")

    try {
        val res = engine.eval(exp)
        if (res.toString().endsWith(".0")){
            result.text = "=" + res.toString().replace(".0", "")
        }
        else{
            result.text = "=" + res.toString()
        }
    }
    catch (e:Exception){
        expression.text = expression.text.toString()
        result.text = result.text.toString()
    }
}
}

```

## Multiplication Table App

### activity\_main.xml

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

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Multiplication Table App"
        android:textColor="#DF1616"
        android:textSize="34sp"
        android:textStyle="bold|italic"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.008" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Number :"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.079"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.161" />

    <EditText
        android:id="@+id/userNum"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:ems="10"
```

```

android:hint="Enter the Number"
android:inputType="number"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.87"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.153" />

```

```

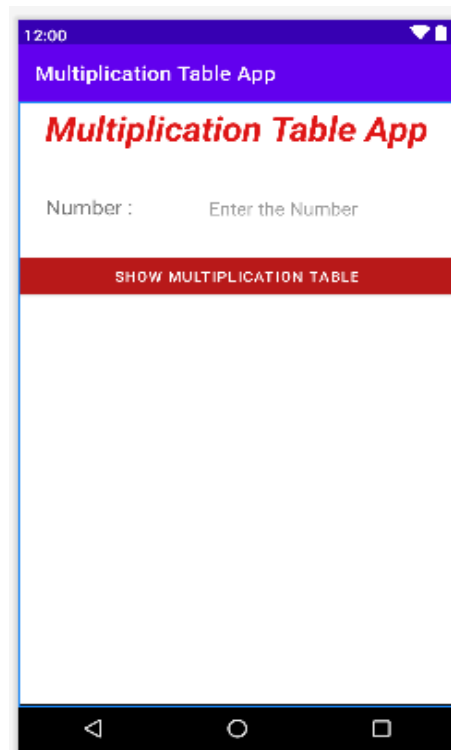
<Button
    android:id="@+id/showTable"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="Show Multiplication Table"
    app:backgroundTint="#B81919"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.273" />

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```

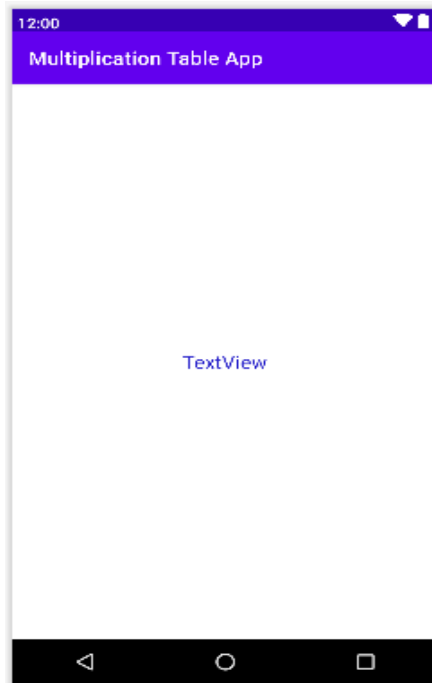


### activity\_table.xml

```
<?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=".Table">

    <TextView
        android:id="@+id/table"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="TextView"
        android:textColor="#241ECA"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.5"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>
```



### **MainActivity.kt**

```
package com.example.project1
```

```
import android.content.Intent
import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.Button
import android.widget.EditText
```

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

        /*
        Create an app that takes an input from the user that will be a number and
        show that multiplication table of that number in another activity after clicking the button.
        Hint -> Explicit Intent
        */

        val userNum: EditText = findViewById(R.id.userNum)
        val showTable: Button = findViewById(R.id.showTable)

        showTable.setOnClickListener {

            val number = userNum.text.toString()
            val num = number.toInt()

            val intent = Intent(this,Table::class.java)
            intent.putExtra("number",num)
            startActivity(intent)
        }
    }
}
```

### Table.kt

```
package com.example.project1

import androidx.appcompat.app.AppCompatActivity
import android.os.Bundle
import android.widget.TextView

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

        val bundle: Bundle? = intent.extras
        val number = bundle?.getInt("number")
        var str: String = ""
        val table: TextView = findViewById(R.id.table)

        if (number != null) {
            for (n in 1..10){
                str += "$number X $n = ${number*n}\n"
            }
            table.text = str
        }
    }
}
```