

Exp-2 (Implicit and explicit)

- MainActivity.java

```
package com.ad.implicit_explicit;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        EditText editText;
        Button button;

        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);

        button = findViewById(R.id.button);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                Intent intent = new Intent(MainActivity.this, Implicit.class);
                startActivity(intent);
                // Explicit Intent because jumping from one activity to another
            }
        });
    }
}
```

- Implicit.java

```
package com.ad.implicit_explicit;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
```

```

public class Implicit extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        EditText editText;
        Button button, but2;

        super.onCreate(savedInstanceState);
        setContentView(R.layout.implicit);

        button = findViewById(R.id.btn);
        editText = (EditText) findViewById(R.id.editText);
        but2 = findViewById(R.id.button2);

        but2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                // Explicit Intent because jumping from one activity to another
                Intent intent = new Intent(Implicit.this, MainActivity.class);
                startActivity(intent);
            }
        });

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                // Implicit Intent because action from another app component without specifying the exact component
                String url= editText.getText().toString();
                Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(url));
                startActivity(intent);
            }
        });
    }
}

```

- Implicit.xml

```

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

android:padding="10dp"
tools:context=".Implicit">

<Button

```

```
android:id="@+id/button2"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Go to Explicit Activity"
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="0.971" />
```

<EditText

```
android:id="@+id/editText"
android:layout_width="match_parent"
android:layout_height="50sp"
android:autofillHints=""
android:hint="Enter Data"
android:padding="10dp"
android:background="@drawable/edit_back"
app:layout_constraintBottom_toTopOf="@+id/btn"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/textView"
app:layout_constraintVertical_bias="0.5" />
```

<Button

```
android:id="@+id/btn"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:onClick="search"
android:text="Search"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/editText"
app:layout_constraintVertical_bias="0.5" />
```

<TextView

```
android:id="@+id/textView"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Implicit Intent"
android:fontFamily="sans-serif-light"
android:textSize="25dp"
android:textStyle="bold"
android:textColor="@color/black"
app:layout_constraintBottom_toTopOf="@+id/editText"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.5" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

- **Main.xml**

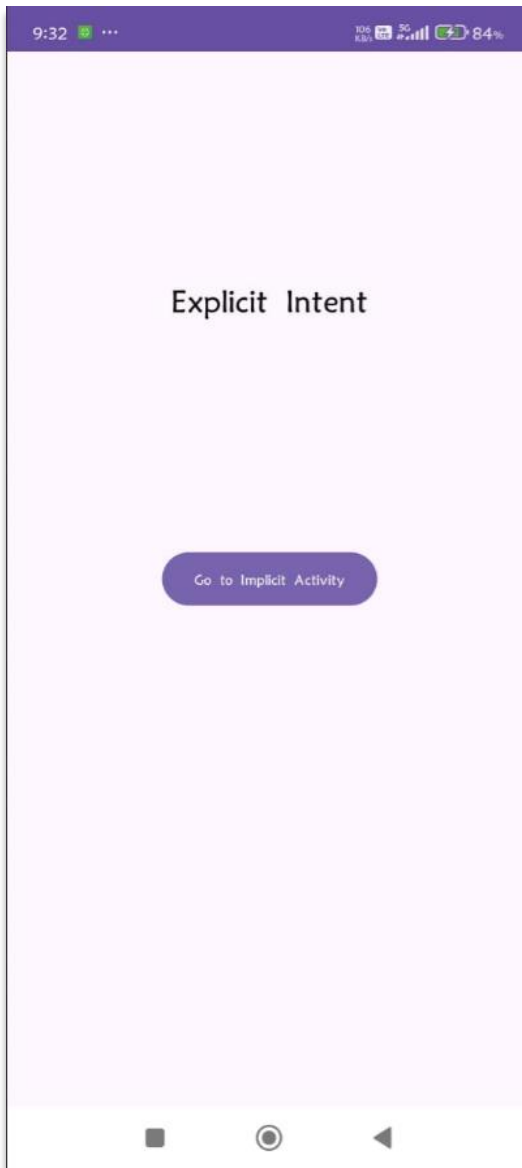
- ```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent">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

```
<TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif-light"
 android:text="Explicit Intent"
 android:textColor="@color/black"
 android:textSize="25dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />
```

```
<Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Go to Implicit Activity"
 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:layout_constraintVertical_bias="0.5" />
```

</androidx.constraintlayout.widget.ConstraintLayout>

- **Output**



## Exp-3 (two fragments)

### MainActivity.java

```
package com.ad.clg.activitybyfragment;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import com.ad.clg.R;

public class MainActivity extends AppCompatActivity {
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);

 // Add fragments dynamically
 FragmentManager fragmentManager = getSupportFragmentManager();
 FragmentTransaction fragmentTransaction = fragmentManager.beginTransaction();

 fragmentTransaction.replace(R.id.fragment1, new Fragment1());
 fragmentTransaction.replace(R.id.fragment2, new Fragment2());
 fragmentTransaction.replace(R.id.fragment3, new Fragment3());

 fragmentTransaction.commit();
 }
}
```

### Fragment1.java

```
package com.ad.clg.activitybyfragment;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment1 extends Fragment {
```

```
private TextView textView;
```

```
@Override
```

```
public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
```

```
 View frag2_view = inflater.inflate(R.layout.fragment_1, container, false);
```

```
 Button button = frag2_view.findViewById(R.id.button);
```

```
 textView = frag2_view.findViewById(R.id.textView);
```

```
 button.setOnClickListener(new View.OnClickListener() {
```

```
 @SuppressWarnings("SetTextI18n")
```

```
 @Override
```

```
 public void onClick(View view) {
```

```
 // Get Fragment2 instance from FragmentManager
```

```
 Fragment2 fragment2 = (Fragment2) getParentFragmentManager().findFragmentById(R.id.fragment2);
```

```
 if (fragment2 != null) {
```

```
 // Update text in Fragment2's TextView
```

```
 fragment2.updateText("Press Below button to change text of Fragment-3");
```

```
 } else {
```

```
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
```

```
 }
```

```
 }
```

```
 });
```

```
 return frag2_view;
```

```
}
```

```
// Method to update text in Fragment2
```

```
public void updateText(String newText) {
```

```
 if (textView != null) {
```

```
 textView.setText(newText);
```

```
 }
```

```
}
```

```
}
```

## Fragment2.java

```
package com.ad.clg.activitybyfragment;
```

```
import android.annotation.SuppressLint;
```

```
import android.os.Bundle;
```

```
import android.view.LayoutInflater;
```

```
import android.view.View;
```

```
import android.view.ViewGroup;
```

```
import android.widget.Button;
```

```
import android.widget.TextView;
```

```
import android.widget.Toast;
```

```

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment2 extends Fragment {

 private TextView textView;

 @Override
 public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
 View frag2_view = inflater.inflate(R.layout.fragment_2, container, false);
 Button button = frag2_view.findViewById(R.id.button);
 textView = frag2_view.findViewById(R.id.textView);

 button.setOnClickListener(new View.OnClickListener() {
 @SuppressWarnings("SetText18n")
 @Override
 public void onClick(View view) {
 // Get Fragment2 instance from FragmentManager
 Fragment3 fragment3 = (Fragment3) getParentFragmentManager().findFragmentById(R.id.fragment3);

 if (fragment3 != null) {
 // Update text in Fragment2's TextView
 fragment3.updateText("Press Below button to change text of Fragment-1");
 } else {
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
 }
 }
 });

 return frag2_view;
 }

 // Method to update text in Fragment2
 public void updateText(String newText) {
 if (textView != null) {
 textView.setText(newText);
 }
 }
}

```

### Fragment3.java

```

package com.ad.clg.activitybyfragment;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.LayoutInflater;

```



```

import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment3 extends Fragment {

 private TextView textView;

 @Override
 public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
 View frag2_view = inflater.inflate(R.layout.fragment_3, container, false);
 Button button = frag2_view.findViewById(R.id.button);
 textView = frag2_view.findViewById(R.id.textView);

 button.setOnClickListener(new View.OnClickListener() {
 @SuppressWarnings("SetTextI18n")
 @Override
 public void onClick(View view) {
 // Get Fragment2 instance from FragmentManager
 Fragment1 fragment1 = (Fragment1) getParentFragmentManager().findFragmentById(R.id.fragment3);

 if (fragment1 != null) {
 // Update text in Fragment2's TextView
 fragment1.updateText("Press Below button to change text of Fragment-2");
 } else {
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
 }
 }
 });

 return frag2_view;
 }

 // Method to update text in Fragment2
 public void updateText(String newText) {
 if (textView != null) {
 textView.setText(newText);
 }
 }
}

```

**main\_activity.xml**

```

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

 <fragment
 android:id="@+id/fragment1"
 android:name="com.ad.clg.activitybyfragment.Fragment1"
 android:layout_width="196dp"
 android:layout_height="246dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toTopOf="@+id/fragment3"
 app:layout_constraintEnd_toStartOf="@+id/fragment2"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <fragment
 android:id="@+id/fragment2"
 android:name="com.ad.clg.activitybyfragment.Fragment2"
 android:layout_width="0px"
 android:layout_height="246dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toTopOf="@+id/fragment3"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toEndOf="@+id/fragment1"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <fragment
 android:id="@+id/fragment3"
 android:name="com.ad.clg.activitybyfragment.Fragment3"
 android:layout_width="0px"
 android:layout_height="0dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/fragment1"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

```

<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:id="@+id/frag3"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:background="#F5F5DC"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

 <TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Press Below button to change text of Fragment-2"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Frag1"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

## fragment\_2.xml

```

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
 xmlns:app="http://schemas.android.com/apk/res-auto"
 android:id="@+id/frag2"
 xmlns:tools="http://schemas.android.com/tools"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:background="#E6E685"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

```

```

<TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Default"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

<Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Frag2"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### fragment\_3.xml

```

<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:id="@+id/frag3"
 android:layout_height="match_parent"
 android:background="#90CAF9"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

 <TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Default"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"

```

```

app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.5" />

```

```

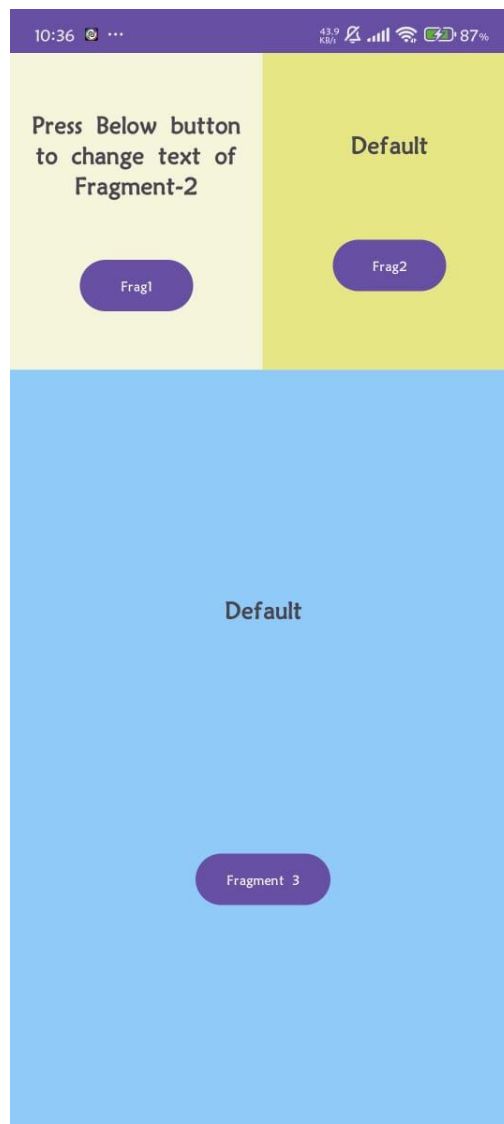
<Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Fragment 3"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```



## Exp-4 (home page using grid layout)

### - MainActivity.java

```
package com.ad.homepageusinggridlayout;

import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.widget.GridView;
import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.widget.GridView;

public class MainActivity extends Activity {
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);
 GridView gridview = (GridView) findViewById(R.id.gridview);
 gridview.setAdapter(new ImageAdapter(this));
 }
}
```

### - ImageAdapter.java

```
package com.ad.homepageusinggridlayout;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;

public class ImageAdapter extends BaseAdapter {
 private Context mContext;
 // Constructor
 public ImageAdapter(Context c) {
 mContext = c;
 }
 public int getCount() {
 return mThumbIds.length;
 }
 public Object getItem(int position) {
 return null;
 }
 public long getItemId(int position) {
 return 0;
 }
}
```

```

// create a new ImageView for each item referenced by the Adapter
public View getView(int position, View convertView, ViewGroup parent) {
 ImageView imageView;
 if (convertView == null) {
 imageView = new ImageView(mContext);
 imageView.setLayoutParams(new GridView.LayoutParams(500, 500));
 imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
 imageView.setPadding(100, 50, 50, 50);
 }
 else
 {
 imageView = (ImageView) convertView;
 }
 imageView.setImageResource(mThumbIds[position]);
 return imageView;
}
// Keep all Images in array
public Integer[] mThumbIds = {
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,
 R.drawable.apps, R.drawable.whatsapp,
 R.drawable.caps, R.drawable.camera,
 R.drawable.calc, R.drawable.capss,
 R.drawable.loca, R.drawable.location,
 R.drawable.baseline_location_on_24, R.drawable.voice,
 R.drawable.voiceass,
 // adding all the images
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,
 R.drawable.apps, R.drawable.whatsapp,
 R.drawable.caps, R.drawable.camera,
 R.drawable.calc, R.drawable.capss,
 R.drawable.loca, R.drawable.location,
 R.drawable.baseline_location_on_24, R.drawable.voice,
 R.drawable.voiceass,
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,

};
}

```

#### - 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">

 <GridView
 android:id="@+id/gridview"

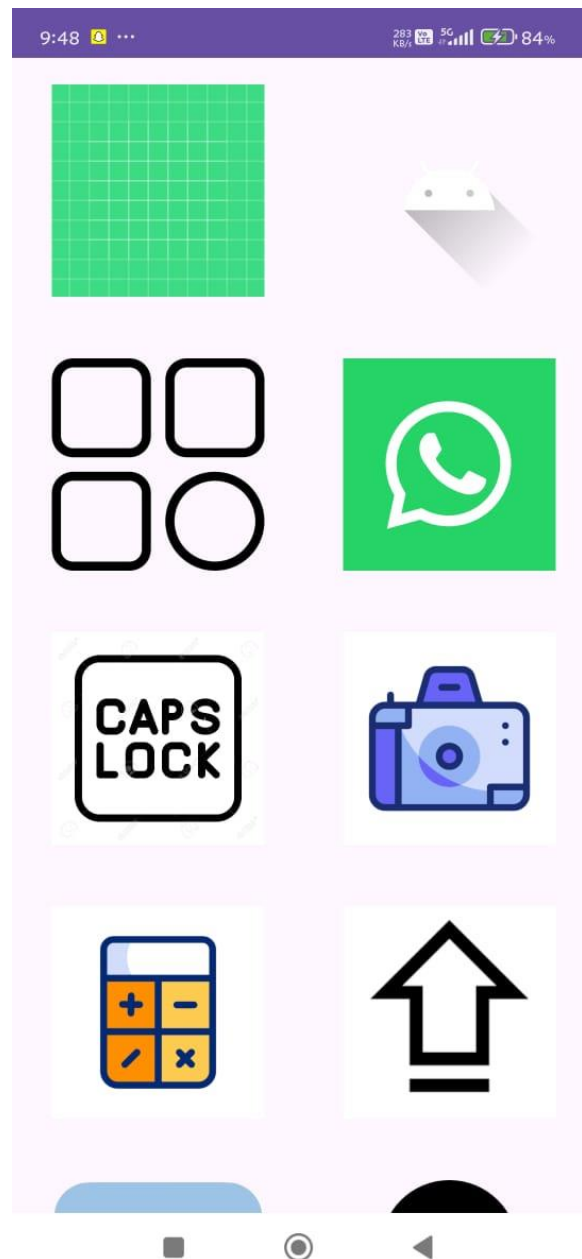
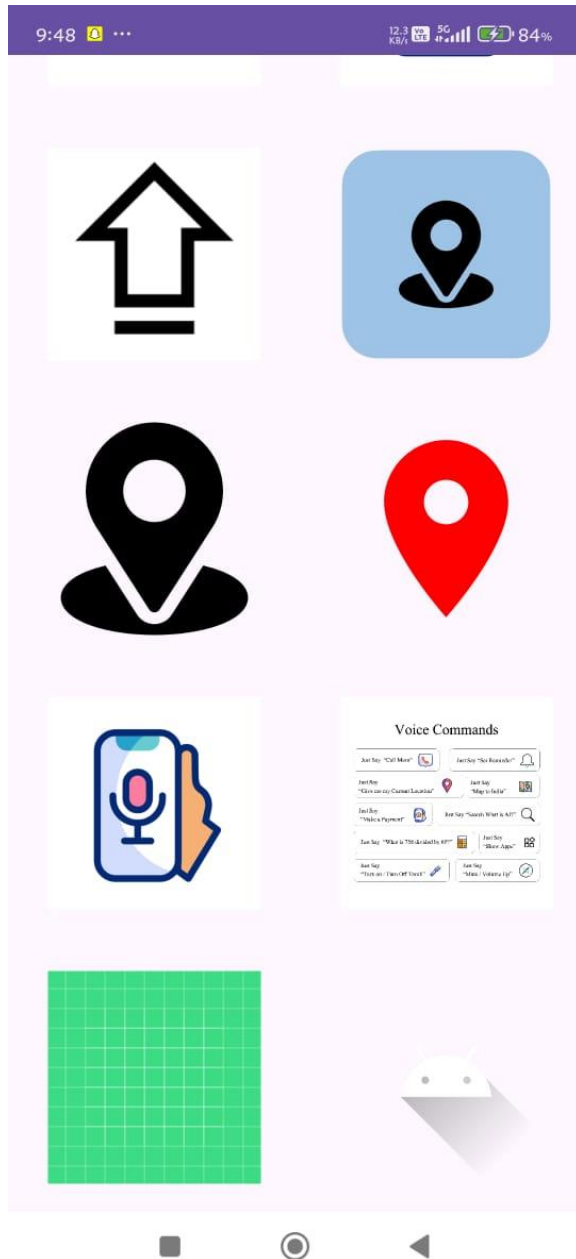
```

```

android:layout_width="match_parent"
android:layout_height="match_parent"
android:horizontalSpacing="6dp"
android:numColumns="2"
android:verticalSpacing="6dp" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

## - Output





## Exp-5 (Recycle View)

### - MainActivity.java

```
package com.ad.exp9;
import android.content.ClipData;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

 private RecyclerView recyclerView;
 private ItemAdapter adapter;
 private List<com.example.recyclerapp.Item> itemList;

 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);

 recyclerView = findViewById(R.id.recyclerView);
 recyclerView.setLayoutManager(new LinearLayoutManager(this));

 // Sample data
 itemList = new ArrayList<>();
 itemList.add(new com.example.recyclerapp.Item("Arijit Singh"));
 itemList.add(new com.example.recyclerapp.Item("Lata Mangeshkar"));
 itemList.add(new com.example.recyclerapp.Item("Shreya Ghoshal"));
 itemList.add(new com.example.recyclerapp.Item("KK"));
 itemList.add(new com.example.recyclerapp.Item("Sonu Nigam"));
 itemList.add(new com.example.recyclerapp.Item("Mohit Chauhan"));
 itemList.add(new com.example.recyclerapp.Item("Armaan Malik"));
 itemList.add(new com.example.recyclerapp.Item("Neha Kakkar"));

 adapter = new ItemAdapter(itemList);
 recyclerView.setAdapter(adapter);
 }
}
```

### - Item.java

```
package com.ad.exp9;
public class Item {
 private String title;
 public Item(String title) {
 this.title = title;
 }
}
```

```

 }
 public String getTitle() {
 return title;
 }
}

```

#### - **ItemAdapter.java**

```

package com.ad.exp9;
import android.content.ClipData;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;
import androidx.recyclerview.widget.RecyclerView;
import java.util.List;

public class ItemAdapter extends RecyclerView.Adapter<ItemAdapter.ViewHolder> {

 private List<com.example.recyclerapp.Item> itemList;

 public ItemAdapter(List<com.example.recyclerapp.Item> itemList) {
 this.itemList = itemList;
 }

 public static class ViewHolder extends RecyclerView.ViewHolder {
 public TextView textViewTitle;

 public ViewHolder(View itemView) {
 super(itemView);
 textViewTitle = itemView.findViewById(R.id.textViewTitle);
 }
 }

 @Override
 public ItemAdapter.ViewHolder onCreateViewHolder(ViewGroup parent, int viewType) {
 View v = LayoutInflater.from(parent.getContext()).inflate(R.layout.item_layout, parent, false);
 return new ViewHolder(v);
 }

 @Override
 public void onBindViewHolder(ItemAdapter.ViewHolder holder, int position) {
 com.example.recyclerapp.Item item = itemList.get(position);
 holder.textViewTitle.setText(item.getTitle());
 }

 @Override
 public int getItemCount() {
 return itemList.size();
 }
}

```

```
}
}
```

- Item\_layput.xml

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.cardview.widget.CardView xmlns:android="http://schemas.android.com/apk/res/android"
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:layout_margin="8dp"
 android:elevation="4dp"
 android:padding="16dp">

 <TextView
 android:id="@+id/textViewTitle"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Sample Item"
 android:textSize="18sp"
 android:textColor="#000" />
</androidx.cardview.widget.CardView>
```

- **output**



## Exp-6 (Webview)

### - MainActivity.java

```
package com.example.webviewapp;

import android.os.Bundle;
import android.webkit.WebSettings;
import android.webkit.WebView;
import android.webkit.WebViewClient;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

 WebView myWebView;

 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);

 setContentView(R.layout.activity_main);

 myWebView = findViewById(R.id.myWebView);

 // Enable JavaScript
 WebSettings webSettings = myWebView.getSettings();
 webSettings.setJavaScriptEnabled(true);

 // Load your website
 myWebView.loadUrl("https://www.example.com");

 // Open links in the same WebView
 myWebView.setWebViewClient(new WebViewClient());
 }

 @Override
```

```
public void onBackPressed() {
 if (myWebView.canGoBack()) {
 myWebView.goBack();
 } else {
 super.onBackPressed();
 }
}
}
```

- **Activity\_main.xml**

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

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
 android:layout_width="match_parent"
 android:layout_height="match_parent">

 <WebView
 android:id="@+id/myWebView"
 android:layout_width="match_parent"
 android:layout_height="match_parent" />

</RelativeLayout>
```

- **Output**

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## Exp-8 (Image slider)

### - MainActivity.java

```
package com.ad.homepageusinggridlayout;

import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.widget.GridView;
import android.os.Bundle;
import android.app.Activity;
import android.view.Menu;
import android.widget.GridView;

public class MainActivity extends Activity {
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);
 GridView gridview = (GridView) findViewById(R.id.gridview);
 gridview.setAdapter(new ImageAdapter(this));
 }
}
```

### - ImageAdapter.java

```
package com.ad.homepageusinggridlayout;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;

public class ImageAdapter extends BaseAdapter {
 private Context mContext;
 // Constructor
 public ImageAdapter(Context c) {
 mContext = c;
 }
 public int getCount() {
 return mThumbIds.length;
 }
 public Object getItem(int position) {
 return null;
 }
 public long getItemId(int position) {
 return 0;
 }
}
```

```

// create a new ImageView for each item referenced by the Adapter
public View getView(int position, View convertView, ViewGroup parent) {
 ImageView imageView;
 if (convertView == null) {
 imageView = new ImageView(mContext);
 imageView.setLayoutParams(new GridView.LayoutParams(500, 500));
 imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
 imageView.setPadding(100, 50, 50, 50);
 }
 else
 {
 imageView = (ImageView) convertView;
 }
 imageView.setImageResource(mThumbIds[position]);
 return imageView;
}
// Keep all Images in array
public Integer[] mThumbIds = {
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,
 R.drawable.apps, R.drawable.whatsapp,
 R.drawable.caps, R.drawable.camera,
 R.drawable.calc, R.drawable.capss,
 R.drawable.loca, R.drawable.location,
 R.drawable.baseline_location_on_24, R.drawable.voice,
 R.drawable.voiceass,
 // adding all the images
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,
 R.drawable.apps, R.drawable.whatsapp,
 R.drawable.caps, R.drawable.camera,
 R.drawable.calc, R.drawable.capss,
 R.drawable.loca, R.drawable.location,
 R.drawable.baseline_location_on_24, R.drawable.voice,
 R.drawable.voiceass,
 R.drawable.ic_launcher_background, R.drawable.ic_launcher_foreground,
};
}

```

#### - 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">

 <GridView
 android:id="@+id/gridview"

```

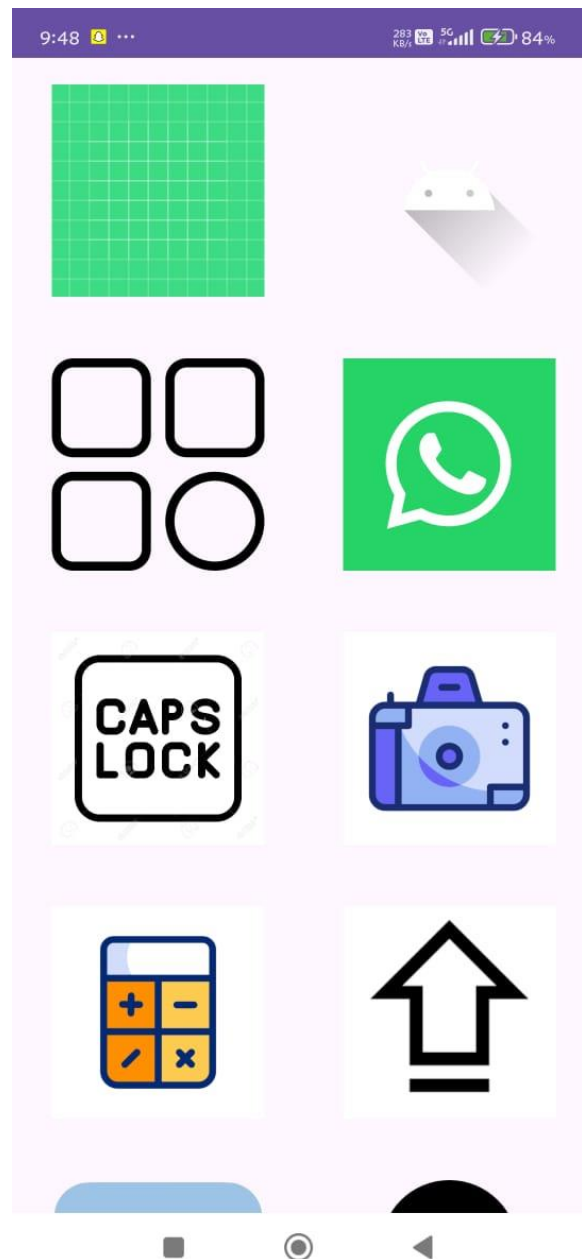
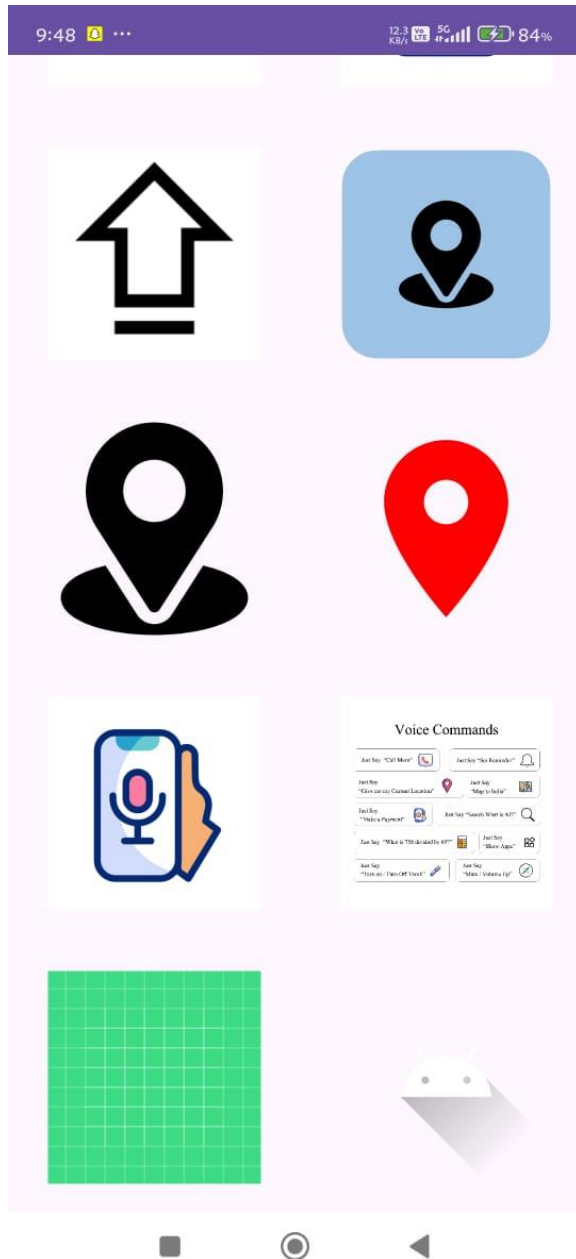


```

android:layout_width="match_parent"
android:layout_height="match_parent"
android:horizontalSpacing="6dp"
android:numColumns="2"
android:verticalSpacing="6dp" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

## - Output



## Exp-7 (fragments)

### MainActivity.java

```
package com.ad.clg.activitybyfragment;

import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import androidx.fragment.app.FragmentManager;
import androidx.fragment.app.FragmentTransaction;

import com.ad.clg.R;

public class MainActivity extends AppCompatActivity {
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_main);

 // Add fragments dynamically
 FragmentManager fragmentManager = getSupportFragmentManager();
 FragmentTransaction fragmentTransaction = fragmentManager.beginTransaction();

 fragmentTransaction.replace(R.id.fragment1, new Fragment1());
 fragmentTransaction.replace(R.id.fragment2, new Fragment2());
 fragmentTransaction.replace(R.id.fragment3, new Fragment3());

 fragmentTransaction.commit();
 }
}
```

### Fragment1.java

```
package com.ad.clg.activitybyfragment;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment1 extends Fragment {
```

```

private TextView textView;

@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
 View frag2_view = inflater.inflate(R.layout.fragment_1, container, false);
 Button button = frag2_view.findViewById(R.id.button);
 textView = frag2_view.findViewById(R.id.textView);

 button.setOnClickListener(new View.OnClickListener() {
 @SuppressWarnings("SetTextI18n")
 @Override
 public void onClick(View view) {
 // Get Fragment2 instance from FragmentManager
 Fragment2 fragment2 = (Fragment2) getParentFragmentManager().findFragmentById(R.id.fragment2);

 if (fragment2 != null) {
 // Update text in Fragment2's TextView
 fragment2.updateText("Press Below button to change text of Fragment-3");
 } else {
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
 }
 }
 });

 return frag2_view;
}

// Method to update text in Fragment2
public void updateText(String newText) {
 if (textView != null) {
 textView.setText(newText);
 }
}
}

```

### Fragment2.java

```

package com.ad.clg.activitybyfragment;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

```

```

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment2 extends Fragment {

 private TextView textView;

 @Override
 public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
 View frag2_view = inflater.inflate(R.layout.fragment_2, container, false);
 Button button = frag2_view.findViewById(R.id.button);
 textView = frag2_view.findViewById(R.id.textView);

 button.setOnClickListener(new View.OnClickListener() {
 @SuppressWarnings("SetTextI18n")
 @Override
 public void onClick(View view) {
 // Get Fragment2 instance from FragmentManager
 Fragment3 fragment3 = (Fragment3) getParentFragmentManager().findFragmentById(R.id.fragment3);

 if (fragment3 != null) {
 // Update text in Fragment2's TextView
 fragment3.updateText("Press Below button to change text of Fragment-1");
 } else {
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
 }
 }
 });

 return frag2_view;
 }

 // Method to update text in Fragment2
 public void updateText(String newText) {
 if (textView != null) {
 textView.setText(newText);
 }
 }
}

```

### Fragment3.java

```

package com.ad.clg.activitybyfragment;

import android.annotation.SuppressLint;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;

```

```

import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;

import androidx.fragment.app.Fragment;

import com.ad.clg.R;

public class Fragment3 extends Fragment {

 private TextView textView;

 @Override
 public View onCreateView(LayoutInflater inflater, ViewGroup container,
 Bundle savedInstanceState) {
 View frag2_view = inflater.inflate(R.layout.fragment_3, container, false);
 Button button = frag2_view.findViewById(R.id.button);
 textView = frag2_view.findViewById(R.id.textView);

 button.setOnClickListener(new View.OnClickListener() {
 @SuppressWarnings("SetTextI18n")
 @Override
 public void onClick(View view) {
 // Get Fragment2 instance from FragmentManager
 Fragment1 fragment1 = (Fragment1) getParentFragmentManager().findFragmentById(R.id.fragment3);

 if (fragment1 != null) {
 // Update text in Fragment2's TextView
 fragment1.updateText("Press Below button to change text of Fragment-2");
 } else {
 Toast.makeText(getActivity(), "Fragment 3 is not available", Toast.LENGTH_SHORT).show();
 }
 }
 });

 return frag2_view;
 }

 // Method to update text in Fragment2
 public void updateText(String newText) {
 if (textView != null) {
 textView.setText(newText);
 }
 }
}

```

**main\_activity.xml**

```

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

 <fragment
 android:id="@+id/fragment1"
 android:name="com.ad.clg.activitybyfragment.Fragment1"
 android:layout_width="196dp"
 android:layout_height="246dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toTopOf="@+id/fragment3"
 app:layout_constraintEnd_toStartOf="@+id/fragment2"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <fragment
 android:id="@+id/fragment2"
 android:name="com.ad.clg.activitybyfragment.Fragment2"
 android:layout_width="0px"
 android:layout_height="246dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toTopOf="@+id/fragment3"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toEndOf="@+id/fragment1"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <fragment
 android:id="@+id/fragment3"
 android:name="com.ad.clg.activitybyfragment.Fragment3"
 android:layout_width="0px"
 android:layout_height="0dp"
 android:layout_weight="1"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/fragment1"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

## Fragment\_1.xml

```

<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:id="@+id/frag3"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:background="#F5F5DC"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

 <TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Press Below button to change text of Fragment-2"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

 <Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Frag1"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

## fragment\_2.xml

```

<androidx.constraintlayout.widget.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
 xmlns:app="http://schemas.android.com/apk/res-auto"
 android:id="@+id/frag2"
 xmlns:tools="http://schemas.android.com/tools"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:background="#E6E685"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

```

```

<TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Default"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toTopOf="parent"
 app:layout_constraintVertical_bias="0.5" />

<Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Frag2"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

### fragment\_3.xml

```

<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:id="@+id/frag3"
 android:layout_height="match_parent"
 android:background="#90CAF9"
 tools:context="com.ad.clg.activitybyfragment.Fragment1">

 <TextView
 android:id="@+id/textView"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:fontFamily="sans-serif"
 android:gravity="center"
 android:text="Default"
 android:textSize="20dp"
 android:textStyle="bold"
 app:layout_constraintBottom_toTopOf="@+id/button"
 app:layout_constraintEnd_toEndOf="parent"

```



```

app:layout_constraintHorizontal_bias="0.5"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.5" />

```

```

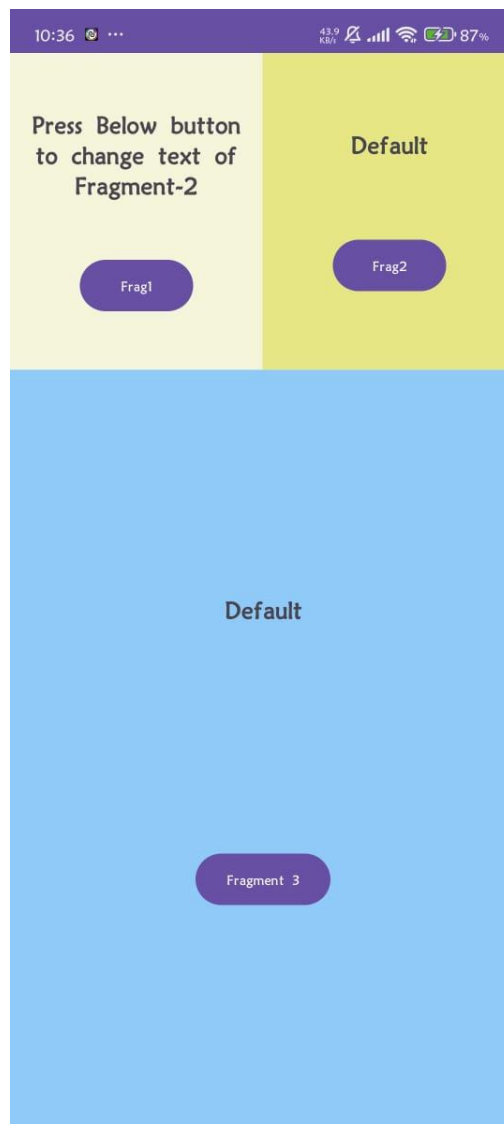
<Button
 android:id="@+id/button"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Fragment 3"
 app:layout_constraintBottom_toBottomOf="parent"
 app:layout_constraintEnd_toEndOf="parent"
 app:layout_constraintHorizontal_bias="0.5"
 app:layout_constraintStart_toStartOf="parent"
 app:layout_constraintTop_toBottomOf="@+id/textView"
 app:layout_constraintVertical_bias="0.5" />

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```



## Exp-9 (media player)

```
package com.vivssecure.family;

import android.annotation.SuppressLint;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.os.Handler;
import android.widget.Button;
import android.widget.SeekBar;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MusicPlayer extends AppCompatActivity {

 MediaPlayer mediaPlayer;
 Button playBtn, pauseBtn, stopBtn;
 SeekBar seekBar;
 TextView songTitle;

 Handler handler = new Handler();
 Runnable updateSeekBar;

 @SuppressWarnings("SetTextI18n")
 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.music_player);

 playBtn = findViewById(R.id.playBtn);
 pauseBtn = findViewById(R.id.pauseBtn);
 stopBtn = findViewById(R.id.stopBtn);
 seekBar = findViewById(R.id.seekBar);
 songTitle = findViewById(R.id.songTitle);

 // Set song name
 songTitle.setText("Song: Camila Cabello - Señorita");

 mediaPlayer = MediaPlayer.create(this, R.raw.song);
 seekBar.setMax(mediaPlayer.getDuration());

 // Update SeekBar periodically
 updateSeekBar = new Runnable() {
 @Override
 public void run() {
 if (mediaPlayer != null && mediaPlayer.isPlaying()) {
 seekBar.setProgress(mediaPlayer.getCurrentPosition());
 handler.postDelayed(this, 500);
 }
 }
 };
 }
};
```

```

playBtn.setOnClickListener(v -> {
 if (!mediaPlayer.isPlaying()) {
 mediaPlayer.start();
 handler.post(updateSeekBar);
 }
});

pauseBtn.setOnClickListener(v -> {
 if (mediaPlayer.isPlaying()) {
 mediaPlayer.pause();
 }
});

stopBtn.setOnClickListener(v -> {
 if (mediaPlayer != null) {
 mediaPlayer.stop();
 mediaPlayer.release();
 mediaPlayer = MediaPlayer.create(this, R.raw.song);
 seekBar.setProgress(0);
 }
});

// SeekBar change by user
seekBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
 boolean userTouching = false;

 @Override
 public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {
 if (fromUser && mediaPlayer != null) {
 mediaPlayer.seekTo(progress);
 }
 }

 @Override
 public void onStartTrackingTouch(SeekBar seekBar) {
 userTouching = true;
 }

 @Override
 public void onStopTrackingTouch(SeekBar seekBar) {
 userTouching = false;
 }
});
}

@Override
protected void onDestroy() {
 handler.removeCallbacks(updateSeekBar);
 if (mediaPlayer != null) {
 mediaPlayer.release();
 mediaPlayer = null;
 }
 super.onDestroy();
}

```

```
}
}
```

- **musicplayer.xml**

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
 xmlns:android="http://schemas.android.com/apk/res/android"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:gravity="center"
 android:orientation="vertical"
 android:padding="24dp">

 <TextView
 android:id="@+id/songTitle"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Song: Beautiful Melody"
 android:textSize="18sp"
 android:textStyle="bold"
 android:layout_marginBottom="20dp"/>

 <SeekBar
 android:id="@+id/seekBar"
 android:layout_width="match_parent"
 android:layout_height="wrap_content" />

 <LinearLayout
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:orientation="horizontal"
 android:layout_marginTop="24dp">

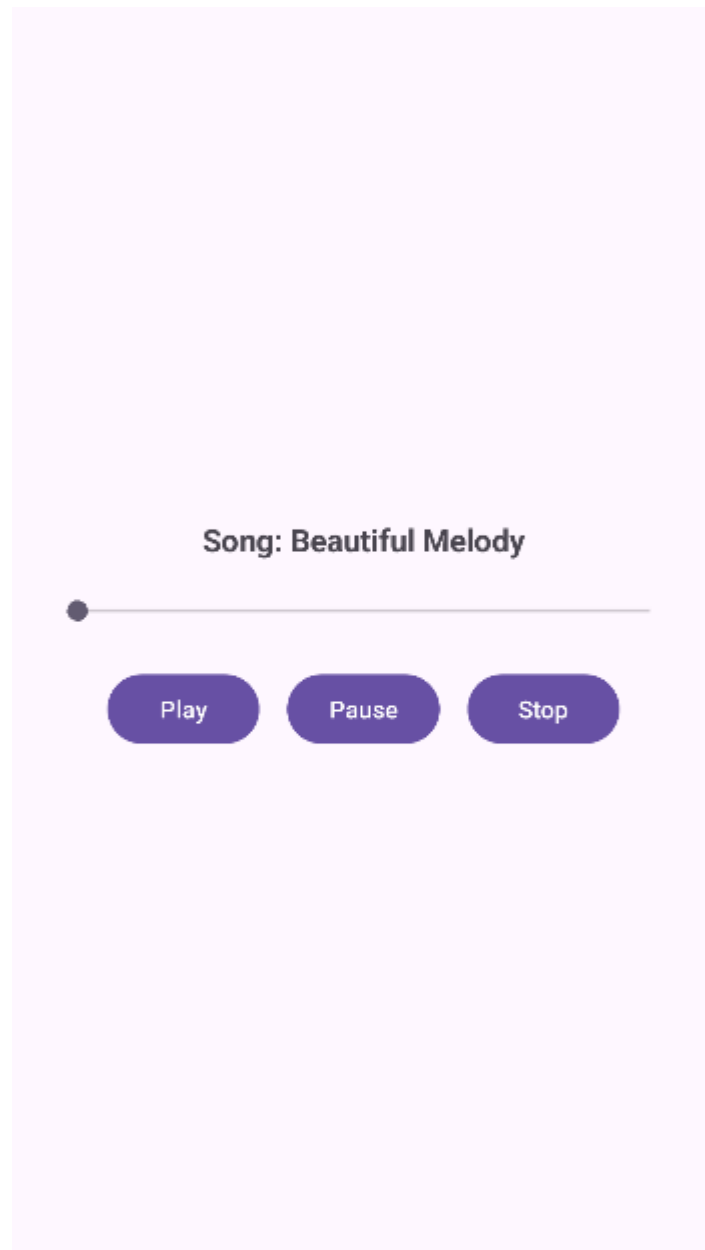
 <Button
 android:id="@+id/playBtn"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Play" />

 <Button
 android:id="@+id/pauseBtn"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Pause"
 android:layout_marginLeft="16dp" />

 <Button
 android:id="@+id/stopBtn"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Stop"
```

```
 android:layout_marginLeft="16dp" />
</LinearLayout>
</LinearLayout>
```

- **output**



## Exp-10 (google maps)

### - MainActivity.java

```
package com.example.mapsdemo;

import android.Manifest;
import android.content.pm.PackageManager;
import android.location.Location;
import android.os.Bundle;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

import com.google.android.gms.location.FusedLocationProviderClient;
import com.google.android.gms.location.LocationServices;
import com.google.android.gms.maps.CameraUpdateFactory;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

public class MapsActivity extends AppCompatActivity implements OnMapReadyCallback {

 private static final int LOCATION_PERMISSION_REQUEST_CODE = 1001;
 private GoogleMap mMap;
 private FusedLocationProviderClient fusedLocationClient;

 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.activity_maps);
 }
}
```

```

fusedLocationClient = LocationServices.getFusedLocationProviderClient(this);

SupportMapFragment mapFragment =
 (SupportMapFragment) getSupportFragmentManager().findFragmentById(R.id.map);

if (mapFragment != null) {
 mapFragment.getMapAsync(this);
}
}

```

@Override

```

public void onMapReady(@NonNull GoogleMap googleMap) {
 mMap = googleMap;
 enableMyLocation();
}

```

```

private void enableMyLocation() {
 if (ActivityCompat.checkSelfPermission(this, Manifest.permission.ACCESS_FINE_LOCATION)
 != PackageManager.PERMISSION_GRANTED) {

 ActivityCompat.requestPermissions(this,
 new String[]{Manifest.permission.ACCESS_FINE_LOCATION},
 LOCATION_PERMISSION_REQUEST_CODE);
 } else {
 mMap.setMyLocationEnabled(true);
 fusedLocationClient.getLastLocation()
 .addOnSuccessListener(this, location -> {
 if (location != null) {
 LatLng current = new LatLng(location.getLatitude(), location.getLongitude());
 mMap.addMarker(new MarkerOptions().position(current).title("You are here"));
 mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(current, 16f));
 }
 });
 }
}

```

@Override

```

public void onRequestPermissionsResult(int requestCode,

 @NonNull String[] permissions,

 @NonNull int[] grantResults) {

 if (requestCode == LOCATION_PERMISSION_REQUEST_CODE) {

 if (grantResults.length > 0 &&

 grantResults[0] == PackageManager.PERMISSION_GRANTED) {

 enableMyLocation();

 }

 }

}

```

#### - **Activity\_main.xml**

```

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

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

 android:id="@+id/map_container"

 android:layout_width="match_parent"

 android:layout_height="match_parent">

 <fragment

 android:id="@+id/map"

 android:name="com.google.android.gms.maps.SupportMapFragment"

 android:layout_width="match_parent"

 android:layout_height="match_parent" />

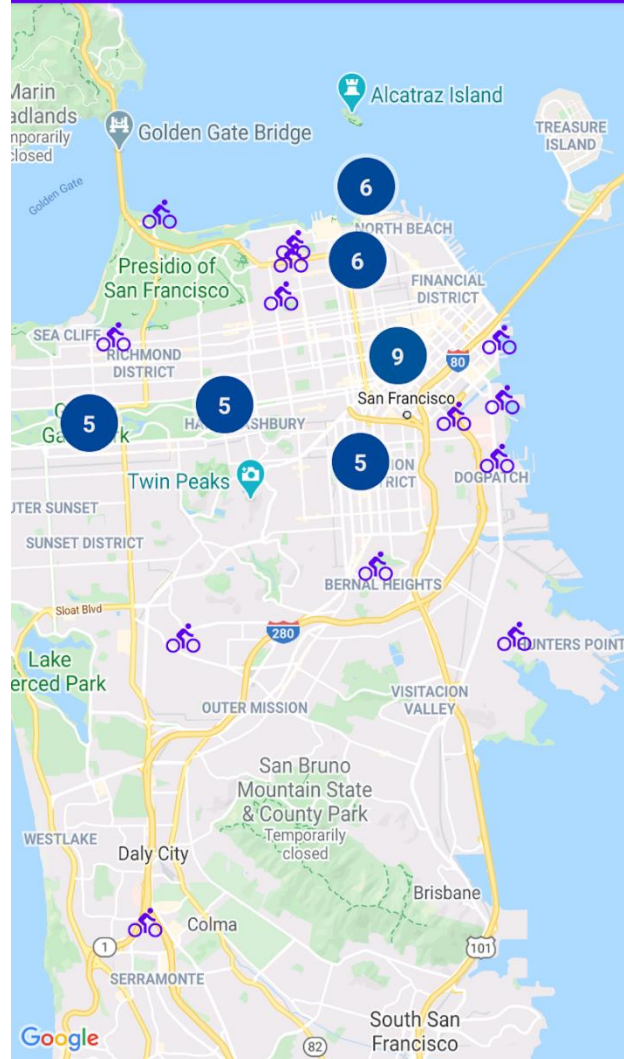
</FrameLayout>

```

#### - **output**



# BuildYourFirstMap



## Exp-11 (color picker)

### - Mainactivity.java

```
package com.example.colorpicker
```

```
import android.graphics.Color
```

```
import android.os.Bundle
```

```
import android.widget.SeekBar
```

```
import androidx.appcompat.app.AppCompatActivity
```

```
import com.example.colorpicker.databinding.ActivityMainBinding
```

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

```
 private lateinit var binding: ActivityMainBinding
```

```
 private var hsv = floatArrayOf(0f, 1f, 1f)
```

```
 private var alpha = 255
```

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

```
 super.onCreate(savedInstanceState)
```

```
 binding = ActivityMainBinding.inflate(layoutInflater)
```

```
 setContentView(binding.root)
```

```
 val colorWheel = binding.colorWheel
```

```
 val preview = binding.previewColor
```

```
 colorWheel.setOnColorChangeListener { hue, saturation ->
```

```
 hsv[0] = hue
```

```
 hsv[1] = saturation
```

```
 updateColor()
```

```
 }
```

```
 binding.alphaSeekBar.setOnSeekBarChangeListener(seekListener { value ->
```

```
 alpha = value
```

```
 updateColor()
```

```
 })
```

```
 binding.valueSeekBar.setOnSeekBarChangeListener(seekListener { value ->
```

```
 hsv[2] = value / 100f
```

```
 updateColor()
```

```
 })
```

```
}
```

```
private fun updateColor() {
```

```
 val color = Color.HSVToColor(alpha, hsv)
```

```
 binding.previewColor.setBackgroundColor(color)
```

```
}
```

```
private fun seekListener(onProgressChanged: (progress: Int) -> Unit) =
```

```
 object : SeekBar.OnSeekBarChangeListener {
```

```
 override fun onProgressChanged(sb: SeekBar?, progress: Int, fromUser: Boolean) {
```

```
 onProgressChanged(progress)
```

```
 }
```

```
 override fun onStartTrackingTouch(sb: SeekBar?) {}
```

```
 override fun onStopTrackingTouch(sb: SeekBar?) {}
```

```
 }
```

```
}
```

- Activity.xml

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

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

```
 android:id="@+id/rootLayout"
```

```
 android:layout_width="match_parent"
```

```
 android:layout_height="match_parent"
```

```
 android:padding="20dp">
```

```
<com.example.colorpicker.ColorWheelView
 android:id="@+id/colorWheel"
 android:layout_width="300dp"
 android:layout_height="300dp"
 android:layout_centerHorizontal="true"
 android:layout_marginTop="40dp" />
```

```
<SeekBar
 android:id="@+id/alphaSeekBar"
 android:layout_below="@id/colorWheel"
 android:layout_marginTop="20dp"
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:max="255"/>
```

```
<SeekBar
 android:id="@+id/valueSeekBar"
 android:layout_below="@id/alphaSeekBar"
 android:layout_marginTop="10dp"
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:max="100"/>
```

```
<View
 android:id="@+id/previewColor"
 android:layout_width="match_parent"
 android:layout_height="100dp"
 android:layout_below="@id/valueSeekBar"
 android:layout_marginTop="20dp"
 android:background="#FFFFFF"/>
```

</RelativeLayout>

- **Output**



## Exp-12 (calculator)

### - Mainactivity.java

```
package com.vivssecure.family;

import android.os.Bundle;
import android.view.View;
import android.widget.*;
import androidx.appcompat.app.AppCompatActivity;

public class MusicPlayer extends AppCompatActivity {

 EditText etNum1, etNum2;
 Button btnAdd, btnSub, btnMul, btnDiv;
 TextView tvResult;

 @Override
 protected void onCreate(Bundle savedInstanceState) {
 super.onCreate(savedInstanceState);
 setContentView(R.layout.music_player);

 etNum1 = findViewById(R.id.etNum1);
 etNum2 = findViewById(R.id.etNum2);
 btnAdd = findViewById(R.id.btnAdd);
 btnSub = findViewById(R.id.btnSub);
 btnMul = findViewById(R.id.btnMul);
 btnDiv = findViewById(R.id.btnDiv);
 tvResult = findViewById(R.id.tvResult);

 btnAdd.setOnClickListener(v -> calculate('+'));
 btnSub.setOnClickListener(v -> calculate('-'));
 btnMul.setOnClickListener(v -> calculate('*'));
 btnDiv.setOnClickListener(v -> calculate('/'));
 }

 private void calculate(char operator) {
 String input1 = etNum1.getText().toString();
 String input2 = etNum2.getText().toString();

 if (input1.isEmpty() || input2.isEmpty()) {
 Toast.makeText(this, "Please enter both numbers", Toast.LENGTH_SHORT).show();
 return;
 }

 double num1 = Double.parseDouble(input1);
 double num2 = Double.parseDouble(input2);
 double result = 0;

 switch (operator) {
 case '+': result = num1 + num2; break;
 case '-': result = num1 - num2; break;
 case '*': result = num1 * num2; break;
```

```

 case '/':
 if (num2 == 0) {
 tvResult.setText("Error: Division by zero");
 return;
 } else {
 result = num1 / num2;
 }
 break;
 }

 tvResult.setText("Result: " + result);
}
}

```

#### - Activity.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
 android:layout_width="match_parent"
 android:layout_height="match_parent"
 android:orientation="vertical"
 android:padding="24dp"
 android:gravity="center">

 <EditText
 android:id="@+id/etNum1"
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:hint="Enter first number"
 android:inputType="numberDecimal" />

 <EditText
 android:id="@+id/etNum2"
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:hint="Enter second number"
 android:inputType="numberDecimal"
 android:layout_marginTop="12dp" />

 <LinearLayout
 android:layout_width="match_parent"
 android:layout_height="wrap_content"
 android:orientation="horizontal"
 android:layout_marginTop="16dp"
 android:gravity="center">

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

 <Button
 android:id="@+id/btnSub"

```

```
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="-"
 android:layout_marginStart="12dp" />
```

```
<Button
 android:id="@+id/btnMul"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="x"
 android:layout_marginStart="12dp" />
```

```
<Button
 android:id="@+id/btnDiv"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="÷"
 android:layout_marginStart="12dp" />
```

```
</LinearLayout>
```

```
<TextView
 android:id="@+id/tvResult"
 android:layout_width="wrap_content"
 android:layout_height="wrap_content"
 android:text="Result:"
 android:textSize="20sp"
 android:layout_marginTop="20dp" />
```

```
</LinearLayout>
```



- output

