

## 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**

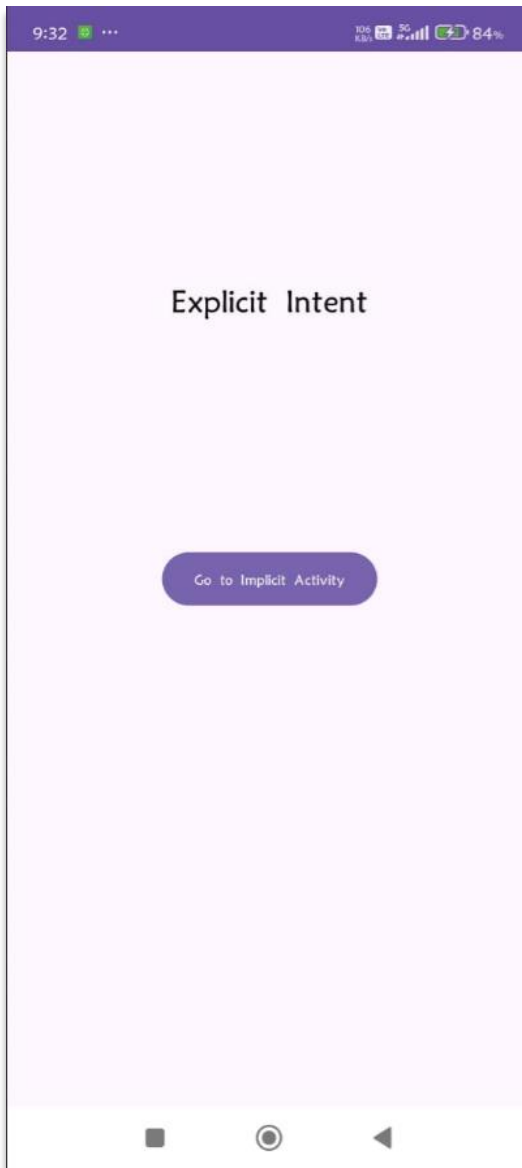
- ```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent">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

```
<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("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" />

```

```

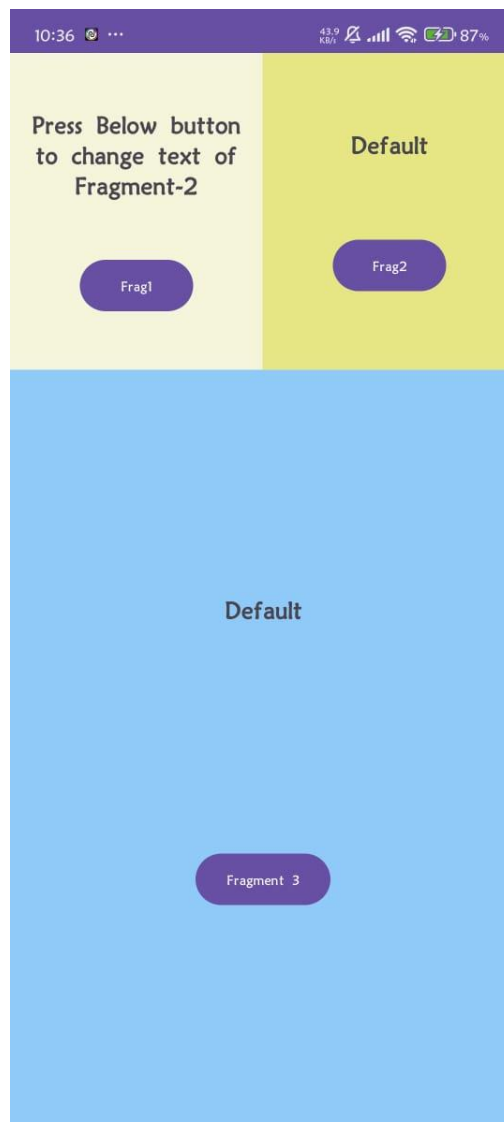
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment 3"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"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

```

```

</androidx.constraintlayout.widget.ConstraintLayout>

```



## Exp-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">

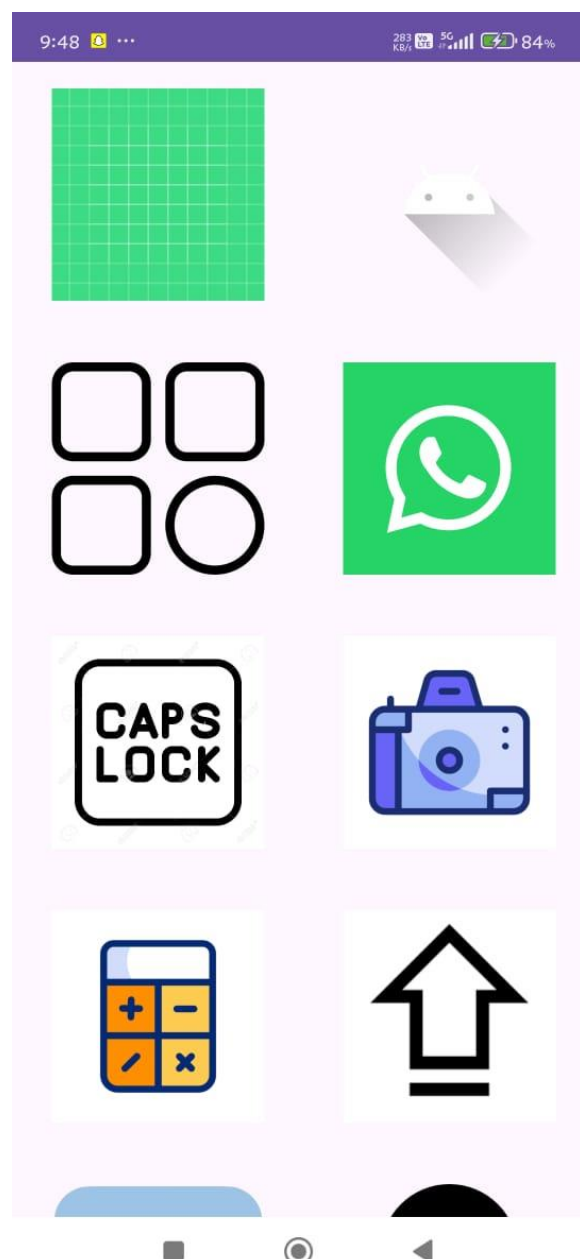
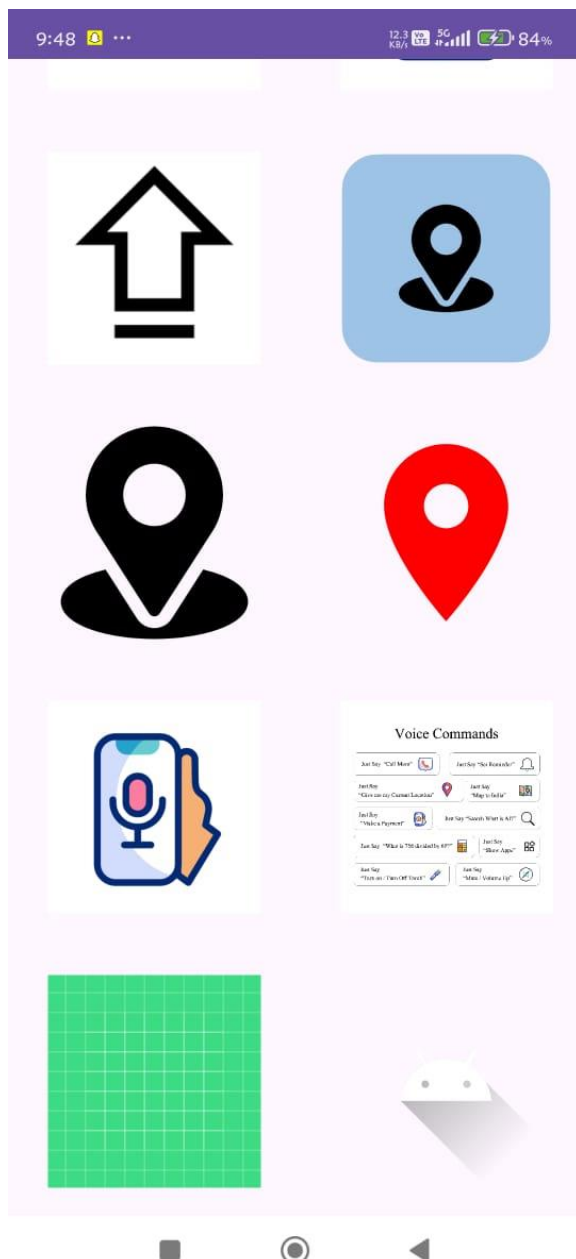
```

```

<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\_layout.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**

11:16

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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">

```

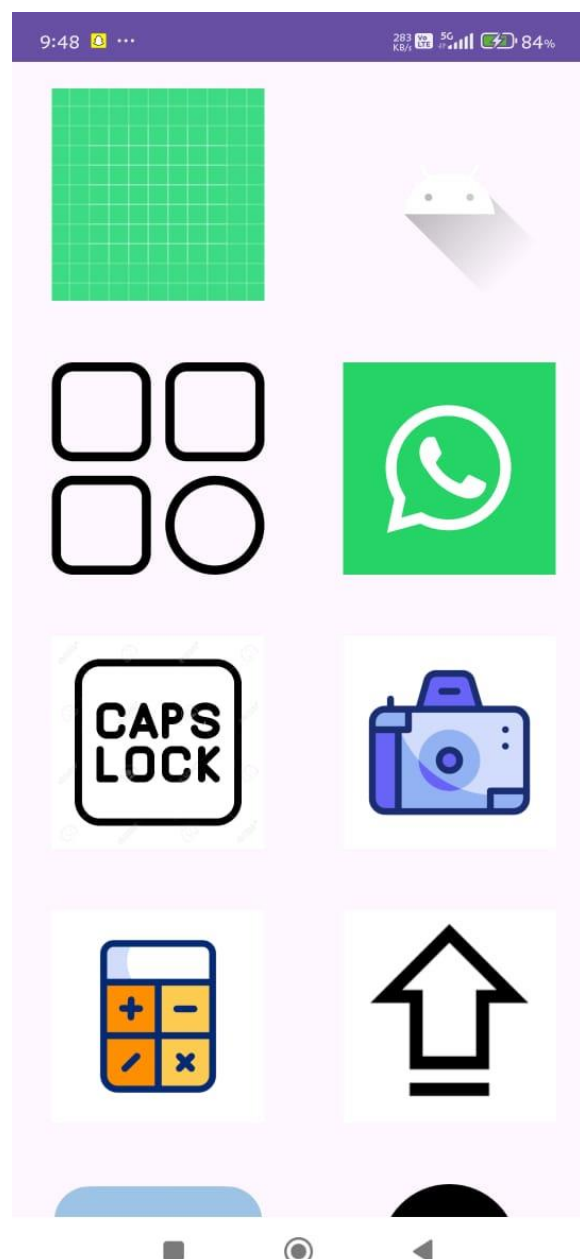
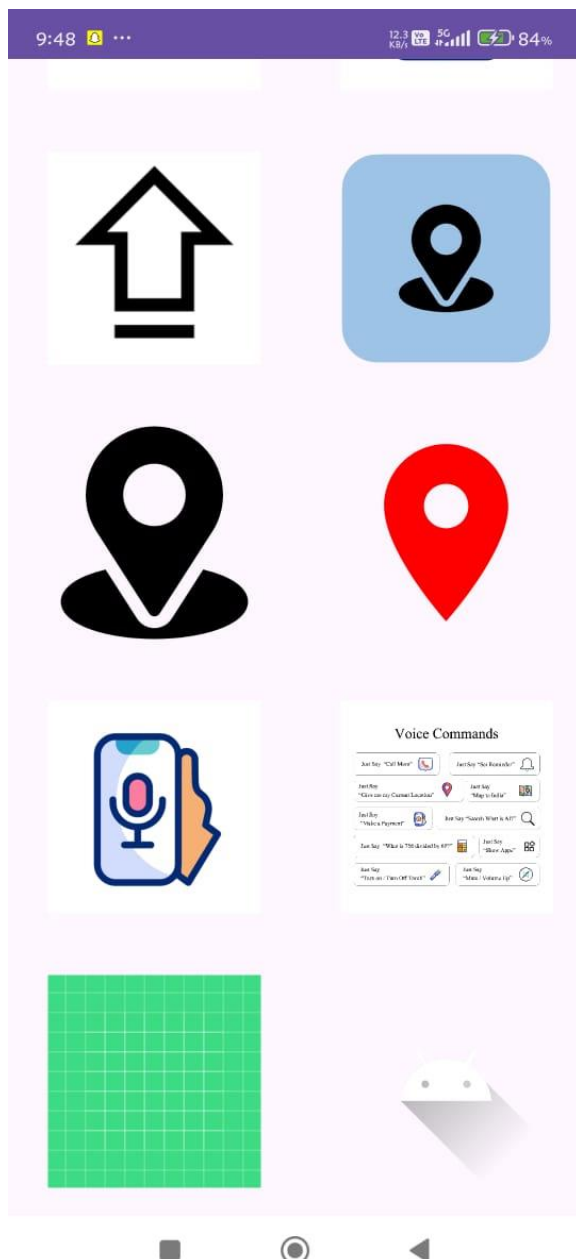


```

<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" />

```

```

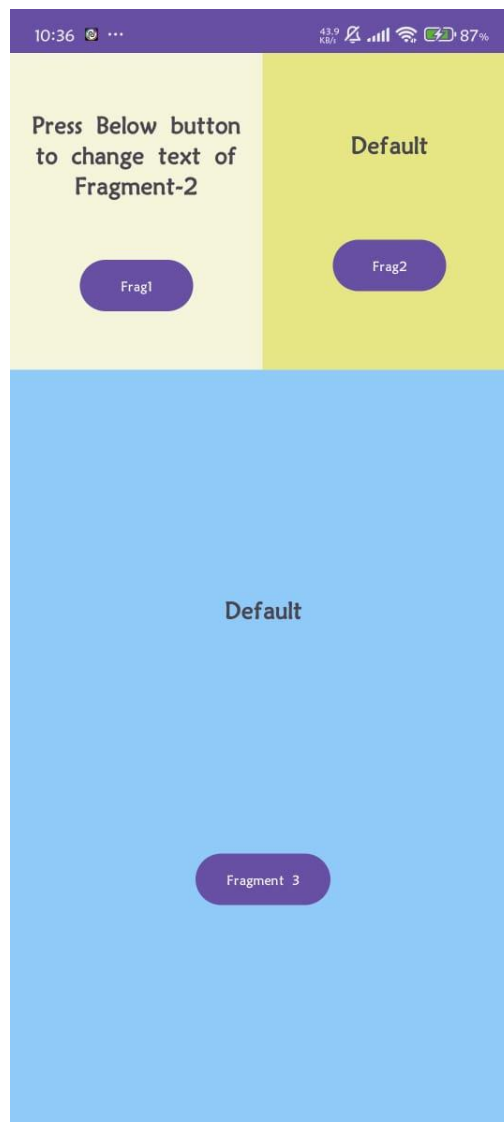
<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Fragment 3"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.5"
    app:layout_constraintStart_toStartOf="parent"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

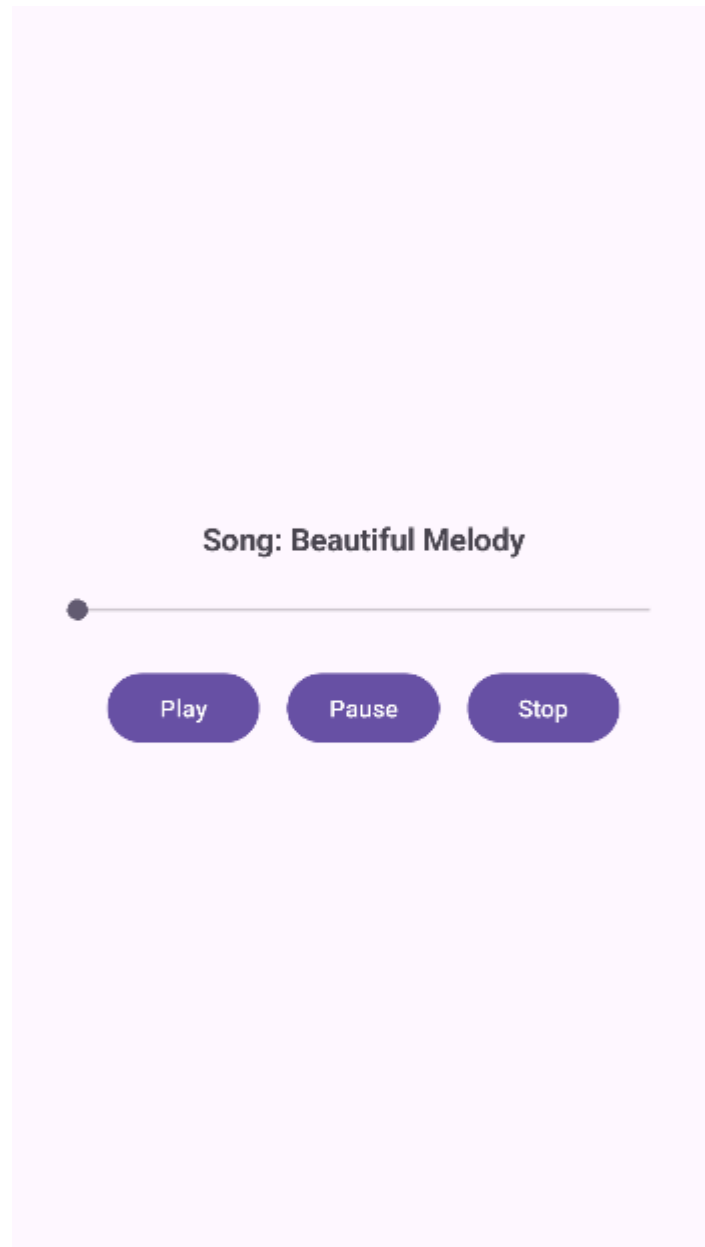
        <Button
            android:id="@+id/pauseBtn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Pause"
            android:layout_marginLeft="16dp" />

        <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();
        }
    }
}
```

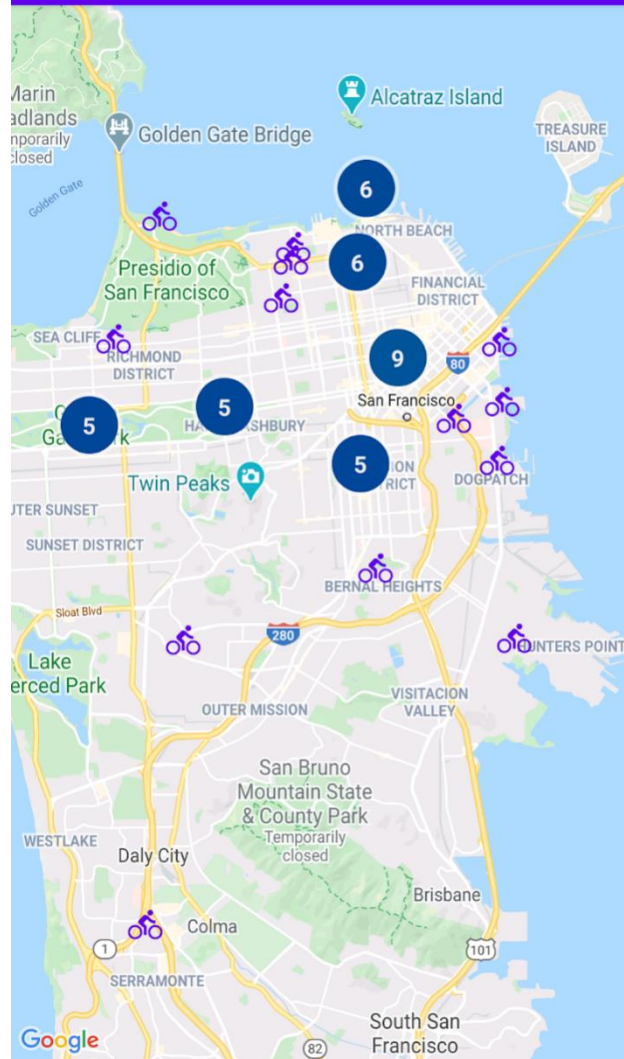
- **Activity\_main.xml**

```
<?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**





## 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**



9:41

378 KB/s 5G 90%

20

40

+

-

\*

Result: 60.0