MOBILE PROGRAMMING JOURNAL

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BATCH 2

Practical 1-A: Hello World
Source Code:

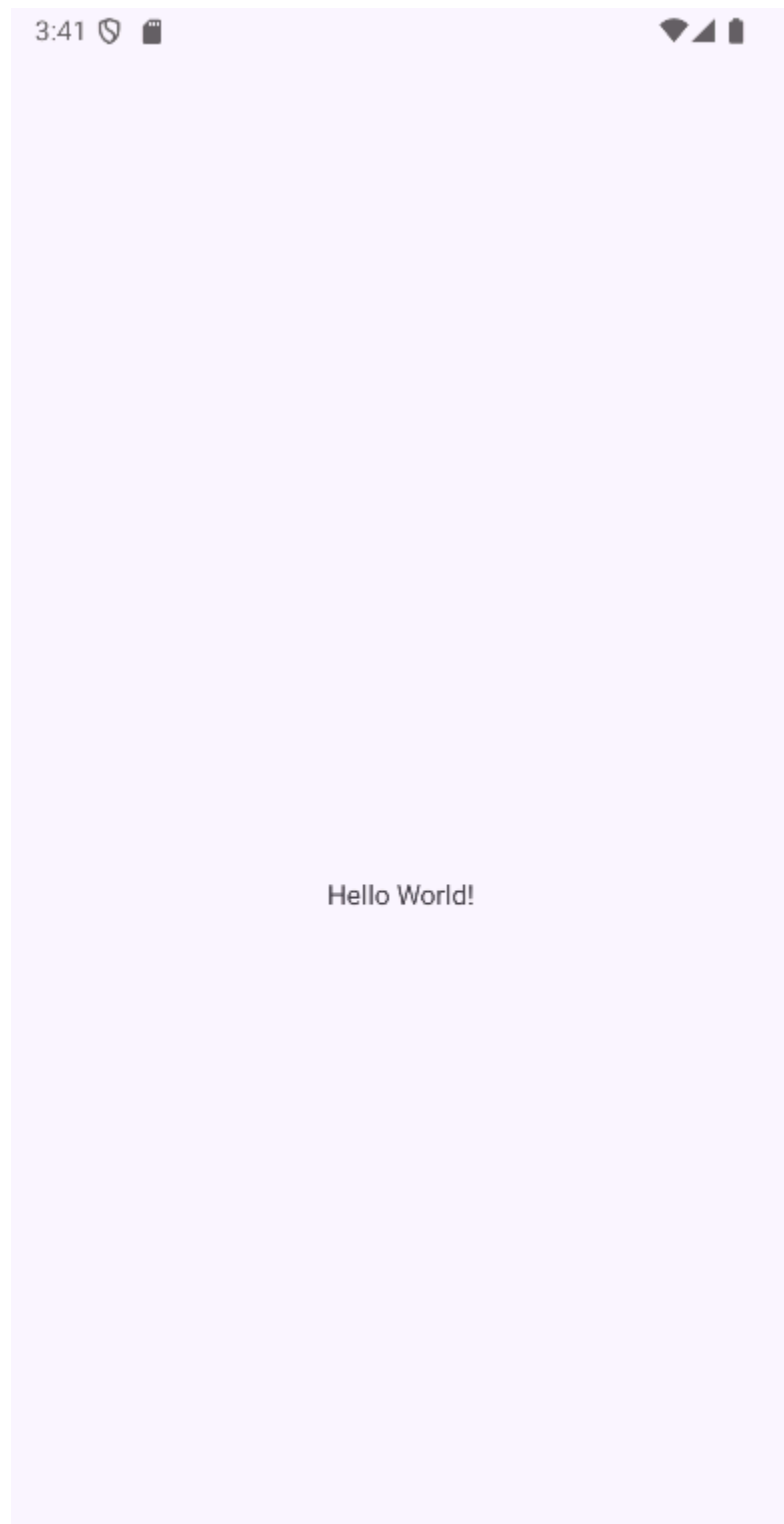**Activity_main.xml**

```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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

Output:

Practical 1-B: Registration Page

Source Code:

Activity_main.xml

```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:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#F5F5F5"
    android:padding="24dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/date_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="03-02-2007"
        android:textSize="14sp"
        android:textStyle="bold"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <TextView
        android:id="@+id/time_text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="5:30 am"
        android:textSize="14sp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

    <androidx.constraintlayout.widget.ConstraintLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/date_text"
        app:layout_constraintVertical_bias="0.4">

        <EditText
            android:id="@+id/input_name"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```xml
        android:hint="Name"
        android:inputType="textPersonName"
        android:minHeight="48dp"
        android:paddingBottom="8dp"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        style="@style/Widget.AppCompat.EditText"
        />

    <EditText
        android:id="@+id/input_email"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:inputType="textEmailAddress"
        android:minHeight="48dp"
        android:paddingBottom="8dp"
        android:layout_marginTop="16dp"
        app:layout_constraintTop_toBottomOf="@id/input_name"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        style="@style/Widget.AppCompat.EditText"
        />

    <EditText
        android:id="@+id/input_password"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword"
        android:minHeight="48dp"
        android:paddingBottom="8dp"
        android:layout_marginTop="16dp"
        app:layout_constraintTop_toBottomOf="@id/input_email"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        style="@style/Widget.AppCompat.EditText"
        />

    <CheckBox
        android:id="@+id/checkbox_terms"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:text="Agree Terms and Conditions"
        android:textSize="16sp"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/input_password" />
```

```xml
    <Button
        android:id="@+id/button_submit"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="32dp"
        android:paddingStart="48dp"
        android:paddingEnd="48dp"
        android:backgroundTint="#7A52AA"
        android:text="Submit"
        android:textAllCaps="false"
        android:textColor="@android:color/white"
        app:cornerRadius="24dp"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@id/checkbox_terms" />

  </androidx.constraintlayout.widget.ConstraintLayout>

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

Output:

03-02-2007   5:30 am

Name

Email

Password

☐ Agree Terms and Conditions

Submit

Practical 2-A: Hello World with font colour

Source Code:

themes.xml

```xml
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.MyApplication" parent="Theme.AppCompat.DayNight">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
    </style>



    <style name="Theme.MyApplication" parent="Base.Theme.MyApplication" />
</resources>
```

Colors.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<resources>
<color name="black">#FF000000</color>
<color name="white">#FFFFFFFF</color>
<color name="cyan">#00FFFF</color>
<color name="red">#F44336</color>
</resources>
```

MainActivity.java

```java
package com.example.MyApplication;

import android.os.Bundle;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
EdgeToEdge.enable(this);
setContentView(R.layout.activity_main);
ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v, insets)
-> {
```
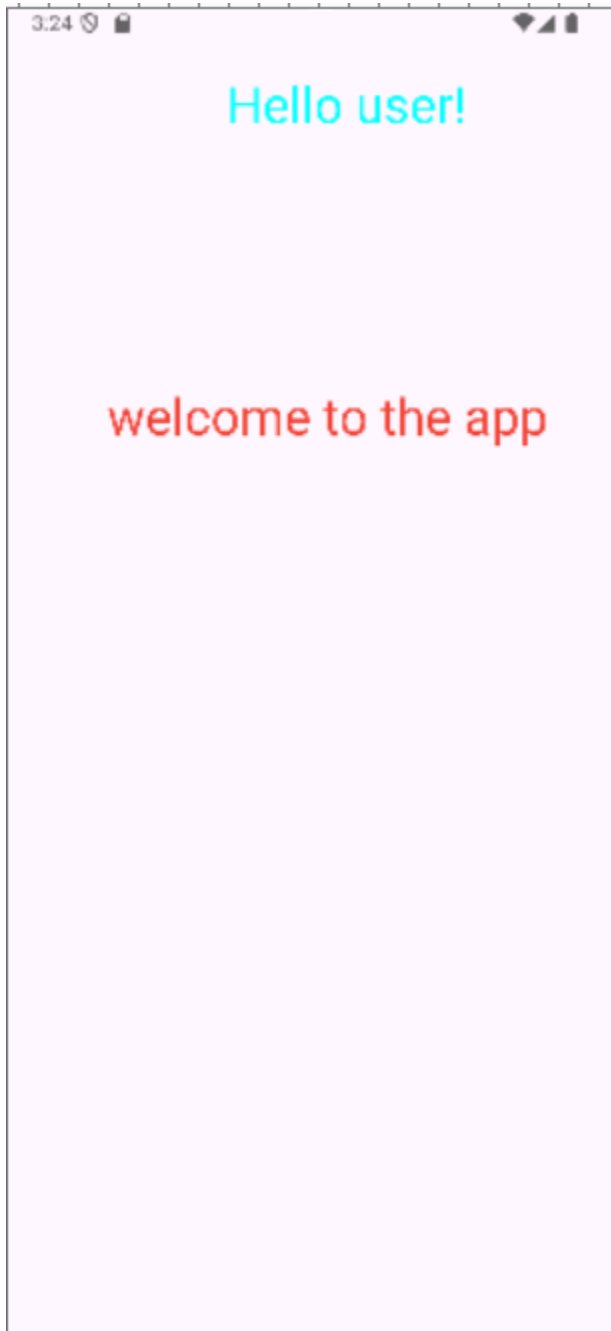
```
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
return insets;
});
}
}
```

Output:

Practical 2-B: String and Drawable
Source Code:
Strings.xml

```xml
<resources>
    <string name="app_name">My Application</string>
    <string name="message">Welcome to the app</string>
</resources>
```

Activity_main.xml

```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:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">


<TextView
    android:id="@+id/textView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello user!"
    android:textColor="#00FFFF"
    android:textColorLink="#00FFFF"
    android:textSize="34sp"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.488"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent"
    app:layout_constraintVertical_bias="0.036" />


<TextView
    android:id="@+id/textView2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="360dp"
    android:layout_marginEnd="72dp"
    android:text="welcome to the app"
    android:textColor="@color/green"
```
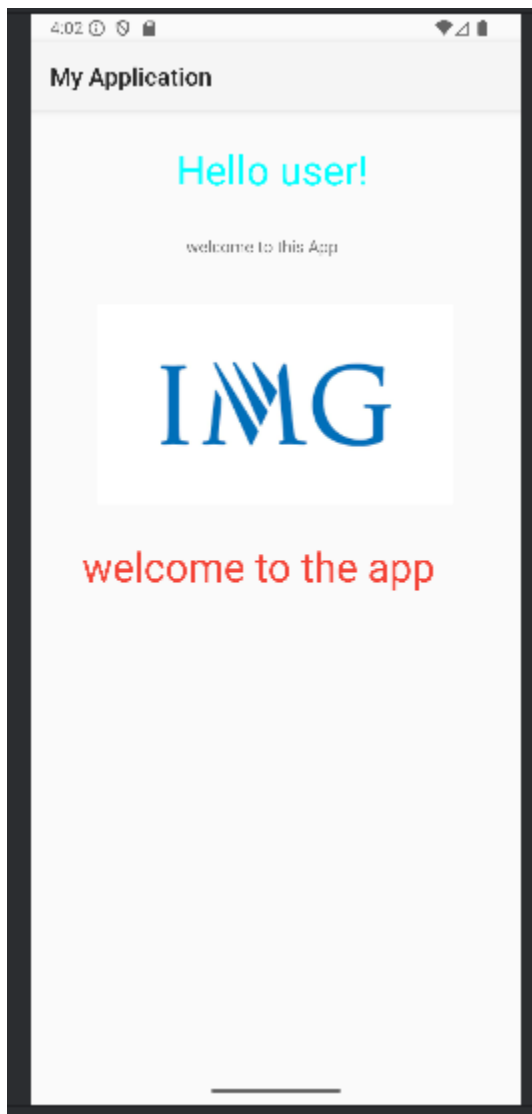
```xml
    android:textSize="34sp"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toTopOf="parent" />


<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="8dp"
    android:layout_marginTop="32dp"
    android:text="@string/message"
    app:layout_constraintStart_toStartOf="@+id/textView"
    app:layout_constraintTop_toBottomOf="@+id/textView" />


<ImageView
    android:id="@+id/imageView"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="13dp"
    android:layout_marginBottom="28dp"
    app:layout_constraintBottom_toTopOf="@+id/textView2"
    app:layout_constraintStart_toStartOf="@+id/textView2"
    app:srcCompat="@drawable/p1" />


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

Output:

Practical 3: Activity LifeCycle
Source Code:

MainActivity.java

```java
package com.example.am;

import android.os.Bundle;
import android.util.Log;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {




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

    EdgeToEdge.enable(this);
    setContentView(R.layout.activity_main);


    ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
insets) -> {
    Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
    v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
    return insets;
    });
    }

    @Override
    protected void onStart() {
    super.onStart();
    Log.d("onstart called","onstarted");
    }

    @Override
    protected void onResume() {
    super.onResume();
```

```
    Log.d("onresume called","onresumed");
    }

    @Override
    protected void onPause() {
    super.onPause();
    Log.d("onresume called","on resume");
    }

    @Override
    protected void onStop() {
    super.onStop();
    Log.d("onstop called","on stop");
    }

    @Override
    protected void onRestart() {
    super.onRestart();
    Log.d("onstop restart","on restart");
    }

    @Override
    protected void onDestroy() {
    super.onDestroy();
    Log.d("onDestroy restart","on Destroy");
    }
    }
```

Output:

```
5-10-13 15:47:33.883  1156-1156  StatsLog                com...le.android.apps.nexuslauncher  D  LAUNCHER_ONSTOP
------------------------ PROCESS STARTED (6538) for package com.example.anujmota ------------------------
5-10-13 15:48:48.874  6538-6538  onstop called           com.example.anujmota                 D  on stop
```

Practical 4: Broadcast receiver
Source Code:
AirplaneModeChangeReceiver.java

```java
package com.example.xyz;


    import android.content.BroadcastReceiver;
    import android.content.Context;
    import android.content.Intent;
    import android.provider.Settings;
    import android.widget.Toast;


    public class AirplaneModeChangeReceiver extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent) {
    if (isAirplaneModeOn(context.getApplicationContext())){
    Toast.makeText(context,"airplane mode is on!!",Toast.LENGTH_SHORT).show();
    }
    else {
    Toast.makeText(context,"airplane mode is off!!",Toast.LENGTH_SHORT).show();
    }


    }
    private static Boolean isAirplaneModeOn(Context context) {
    return
Settings.System.getInt(context.getContentResolver(),Settings.Global.AIRPLANE_M
ODE_ON,0) !=0;
    }
    }
```

Mainactivity.java

```java
package com.example.xyz;


    import android.content.Intent;
    import android.content.IntentFilter;
    import android.os.Bundle;


    import androidx.activity.EdgeToEdge;
    import androidx.appcompat.app.AppCompatActivity;
    import androidx.core.graphics.Insets;
```

```java
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;


public class MainActivity extends AppCompatActivity {
AirplaneModeChangeReceiver airplaneModeChangeReceiver = new
AirplaneModeChangeReceiver();


@Override
protected void onCreate(Bundle savedInstanceState) {
super.onCreate(savedInstanceState);
EdgeToEdge.enable(this);
setContentView(R.layout.activity_main);
ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
insets) -> {
Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
return insets;
});
}


@Override
protected void onStart() {
super.onStart();
IntentFilter filter= new IntentFilter(Intent.ACTION_AIRPLANE_MODE_CHANGED);
registerReceiver(airplaneModeChangeReceiver,filter);


}


@Override
protected void onStop() {
super.onStop();
unregisterReceiver(airplaneModeChangeReceiver);
}
}
```

Output:

Practical 5: Alert box
Source Code:

AndroidManifest.xml

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


    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@drawable/airplanelogo"
        android:label="@string/app_name"
        android:roundIcon="@drawable/airplanelogo"
        android:supportsRtl="true"
        android:theme="@style/Theme.Xyz">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />


                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>


</manifest>
```

Mainactivity.java

```java
package com.example.myapplication;
    import android.content.DialogInterface;
    import android.os.Bundle;
    import android.widget.Toast;


    import androidx.activity.EdgeToEdge;
    import androidx.appcompat.app.AlertDialog;
    import androidx.appcompat.app.AppCompatActivity;
    import androidx.core.graphics.Insets;
    import androidx.core.view.ViewCompat;
```

```java
    import androidx.core.view.WindowInsetsCompat;


    public class MainActivity extends AppCompatActivity {



    @Override
    protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    EdgeToEdge.enable(this);
    setContentView(R.layout.activity_main);
    ViewCompat.setOnApplyWindowInsetsListener(findViewById(R.id.main), (v,
insets) -> {
    Insets systemBars = insets.getInsets(WindowInsetsCompat.Type.systemBars());
    v.setPadding(systemBars.left, systemBars.top, systemBars.right,
systemBars.bottom);
    return insets;
    });
    }


    @Override
    public void getOnBackPressedDispatcher() {
    // super.onBackPressed();


    AlertDialog.Builder builder = new AlertDialog.Builder(MainActivity.this);
    builder.setMessage("Do you want to exit?");
    builder.setTitle("alert!!");
    builder.setCancelable(false);


    builder.setPositiveButton("yes", new DialogInterface.OnClickListener() {
    @Override
    public void onClick(DialogInterface dialog, int which) {
    finish();
    }
    });




    builder.setNegativeButton("cancel", new DialogInterface.OnClickListener() {
    @Override
    public void onClick(DialogInterface dialog, int which) {
    Toast.makeText(MainActivity.this, "you have clicked cancel",
Toast.LENGTH_SHORT).show();
```

```
    }
  });



  AlertDialog alertDialog = builder.create();
  alertDialog.show();
  }
  }
```

Output:

Practical 6: Service
Source Code:
Newservice.java

```java
package com.example.media;
   import android.app.Service;
   import android.content.Intent;
   import android.media.MediaPlayer;
   import android.os.IBinder;
   import android.provider.Settings;


   import androidx.annotation.Nullable;


   public class NewService extends Service {


   private MediaPlayer player;


   @Override
   public int onStartCommand(Intent intent, int flags, int startId) {
   //return super.onStartCommand(intent, flags, startId);



   player = MediaPlayer.create(this, Settings.System.DEFAULT_RINGTONE_URI);
   player.setLooping(true);
   player.start();


   return START_STICKY;



   }


   @Override
   public void onDestroy() {
   super.onDestroy();


   player.stop();
   }
```

```
    @Nullable
    @Override
    public IBinder onBind(Intent intent) {
    return null;
    }
    }
```

AndroidManifest.xml

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


    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Media">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />


                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>


        <service android:name=".NewService"/>


    </application>


</manifest>
```

Mainactivity.java

```java
package com.example.media;


    import android.content.Intent;
    import android.os.Bundle;
    import android.view.View;
    import android.widget.Button;


    import androidx.activity.EdgeToEdge;
    import androidx.appcompat.app.AppCompatActivity;
    import androidx.core.graphics.Insets;
    import androidx.core.view.ViewCompat;
    import androidx.core.view.WindowInsetsCompat;


    public class MainActivity extends AppCompatActivity implements
View.OnClickListener {


    Button start,stop;




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


    setContentView(R.layout.activity_main);



    start = findViewById(R.id.start_btn);
    stop = findViewById(R.id.stop_btn);


    start.setOnClickListener(this);
    stop.setOnClickListener(this);
    }


    @Override
    public void onClick(View v) {
    if (v == start)
```
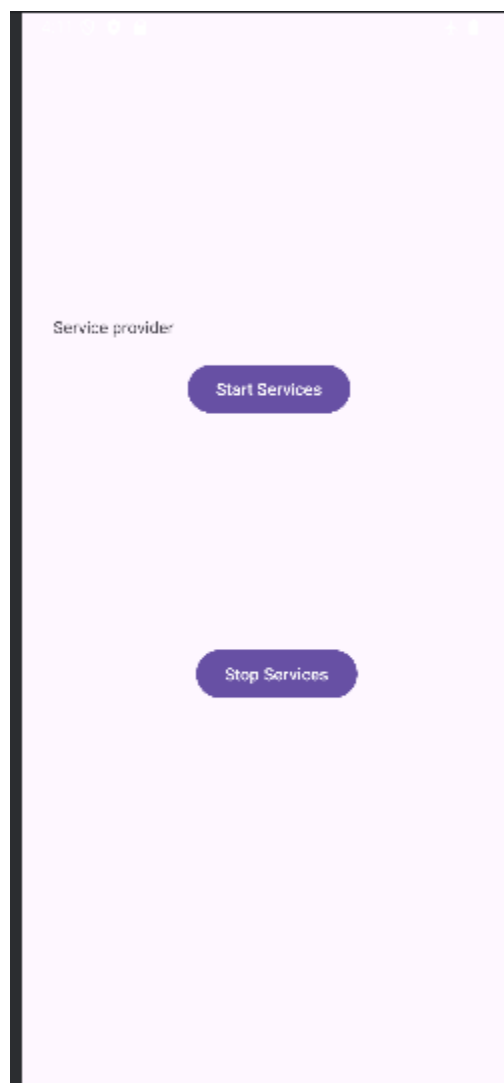
```
{
startService(new Intent(this,NewService.class));
}
else if (v == stop) {


stopService(new Intent(this,NewService.class));

}
}
```

Output:

Practical 7: Menu Option
Source Code:
Menu.xml

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

    <item android:title="Item1"
        android:id="@+id/item1"/>
    <item android:title="Item2"
        android:id="@+id/item2"/>
    <item android:title="Item3"
        android:id="@+id/item3"
        />
</menu>
```

MainActivity.java

```java
package com.example.helloworld;

import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.Toast;

import androidx.activity.EdgeToEdge;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {

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


    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
```

```
        //return super.onCreateOptionsMenu(menu);
        getMenuInflater().inflate(R.menu.menu, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        int id = item.getItemId();
        if (id == R.id.item1) {
            Toast.makeText(this, "item 1 selected", Toast.LENGTH_SHORT).show();
        } else if (id == R.id.item2) {
            Toast.makeText(this, "item 2 selected", Toast.LENGTH_SHORT).show();
        } else if (id == R.id.item3) {
            Toast.makeText(this, "item 3 selected", Toast.LENGTH_SHORT).show();
        } else {
            return super.onOptionsItemSelected(item);
        }

        return true;
    }
}
```

themes.xml

```
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.MyApplication"
parent="Theme.AppCompat.DayNight.DarkActionBar">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
    </style>

    <style name="Theme.MyApplication" parent="Base.Theme.MyApplication" />
</resources>
```
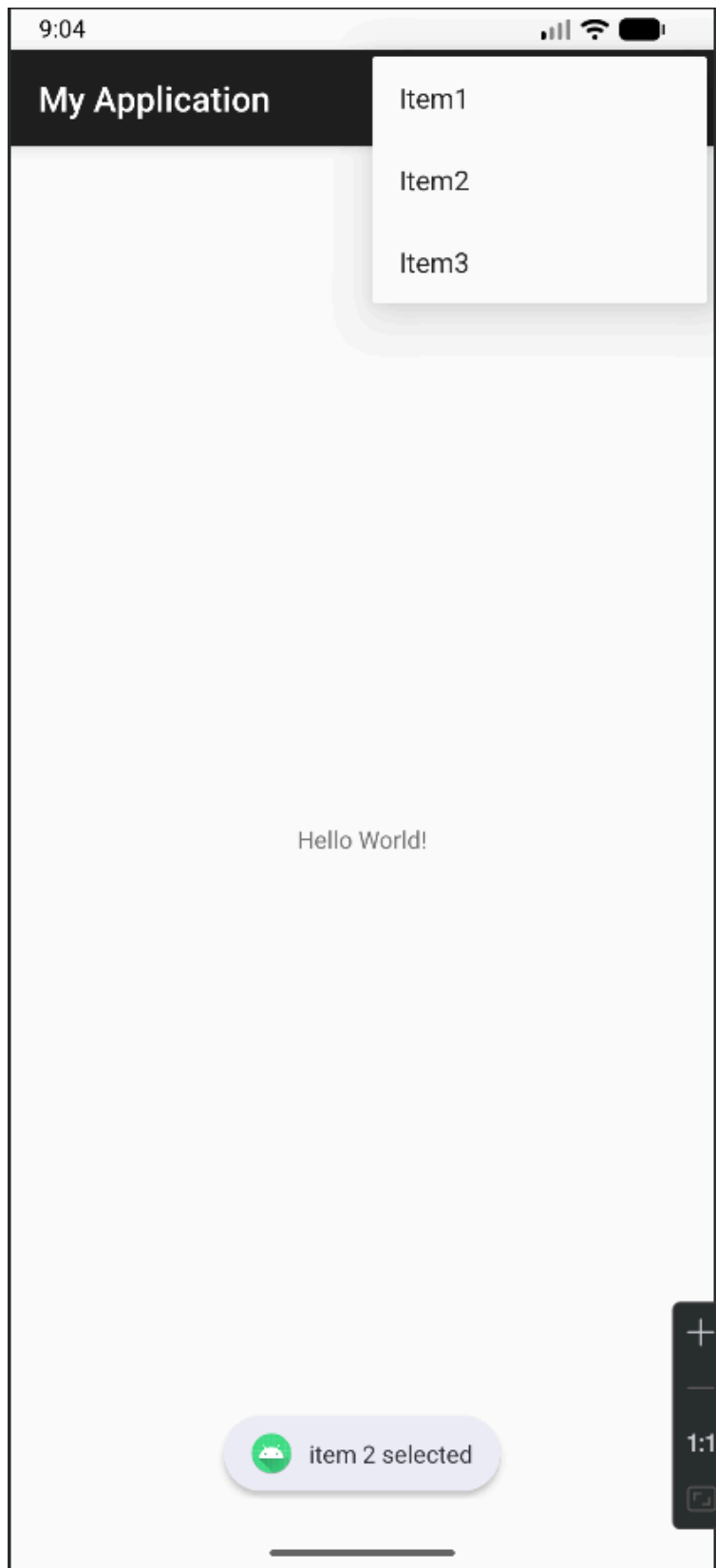
themes.xml(night)

```
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.MyApplication"
parent="Theme.AppCompat.DayNight.DarkActionBar">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
    </style>

    <style name="Theme.MyApplication" parent="Base.Theme.MyApplication" />
</resources>
```

Output:

Practical 8: Date Picker

Source Code:

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:orientation="vertical"
android:gravity="center"
tools:context=".MainActivity">

    <TextView
android:id="@+id/showText"
android:layout_width="wrap_content"
android:layout_height="wrap_content"/>

    <Button
android:id="@+id/button"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="SHOW DIALOG"/>
</LinearLayout>
```

MainActivity.java

```java
package com.example.practical;

import android.app.DatePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;
```

```java
public class MainActivity extends AppCompatActivity {

    private TextView text;
    private Button button;


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

        text= findViewById(R.id.showText);
        button = findViewById(R.id.button);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

                openDialog();
            }
        });

    }
    private void openDialog(){

        DatePickerDialog dialog = new DatePickerDialog(this, new
DatePickerDialog.OnDateSetListener() {
            @Override
            public void onDateSet(DatePicker view, int year, int month, int
dayOfMonth) {

                text.setText(String.valueOf(year)+" "+String.valueOf(month+1)+"
"+String.valueOf(dayOfMonth));

            }
        }, 2025,1,2);

        dialog.show();
    }


}
```
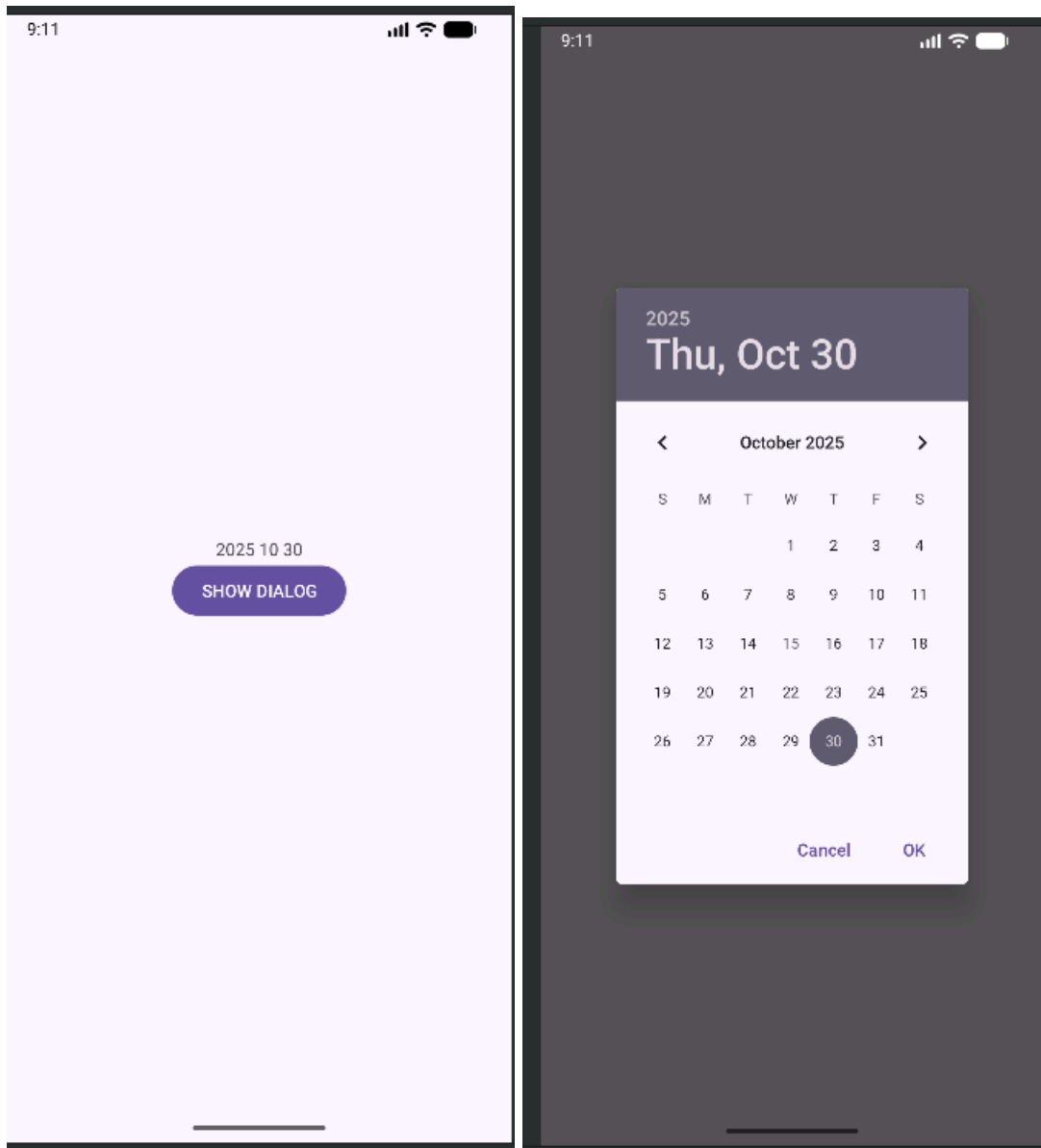
Output:

2025 10 30

SHOW DIALOG

2025
Thu, Oct 30

October 2025

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Cancel   OK

Practical 9: Program to calculate area of rectangle
Source Code:

activity_main.xml

```xml
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
tools:context=".MainActivity">

  <EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/editTextLength"
android:hint="Enter length"
android:inputType="numberDecimal"
android:layout_centerHorizontal="true"
        />

   <EditText
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:id="@+id/editTextwidth"
android:hint="Enter width"
android:layout_below="@+id/editTextLength"
android:inputType="numberDecimal"
android:layout_centerHorizontal="true"
        />
      <Button
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_below="@+id/editTextwidth"
android:layout_centerHorizontal="true"
android:text="calculate"
android:id="@+id/calculatebtn"
        />

      <TextView
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text=""
android:id="@+id/TextviewResult"
android:layout_below="@+id/calculatebtn"
android:layout_centerHorizontal="true"
        />
```

```
</RelativeLayout>
```

MainActivity.java

```java
package com.example.calculate;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.graphics.Insets;
import androidx.core.view.ViewCompat;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {


    EditText editlength,editwidth;
    Button calculatebtn;

    TextView result;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);

        editlength = findViewById(R.id.editTextLength);
        editwidth = findViewById(R.id.editTextwidth);
        calculatebtn = findViewById(R.id.calculatebtn);
        result = findViewById(R.id.TextviewResult);

        calculatebtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                calculatearea();
            }
        });
    }

    private void calculatearea() {

        double length = Double.parseDouble(editlength.getText().toString());
        double width = Double.parseDouble(editwidth.getText().toString());
```

```
        double area = length * width;


        result.setText("area of rectangle is "+area);
    }
}
```

Output:

EXTRA:

strings.xml

```xml
<string name="logo1">Somaiya Logo 1</string>
<string name="logo2">Somaiya Logo 2</string>
<string name="trust_logo">Somaiya Trust Logo</string>
```

activity_main.xml

```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:id="@+id/main"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:background="#F9F4FF"
tools:context=".MainActivity">

    <ImageView
android:id="@+id/imageView1"
android:layout_width="100dp"
android:layout_height="50dp"
android:src="@drawable/somaiya_logo"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toStartOf="@+id/imageView2"
app:layout_constraintHorizontal_chainStyle="packed"
app:layout_constraintHorizontal_bias="0.4"
android:contentDescription="@string/logo1" />

    <ImageView
android:id="@+id/imageView2"
android:layout_width="100dp"
android:layout_height="50dp"
android:src="@drawable/somaiya_trust_logo"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintStart_toEndOf="@+id/imageView1"
app:layout_constraintEnd_toEndOf="parent"
android:contentDescription="@string/logo2" />

    <TextView
android:id="@+id/textViewWelcome"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Welcome to Somaiya MyAccount Portal"
android:textSize="16sp"
```

```xml
android:textColor="#4A148C"
app:layout_constraintTop_toBottomOf="@+id/imageView1"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginTop="20dp" />


    <TextView
android:id="@+id/textViewSub"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Please enter your SVV Net ID & password to Login."
android:textColor="#757575"
android:textSize="14sp"
app:layout_constraintTop_toBottomOf="@+id/textViewWelcome"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginTop="8dp" />


    <EditText
android:id="@+id/editTextNetID"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:hint="SVV Net ID*"
android:inputType="textEmailAddress"
android:padding="12dp"
android:backgroundTint="#4A148C"
app:layout_constraintTop_toBottomOf="@+id/textViewSub"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginHorizontal="32dp"
android:layout_marginTop="20dp" />


    <EditText
android:id="@+id/editTextPassword"
android:layout_width="0dp"
android:layout_height="wrap_content"
android:hint="Password*"
android:inputType="textPassword"
android:padding="12dp"
android:backgroundTint="#4A148C"
app:layout_constraintTop_toBottomOf="@+id/editTextNetID"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginHorizontal="32dp"
android:layout_marginTop="12dp" />
```

```xml
    <CheckBox
android:id="@+id/checkBoxRemember"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Remember Me"
android:textColor="#4A148C"
app:layout_constraintTop_toBottomOf="@+id/editTextPassword"
app:layout_constraintStart_toStartOf="@+id/editTextPassword"
android:layout_marginTop="10dp" />


    <Button
android:id="@+id/buttonLogin"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Login"
android:backgroundTint="#7B1FA2"
android:textColor="#FFFFFF"
app:layout_constraintTop_toBottomOf="@+id/checkBoxRemember"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginTop="16dp" />

    <TextView
android:id="@+id/textViewOr"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="OR"
android:textSize="14sp"
android:textColor="#757575"
app:layout_constraintTop_toBottomOf="@+id/buttonLogin"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginTop="8dp" />


    <TextView
android:id="@+id/textViewLoginWith"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="Login with Somaiya Email"
android:textColor="#1976D2"
android:textStyle="bold"
android:textSize="14sp"
android:clickable="true"
android:focusable="true"
app:layout_constraintTop_toBottomOf="@+id/textViewOr"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
```

```xml
android:layout_marginTop="6dp" />


    <ImageView
android:id="@+id/imageViewTrust"
android:layout_width="100dp"
android:layout_height="50dp"
android:src="@drawable/somaiya_trust_logo"
app:layout_constraintTop_toBottomOf="@+id/textViewLoginWith"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintEnd_toEndOf="parent"
android:layout_marginTop="16dp"
android:contentDescription="@string/trust_logo" />


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

MainActivity.java

```java
package com.example.myapplication;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.*;

public class MainActivity extends AppCompatActivity {

    EditText editTextNetID, editTextPassword;
    Button buttonLogin;
    CheckBox checkBoxRemember;
    TextView textViewLoginWith;

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

        editTextNetID = findViewById(R.id.editTextNetID);
        editTextPassword = findViewById(R.id.editTextPassword);
        buttonLogin = findViewById(R.id.buttonLogin);
        checkBoxRemember = findViewById(R.id.checkBoxRemember);
        textViewLoginWith = findViewById(R.id.textViewLoginWith);

        buttonLogin.setOnClickListener(v -> {
            String user = editTextNetID.getText().toString();
            String pass = editTextPassword.getText().toString();

            if (user.isEmpty() || pass.isEmpty()) {
                Toast.makeText(this, "Please fill all fields",
Toast.LENGTH_SHORT).show();
            } else {
```

```
                    Toast.makeText(this, "Login Successful!",
Toast.LENGTH_SHORT).show();
                }
          });
      }
}
```

Output: