Mobile Application Development Lab

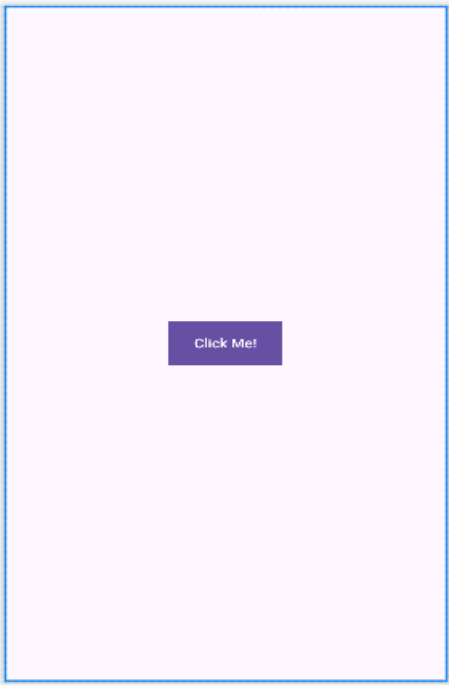
1. Creating “Hello world” Application.
2. Creating an application that displays message based on the screen orientation.
3. Create an application to develop Login window using UI controls.
4. Create an application to implement new activity using explicit intent, implicit intent and content provider.
5. Create an application that displays custom designed Opening Screen.
6. Create an UI with all views.
7. Create menu in Application
8. Read/ write the Local data.
9. Create / Read / Write data with database (SQLite).
10. Create an application to send SMS and receive SMS
11. Create an application to send an e-mail.
12. Display Map based on the Current/given location.
13. Create a sample application with login module(check user name and password) On successful login change Textview “Login Successful”. On login fail alert using Toast “login fail”
14. Learn to deploy Android applications

Program 1

1. Creating "Hello world" Application.
    1. Click **Start →Android Studio**, a **Welcome to Android Studio** dialog box will appear. Click **New Project**, the **New Project Dialog box** appears.
    2. Choose **Empty Views Activity** then click **Next**.
    3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
    4. Create a **Button** resource in **activity_main.xml** and update the following code

```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <Button
        android:id="@+id/hello"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="#535538"
        android:text="Click Me!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

The following figure illustrates the design view of the application.

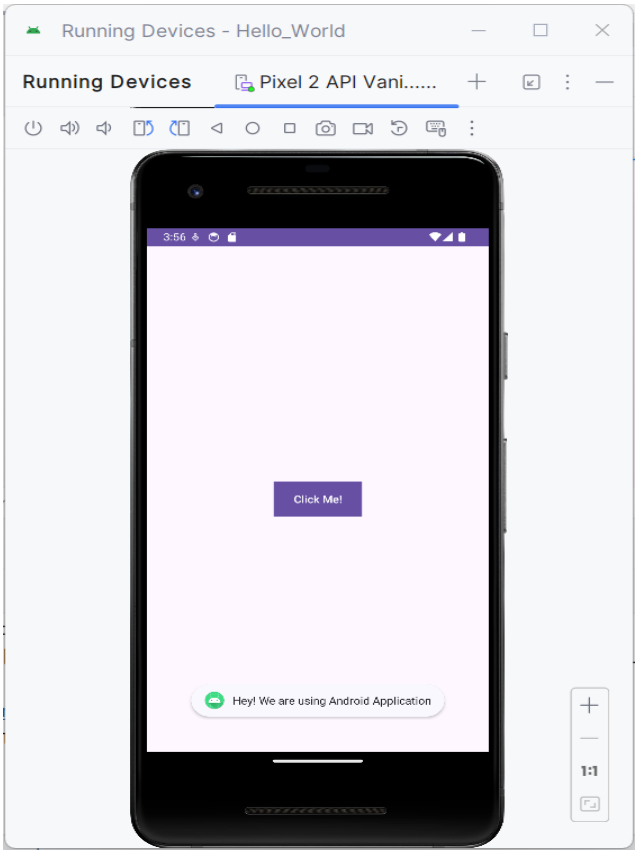


5. Create a **Button** object, create **clickListener**, **onClick** event and update the following code in **MainActivity.java**

```
package com.example.hello_world;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button b;
        b=findViewById(R.id.hello);
        b.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Toast.makeText(MainActivity.this, "Hey! We are using Android
Application", Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

6. Click **Run app** or **shift+F10** to execute the application.

Output:



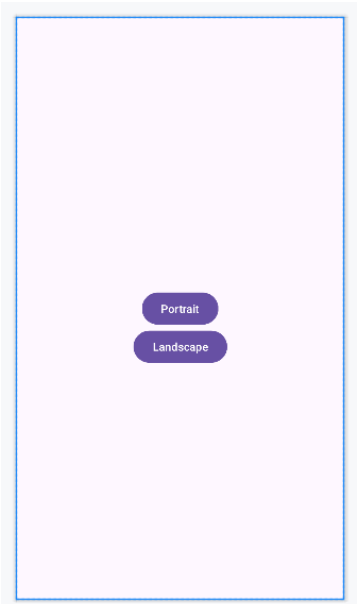
Program 2

2. Creating an application that displays message based on the screen orientation.

1. Click **Start →Android Studio**, a **Welcome to Android Studio** dialog box will appear. Click **New Project**, the **New Project Dialog box** appears.
2. Choose **Empty Views Activity** then click **Next**.
3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
4. Create two **Button** resources in **activity_main.xml** and update the following code.

```
<?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">
    <Button
        android:id="@+id/por"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Portrait"
        android:layout_centerInParent="true"/>
    <Button
        android:id="@+id/lan"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Landscape"
        android:layout_below="@id/por"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

The following figure illustrates the design view of the application.

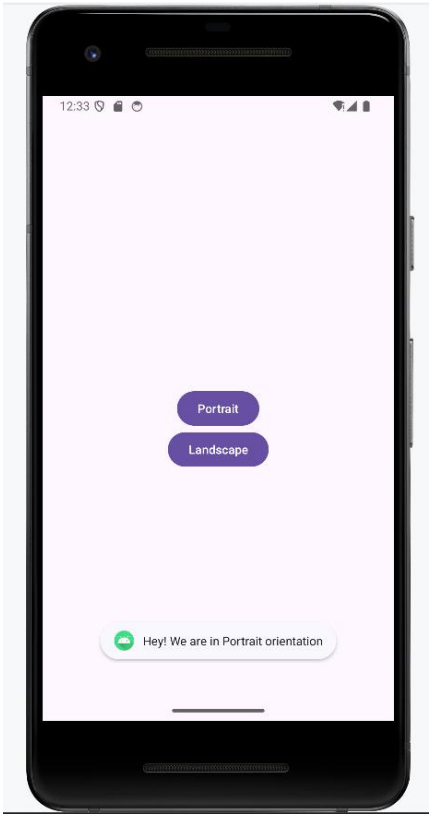


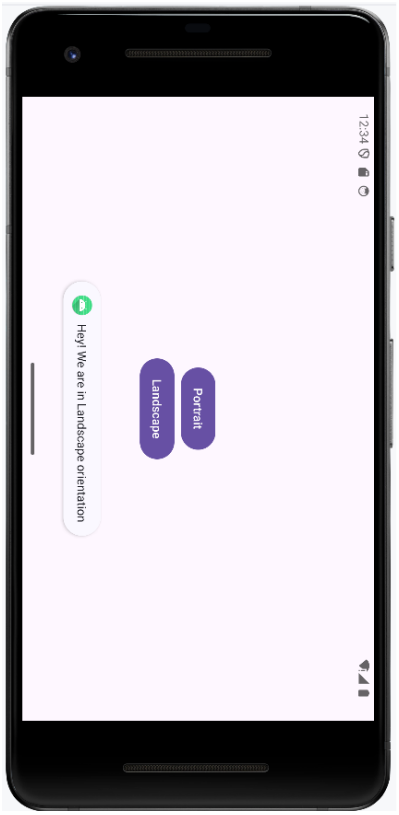
5. Create two **Button** object, create **clickListener**, **onClick** event and update the following code in **MainActivity.java**

```
package com.example.screen;

import android.content.pm.ActivityInfo;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

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);
        Button l,p;
        l=findViewById(R.id.lan);
        p=findViewById(R.id.por);
        l.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_LANDSCAPE);
                Toast.makeText(MainActivity.this, "Hey! We are in Landscape
orientation", Toast.LENGTH_SHORT).show();
            }
        });
        p.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

setRequestedOrientation(ActivityInfo.SCREEN_ORIENTATION_PORTRAIT);
                Toast.makeText(MainActivity.this, "Hey! We are in Portrait orientation",
Toast.LENGTH_SHORT).show();
            }
        });

    }
}
```

6. Click **Run app** or **shift+F10** to execute the application.

Output





Program 3

3. Create an application to develop Login window using UI controls.

1. Click **New Project**, the **New Project Dialog box** appears.
2. Choose **Empty Views Activity** then click **Next**.
3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
4. Create **background** resources(**bg_outer.xml**, **bg_inner.xml**)
    a. To create resource file click **app→res→drawable.** Right click **drawable→New→ Drawable Resource File.** The **New Resource File** dialog box appears.
    b. Set **filename** as **bg_outer.xml**, **root element** as **shape** and then click **ok.** Modify the bg_outer.xml file

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
    <corners android:radius="12dp" />
    <gradient
        android:startColor="#B388FF"
        android:endColor="#397C9A"
```

```
        android:angle="100"/>
    </shape>
```

c. Likewise, create another background resource for inner layout. Set **filename** as **bg_inner.xml**, **root element** as **shape** and then click **ok.** Modify the bg_inner.xml file

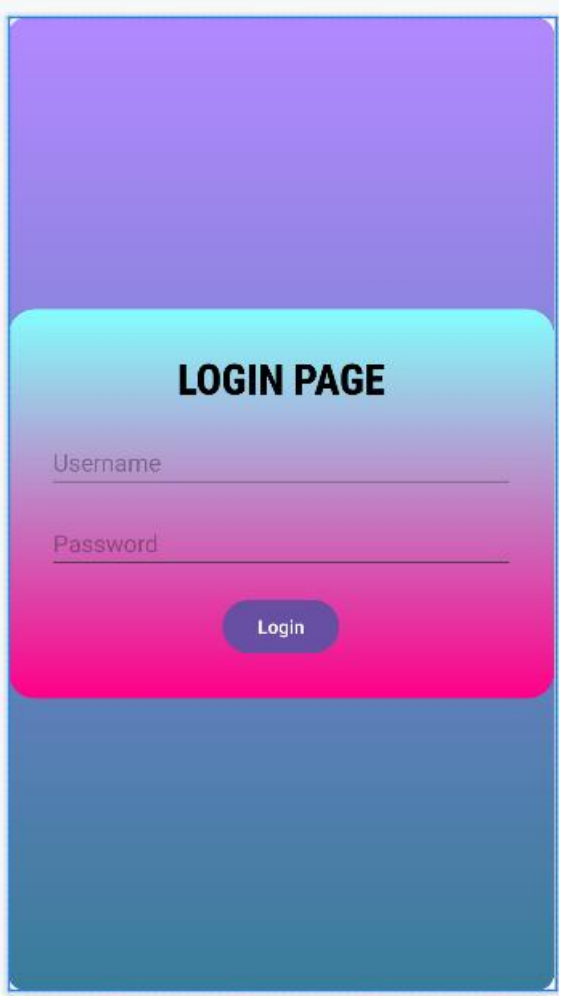
```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
<gradient
   android:startColor="#84FFFF"
   android:endColor="#f08"
   android:angle="100"/>
   <corners android:radius="20dp"/>

</shape>
```

5. Create **two EditText box** and **a Button** resource in **activity_main.xml** and update the following code.

```
<?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"
   android:background="@drawable/bg_outer">

   <LinearLayout
      android:layout_width="match_parent"
      android:layout_height="wrap_content"
      android:gravity="center"
      android:layout_centerInParent="true"
      android:orientation="vertical"
      android:background="@drawable/bg_inner"
      android:padding="30dp"
      >
      <TextView
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:text="LOGIN PAGE"
         android:textSize="32sp"
         android:textStyle="bold"
         android:fontFamily="sans-serif-condensed-medium"
         android:textColor="@color/black"
         android:paddingBottom="20dp"
         />

   <EditText
      android:id="@+id/editTextUsername"
      android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:hint="Username"
        android:layout_marginBottom="16dp"/>

    <EditText
        android:id="@+id/editTextPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:layout_below="@id/editTextUsername"
        android:layout_marginBottom="16dp"
        android:inputType="textPassword"/>

    <Button
        android:id="@+id/buttonLogin"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"
        android:layout_below="@id/editTextPassword"/>
    </LinearLayout>
</RelativeLayout>
```

The following figure illustrates the design view of the application.

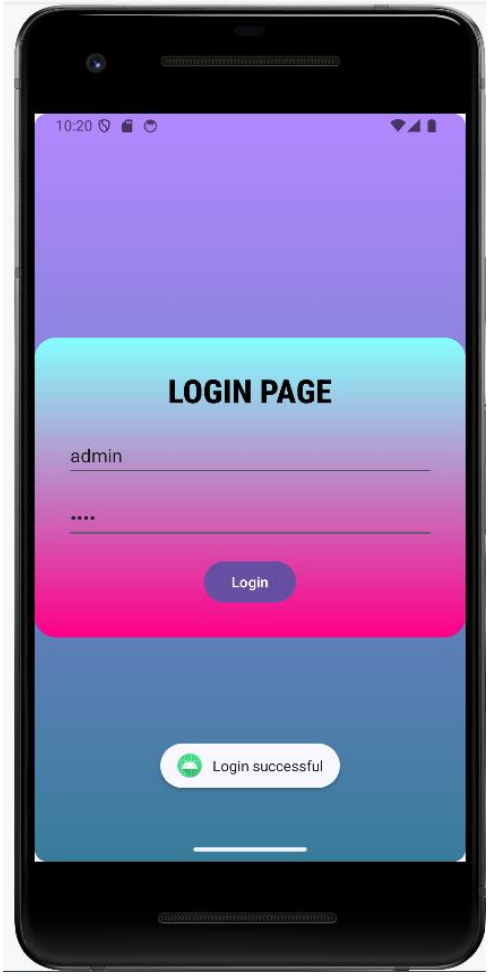


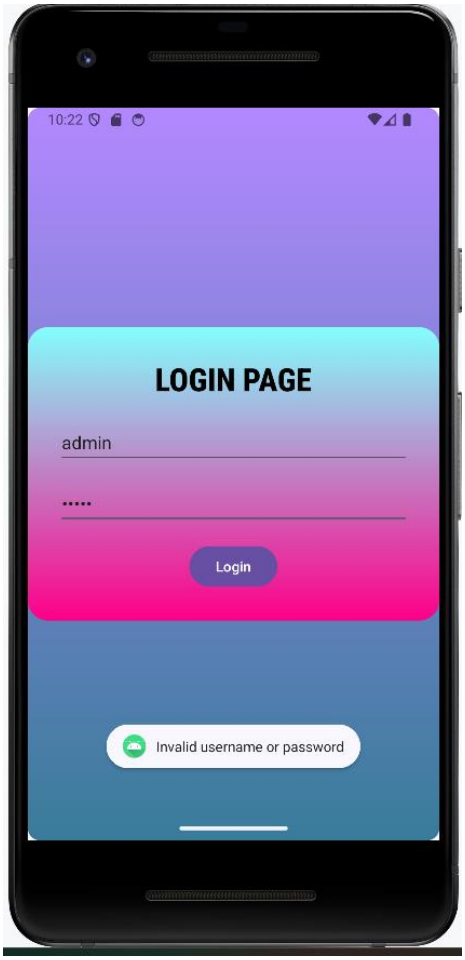
6. Create two **EditText** and a **Button** object, create **clickListener**, **onClick** event for button object and update the following code in **MainActivity.java**

```
package com.example.controls;

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

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 {
    private EditText editTextUsername,editTextPassword;
    private Button buttonLogin;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);

        editTextUsername = findViewById(R.id.editTextUsername);
        editTextPassword = findViewById(R.id.editTextPassword);
        buttonLogin = findViewById(R.id.buttonLogin);
        buttonLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String username = editTextUsername.getText().toString().trim();
                String password = editTextPassword.getText().toString().trim();

                if(username.equals("admin") && password.equals("pass")){
                    Toast.makeText(MainActivity.this, "Login successful",
Toast.LENGTH_SHORT).show();
                } else {
                    Toast.makeText(MainActivity.this, "Invalid username or password",
Toast.LENGTH_SHORT).show();
                }
            }
        });

    }

}
```

7. Click **Run app** or **shift+F10** to execute the application.

Output





Program 4

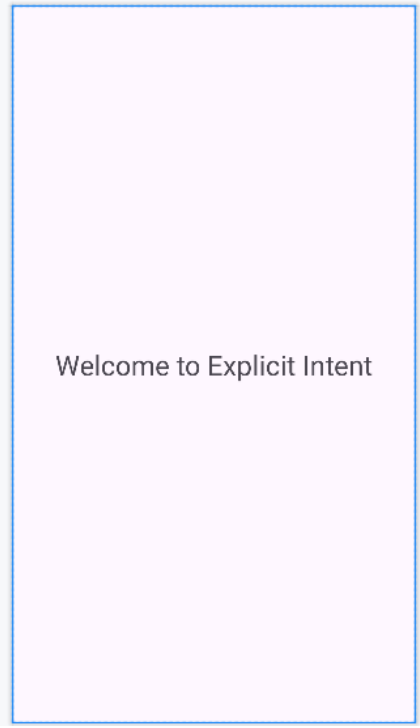
4. Create an application to implement new activity using explicit intent, implicit intent and content provider.

1. Click **New Project**, the **New Project Dialog box** appears.
2. Choose **Empty Views Activity** then click **Next**.
3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
4. To create another activity for **Explicit Intent,** Click **File→New→Activity→ Empty Views Activity.** A **New Android Activity** dialog box appears, Specify the **Name** of the activity as **NewActivity** then click **Finish**.
5. Create one **TextView** resource in **activity_new.xml** and update the following code

```
<?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=".NewActivity">
```

```
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to Explicit Intent"
        android:textSize="28sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent" />
</androidx.constraintlayout.widget.ConstraintLayout>
```

The following figure illustrates the design view of the application(**activity_new.xml**).



6. Add two events named as **onImplicitButtonClicked, onExplicitButtonClicked** and update the following code in **MainActivity.java**

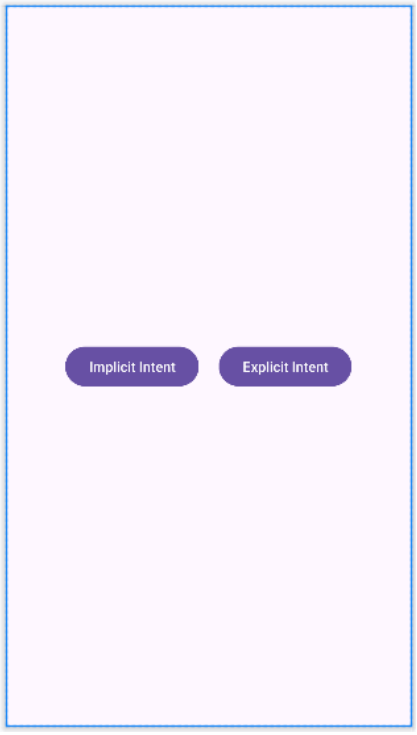
```
package com.example.intentexample;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;

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);

    }
    public void onImplicitButtonClicked(View view)
    {
        Uri url=Uri.parse("https://www.google.com");
        Intent i=new Intent(Intent.ACTION_VIEW, url);
        startActivity(i);
    }
    public void onExplicitButtonClicked(View view )
    {
    Intent i=new Intent(MainActivity.this, NewActivity.class);
    startActivity(i);
    }
}
```

7. Add **two Button** resource in **activity_main.xml** and update the following code.

```
<?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:gravity="center"
    tools:context=".MainActivity">
<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Implicit Intent"
    android:onClick="onImplicitButtonClicked"
    />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Explicit Intent"
        android:onClick="onExplicitButtonClicked"/>

</LinearLayout>
```

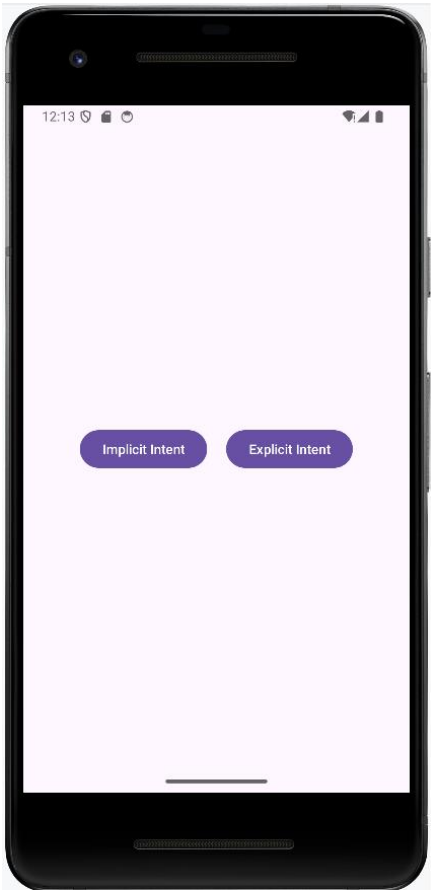
The following figure illustrates the design view of the application(**activity_main.xml**).

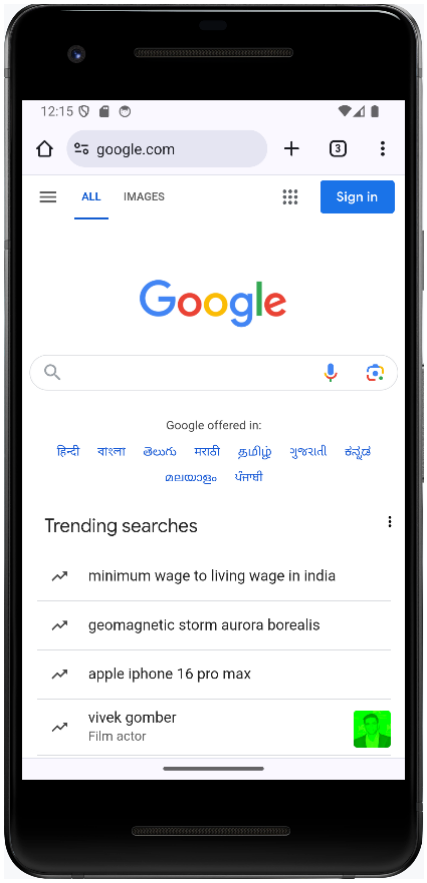


8. Click **Run app** or **shift+F10** to execute the application.

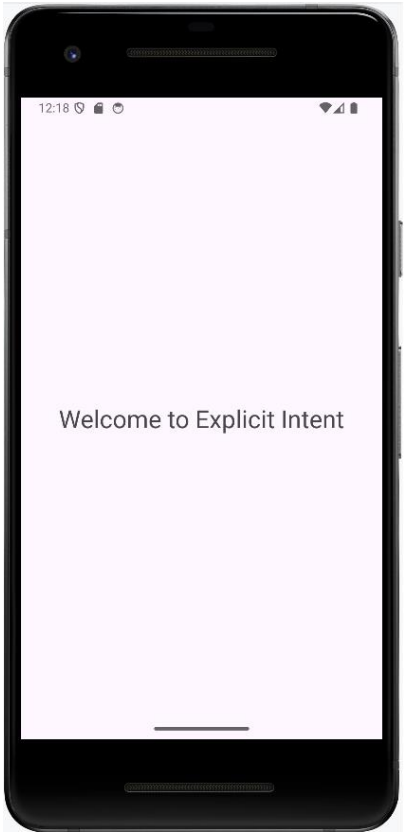
Output

For Implicit Intent





For Explicit Intent



Program 5

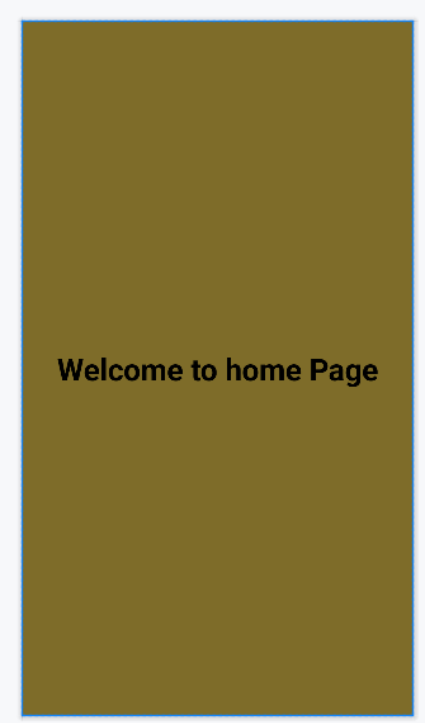
5. Create an application that displays custom designed Opening Screen.

1. Click **New Project**, the **New Project Dialog box** appears.
2. Choose **Empty Views Activity** then click **Next**.
3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
4. To create another activity for **Home Page,** Right Click **App→New→Activity→ Empty Views Activity.** A **New Android Activity** dialog box appears, Specify the **Name** of the activity as **mainScreen** then click **Finish**.
5. Create one **TextView** resource in **activity_mainScreen.xml** and update the following code

```
<?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=".mainscreen"
    android:gravity="center"
```

```
    android:background="#7E6C29">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Welcome to home Page"
        android:textStyle="bold"
        android:textSize="32sp"
        android:textColor="@color/black"/>
</RelativeLayout>
```

The following figure illustrates the design view of the application(**activity_mainScreen.xml**).



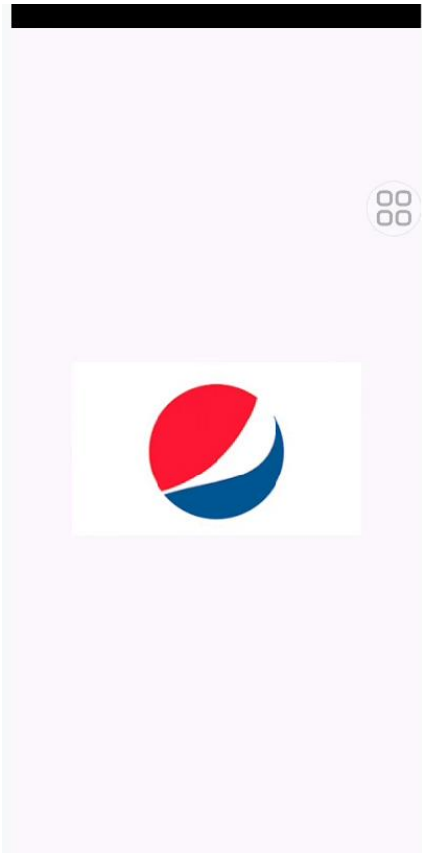
6. **To add an ImageView resource:** Copy an image and paste it into **drawable folder (**Right-click **Drawable→ Paste** the image**[img1.jpg]**).
7. Set an **image** as **src** in **activity_main.xml** and update the following code.

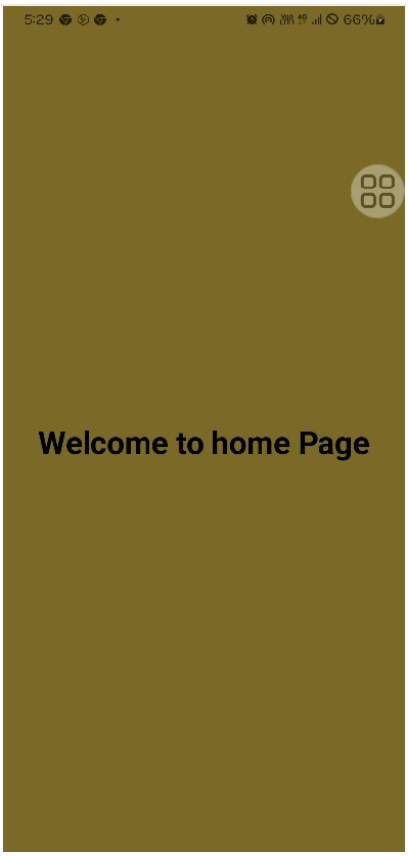
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    android:gravity="center">
    <ImageView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:src="@drawable/img_1"/>

</RelativeLayout>
```

The following figure illustrates the design view of the application(**activity_HomeScreen.xml**).

8. Update the following code in **MainActivity.java**

```
package com.example.pgm3;

import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.view.WindowManager;
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 {
    private static final int SPLASH_SCREEN_TIME_OUT = 2000;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
                WindowManager.LayoutParams.FLAG_FULLSCREEN);
        new Handler().postDelayed(new Runnable() {
            @Override
            public void run() {
                Intent i = new Intent(MainActivity.this, mainscreen.class);
                startActivity(i);
                finish();
            }
        }, SPLASH_SCREEN_TIME_OUT);
    }
}
```





Program 6

6. Create an UI with all views.
    1. Click **New Project**, the **New Project Dialog box** appears.
    2. Choose **Empty Views Activity** then click **Next**.
    3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
    4. Create **background** resources(**bg_outer.xml**, **bg_inner.xml, bg.xml**)
        a. To create resource file click **app→res→drawable.** Right click **drawable→New→ Drawable Resource File.** The **New Resource File** dialog box appears.
        b. Set **filename** as **bg_outer.xml**, **root element** as **shape** and then click **ok.** Modify the bg_outer.xml file

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
<gradient android:startColor="#64EFAE"
    android:endColor="#84FFFF"
    android:angle="120"
    android:gradientRadius="5dp"/>
    <corners android:radius="20dp"/>
</shape>
```

c. Create another background resource for inner layout. Set **filename** as **bg_inner.xml**, **root element** as **shape** and then click **ok.** Modify the bg_inner.xml file

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
   <gradient android:startColor="#64F194"
      android:endColor="#B242C5"
      android:angle="120"
      android:gradientRadius="5dp"/>
   <corners android:radius="20dp"
      android:topLeftRadius="70dp"
      android:bottomRightRadius="70dp"/>
</shape>
```

d. Likewise, create another background resource for view. Set **filename** as **bg.xml**, **root element** as **shape** and then click **ok.** Modify the bg..xml file

```
<?xml version="1.0" encoding="utf-8"?>
<shape xmlns:android="http://schemas.android.com/apk/res/android">
<solid android:color="#2860F367"/>
   <corners android:radius="30dp" />
   <stroke android:color="#00BFA5"
      android:width="2dp"/>
</shape>
```

5. Create a **TextView, EditText, ToggleButton, ImageView, RadioGroup, RadioButton, spinner** and **a Button** resource in **activity_main.xml** and update the following code.

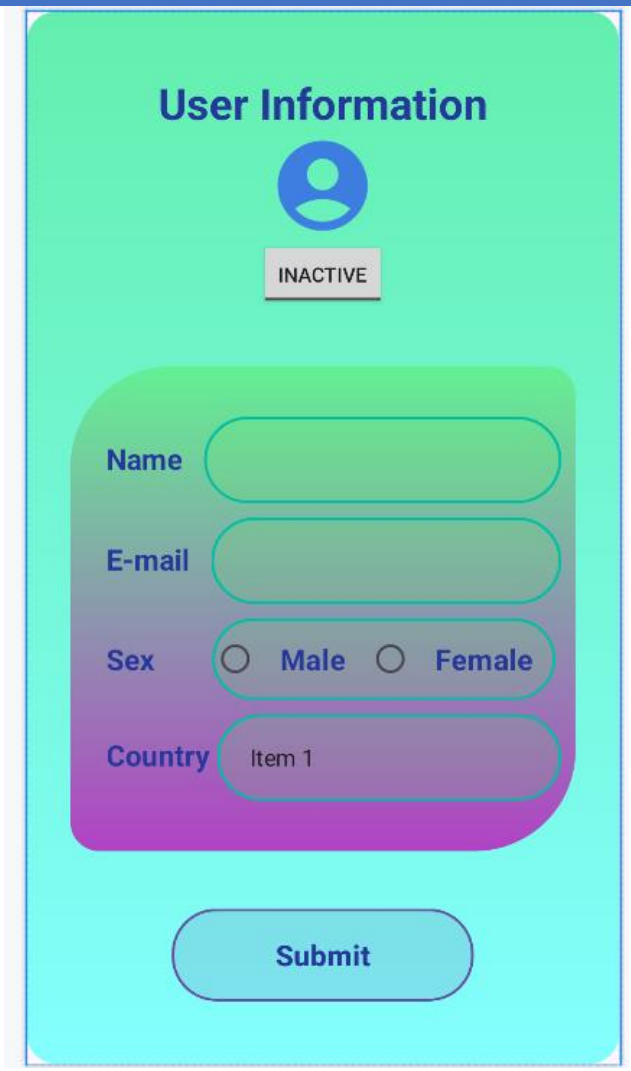
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:app="http://schemas.android.com/apk/res-auto"
   xmlns:tools="http://schemas.android.com/tools"
   android:id="@+id/main"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   tools:context=".MainActivity"
   android:gravity="center"
   android:orientation="vertical"
   android:padding="30dp"
   android:background="@drawable/bg_outer">

   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="User Information"
      android:textSize="30sp"
      android:textStyle="bold"
      android:textColor="#26389C"/>
   <ImageView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:src="@drawable/account_img"/>
```

```
<ToggleButton
   android:layout_width="wrap_content"
   android:layout_height="wrap_content"
   android:textOn="Active"
   android:textOff="Inactive"/>
<View
   android:layout_width="match_parent"
   android:layout_height="40dp"/>
<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:paddingTop="30dp"
   android:paddingBottom="30dp"
   android:paddingLeft="5dp"
   android:paddingRight="5dp"
   android:orientation="vertical"
   android:background="@drawable/bg_inner">
        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal"
            android:padding="5dp">
                <TextView
                        android:layout_width="wrap_content"
                       android:layout_height="wrap_content"
                       android:text="Name"
                       android:textSize="20sp"
                       android:textStyle="bold"
                       android:textColor="#26389C"
                       android:padding="15dp"/>
            <EditText
                       android:layout_width="match_parent"
                       android:layout_height="60dp"
                       android:id="@+id/name"
                       android:background="@drawable/bg"
                       android:padding="15dp"/>

        </LinearLayout>

       <LinearLayout
            android:layout_width="match_parent"
           android:layout_height="wrap_content"
           android:orientation="horizontal"
            android:padding="5dp">
            <TextView
                       android:layout_width="wrap_content"
                       android:layout_height="wrap_content"
                       android:text="E-mail"
                       android:textSize="20sp"
                       android:textStyle="bold"
```

```
                android:textColor="#26389C"
                android:padding="15dp"/>

            <EditText
                android:id="@+id/email"
                android:layout_width="match_parent"
                android:layout_height="60dp"
                android:ems="10"
                android:inputType="textEmailAddress"
                android:background="@drawable/bg"
                android:padding="15dp"/>
</LinearLayout>
<LinearLayout
   android:layout_width="match_parent"
   android:layout_height="wrap_content"
   android:orientation="horizontal"
   android:padding="5dp">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Sex"
      android:textSize="20sp"
      android:textStyle="bold"
      android:textColor="#26389C"
      android:padding="15dp"
      android:paddingEnd="40dp"
      />

   <RadioGroup
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:background="@drawable/bg"
      android:orientation="horizontal"
      android:id="@+id/sex">

      <RadioButton
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:id="@+id/male"
         android:padding="15dp"
         android:text="Male"
         android:textColor="#26389C"
         android:textSize="20sp"
         android:textStyle="bold" />

      <RadioButton
         android:layout_width="wrap_content"
         android:layout_height="wrap_content"
         android:id="@+id/female"
         android:padding="15dp"
```

```
            android:text="Female"
            android:textColor="#26389C"
            android:textSize="20sp"
            android:textStyle="bold" />

        </RadioGroup>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:padding="5dp">
        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Country"
            android:textSize="20sp"
            android:textStyle="bold"
            android:textColor="#26389C"
            android:padding="15dp"
            android:paddingEnd="5dp" />
        <Spinner
            android:layout_width="match_parent"
            android:layout_height="60dp"
            android:id="@+id/country"
            android:padding="15dp"
            android:background="@drawable/bg"/>
    </LinearLayout>
</LinearLayout>
<View
    android:layout_width="match_parent"
    android:layout_height="40dp"/>

<Button
    android:layout_width="210dp"
    android:layout_height="wrap_content"
    android:id="@+id/submit"
    android:background="@drawable/bg"
    android:padding="15dp"
    android:text="Submit"
    android:textColor="#26389C"
    android:textSize="20sp"
    android:textStyle="bold" />

</LinearLayout>
```

The following figure illustrates the design view of the application.



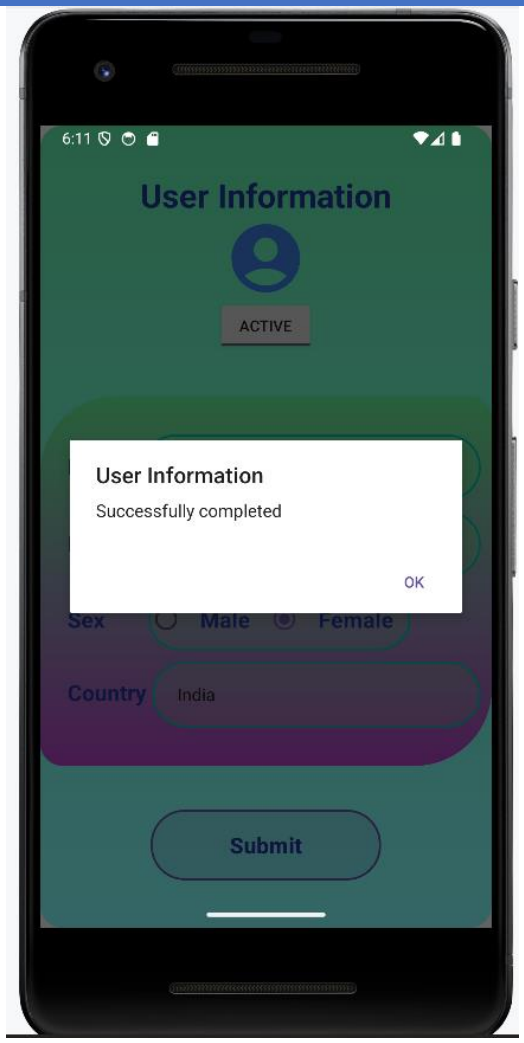
6. Create two **EditText** and a **Button** object, create **clickListener**, **onClick** event for button object and update the following code in **MainActivity.java**

```
package com.example.all_views;

import android.app.Dialog;
import android.content.Context;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
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;
import androidx.core.view.WindowInsetsCompat;

public class MainActivity extends AppCompatActivity {
    Button sub;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.activity_main);
        Button sub=findViewById(R.id.submit);

        sub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                showMessage(MainActivity.this,"User Information","Successfully
completed");
            }
        });
       String[] item=new String[]{"India", "Pakisthan", "China", "America",
"England"};
        ArrayAdapter adapter = new ArrayAdapter<>(this,
android.R.layout.simple_spinner_item, item);

adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_i
tem);
        Spinner spinner = findViewById(R.id.country);
        spinner.setAdapter(adapter);
    }

    public void showMessage(Context con,String t, String msg)
    {
        AlertDialog.Builder builder = new AlertDialog.Builder(con);
        builder.setTitle(t);
        builder.setMessage(msg);
        builder.setPositiveButton("OK", new DialogInterface.OnClickListener() {
            @Override
            public void onClick(DialogInterface dialog, int which) {
                dialog.dismiss();
            }
        });
        builder.show();

    }
}
```

7. Click **Run app** or **shift+F10** to execute the application.

Output



Program 7

7. Create menu in Application

    1. Click **New Project**, the **New Project Dialog box** appears.
    2. Choose **Empty Views Activity** then click **Next**.
    3. Specify the **Name** of your project, Select the **Language** as **Java**, and Select the **Minimum SDK** as **API 16 ("Jelly Bean", Android 4.1)**. Click **Finish** Button.
    4. To create another activity for **Home Page,** Right Click **App→New→Activity→ Empty Views Activity.** A **New Android Activity** dialog box appears, Specify the **Name** of the activity as **HomeScreen** then click **Finish**.
    5. **To create a Menu Resource File:**

       Right-click on the **res** directory in your Android project, navigate to **New > Android Resource File**, and **name** the file **menus.xml**, Root element as **Menu** and update the following content.

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android">
<item android:id="@+id/php"
   android:title="PHP"/>
   <item android:id="@+id/java"
```

```
        android:title="JAVA"/>
    <item android:id="@+id/csharp"
        android:title="C#"/>
</menu>
```

The menu design is as follows:

6. Update the following code in **MainActivity.java**

```
package com.example.menuexample;

import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuInflater;
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 onCreatePanelMenu(int featureId, @NonNull Menu menu) {
        MenuInflater inflater=getMenuInflater();
        inflater.inflate(R.menu.menus,menu);
        return true;

    }

    @Override
    public boolean onOptionsItemSelected(@NonNull MenuItem item) {
        if(item.getItemId()==R.id.php) {
            Toast.makeText(this, "Php Page", Toast.LENGTH_SHORT).show();
        }
        if(item.getItemId()==R.id.java) {
            Toast.makeText(this, "Java Page", Toast.LENGTH_SHORT).show();
        }
        if(item.getItemId()==R.id.csharp) {
            Toast.makeText(this, "C# Page", Toast.LENGTH_SHORT).show();
        }
        return super.onOptionsItemSelected(item);
    }
}
```

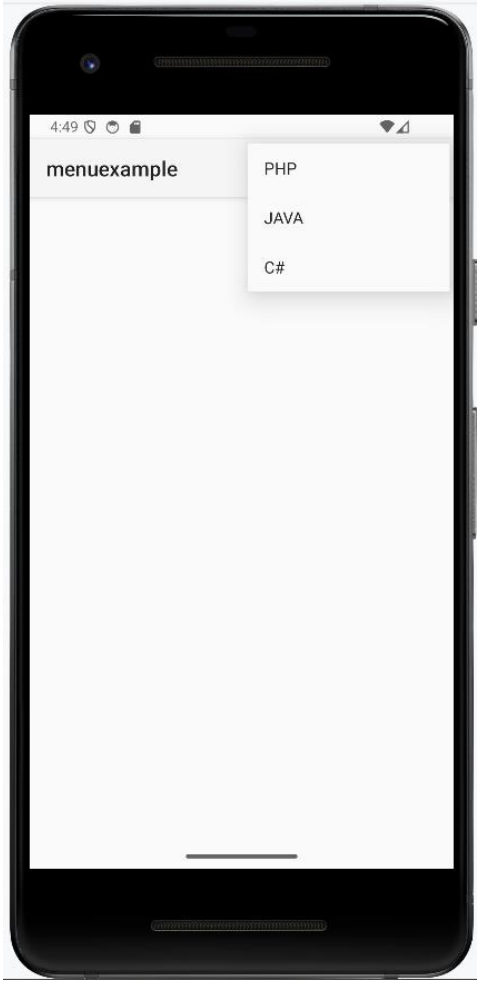
7. Set the **Uses-Permission** in **AndroidManifest.xml**

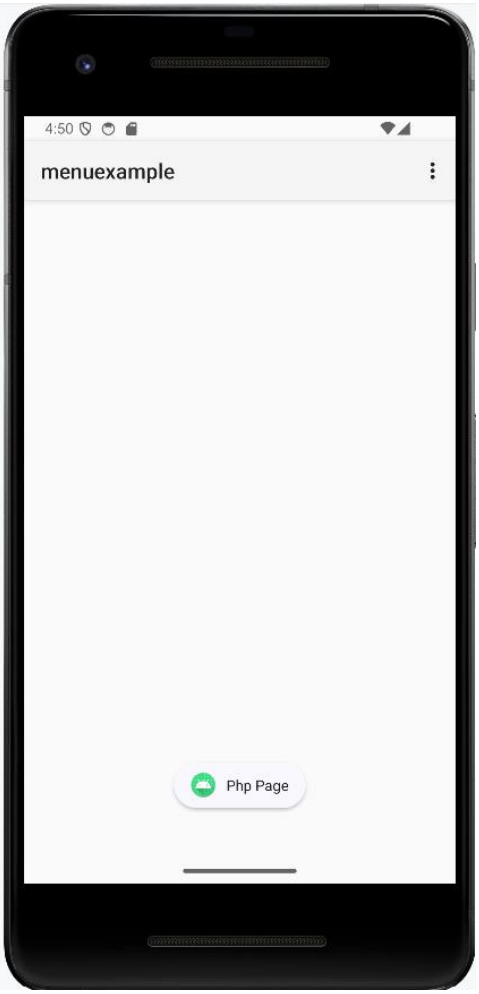
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools">

    <uses-permission android:name="android.permission.INTERNET" />

    <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.AppCompat.Light"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
```

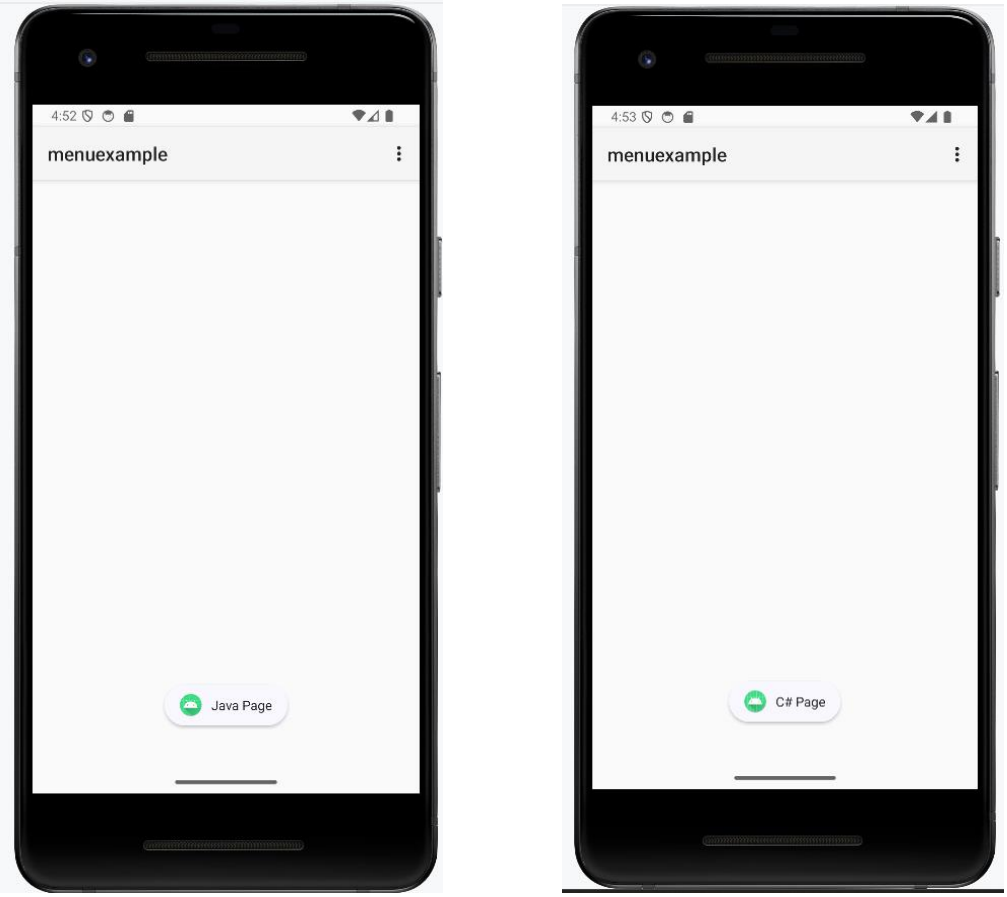
```
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
</application>

</manifest>
```

8. Click **Run app** or **shift+F10** to execute the application.

Output







8. Read/ write the Local data.
9. Create / Read / Write data with database (SQLite).
10. Create an application to send SMS and receive SMS
11. Create an application to send an e-mail.
12. Display Map based on the Current/given location.
13. Create a sample application with login module(check user name and password) On successful login change Textview “Login Successful”. On login fail alert using Toast “login fail”
14. Learn to deploy Android applications