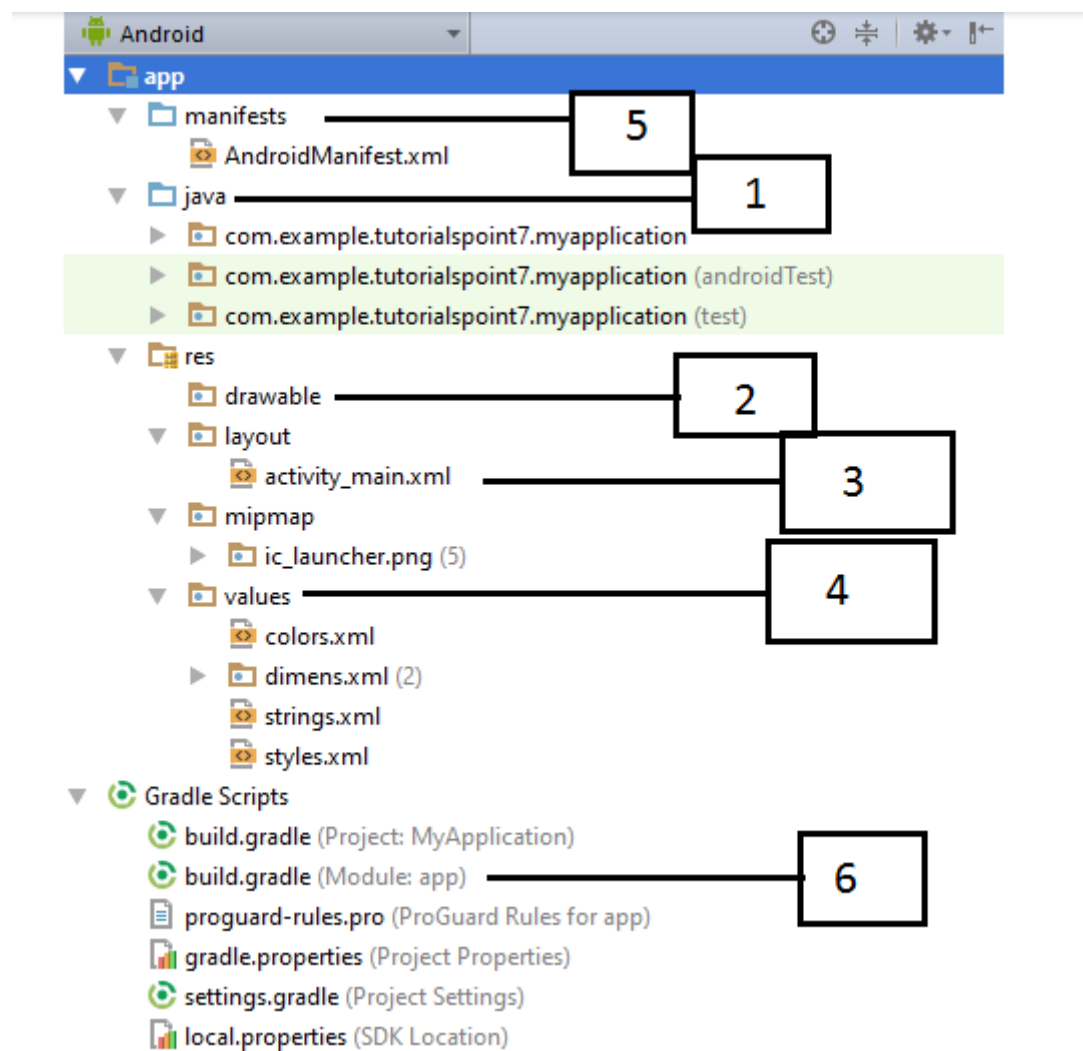


Basic Android



| Sr.No. | Folder, File & Description |
|--------|----------------------------|
| 1 | Java |

| | |
|----------|--|
| | This contains the .java source files for your project. By default, it includes an <i>MainActivity.java</i> source file having an activity class that runs when your app is launched using the app icon. |
| 2 | res/drawable-hdpi This is a directory for drawable objects that are designed for high-density screens. (hdpi stands for high-density pixel density) |
| 3 | res/layout This is a directory for files that define your app's user interface. |
| 4 | res/values This is a directory for other various XML files that contain a collection of resources, such as strings and colours definitions. |
| 5 | AndroidManifest.xml This is the manifest file which describes the fundamental characteristics of the app and defines each of its components. |
| 6 | Build.gradle This is an auto generated file which contains compileSdkVersion, buildToolsVersion, applicationId, minSdkVersion, targetSdkVersion, versionCode and versionName |

AndroidManifest.XML

- Describes essential details about the app, like its name, package name, version, and permissions.
- Defines each part of the app, such as activities, services, broadcast receivers, and content providers.
- Lists permissions required by the app to access device features or data.
- Specifies which components can respond to which types of intents, enabling inter-component communication.
- Declares configurations like supported device orientations, minimum and target SDK versions, hardware requirements, and more.
- Launch Activity : Specifies the main activity that serves as the entry point when the app is launched.
- Dependencies : Declares dependencies on libraries or other apps required for proper functioning.

- Security : Defines security settings such as allowing or denying access to components by other apps.
- Every Android app must have a manifest file; it's crucial for the Android system to understand and manage the app's behaviour.

1. Creating Hello World Application

activity_main.xml

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

    <TextView
        android: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"
        android:textSize="30dp"/>

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

MainActivity.java

```
package com.example.helloworldapplication;

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

```
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

}
```

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

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">

    <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:supportsRtl="true"

        android:theme="@style/Theme.SecondProgram" tools:targetApi="31">

        <activity

            android:name=".NextActivity"

            android:exported="false" android:screenOrientation="landscape"

        />

    </application>

</manifest>
```

```

        android:name=".MainActivity"

        android:exported="true"

        android:screenOrientation="portrait">

        <intent-filter>

            <action android:name="android.intent.action.MAIN" />

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

        </intent-filter>
    </activity>

</application>

</manifest>

```

activity_main.xml

```

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

<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

```

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

```
tools:context=".MainActivity">
```

```
<Button
```

```
    android:id="@+id/button1"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginBottom="8dp"
```

```
    android:layout_marginTop="112dp"
```

```
    android:onClick="onClick"
```

```
    android:text="Launch next activity"
```

```
    app:layout_constraintBottom_toBottomOf="parent"
```

```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.612"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toBottomOf="@+id/editText1"
```

```
    app:layout_constraintVertical_bias="0.613" />
```

```
<TextView
```

```
    android:id="@+id/editText1"
```

```
    android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"

        android:layout_centerHorizontal="true"

        android:layout_marginEnd="8dp"

        android:layout_marginStart="8dp"

        android:layout_marginTop="124dp"

        android:ems="10"

        android:textSize="22dp"

        android:text="This activity is portrait orientation"

        app:layout_constraintEnd_toEndOf="parent"

        app:layout_constraintHorizontal_bias="0.502"

        app:layout_constraintStart_toStartOf="parent"

        app:layout_constraintTop_toTopOf="parent" />

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

MainActivity.java

```
package com.example.secondprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
```



```

import android.os.Bundle;

import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

    public void onClick(View v) {

        Intent intent = new Intent(MainActivity.this, NextActivity.class);

        startActivity(intent);

    }

}

```

activity_next.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=".NextActivity">
```

```
<TextView
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginEnd="8dp"
```

```
    android:layout_marginStart="8dp"
```

```
    android:layout_marginTop="180dp"
```

```
    android:text="this is landscape orientation"
```

```
    android:textSize="22dp"
```

```
    app:layout_constraintEnd_toEndOf="parent"
```

```
    app:layout_constraintHorizontal_bias="0.502"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

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

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

NextActivity.java

```
package com.example.secondprogram;
import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class NextActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_next);

    }

}
```

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

```
<?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:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity"

    android:orientation="vertical"

    android:padding="16dp">

    <TextView android:id="@+id/tvTitle"

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:textSize="24sp"

        android:text="Login Form"

        android:layout_gravity="center"/>
```

```
<TextView android:id="@+id/tvUserName"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:textSize="20sp"
```

```
    android:text="User Name" />
```

```
<EditText
```

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

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

```
    android:layout_height="wrap_content"
```

```
    android:hint="Username"
```

```
    android:inputType="text"
```

```
    android:padding="8dp"
```

```
    android:layout_marginTop="16dp"
```

```
    android:layout_marginBottom="30dp"/>
```

```
<TextView android:id="@+id/tvPassword"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:textSize="20sp"
```

```
    android:text="Password" />
```

<EditText

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

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:hint="Password"

    android:inputType="textPassword"

    android:padding="8dp"

    android:layout_marginTop="16dp"

    android:layout_marginBottom="30dp"/>
```

<Button

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

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:text="Login"

    android:textSize="18sp"

    android:layout_marginTop="16dp"/>
```

</LinearLayout>

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

/* Explicit Intent: This involves navigating from one activity to another within the same application.

Implicit Intent: This involves triggering an action that can be handled by another application. */

activity_main.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:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity"

    android:orientation="vertical"

    android:padding="30dp">

    <Button
```

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

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="Explicit Content"

        android:textSize="30sp"

        android:layout_marginTop="30dp"></Button>

</LinearLayout>
```

MainActivity.java

```
package com.example.fourthprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button btnExplicitContent;
```



```

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    btnExplicitContent=findViewById(R.id.btnExplicitContent);

    btnExplicitContent.setOnClickListener(new View.OnClickListener() {
        @Override

        public void onClick(View view) {

            Intent intent = new Intent(MainActivity.this,
SecondActivity.class);

            startActivity(intent);

        }

    });

}
}

```

activity_second.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:layout_width="match_parent"

        android:layout_height="match_parent"

        tools:context=".SecondActivity"

        android:orientation="vertical"

        android:padding="30dp">

<Button

        android:id="@+id/btnImplicitContent"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="Implicit Content"

        android:textSize="30sp"

        android:layout_marginTop="30dp"></Button>

</LinearLayout>

```

SecondActivity.java

```

package com.example.fourthprogram;

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;


public class SecondActivity extends AppCompatActivity {


    Button btnImplicitContent;


    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_second);


        btnImplicitContent=findViewById(R.id.btnImplicitContent);


        btnImplicitContent.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View view) {

                Uri webpage = Uri.parse("https://www.google.com");

                Intent intent = new Intent(Intent.ACTION_VIEW, webpage);

                startActivity(intent);

            }

        });

    }

}

```

5. Create an application that displays custom designed Opening Screen

/* Right Click on Drawable resource folder -> Select New -> Click on Drawable

Resource File -> Type the File Name custom background -> Type Root element shape ->

Click on Ok Button */

drawable/custom background.xml

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

```
<shape xmlns:android="http://schemas.android.com/apk/res/android"
    android:shape="rectangle">
```

```
    <gradient
        android:startColor="#3F51B5"

        android:endColor="#2196F3"

        android:angle="45"/>
```

```
</shape>
```

activity_main.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:layout_width="match_parent"
```

```

        android:layout_height="match_parent"

        tools:context=".MainActivity"

        android:background="@drawable/custom_backgorund">

<TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Welcome to App"

        android:textSize="20sp"

        android:layout_centerInParent="true"/>

</RelativeLayout >

```

MainActivity.java

```

package com.example.fifthprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.os.Handler;

import android.view.Window;

```

```

import android.view.WindowManager;

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        // Hide the title bar

        requestWindowFeature(Window.FEATURE_NO_TITLE);

        // Make the activity full screen

        getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,

            WindowManager.LayoutParams.FLAG_FULLSCREEN);

        setContentView(R.layout.activity_main);

        Handler handler=new Handler();

        handler.postDelayed(new Runnable() {

            @Override

            public void run() {

                Intent intent=new

Intent(MainActivity.this,MainActivity2.class);

                startActivity(intent);

```

```
        finish();  
    }  
  
    }, 3000);  
  
}  
  
}
```

Create one more MainActivity2.java (activity_main2.xml)

6. Create an UI with all views.

7. Create menu in application.

res/menu/main_menu.xml

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

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

    <item

        android:id="@+id/action_settings"

        android:title="Settings"

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

</menu>
```

activity_main.xml

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

<androidx.constraintlayout.widget.ConstraintLayout
    xmlns:android="http://schemas.android.com/apk/res/android"

    xmlns:app="http://schemas.android.com/apk/res-auto"

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">
```



```

<TextView

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Menu Page"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity.java

```

package com.example.seventhprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.view.Menu;

import android.view.MenuItem;

```

```

public class MainActivity extends AppCompatActivity {

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

    }

    @Override

    public boolean onCreateOptionsMenu(Menu menu) {

        getMenuInflater().inflate(R.menu.main_menu, menu);

        return true;

    }

    @Override

    public boolean onOptionsItemSelected(MenuItem item) {

        int id = item.getItemId();

        // Handle item selection

```

```

        if (id == R.id.action_settings) {

            // Open settings activity or perform desired action

            Intent intent = new Intent(getApplicationContext(),
MainActivity2.class);

            startActivity(intent); // Start MainActivity2

            return true;

        }

        return super.onOptionsItemSelected(item);

    }
}

```

activity_main2.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=".MainActivity2">

```

```

<TextView

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Settings Page"

    app:layout_constraintBottom_toBottomOf="parent"

    app:layout_constraintEnd_toEndOf="parent"

    app:layout_constraintStart_toStartOf="parent"

    app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

MainActivity2.java

```

package com.example.seventhprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity2 extends AppCompatActivity {

```

```

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main2);

}

}

```

8. Read / Write the Local data.

activity_main.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:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity"

    android:orientation="vertical">

    <TextView

        android:layout_width="match_parent"

```

```
android:layout_height="wrap_content"
```

```
android:text="User Name"></TextView>
```

```
<EditText
```

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

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

```
android:layout_height="wrap_content"
```

```
></EditText>
```

```
<TextView
```

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

```
android:layout_height="wrap_content"
```

```
android:text="Password"></TextView>
```

```
<EditText
```

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

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

```
android:layout_height="wrap_content"
```

```
></EditText>
```

```
<Button
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:text="Save" />
```

```
<Button
```

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

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:text="Next" />
```

```
</LinearLayout>
```

MainActivity.java

```
package com.example.eighthprogram;
```

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

```
import android.content.Context;

import android.content.Intent;

import android.content.SharedPreferences;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;


public class MainActivity extends AppCompatActivity {


    Button btnsave,btnnext;


    EditText etUserName,etPassword;


    @Override


    protected void onCreate(Bundle savedInstanceState) {


        super.onCreate(savedInstanceState);
```



```

setContentView(R.layout.activity_main);

btnsave=(Button) findViewById(R.id.btnsave);

btnnext = (Button) findViewById(R.id.btnnext);


etUserName = (EditText) findViewById(R.id.etUserName);

etPassword = (EditText) findViewById(R.id.etPassword);


btnsave.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View view) {

        // Writing data to SharedPreferences

        SharedPreferences sharedPreferences =
getSharedPreferences("MyPrefs", Context.MODE_PRIVATE);

        SharedPreferences.Editor editor = sharedPreferences.edit();

        editor.putString("username",
etUserName.getText().toString());

        editor.putString("password",
etPassword.getText().toString());

        editor.apply();

```

```

        Toast.makeText(getApplicationContext(), "Saved
successfully", Toast.LENGTH_LONG).show();

    }

});

btnnext.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View view) {

        Intent intent = new
Intent(getApplicationContext(), MainActivity2.class);

        startActivity(intent);

    }

});

}

}

```

activity_main2.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:layout_width="match_parent"

android:layout_height="match_parent"

tools:context=".MainActivity2"

android:orientation="vertical">
```

```
<Button
```

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

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Fetch" />
```

```
<TextView
```

```
    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:text="User Name"></TextView>
```

```
<EditText
```

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

```
        android:layout_width="match_parent"

        android:layout_height="wrap_content"

    ></EditText>
```

```
<TextView

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

        android:text="Password"></TextView>
```

```
<EditText

        android:id="@+id/etPassword"

        android:layout_width="match_parent"

        android:layout_height="wrap_content"

    ></EditText>
```

```
</LinearLayout>
```

MainActivity2.java

```
package com.example.eigthprogram;
```

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

```

import android.content.Context;

import android.content.SharedPreferences;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;


public class MainActivity2 extends AppCompatActivity {


    Button btnFetch;

    EditText etUserName, etPassword;


    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main2);


        btnFetch = (Button) findViewById(R.id.btnFetch);


        etUserName = (EditText) findViewById(R.id.etUserName);

```

```

    etPassword = (EditText)findViewById(R.id.etPassword);

    btnFetch.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View view) {

            // Reading data from SharedPreferences

            SharedPreferences sharedPreferences =
getSharedPreferences("MyPrefs", Context.MODE_PRIVATE);

            String username = sharedPreferences.getString("username", "");

            String password = sharedPreferences.getString("password", "");

            etUserName.setText(username);

            etPassword.setText(password);

        }

    });

}

}

```

9. Create / Read / Write data with database (SQL Lite)

colors.xml

```
<color name="colorAccent">#FF6200EE</color>
```

```
<color name="colorPrimary">#FF3700B3</color>
```

```
<color name="colorPrimaryDark">#FF3700B3</color>
```

activity_main.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:layout_width="match_parent"
```

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

```
    android:orientation="vertical"
```

```
    android:gravity="center"
```

```
    tools:context=".MainActivity">
```

```
        <LinearLayout
```

```
            android:layout_width="wrap_content"
```

```
            android:layout_height="wrap_content"
```

```
            android:orientation="vertical"
```

```
            android:gravity="center">
```

```
                <TextView
```

```
        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Course Registration"

        android:textColor="@color/colorAccent"

        android:textSize="30dp"

    />

</LinearLayout>
```

```
<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">
```

```
<TextView

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Name"

/>
```



```
<EditText

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:ems="10"

    android:id="@+id/name"

    android:textAlignment="center"

/>
```

```
</LinearLayout>
```

```
<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">
```

```
<TextView

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:text="Course"
```

```
/>
```

```
<EditText
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_weight="1"
```

```
    android:ems="10"
```

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

```
    android:textAlignment="center"
```

```
/>
```

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:orientation="horizontal"
```

```
    android:gravity="center">
```

```
<TextView
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:text="Fee"
```

```
<EditText
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_weight="1"
```

```
    android:ems="10"
```

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

```
    android:textAlignment="center"
```

```
</LinearLayout>
```

```
<LinearLayout
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:orientation="horizontal"
```

```
    android:gravity="center">
```

```
<Button

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:id="@+id/bt1"

    android:text="Ok"

    android:background="@color/colorPrimary"

/>
```

```
<Button

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:id="@+id/bt2"

    android:text="View"

    android:background="@color/colorAccent"

/>
```

```
</LinearLayout>
```

```
</LinearLayout>
```

MainActiviy.java

```
package com.example.ninthprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;

import android.content.Intent;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteStatement;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    EditText ed1,ed2,ed3;

    Button b1,b2;

    @Override
```

```

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);


    ed1 = findViewById(R.id.name);

    ed2 = findViewById(R.id.course);

    ed3 = findViewById(R.id.fee);

    b1 = findViewById(R.id.bt1);

    b2 = findViewById(R.id.bt2);

    b2.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v)

        {

            Intent i = new
Intent(getApplicationContext(),ViewActivity.class);

            startActivity(i);

        }

    });

    b1.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

```

```

        insert();

    }

});

}

public void insert()

{

    try

    {

        String name = ed1.getText().toString();

        String course = ed2.getText().toString();

        String fee = ed3.getText().toString();

        SQLiteDatabase db = openOrCreateDatabase("SliteDb",
Context.MODE_PRIVATE,null);

        db.execSQL("CREATE TABLE IF NOT EXISTS records(id INTEGER
PRIMARY KEY AUTOINCREMENT,name VARCHAR,course VARCHAR,fee VARCHAR)");

        String sql = "insert into records(name,course,fee)values('" +
name + "',''+ course + "',''+ fee + '');"

        SQLiteStatement statement = db.compileStatement(sql);

        statement.execute();

        Toast.makeText(this,"Record added",Toast.LENGTH_LONG).show();

        ed1.setText("");

```

```

        ed2.setText("");

        ed3.setText("");

        ed1.requestFocus();

    }

    catch (Exception ex)

    {

        Toast.makeText(this, "Record Fail", Toast.LENGTH_LONG).show();

    }

}

}

```

/* Add Student.class file (Right click on package name */

Student.class

```
package com.example.ninthprogram;
```

```
public class Student {
```

```
    String id;
```

```
    String name;
```

```
    String course;
```

```
    String fee;
```



```
String titles;

}
```

activity view.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:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".ViewActivity"

    android:orientation="vertical">

    <ListView

        android:layout_width="match_parent"

        android:layout_height="match_parent"

        android:id="@+id/lst1"

        />

</LinearLayout>
```

ViewActivity.java

```
package com.example.ninthprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;

import android.content.Intent;

import android.database.Cursor;

import android.database.sqlite.SQLiteDatabase;

import android.os.Bundle;

import android.view.View;

import android.widget.AdapterView;

import android.widget.ArrayAdapter;

import android.widget.ListView;

import java.util.ArrayList;

public class ViewActivity extends AppCompatActivity {

    ListView lst1;

    ArrayList<String> titles = new ArrayList<String>();
```

```

ArrayAdapter arrayAdapter;

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_view);

    SQLiteDatabase db = openOrCreateDatabase("SliteDb",
Context.MODE_PRIVATE,null);

    lst1 = findViewById(R.id.lst1);

    final Cursor c = db.rawQuery("select * from records",null);

    int id = c.getColumnIndex("id");

    int name = c.getColumnIndex("name");

    int course = c.getColumnIndex("course");

    int fee = c.getColumnIndex("fee");

    titles.clear();

    arrayAdapter = new ArrayAdapter(this,
androidx.appcompat.R.layout.support_simple_spinner_dropdown_item,titles);

    lst1.setAdapter(arrayAdapter);

    final ArrayList<Student> stud = new ArrayList<Student>();

    if(c.moveToFirst())

    {

```

```

do{

    Student stu = new Student();

    stu.id = c.getString(id);

    stu.name = c.getString(name);

    stu.course = c.getString(course);

    stu.fee = c.getString(fee);

    stud.add(stu);

    titles.add(c.getString(id) + " \t " + c.getString(name) + "
\t " + c.getString(course) + " \t " + c.getString(fee) );

} while(c.moveToNext());

arrayAdapter.notifyDataSetChanged();

lst1.invalidateViews();

}

lst1.setOnItemClickListener(new AdapterView.OnItemClickListener() {

    @Override

    public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {

        String aa = titles.get(position).toString();

        Student stu = stud.get(position);

        Intent i = new
Intent(getApplicationContext(),EditActivity.class);

```

```

        i.putExtra("id", stu.id);

        i.putExtra("name", stu.name);

        i.putExtra("course", stu.course);

        i.putExtra("fee", stu.fee);

        startActivity(i);

    }

});

}

}

```

activity_edit.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:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".EditActivity"

    android:orientation="vertical">

```

```

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="vertical"

    android:gravity="center">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Course Registration"

        android:textColor="@color/colorAccent"

        android:textSize="30dp"

    />

</LinearLayout>

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">

    <TextView

        android:layout_width="wrap_content"

```

```

        android:layout_height="wrap_content"

        android:text="ID"

    />

<EditText

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:ems="10"

    android:id="@+id/id"

    android:textAlignment="center"

/>

</LinearLayout>

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

```

```

        android:text="Name"

    />

<EditText

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:ems="10"

    android:id="@+id/name"

    android:textAlignment="center"

    />

</LinearLayout>

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Course"

```



```

        />

<EditText

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:ems="10"

    android:id="@+id/course"

    android:textAlignment="center"

    />

</LinearLayout>

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">

    <TextView

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:text="Fee"

        />

```

```

<EditText

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:ems="10"

    android:id="@+id/fee"

    android:textAlignment="center"

/>

</LinearLayout>

<LinearLayout

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:orientation="horizontal"

    android:gravity="center">

    <Button

        android:layout_width="wrap_content"

        android:layout_height="wrap_content"

        android:layout_weight="1"

        android:id="@+id/bt1"

        android:text="Edit"

```

```

        android:background="@color/colorPrimary"

    />

<Button

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:id="@+id/bt2"

    android:text="Delete"

    android:background="@color/colorAccent"

    />

<Button

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_weight="1"

    android:id="@+id/bt3"

    android:text="Back"

    android:background="@color/colorPrimaryDark"

    />

</LinearLayout>

</LinearLayout>

```

EditActivity.java

```

package com.example.ninthprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Context;

import android.content.Intent;

import android.database.sqlite.SQLiteDatabase;

import android.database.sqlite.SQLiteStatement;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

import android.widget.Toast;

public class EditActivity extends AppCompatActivity {

    EditText ed1,ed2,ed3,ed4;

    Button b1,b2,b3;

    @Override

```

```
protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_edit);


    ed1 = findViewById(R.id.name);

    ed2 = findViewById(R.id.course);

    ed3 = findViewById(R.id.fee);

    ed4 = findViewById(R.id.id);

    b1 = findViewById(R.id.bt1);

    b2 = findViewById(R.id.bt2);

    b3 = findViewById(R.id.bt3);

    Intent i = getIntent();

    String t1 = i.getStringExtra("id").toString();

    String t2 = i.getStringExtra("name").toString();

    String t3 = i.getStringExtra("course").toString();

    String t4 = i.getStringExtra("fee").toString();

    ed4.setText(t1);

    ed1.setText(t2);

    ed2.setText(t3);

    ed3.setText(t4);
```

```

b2.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        try

        {

            String id = ed4.getText().toString();

            SQLiteDatabase db =
openOrCreateDatabase("SliteDb", Context.MODE_PRIVATE, null);

            String sql = "delete from records where id = " + id + "";

            SQLiteStatement statement = db.compileStatement(sql);

            statement.execute();

            Toast.makeText(EditActivity.this, "Record
Deleted", Toast.LENGTH_LONG).show();

            ed1.setText("");

            ed2.setText("");

            ed3.setText("");

            ed1.requestFocus();

        }

        catch (Exception ex)

        {

```

```

Toast.makeText(EditActivity.this, "Record Fail", Toast.LENGTH_LONG).show();

        }

    }

});

b3.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        Intent i = new
Intent(getApplicationContext(), ViewActivity.class);

        startActivity(i);

    }

});

b1.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View v) {

        try {

            String name = ed1.getText().toString();

            String course = ed2.getText().toString();

            String fee = ed3.getText().toString();

            String id = ed4.getText().toString();

```

```

        SQLiteDatabase db = openOrCreateDatabase("SliteDb",
Context.MODE_PRIVATE, null);

        String sql = "update records set name = '" + name + "',course='" +
course + "',fee='" + fee + "' where id= " + id + " ";

        SQLiteStatement statement = db.compileStatement(sql);

        statement.execute();

        Toast.makeText(EditActivity.this, "Record Updatedddd",
Toast.LENGTH_LONG).show();

        ed1.setText("");

        ed2.setText("");

        ed3.setText("");

        ed1.requestFocus();

    } catch (Exception ex) {

        Toast.makeText(EditActivity.this, "Record Fail",
Toast.LENGTH_LONG).show();

    }

}

});

}

}

```

10. Create an application to send SMS and receive SMS.

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-feature

        android:name="android.hardware.telephony"

        android:required="false" />

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

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

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

    <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:supportsRtl="true"

        android:theme="@style/Theme.NewSMS"
```

```
        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>
```

activity_main.xml

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

<RelativeLayout

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

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"
```

```
android:background="@color/white"
```

```
tools:context=".MainActivity">
```

```
<EditText
```

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

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

```
    android:layout_height="wrap_content"
```

```
    android:hint="Enter phone number"
```

```
    android:layout_margin="16dp"/>
```

```
<EditText
```

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

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

```
    android:layout_height="wrap_content"
```

```
    android:hint="Enter message"
```

```
    android:layout_below="@id/editTextPhoneNumber"
```

```
    android:layout_margin="16dp"/>
```

```
<Button
```

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

android:layout_width="wrap_content"

android:layout_height="wrap_content"

android:text="Send"

android:layout_below="@id/editTextMessage"

android:layout_alignParentEnd="true"

android:layout_marginEnd="16dp"

android:onClick="sendMessage"

tools:ignore="UsingOnClickInXml" />
```

<TextView

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

android:layout_width="match_parent"

android:layout_height="wrap_content"

android:layout_below="@id/buttonSend"

android:layout_marginStart="16dp"

android:layout_marginTop="16dp"

android:layout_marginEnd="16dp"

android:layout_marginBottom="16dp"

android:textColor="@color/black" />
```

</RelativeLayout>

MainActivity.java

```
package com.example.newsms;
```

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

```
import androidx.core.app.ActivityCompat;
```

```
import androidx.core.content.ContextCompat;
```

```
import android.content.BroadcastReceiver;
```

```
import android.content.Context;
```

```
import android.content.Intent;
```

```
import android.content.IntentFilter;
```

```
import android.content.pm.PackageManager;
```

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

```
import android.telephony.SmsManager;
```

```
import android.telephony.SmsMessage;
```

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

```
import android.widget.EditText;
```

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

```
import android.widget.Toast;

import android.Manifest;

public class MainActivity extends AppCompatActivity {

    private static final int SMS_PERMISSION_CODE = 101;

    private EditText editTextPhoneNumber;

    private EditText editTextMessage;

    private TextView textViewReceivedMessages;

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);

        editTextPhoneNumber = findViewById(R.id.editTextPhoneNumber);

        editTextMessage = findViewById(R.id.editTextMessage);

        textViewReceivedMessages =
findViewById(R.id.textViewReceivedMessages);

        // Request SMS permissions if not granted
```

```

        if (!checkSMSPermission()) {

            requestSMSPermission();

        }

        // Register SMS receiver

        IntentFilter intentFilter = new IntentFilter();

        intentFilter.addAction("android.provider.Telephony.SMS_RECEIVED");

        registerReceiver(smsReceiver, intentFilter);

    }

    @Override

    protected void onDestroy() {

        super.onDestroy();

        unregisterReceiver(smsReceiver);

    }

    // Button click listener for sending SMS

    public void sendMessage(View view) {

        String phoneNumber =
editTextPhoneNumber.getText().toString().trim();

        String message = editTextMessage.getText().toString();

```

```

        if (phoneNumber.isEmpty()) {

            Toast.makeText(this, "Please enter a valid phone number",
Toast.LENGTH_SHORT).show();

            return;

        }

        try {

            SmsManager smsManager = SmsManager.getDefault();

            smsManager.sendTextMessage(phoneNumber, null, message, null, null);

            Toast.makeText(this, "Message sent", Toast.LENGTH_SHORT).show();

        } catch (IllegalArgumentException e) {

            Toast.makeText(this, "Invalid phone number format",
Toast.LENGTH_SHORT).show();

        } catch (Exception e) {

            Toast.makeText(this, "Failed to send message",
Toast.LENGTH_SHORT).show();

            e.printStackTrace();

        }

    }

}

// Check if SMS permission is granted

```



```

private boolean checkSMSPermission() {

    return ContextCompat.checkSelfPermission(this,
Manifest.permission.SEND_SMS) == PackageManager.PERMISSION_GRANTED;

}

// Request SMS permission

private void requestSMSPermission() {

    ActivityCompat.requestPermissions(this, new
String[]{Manifest.permission.SEND_SMS}, SMS_PERMISSION_CODE);

}

// SMS receiver

private final BroadcastReceiver smsReceiver = new BroadcastReceiver() {

    @Override

    public void onReceive(Context context, Intent intent) {

        Bundle bundle = intent.getExtras();

        if (bundle != null) {

            Object[] pdus = (Object[]) bundle.get("pdus");

            if (pdus != null) {

                for (Object pdu : pdus) {

                    SmsMessage smsMessage = SmsMessage.createFromPdu((byte[]) pdu);

```

```

String senderPhoneNumber = smsMessage.getDisplayOriginatingAddress();

String messageBody = smsMessage.getMessageBody();

        textViewReceivedMessages.append("From: " +
senderPhoneNumber + "\n");

        textViewReceivedMessages.append("Message: " +
messageBody + "\n\n");

    }

    }

    }

    }

};

}

```

11. Create an application to send an E-mail.

activity_mail.xml

```

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

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

    xmlns:tools="http://schemas.android.com/tools"

    android:layout_width="match_parent"

    android:layout_height="match_parent"

    tools:context=".MainActivity">

```

<EditText

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

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:hint="To"/>
```

<EditText

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

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_below="@id/editTextTo"

    android:hint="Subject"/>
```

<EditText

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

    android:layout_width="match_parent"

    android:layout_height="wrap_content"

    android:layout_below="@id/editTextSubject"

    android:hint="Message"/>
```

```

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

    android:layout_width="wrap_content"

    android:layout_height="wrap_content"

    android:layout_below="@id/editTextMessage"

    android:text="Send"/>

</RelativeLayout>

```

MainActivity.java

```

package com.example.eleventhprogram;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;

import android.content.Intent;

import android.os.Bundle;

import android.view.View;

import android.widget.Button;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

```

```

EditText editTextTo, editTextSubject, editTextMessage;

Button buttonSend;

@Override

protected void onCreate(Bundle savedInstanceState) {

    super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);


    editTextTo = findViewById(R.id.editTextTo);

    editTextSubject = findViewById(R.id.editTextSubject);

    editTextMessage = findViewById(R.id.editTextMessage);

    buttonSend = findViewById(R.id.buttonSend);


    buttonSend.setOnClickListener(new View.OnClickListener() {

        @Override

        public void onClick(View v) {

            sendEmail();

        }
    }

```

```

    });

}

@SuppressLint("QueryPermissionsNeeded")

private void sendEmail() {

    String to = editTextTo.getText().toString().trim();

    String subject = editTextSubject.getText().toString().trim();

    String message = editTextMessage.getText().toString().trim();


    Intent intent = new Intent(Intent.ACTION_SEND);

    intent.setType("text/plain");

    intent.putExtra(Intent.EXTRA_EMAIL, new String[]{to});

    intent.putExtra(Intent.EXTRA_SUBJECT, subject);

    intent.putExtra(Intent.EXTRA_TEXT, message);


    if (intent.resolveActivity(getPackageManager()) != null) {

        startActivity(Intent.createChooser(intent, "Choose an email
client"));
    }

}

}

```

12. 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”.

activity_main.xml

```
13.  <?xml version="1.0" encoding="utf-8"?>
14.  <LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
15.      xmlns:app="http://schemas.android.com/apk/res-auto"
16.      xmlns:tools="http://schemas.android.com/tools"
17.      android:layout_width="match_parent"
18.      android:layout_height="match_parent"
19.      tools:context=".MainActivity"
20.      android:orientation="vertical"
21.      android:padding="16dp">
22.
23.      <TextView android:id="@+id/tvTitle"
24.          android:layout_width="wrap_content"
25.          android:layout_height="wrap_content"
26.          android:textSize="24sp"
27.          android:text="Login Form"
28.          android:layout_gravity="center"/>
29.
30.
31.      <TextView android:id="@+id/tvUserName"
32.          android:layout_width="wrap_content"
33.          android:layout_height="wrap_content"
34.          android:textSize="20sp"
35.          android:text="User Name" />
36.
37.      <EditText
38.          android:id="@+id/etUsername"
```

```

39.         android:layout_width="match_parent"
40.         android:layout_height="wrap_content"
41.         android:hint="Username"
42.         android:inputType="text"
43.         android:padding="8dp"
44.         android:layout_marginTop="16dp"
45.         android:layout_marginBottom="30dp" />
46.
47.     <TextView android:id="@+id/tvPassword"
48.         android:layout_width="wrap_content"
49.         android:layout_height="wrap_content"
50.         android:textSize="20sp"
51.         android:text="Password" />
52.
53.     <EditText
54.         android:id="@+id/etPassword"
55.         android:layout_width="match_parent"
56.         android:layout_height="wrap_content"
57.         android:hint="Password"
58.         android:inputType="textPassword"
59.         android:padding="8dp"
60.         android:layout_marginTop="16dp"
61.         android:layout_marginBottom="30dp" />
62.
63.     <Button
64.         android:id="@+id/btnLogin"
65.         android:layout_width="match_parent"
66.         android:layout_height="wrap_content"
67.         android:text="Login"
68.         android:textSize="18sp"

```



```

69.         android:layout_marginTop="16dp"/>
70.
71.
72.     <TextView android:id="@+id/tvMessage"
73.         android:layout_width="wrap_content"
74.         android:layout_height="wrap_content"
75.         android:textSize="20sp"
76.         android:text="Password" />
77.
78. </LinearLayout>

```

MainActivity.java

```

package com.example.thirdprogram;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    EditText etUsername,etPassword;

    Button btnLogin;

    TextView tvMessage;

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

```

```

setContentView(R.layout.activity_main);

btnLogin = (Button) findViewById(R.id.btnLogin);

etUsername = (EditText) findViewById(R.id.etUsername);

etPassword = (EditText) findViewById(R.id.etPassword);

tvMessage = (TextView) findViewById(R.id.tvMessage);

btnLogin.setOnClickListener(new View.OnClickListener() {

    @Override

    public void onClick(View view) {

        if(etUsername.getText().toString().equals(""))

        {

            etUsername.setError("Enter User name");

        } else if (etPassword.getText().toString().equals("")) {

            etPassword.setError("Enter Password");

        }

        else if(etUsername.getText().toString().equals("vit") &&
etPassword.getText().toString().equals("vit"))

        {

            tvMessage.setText("Valid Login");

        }

        else

        {

            tvMessage.setText("INvalid login");

        }

    }

});
}

```

