1.Create a Application Which will Send —Hello message from one activity to another with help of Button (Use Intent)

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"
    android:padding="16dp"
    tools:context=".MainActivity">
    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello, World!"
        android:textSize="24sp"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:layout_marginBottom="16dp"/>
    <Button
        android:id="@+id/button"
        android:layout_width="wrap_content"
        android:layout height="wrap content"
        android:text="Send Message"
        android:layout_below="@id/textView"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>
</RelativeLayout>
```

MainActivity.java

```
package com.example.helloworld;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    Button button = findViewById(R.id.button);
    button.setOnClickListener(new View.OnClickListener() {
      public void onClick(View v) {
        String message = "Hello, from MainActivity!";
        Intent intent = new Intent(MainActivity.this, MainActivity2.class);
        intent.putExtra("message", message);
        startActivity(intent);
      }
    });
  }
}
```

activity_main2.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"
    android:padding="16dp"
    tools:context=".MainActivity2">
    <TextView
        android:id="@+id/receivedMessage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        android:textSize="24sp"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"/>
</RelativeLayout>
```

MainActivity2.java

```
package com.example.helloworld;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity2 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);
        TextView receivedMessageTextView =
findViewById(R.id.receivedMessage);
        // Get the message from the Intent
        Intent intent = getIntent();
        if (intent != null && intent.hasExtra("message")) {
            String message = intent.getStringExtra("message");
            receivedMessageTextView.setText(message);
        }
    }
}
```

Output:

2.Create application with Login Screen. On successful login, gives message go to next Activity (Without Using Database).

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"
    android:padding="16dp"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"/>
    <EditText
        android:id="@+id/passwordEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword"
        android:layout_below="@id/usernameEditText"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>
    <Button
        android:id="@+id/loginButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"
        android:layout_below="@id/passwordEditText"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>
    <TextView
        android:id="@+id/errorTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        android:layout_below="@id/loginButton"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"/>
</RelativeLayout>
```

MainActivity.java

```
package com.example.loginmy;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
```

```
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private EditText usernameEditText;
    private EditText passwordEditText;
    private TextView errorTextView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        usernameEditText = findViewById(R.id.usernameEditText);
        passwordEditText = findViewById(R.id.passwordEditText);
        errorTextView = findViewById(R.id.errorTextView);
        Button loginButton = findViewById(R.id.loginButton);
        loginButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String username = usernameEditText.getText().toString();
                String password = passwordEditText.getText().toString();
                if (username.equals("your_username") &&
password.equals("your_password")) {
                    // Successful login, navigate to the next activity
                    Intent intent = new Intent(MainActivity.this,
NextActivity.class);
                    startActivity(intent);
                } else {
                    // Display an error message
                    errorTextView.setText("Invalid credentials. Please try
again.");
                }
            }
        });
    }
}
```

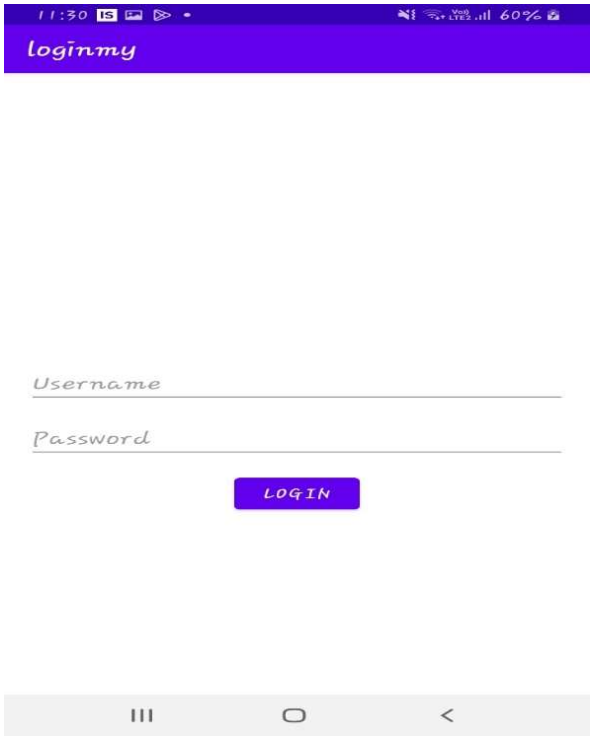
activitynext.xml

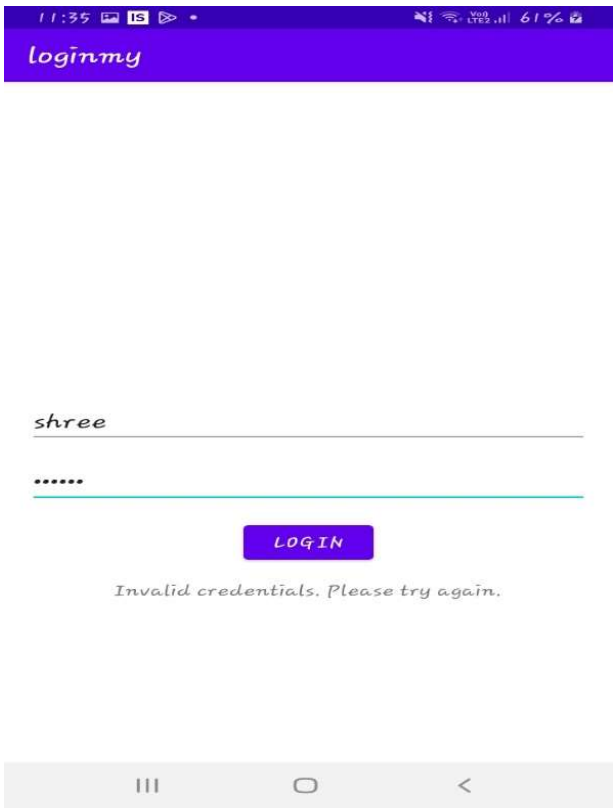
```
<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
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

NextActivity.java

```
package com.example.loginmy;
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);
    }
}
```

Output:


11:30
60%
loginmy
Username
Password
LOGIN


11:35
61%
loginmy
shree
LOGIN
Invalid credentials. Please try again.

3. Create First Activity to accept information like Student First Name, Middle Name, Last Name, Date of birth, Address, Email ID and display all information on Second Activity when user click on Submit button.

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"
    android:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/firstNameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_marginTop="99dp"
        android:hint="First Name" />

    <EditText
        android:id="@+id/middleNameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_above="@+id/lastNameEditText"
        android:layout_marginBottom="29dp"
        android:hint="Middle Name" />

    <EditText
        android:id="@+id/lastNameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_above="@+id/emailEditText"
        android:layout_marginBottom="52dp"
        android:hint="Last Name" />

    <EditText
        android:id="@+id/dobEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_above="@+id/submitButton"
        android:layout_marginBottom="557dp"
        android:hint="Date of Birth" />

    <EditText
        android:id="@+id/addressEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_above="@+id/submitButton"
        android:layout_marginBottom="557dp"
        android:hint="Address" />

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

```
        android:layout_height="wrap_content"
        android:layout_above="@+id/firstNameEditText"
        android:layout_marginBottom="-401dp"
        android:hint="Email ID" />

    <Button
        android:id="@+id/submitButton"
        android:layout_width="137dp"
        android:layout_height="wrap_content"
        android:layout_below="@+id/emailEditText"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_marginStart="152dp"
        android:layout_marginLeft="152dp"
        android:layout_marginTop="602dp"
        android:layout_marginEnd="137dp"
        android:layout_marginRight="137dp"
        android:text="Submit"
        tools:ignore="UnknownId" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.newreg;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private EditText firstNameEditText, middleNameEditText,
lastNameEditText, dobEditText, addressEditText, emailEditText;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        firstNameEditText = findViewById(R.id.firstNameEditText);
        middleNameEditText = findViewById(R.id.middleNameEditText);
        lastNameEditText = findViewById(R.id.lastNameEditText);
        dobEditText = findViewById(R.id.dobEditText);
        addressEditText = findViewById(R.id.addressEditText);
        emailEditText = findViewById(R.id.emailEditText);
        Button submitButton = findViewById(R.id.submitButton);
        submitButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Get student information from EditText fields
                String firstName = firstNameEditText.getText().toString();
                String middleName =
middleNameEditText.getText().toString();
                String lastName = lastNameEditText.getText().toString();
                String dob = dobEditText.getText().toString();
                String address = addressEditText.getText().toString();
                String email = emailEditText.getText().toString();
                // Create an Intent to pass data to the second activity
                Intent intent = new Intent(MainActivity.this,
DisplayInfoActivity.class);
                // Put student information as extras in the Intent
```

```
                intent.putExtra("firstName", firstName);
                intent.putExtra("middleName", middleName);
                intent.putExtra("lastName", lastName);
                intent.putExtra("dob", dob);
                intent.putExtra("address", address);
                intent.putExtra("email", email);
                // Start the second activity
                startActivity(intent);
            }
        });
    }
}
```

activity_display_info.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"
    android:padding="16dp"
    tools:context=".DisplayInfoActivity">
    <TextView
        android:id="@+id/displayInfoTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=""
        android:textSize="18sp"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"/>
</RelativeLayout>
```

DisplayInfoActivity.java

```
package com.example.newreg;
import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class DisplayInfoActivity extends AppCompatActivity {
    private TextView displayInfoTextView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_display_info);
        displayInfoTextView = findViewById(R.id.displayInfoTextView);
        // Get student information from the Intent
        Intent intent = getIntent();
        if (intent != null) {
            String firstName = intent.getStringExtra("firstName");
            String middleName = intent.getStringExtra("middleName");
            String lastName = intent.getStringExtra("lastName");
            String dob = intent.getStringExtra("dob");
            String address = intent.getStringExtra("address");
            String email = intent.getStringExtra("email");
            // Display the student information in the TextView
            String studentInfo = "Name: " + firstName + " " + middleName +
" " + lastName + "\n"
                    + "Date of Birth: " + dob + "\n"
                    + "Address: " + address + "\n"
                    + "Email: " + email;
```

```
            displayInfoTextView.setText(studentInfo);
        }
    }
}
```

Output::

4. Create a "Contact" layout to hold multiple pieces of information, including: Photo, Name, Contact Number, E-mail id.

MainActivity.java

```
package com.example.cont;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.widget.ImageView;
import android.widget.RelativeLayout;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    RelativeLayout contactContainer = findViewById(R.id.contactContainer);
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        for (int i = 0; i < 5; i++) {
            View contactView =
LayoutInflater.from(this).inflate(R.layout.activity_main, contactContainer,
false);
            ImageView contactPhoto =
contactView.findViewById(R.id.contactPhoto);
            TextView contactName =
contactView.findViewById(R.id.contactName);
            TextView contactNumber =
contactView.findViewById(R.id.contactNumber);
            TextView contactEmail =
contactView.findViewById(R.id.contactEmail);
            contactName.setText("Pranav Darekar" + (i + 1));
            contactNumber.setText("9307301505" + i);
            contactEmail.setText("darekarappa" + i + "@gmail.com");
            contactContainer.addView(contactView);
        }
    }
}
```

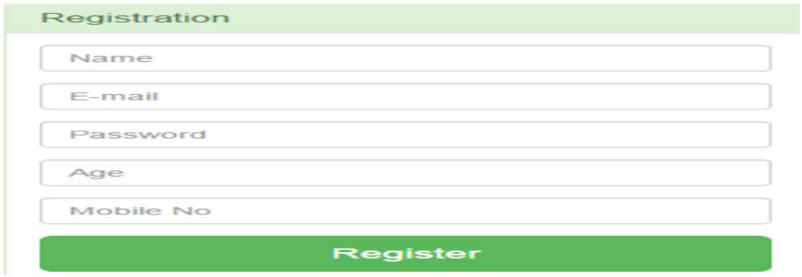
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="16dp"
    android:id="@+id/contactContainer">
    <ImageView
        android:id="@+id/contactPhoto"
        android:layout_width="64dp"
        android:layout_height="64dp"
        android:layout_alignParentStart="true"/>
<!--        android:src="@drawable/default_contact_image" />-->

    <TextView
        android:id="@+id/contactName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginStart="112dp"
        android:layout_toEndOf="@id/contactPhoto"
```

```
        android:text="Pranav Darekar"
        android:textSize="18sp" />

    <TextView
        android:id="@+id/contactNumber"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/contactName"
        android:layout_marginStart="123dp"
        android:layout_marginTop="3dp"
        android:layout_toEndOf="@id/contactPhoto"
        android:text="94518542121"
        android:textSize="16sp" />

    <TextView
        android:id="@+id/contactEmail"
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:layout_below="@id/contactNumber"
        android:layout_marginStart="85dp"
        android:layout_marginTop="1dp"
        android:layout_toEndOf="@id/contactPhoto"
        android:text="appadarekar@gmail.com"
        android:textSize="16sp" />
</RelativeLayout>
```

Output:

5. Create registration form given below. Also perform appropriate validation.



activity_main.xml

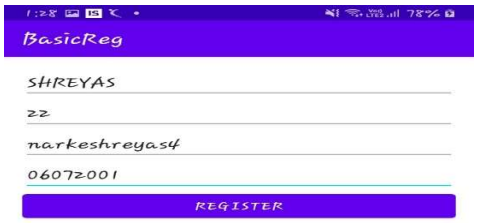
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout width="match parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <EditText
        android:id="@+id/editTextName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name" />
    <EditText
        android:id="@+id/editTextAge"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Age"
        android:inputType="number" />
    <EditText
        android:id="@+id/editTextEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email"
        android:inputType="textEmailAddress" />
    <EditText
        android:id="@+id/editTextDOB"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Date of Birth"
        android:inputType="date" />
    <Button
        android:id="@+id/buttonRegister"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Register" />
</LinearLayout>
```

MainActivity.java

```
package com.example.basicreg;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class MainActivity extends AppCompatActivity {
    private EditText editTextName, editTextAge, editTextEmail, editTextDOB;
```

```
    private Button buttonRegister;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        editTextName = findViewById(R.id.editTextName);
        editTextAge = findViewById(R.id.editTextAge);
        editTextEmail = findViewById(R.id.editTextEmail);
        editTextDOB = findViewById(R.id.editTextDOB);
        buttonRegister = findViewById(R.id.buttonRegister);
        buttonRegister.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String name = editTextName.getText().toString().trim();
                String ageStr = editTextAge.getText().toString().trim();
                String email = editTextEmail.getText().toString().trim();
                String dob = editTextDOB.getText().toString().trim();
                if (name.isEmpty() || ageStr.isEmpty() || email.isEmpty()
|| dob.isEmpty()) {
                    showToast("Please fill in all fields.");
                } else {
                    int age = Integer.parseInt(ageStr);
                    if (age < 18 || age > 100) {
                        showToast("Age must be between 18 and 100.");
                    } else if (!isEmailValid(email)) {
                        showToast("Invalid email address.");
                    } else {
                        showToast("Registration successful!");
                    }
                }
            }
        });
    }
    private boolean isEmailValid(String email) {
        return
android.util.Patterns.EMAIL_ADDRESS.matcher(email).matches();
    }
    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

Output::



6. Construct an app to display the image.

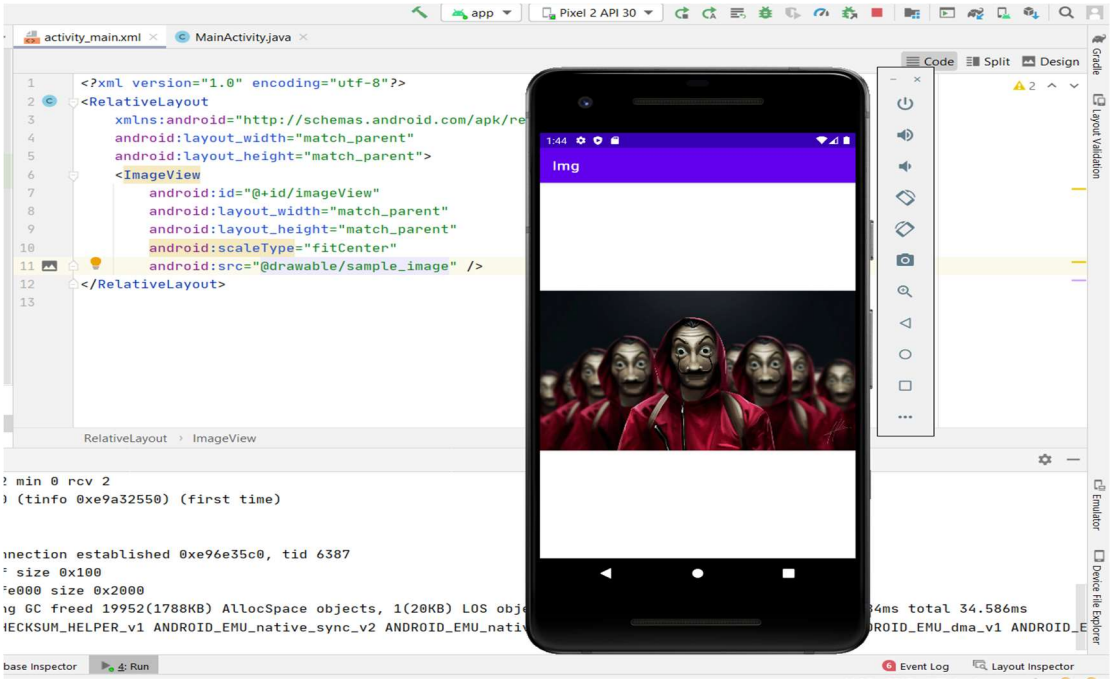
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <ImageView
        android:id="@+id/imageView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:scaleType="fitCenter"
        android:src="@drawable/sample_image" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.img;
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);
    }
}
```

Output::



7. Construct a bank app to display different menu like withdraw, deposit etc.

activity_main.xml

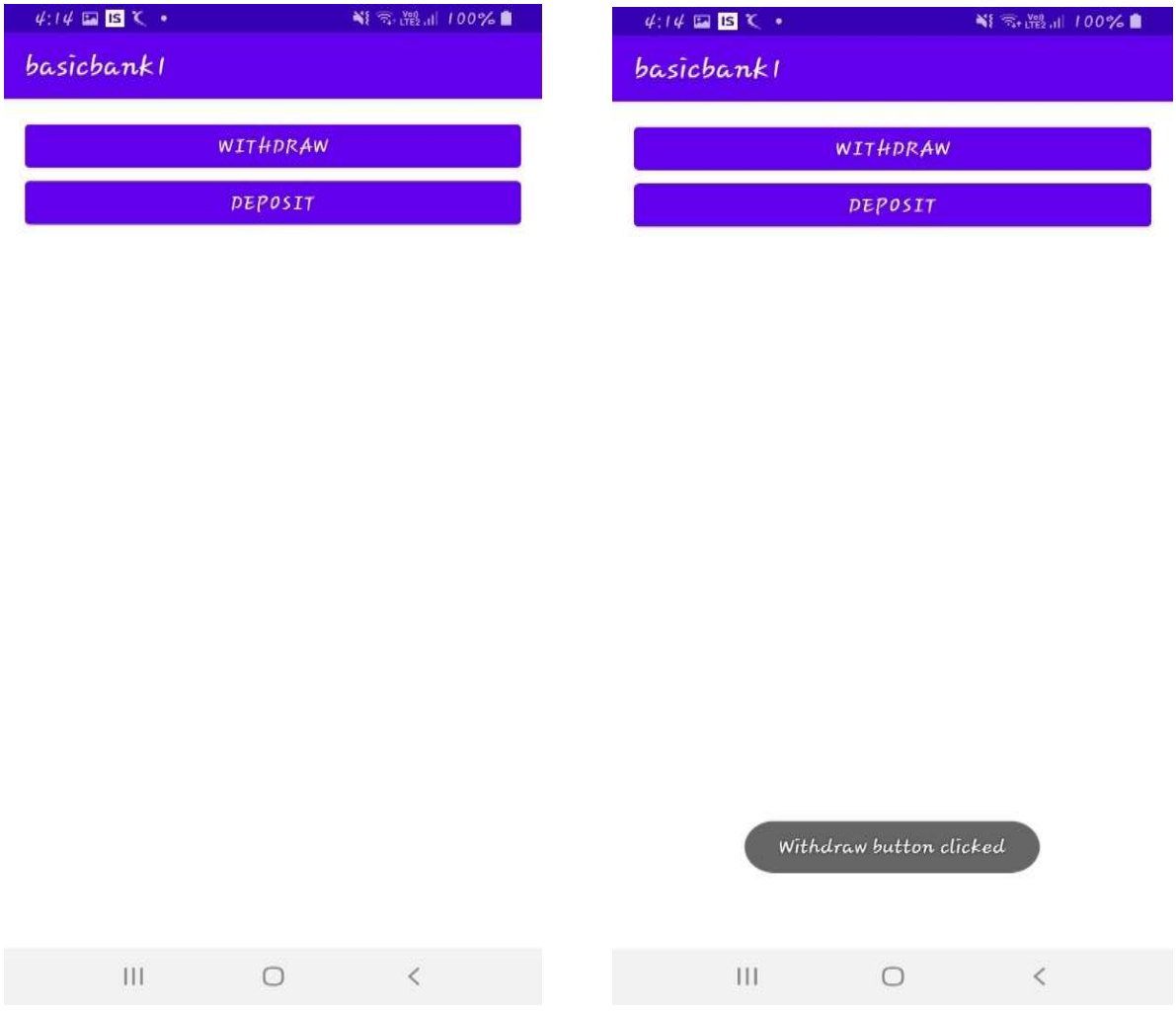
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <Button
        android:id="@+id/btnWithdraw"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Withdraw" />
    <Button
        android:id="@+id/btnDeposit"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Deposit" />
</LinearLayout>
```

MainActivity.java

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.basicbank1"
    android:versionCode="1"
    android:versionName="1.0" >

    <uses-sdk
        android:minSdkVersion="19"
        android:targetSdkVersion="34" />

    <permission

android:name="com.example.basicbank1.DYNAMIC RECEIVER NOT EXPORTED PERMISSI
ON"
        android:protectionLevel="signature" />

    <uses-permission
android:name="com.example.basicbank1.DYNAMIC_RECEIVER_NOT_EXPORTED_PERMISSI
ON" />

    <application
        android:allowBackup="true"

android:appComponentFactory="androidx.core.app.CoreComponentFactory"
        android:debuggable="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:testOnly="true"
        android:theme="@style/Theme.Basicbank1" >
        <activity
            android:name="com.example.basicbank1.MainActivity"
            android:exported="" >
            <intent-filter>
```

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

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

        <provider
            android:name="androidx.startup.InitializationProvider"
            android:authorities="com.example.basicbank1.androidx-startup"
            android:exported="false" >
            <meta-data
                android:name="androidx.emoji2.text.EmojiCompatInitializer"
                android:value="androidx.startup" />
            <meta-data

android:name="androidx.lifecycle.ProcessLifecycleInitializer"
                android:value="androidx.startup" />
        </provider>
    </application>

</manifest>
```

Output:



8. Construct a register app to display different menu like add, delete, edit etc.

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <Button
        android:id="@+id/btnAddUser"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add User" />
    <Button
        android:id="@+id/btnDeleteUser"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Delete User" />
    <Button
        android:id="@+id/btnEditUser"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Edit User" />
</LinearLayout>
```

MainActivity.java

```
package com.example.registrationopt;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import androidx.appcompat.app.AppCompatActivity;
import android.widget.Button;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button btnAddUser = findViewById(R.id.btnAddUser);
        Button btnDeleteUser = findViewById(R.id.btnDeleteUser);
        Button btnEditUser = findViewById(R.id.btnEditUser);
        btnAddUser.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                openAddUserActivity();
            }
        });
        btnDeleteUser.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
            }
            public void toEditUserActivity() {
                openDeleteUserActivity();
            }
        });
        btnEditUser.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                openEditUserActivity();
```

```
            }
        });
    }
    private void openAddUserActivity() {
        Intent intent = new Intent(this, AddUserActivity.class);
        startActivity(intent);
    }
    private void openDeleteUserActivity() {
        Intent intent = new Intent(this, DeleteUserActivity.class);
        startActivity(intent);
    }
    private void openEditUserActivity() {
        Intent intent = new Intent(this, EditUserActivity.class);
        startActivity(intent);
    }
}
```

activity_add_user.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <EditText
        android:id="@+id/edtName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name" />
    <EditText
        android:id="@+id/edtEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Email" />
    <Button
        android:id="@+id/btnAddUser"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Add User" />
</LinearLayout>
```

AddUserActivity.java

```
package com.example.registrationopt;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class AddUserActivity extends AppCompatActivity {
  private EditText edtName;
  private EditText edtEmail;
  private Button btnAddUser;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
```

```
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_add_user);
    edtName = findViewById(R.id.edtName);
    edtEmail = findViewById(R.id.edtEmail);
    btnAddUser = findViewById(R.id.btnAddUser);
    btnAddUser.setOnClickListener(new View.OnClickListener() {
      @Override
      public void onClick(View view) {
        String name = edtName.getText().toString();
        String email = edtEmail.getText().toString();
        //db
        Toast.makeText(AddUserActivity.this, "User added: " + name, Toast.LENGTH_SHORT).show();
      }
    });
  }
}
```

DeleteUserActivity.java

```
package com.example.registrationopt;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.ListView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class DeleteUserActivity extends AppCompatActivity {
    private ListView userList;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_delete_user);
        userList = findViewById(R.id.userList);
        String[] users = new String[]{"User 1", "User 2", "User 3"};
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, users);
        userList.setAdapter(adapter);
        userList.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                String selectedUser = (String)
parent.getItemAtPosition(position);
                //db
                Toast.makeText(DeleteUserActivity.this, "User deleted: " +
selectedUser, Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

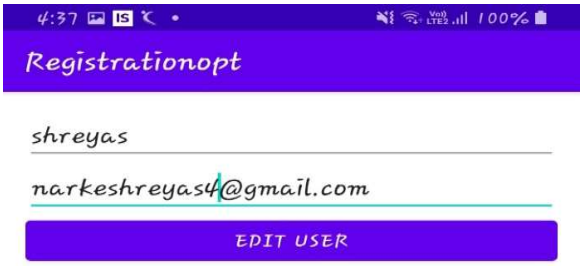
EditUserActivity.java

```
package com.example.registrationopt;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
public class EditUserActivity extends AppCompatActivity {
    private EditText edtEditedName;
    private EditText edtEditedEmail;
    private Button btnEditUser;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_edit_user);
        edtEditedName = findViewById(R.id.edtEditedName);
        edtEditedEmail = findViewById(R.id.edtEditedEmail);
        btnEditUser = findViewById(R.id.btnEditUser);
        btnEditUser.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String editedName = edtEditedName.getText().toString();
                String editedEmail = edtEditedEmail.getText().toString();
                //db
                Toast.makeText(EditUserActivity.this, "User updated: " +
editedName, Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

output::


Registrationopt
ADD USER
DELETE USER
EDIT USER


Registrationopt
SHREYAS
narkeshreyas@gmail.com
ADD USER


4:37
100%
Registrationopt
shreyas
narkeshreyas4@gmail.com
EDIT USER


User added: SHREYAS


User updated: shreyas

9.Create application to send and receive messages using SMS Manager.

MainActivity.java

```
package com.example.sms;
import android.Manifest;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    private static final int MY_PERMISSIONS_REQUEST_SEND_SMS=0;
    Button button;
    EditText Text1,Text2;
    String phone,message;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button=(Button)findViewById(R.id.sndbtn);
        Text1=(EditText)findViewById(R.id.text1);
        Text2=(EditText)findViewById(R.id.text2);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                sendSMSMessage();
            }
        });
    }
    protected  void sendSMSMessage(){
        phone = Text1.getText().toString();
        message = Text2.getText().toString();
        if (ContextCompat.checkSelfPermission(this,
                Manifest.permission.SEND_SMS)
                != PackageManager.PERMISSION_GRANTED) {
            if (ActivityCompat.shouldShowRequestPermissionRationale(this,
                    Manifest.permission.SEND_SMS)) {
            } else {
                ActivityCompat.requestPermissions(this,
                        new String[]{Manifest.permission.SEND_SMS},
                        MY_PERMISSIONS_REQUEST_SEND_SMS);
            }
        }
    }
    public void onRequestPermissionsResult(int requestCode,String
permissions[], int[] grantResults) {
        super.onRequestPermissionsResult(requestCode, permissions,
grantResults);
        switch (requestCode) {
            case MY_PERMISSIONS_REQUEST_SEND_SMS: {
                if (grantResults.length > 0
                        && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                    SmsManager smsManager = SmsManager.getDefault();
                    smsManager.sendTextMessage(phone, null, message, null,
null);
                    Toast.makeText(getApplicationContext(), "SMS sent.",
```

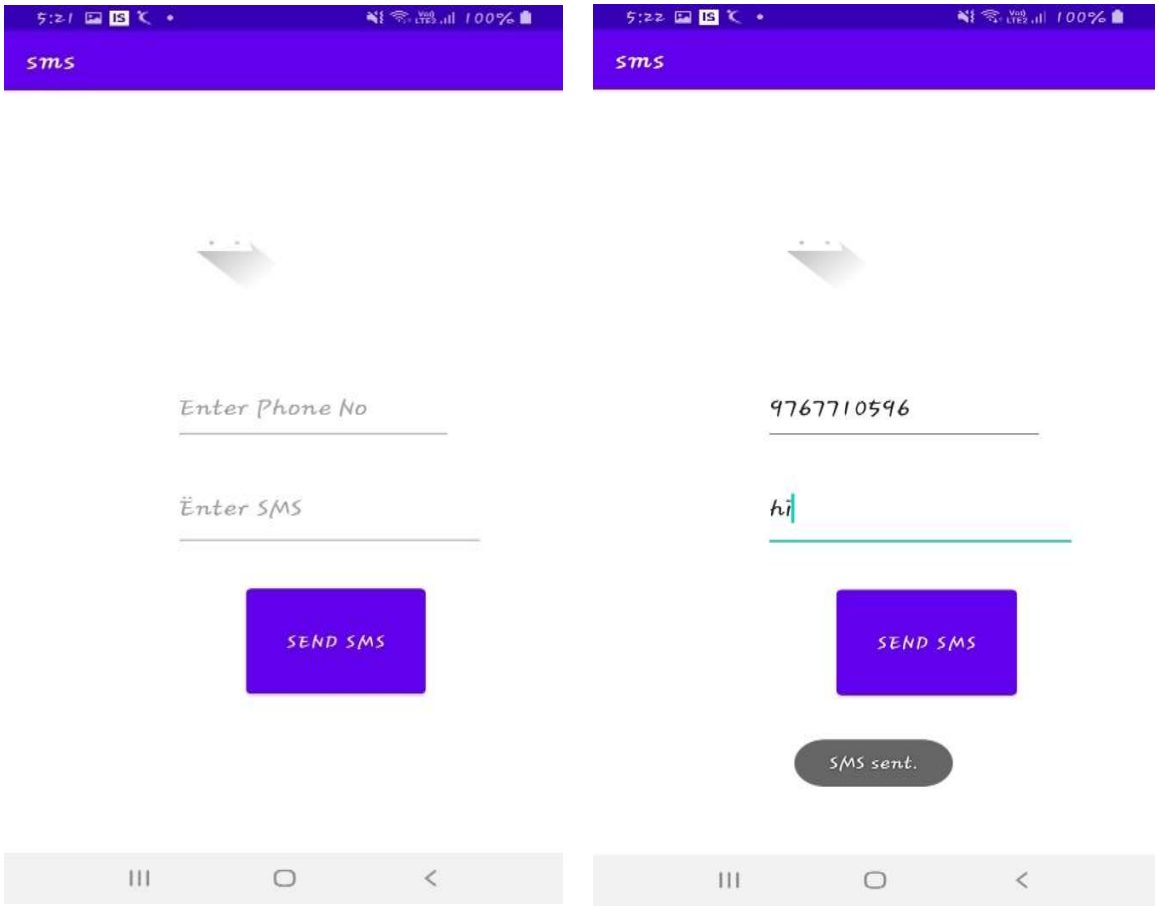
```
                                Toast.LENGTH_LONG).show();
                    } else {
                        Toast.makeText(getApplicationContext(),
                                "SMS faild, please try again.",
Toast.LENGTH_LONG).show();
                        return;
                    }
                }
            }
        }
    }
}
```

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">
    <ImageView
        android:id="@+id/imageView2"
        android:layout_width="200dp"
        android:layout_height="110dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="62dp"
        android:layout_marginLeft="62dp"
        android:layout_marginTop="94dp"
        android:layout_marginEnd="149dp"
        android:layout_marginRight="149dp"
        android:layout_marginBottom="527dp"
        app:srcCompat="@drawable/ic_launcher_foreground" />
    <EditText
        android:id="@+id/text1"
        android:layout_width="205dp"
        android:layout_height="78dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="125dp"
        android:layout_marginLeft="125dp"
        android:layout_marginTop="267dp"
        android:layout_marginEnd="81dp"
        android:layout_marginRight="81dp"
        android:layout_marginBottom="386dp"
        android:hint="Enter Phone No"/>
    <EditText
        android:id="@+id/text2"
        android:layout_width="229dp"
        android:layout_height="89dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
```

```
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="125dp"
        android:layout_marginLeft="125dp"
        android:layout_marginTop="356dp"
        android:layout_marginEnd="57dp"
        android:layout_marginRight="57dp"
        android:layout_marginBottom="286dp"
        android:hint="Ënter SMS"/>
    <Button
        android:id="@+id/sndbtn"
        android:layout_width="132dp"
        android:layout_height="110dp"
        android:layout_alignParentStart="true"
        android:layout_alignParentLeft="true"
        android:layout_alignParentEnd="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentBottom="true"
        android:layout_marginStart="178dp"
        android:layout_marginLeft="178dp"
        android:layout_marginEnd="101dp"
        android:layout_marginRight="101dp"
        android:layout_marginBottom="144dp"
        android:text="Send SMS" />
</RelativeLayout>
```

Output::



10.Create application to design login form, validate it. Write and send email with appropriate message

Loginactivity.java

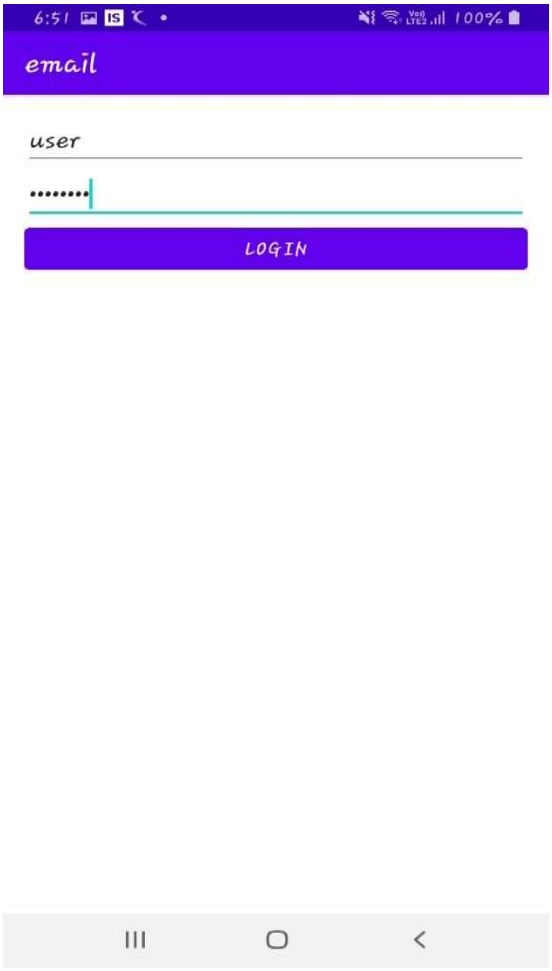
```
package com.example.email;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;
public class LoginActivity extends AppCompatActivity {
    private EditText edtUsername;
    private EditText edtPassword;
    private Button btnLogin;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);
        edtUsername = findViewById(R.id.edtUsername);
        edtPassword = findViewById(R.id.edtPassword);
        btnLogin = findViewById(R.id.btnLogin);
        btnLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String username = edtUsername.getText().toString();
                String password = edtPassword.getText().toString();
                if (isValid(username, password)) {
                    sendEmail(username);
                } else {
                    showError("Invalid credentials. Please try again.");
                }
            }
        });
    }
    private boolean isValid(String username, String password) {
        return username.equals("user") && password.equals("password");
    }
    private void sendEmail(String username) {
        String recipientEmail = "recipient@example.com";
        String subject = "Login Successful";
        String message = "Hello " + username + ", you have successfully
logged in.";
        Intent emailIntent = new Intent(Intent.ACTION_SEND);
        emailIntent.setType("message/rfc822");
        emailIntent.putExtra(Intent.EXTRA_EMAIL, new
String[]{recipientEmail});
        emailIntent.putExtra(Intent.EXTRA_SUBJECT, subject);
        emailIntent.putExtra(Intent.EXTRA_TEXT, message);
        startActivity(Intent.createChooser(emailIntent, "Send Email"));
    }
    private void showError(String errorMessage) {
    }
}
```

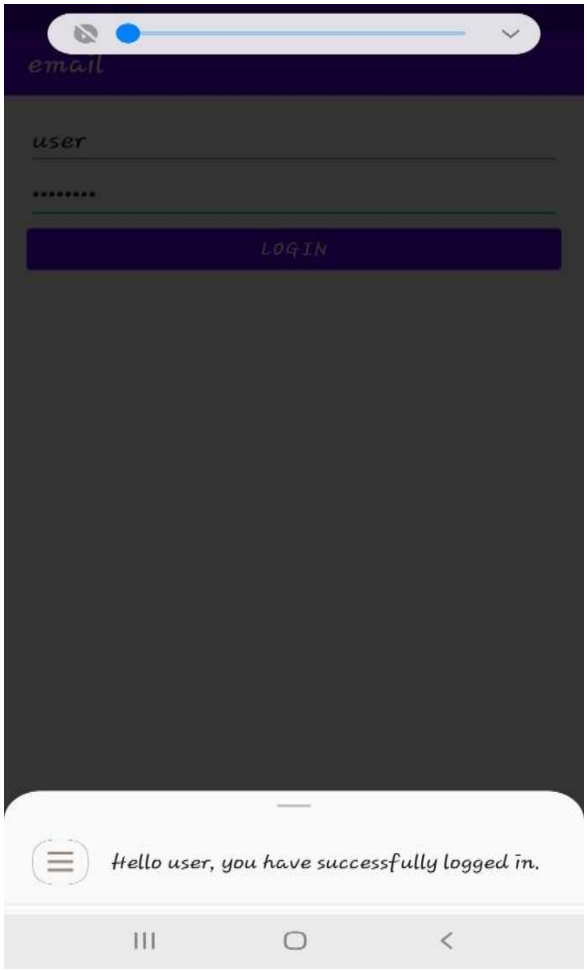
activity_login.xml

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

```
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp">
    <EditText
        android:id="@+id/edtUsername"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username" />
    <EditText
        android:id="@+id/edtPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Password"
        android:inputType="textPassword" />
    <Button
        android:id="@+id/btnLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Login" />
</LinearLayout>
```

Output::





11. Write a program to calculate distance between two locations on Google Map.

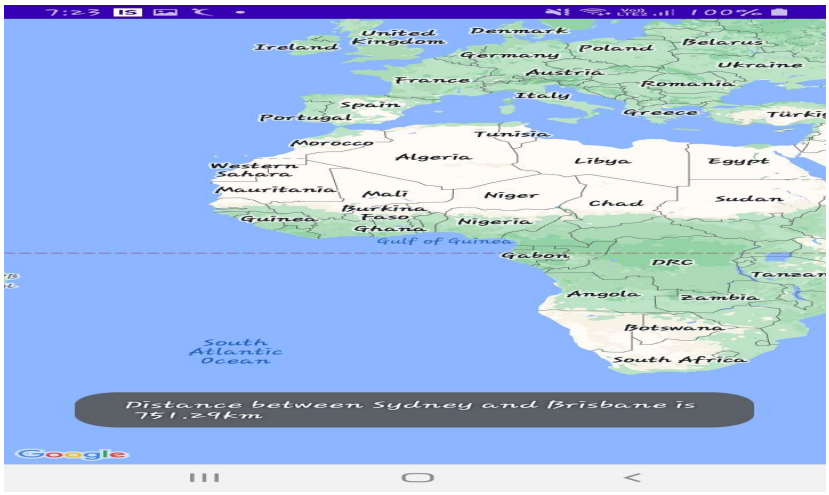
MapsActivity.java

```
package com.example.mygoogleapp;
import android.os.Bundle;
import android.widget.Toast;
import androidx.fragment.app.FragmentActivity;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.maps.android.SphericalUtil;
public class MapsActivity extends FragmentActivity implements
OnMapReadyCallback {
    private GoogleMap mMap;
    LatLng sydney = new LatLng(-34, 151);
    LatLng Brisbane = new LatLng(-27.470125, 153.021072);
    Double distance;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_maps);
        SupportMapFragment mapFragment = (SupportMapFragment)
getSupportFragmentManager().findFragmentById(R.id.map);
        mapFragment.getMapAsync(this);
    }
    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;
        distance = SphericalUtil.computeDistanceBetween(sydney, Brisbane);
        Toast.makeText(this, "Distance between Sydney and Brisbane is \n "
+ String.format("%.2f", distance / 1000) + "km",
Toast.LENGTH_SHORT).show();
    }
}
```

google_maps_api.xml

```
<resources>
    <string name="google_maps_key" templateMergeStrategy="preserve"
translatable="false">AIzaSyABBNQ_nROar_bPkVx5iWtfLwha2utqEsM</string>
</resources>
```

Output::



12.Write a program to search a specific location on Google Map

activity_maps.xml

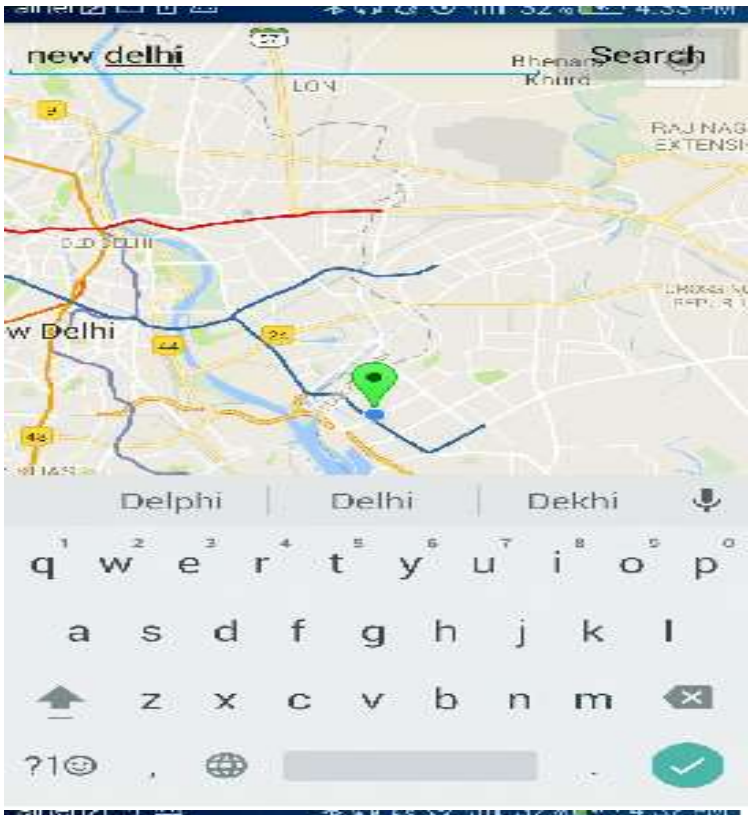
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    android:padding="16dp"
    tools:context=".MapsActivity">
    <AutoCompleteTextView
        android:id="@+id/autoCompleteTextView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Search for a location"
        android:layout_marginBottom="16dp"/>
    <com.google.android.gms.maps.MapView
        android:id="@+id/mapView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_gravity="center"/>
</LinearLayout>
```

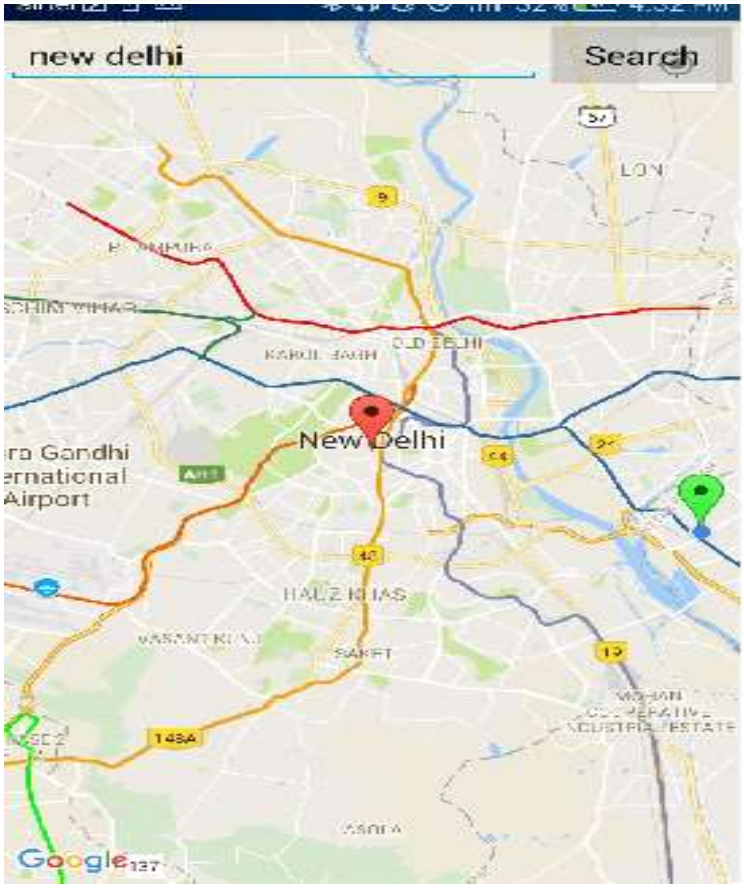
MapsActivity.java

```
package com.example.mygoogleapp;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.AutoCompleteTextView;
import com.google.android.gms.common.api.Status;
import com.google.android.gms.location.places.ui.PlaceAutocomplete;
import com.google.android.gms.location.places.ui.PlaceAutocompleteFragment;
import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.MapView;
import com.google.android.gms.maps.OnMapReadyCallback;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

public class MainActivity extends AppCompatActivity implements
OnMapReadyCallback {
    private AutoCompleteTextView autoCompleteTextView;
    private GoogleMap mMap;
    private MapView mapView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_maps);
        autoCompleteTextView = findViewById(R.id.autoCompleteTextView);
        mapView = findViewById(R.id.mapView);
        mapView.onCreate(savedInstanceState);
        mapView.getMapAsync(this);
        PlaceAutocompleteFragment autocompleteFragment =
(PlaceAutocompleteFragment)
```

```
getFragmentManager().findFragmentById(R.id.place_autocomplete_fragment);
        autocompleteFragment.setOnPlaceSelectedListener(new
PlaceAutocompleteFragment.OnPlaceSelectedListener() {
            @Override
            public void
onPlaceSelected(com.google.android.gms.location.places.Place place) {
                LatLng location = place.getLatLng();
                mMap.clear();
                mMap.addMarker(new
MarkerOptions().position(location).title(place.getName().toString()));
                mMap.moveCamera(CameraUpdateFactory.newLatLngZoom(location,
14));
            }
            @Override
            public void onError(Status status) {
                // Handle any errors
            }
        });
    }
    @Override
    public void onMapReady(GoogleMap googleMap) {
        mMap = googleMap;
    }
    @Override
    public void onResume() {
        mapView.onResume();
        super.onResume();
    }
    @Override
    public void onPause() {
        mapView.onPause();
        super.onPause();
    }
    @Override
    public void onDestroy() {
        mapView.onDestroy();
        super.onDestroy();
    }
    @Override
    public void onLowMemory() {
        super.onLowMemory();
        mapView.onLowMemory();
    }
}
```

output:


new delhi
Search
Delphi
Delhi
Dekhi


new delhi
Search
New Delhi
Google

13. Create Table project (pno, p_name, ptype, duration) and employee (id, e_name, qulification, joindate) Project – employee have many to many relationship. Using database perform following operation. 1) Add new record into table. 2) Accept a project name from user and display information of employees working on the project

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.Slip1_3"
        tools:targetApi="33">
        <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"?>
<AbsoluteLayout xmlns:android="http://schemas.android.com/apk/res/android"
   android:layout_width="match_parent"
   android:layout_height="match_parent">
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_x="50dp"
      android:layout_y="20dp"
      android:text="Student Details"
      android:textSize="30sp" />
   <TextView
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:layout_x="20dp"
      android:layout_y="110dp"
      android:text="Enter Rollno:"
      android:textSize="20sp" />
   <EditText
      android:id="@+id/Rollno"
      android:layout_width="150dp"
      android:layout_height="wrap_content"
      android:layout_x="175dp"
      android:layout_y="100dp"
      android:inputType="number"
      android:textSize="20sp" />
```

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_x="20dp"
    android:layout_y="160dp"
    android:text="Enter Name:"
    android:textSize="20sp" />
<EditText
    android:id="@+id/Name"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="175dp"
    android:layout_y="150dp"
    android:inputType="text"
    android:textSize="20sp" />
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_x="20dp"
    android:layout_y="210dp"
    android:text="Enter Marks:"
    android:textSize="20sp" />
<EditText
    android:id="@+id/Marks"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="175dp"
    android:layout_y="200dp"
    android:inputType="number"
```

```
    android:textSize="20sp" />
<Button
    android:id="@+id/Insert"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="25dp"
    android:layout_y="300dp"
    android:text="Insert"
    android:textSize="30dp" />
<Button
    android:id="@+id/Delete"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="200dp"
    android:layout_y="300dp"
    android:text="Delete"
    android:textSize="30dp" />
<Button
    android:id="@+id/Update"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
    android:layout_x="25dp"
    android:layout_y="400dp"
    android:text="Update"
    android:textSize="30dp" />
<Button
    android:id="@+id/View"
    android:layout_width="150dp"
    android:layout_height="wrap_content"
```

```
        android:layout_x="200dp"
        android:layout_y="400dp"
        android:text="View"
        android:textSize="30dp" />
    <Button
        android:id="@+id/ViewAll"
        android:layout_width="200dp"
        android:layout_height="wrap_content"
        android:layout_x="100dp"
        android:layout_y="500dp"
        android:text="View All"
        android:textSize="30dp" />
</AbsoluteLayout>
```

MainActivity.java

```
package com.example.slip1_3;
import android.app.Activity;
import android.app.AlertDialog.Builder;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends Activity implements OnClickListener
{
```

```
    EditText Rollno,Name,Marks;
    Button Insert,Delete,Update,View,ViewAll;
    SQLiteDatabase db;
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Rollno=(EditText)findViewById(R.id.Rollno);
        Name=(EditText)findViewById(R.id.Name);
        Marks=(EditText)findViewById(R.id.Marks);
        Insert=(Button)findViewById(R.id.Insert);
        Delete=(Button)findViewById(R.id.Delete);
        Update=(Button)findViewById(R.id.Update);
        View=(Button)findViewById(R.id.View);
        ViewAll=(Button)findViewById(R.id.ViewAll);
        Insert.setOnClickListener(this);
        Delete.setOnClickListener(this);
        Update.setOnClickListener(this);
        View.setOnClickListener(this);
        ViewAll.setOnClickListener(this);
        // Creating database and table
        db=openOrCreateDatabase("StudentDB", Context.MODE_PRIVATE, null);
        db.execSQL("CREATE TABLE IF NOT EXISTS student(rollno VARCHAR,name
VARCHAR,marks VARCHAR);");
    }
    public void onClick(View view)
    {
        // Inserting a record to the Student table
```

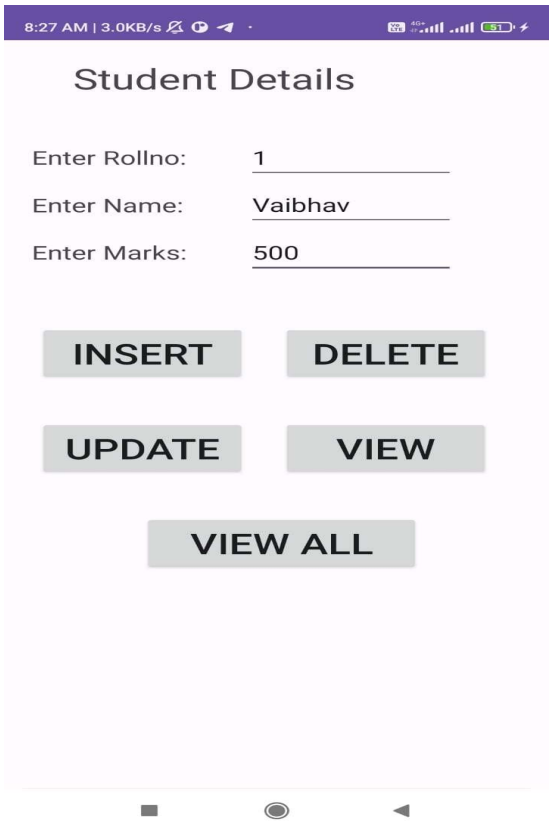
```
if(view==Insert)
{
   // Checking for empty fields
   if(Rollno.getText().toString().trim().length()==0||
         Name.getText().toString().trim().length()==0||
         Marks.getText().toString().trim().length()==0)
   {
      showMessage("Error", "Please enter all values");
      return;
   }
   db.execSQL("INSERT INTO student VALUES('"+Rollno.getText()+"','"+Name.getText()+
         "','"+Marks.getText()+"');");
   showMessage("Success", "Record added");
   clearText();
}
// Deleting a record from the Student table
if(view==Delete)
{
   // Checking for empty roll number
   if(Rollno.getText().toString().trim().length()==0)
   {
      showMessage("Error", "Please enter Rollno");
      return;
   }
   Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
   if(c.moveToFirst())
   {
      db.execSQL("DELETE FROM student WHERE rollno='"+Rollno.getText()+"'");
      showMessage("Success", "Record Deleted");
```

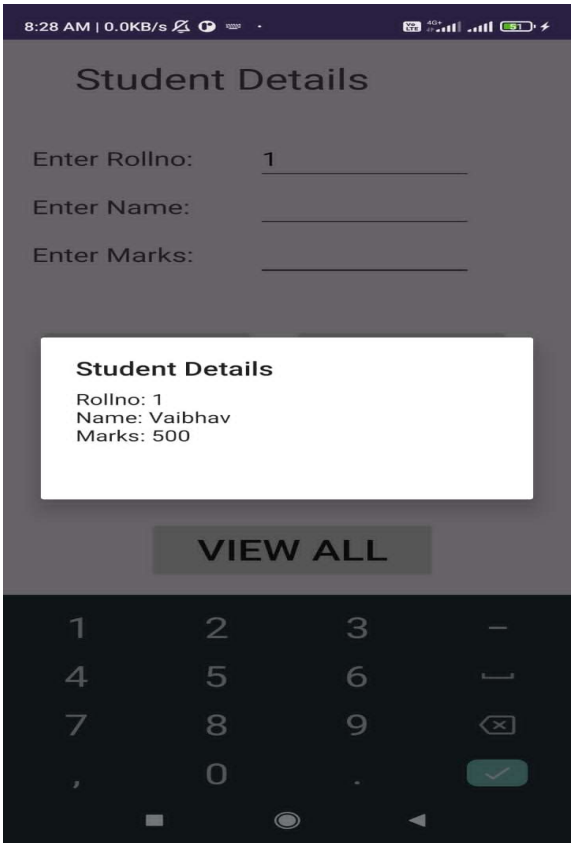
```
        }
        else
        {
            showMessage("Error", "Invalid Rollno");
        }
        clearText();
    }
    // Updating a record in the Student table
    if(view==Update)
    {
        // Checking for empty roll number
        if(Rollno.getText().toString().trim().length()==0)
        {
            showMessage("Error", "Please enter Rollno");
            return;
        }
        Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
        if(c.moveToFirst()) {
            db.execSQL("UPDATE student SET name='" + Name.getText() + "',marks='" +
Marks.getText() +
                    "' WHERE rollno='"+Rollno.getText()+"'");
            showMessage("Success", "Record Modified");
        }
        else {
            showMessage("Error", "Invalid Rollno");
        }
        clearText();
    }
    // Display a record from the Student table
```

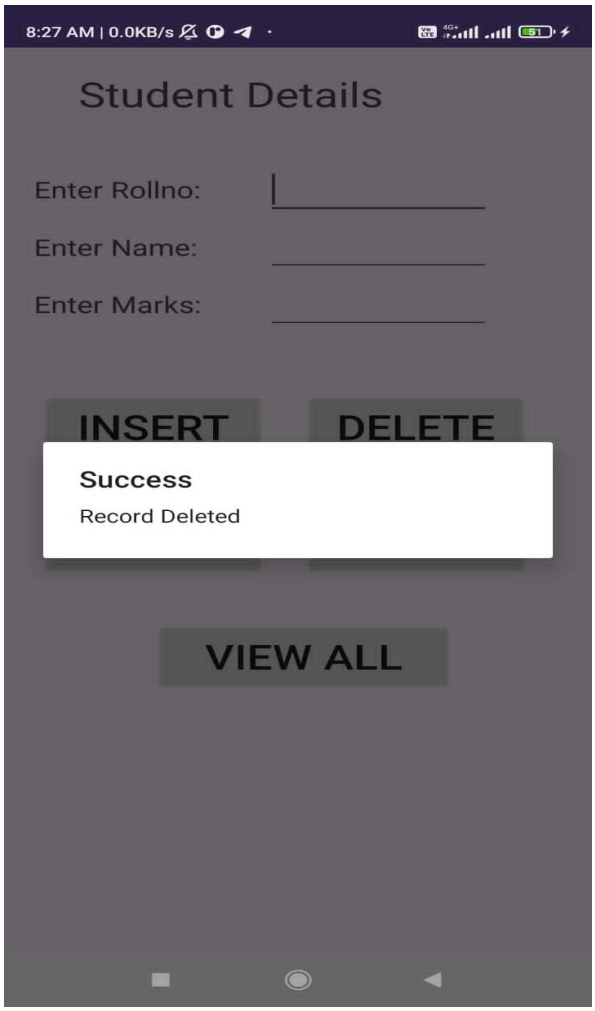
```
        if(view==View)
        {
           // Checking for empty roll number
           if(Rollno.getText().toString().trim().length()==0)
           {
              showMessage("Error", "Please enter Rollno");
              return;
           }
           Cursor c=db.rawQuery("SELECT * FROM student WHERE
rollno='"+Rollno.getText()+"'", null);
           if(c.moveToFirst())
           {
              Name.setText(c.getString(1));
              Marks.setText(c.getString(2));
           }
           else
           {
              showMessage("Error", "Invalid Rollno");
              clearText();
           }
        }
        // Displaying all the records
        if(view==ViewAll)
        {
           Cursor c=db.rawQuery("SELECT * FROM student", null);
           if(c.getCount()==0)
           {
              showMessage("Error", "No records found");
              return;
           }
```

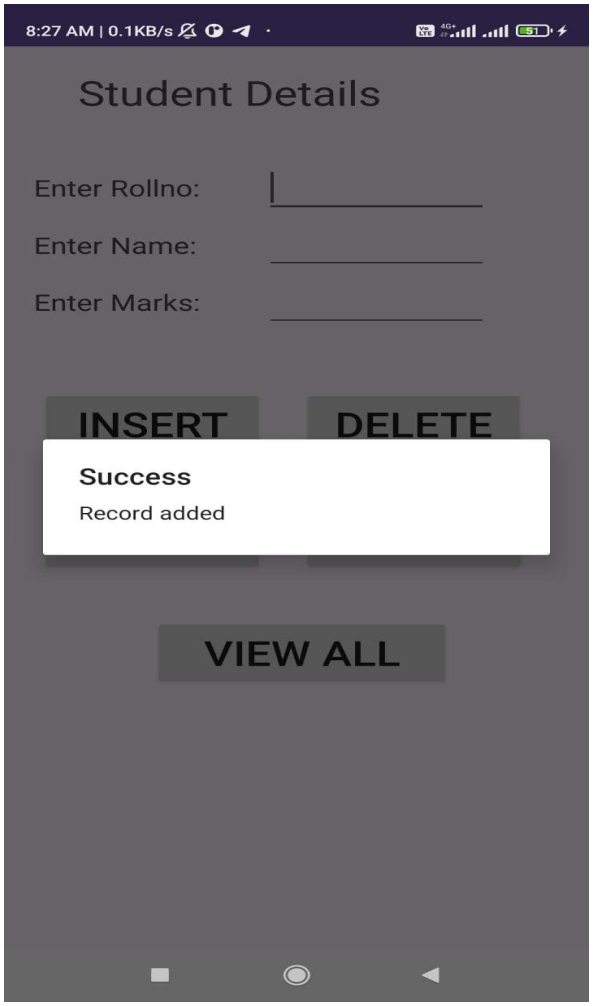
```
            StringBuffer buffer=new StringBuffer();
            while(c.moveToNext())
            {
               buffer.append("Rollno: "+c.getString(0)+"\n");
               buffer.append("Name: "+c.getString(1)+"\n");
               buffer.append("Marks: "+c.getString(2)+"\n\n");
            }
            showMessage("Student Details", buffer.toString());
        }
    }
    public void showMessage(String title,String message)
    {
        Builder builder=new Builder(this);
        builder.setCancelable(true);
        builder.setTitle(title);
        builder.setMessage(message);
        builder.show();
    }
    public void clearText()
    {
        Rollno.setText("");
        Name.setText("");
        Marks.setText("");
        Rollno.requestFocus();
    }
}
```

Output:


8:27 AM | 3.0KB/s
Student Details
Enter Rollno: 1
Enter Name: Vaibhav
Enter Marks: 500
INSERT
DELETE
UPDATE
VIEW
VIEW ALL


8:28 AM | 0.0KB/s
Student Details
Enter Rollno: 1
Enter Name:
Enter Marks:
Student Details
Rollno: 1
Name: Vaibhav
Marks: 500
VIEW ALL


8:27 AM | 0.0KB/s
Student Details
Enter Rollno:
Enter Name:
Enter Marks:
INSERT
DELETE
Success
Record Deleted
VIEW ALL


8:27 AM | 0.1KB/s
Student Details
Enter Rollno:
Enter Name:
Enter Marks:
INSERT
DELETE
Success
Record added
VIEW ALL

14. Create application using JSON which gives us list of contacts where each node contains contact information like name, email, address, gender and phone numbers.

MainActivity.java

```
package com.example.contactlist;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.widget.ListView;
import android.widget.SimpleAdapter;
import org.json.JSONArray;
import org.json.JSONException;
import org.json.JSONObject;
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;

public class MainActivity extends AppCompatActivity {
   @Override
   protected void onCreate(Bundle savedInstanceState) {
      super.onCreate(savedInstanceState);
      setContentView(R.layout.activity_main);
      // Private string declared in the latter section of the program
      String jsonStr = getListData();
      try {
         // Create a userList string hashmap arraylist
         List<HashMap<String, String>> userList = new ArrayList<>();
         // Declaring the listView from the layout file
         ListView lv = findViewById(R.id.user_list);
         // Initializing the JSON object and extracting the information
         JSONObject jObj = new JSONObject(jsonStr);
         JSONArray jsonArry = jObj.getJSONArray("users");
         for (int i = 0; i < jsonArry.length(); i++) {
            HashMap<String, String> user = new HashMap<>();
            JSONObject obj = jsonArry.getJSONObject(i);
            user.put("name", obj.getString("name"));
            user.put("email", obj.getString("email"));
            user.put("address", obj.getString("address"));
            user.put("gender", obj.getString("gender"));
            user.put("phone", obj.getString("phone"));
            userList.add(user);
         }
         // ListAdapter to broadcast the information to the list elements
         SimpleAdapter adapter = new SimpleAdapter(
               this, userList, R.layout.list_row,
               new String[]{"name", "email", "address", "gender", "phone"},
               new int[]{R.id.name, R.id.email, R.id.address, R.id.gender, R.id.phone}
         );
         lv.setAdapter(adapter);

      } catch (JSONException ex) {
```

```
            Log.e("JsonParser Example", "unexpected JSON exception", ex);
        }
    }
    // JSON object in the form of input stream
    private String getListData() {
        return "{ \"users\" :[" +
"{\"name\":\"Ace\",\"email\":\"Engineer@123\",\"address\":\"pune\",\"gender\":\"male\",\"phone
\":\"123456789\"}," +
{\"name\":\"Tom\",\"email\":\"Director@123\",\"address\":\"nashik\",\"gender\":\"male\",\"phon
e\":\"123456789\"}," +
"{\"name\":\"Tim\",\"email\":\"ChartedAccountant@123\",\"address\":\"mumbai\",\"gender\":\"m
ale\",\"phone\":\"123456789\"}," +
"{\"name\":\"cook\",\"email\":\"ChartedAccountant@123\",\"address\":\"baramati\",\"gender\":\"
male\",\"phone\":\"123456789\"}," +
"{\"name\":\"john\",\"email\":\"ChartedAccountant@123\",\"address\":\"pcmc\",\"gender\":\"fem
ale\",\"phone\":\"123456789\"}] }";
    }
}
```

activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >
    <!--This listView will display the list items-->
    <ListView
        android:id="@+id/user_list"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:dividerHeight="1dp" />
</LinearLayout>
```

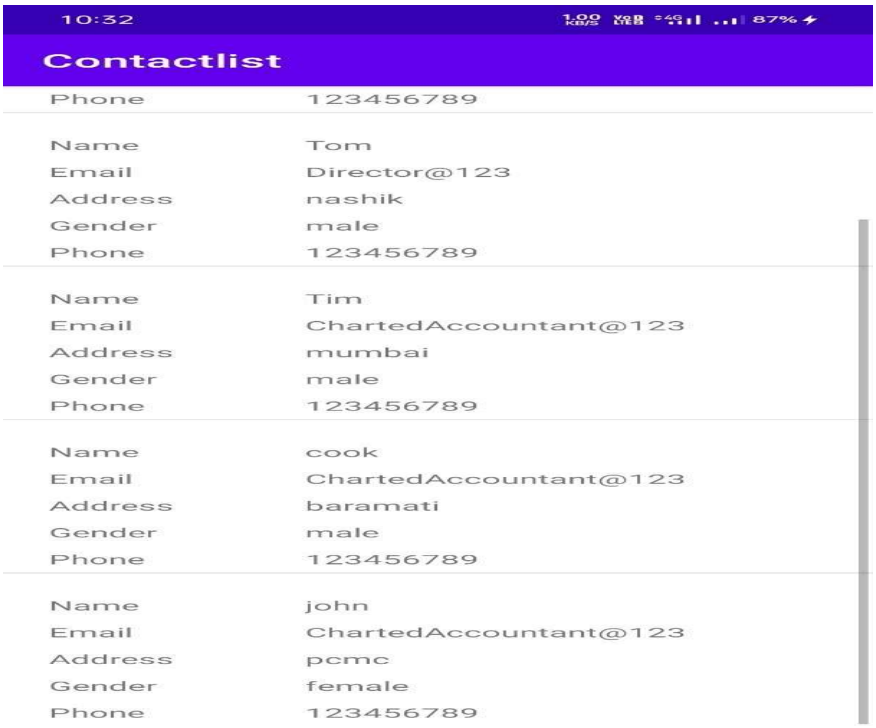
list_row.xml

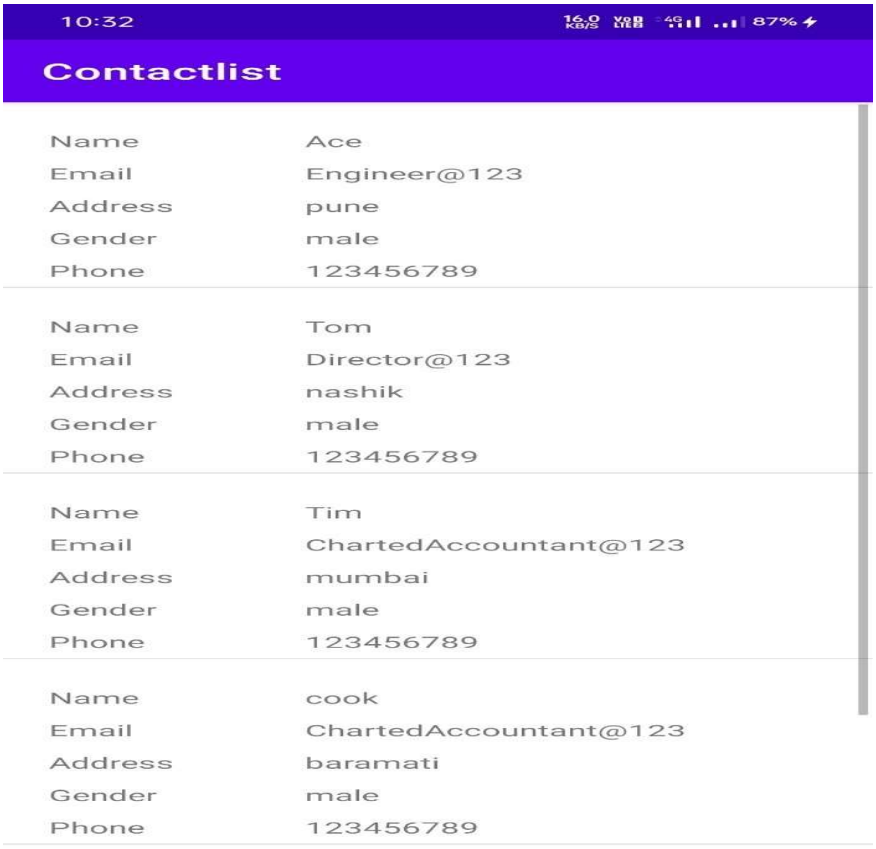
```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:padding="5dp">
    <TextView
        android:id="@+id/phone2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:layout_below="@+id/gender"
    android:layout_alignParentStart="true"
    android:layout_marginStart="14dp"
    android:layout_marginTop="10dp"
    android:text="Phone"
    tools:ignore="HardcodedText" />
<TextView
    android:id="@+id/name2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_marginStart="14dp"
    android:layout_marginTop="20dp"
    android:text="Name"
    tools:ignore="HardcodedText" />
<TextView
    android:id="@+id/name"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignParentStart="true"
    android:layout_marginStart="120dp"
    android:layout_marginTop="20dp"
    android:text="Name"
    tools:ignore="HardcodedText" />
<TextView
    android:id="@+id/email"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/name"
    android:layout_alignParentStart="true"
    android:layout_marginStart="120dp"
    android:layout_marginTop="10dp"
    android:text="Email"
    tools:ignore="HardcodedText" />
<TextView
    android:id="@+id/email2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/name"
    android:layout_alignParentStart="true"
    android:layout_marginStart="14dp"
    android:layout_marginTop="10dp"
    android:text="Email"
    tools:ignore="HardcodedText" />
<TextView
    android:id="@+id/address"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/email"
    android:layout_alignParentStart="true"
    android:layout_marginStart="120dp"
```

```
        android:layout_marginTop="10dp"
        android:text="Address"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/address2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/email"
        android:layout_alignParentStart="true"
        android:layout_marginStart="14dp"
        android:layout_marginTop="10dp"
        android:text="Address"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/gender"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/address"
        android:layout_alignParentStart="true"
        android:layout_marginStart="120dp"
        android:layout_marginTop="10dp"
        android:text="Gender"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/gender2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/address"
        android:layout_alignParentStart="true"
        android:layout_marginStart="14dp"
        android:layout_marginTop="10dp"
        android:text="Gender"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/phone"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/gender"
        android:layout_alignParentStart="true"
        android:layout_marginStart="120dp"
        android:layout_marginTop="10dp"
        android:text="Phone"
        tools:ignore="HardcodedText" />
</RelativeLayout>
```

Output:


10:32
87%
Contactlist
Phone 123456789
Name Tom
Email Director@123
Address nashik
Gender male
Phone 123456789
Name Tim
Email ChartedAccountant@123
Address mumbai
Gender male
Phone 123456789
Name cook
Email ChartedAccountant@123
Address baramati
Gender male
Phone 123456789
Name john
Email ChartedAccountant@123
Address pcmc
Gender female
Phone 123456789


10:32
87%
Contactlist
Name Ace
Email Engineer@123
Address pune
Gender male
Phone 123456789
Name Tom
Email Director@123
Address nashik
Gender male
Phone 123456789
Name Tim
Email ChartedAccountant@123
Address mumbai
Gender male
Phone 123456789
Name cook
Email ChartedAccountant@123
Address baramati
Gender male
Phone 123456789

15. Create application using JSON which gives the Employee information.

MainActivity.java

```
package com.example.employee_details;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.util.Log;
import android.widget.TextView;
import org.json.JSONException;
import org.json.JSONObject;

public class MainActivity extends AppCompatActivity {
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    // Private string declared in the latter section of the program
    String jsonStr = getEmployeeData();
    try {
      // Initializing the JSON object and extracting the information for a single employee
      JSONObject employeeObj = new JSONObject(jsonStr);
      String name = employeeObj.getString("name");
      String email = employeeObj.getString("email");
      String address = employeeObj.getString("address");
      String gender = employeeObj.getString("gender");
      String phone = employeeObj.getString("phone");
      String companyName = employeeObj.getString("companyName");
      String joiningDate = employeeObj.getString("joiningDate");
      // Display the employee details in TextViews
      TextView nameTextView = findViewById(R.id.name);
      TextView emailTextView = findViewById(R.id.email);
      TextView addressTextView = findViewById(R.id.address);
      TextView genderTextView = findViewById(R.id.gender);
      TextView phoneTextView = findViewById(R.id.phone);
      TextView companyTextView = findViewById(R.id.companyName);
      TextView joiningDateTextView = findViewById(R.id.joiningDate);
      nameTextView.setText("Name: " + name);
      emailTextView.setText("Email: " + email);
      addressTextView.setText("Address: " + address);
      genderTextView.setText("Gender: " + gender);
      phoneTextView.setText("Phone: " + phone);
      companyTextView.setText("Company: " + companyName);
      joiningDateTextView.setText("Joining Date: " + joiningDate);
    } catch (JSONException ex) {
      Log.e("JsonParser Example", "unexpected JSON exception", ex);
    }
  }
  private String getEmployeeData() {
    return "{" +
        "\"name\":\"Ace\"," +
```

```
            "\"email\":\"Engineer@123\"," +
            "\"address\":\"pune\"," +
            "\"gender\":\"male\"," +
            "\"phone\":\"123456789\"," +
            "\"companyName\":\"ABC Inc\"," +
            "\"joiningDate\":\"2023-10-25\"" +
            "}";
    }
}
```

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:padding="5dp">
    <TextView
        android:id="@+id/name"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentStart="true"
        android:layout_marginStart="20dp"
        android:layout_marginTop="20dp"
        android:text="Name"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/email"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/name"
        android:layout_alignParentStart="true"
        android:layout_marginStart="20dp"
        android:layout_marginTop="10dp"
        android:text="Email"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/address"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/email"
        android:layout_alignParentStart="true"
        android:layout_marginStart="20dp"
        android:layout_marginTop="10dp"
        android:text="Address"
        tools:ignore="HardcodedText" />
    <TextView
        android:id="@+id/gender"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/address"
```

```
    android:layout_alignParentStart="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="10dp"
    android:text="Gender"
    tools:ignore="HardcodedText" />
  <TextView
    android:id="@+id/phone"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/gender"
    android:layout_alignParentStart="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="10dp"
    android:text="Phone"
    tools:ignore="HardcodedText" />
  <TextView
    android:id="@+id/companyName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/gender"
    android:layout_alignParentStart="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="38dp"
    android:text="companyName"
    tools:ignore="HardcodedText" />
  <TextView
    android:id="@+id/joiningDate"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/gender"
    android:layout_alignParentStart="true"
    android:layout_marginStart="20dp"
    android:layout_marginTop="71dp"
    android:text="joiningDate"
    tools:ignore="HardcodedText" />
</RelativeLayout>
```

Output:

Slip 1 -> Q2

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

```
<?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/editTextRollNo"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Roll No" />

    <EditText
        android:id="@+id/editTextName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextRollNo"
        android:hint="Name"
        android:minHeight="48dp" />

    <EditText
        android:id="@+id/editTextClass"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextName"
        android:hint="Class"
        android:minHeight="48dp" />

    <EditText
        android:id="@+id/editTextContact"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextClass"
        android:hint="Contact"
        android:minHeight="48dp" />

    <Button
        android:id="@+id/buttonInsert"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/editTextContact"
        android:text="Insert" />

    <Button
        android:id="@+id/buttonDisplay"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonInsert"
        android:text="Display"
        tools:ignore="VisualLintButtonSize" />

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

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonDisplay"
        android:layout_marginTop="16dp" />
</RelativeLayout>
```

```
package com.example.student_database;

import android.annotation.SuppressLint;
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    EditText rollNoEditText, nameEditText, classEditText, contactEditText;
    Button insertButton, displayButton;
    TextView displayTextView;

    DatabaseHelper dbHelper;
    SQLiteDatabase db;

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

        dbHelper = new DatabaseHelper(this);
        db = dbHelper.getWritableDatabase();

        rollNoEditText = findViewById(R.id.editTextRollNo);
        nameEditText = findViewById(R.id.editTextName);
        classEditText = findViewById(R.id.editTextClass);
        contactEditText = findViewById(R.id.editTextContact);

        insertButton = findViewById(R.id.buttonInsert);
        displayButton = findViewById(R.id.buttonDisplay);

        displayTextView = findViewById(R.id.textView);

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

        displayButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                displayStudents();
            }
```

```
        });
    }

    private void insertStudent() {
        ContentValues values = new ContentValues();
        values.put(DatabaseHelper.COLUMN_NAME,
nameEditText.getText().toString());
        values.put(DatabaseHelper.COLUMN_CLASS,
classEditText.getText().toString());
        values.put(DatabaseHelper.COLUMN_CONTACT,
contactEditText.getText().toString());

        long newRowId = db.insert(DatabaseHelper.TABLE_STUDENT, null,
values);

        if (newRowId != -1) {
            displayTextView.setText("Student inserted with ID: " +
newRowId);
        } else {
            displayTextView.setText("Error inserting student.");
        }
    }

    private void displayStudents() {
        Cursor cursor = db.query(
                DatabaseHelper.TABLE_STUDENT,
                null,
                null,
                null,
                null,
                null,
                null
        );

        if (cursor != null && cursor.moveToFirst()) {
            StringBuilder displayText = new StringBuilder();
            do {
                @SuppressLint("Range") int rollNo =
cursor.getInt(cursor.getColumnIndex(DatabaseHelper.COLUMN_ROLLNO));
                String name =
cursor.getString(cursor.getColumnIndex(DatabaseHelper.COLUMN_NAME));
                String studentClass =
cursor.getString(cursor.getColumnIndex(DatabaseHelper.COLUMN_CLASS));
                String contact =
cursor.getString(cursor.getColumnIndex(DatabaseHelper.COLUMN_CONTACT));

                displayText.append("Roll No: ").append(rollNo)
                        .append(", Name: ").append(name)
                        .append(", Class: ").append(studentClass)
                        .append(", Contact: ").append(contact)
                        .append("\n");
            } while (cursor.moveToNext());

            displayTextView.setText(displayText.toString());
        } else {
            displayTextView.setText("No students found.");
        }

        if (cursor != null) {
            cursor.close();
        }
```

```
    }
}
```

```
package com.example.student_database;

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class DatabaseHelper extends SQLiteOpenHelper {

    private static final String DATABASE_NAME = "StudentDB";
    private static final int DATABASE_VERSION = 1;

    // Table and columns
    public static final String TABLE_STUDENT = "Student";
    public static final String COLUMN_ROLLNO = "Rollno";
    public static final String COLUMN_NAME = "Name";
    public static final String COLUMN_CLASS = "Class";
    public static final String COLUMN_CONTACT = "Contact";

    // Create table query
    private static final String CREATE_STUDENT_TABLE = "CREATE TABLE " +
TABLE_STUDENT + "("
            + COLUMN_ROLLNO + " INTEGER PRIMARY KEY AUTOINCREMENT,"
            + COLUMN_NAME + " TEXT,"
            + COLUMN_CLASS + " TEXT,"
            + COLUMN_CONTACT + " TEXT"
            + ")";

    public DatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL(CREATE_STUDENT_TABLE);
    }

    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        // Drop older table if it exists and create a new one
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_STUDENT);
        onCreate(db);
    }
}
```

Slip 2-> Q2

```
<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">

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>
    <Button
        android:id="@+id/btnAdd"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:text="Add Details"/>
</RelativeLayout>
```

```
package com.example.custme_listview;

// MainActivity.java
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.Button;
import android.widget.ListView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

    private CustomListAdapter adapter;
    private List<String> dataList;

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

        // Create a list of data
        dataList = new ArrayList<>();
        dataList.add("Item 1");
        dataList.add("Item 2");
        // Add more items as needed

        // Create custom adapter
        adapter = new CustomListAdapter(this, dataList);

        // Get reference to ListView in your layout
        ListView listView = findViewById(R.id.listView);

        // Set the custom adapter to the ListView
        listView.setAdapter(adapter);
```

```
        // Get reference to the "Add Details" button
        Button btnAdd = findViewById(R.id.btnAdd);

        // Set onClickListener for the button
        btnAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                addDetail();
            }
        });
    }

    private void addDetail() {
        // Add a new item to the list
        dataList.add("New Item");

        // Notify the adapter that the data set has changed
        adapter.notifyDataSetChanged();

        // Scroll to the last item in the list
        ListView listView = findViewById(R.id.listView);
        listView.setSelection(adapter.getCount() - 1);

        // Optionally, show a toast message
        Toast.makeText(this, "Details added", Toast.LENGTH_SHORT).show();
    }
}
```

```
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="vertical">

    <TextView
        android:id="@+id/textViewName"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="18sp"
        android:textStyle="bold"/>

    <TextView
        android:id="@+id/textViewClass"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="14sp"/>

</LinearLayout>
```

```
package com.example.custme_listview;

// CustomAdapter.java
import android.content.Context;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
```

```
import android.widget.TextView;
import java.util.List;

public class CustomListAdapter extends BaseAdapter {

    private Context context;
    private List<String> dataList;

    // Constructor to initialize the adapter with context and data
    public CustomListAdapter(Context context, List<String> dataList) {
        this.context = context;
        this.dataList = dataList;
    }

    // Return the number of items in the data set
    @Override
    public int getCount() {
        return dataList.size();
    }

    // Return the data item at the specified position
    @Override
    public Object getItem(int position) {
        return dataList.get(position);
    }

    // Return the row ID of the item at the specified position
    @Override
    public long getItemId(int position) {
        return position;
    }

    // Get a View that displays the data at the specified position
    // The convertView parameter is recycled for efficiency
    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        ViewHolder viewHolder;

        // If the view is not recycled, inflate it from the layout
        if (convertView == null) {
            convertView =
LayoutInflater.from(context).inflate(R.layout.list_item_layout, parent,
false);

            // Create a ViewHolder and store references to the child views
            viewHolder = new ViewHolder();
            viewHolder.textViewItem =
convertView.findViewById(R.id.textViewName);

            // Store the ViewHolder in the tag of the view for later reuse
            convertView.setTag(viewHolder);
        } else {
            // If the view is recycled, reuse the ViewHolder from the tag
            viewHolder = (ViewHolder) convertView.getTag();
        }

        // Get the data item for this position
        String item = (String) getItem(position);

        // Bind the data to the view
        viewHolder.textViewItem.setText(item);
```

```
        return convertView;
    }

    // ViewHolder pattern to cache views for recycling
    private static class ViewHolder {
        TextView textViewItem;
    }
}
```

Slip3-> Q1 B) Switch Toggle

```
implementation 'androidx.appcompat:appcompat:1.3.1'
implementation 'com.google.android.material:material:1.4.0'
```

```
<!-- activity_main.xml -->
<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">

    <Switch
        android:id="@+id/switchButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Switch"
        android:layout_marginTop="50dp"
        android:layout_centerHorizontal="true"/>

    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Toggle"
        android:layout_below="@+id/switchButton"
        android:layout_marginTop="20dp"
        android:layout_centerHorizontal="true"/>

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/toggleButton"
        android:layout_marginTop="20dp"
        android:layout_centerHorizontal="true"
        android:text=""
        android:textSize="18sp"/>
</RelativeLayout>
```

```
package com.example.switch_toggle;

// MainActivity.java
```

```
import android.os.Bundle;
import android.widget.CompoundButton;
import android.widget.Switch;
import android.widget.TextView;
import android.widget.ToggleButton;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private Switch switchButton;
    private ToggleButton toggleButton;
    private TextView textViewResult;

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

        switchButton = findViewById(R.id.switchButton);
        toggleButton = findViewById(R.id.toggleButton);
        textViewResult = findViewById(R.id.textViewResult);

        // Set listeners for Switch and ToggleButton state changes
        switchButton.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton buttonView, boolean
isChecked) {
                updateResult("Switch is " + (isChecked ? "ON" : "OFF"));
            }
        });

        toggleButton.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton buttonView, boolean
isChecked) {
                updateResult("Toggle is " + (isChecked ? "ON" : "OFF"));
            }
        });
    }

    // Update the TextView with the result
    private void updateResult(String result) {
        textViewResult.setText(result);
    }
}
```

Slip4-> A) sms manager intent

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

```
<!-- activity_main.xml -->
<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/editTextPhoneNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Phone Number"
        android:inputType="phone"/>

    <EditText
        android:id="@+id/editTextMessage"
        android:layout_below="@+id/editTextPhoneNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:hint="Message"/>

    <Button
        android:id="@+id/buttonSend"
        android:layout_below="@+id/editTextMessage"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:text="Send SMS"/>
</RelativeLayout>
package com.example.sms_manager_intent;

// MainActivity.java
import android.Manifest;
import android.annotation.SuppressLint;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.content.pm.PackageManager;
import android.os.Build;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private static final int PERMISSION_REQUEST_CODE = 1;

    private EditText phoneNumberEditText;
    private EditText messageEditText;
    private Button sendButton;

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

        phoneNumberEditText = findViewById(R.id.editTextPhoneNumber);
        messageEditText = findViewById(R.id.editTextMessage);
```

```
        sendButton = findViewById(R.id.buttonSend);

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

        // Register BroadcastReceiver for incoming SMS
        registerReceiver(new SmsReceiver(), new
IntentFilter("android.provider.Telephony.SMS_RECEIVED"));

        // Request SMS permission at runtime for Android 6.0 and above
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.M) {
            if (checkSelfPermission(Manifest.permission.SEND_SMS) !=
PackageManager.PERMISSION_GRANTED) {
                requestPermissions(new
String[]{Manifest.permission.SEND_SMS}, PERMISSION_REQUEST_CODE);
            }
        }
    }

    // Method to send SMS
    private void sendSMS() {
        String phoneNumber = phoneNumberEditText.getText().toString();
        String message = messageEditText.getText().toString();

        // Use SmsManager to send SMS
        SmsManager smsManager = SmsManager.getDefault();
        smsManager.sendTextMessage(phoneNumber, null, message, null, null);

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

    // BroadcastReceiver to receive incoming SMS
    public class SmsReceiver extends BroadcastReceiver {
        @Override
        public void onReceive(Context context, Intent intent) {
            // Retrieve SMS message
            // Note: This is a basic example, and in a real application,
you should parse the SMS content appropriately.
            String sender = intent.getStringExtra("address");
            String messageBody = intent.getStringExtra("body");

            Toast.makeText(context, "Received SMS from " + sender + ": " +
messageBody, Toast.LENGTH_LONG).show();
        }
    }

    // Handle permission request result
    @SuppressLint("MissingSuperCall")
    @Override
    public void onRequestPermissionsResult(int requestCode, @NonNull
String[] permissions, @NonNull int[] grantResults) {
        if (requestCode == PERMISSION_REQUEST_CODE) {
            if (grantResults.length > 0 && grantResults[0] ==
PackageManager.PERMISSION_GRANTED) {
                // Permission granted
                Toast.makeText(this, "SMS permission granted",
Toast.LENGTH_SHORT).show();
```

```
            } else {
                // Permission denied
                Toast.makeText(this, "SMS permission denied",
Toast.LENGTH_SHORT).show();
            }
        }
    }
}
```

Slip4-> B) factorial intent

```
<activity android:name=".FactorialActivity" />
```

```
<!-- activity_main.xml -->
<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/editTextNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:hint="Enter a positive number"
        android:inputType="numberDecimal"
        android:layout_margin="16dp"/>

    <Button
        android:id="@+id/buttonCalculate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextNumber"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="16dp"
        android:text="Calculate Factorial"/>
</RelativeLayout>
```

```
package com.example.factorial_intent;

// MainActivity.java
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private EditText editTextNumber;
    private Button buttonCalculate;

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

```
        editTextNumber = findViewById(R.id.editTextNumber);
        buttonCalculate = findViewById(R.id.buttonCalculate);

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

    private void calculateFactorial() {
        String numberString = editTextNumber.getText().toString();

        if (!numberString.isEmpty()) {
            int number = Integer.parseInt(numberString);

            if (number >= 0) {
                // If the number is non-negative, launch the
FactorialActivity
                Intent intent = new Intent(MainActivity.this,
FactorialActivity.class);
                intent.putExtra("number", number);
                startActivity(intent);
            } else {
                editTextNumber.setError("Please enter a non-negative
number");
            }
        } else {
            editTextNumber.setError("Please enter a number");
        }
    }
}
```

```
package com.example.factorial_intent;

// FactorialActivity.java
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;

public class FactorialActivity extends AppCompatActivity {

    private TextView textViewResult;

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

        textViewResult = findViewById(R.id.textViewResult);

        // Get the number from the intent
        int number = getIntent().getIntExtra("number", 0);

        // Calculate the factorial
        long factorial = calculateFactorial(number);
```

```
        // Display the result
        textViewResult.setText("Factorial of " + number + " is " +
factorial);
    }

    private long calculateFactorial(int n) {
        if (n == 0 || n == 1) {
            return 1;
        } else {
            return n * calculateFactorial(n - 1);
        }
    }
}
```

```
<!-- activity_factorial.xml -->
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="18sp"/>
</RelativeLayout>
```

Slip4-> Q2 Car Database

```
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"
/>
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
```

```
<!-- activity_main.xml -->
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="18sp"/>
</RelativeLayout>
```

```
package com.example.car_db;

import androidx.appcompat.app.AppCompatActivity;

import android.annotation.SuppressLint;
import android.os.Bundle;
```

```java
// MainActivity.java
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import java.util.ArrayList;
import java.util.List;

// MainActivity.java
import android.content.ContentValues;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.widget.TextView;
import androidx.appcompat.app.AppCompatActivity;
import java.util.ArrayList;
import java.util.List;

public class MainActivity extends AppCompatActivity {

    private TextView resultTextView;
    private CarDatabaseHelper dbHelper;

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

        resultTextView = findViewById(R.id.resultTextView);
        dbHelper = new CarDatabaseHelper(this);

        // Perform operations
        updateCarDetails();
        displayAllRecords();
    }

    private void updateCarDetails() {
        // Update the car details whose colour is blue
        SQLiteDatabase db = dbHelper.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put(CarDatabaseHelper.COLUMN_MODEL, "New Model"); // You can
update other columns as well

        int rowsAffected = db.update(
                CarDatabaseHelper.TABLE_CAR,
                values,
                CarDatabaseHelper.COLUMN_COLOUR + "=?",
                new String[]{"blue"});

        db.close();

        resultTextView.append("\n\nUpdated " + rowsAffected + " car details
with blue colour.");
    }

    private void displayAllRecords() {
        // Display all records
```

```
        SQLiteDatabase db = dbHelper.getReadableDatabase();

        String[] projection = {
                CarDatabaseHelper.COLUMN_CAR_NO,
                CarDatabaseHelper.COLUMN_NAME,
                CarDatabaseHelper.COLUMN_MODEL,
                CarDatabaseHelper.COLUMN_COLOUR
        };

        Cursor cursor = db.query(
                CarDatabaseHelper.TABLE_CAR,
                projection,
                null,
                null,
                null,
                null,
                null);

        List<Car> carList = new ArrayList<>();

        while (cursor.moveToNext()) {
            @SuppressLint("Range") int carNo =
cursor.getInt(cursor.getColumnIndex(CarDatabaseHelper.COLUMN_CAR_NO));
            @SuppressLint("Range") String name =
cursor.getString(cursor.getColumnIndex(CarDatabaseHelper.COLUMN_NAME));
            @SuppressLint("Range") String model =
cursor.getString(cursor.getColumnIndex(CarDatabaseHelper.COLUMN_MODEL));
            @SuppressLint("Range") String colour =
cursor.getString(cursor.getColumnIndex(CarDatabaseHelper.COLUMN_COLOUR));

            Car car = new Car(carNo, name, model, colour);
            carList.add(car);
        }

        cursor.close();
        db.close();

        // Display the results
        resultTextView.append("\n\nAll Car Records:\n");

        for (Car car : carList) {
            resultTextView.append(
                    "Car No: " + car.getCarNo() +
                            ", Name: " + car.getName() +
                            ", Model: " + car.getModel() +
                            ", Colour: " + car.getColour() + "\n");
        }
    }
}
```

```
package com.example.car_db;

// Car.java
public class Car {
    private int carNo;
    private String name;
    private String model;
    private String colour;

    public Car(int carNo, String name, String model, String colour) {
```

```
        this.carNo = carNo;
        this.name = name;
        this.model = model;
        this.colour = colour;
    }

    public int getCarNo() {
        return carNo;
    }

    public String getName() {
        return name;
    }

    public String getModel() {
        return model;
    }

    public String getColour() {
        return colour;
    }
}
```

```
package com.example.car_db;

// CarDatabaseHelper.java
import android.content.ContentValues;
import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;

public class CarDatabaseHelper extends SQLiteOpenHelper {

    private static final String DATABASE_NAME = "car_database";
    private static final int DATABASE_VERSION = 1;

    public static final String TABLE_CAR = "car";
    public static final String COLUMN_CAR_NO = "carno";
    public static final String COLUMN_NAME = "name";
    public static final String COLUMN_MODEL = "model";
    public static final String COLUMN_COLOUR = "colour";

    private static final String CREATE_TABLE_CAR =
            "CREATE TABLE " + TABLE_CAR + "(" +
                    COLUMN_CAR_NO + " INTEGER PRIMARY KEY," +
                    COLUMN_NAME + " TEXT," +
                    COLUMN_MODEL + " TEXT," +
                    COLUMN_COLOUR + " TEXT)";

    public CarDatabaseHelper(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        db.execSQL(CREATE_TABLE_CAR);
        // Insert some existing records
        insertInitialData(db);
    }
```

```
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int
newVersion) {
        // Implement if needed when database schema changes.
    }

    private void insertInitialData(SQLiteDatabase db) {
        ContentValues values1 = new ContentValues();
        values1.put(COLUMN_NAME, "Car1");
        values1.put(COLUMN_MODEL, "Model1");
        values1.put(COLUMN_COLOUR, "blue");
        db.insert(TABLE_CAR, null, values1);

        ContentValues values2 = new ContentValues();
        values2.put(COLUMN_NAME, "Car2");
        values2.put(COLUMN_MODEL, "Model2");
        values2.put(COLUMN_COLOUR, "blue");
        db.insert(TABLE_CAR, null, values2);

        ContentValues values3 = new ContentValues();
        values3.put(COLUMN_NAME, "Car3");
        values3.put(COLUMN_MODEL, "Model3");
        values3.put(COLUMN_COLOUR, "Black");
        db.insert(TABLE_CAR, null, values3);
        // Add more records as needed
    }
}
```

slip6 -> Q2 onclick listview

```
<!-- activity_main.xml -->
<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">

    <ListView
        android:id="@+id/listView"
        android:layout_width="match_parent"
        android:layout_height="match_parent"/>
</RelativeLayout>
```

```
package com.example.onclick_listview;

// MainActivity.java
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;
import android.widget.Toast;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {
```

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

        // Sample data for the ListView
        String[] data = {"Item 1", "Item 2", "Item 3", "Item 4", "Item 5"};

        // Create an ArrayAdapter to populate the ListView
        ArrayAdapter<String> adapter = new ArrayAdapter<>(this,
android.R.layout.simple_list_item_1, data);

        // Get the ListView from the layout
        ListView listView = findViewById(R.id.listView);

        // Set the adapter for the ListView
        listView.setAdapter(adapter);

        // Set a click listener for the items in the ListView
        listView.setOnItemClickListener(new
AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View view, int
position, long id) {
                // Get the selected item from the adapter
                String selectedItem = (String)
parent.getItemAtPosition(position);

                // Display a Toast with the selected item
                Toast.makeText(MainActivity.this, "Selected: " +
selectedItem, Toast.LENGTH_SHORT).show();
            }
        });
    }
}
```

slip7 -> Q1

```
<service android:name=".AudioService" />
<uses-permission android:name="android.permission.FOREGROUND_SERVICE" />
```

```
package com.example.audio_bgm;

// MainActivity.java
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

        // Start the AudioService when the main activity is created
```

```
        startService(new Intent(this, AudioService.class));
    }

    public void openOtherActivity(View view) {
        // Example button click to open another activity
        Intent intent = new Intent(this, OtherActivity.class);
        startActivity(intent);
    }

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

        // Stop the AudioService when the main activity is destroyed
        stopService(new Intent(this, AudioService.class));
    }
}
```

```
package com.example.audio_bgm;

// OtherActivity.java
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;

public class OtherActivity extends AppCompatActivity {

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

```
package com.example.audio_bgm;

// AudioService.java
import android.app.Service;
import android.content.Intent;
import android.media.MediaPlayer;
import android.os.IBinder;
import androidx.annotation.Nullable;

public class AudioService extends Service {

    private MediaPlayer mediaPlayer;

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

        // Initialize and start playing the audio
        mediaPlayer = MediaPlayer.create(this, R.raw.sample);
        mediaPlayer.setLooping(true); // Loop the audio
        mediaPlayer.start();
    }
```

```
    @Override
    public int onStartCommand(Intent intent, int flags, int startId) {
        return START_STICKY;
    }

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

        // Stop and release the MediaPlayer when the service is destroyed
        if (mediaPlayer != null) {
            mediaPlayer.stop();
            mediaPlayer.release();
        }
    }

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

slip 11 Q2 Email with attachment

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

```
package com.example.email_attachment;

// MainActivity.java
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.view.View;
import androidx.appcompat.app.AppCompatActivity;
import java.io.File;

public class MainActivity extends AppCompatActivity {

    private static final String EMAIL_SUBJECT = "Email Subject";
    private static final String EMAIL_BODY = "Hello,\n\nPlease find the
attached file.";

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

    public void sendEmail(View view) {
        // File to be attached (replace "your_file_name.txt" with your
actual file name)
        File attachmentFile = new
File(Environment.getExternalStorageDirectory(), "resume.pdf");
```

```
        // Create the email Intent
        Intent emailIntent = new Intent(Intent.ACTION_SEND);
        emailIntent.setType("text/plain");

        // Set the recipient email address (replace "recipient@example.com"
with the actual email address)
        emailIntent.putExtra(Intent.EXTRA_EMAIL, new
String[]{"gandasp18@gamil.com"});

        // Set the email subject and body
        emailIntent.putExtra(Intent.EXTRA_SUBJECT, EMAIL_SUBJECT);
        emailIntent.putExtra(Intent.EXTRA_TEXT, EMAIL_BODY);

        // Attach the file
        Uri fileUri = Uri.fromFile(attachmentFile);
        emailIntent.putExtra(Intent.EXTRA_STREAM, fileUri);

        // Start the email client
        startActivity(Intent.createChooser(emailIntent, "Send Email"));
    }
}
```

```
<!-- activity_main.xml -->
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <Button
        android:id="@+id/btnSendEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send Email"
        android:onClick="sendEmail"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

Slip13-> Q2

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

```
<!-- activity_main.xml -->
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <Button
        android:id="@+id/btnSendSMS"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Send SMS"
        android:onClick="sendSMS"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

```java
package com.example.sms_img;

// MainActivity.java
import android.Manifest;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.provider.MediaStore;
import android.view.View;
import android.widget.Toast;

import androidx.activity.result.ActivityResult;
import androidx.activity.result.ActivityResultLauncher;
import androidx.activity.result.contract.ActivityResultContracts;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

public class MainActivity extends AppCompatActivity {

    private ActivityResultLauncher<Intent> pickContactLauncher;
    private ActivityResultLauncher<String> requestPermissionLauncher;
    private ActivityResultLauncher<Intent> pickImageLauncher;

    private static final int PICK_CONTACT_REQUEST = 1;

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

        // Initialize ActivityResultLaunchers
        pickContactLauncher = registerForActivityResult(
                new ActivityResultContracts.StartActivityForResult(),
                result -> {
                    if (result.getResultCode() == RESULT_OK) {
                        pickImage();
                    }
                }
        );

        requestPermissionLauncher = registerForActivityResult(
                new ActivityResultContracts.RequestPermission(),
                isGranted -> {
                    if (isGranted) {
                        pickContact();
                    } else {
                        // Handle permission denied
                    }
                }
        );

        pickImageLauncher = registerForActivityResult(
                new ActivityResultContracts.StartActivityForResult(),
                result -> {
                    if (result.getResultCode() == RESULT_OK) {
                        composeAndSendSMS(result.getData().getData());
```

```
                    }
                }
        );

        // Request READ_CONTACTS permission

requestPermissionLauncher.launch(Manifest.permission.READ_CONTACTS);
    }

    public void sendSMS(View view) {
        // Select a contact
        pickContact();
    }

    private void pickContact() {
        Intent pickContactIntent = new Intent(Intent.ACTION_PICK,
ContactsContract.Contacts.CONTENT_URI);
        pickContactLauncher.launch(pickContactIntent);
    }

    private void pickImage() {
        Intent pickImageIntent = new Intent(Intent.ACTION_PICK,
MediaStore.Images.Media.EXTERNAL_CONTENT_URI);
        pickImageLauncher.launch(pickImageIntent);
    }

    private void composeAndSendSMS(Uri imageUri) {
        // Compose the SMS
        String smsBody = "Check out this image!";
        Intent smsIntent = new Intent(Intent.ACTION_SENDTO,
Uri.parse("smsto:"));
        smsIntent.putExtra("sms_body", smsBody);

        // Attach the image
        smsIntent.putExtra(Intent.EXTRA_STREAM, imageUri);
        smsIntent.setType("image/*");

        // Check if there is an activity available to handle the intent
        if (smsIntent.resolveActivity(getPackageManager()) != null) {
            // Start the messaging app
            startActivity(smsIntent);
        } else {
            // Handle the case where there is no activity available
            // (e.g., show a message to the user)
            Toast.makeText(this, "No messaging app available",
Toast.LENGTH_SHORT).show();
        }
    }

}
```

slip14 -> Q1 A)Orientation Portait

```
android:configChanges="orientation|screenSize"
```

```java
package com.example.orientation;

// MainActivity.java
import android.content.res.Configuration;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

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

    @Override
    public void onConfigurationChanged(Configuration newConfig) {
        super.onConfigurationChanged(newConfig);

        // Handle configuration changes if needed
        // Example: Check if the orientation is landscape or portrait
        if (newConfig.orientation == Configuration.ORIENTATION_LANDSCAPE) {
            // Do something when in landscape mode
        } else if (newConfig.orientation ==
Configuration.ORIENTATION_PORTRAIT) {
            // Do something when in portrait mode
        }
    }
}
```

```xml
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Portrait Layout"
        android:textSize="24sp"
        android:layout_centerInParent="true"/>
</RelativeLayout>
```

AcceptRejectSlip9

```java
package com.example.myapplication;

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

import androidx.appcompat.app.AppCompatActivity;

public class AcceptRejectSlip9 extends AppCompatActivity {
```

```
    private EditText editTextNumber1;
    private EditText editTextNumber2;
    private TextView resultTextView;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.accept_reject_slip9);

        editTextNumber1 = findViewById(R.id.editTextNumber1);
        editTextNumber2 = findViewById(R.id.editTextNumber2);
        resultTextView = findViewById(R.id.resultTextView);

    }
    public void onSubmitClick(View view){
        String input1 = editTextNumber1.getText().toString();
        String input2 = editTextNumber2.getText().toString();

        if(!input1.isEmpty()&&!input2.isEmpty()){
            double number1 = Double.parseDouble(input1);
            double number2 = Double.parseDouble(input2);

            if(number1>10 && number2>10){
                resultTextView.setText("Both Numbers are greater than 10
enter new numbers ");
            }else{
                resultTextView.setText("Number1"+number1+"\n
Number2"+number2);
            }
        }else{
            resultTextView.setText("PleaseEnter both numbers");
        }
    }
}
```

```
<?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=".AcceptRejectSlip9">

    <EditText
        android:id="@+id/editTextNumber1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter number 1"
        android:inputType="numberDecimal"
        android:layout_marginTop="16dp"/>

    <EditText
        android:id="@+id/editTextNumber2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter number 2"
        android:inputType="numberDecimal"
        android:layout_below="@id/editTextNumber1"
        android:layout_marginTop="16dp"/>

    <Button
        android:id="@+id/submitButton"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Submit"
        android:layout_below="@id/editTextNumber2"
        android:layout_marginTop="16dp"
        android:onClick="onSubmitClick"/>

    <TextView
        android:id="@+id/resultTextView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/submitButton"
        android:layout_marginTop="16dp"/>
</RelativeLayout>
```

Activity Life cycle

```
package com.example.myapplication;

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

import androidx.appcompat.app.AppCompatActivity;

public class ActivityLifecycle extends AppCompatActivity {
    private static final String TAG = "ActivityLifecycle";

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

        Log.d(TAG, "onCreate");
    }

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

    @Override
    protected void onResume() {
        super.onResume();
        Log.d(TAG, "onResume");
    }

    @Override
    protected void onPause() {
        super.onPause();
        Log.d(TAG, "onPause");
    }

    @Override
    protected void onStop() {
        super.onStop();
        Log.d(TAG, "onStop");
    }

    @Override
```

```
    protected void onDestroy() {
        super.onDestroy();
        Log.d(TAG, "onDestroy");
    }

    @Override
    protected void onRestart() {
        super.onRestart();
        Log.d(TAG, "onRestart");
    }
}
```

factorial with alert

```
package com.example.myapplication;

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

import androidx.appcompat.app.AlertDialog;
import androidx.appcompat.app.AppCompatActivity;

public class AlertSlip7 extends AppCompatActivity {
    private EditText editTextNumber;
    private TextView textViewResult;

    private Button buttonCalculateFactorial;
    @Override
    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.alert_slip7);

        editTextNumber = findViewById(R.id.editTextNumber);
        textViewResult = findViewById(R.id.textViewResult);
        buttonCalculateFactorial =
findViewById(R.id.buttonCalculateFactorial);

        buttonCalculateFactorial.setOnClickListener(new
View.OnClickListener() {
            @Override
            public void onClick(View view) {
                calculateFactorial();
            }
        });
    }
    protected void calculateFactorial(){
        String input = editTextNumber.getText().toString();
        if(!input.isEmpty()){
            int number = Integer.parseInt(input);
            long factorial = 1;
            for(int i=1;i<=number;i++){
                factorial *= 1;
            }
            String resultMessage = "Factorial of"+number+"is"+factorial;
            showAlert("Factorial Result",resultMessage);
        }else{
            showAlert("Error","Please enter a number");
```

```
        }
    }
    private void showAlert(String title, String message){
        AlertDialog.Builder builder = new AlertDialog.Builder(this);

builder.setTitle(title).setMessage(message).setPositiveButton("OK",null).sh
ow();
    }
}
```

```
<!-- res/layout/activity_main.xml -->
<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=".AlertSlip7">

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter a number"
        android:inputType="number"/>

    <Button
        android:id="@+id/buttonCalculateFactorial"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="Calculate Factorial"
        android:layout_below="@id/editTextNumber"
        android:layout_marginTop="16dp"
        android:onClick="calculateFactorial"/>

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonCalculateFactorial"
        android:layout_marginTop="16dp"
        android:text=""
        android:textSize="18sp"
        android:layout_centerHorizontal="true"/>
</RelativeLayout>
```

Calculator

```
package com.example.myapplication;

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

import androidx.appcompat.app.AppCompatActivity;

public class CalculatorSlip10 extends AppCompatActivity {
```

```
    private TextView display;
    private String currentInput = "";
    private double operand1 = 0;
    private String operator = "";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.calculator_slip10_activity3);

        display = findViewById(R.id.display);

        setDigitButtonClickListeners();

        setOperatorButtonClickListeners();

        setEqualsButtonClickListener();
    }

    private void setDigitButtonClickListeners() {
        int[] digitButtonIds = {R.id.button1, R.id.button2, R.id.button3,
R.id.button4,
                R.id.button5, R.id.button6, R.id.button7, R.id.button8,
                R.id.button9,R.id.button0};

        for (int digitButtonId : digitButtonIds) {
            Button digitButton = findViewById(digitButtonId);
            digitButton.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                    Button button = (Button) v;
                    currentInput += button.getText().toString();
                    display.setText(currentInput);
                }
            });
        }
    }

    private void setOperatorButtonClickListeners() {
        int[] operatorButtonIds = {R.id.buttonAdd, R.id.buttonMultiply,
R.id.buttonMultiply, R.id.buttonDivide};

        for (int operatorButtonId : operatorButtonIds) {
            Button operatorButton = findViewById(operatorButtonId);
            operatorButton.setOnClickListener(new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                    if (!currentInput.isEmpty()) {
                        operand1 = Double.parseDouble(currentInput);
                        operator = ((Button) v).getText().toString();
                        currentInput = "";
                    }
                }
            });
        }
    }

    private void setEqualsButtonClickListener() {
        Button equalsButton = findViewById(R.id.buttonEquals);
        equalsButton.setOnClickListener(new View.OnClickListener() {
            @Override
```

```
            public void onClick(View v) {
                if (!currentInput.isEmpty() && !operator.isEmpty()) {
                    double operand2 = Double.parseDouble(currentInput);
                    double result = performOperation(operand1, operand2,
operator);
                    display.setText(String.valueOf(result));
                    currentInput = "";
                    operator = "";
                }
            }
        });
    }

    private double performOperation(double operand1, double operand2,
String operator) {
        switch (operator) {
            case "+":
                return operand1 + operand2;
            case "-":
                return operand1 - operand2;
            case "×":
                return operand1 * operand2;
            case "÷":
                if (operand2 != 0) {
                    return operand1 / operand2;
                } else {
                    return Double.NaN;
                }
            default:
                return Double.NaN;
        }
    }
}
```

```
<?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=".CalculatorSlip10">
    <TextView
        android:id="@+id/display"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:textSize="24sp"
        android:text="CALCULATOR" />
    <EditText
        android:id="@+id/OutputEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="20dp"
        android:textSize="24sp"
        android:hint="0"/>

    <GridLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/display"
        android:layout_marginTop="37dp"
        android:columnCount="4">
```

```
        <!-- Buttons for digits -->
        <Button
            android:id="@+id/button1"
            android:text="1" />

        <Button
            android:id="@+id/button2"
            android:text="2" />

        <Button
            android:id="@+id/button3"
            android:text="3" />

        <Button
            android:id="@+id/button4"
            android:text="4" />

        <Button
            android:id="@+id/button5"
            android:text="5" />

        <Button
            android:id="@+id/button6"
            android:text="6" />

        <Button
            android:id="@+id/button7"
            android:text="7" />

        <Button
            android:id="@+id/button8"
            android:text="8" />

        <Button
            android:id="@+id/button9"
            android:text="9" />
        <Button
            android:id="@+id/button0"
            android:text="0" />
        <Button
            android:id="@+id/buttonClear"
            android:text="C" />
        <Button
            android:id="@+id/buttonPoint"
            android:text="." />

        <Button
            android:id="@+id/buttonAdd"
            android:text="+" />

        <Button
            android:id="@+id/Subtract"
            android:text="-" />

        <Button
            android:id="@+id/buttonMultiply"
            android:text="*" />

        <Button
            android:id="@+id/buttonDivide"
```

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

        <Button
            android:id="@+id/buttonEquals"
            android:text="=" />

    </GridLayout>
</RelativeLayout>
```

Date and time piker

```
package com.example.myapplication;

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

import androidx.appcompat.app.AppCompatActivity;

import java.util.Calendar;

public class DateTimePickerSlip8 extends AppCompatActivity {
    private TextView textViewResult;
    private Button buttonPickDateTime;
    @Override
    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);

        textViewResult = findViewById(R.id.resultTextView);
        buttonPickDateTime = findViewById(R.id.buttonPickDateTime);

        buttonPickDateTime.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                showDateTimePicker();
            }
        });
    }
    private void showDateTimePicker(){
        Calendar calendar = Calendar.getInstance();
        int year = calendar.get(Calendar.YEAR);
        int month = calendar.get(Calendar.MONTH);
        int day = calendar.get(Calendar.DAY_OF_MONTH);
        int hour = calendar.get(Calendar.HOUR_OF_DAY);
        int minute = calendar.get(Calendar.MINUTE);

        DatePickerDialog datePickerDialog = new DatePickerDialog(this,
                new DatePickerDialog.OnDateSetListener() {
            @Override
            public void onDateSet(DatePicker view, int year, int month, int
dayOfMonth) {
                calendar.set(Calendar.YEAR, year);
                calendar.set(Calendar.MONTH, month);
```

```
                calendar.set(Calendar.DAY_OF_MONTH, dayOfMonth);
                TimePickerDialog timePickerDialog = new
TimePickerDialog(DateTimePickerSlip8.this,
                        new TimePickerDialog.OnTimeSetListener() {
                            @Override
                            public void onTimeSet(TimePicker view, int
hourOfDay, int minute) {
                                calendar.set(Calendar.HOUR_OF_DAY,
hourOfDay);
                                calendar.set(Calendar.MINUTE, minute);
                                updateResultTextView(calendar);

                            }
                        },hour,
                        minute,
                        true );
            }
        },
                year,
                month,
                day);
        datePickerDialog.show();
    }
    private void updateResultTextView(Calendar calendar) {
        String result = String.format(
                "Selected Date and Time:\n%s",
                android.text.format.DateFormat.format("MMM dd, yyyy hh:mm
a", calendar)
        );
        textViewResult.setText(result);
    }
}
```

```
<?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=".DateTimePickerSlip8">

    <Button
        android:id="@+id/buttonPickDateTime"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:text="Pick Date and Time" />

    <TextView
        android:id="@+id/textViewResult"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/buttonPickDateTime"
        android:layout_marginTop="16dp"
        android:text=""
        android:textSize="18sp"
        android:layout_centerHorizontal="true"/>
</RelativeLayout>
```

Friend viewlist

```java
package com.example.myapplication;

import android.os.Bundle;
import android.widget.ListView;

import androidx.appcompat.app.AppCompatActivity;

import java.util.ArrayList;

public class ViewFriendSlip5 extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.friend_view_slip_5);

        ArrayList<Friend> friendsList = new ArrayList<>();
        friendsList.add(new Friend("Friend1",R.drawable.lightOff));
        friendsList.add(new Friend("Friend2",R.drawable.lightOff));
        friendsList.add(new Friend("Friend3",R.drawable.lightOff));

        FriendAdapter friendAdapter = new  FriendAdapter(this,friendsList);
        ListView listViewFriends = findViewById(R.id.listViewFriends);
        listViewFriends.setAdapter(friendAdapter);
    }
}
```

```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=".ViewFriendSlip5">

    <ListView
        android:id="@+id/listViewFriends"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</RelativeLayout>
```

Login and registration

```java
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;
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 {

    private static final String VALID_USERNAME = "mca";
    private static final String VALID_PASSWORD = "android";

    private EditText usernameEditText;
    private EditText passwordEditText;
    private Button loginButton;
```

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

              usernameEditText = findViewById(R.id.usernameEditText);
        passwordEditText = findViewById(R.id.passwordEditText);
        loginButton = findViewById(R.id.loginButton);

        loginButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String enteredUsername =
usernameEditText.getText().toString();
                String enteredPassword =
passwordEditText.getText().toString();

                if (enteredUsername.equals(VALID_USERNAME) &&
enteredPassword.equals(VALID_PASSWORD)) {
                    showToast("Login successful");
                } else {
                    showToast("Invalid username or password");
                }
            }
        });
    }

    private void showToast(String message) {
        Toast.makeText(this, message, Toast.LENGTH_SHORT).show();
    }
}
```

```
<?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/usernameEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="50dp"
        android:hint="Username"/>

    <EditText
        android:id="@+id/passwordEditText"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/usernameEditText"
        android:layout_marginTop="20dp"
        android:inputType="textPassword"
        android:hint="Password"/>

    <Button
        android:id="@+id/loginButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:layout_below="@id/passwordEditText"
        android:layout_marginTop="20dp"
        android:text="Login"/>
</RelativeLayout>
```

```
package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity2 extends AppCompatActivity {
    private Button btnRegister;
    private EditText editTextName;
    private EditText editTextEmail;
    private EditText editTextPassword;
    private EditText editTextAge;
    private EditText editTextMobile;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        btnRegister = findViewById(R.id.btnRegister);
        btnRegister.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                validateForm();
            }
        });
    }
    private void validateForm(){

        editTextName = findViewById(R.id.editTextName);
        editTextEmail = findViewById(R.id.editTextEmail);
        editTextPassword = findViewById(R.id.editTextPassword);
        editTextAge = findViewById(R.id.editTextAge);
        editTextMobile = findViewById(R.id.editTextMobile);

        String name = editTextName.getText().toString().trim();
        String email = editTextEmail.getText().toString().trim();
        String password = editTextPassword.getText().toString().trim();
        String age = editTextAge.getText().toString().trim();
        String mobileNo = editTextMobile.getText().toString().trim();


if(name.isEmpty()||email.isEmpty()||password.isEmpty()||age.isEmpty()||mobi
leNo.isEmpty()) {
                Toast.makeText(this, "All fields are required",
Toast.LENGTH_SHORT).show();
        }
        else{
                Toast.makeText(this, "Successfully Registered",
Toast.LENGTH_SHORT).show();
```

```
        }
    }

}
```

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"
    tools:context=".MainActivity2"
    >

    <TextView
        android:id="@+id/textView"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginBottom="8dp"
        android:text="Registration" />


    <EditText
        android:id="@+id/editTextName"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Name"/>

    <EditText
        android:id="@+id/editTextEmail"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextName"
        android:layout_marginTop="8dp"
        android:inputType="textEmailAddress"
        android:hint="Email"/>

    <EditText
        android:id="@+id/editTextPassword"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextEmail"
        android:layout_marginTop="8dp"
        android:inputType="textPassword"
        android:hint="Password"/>

    <EditText
        android:id="@+id/editTextAge"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextPassword"
        android:layout_marginTop="8dp"
        android:inputType="number"
        android:hint="Age"/>

    <EditText
        android:id="@+id/editTextMobile"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextAge"
        android:layout_marginTop="8dp"
        android:inputType="phone"
```

```
        android:hint="Mobile Number"/>

    <Button
        android:id="@+id/btnRegister"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/editTextMobile"
        android:layout_marginTop="16dp"
        android:text="Register"/>


</RelativeLayout>
```

Login layout

```
<?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=".LoginActivity">

    <EditText
        android:id="@+id/editTextUsernameConstraint"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:hint="Username"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        android:layout_marginTop="16dp"/>

    <EditText
        android:id="@+id/editTextPasswordConstraint"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:inputType="textPassword"
        android:hint="Password"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"

app:layout_constraintTop_toBottomOf="@id/editTextUsernameConstraint"
        android:layout_marginTop="8dp"/>

    <Button
        android:id="@+id/buttonLoginConstraint"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"

app:layout_constraintTop_toBottomOf="@id/editTextPasswordConstraint"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
```

```
        android:layout_marginTop="16dp"/>
</androidx.constraintlayout.widget.ConstraintLayout>
```

Linear layout

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    android:gravity="center"
    tools:context=".LoginActivity">

    <EditText
        android:id="@+id/editTextUsernameLinear"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Username"/>

    <EditText
        android:id="@+id/editTextPasswordLinear"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="textPassword"
        android:hint="Password"/>

    <Button
        android:id="@+id/buttonLoginLinear"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Login"/>
</LinearLayout>
```

Login layout table

```
<?xml version="1.0" encoding="utf-8"?>
<TableLayout 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:padding="16dp"
    tools:context=".LoginActivity">

    <TableRow>
        <EditText
            android:id="@+id/editTextUsernameTable"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:hint="Username"/>
    </TableRow>

    <TableRow>
        <EditText
            android:id="@+id/editTextPasswordTable"
            android:layout_width="0dp"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:inputType="textPassword"
            android:hint="Password"/>
    </TableRow>
```

```
    <TableRow>
        <Button
            android:id="@+id/buttonLoginTable"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Login"/>
    </TableRow>
</TableLayout>
```

Multiplication

```
package com.example.myapplication;

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

import androidx.appcompat.app.AppCompatActivity;

public class MultiplicationTable extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.multipliction_table_slip3);

        final EditText editTextNumber = findViewById(R.id.editTextNumber);
        Button buttonGenerateTable =
findViewById(R.id.buttonGenerateTable);
        final TableLayout tableLayout = findViewById(R.id.tableLayout);

        buttonGenerateTable.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                tableLayout.removeAllViews();

                String numberString = editTextNumber.getText().toString();

                if (!numberString.isEmpty()) {
                    int number = Integer.parseInt(numberString);

                    for (int i = 1; i <= 10; i++) {
                        TableRow tableRow = new
TableRow(MultiplicationTable.this);

                        TextView textViewMultiplicant = new
TextView(MultiplicationTable.this);

textViewMultiplicant.setText(String.valueOf(number));
                        textViewMultiplicant.setTextSize(18);
                        tableRow.addView(textViewMultiplicant);

                        TextView textViewMultiplier = new
TextView(MultiplicationTable.this);
```

```
                        textViewMultiplier.setText(" x " + i + " = ");
                        textViewMultiplier.setTextSize(18);
                        tableRow.addView(textViewMultiplier);

                        TextView textViewResult = new
TextView(MultiplicationTable.this);
                        textViewResult.setText(String.valueOf(number * i));
                        textViewResult.setTextSize(18);
                        tableRow.addView(textViewResult);

                        tableLayout.addView(tableRow);
                    }
                }
            }
        });
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout 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:orientation="vertical"
    android:padding="16dp"
    tools:context=".MainActivity">

    <EditText
        android:id="@+id/editTextNumber"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:inputType="number"
        android:hint="Enter a number"/>

    <Button
        android:id="@+id/buttonGenerateTable"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Generate Table"
        android:layout_marginTop="16dp"/>

    <TableLayout
        android:id="@+id/tableLayout"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:stretchColumns="*"
        android:shrinkColumns="*">
    </TableLayout>
</LinearLayout>
```

Power and average

```
package com.example.myapplication;

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

```
import android.widget.EditText;

import androidx.appcompat.app.AppCompatActivity;

public class PowerIntent1Slip6 extends AppCompatActivity {
    private EditText editTextNumber1;
    private EditText editTextNumber2;
    private Button buttonCalculate;

    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.power_intent1_slip6);

        editTextNumber1 = findViewById(R.id.editTextNumber1);
        editTextNumber2 = findViewById(R.id.editTextNumber2);
        buttonCalculate = findViewById(R.id.buttonCalculate);

        buttonCalculate.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                String input1 = editTextNumber1.getText().toString();
                String input2 = editTextNumber2.getText().toString();

                if(!input1.isEmpty()&&!input2.isEmpty()) {
                    double number1 = Double.parseDouble(input1);
                    double number2 = Double.parseDouble(input2);
                    double powerResult = Math.pow(number1,number2);
                    double averageResult = (number1+number2)/2;
                    Intent i = new
Intent(PowerIntent1Slip6.this,PowerIntent2Slip6.class);
                    i.putExtra("Power Result",powerResult);
                    i.putExtra("Average Result",averageResult);
                    startActivity(i);
                }
            }
        });

    }
}
```

```
<?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=".PowerIntent1Slip6">

    <EditText
        android:id="@+id/editTextNumber1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:hint="Enter number 1"
        android:inputType="numberDecimal"
        android:layout_marginTop="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="16dp"/>

    <EditText
        android:id="@+id/editTextNumber2"
        android:layout_width="match_parent"
```

```
        android:layout_height="wrap_content"
        android:hint="Enter number 2"
        android:inputType="numberDecimal"
        android:layout_below="@id/editTextNumber1"
        android:layout_marginTop="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="16dp"/>

    <Button
        android:id="@+id/buttonCalculate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Calculate"
        android:layout_below="@id/editTextNumber2"
        android:layout_marginTop="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="16dp"/>
</RelativeLayout>
```

```
package com.example.myapplication;

import android.content.Intent;
import android.os.Bundle;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

public class PowerIntent2Slip6 extends AppCompatActivity {
    private TextView textViewPower;
    private TextView textViewAverage;

    protected void onCreate(Bundle savedInstanceState){
        super.onCreate(savedInstanceState);
        setContentView(R.layout.power_intent2_slip6);
        textViewPower = findViewById(R.id.textViewPower);
        textViewAverage = findViewById(R.id.textViewAverage);

        Intent i = getIntent();
        double powerResult = i.getDoubleExtra("Power Result",0.0);
        double averageResult = i.getDoubleExtra("Average Result",0.0);

        textViewPower.setText("Power Result"+powerResult);
        textViewPower.setText("Average Result"+averageResult);
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    tools:context=".PowerIntent2Slip6">

    <TextView
        android:id="@+id/textViewPower"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="16dp"
        android:layout_marginLeft="16dp"
```

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

    <TextView
        android:id="@+id/textViewAverage"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/textViewPower"
        android:layout_marginTop="16dp"
        android:layout_marginLeft="16dp"
        android:layout_marginRight="16dp"/>
</RelativeLayout>
```

Toggle bulb

```
package com.example.myapplication;

import android.os.Bundle;
import android.widget.CompoundButton;
import android.widget.ImageView;
import android.widget.ToggleButton;

import androidx.appcompat.app.AppCompatActivity;

public class ToggleSlip10 extends AppCompatActivity {
    private ToggleButton toggleButton;
    private ImageView lightBulb;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.toggle_slip10_activity);

        toggleButton = findViewById(R.id.toggleButton);
        lightBulb = findViewById(R.id.lightBulb);

        lightBulb.setImageResource(R.drawable.lightOff);
        toggleButton.setOnCheckedChangeListener(new
CompoundButton.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(CompoundButton compoundButton,
boolean isChecked) {
                if(isChecked){
                    lightBulb.setImageResource(R.drawable.lightOn);
                }else{
                    lightBulb.setImageResource(R.drawable.lightOff);
                }
            }
        });
    }
}
```

```
<?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=".ToggleSlip10">
```

```
    <ToggleButton
        android:id="@+id/toggleButton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textOff="OFF"
        android:textOn="ON" />

    <ImageView
        android:id="@+id/lightBulb"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@id/toggleButton"
        android:layout_marginTop="202dp"
        android:src="@drawable/lightOff" />
</RelativeLayout>
```

Scrolline

```
<?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">
    <TextView
        android:text="A Scroll View"
         android:layout_height="match_parent"
        android:layout_width="wrap_content" />

    <ScrollView
        android:id="@+id/scrollView"
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="16dp">

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button1"
                android:id="@+id/button1"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button2"
                android:id="@+id/button2"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button3"
```

```
                android:id="@+id/button3"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button4"
                android:id="@+id/button4"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button5"
                android:id="@+id/button5"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button6"
                android:id="@+id/button6"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button7"
                android:id="@+id/button7"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button8"
                android:id="@+id/button8"
                android:padding="8dp"/>

            <Button
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Button9"
                android:id="@+id/button9"
                android:padding="8dp"/>

        </LinearLayout>
    </ScrollView>
</RelativeLayout>
```