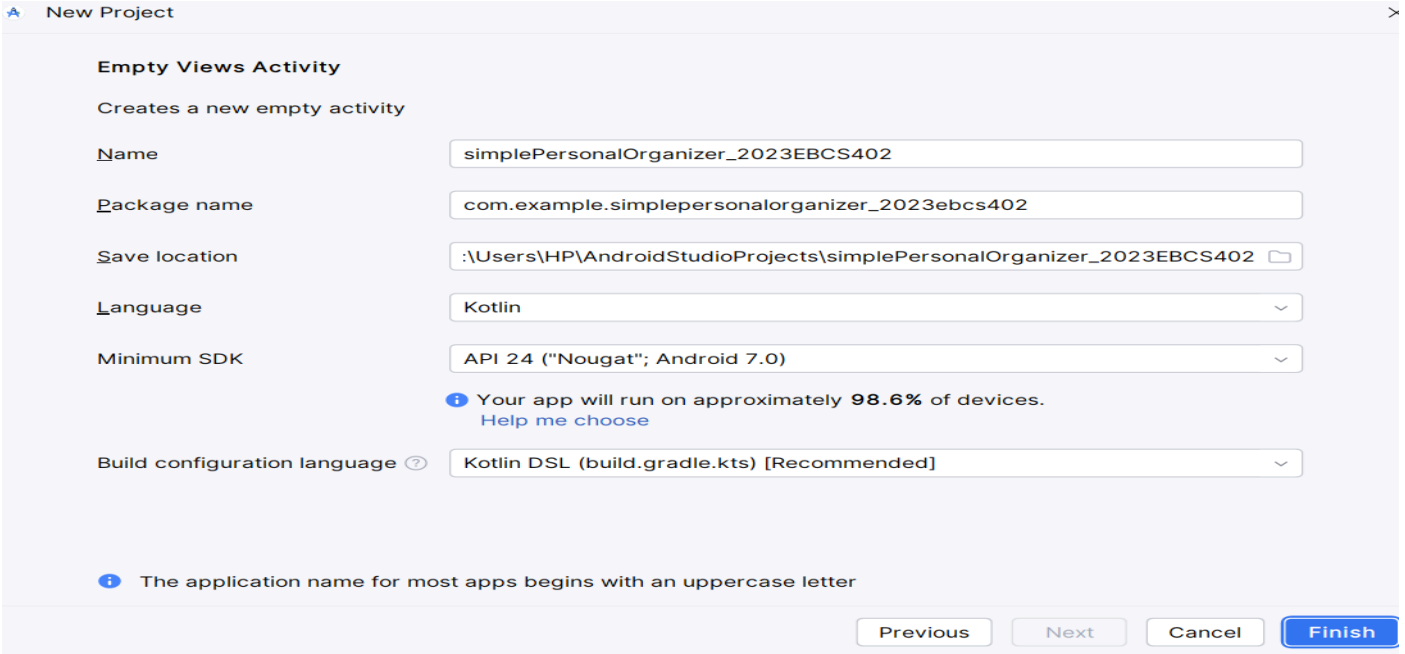
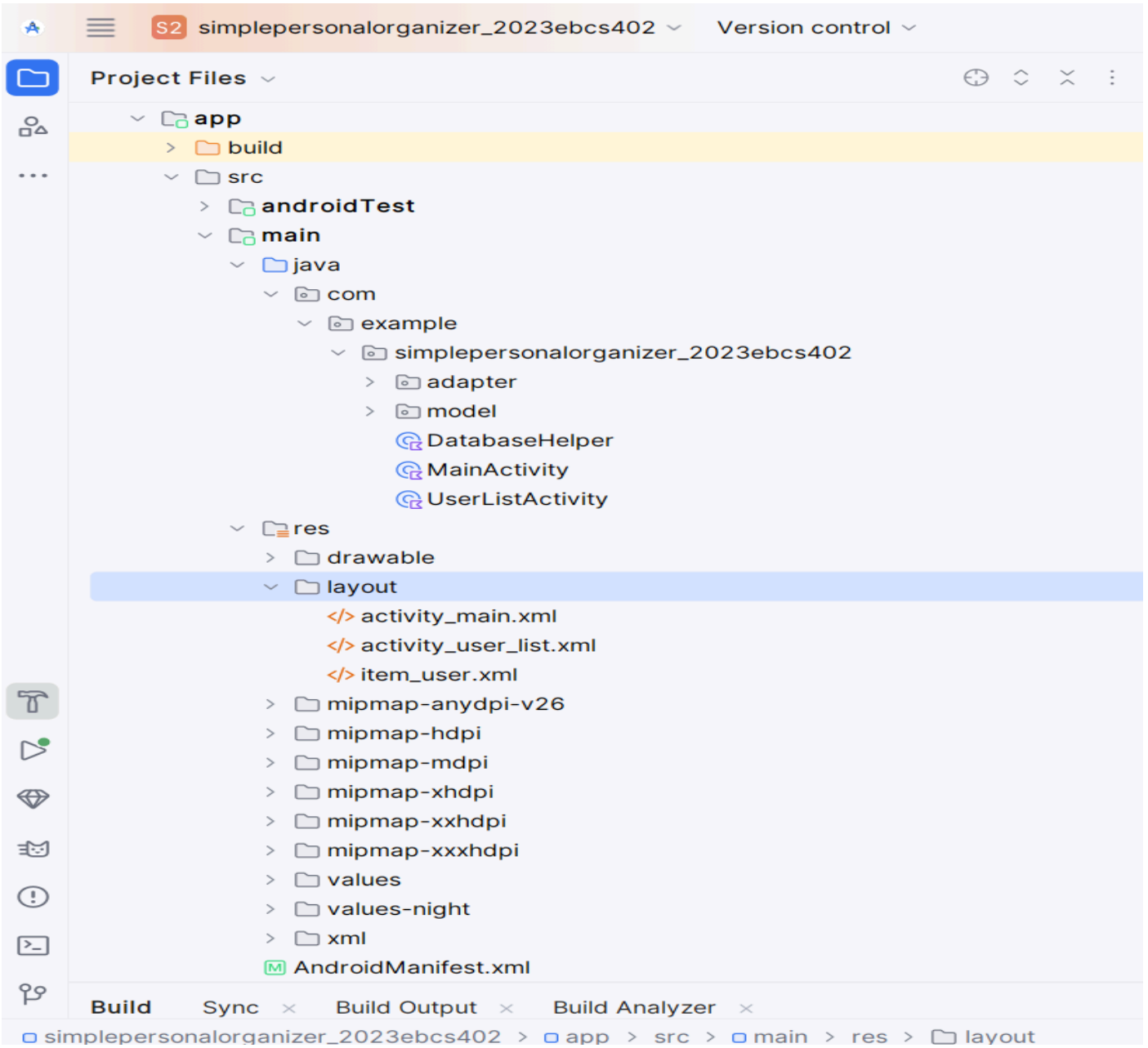
Q1) Solve:


New Project
Empty Views Activity
Creates a new empty activity
Name
simplePersonalOrganizer_2023EBCS402
Package name
com.example.simplepersonalorganizer_2023ebcs402
Save location
:\Users\HP\AndroidStudioProjects\simplePersonalOrganizer_2023EBCS402
Language
Kotlin
Minimum SDK
API 24 ("Nougat"; Android 7.0)
Your app will run on approximately 98.6% of devices.
Help me choose
Build configuration language
Kotlin DSL (build.gradle.kts) [Recommended]
The application name for most apps begins with an uppercase letter
Previous
Next
Cancel
Finish


simplepersonalorganizer_2023ebcs402
Version control
Project Files
app
build
src
androidTest
main
java
com
example
simplepersonalorganizer_2023ebcs402
adapter
model
DatabaseHelper
MainActivity
UserListActivity
res
drawable
layout
activity_main.xml
activity_user_list.xml
item_user.xml
mipmap-anydpi-v26
mipmap-hdpi
mipmap-mdpi
mipmap-xhdpi
mipmap-xxhdpi
mipmap-xxxhdpi
values
values-night
xml
AndroidManifest.xml
Build
Sync
Build Output
Build Analyzer
simplepersonalorganizer_2023ebcs402 > app > src > main > res > layout

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

    <application
        android:allowBackup="true"
        android:dataExtractionRules="@xml/data_extraction_rules"
        android:fullBackupContent="@xml/backup_rules"
        android:icon="@mipmap/ic_launcher"
        android:label="SimplePersonalOrganizer"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.SimplePersonalOrganizer_2023ebcs402"
        tools:targetApi="31">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

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

</manifest>
```

Build.gradle.kts //file

```
plugins {
    alias(libs.plugins.android.application)
    alias(libs.plugins.kotlin.android)
}

android {
    namespace = "com.example.simplepersonalorganizer_2023ebcs402"
    compileSdk = 35

    defaultConfig {
        applicationId = "com.example.simplepersonalorganizer_2023ebcs402"
        minSdk = 24
        targetSdk = 35
        versionCode = 1
        versionName = "1.0"

        testInstrumentationRunner = "androidx.test.runner.AndroidJUnitRunner"
    }

    buildTypes {
        release {
            isMinifyEnabled = false
            proguardFiles(
                getDefaultProguardFile("proguard-android-optimize.txt"),
                "proguard-rules.pro"
```

```
            )
        }
    }
    compileOptions {
        sourceCompatibility = JavaVersion.VERSION_11
        targetCompatibility = JavaVersion.VERSION_11
    }
    kotlinOptions {
        jvmTarget = "11"
    }
}

dependencies {

    implementation(libs.androidx.core.ktx)
    implementation(libs.androidx.appcompat)
    implementation(libs.material)
    implementation(libs.androidx.activity)
    implementation(libs.androidx.constraintlayout)
    testImplementation(libs.junit)
    androidTestImplementation(libs.androidx.junit)
    androidTestImplementation(libs.androidx.espresso.core)
}
```

Database Helper class code

```
package com.example.simplepersonalorganizer_2023ebcs402

import android.content.ContentValues
import android.content.Context
import android.database.sqlite.SQLiteDatabase
import android.database.sqlite.SQLiteOpenHelper
import com.example.simplepersonalorganizer_2023ebcs402.model.User

class DatabaseHelper(context: Context) :
    SQLiteOpenHelper(context, DATABASE_NAME, null, DATABASE_VERSION) {

    companion object {
        private const val DATABASE_NAME = "PersonalOrganizer.db"
        private const val DATABASE_VERSION = 1
        private const val TABLE_USERS = "Users"
        private const val COLUMN_ID = "id"
        private const val COLUMN_NAME = "name"
        private const val COLUMN_EMAIL = "email"
    }

    override fun onCreate(db: SQLiteDatabase) {
        val createTable = """
            CREATE TABLE $TABLE_USERS (
                $COLUMN_ID INTEGER PRIMARY KEY AUTOINCREMENT,
                $COLUMN_NAME TEXT,
                $COLUMN_EMAIL TEXT
            )
        """
        db.execSQL(createTable)
    }
```

```
    override fun onUpgrade(db: SQLiteDatabase, oldVersion: Int, newVersion:
Int) {
        db.execSQL("DROP TABLE IF EXISTS $TABLE_USERS")
        onCreate(db)
    }

    fun insertUser(name: String, email: String): Long {
        val db = writableDatabase
        val values = ContentValues()
        values.put(COLUMN_NAME, name)
        values.put(COLUMN_EMAIL, email)
        return db.insert(TABLE_USERS, null, values)
    }

    fun getUsersByName(name: String): List<User> {
        val userList = mutableListOf<User>()
        val db = readableDatabase
        val cursor = db.query(
            TABLE_USERS, null,
            "$COLUMN_NAME=?", arrayOf(name),
            null, null, null
        )

        if (cursor.moveToFirst()) {
            do {
                val id =
cursor.getInt(cursor.getColumnIndexOrThrow(COLUMN_ID))
                val userName =
cursor.getString(cursor.getColumnIndexOrThrow(COLUMN_NAME))
                val userEmail =
cursor.getString(cursor.getColumnIndexOrThrow(COLUMN_EMAIL))
                userList.add(User(id, userName, userEmail))
            } while (cursor.moveToNext())
        }

        cursor.close()
        return userList
    }
}
```

Question B: Design the Information Form

//activity_main.xml

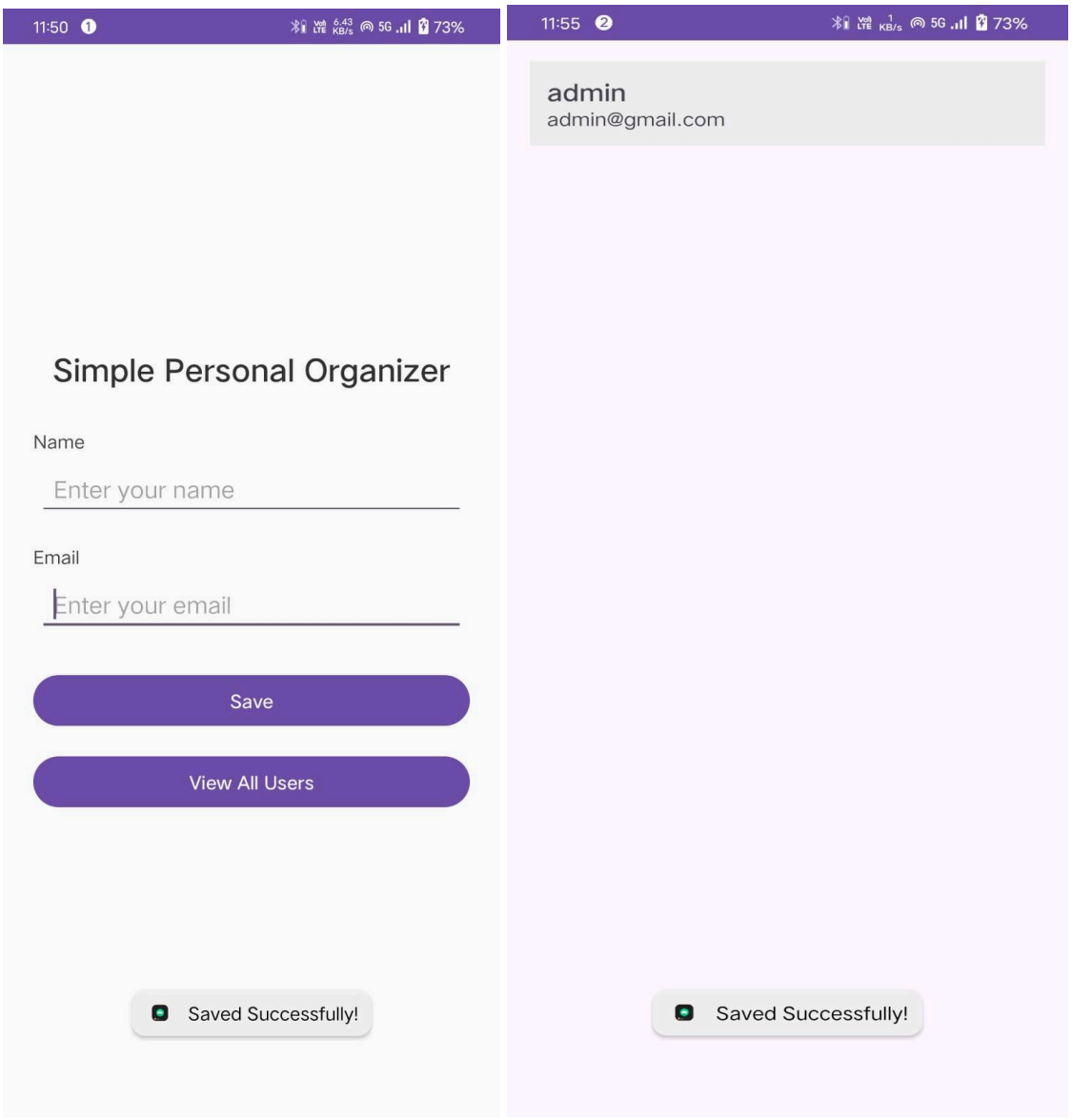
```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:gravity="center"
    android:orientation="vertical"
    android:padding="24dp"
    android:background="#FAFAFA">

    <TextView
        android:text="Simple Personal Organizer"
        android:textSize="24sp"
        android:textStyle="bold"
```

```
        android:textColor="#333333"
        android:layout_marginBottom="32dp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <TextView
        android:text="Name"
        android:textColor="#444444"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
    <EditText
        android:id="@+id/etName"
        android:hint="Enter your name"
        android:layout_width="match_parent"
        android:layout_height="48dp"
        android:minHeight="48dp"
        android:padding="12dp"
        android:layout_margin="4dp"
        />


    <TextView
        android:text="Email"
        android:textColor="#444444"
        android:layout_marginTop="16dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
    <EditText
        android:id="@+id/etEmail"
        android:hint="Enter your email"
        android:inputType="textEmailAddress"
        android:layout_width="match_parent"
        android:layout_height="48dp"
        android:minHeight="48dp"
        android:padding="12dp"
        android:layout_margin="4dp"/>

    <Button
        android:id="@+id/btnSave"
        android:text="Save"
        android:layout_marginTop="24dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/btnViewUsers"
        android:text="View All Users"
        android:layout_marginTop="16dp"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />

</LinearLayout>
```

//MainActivity.kt

```
package com.example.simplepersonalorganizer_2023ebcs402

import android.content.Intent
import android.os.Bundle
import android.util.Patterns
import android.widget.*
```

```
import androidx.appcompat.app.AppCompatActivity

class MainActivity : AppCompatActivity() {

   private lateinit var db: DatabaseHelper

   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       setContentView(R.layout.activity_main)

       db = DatabaseHelper(this)

       val etName = findViewById<EditText>(R.id.etName)
       val etEmail = findViewById<EditText>(R.id.etEmail)
       val btnSave = findViewById<Button>(R.id.btnSave)
       val btnViewUsers = findViewById<Button>(R.id.btnViewUsers)

       btnSave.setOnClickListener {
           val name = etName.text.toString().trim()
           val email = etEmail.text.toString().trim()

           // Validate name and email
           if (name.isEmpty() || email.isEmpty()) {
               Toast.makeText(this, "Please fill all fields", Toast.LENGTH_SHORT).show()
               return@setOnClickListener
           }

           // Validate email format
           if (!Patterns.EMAIL_ADDRESS.matcher(email).matches()) {
               Toast.makeText(this, "Please enter a valid email",
Toast.LENGTH_SHORT).show()
               return@setOnClickListener
           }

           // Insert validated user
           val result = db.insertUser(name, email)
           if (result != -1L) {
               Toast.makeText(this, "Saved Successfully!", Toast.LENGTH_SHORT).show()
               etName.text.clear()
               etEmail.text.clear()
           } else {
               Toast.makeText(this, "Error saving user", Toast.LENGTH_SHORT).show()
           }
       }

       btnViewUsers.setOnClickListener {
           startActivity(Intent(this, UserListActivity::class.java))
       }
   }
}
```



Question C: Implement Navigation and Data Retrieval

```
//UserActivityList.kt
package com.example.simplepersonalorganizer_2023ebcs402

import android.os.Bundle
import androidx.appcompat.app.AppCompatActivity
import androidx.recyclerview.widget.LinearLayoutManager
import androidx.recyclerview.widget.RecyclerView
import com.example.simplepersonalorganizer_2023ebcs402.adapter.UserAdapter

class UserListActivity : AppCompatActivity() {
   private lateinit var db: DatabaseHelper
   private lateinit var recyclerView: RecyclerView

   override fun onCreate(savedInstanceState: Bundle?) {
       super.onCreate(savedInstanceState)
       setContentView(R.layout.activity_user_list)

       db = DatabaseHelper(this)
       recyclerView = findViewById(R.id.recyclerViewUsers)
       recyclerView.layoutManager = LinearLayoutManager(this)

       val userList = db.getUsersByName("admin")
       recyclerView.adapter = UserAdapter(userList)
   }
```

```
}
//UserAdapter.kt
package com.example.simplepersonalorganizer_2023ebcs402.adapter

import android.view.LayoutInflater
import android.view.View
import android.view.ViewGroup
import android.widget.TextView
import androidx.recyclerview.widget.RecyclerView
import com.example.simplepersonalorganizer_2023ebcs402.R
import com.example.simplepersonalorganizer_2023ebcs402.model.User

class UserAdapter(private val userList: List<User>) :
    RecyclerView.Adapter<UserAdapter.UserViewHolder>() {

    inner class UserViewHolder(view: View) : RecyclerView.ViewHolder(view) {
        val tvName: TextView = view.findViewById(R.id.tvUserName)
        val tvEmail: TextView = view.findViewById(R.id.tvUserEmail)
    }

    override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): UserViewHolder {
        val itemView = LayoutInflater.from(parent.context)
            .inflate(R.layout.item_user, parent, false)
        return UserViewHolder(itemView)
    }

    override fun onBindViewHolder(holder: UserViewHolder, position: Int) {
        val user = userList[position]
        holder.tvName.text = user.name
        holder.tvEmail.text = user.email
    }

    override fun getItemCount(): Int = userList.size
}
//model/User.kt
package com.example.simplepersonalorganizer_2023ebcs402.model

data class User(
    val id: Int,
    val name: String,
    val email: String
)
//activity_user_list.xml
<?xml version="1.0" encoding="utf-8"?>
<androidx.recyclerview.widget.RecyclerView
xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/recyclerViewUsers"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:padding="16dp"/>
//item_user.xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:padding="12dp"
    android:orientation="vertical"
    android:background="#EEEEEE"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginBottom="12dp">
```

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

    <TextView
        android:id="@+id/tvUserEmail"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"/>
</LinearLayout>
```