**RecyclerView (Efficient List Rendering)**

RecyclerView is the most efficient way to display lists in Android. It **reuses views** to improve performance and handle large datasets smoothly.

**Steps to Use RecyclerView**

✅ **Step 1:** Add RecyclerView dependency in build.gradle:

dependencies {

implementation 'androidx.recyclerview:recyclerview:1.3.2'

}

✅ **Step 2:** Create the XML layout for RecyclerView

<!-- res/layout/activity\_main.xml -->

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

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"

android:orientation="vertical">

<androidx.recyclerview.widget.RecyclerView

android:id="@+id/recyclerView"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"/>

</LinearLayout>

✅ **Step 3:** Create a data model class

data class User(val name: String, val age: Int)

✅ **Step 4:** Create a layout for each item in RecyclerView

<!-- res/layout/item\_user.xml -->

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

android:layout\_width="match\_parent"

android:layout\_height="wrap\_content"

android:padding="16dp"

android:orientation="vertical">

<TextView

android:id="@+id/textName"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textSize="18sp"

android:textStyle="bold"/>

<TextView

android:id="@+id/textAge"

android:layout\_width="wrap\_content"

android:layout\_height="wrap\_content"

android:textSize="16sp"/>

</LinearLayout>

✅ **Step 5:** Create an Adapter for RecyclerView

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

class UserViewHolder(itemView: View) : RecyclerView.ViewHolder(itemView) {

val textName: TextView = itemView.findViewById(R.id.textName)

val textAge: TextView = itemView.findViewById(R.id.textAge)

}

override fun onCreateViewHolder(parent: ViewGroup, viewType: Int): UserViewHolder {

val view = LayoutInflater.from(parent.context).inflate(R.layout.item\_user, parent, false)

return UserViewHolder(view)

}

override fun onBindViewHolder(holder: UserViewHolder, position: Int) {

val user = userList[position]

holder.textName.text = user.name

holder.textAge.text = "Age: ${user.age}"

}

override fun getItemCount(): Int = userList.size

}

✅ **Step 6:** Set up RecyclerView in the Activity

class MainActivity : AppCompatActivity() {

private lateinit var recyclerView: RecyclerView

private lateinit var adapter: UserAdapter

override fun onCreate(savedInstanceState: Bundle?) {

super.onCreate(savedInstanceState)

setContentView(R.layout.activity\_main)

recyclerView = findViewById(R.id.recyclerView)

recyclerView.layoutManager = LinearLayoutManager(this)

val userList = listOf(

User("Alex", 23),

User("Daniel", 25),

User("Emma", 28)

)

adapter = UserAdapter(userList)

recyclerView.adapter = adapter

}

}

📌 **Now the RecyclerView displays a list of users efficiently!** 🚀